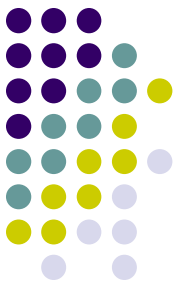


Pathwatching



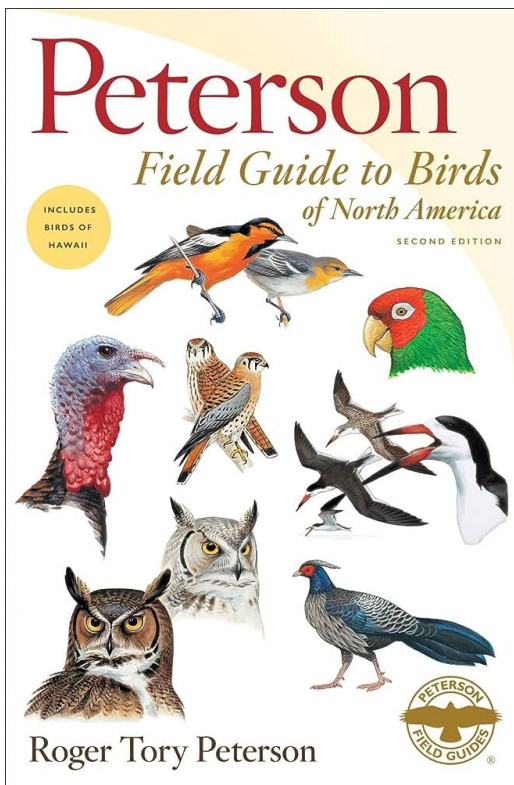
Note: This slide-set is **Enormous**—way too much to be fruitfully consumed in a single sesh. That said, it contains numerous natural breaks (ie, section headers), so take advantage of these when you need to. (There's one long stretch without a natural break, so I put a *Break Time* slide within it.)

Pathwatching

Many ophthalmologists dread the prospect of interpreting path slides. *<raises hand>* In this slide-set we will simplify path identification by borrowing from the concept of the *birdwatching field guide*—reference books that facilitate bird identification by pointing out key characteristics ('field marks') for each species. **We will endeavor to do the same for common ophthalmic pathology.**

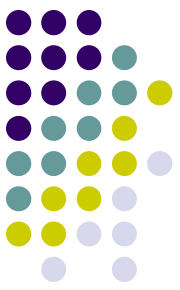


Roger Tory Peterson (1908-1996), creator of the first birding field guide (bottom; top is a Northern Mockingbird)



A page from Peterson's field guide; the lines point to field marks (which are discussed in text on facing pages)

Pathwatching



- When you encounter a photomicrograph of the **angle**, be on the lookout for:

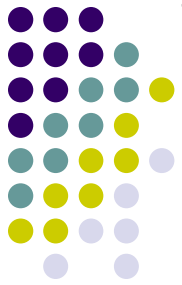
- ?

- ?

- ?

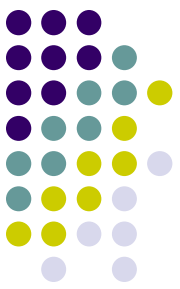
*Three types of angle issues
(not specific conditions)*

Pathwatching



The AC Angle

Pathwatching



- When you encounter a photomicrograph of the **angle**, be on the lookout for:

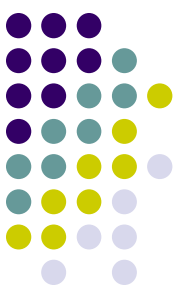
- Traumatic changes

- Dysgeneses

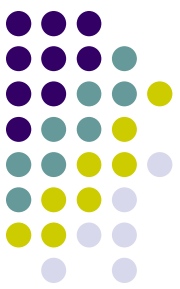
- Cell clogging the TM

*Three types of angle issues
(not specific conditions)*

Pathwatching



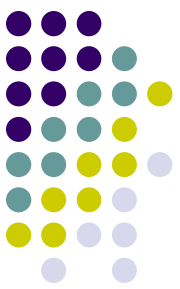
- When you encounter a photomicrograph of the **angle**, be on the lookout for:
 - Traumatic changes
 - ?
 - ?
 - Dysgeneses
 - Cell clogging the TM
- Two well-known post-traumatic angle issues*



- When you encounter a photomicrograph of the **angle**, be on the lookout for:
 - Traumatic changes
 - Cyclodialysis
 - Angle recession

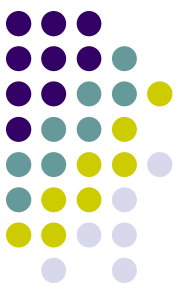
Two well-known post-traumatic angle issues
 - Dysgeneses
- Cell clogging the TM

Pathwatching



- When you encounter a photomicrograph of the **angle**, be on the lookout for:
 - Traumatic changes
 - Cyclodialysis
 - Angle recession
 - Dysgeneses
 - ?
 - ?

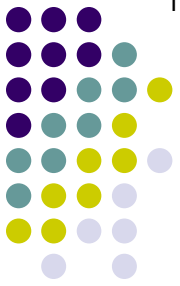
} *Two well-known dysgeneses*
 - Cell clogging the TM



- When you encounter a photomicrograph of the **angle**, be on the lookout for:
 - Traumatic changes
 - Cyclodialysis
 - Angle recession
 - Dysgeneses
 - Peters anomaly
 - Axenfeld-Rieger

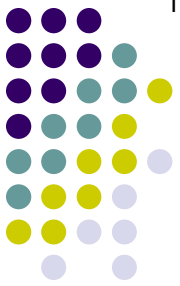
Two well-known dysgeneses
 - Cell clogging the TM

Pathwatching



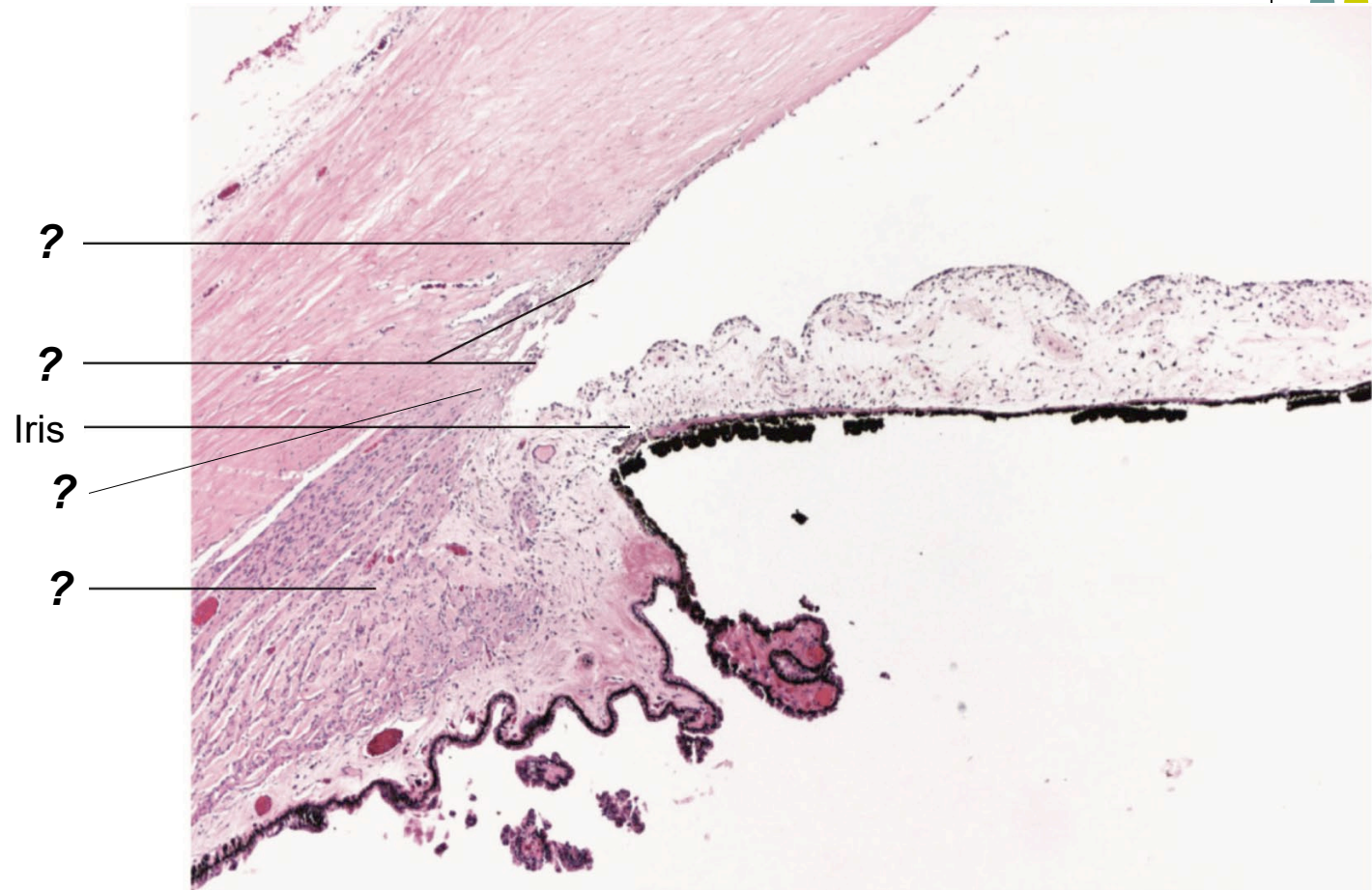
- When you encounter a photomicrograph of the **angle**, be on the lookout for:
 - Traumatic changes
 - Cyclodialysis
 - Angle recession
 - Dysgeneses
 - Peters anomaly
 - Axenfeld-Rieger
 - Cell clogging the TM
 - ?
 - ?
- } *Two cell types notorious for clogging the TM*

Pathwatching



- When you encounter a photomicrograph of the **angle**, be on the lookout for:
 - Traumatic changes
 - Cyclodialysis
 - Angle recession
 - Dysgeneses
 - Peters anomaly
 - Axenfeld-Rieger
 - Cell clogging the TM
 - RBCs
 - Macrophages
- Two cell types notorious for clogging the TM*

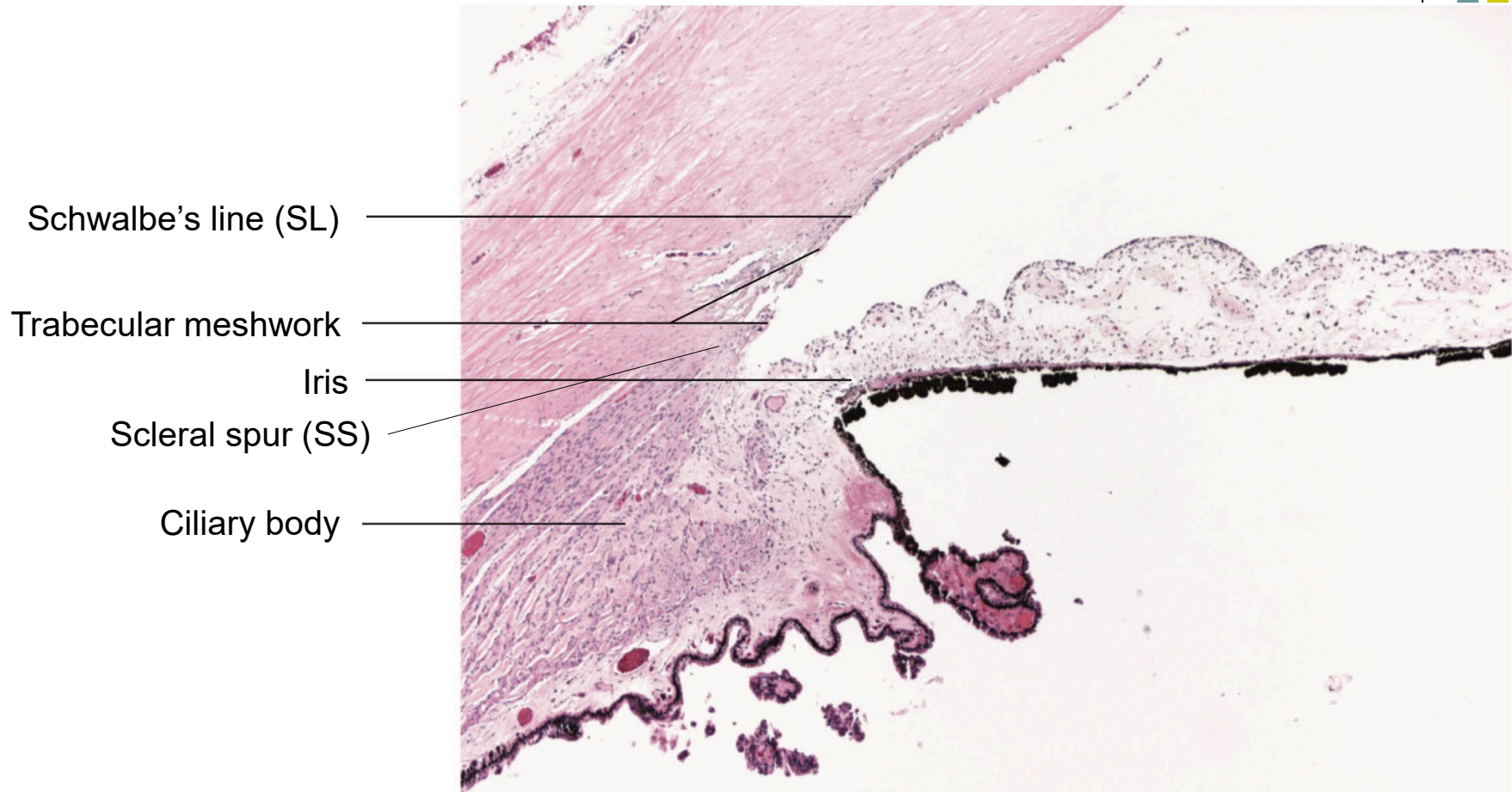
Pathwatching



Question

*These are the key angle landmarks—name them.
(I assume you've got the iris on lock already.)*

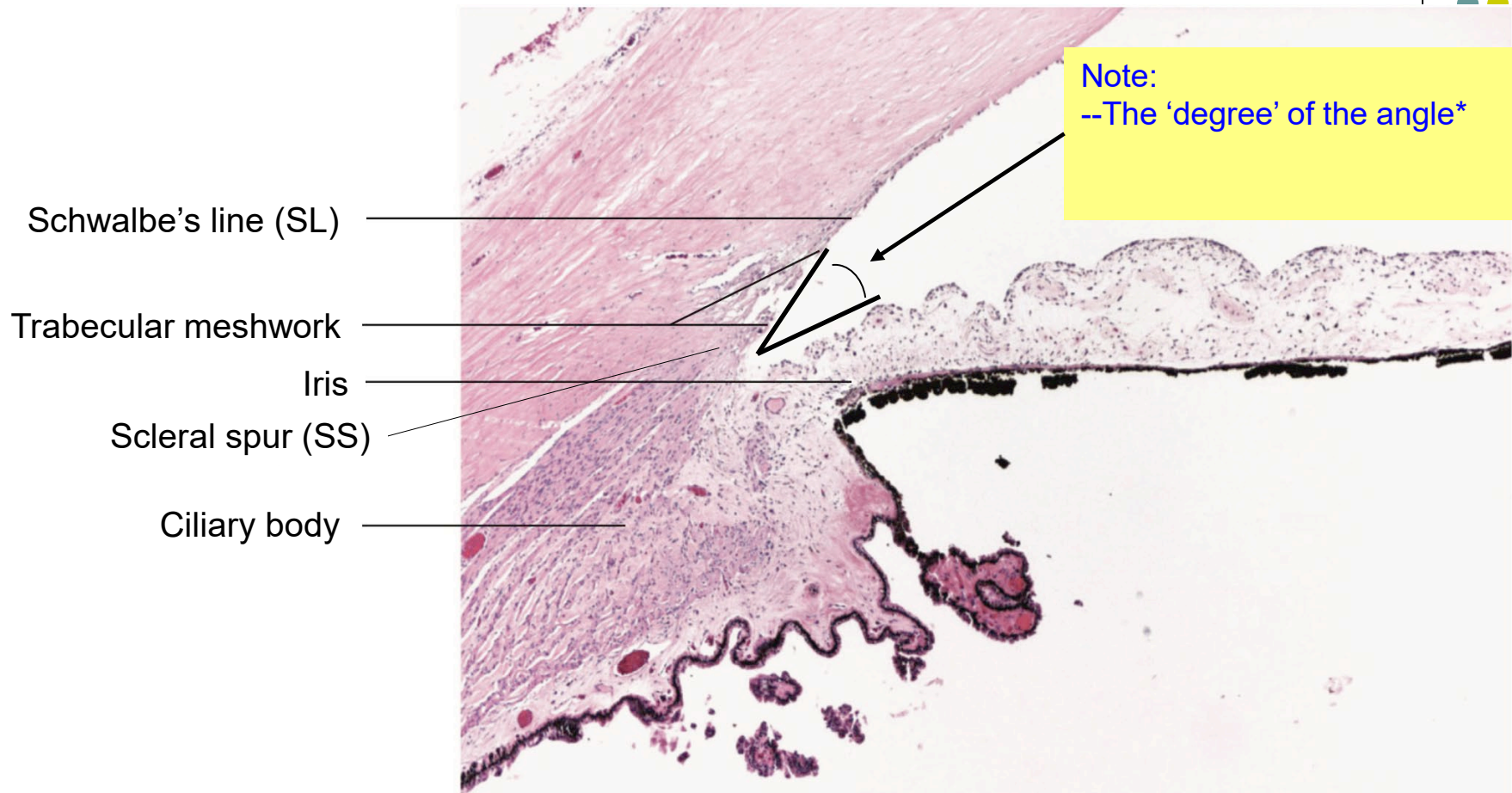
Pathwatching



Question

*These are the key angle landmarks—name them.
(I assume you've got the iris on lock already.)*

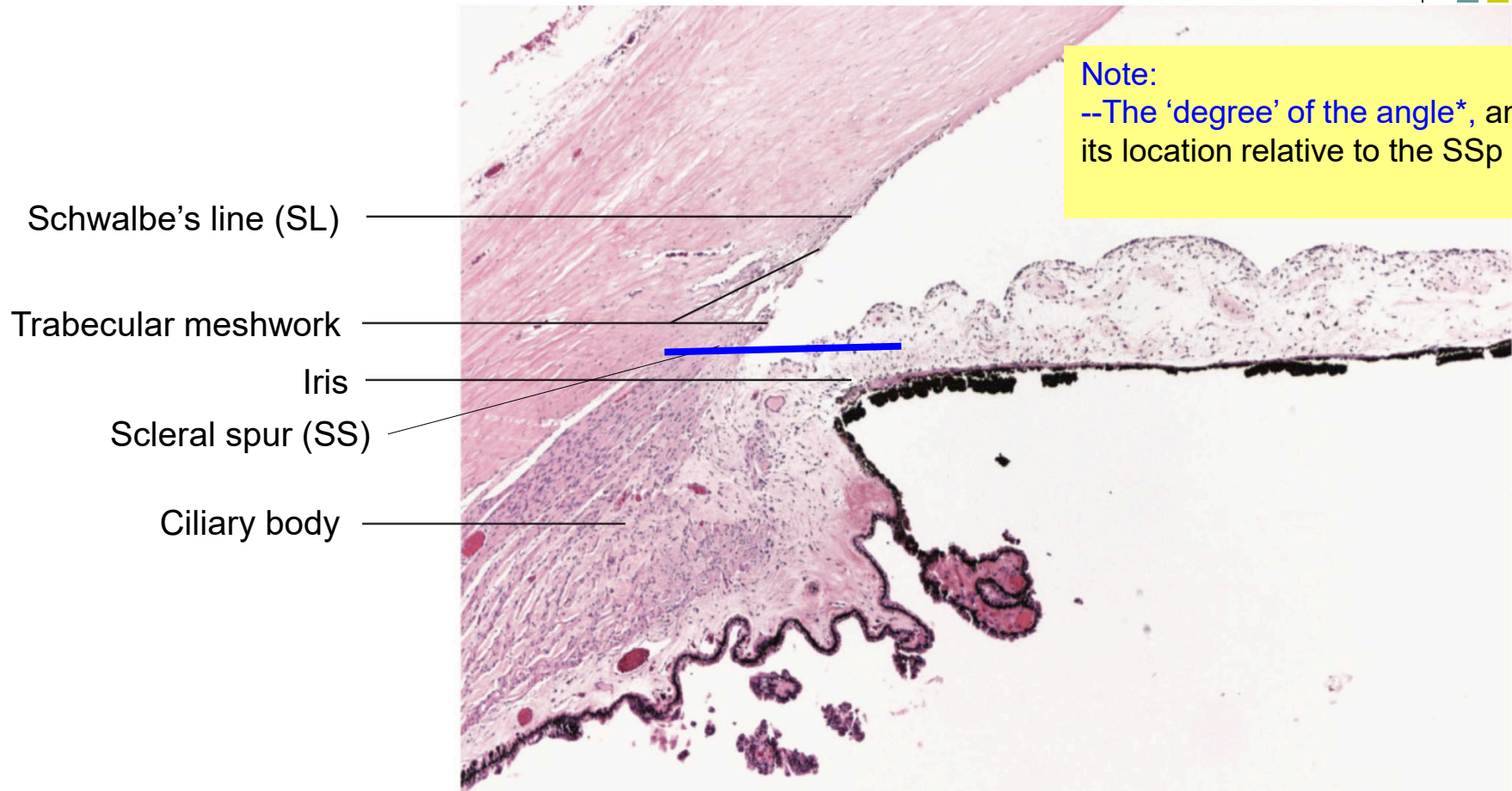
Pathwatching



*These are the key angle landmarks—name them.
(I assume you've got the iris on lock already.)*

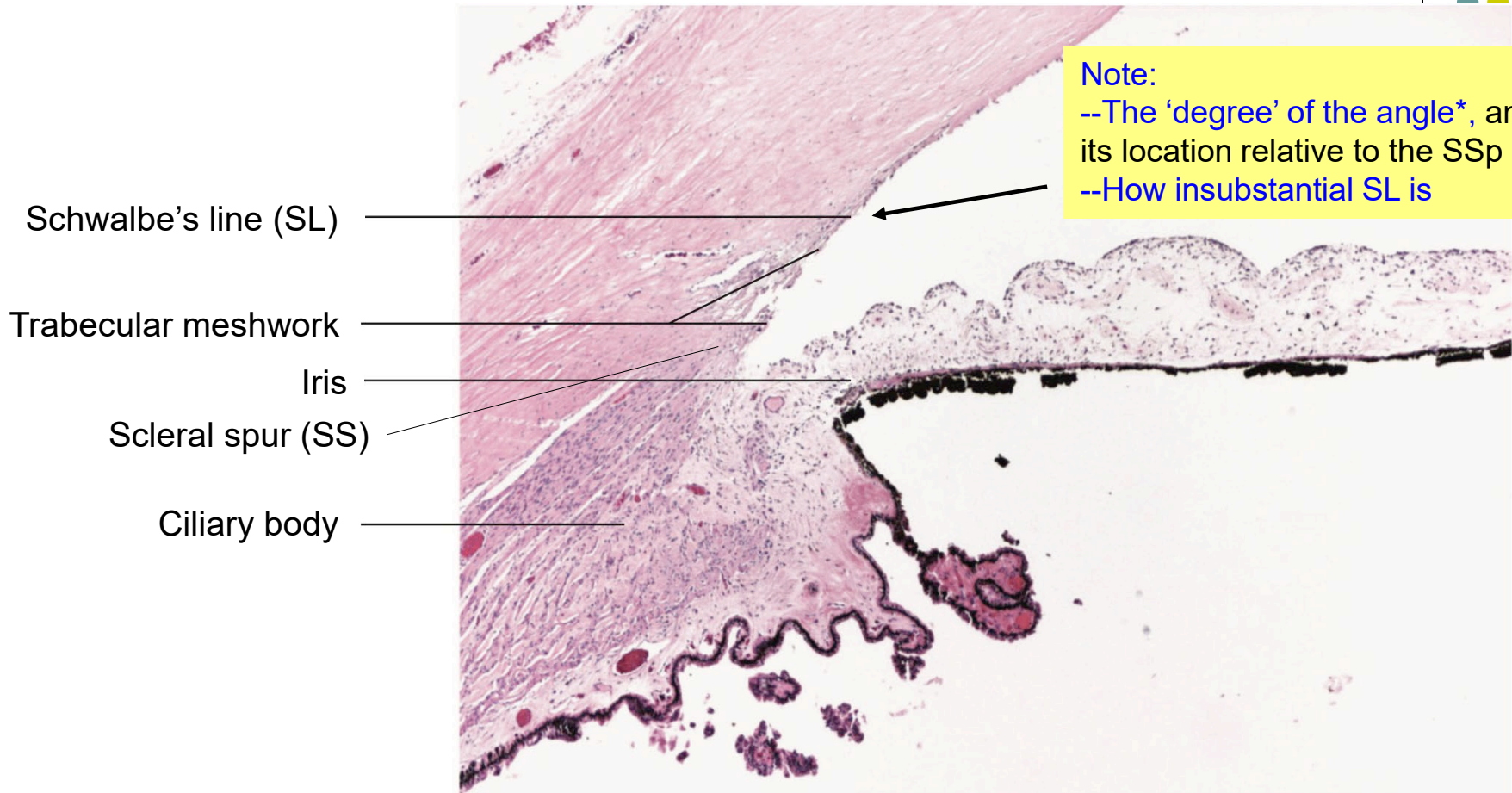
*Bearing in mind there is considerable anatomic variability in the degree of the normal angle

Pathwatching



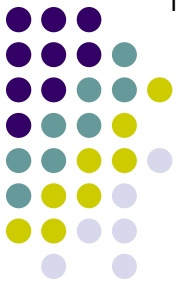
*These are the key angle landmarks—name them.
(I assume you've got the iris on lock already.)*

Pathwatching



*These are the key angle landmarks—name them.
 (I assume you've got the iris on lock already.)*

Pathwatching

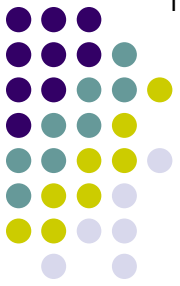


This angle looks wonky for several reasons:

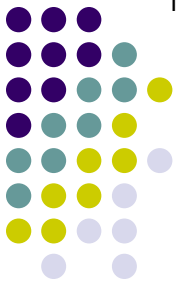
--?

--?

Pathwatching



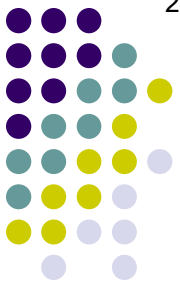
This angle looks wonky for several reasons:
--Its 'degree' seems much too **large vs small**
--?



Pathwatching



This angle looks wonky for several reasons:
--Its 'degree' seems much too large
--?



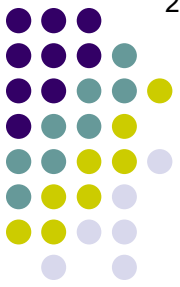
Pathwatching



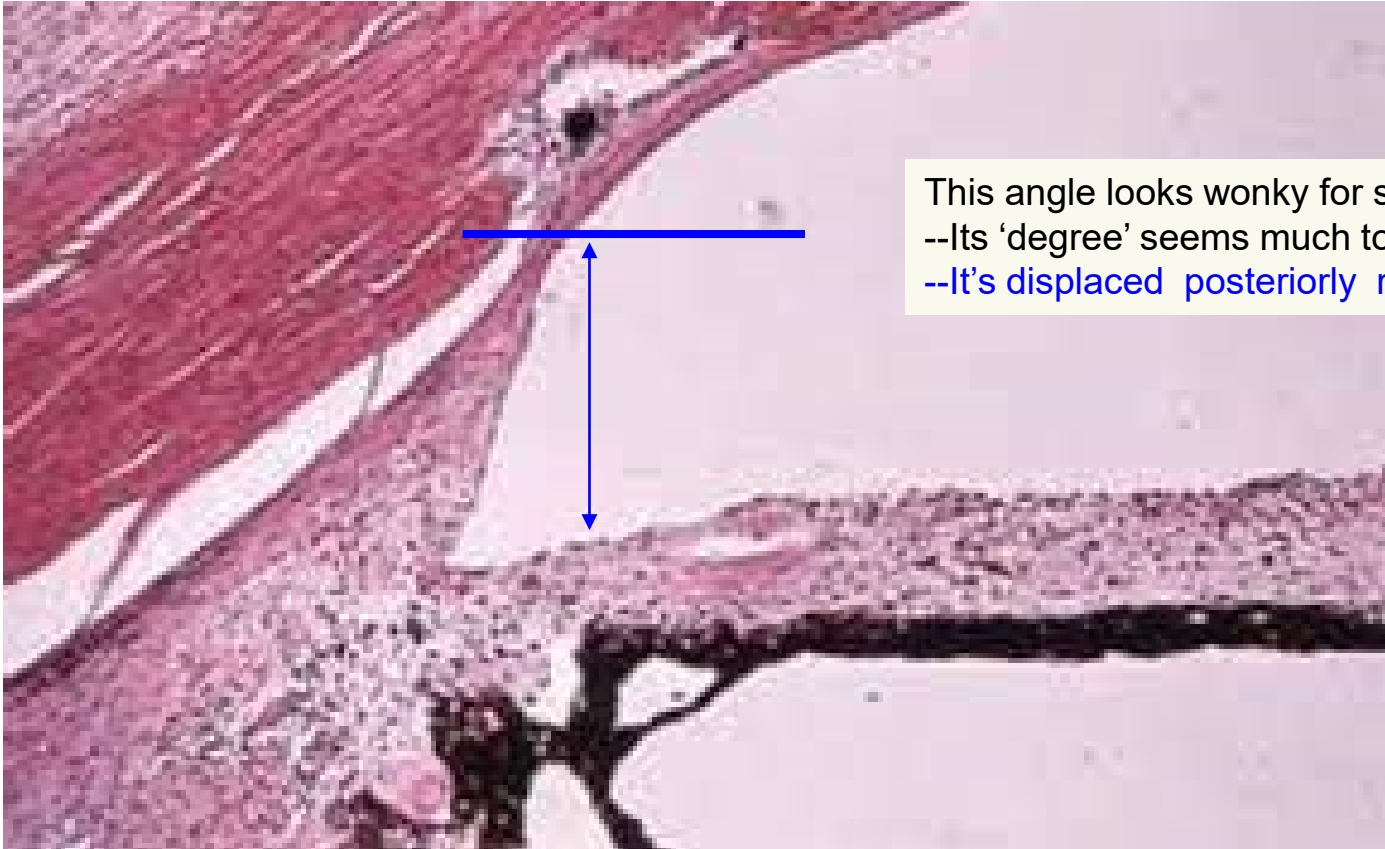
This angle looks wonky for several reasons:

--Its 'degree' seems much too large

--It's displaced anterior vs posterior relative to the SS

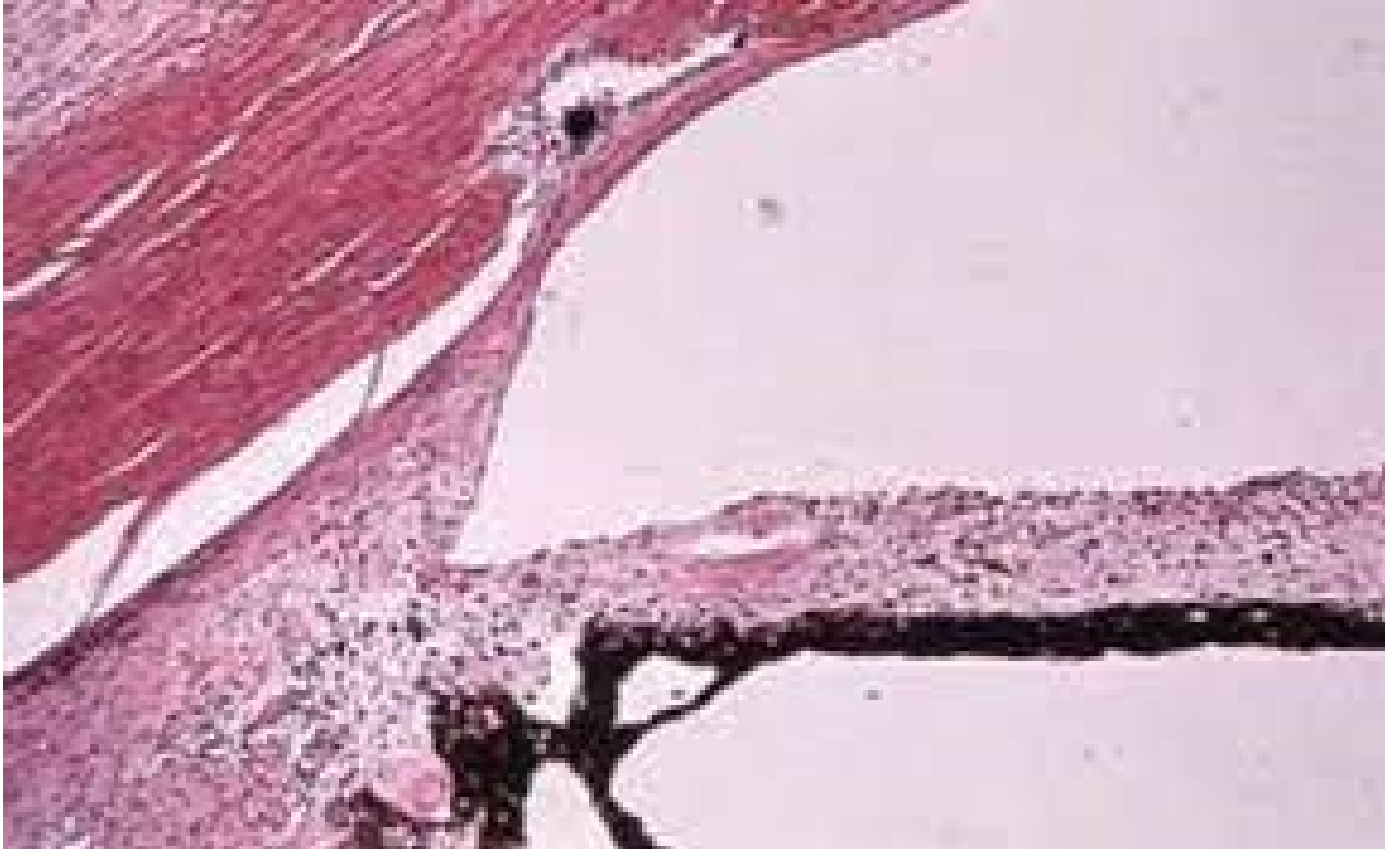
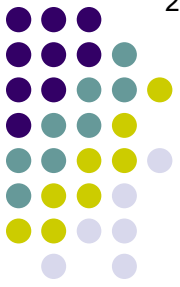


Pathwatching



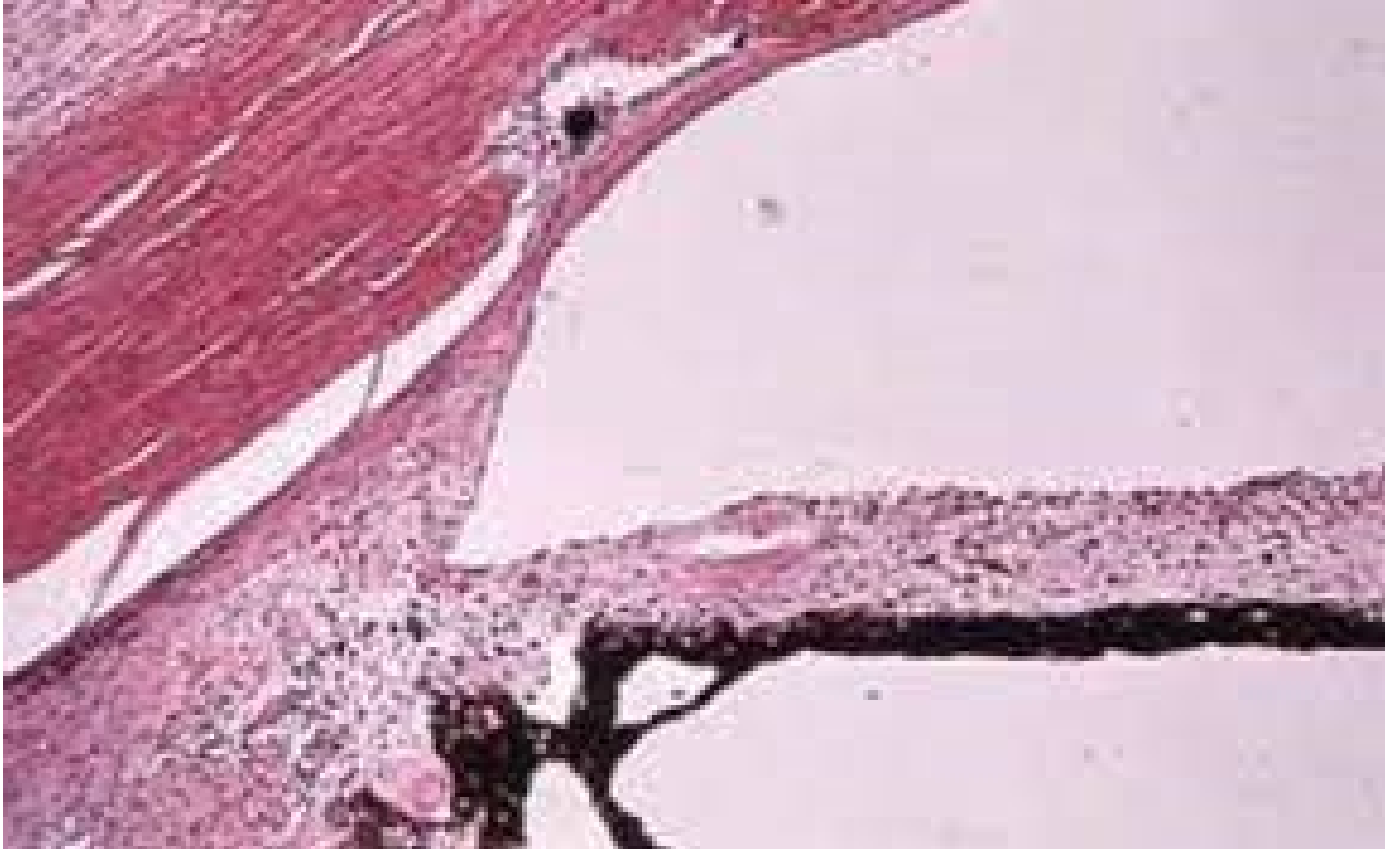
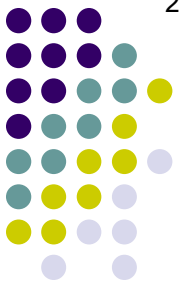
This angle looks wonky for several reasons:
--Its 'degree' seems much too large
--It's displaced posteriorly relative to the SS

Pathwatching



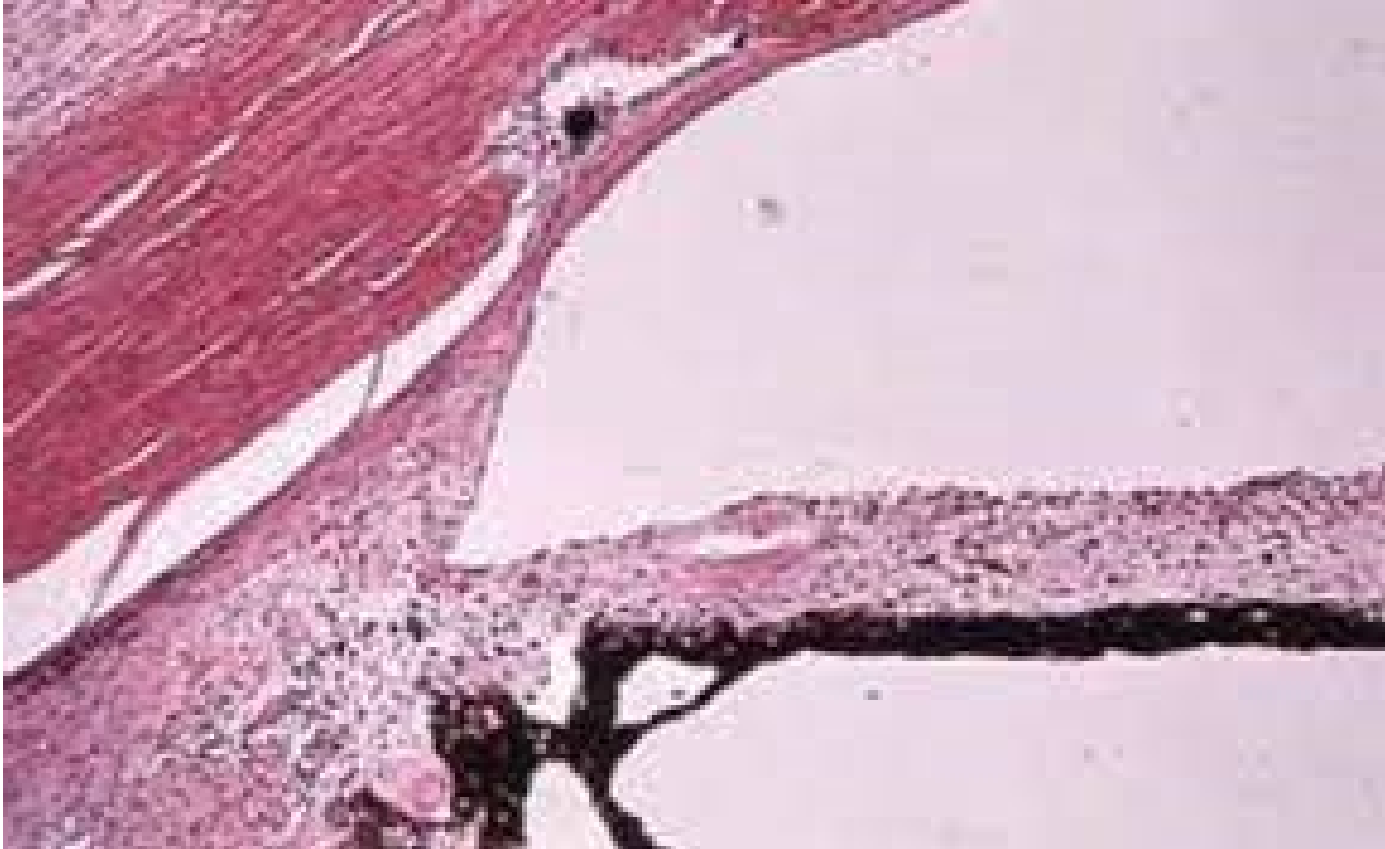
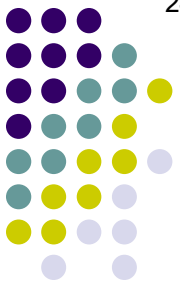
What's the diagnosis?

Pathwatching

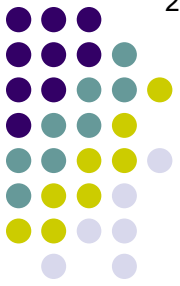


Angle recession. Blunt trauma has torn the structure

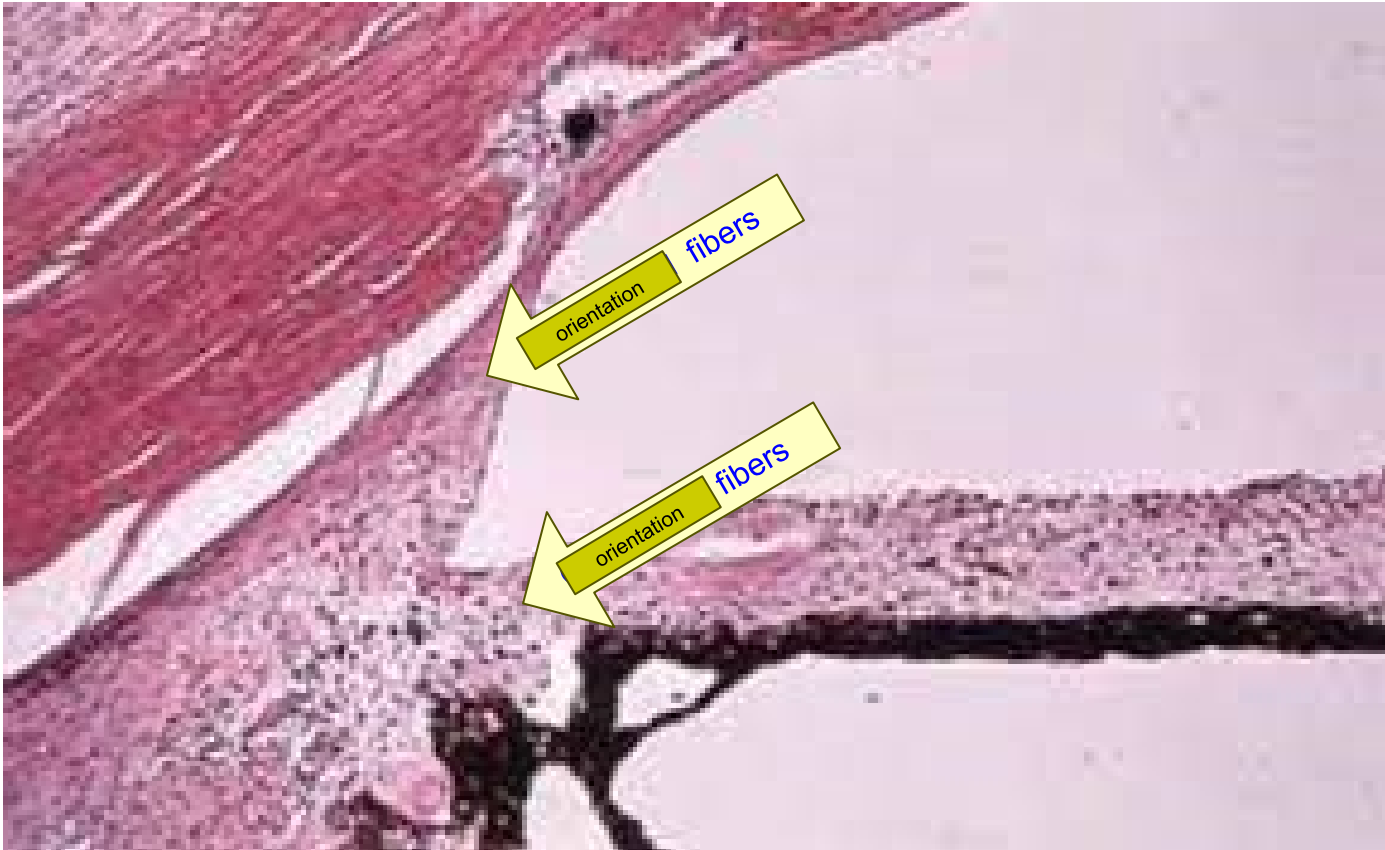
Pathwatching



Angle recession. Blunt trauma has torn the ciliary body (CB)



Pathwatching



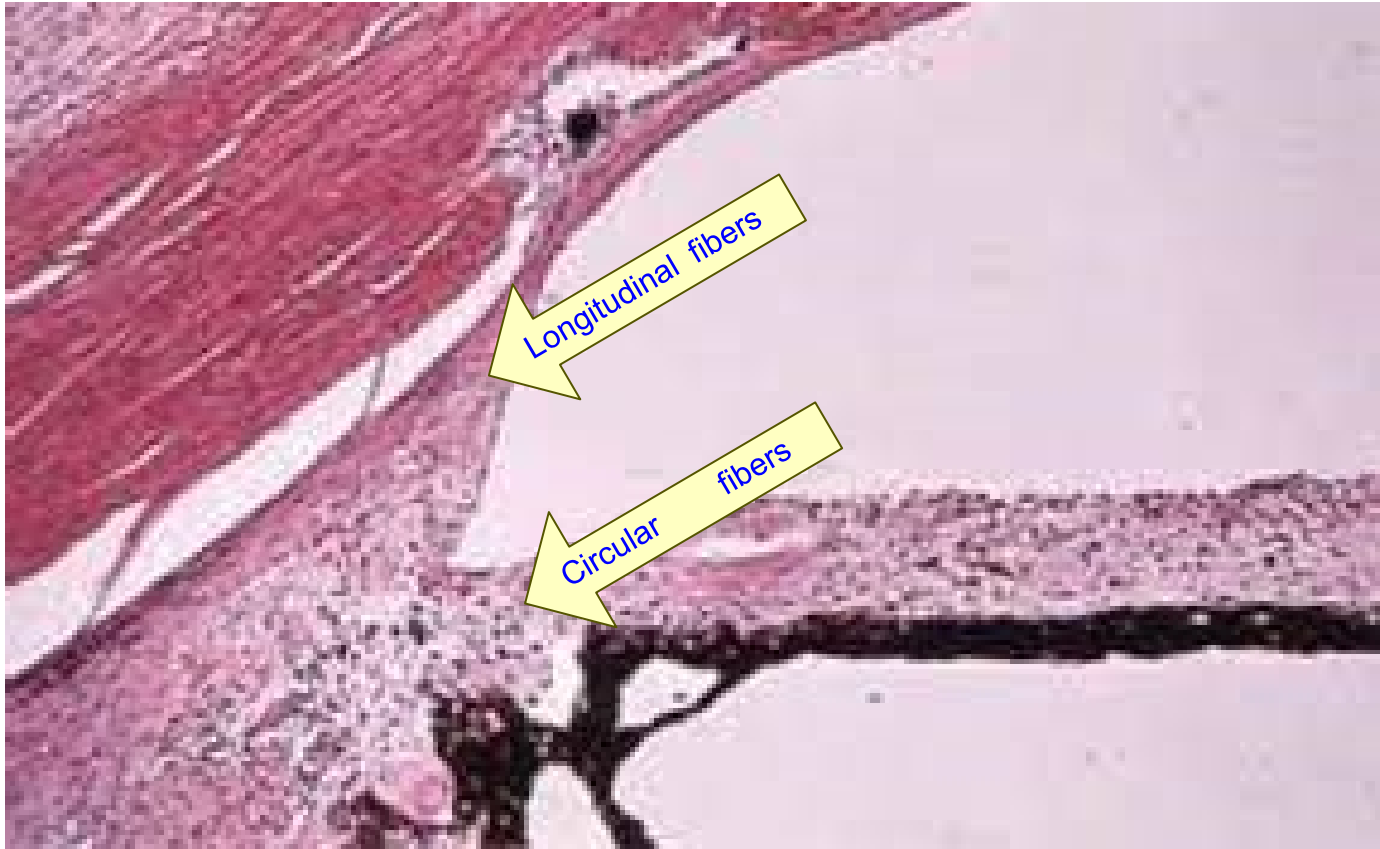
Angle recession. Blunt trauma has torn the ciliary body (CB) , tearing its fibers away from its fibers.

orientation

orientation

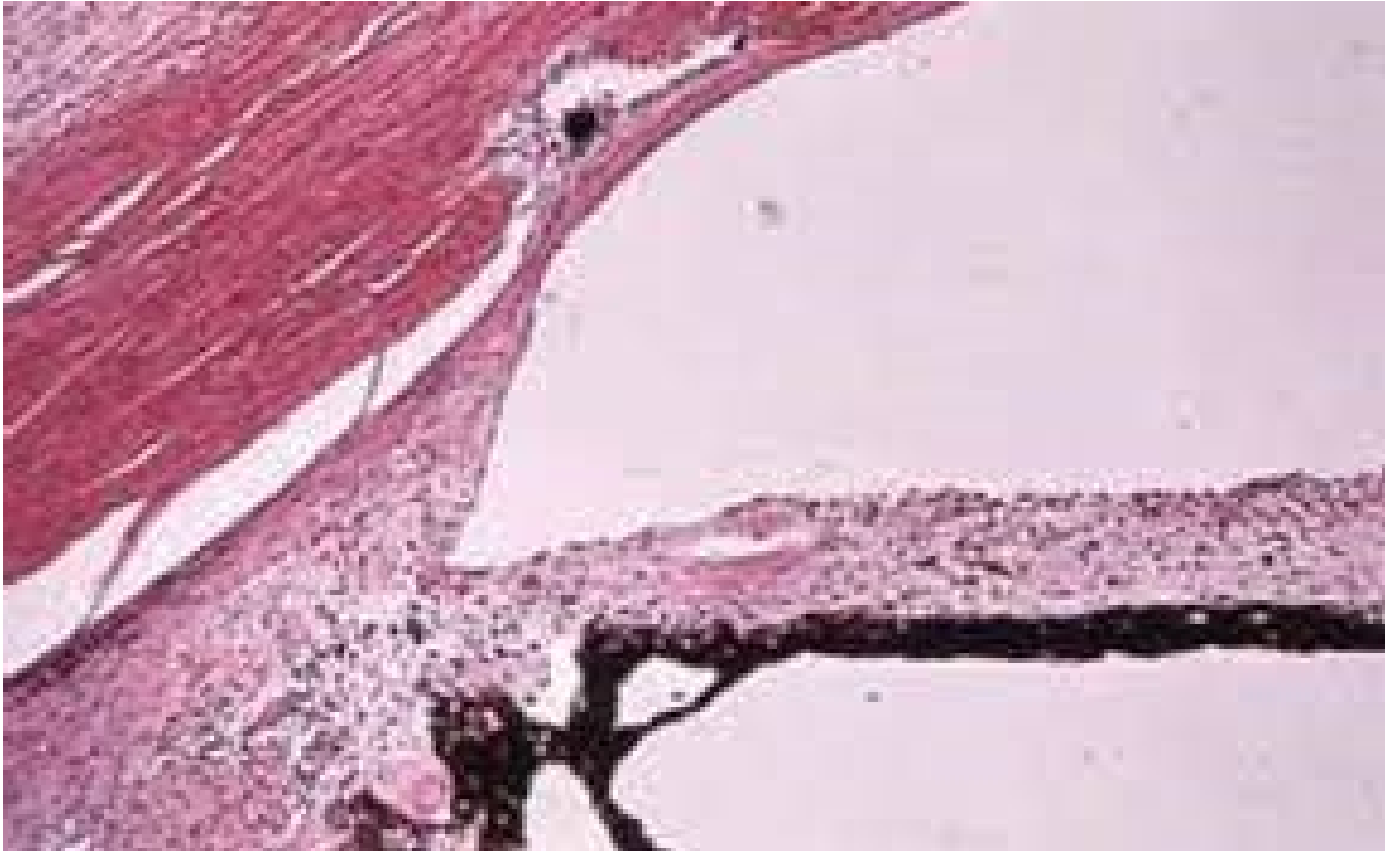


Pathwatching



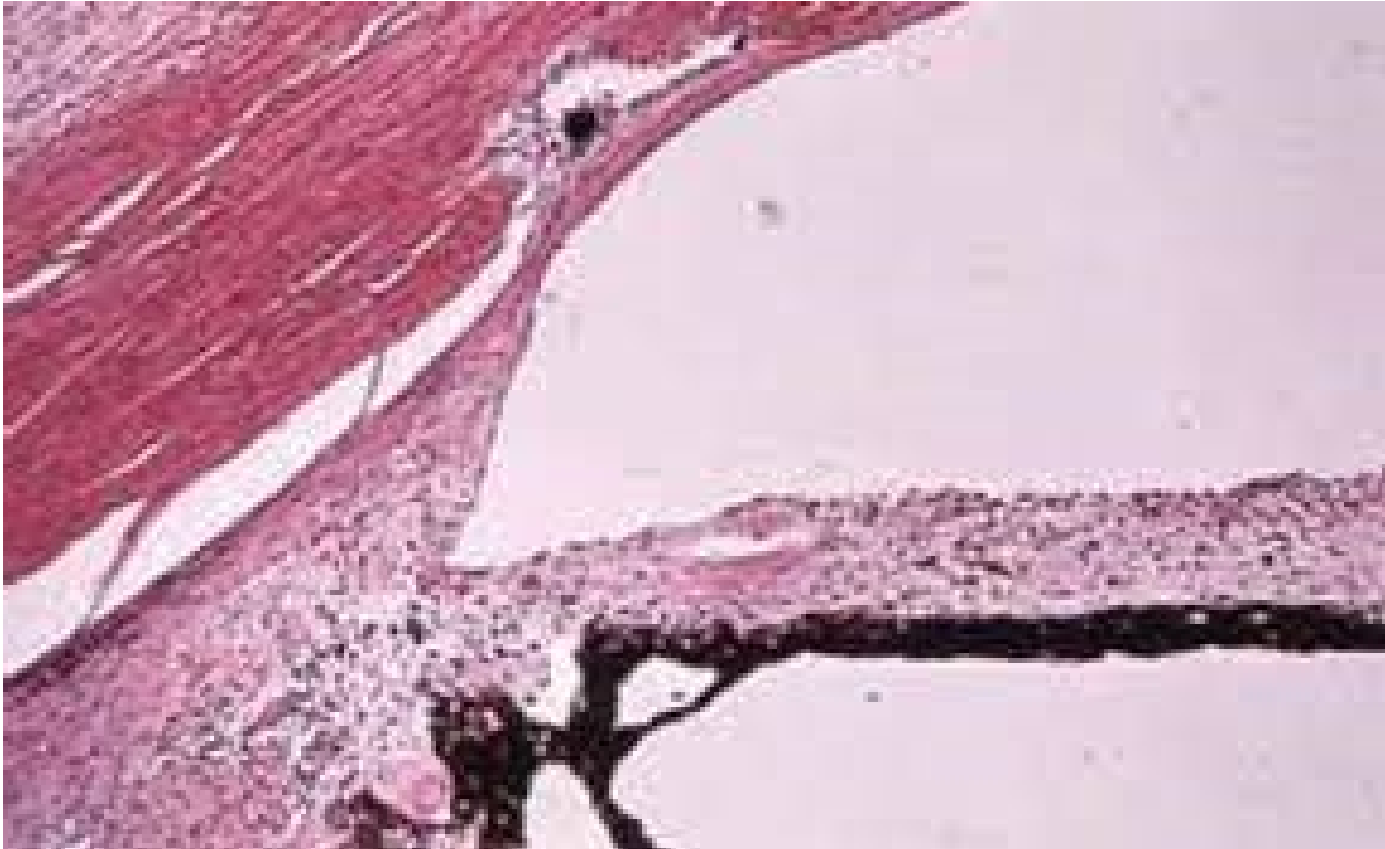
Angle recession. Blunt trauma has torn the ciliary body (CB) , tearing its longitudinal fibers away from its circular fibers.

Pathwatching

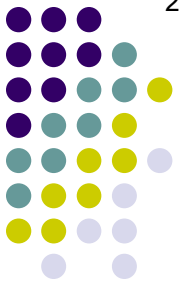


Angle recession. Blunt trauma has torn the ciliary body (CB) , tearing its longitudinal fibers away from its circular fibers. Such pts are at high risk for developing [redacted]

Pathwatching



Angle recession. Blunt trauma has torn the ciliary body (CB) , **tearing its longitudinal fibers away from its circular fibers.** Such pts are at high risk for developing glaucoma

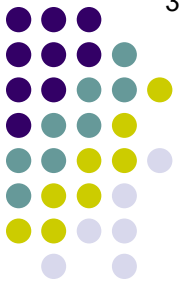


Pathwatching



Note: This may look wonky, but it's not—it's the circular fibers maintaining their normal attachment to the abb.

Angle recession. Blunt trauma has torn the ciliary body (CB) , **tearing its longitudinal fibers away from its circular fibers.** Such pts are at high risk for developing glaucoma



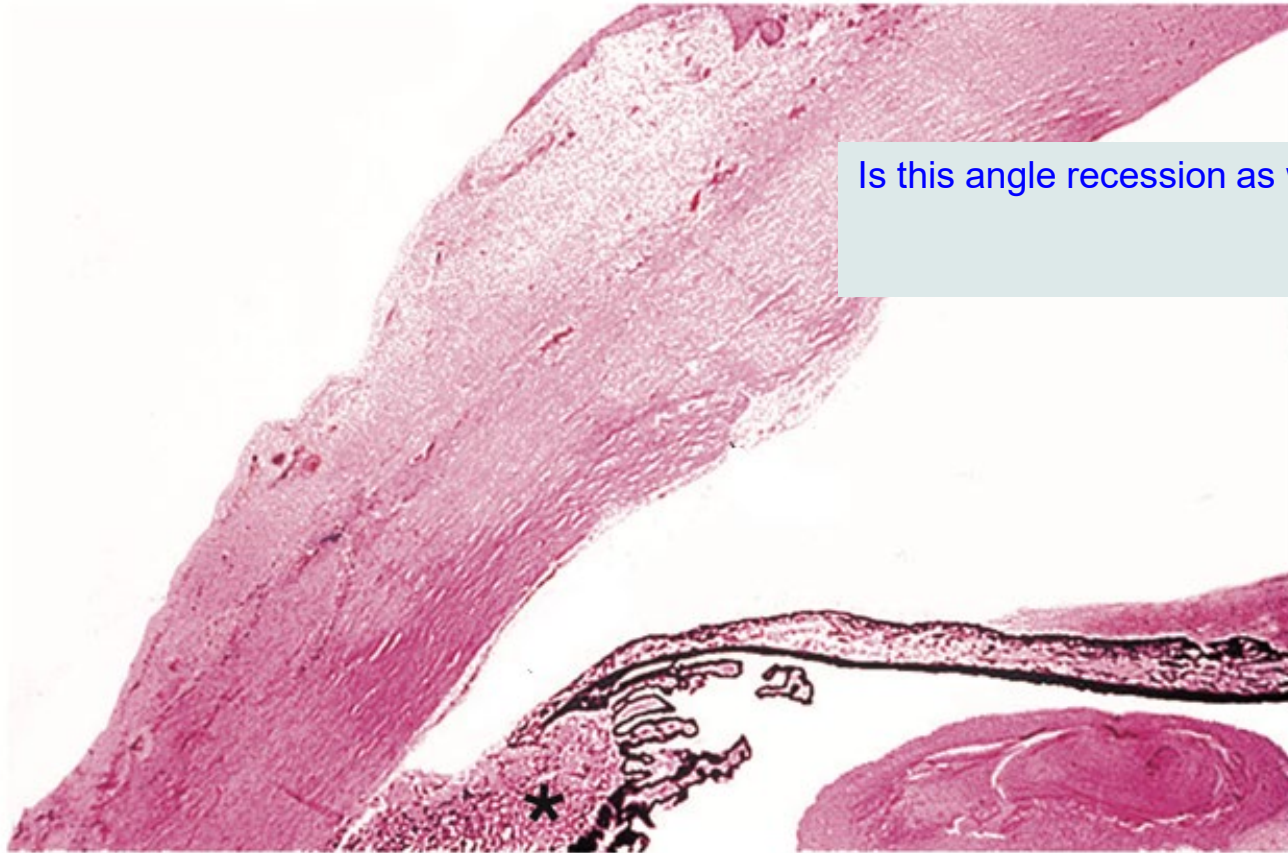
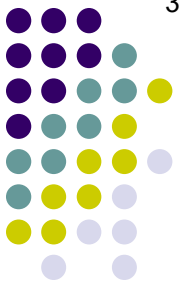
Pathwatching



Note: This may look wonky, but it's not—it's the circular fibers maintaining their normal attachment to the SSp

Angle recession. Blunt trauma has torn the ciliary body (CB) , **tearing its longitudinal fibers away from its circular fibers.** Such pts are at high risk for developing glaucoma

Pathwatching

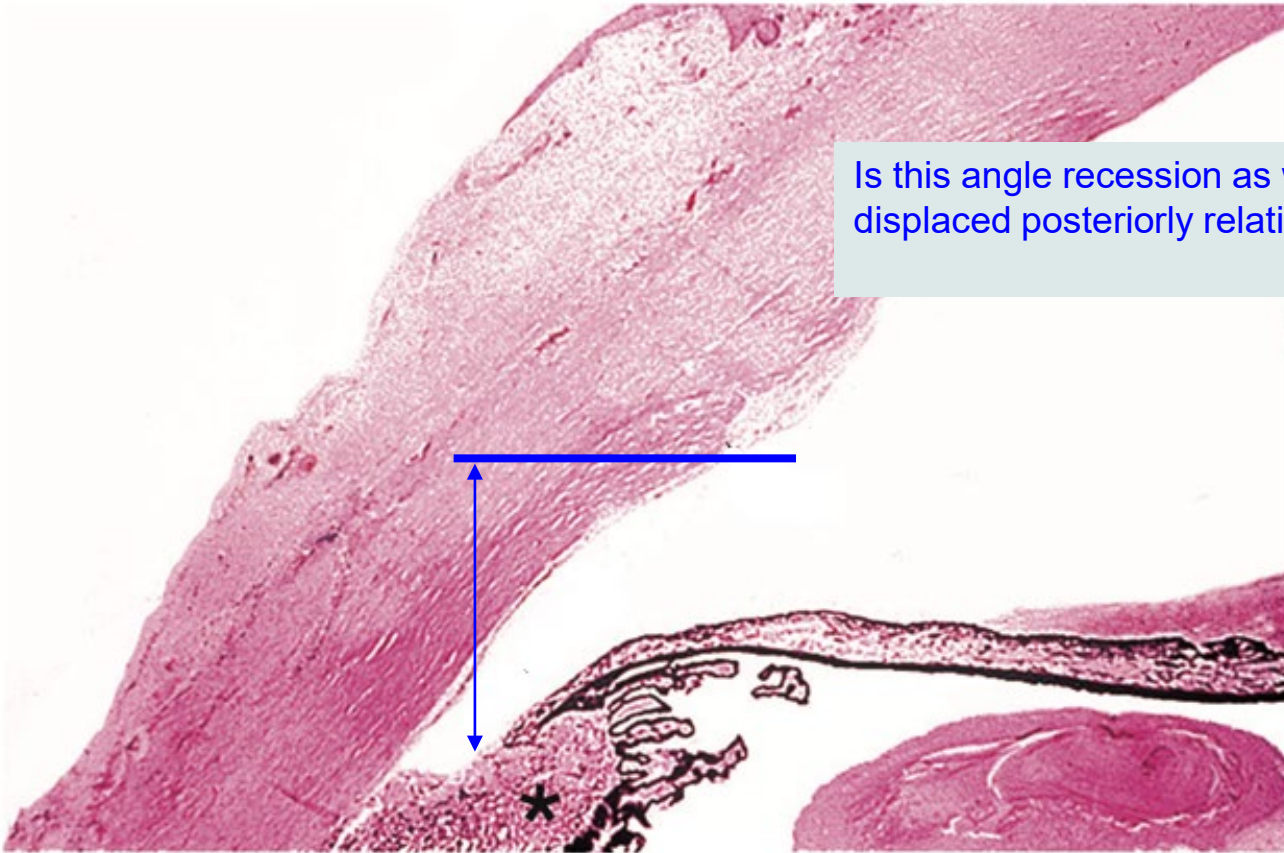


Is this angle recession as well?

Pathwatching



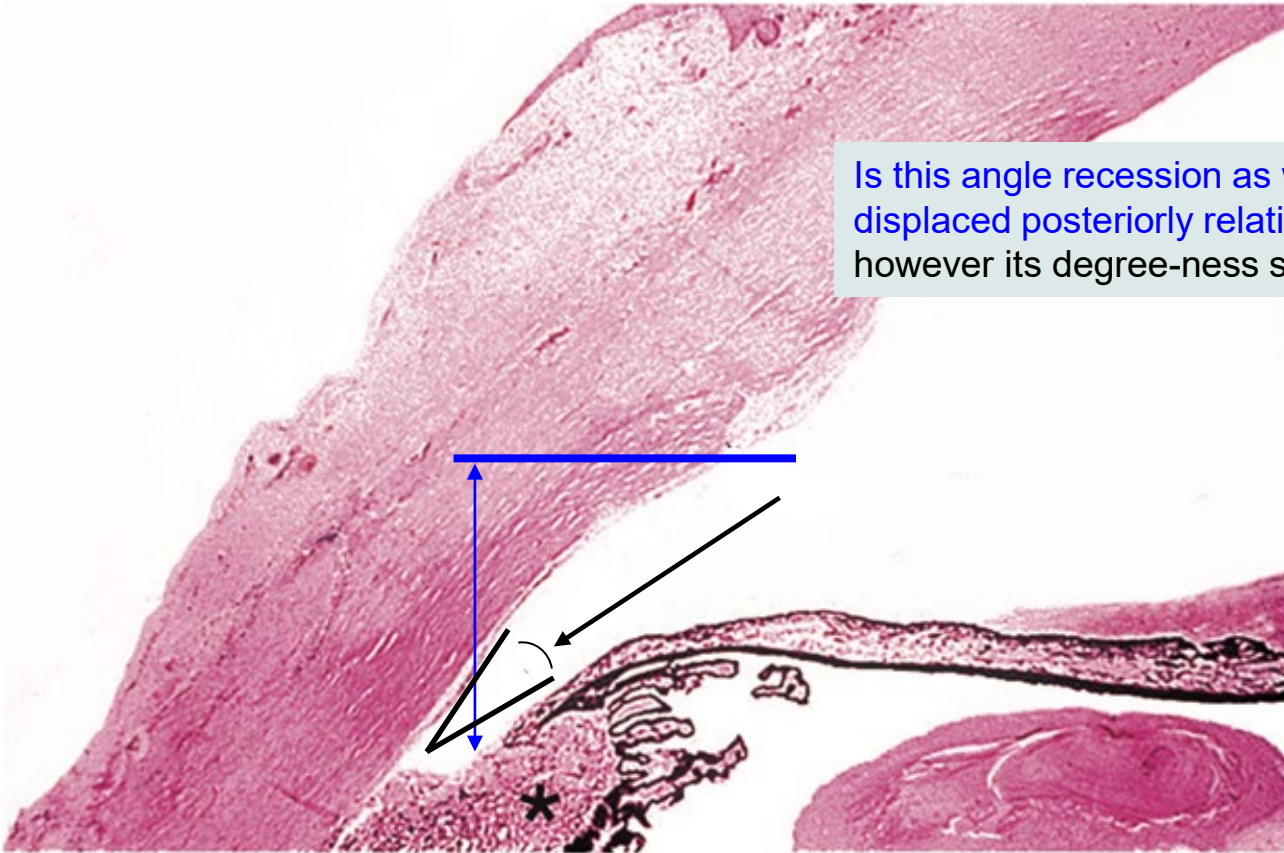
Is this angle recession as well? The angle is displaced posteriorly relative to the SS as expected;



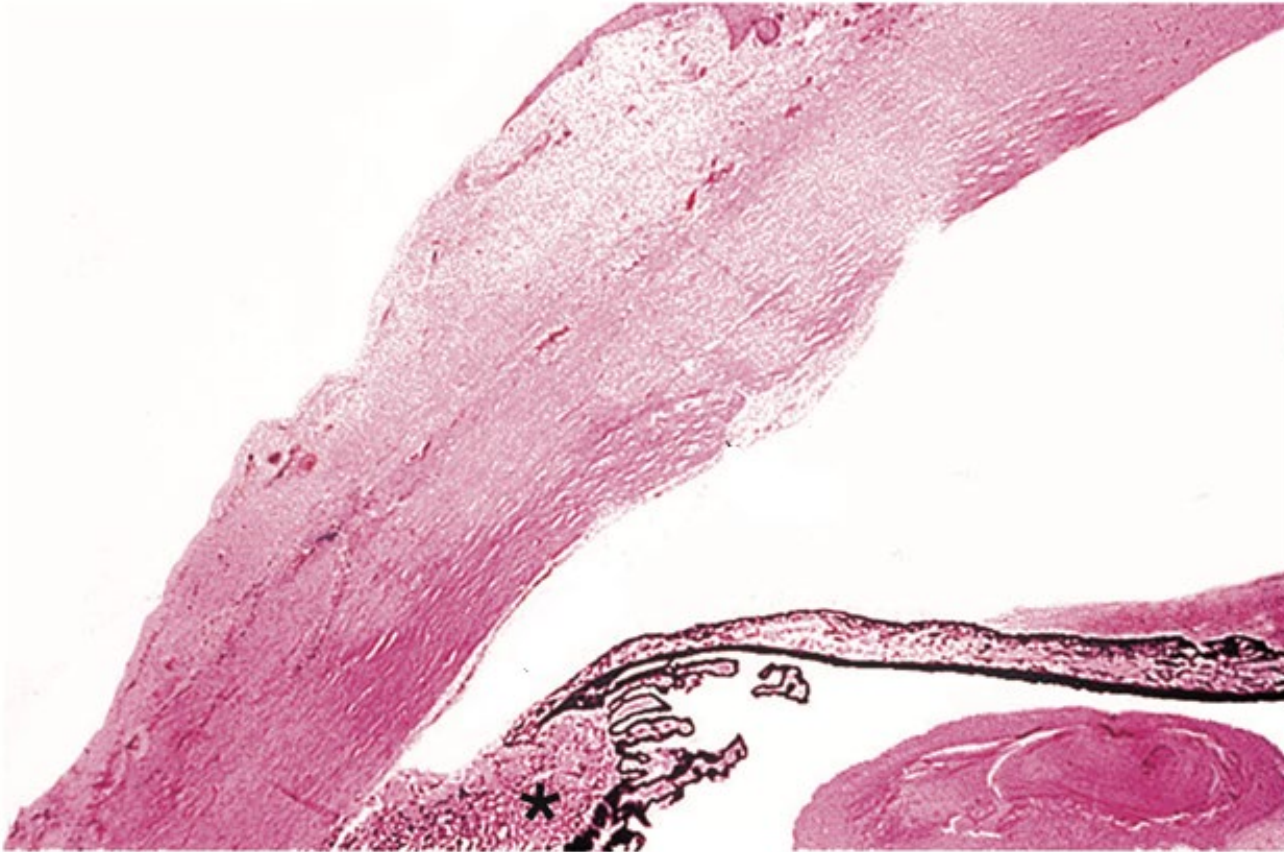
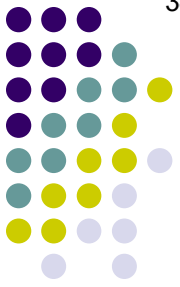
Pathwatching



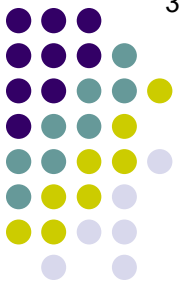
Is this angle recession as well? The angle is displaced posteriorly relative to the SS as expected; however its degree-ness seems rather small.



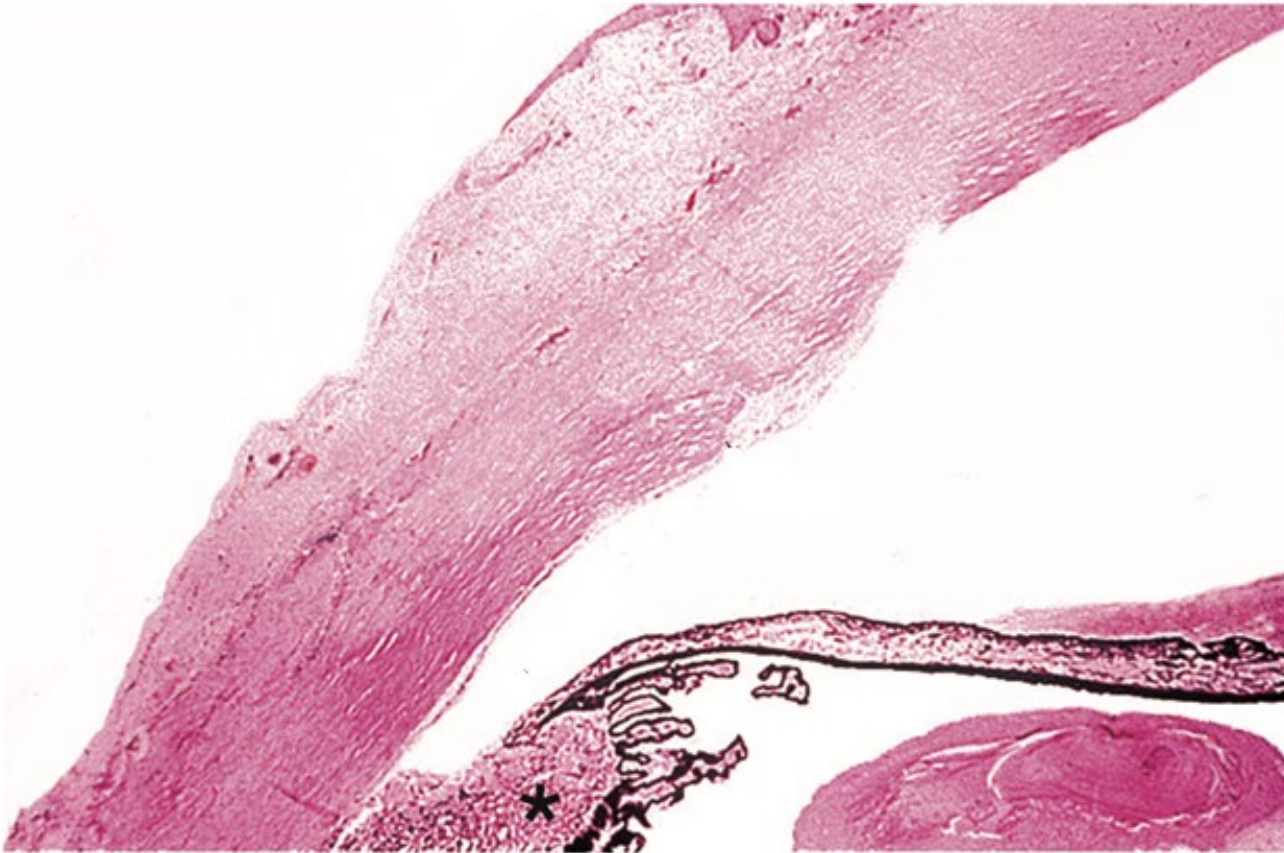
Pathwatching



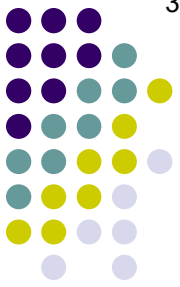
What's the diagnosis?



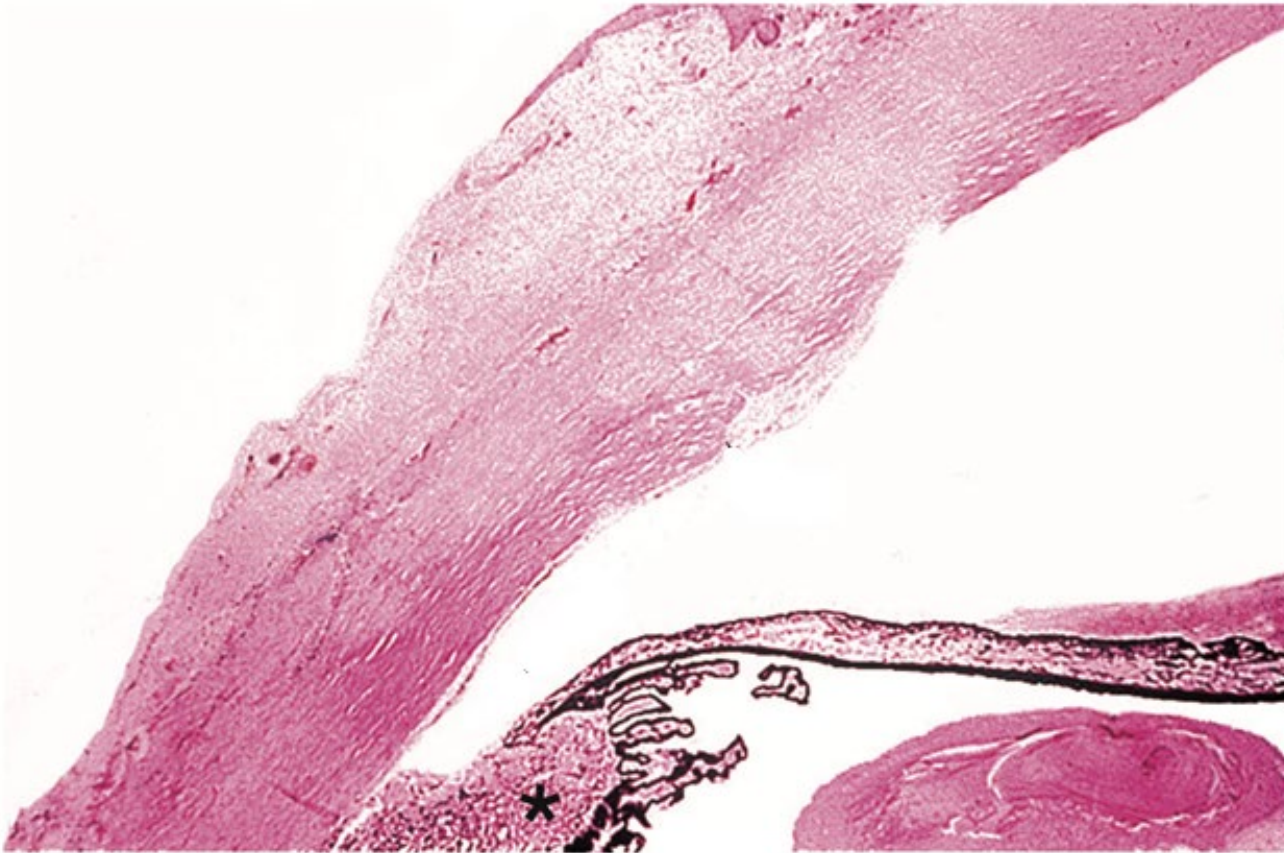
Pathwatching



Cyclodialysis. Blunt trauma has again torn the ciliary body (asterisk)

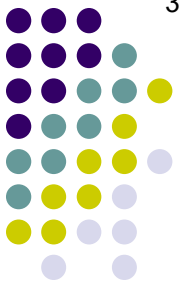


Pathwatching



Cyclodialysis. Blunt trauma has again torn the ciliary body (asterisk), but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the

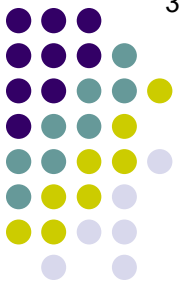
abb.



Pathwatching



Cyclodialysis. Blunt trauma has again torn the ciliary body (asterisk), but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the SS

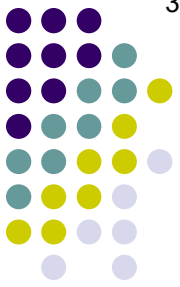


Pathwatching



Cyclodialysis. Blunt trauma has again torn the ciliary body (asterisk), but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the SS.

Such pts are also at risk for developing glaucoma (less v more) so than those with angle recession).



Pathwatching



Cyclodialysis. Blunt trauma has again torn the ciliary body (asterisk), but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the SS. Such pts are also at risk for developing glaucoma (less so than those with angle recession).



Pathwatching



Angle recession



Cyclodialysis

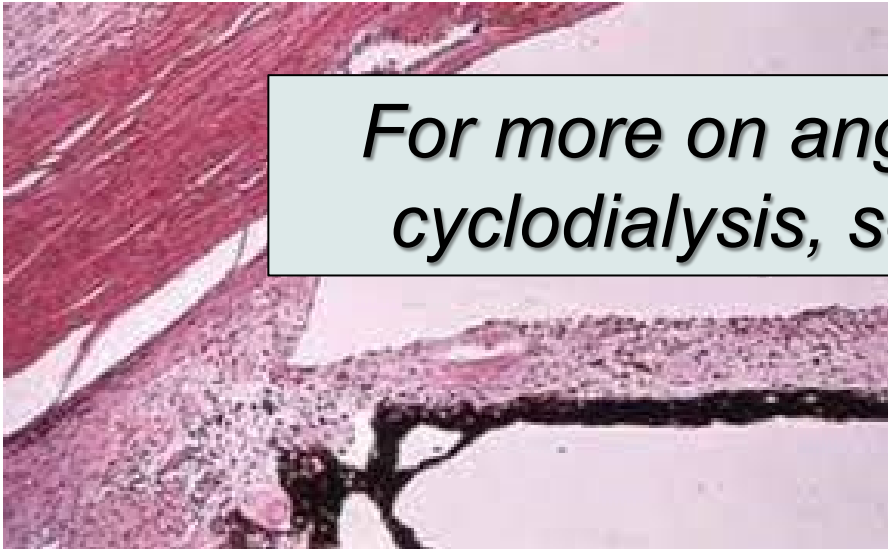
Angle recession and cyclodialysis side-by-side

Pathwatching

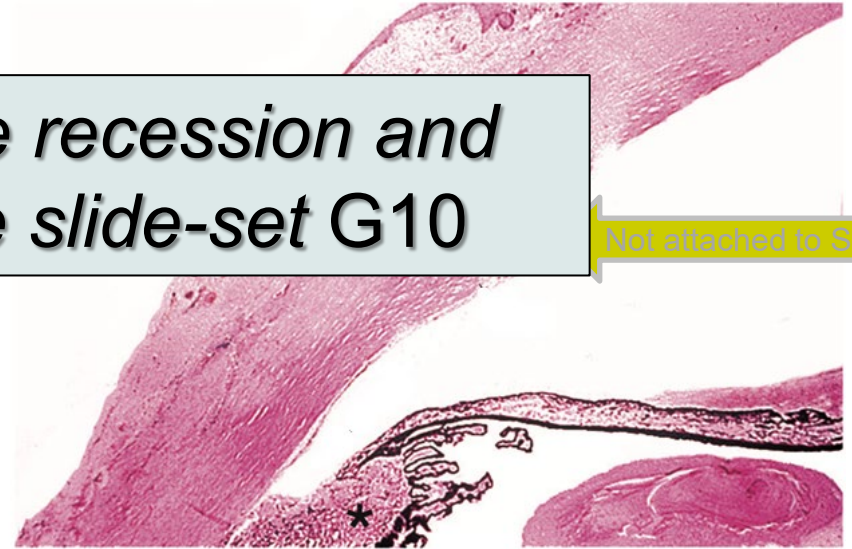


For more on angle recession and cyclodialysis, see slide-set G10

Not attached to SS

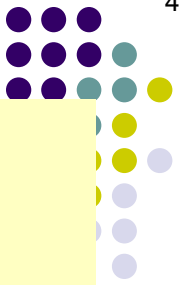


Angle recession



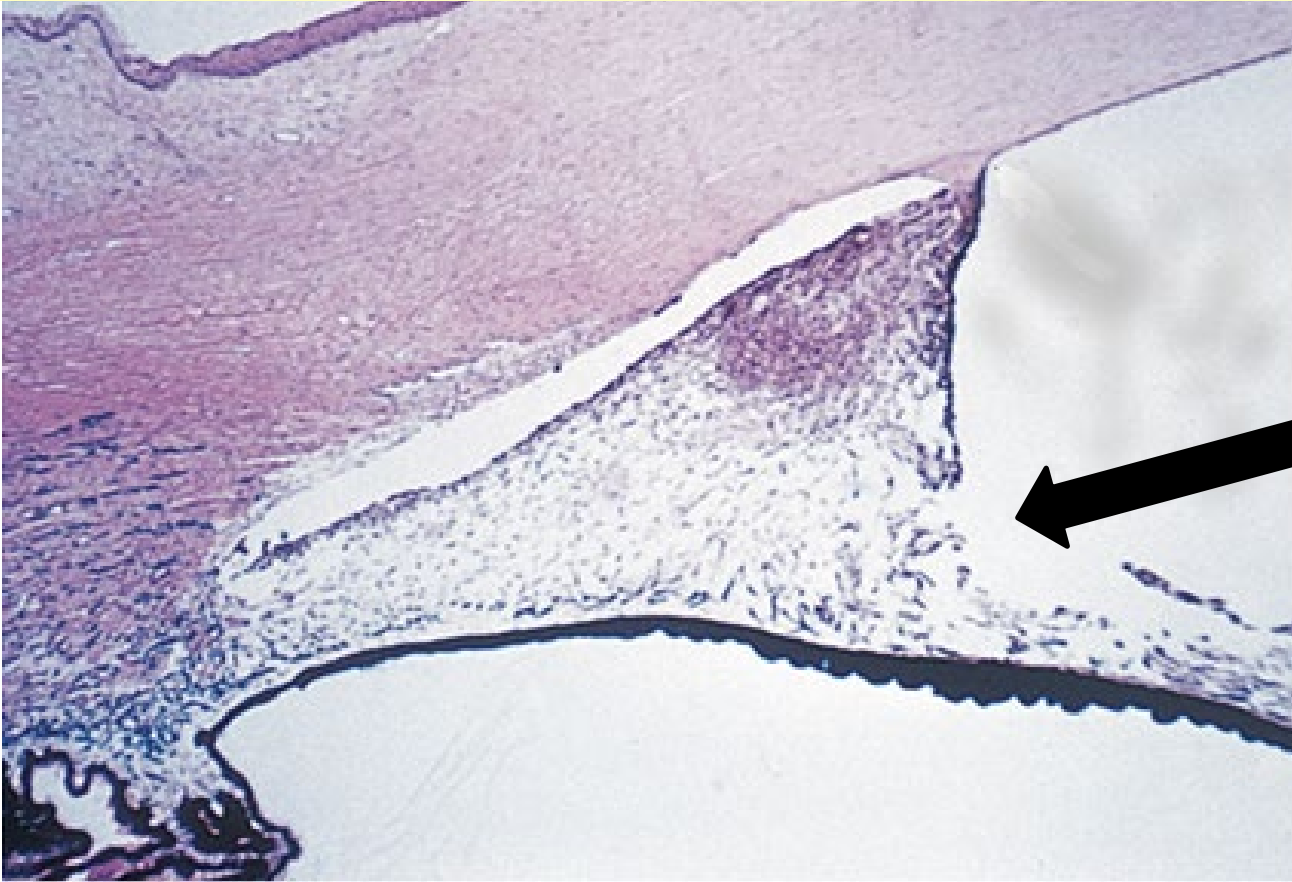
Cyclodialysis

Angle recession and cyclodialysis side-by-side



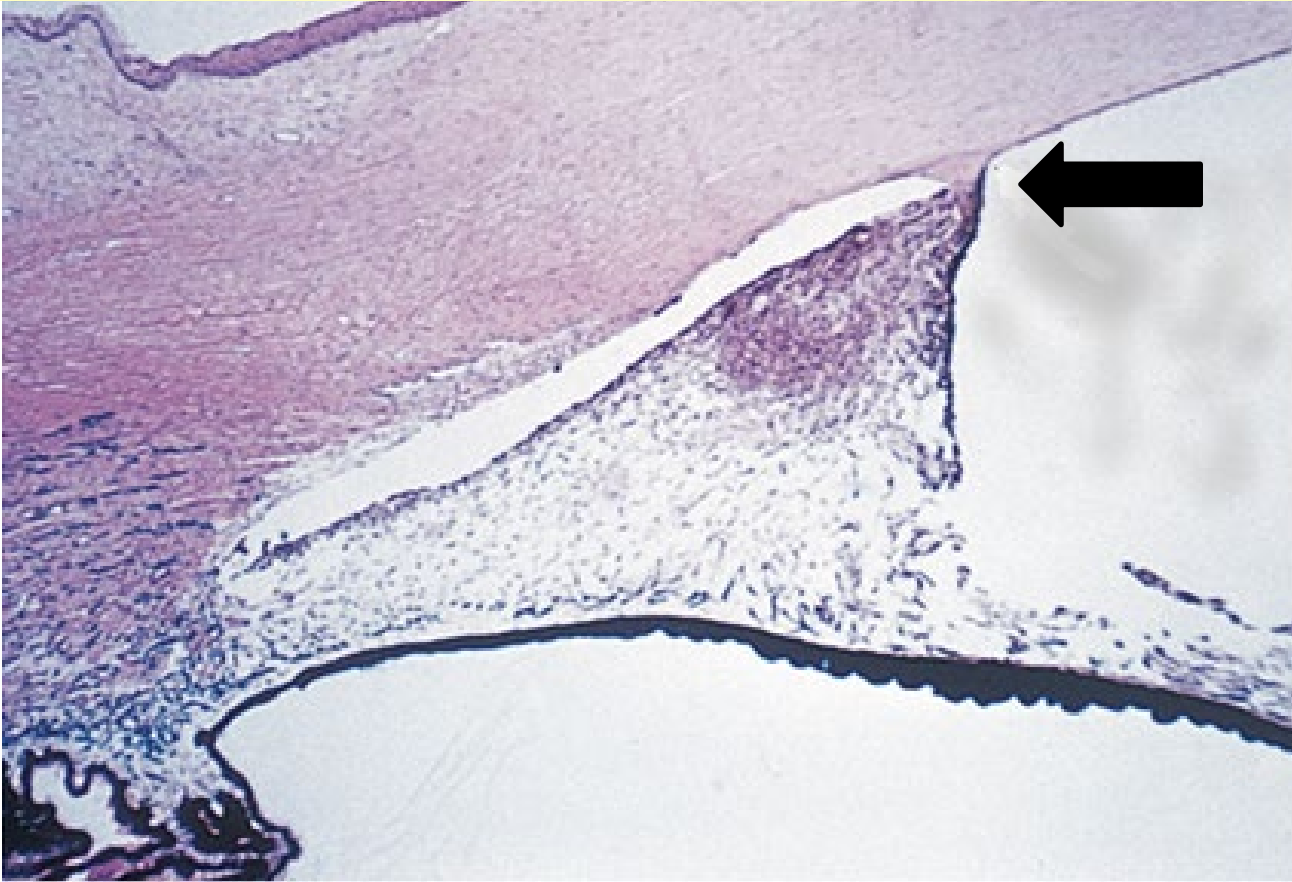
Pathwatching

At first glance, this looks like angle recession, with what appears to be a split in the CB



Pathwatching

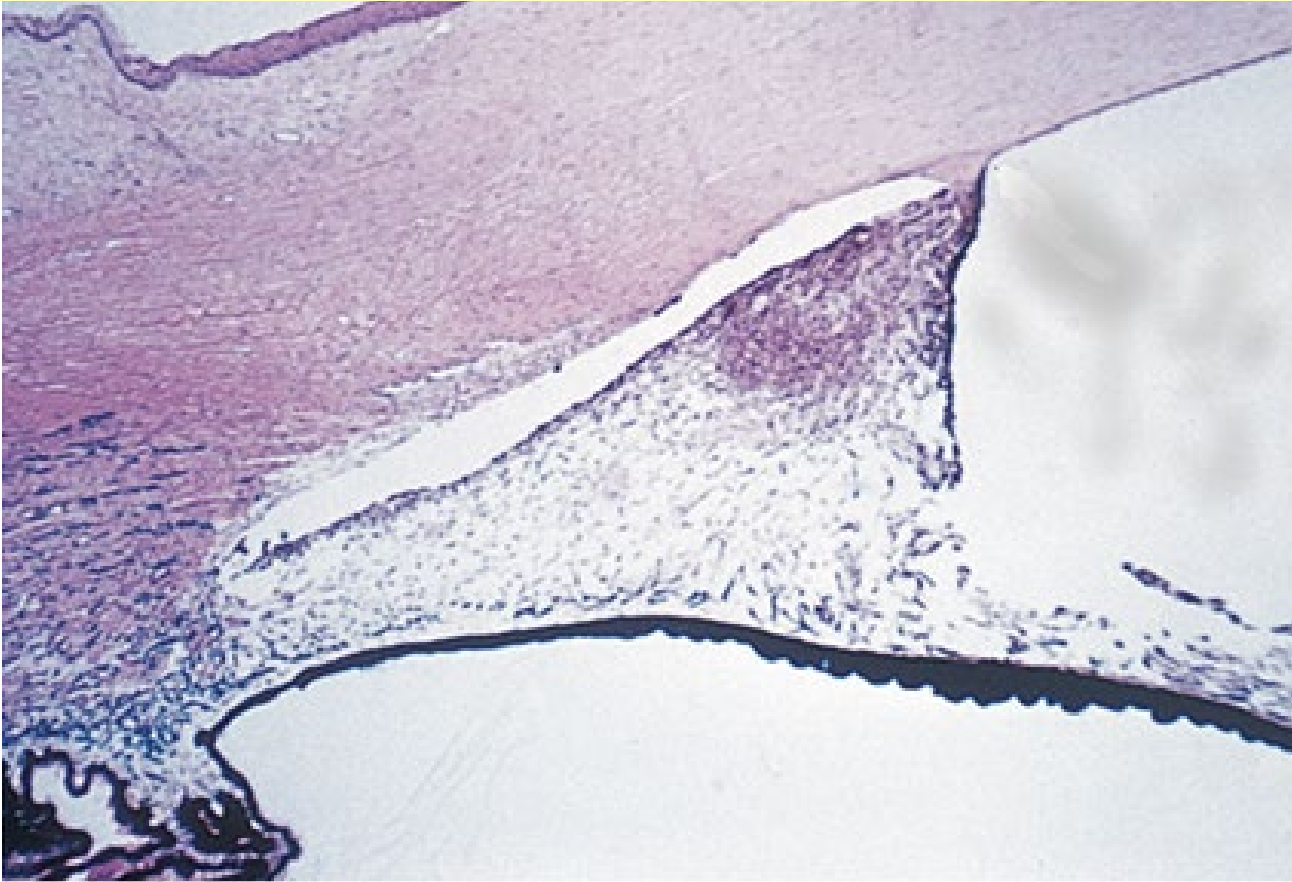
At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment.



Pathwatching

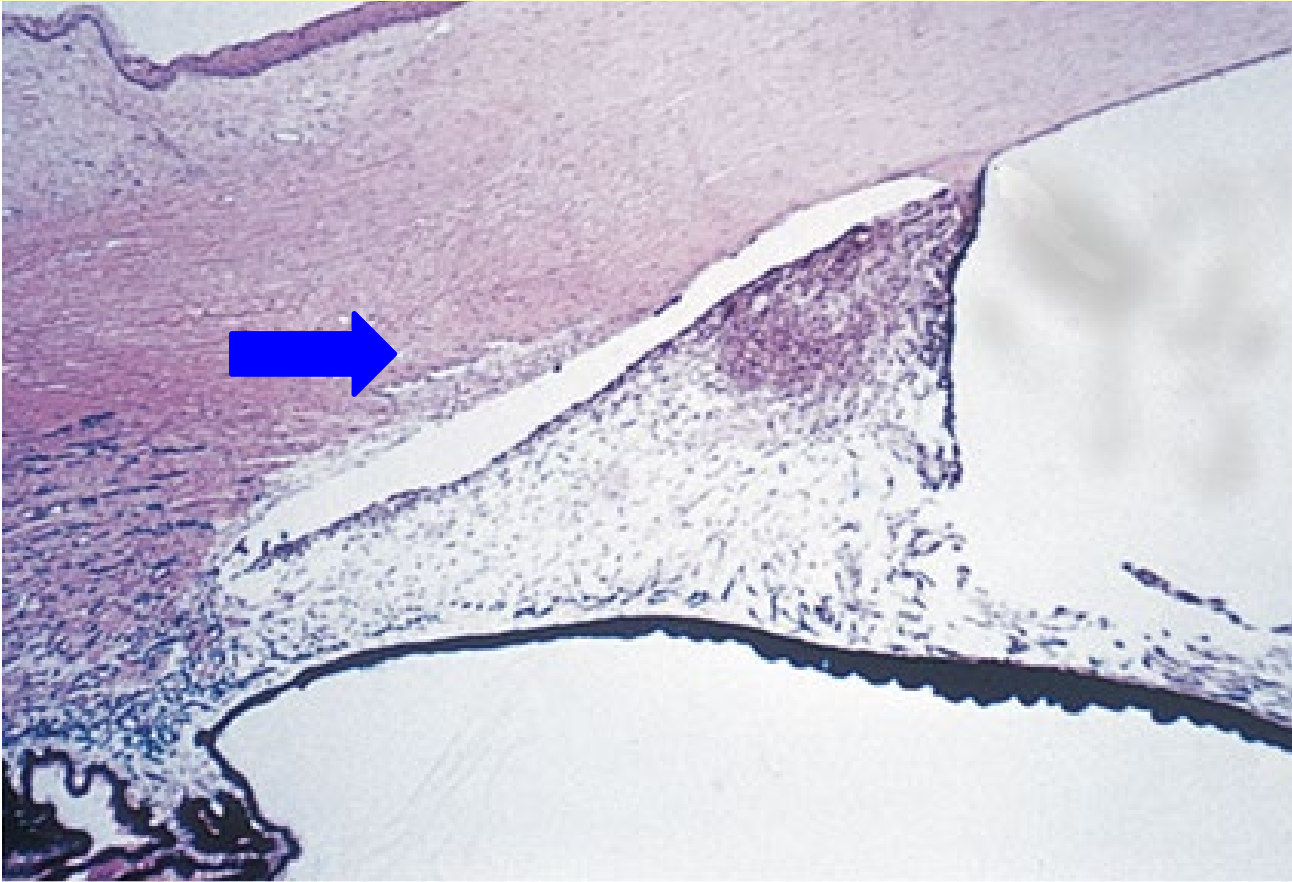
At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:

--The TM is *[locate it]*



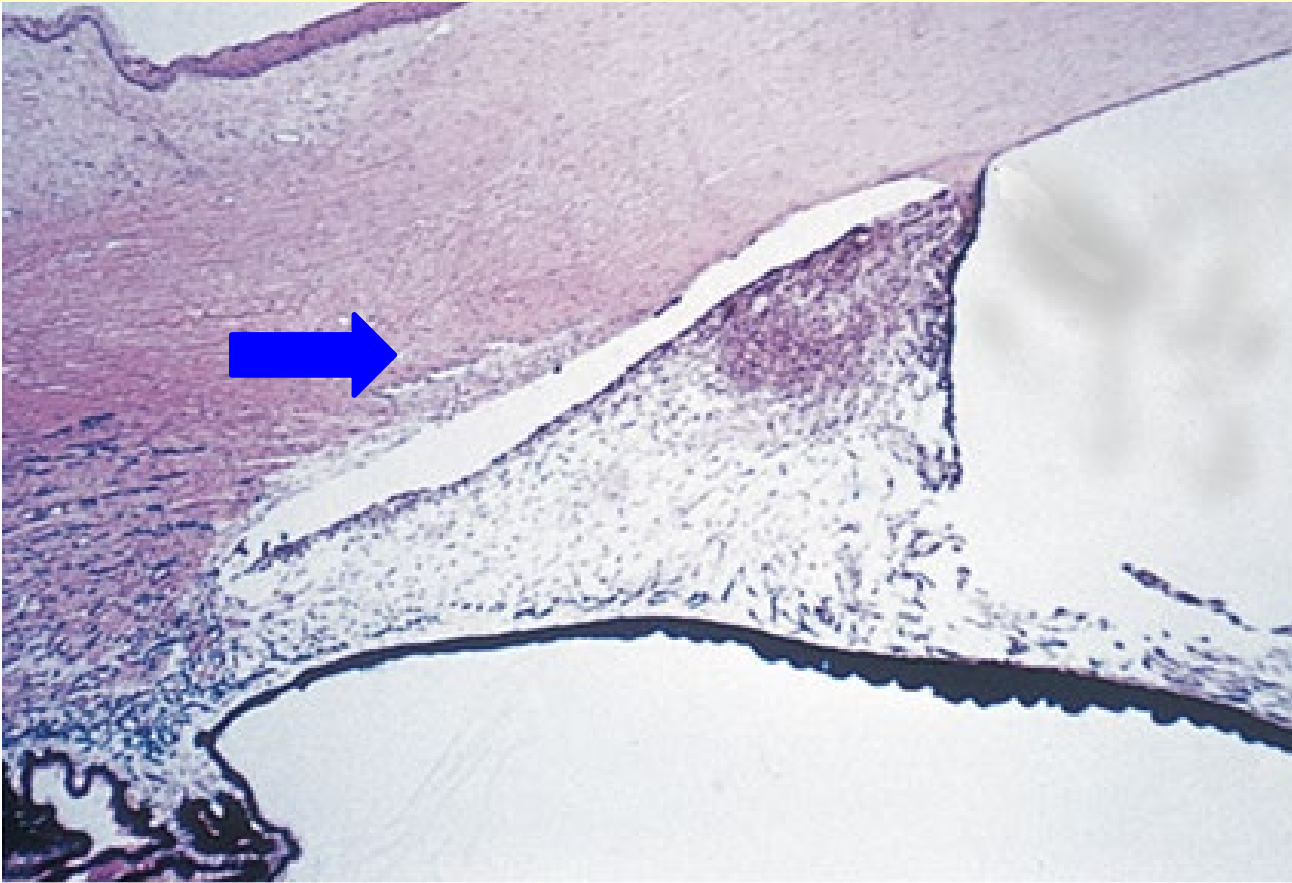
Pathwatching

At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:
--The TM is **here**



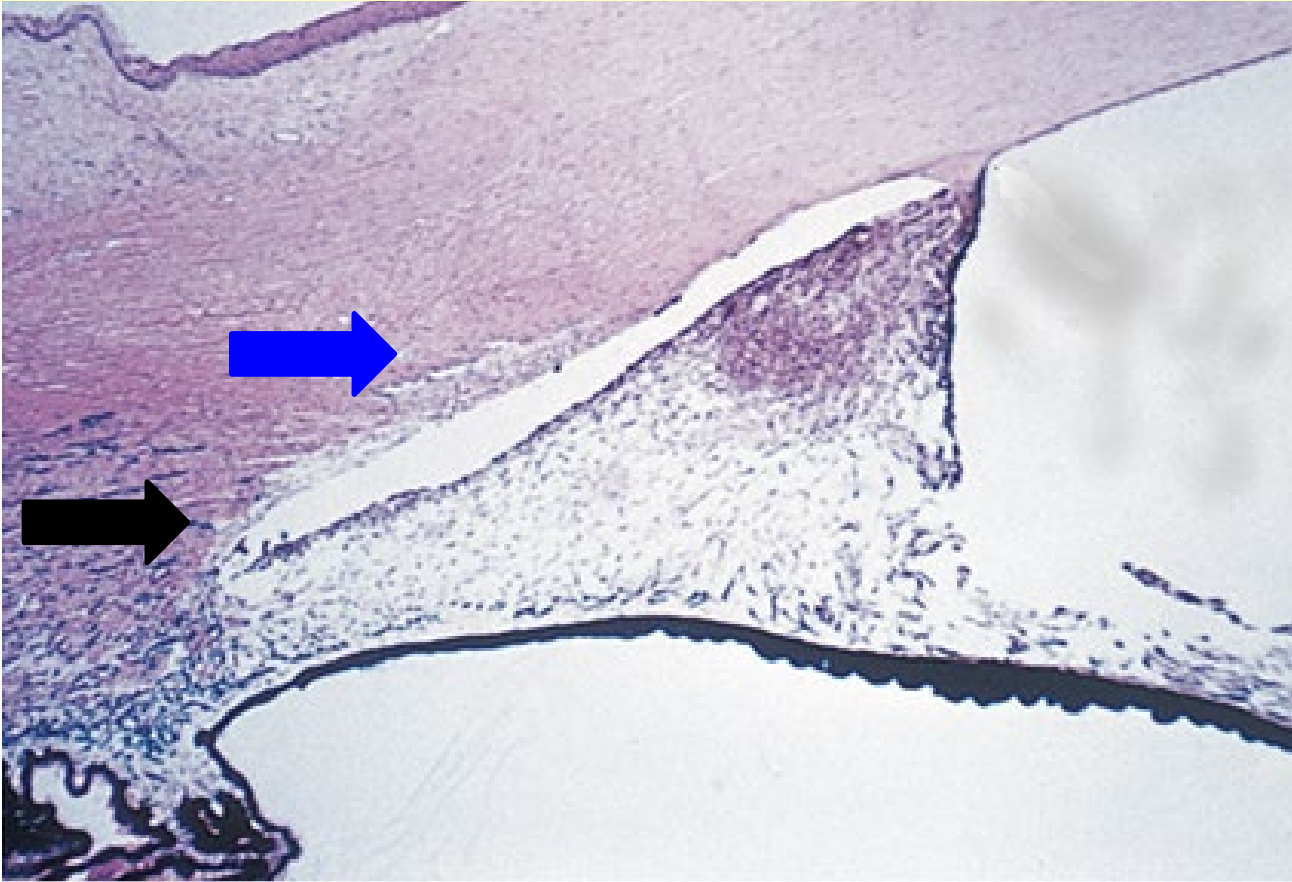
Pathwatching

At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:
--The TM is **here**, which means the SS is about *[ditto]*



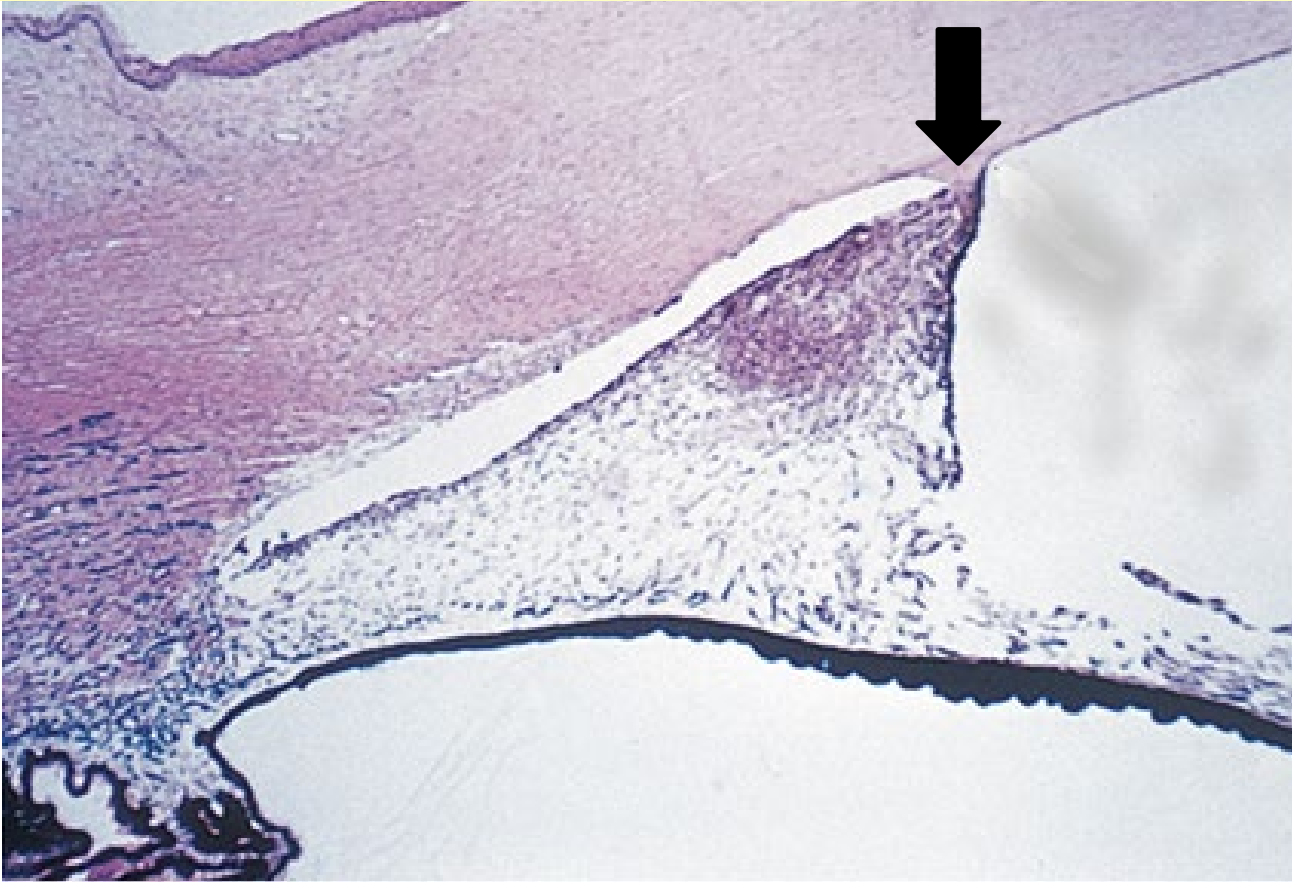
Pathwatching

At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:
--The TM is **here**, which means the SS is about **here**.



Pathwatching

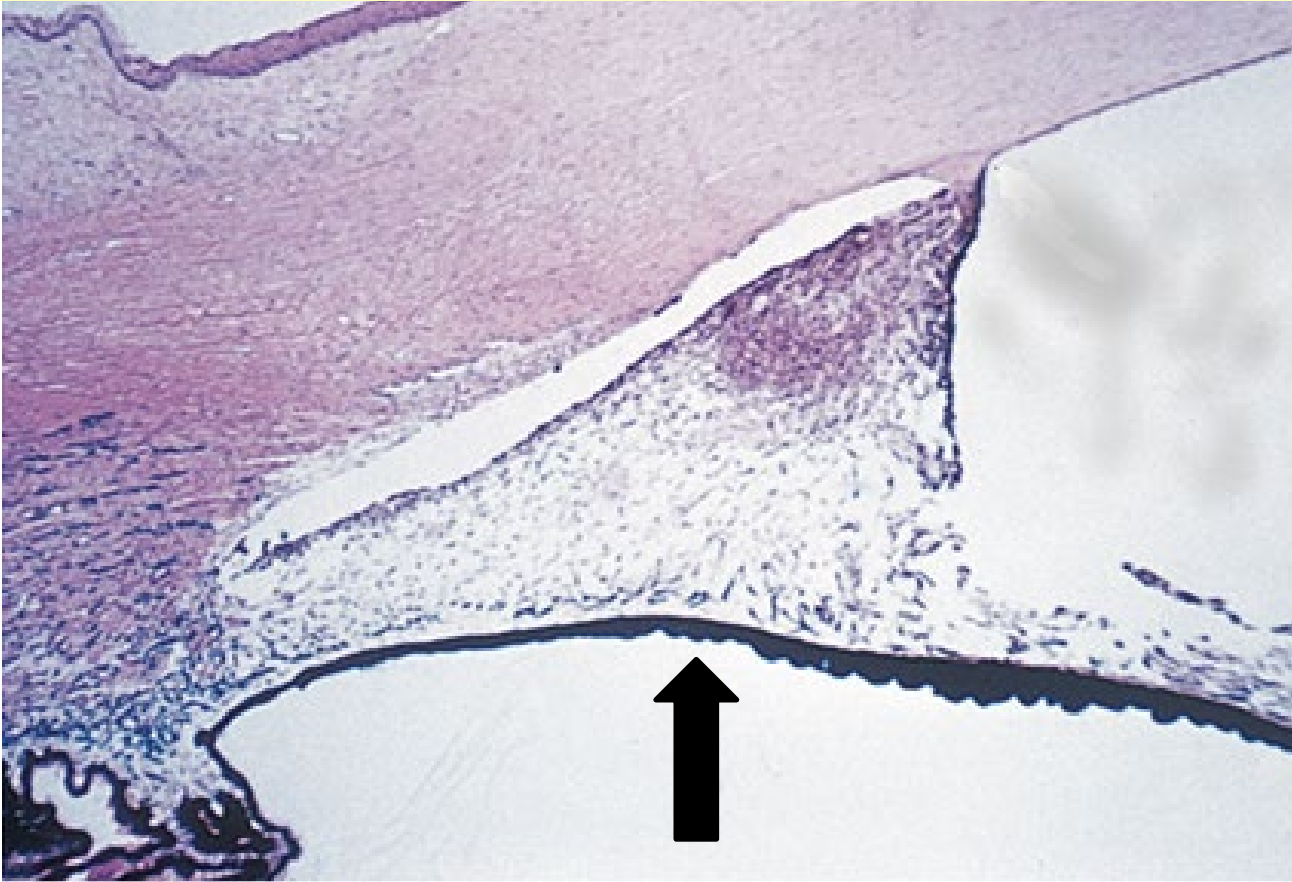
At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:
--The TM is **here**, which means the SS is about **here**. So **this** structure is way too anterior to be SS.



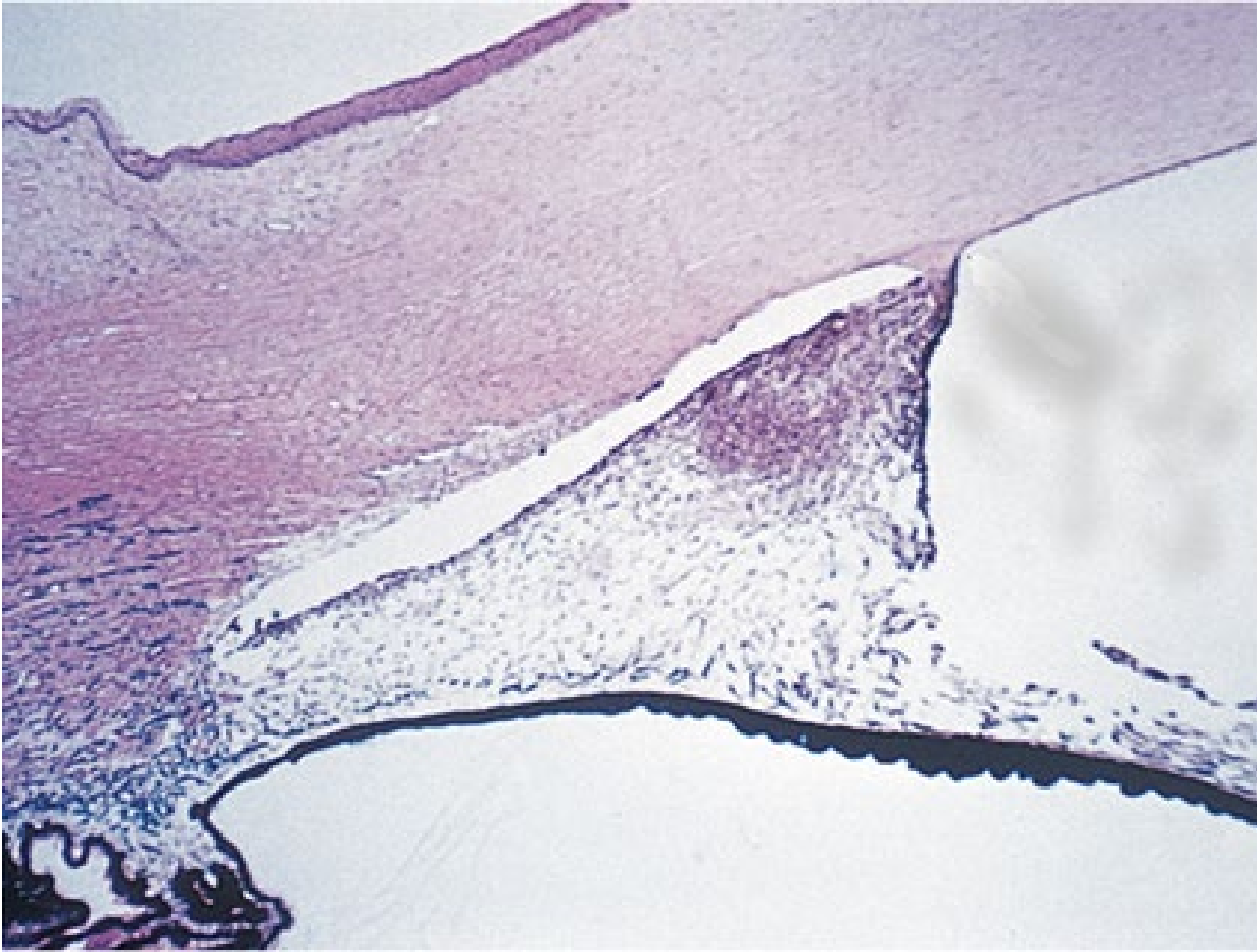
Pathwatching

At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:

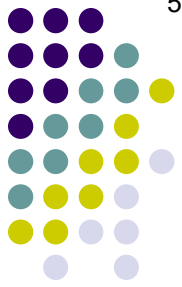
- The TM is **here**, which means the SS is about **here**. So **this** structure is way too anterior to be SS.
- The attachment is arising from the *iris*, not the CB.



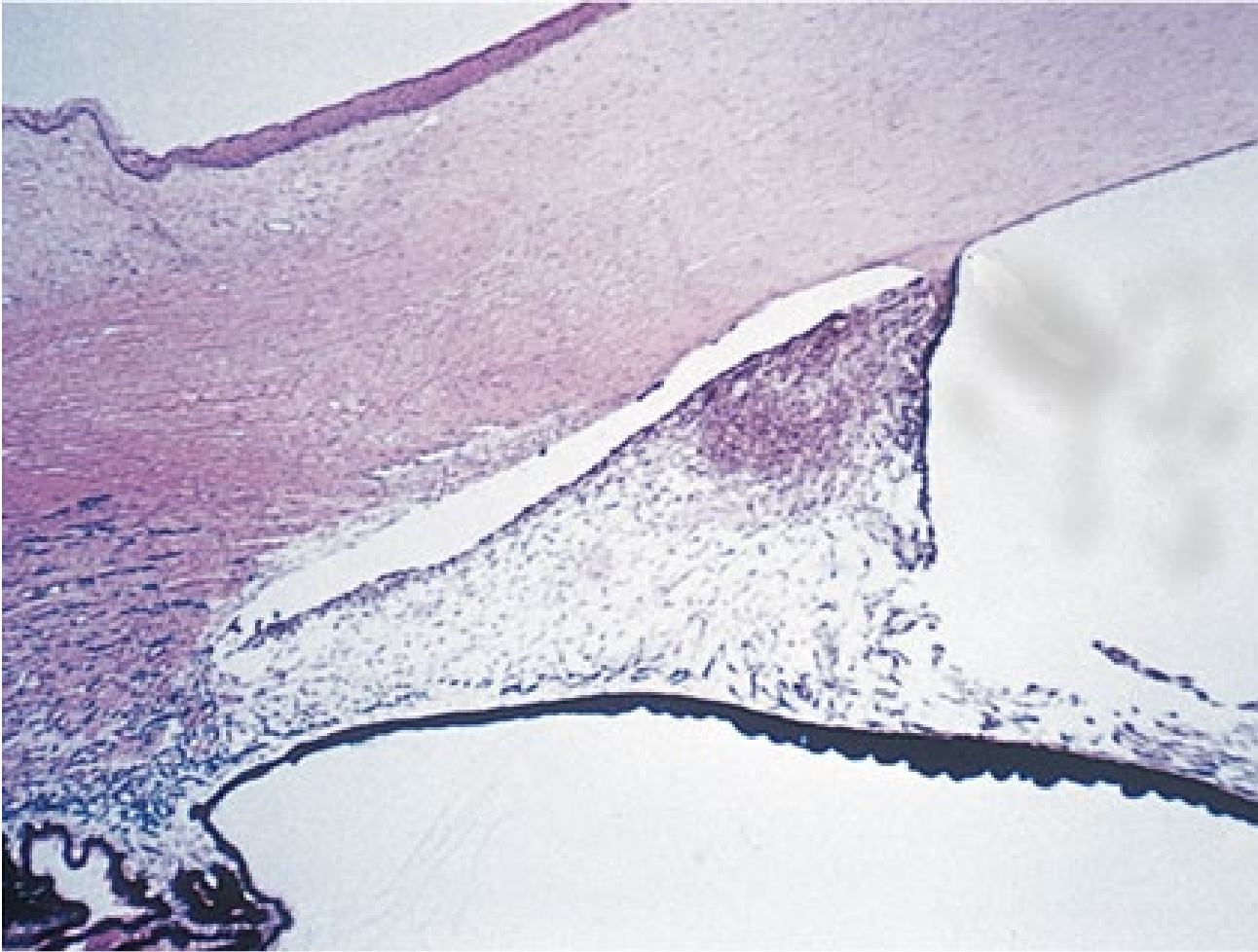
Pathwatching



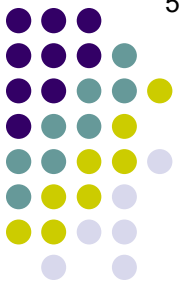
What's the diagnosis?



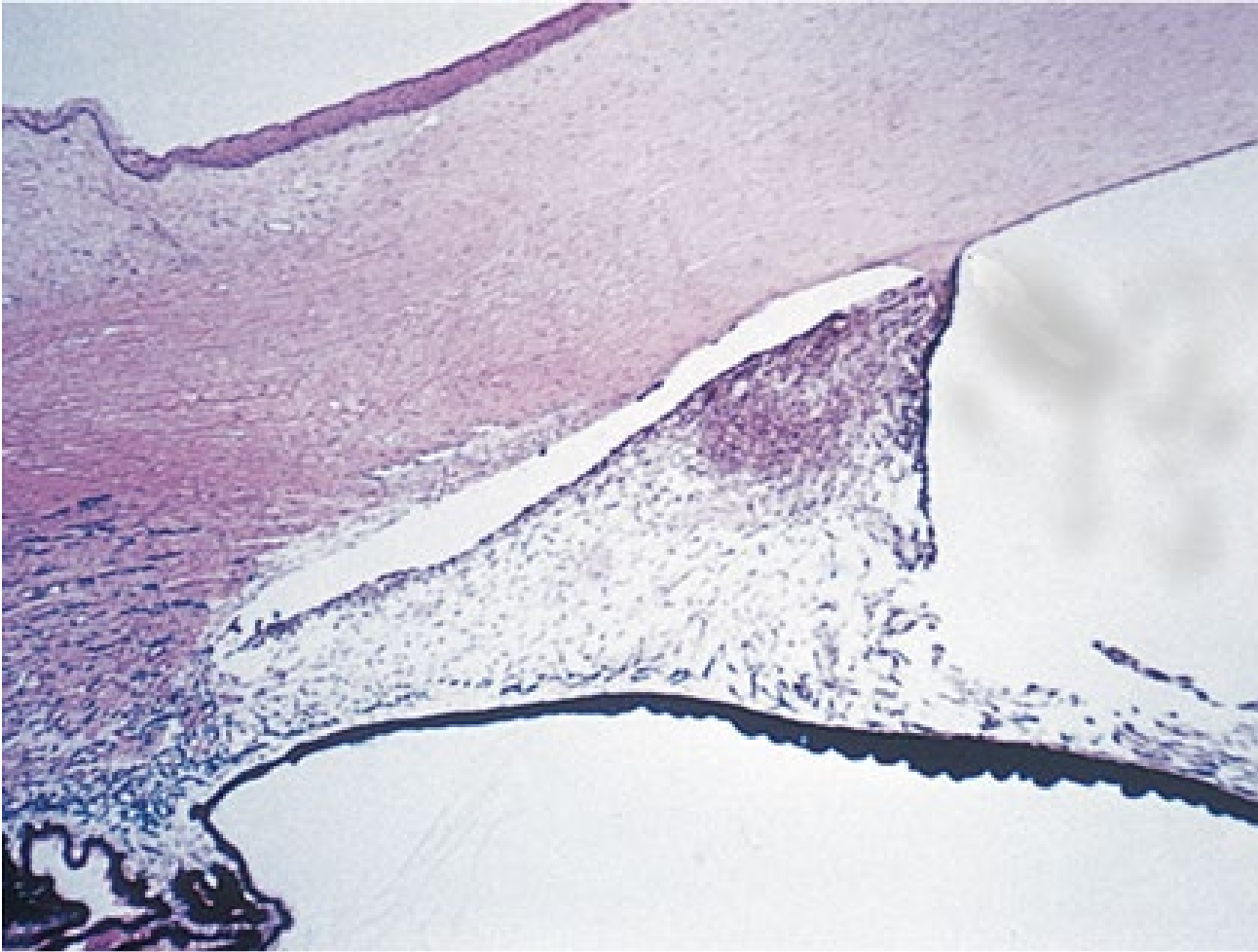
Pathwatching



Axenfeld-Rieger syndrome, an class of condition (three words) .

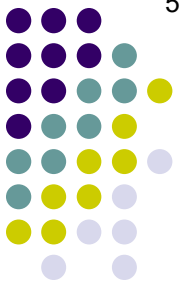


Pathwatching

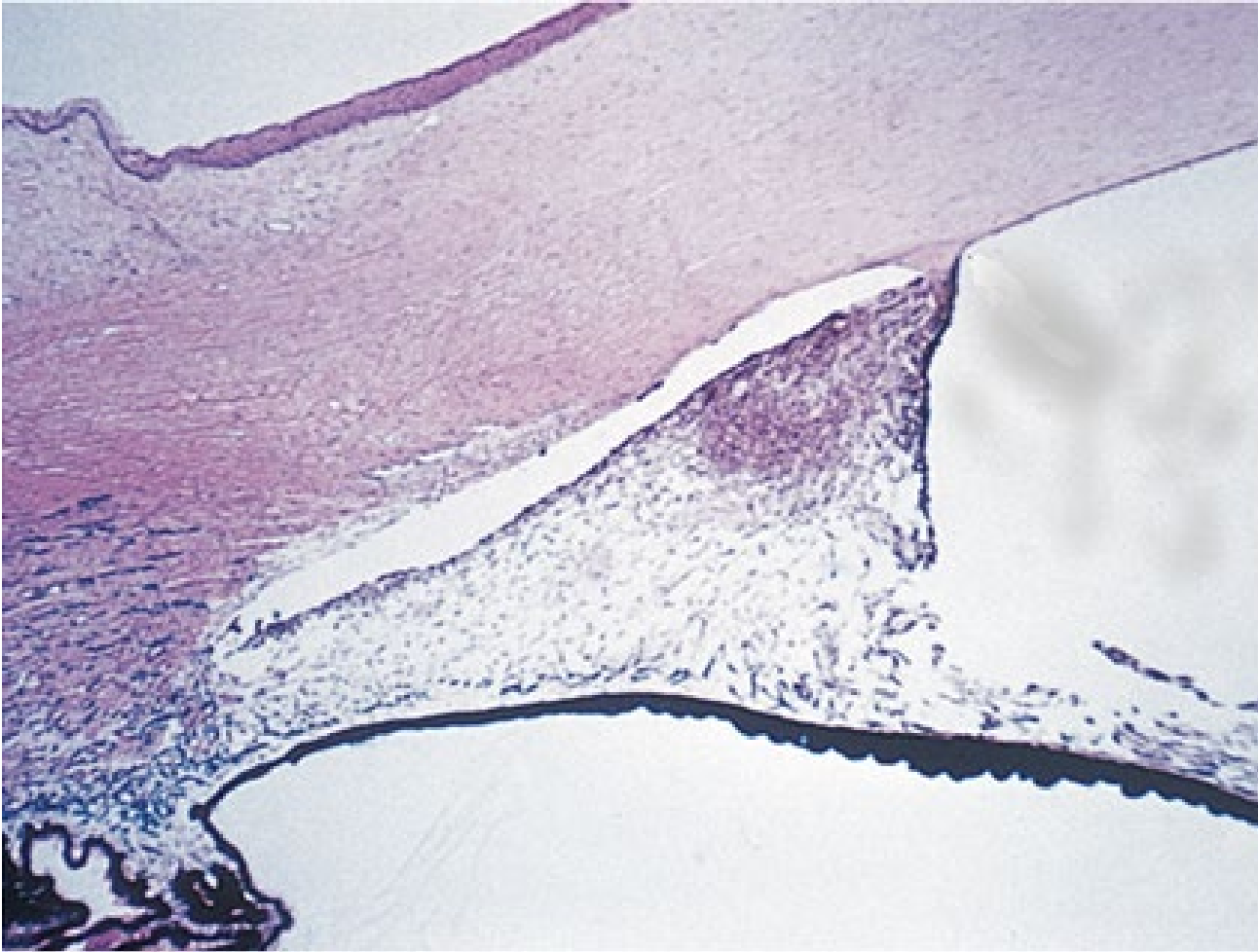


Axenfeld-Rieger syndrome, an anterior-segment dysgenesis .



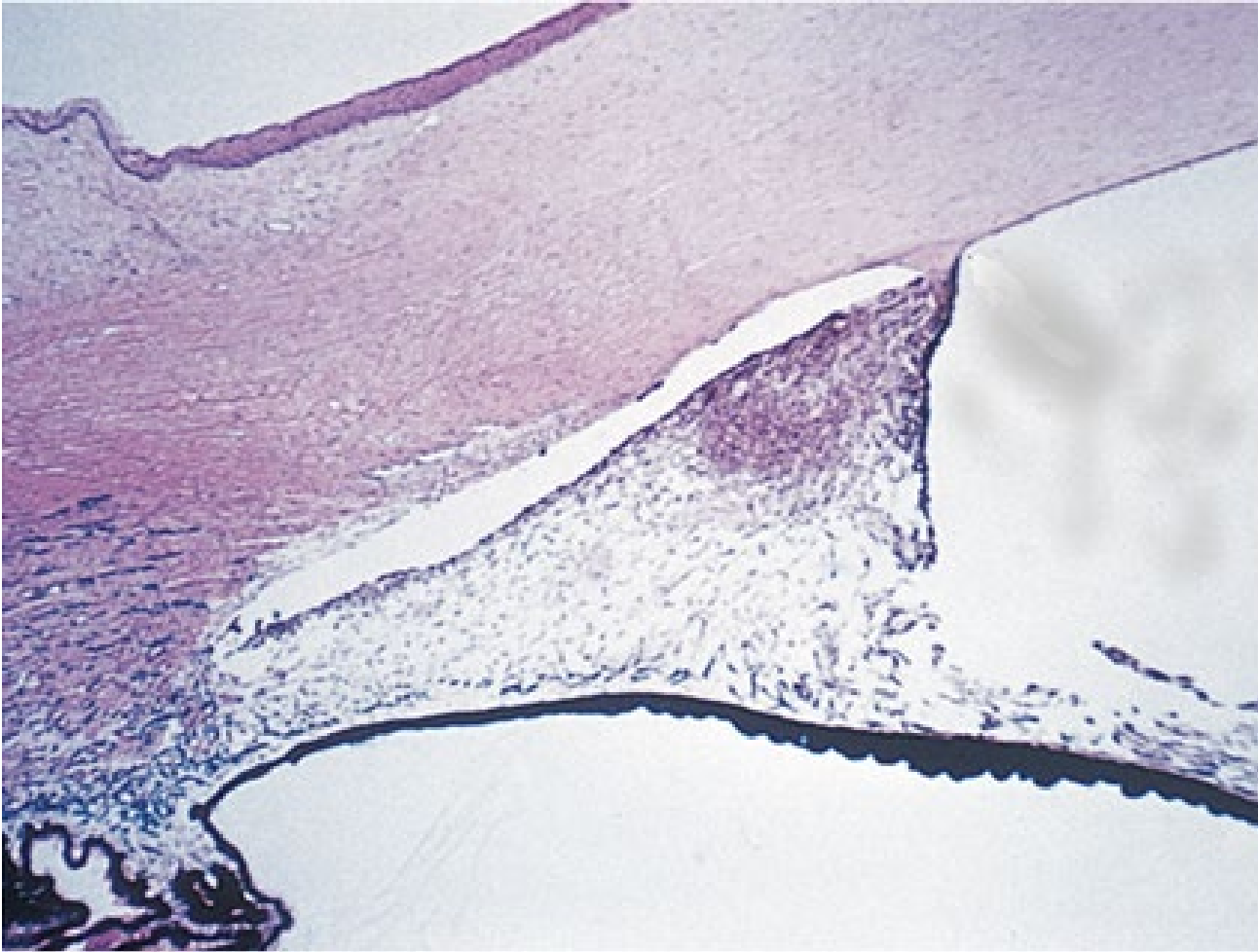


Pathwatching

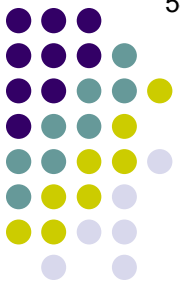


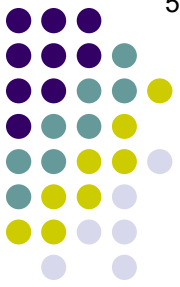
Axenfeld-Rieger syndrome, an anterior-segment dysgenesis . Rather than CB fibers attaching to the SS, the attachment is an attaching to

Pathwatching

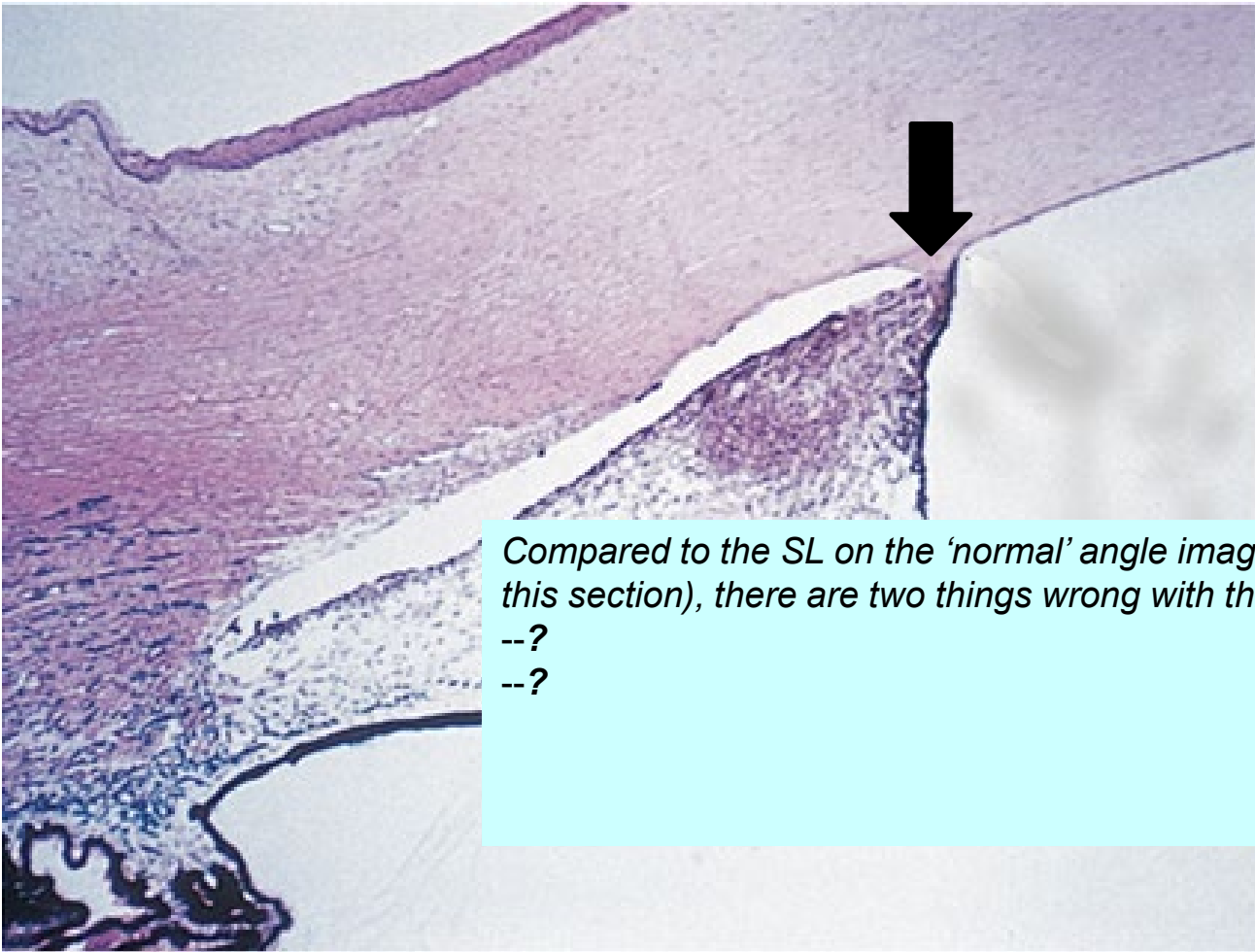


Axenfeld-Rieger syndrome, an anterior-segment dysgenesis . Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to SL .



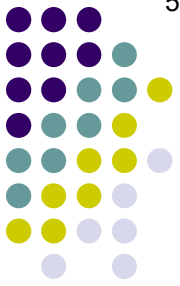


Pathwatching

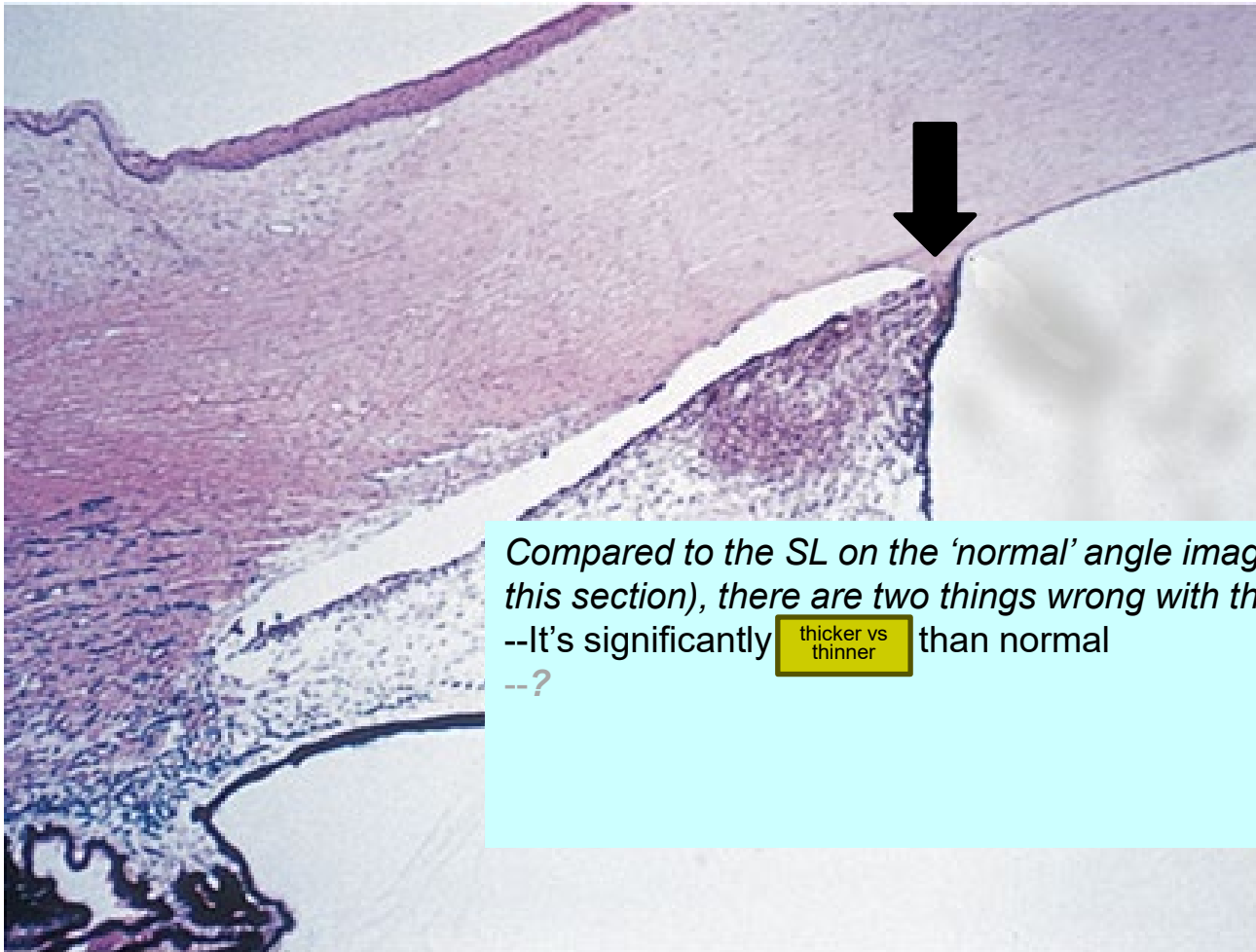


Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
 --?
 --?

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to **SL**.



Pathwatching

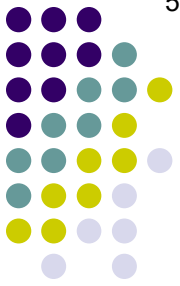


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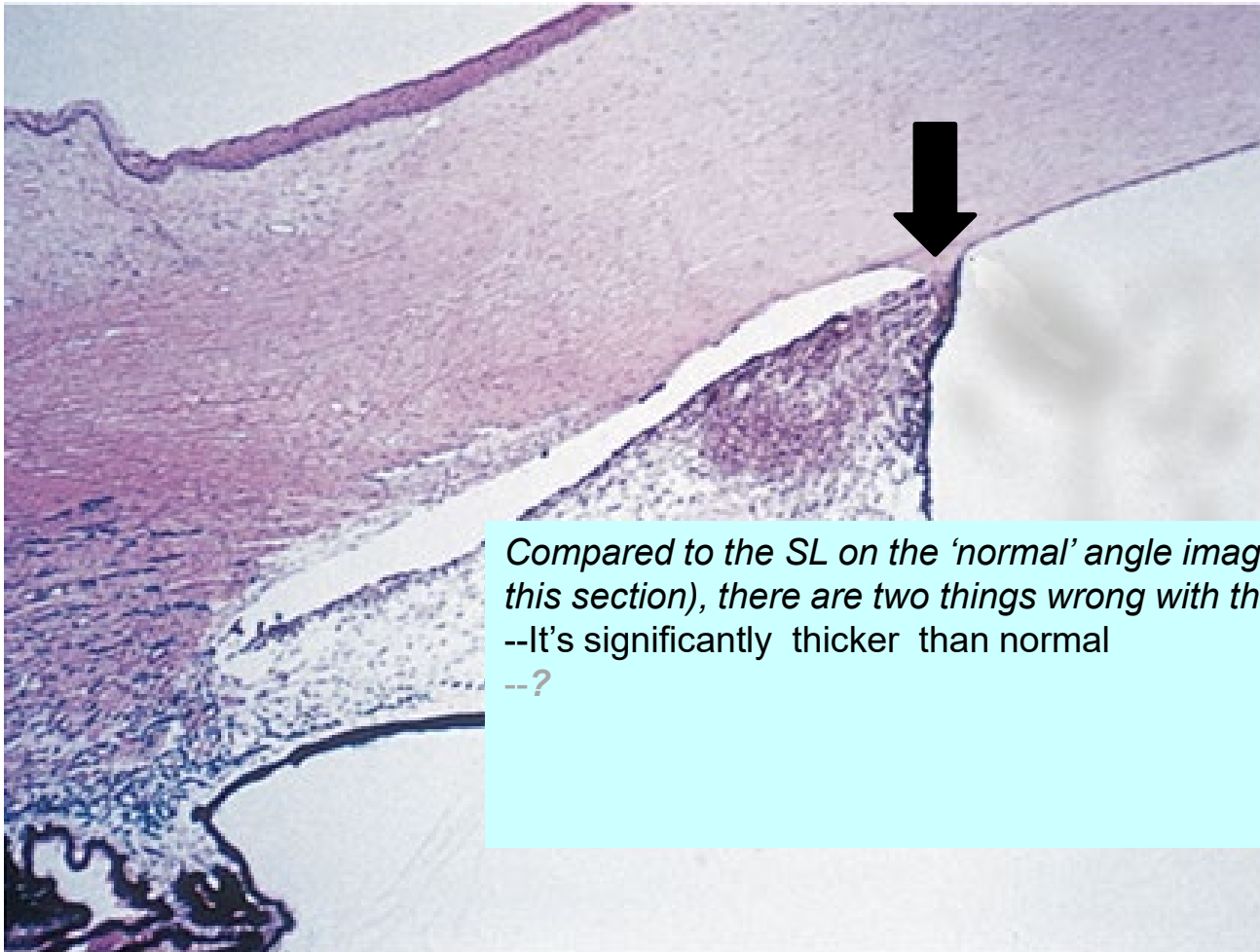
--It's significantly thicker vs thinner than normal

--?

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to SL.

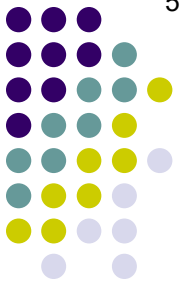


Pathwatching

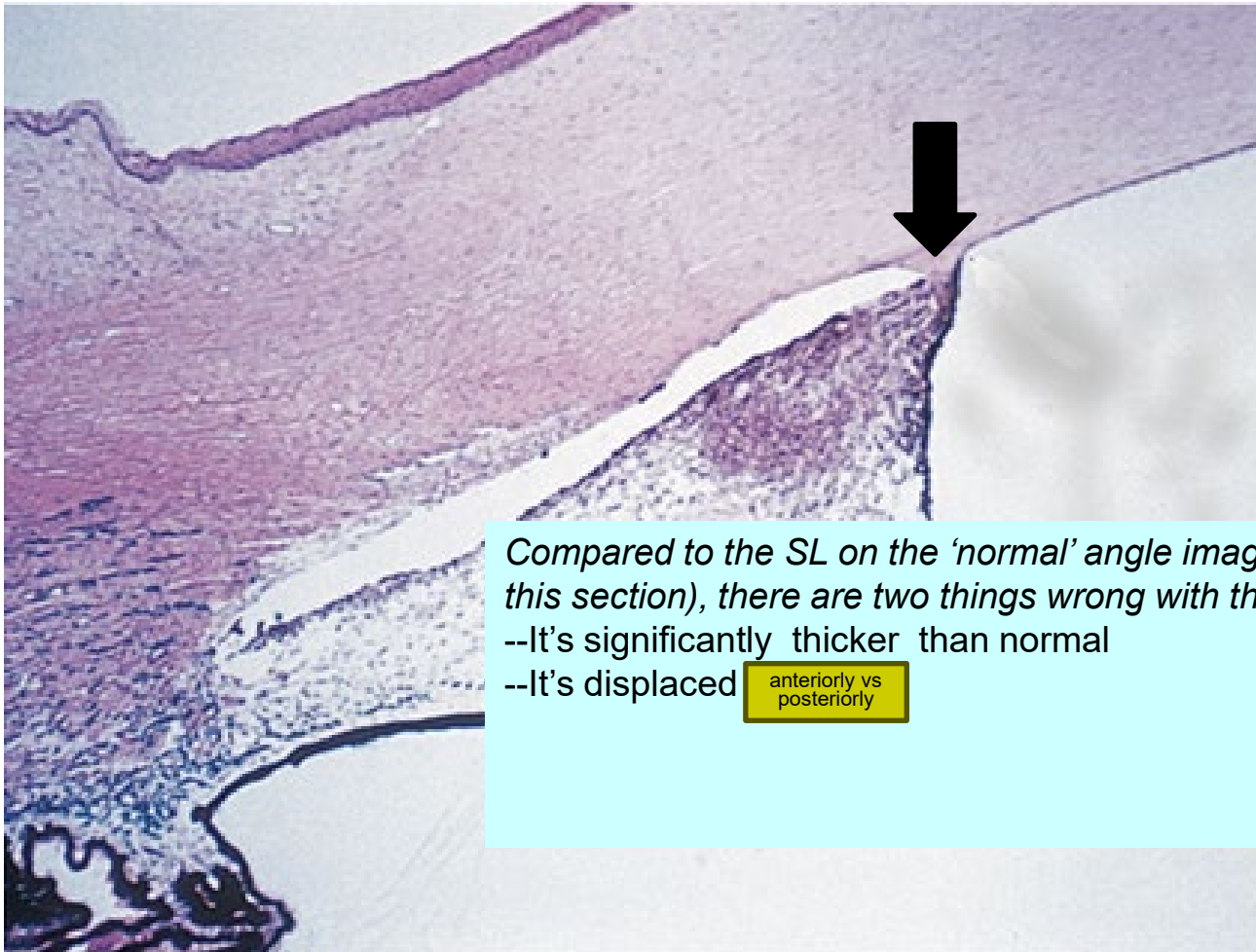


Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
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 --?

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to **SL**.



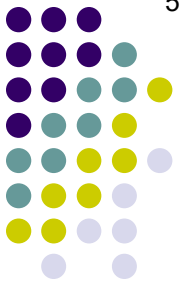
Pathwatching



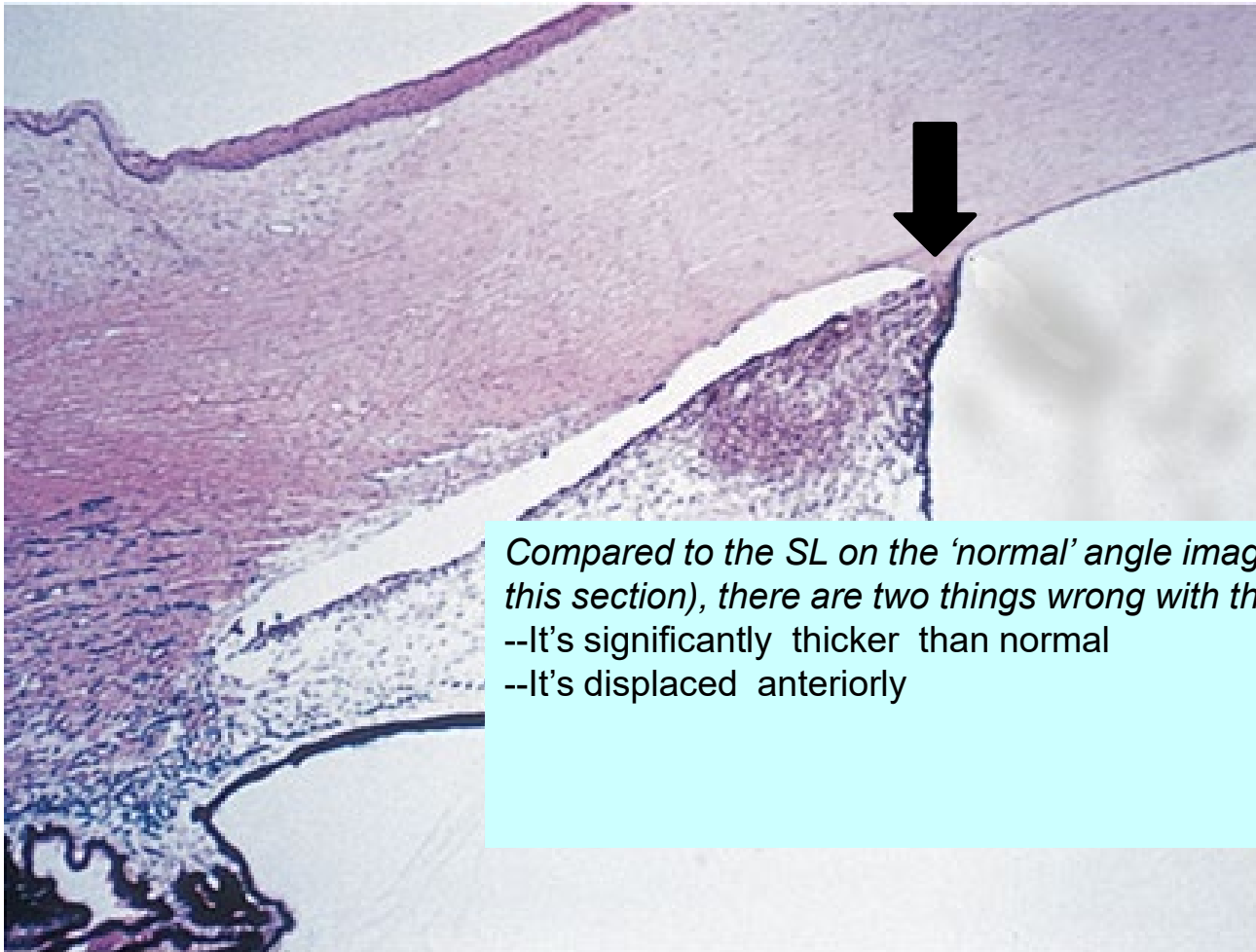
Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?

- It's significantly thicker than normal
- It's displaced anteriorly vs posteriorly

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to **SL**.



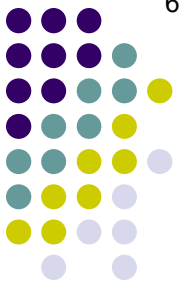
Pathwatching



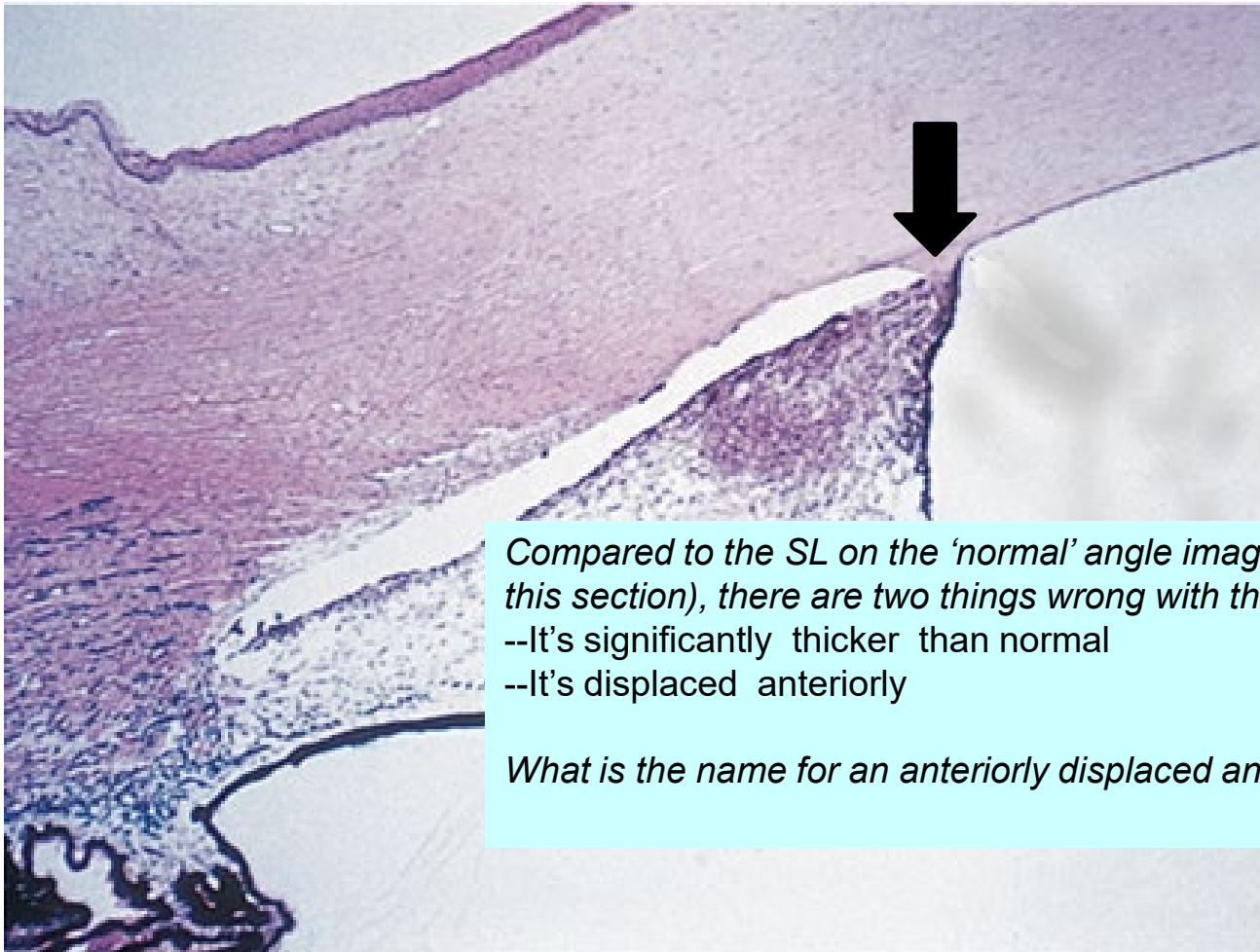
Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?

- It's significantly thicker than normal
- It's displaced anteriorly

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to **SL**.



Pathwatching

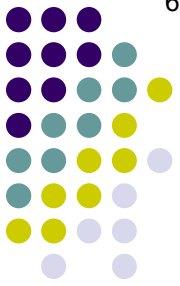


Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?

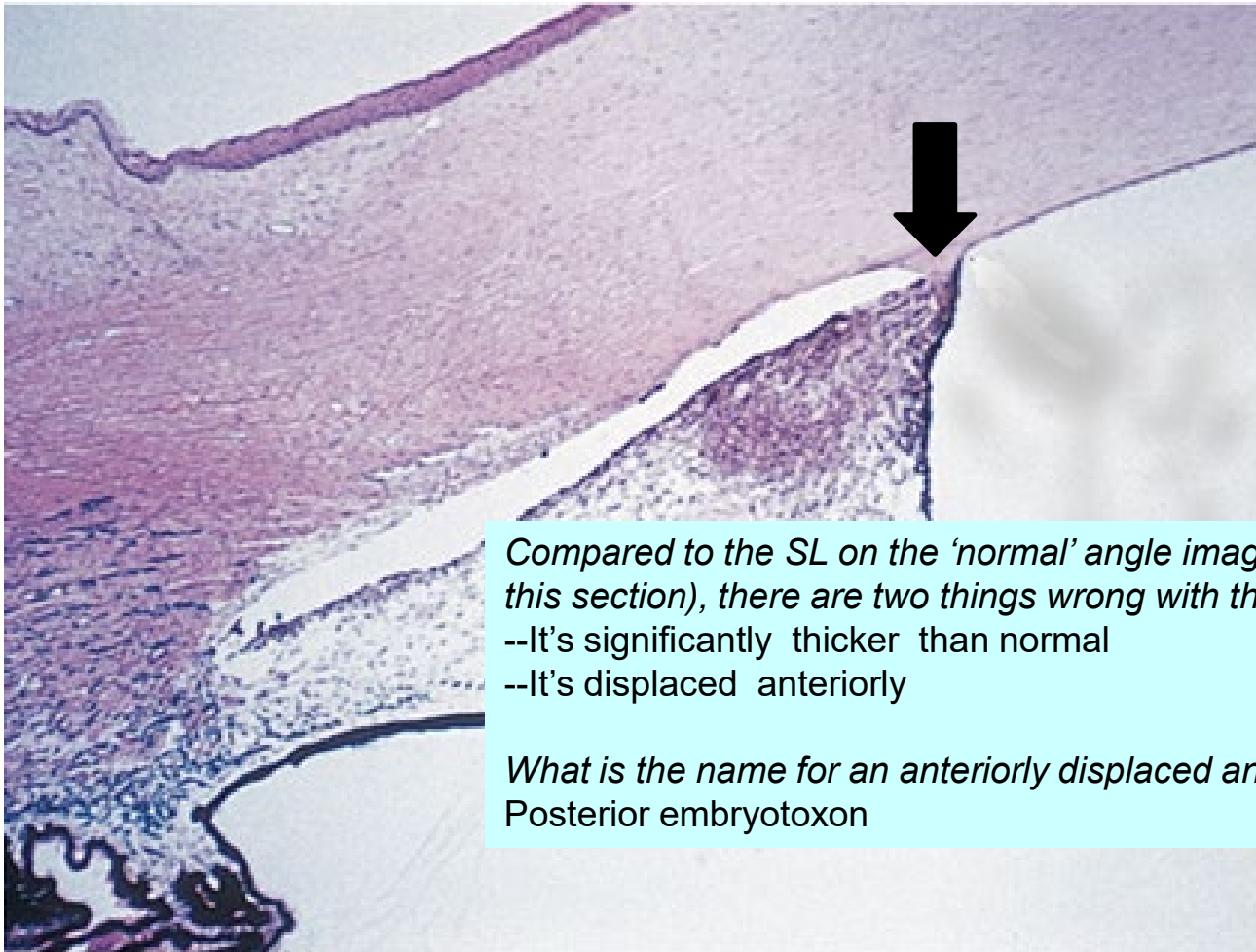
- It's significantly thicker than normal
- It's displaced anteriorly

What is the name for an anteriorly displaced and thickened SL?

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis . Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to **SL**.



Pathwatching



Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?

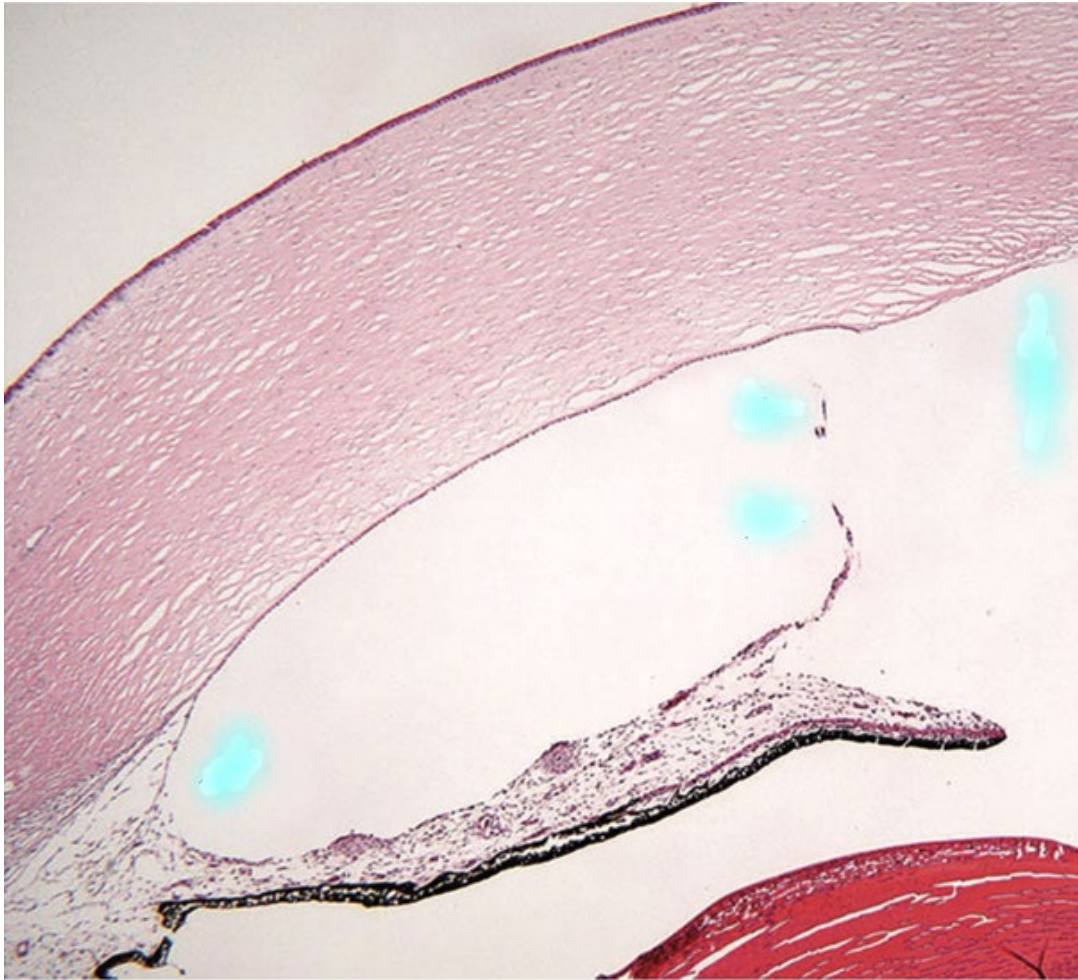
- It's significantly thicker than normal
- It's displaced anteriorly

What is the name for an anteriorly displaced and thickened SL?
Posterior embryotoxon

Axenfeld-Rieger syndrome, an anterior-segment dysgenesis . Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to **SL**.



Pathwatching



At first glance this looks like Axenfeld-Rieger as well, with what appears to be an iris process attaching to a posterior embryotoxon. But close inspection reveals problems with this:

--?

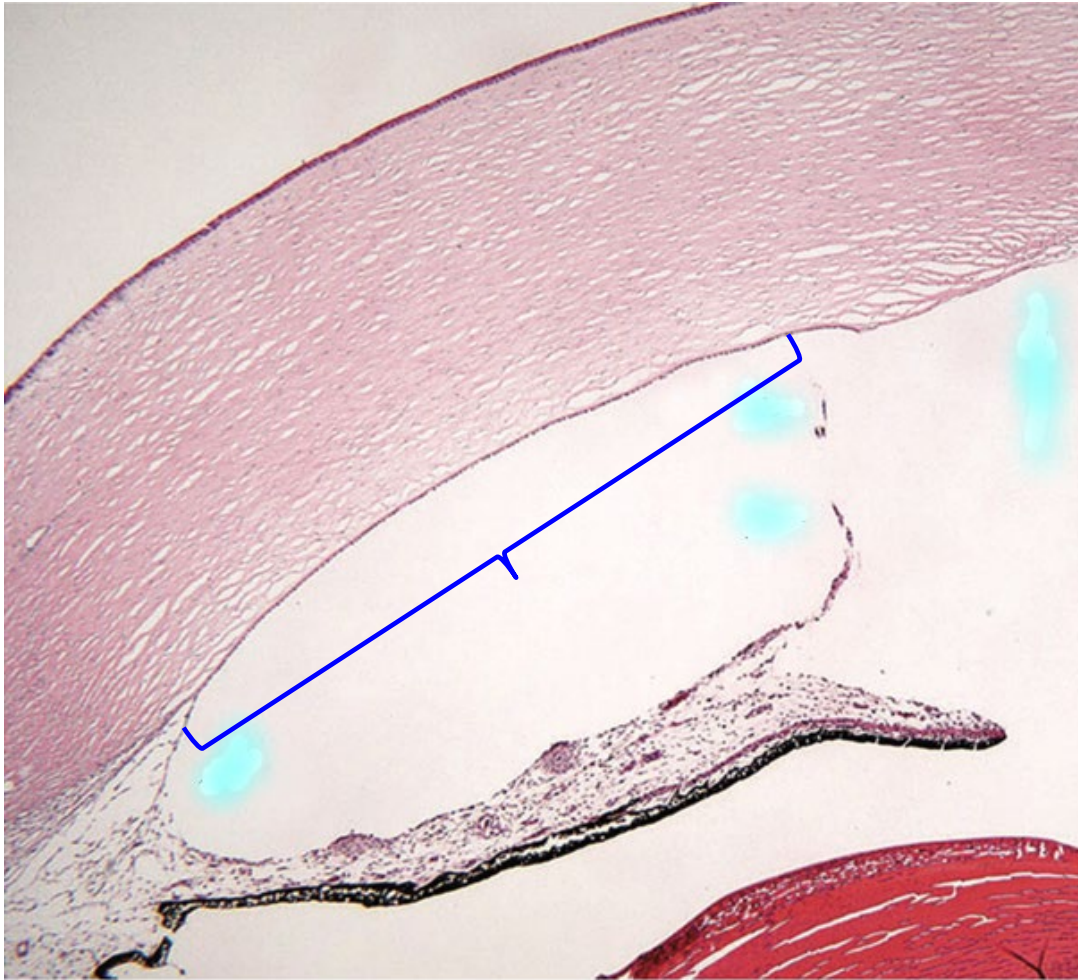
--?

Pathwatching



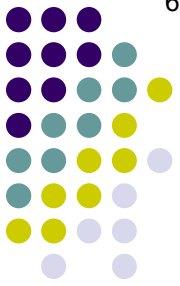
At first glance this looks like Axenfeld-Rieger as well, with what appears to be an iris process attaching to a posterior embryotoxon. But close inspection reveals problems with this:
--A 'SL' doesn't seem to be present at all (much less a thickened one).
--?

Pathwatching

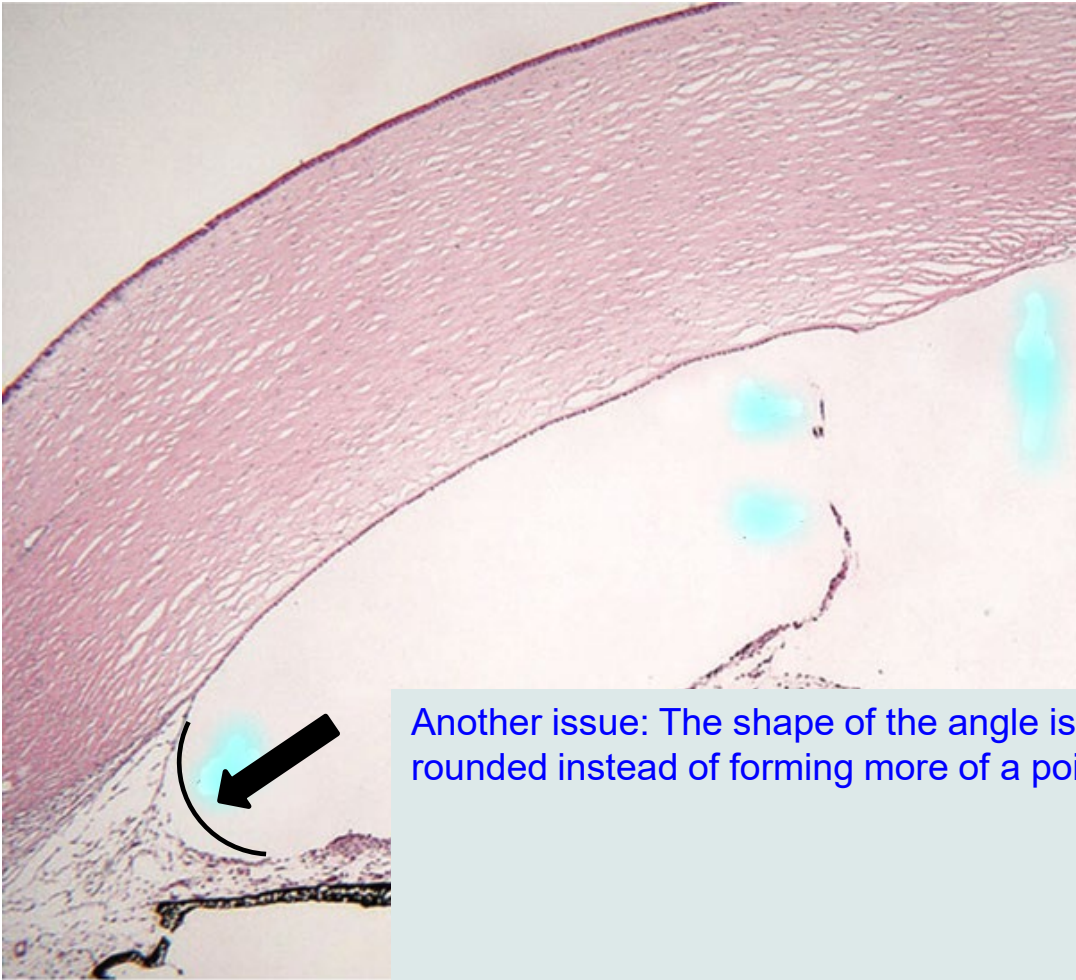


At first glance this looks like Axenfeld-Rieger as well, with what appears to be an iris process attaching to a posterior embryotoxon. But close inspection reveals problems with this:

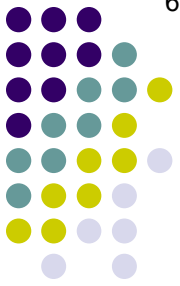
- A 'SL' doesn't seem to be present at all (much less a thickened one).
- The point of attachment is **way** more anterior than we saw on the A-R slide.



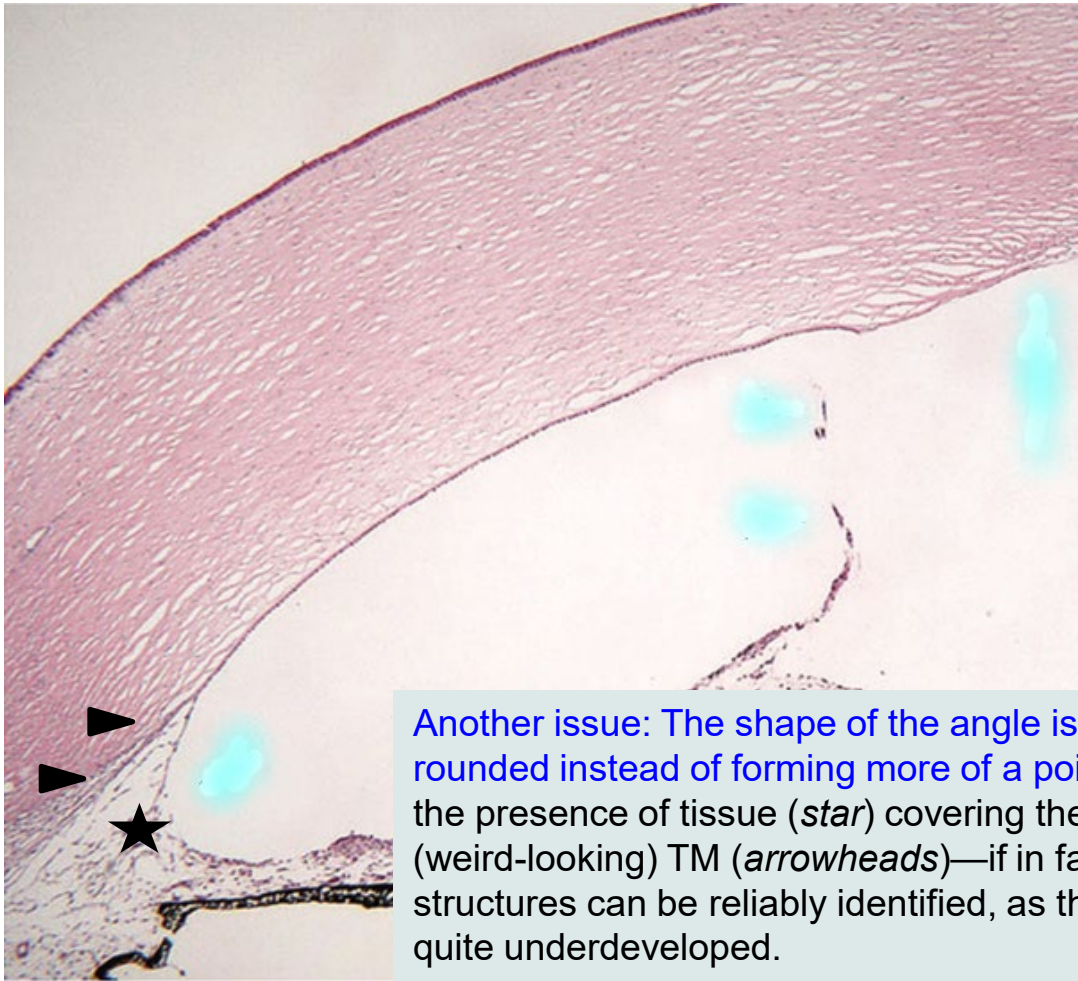
Pathwatching



Another issue: The shape of the angle is off—it's rounded instead of forming more of a point.



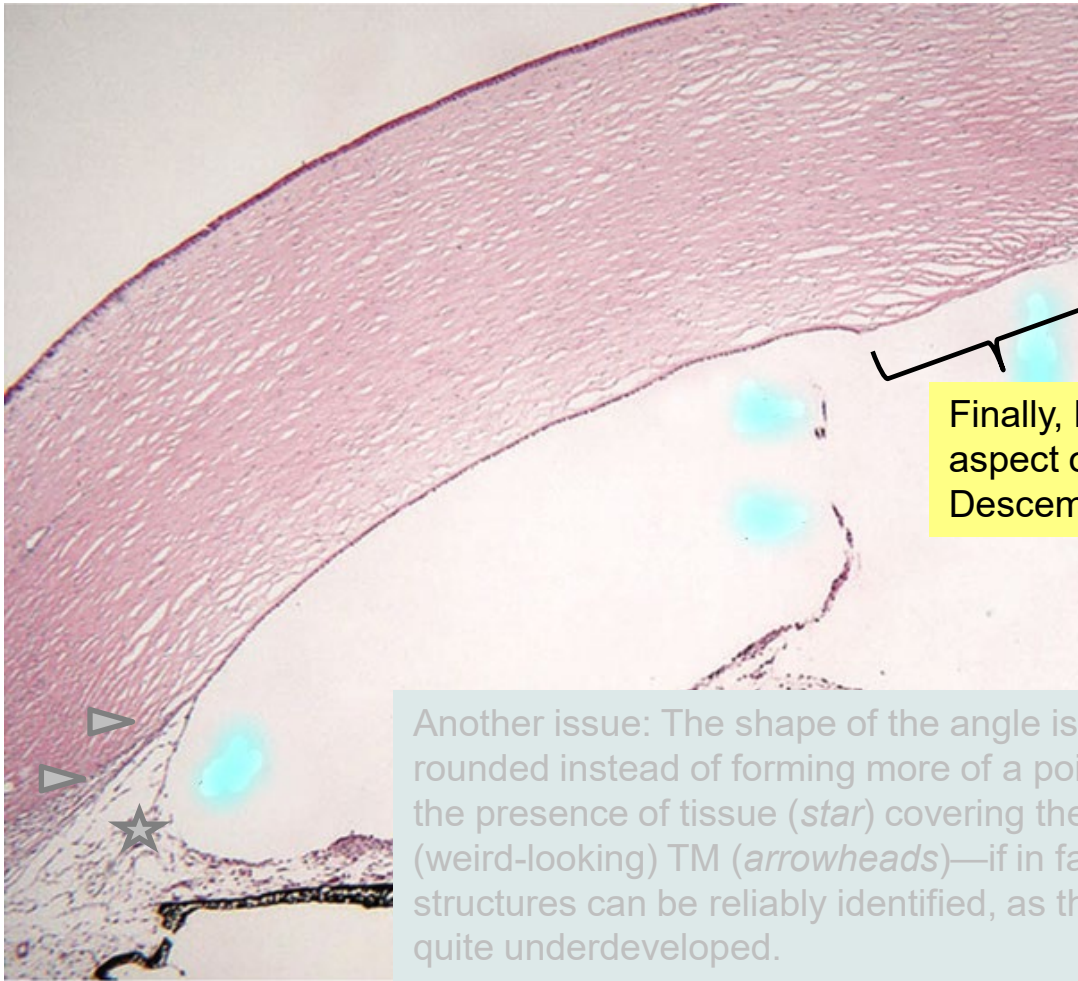
Pathwatching



Another issue: The shape of the angle is off—it's rounded instead of forming more of a point. Also, note the presence of tissue (*star*) covering the SS and (weird-looking) TM (*arrowheads*)—if in fact those structures can be reliably identified, as they seem quite underdeveloped.

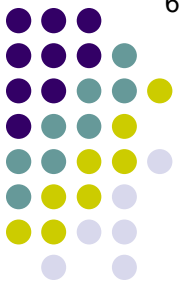


Pathwatching

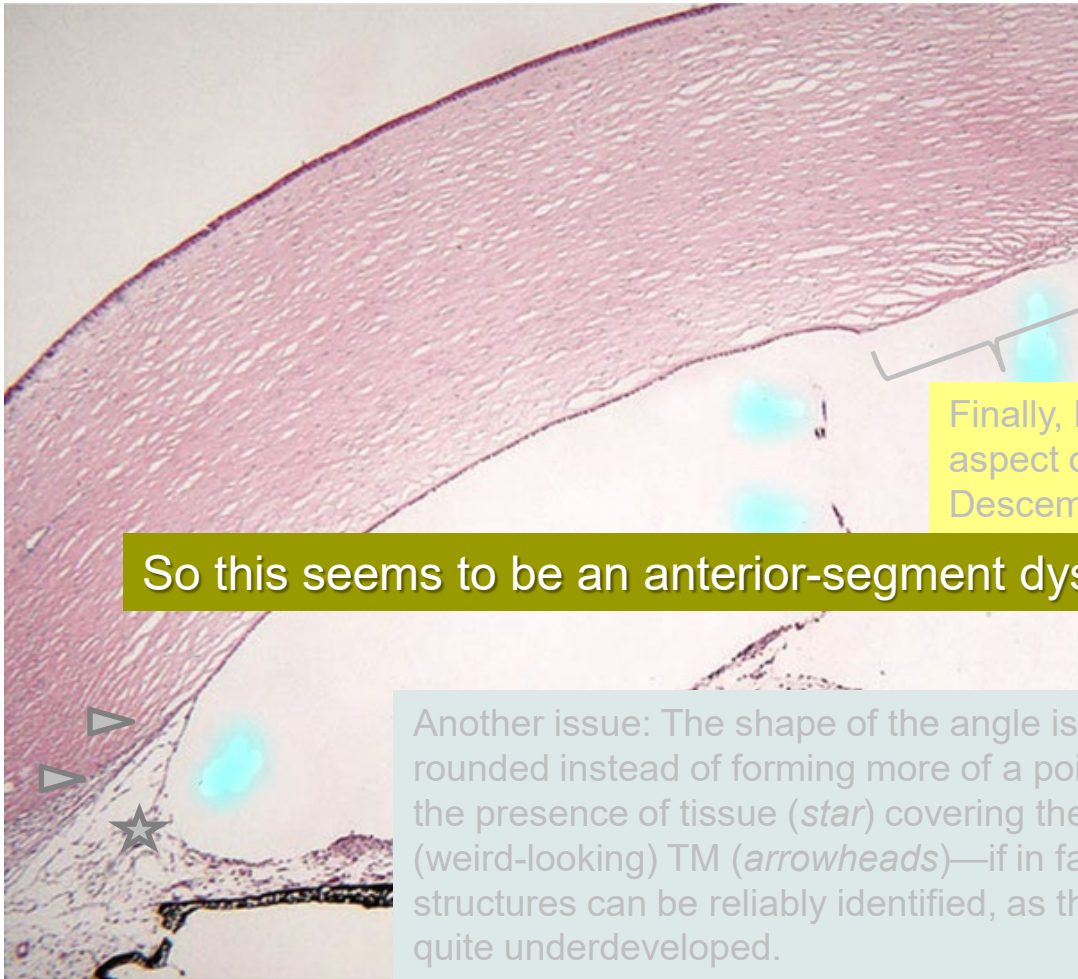


Finally, look carefully at the central aspect of the cornea: there's no Descemet's or endothelium present

Another issue: The shape of the angle is off—it's rounded instead of forming more of a point. Also, note the presence of tissue (*star*) covering the SS and (weird-looking) TM (*arrowheads*)—if in fact those structures can be reliably identified, as they seem quite underdeveloped.



Pathwatching

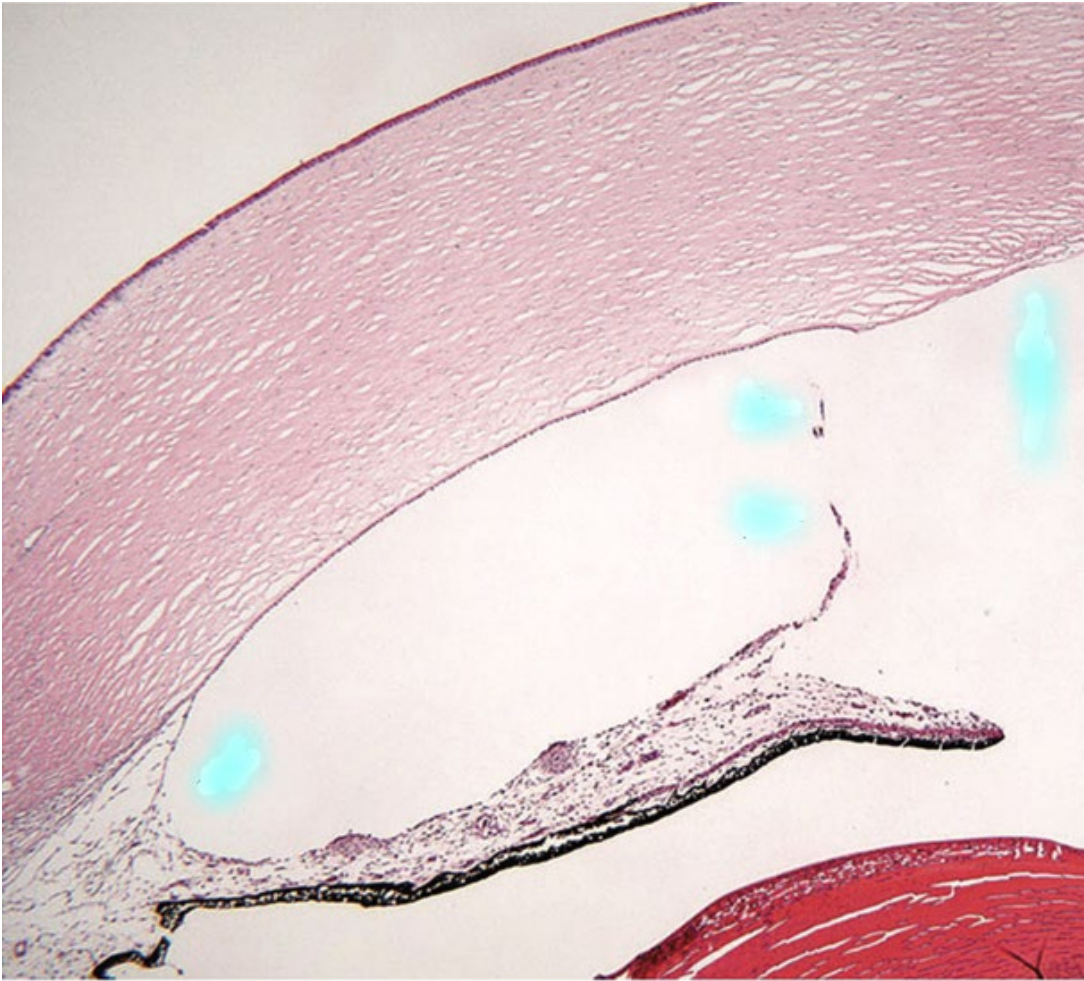


Finally, look carefully at the central aspect of the cornea: there's no Descemet's or endothelium present

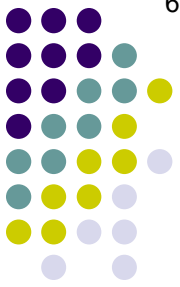
So this seems to be an anterior-segment dysgenesis, but **not** A-R.

Another issue: The shape of the angle is off—it's rounded instead of forming more of a point. Also, note the presence of tissue (*star*) covering the SS and (weird-looking) TM (*arrowheads*)—if in fact those structures can be reliably identified, as they seem quite underdeveloped.

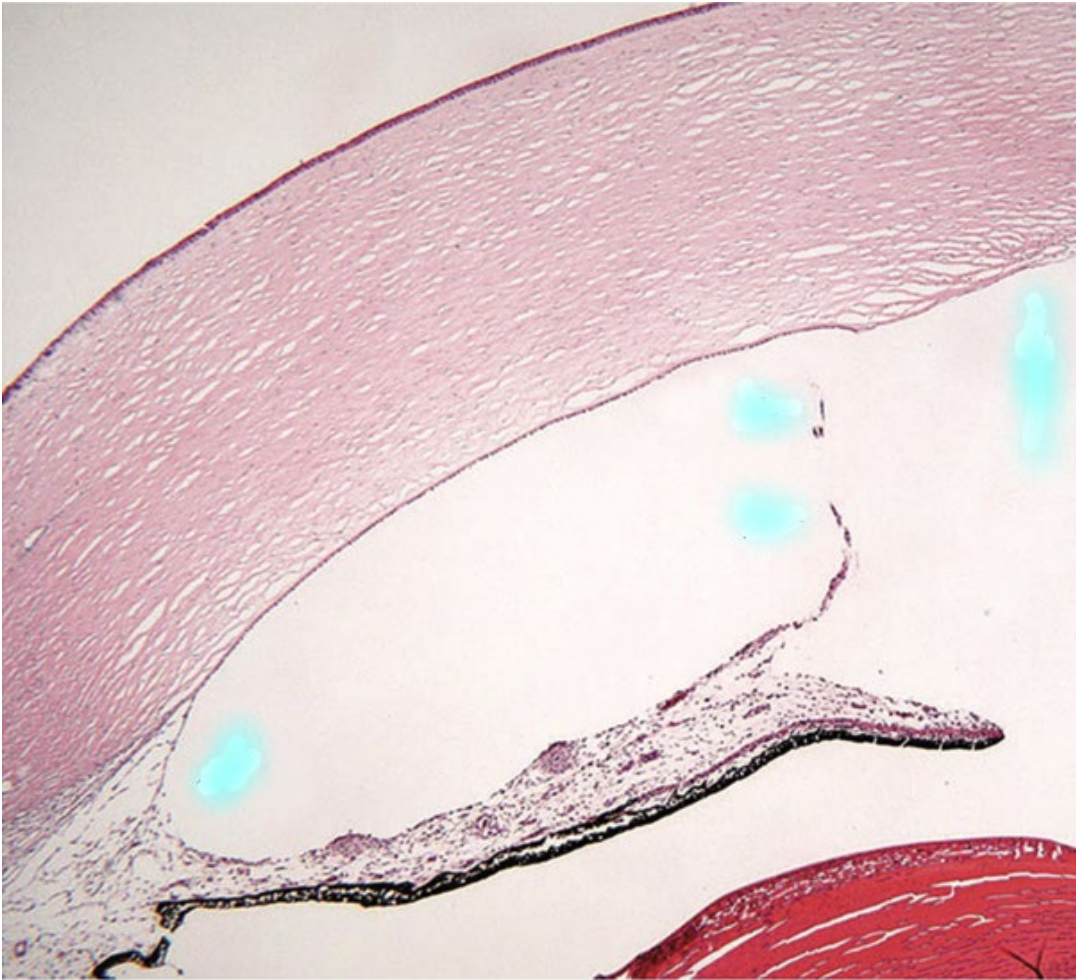
Pathwatching



What's the diagnosis?

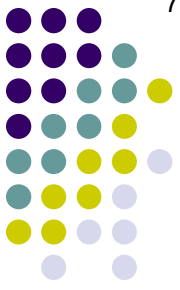


Pathwatching

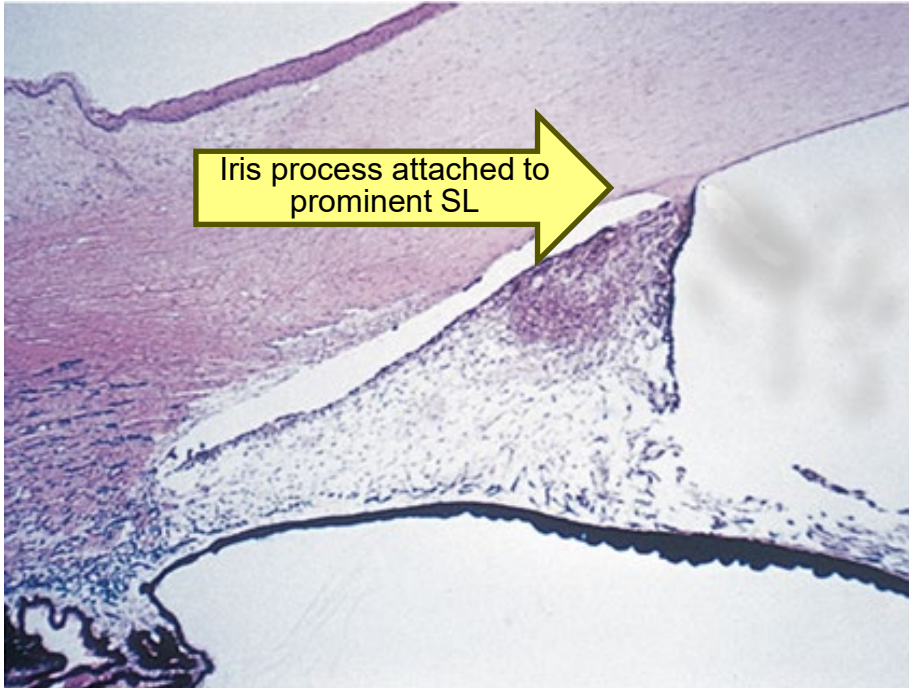


Peter's anomaly. The iris strand attaches to the posterior aspect of the cornea, the central portion of which is missing Descemet's and endothelium. The drainage angle is abnormal, having failed to cleave completely/normally.

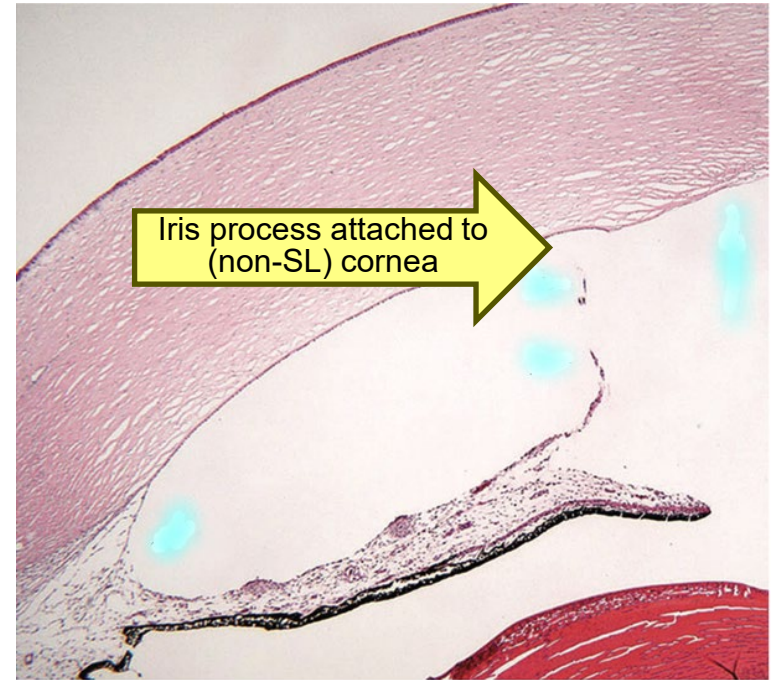




Pathwatching

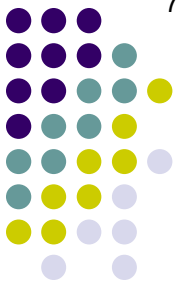


Axenfeld-Rieger



Peter's anomaly

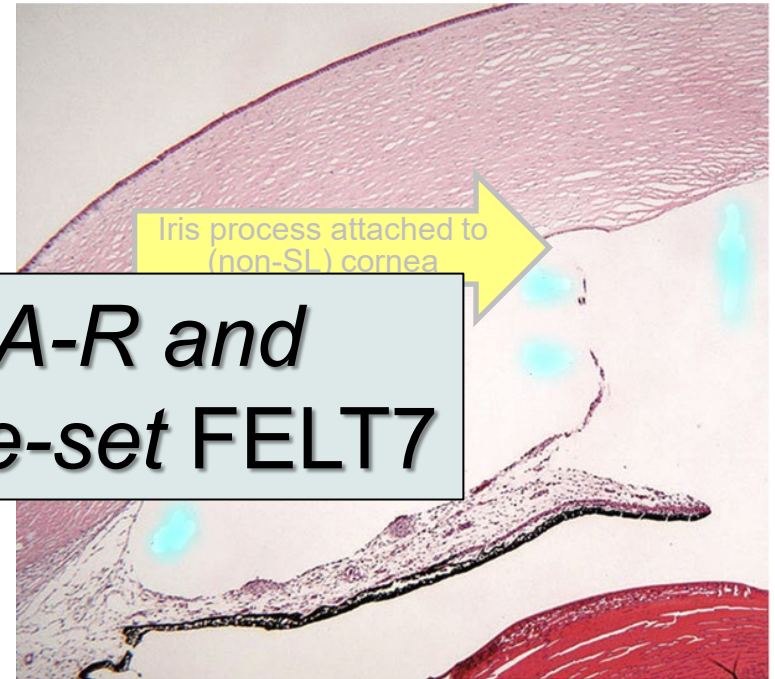
Axenfeld-Rieger and Peter's anomaly side-by-side



Pathwatching



Axenfeld-Rieger

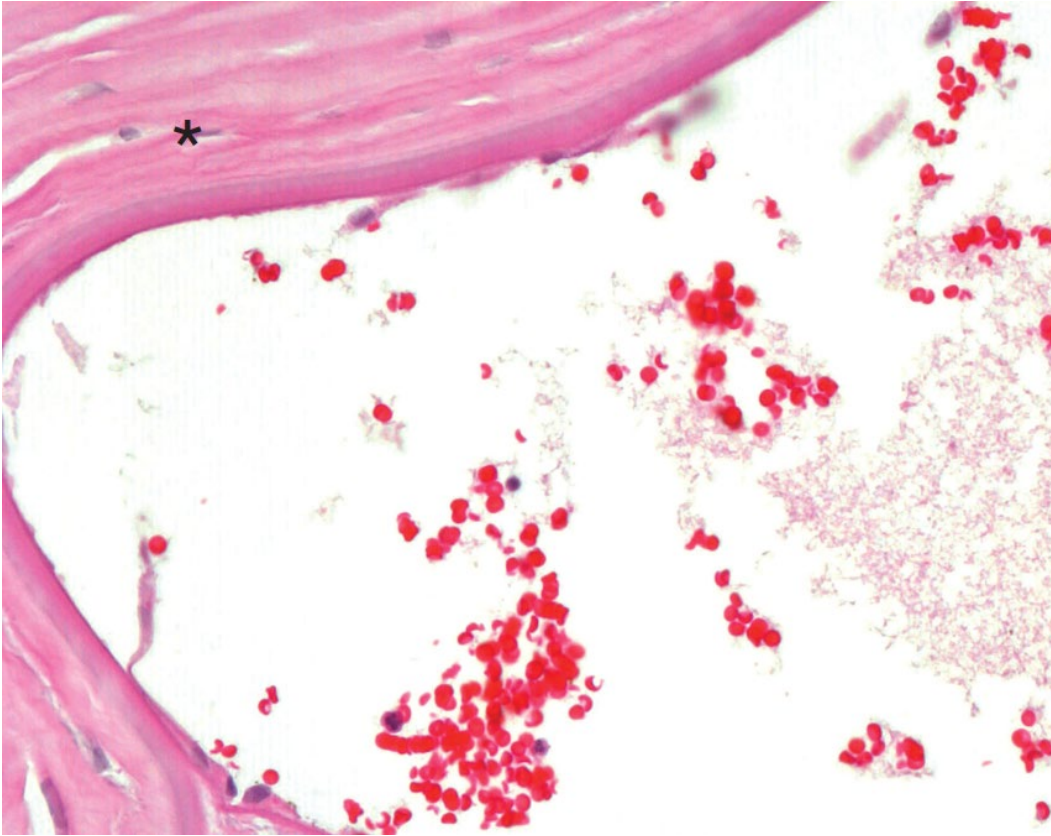
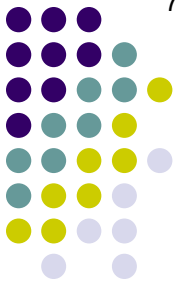


Peter's anomaly

For more on A-R and Peter's, see slide-set FELT7

Axenfeld-Rieger and Peter's anomaly side-by-side

Pathwatching

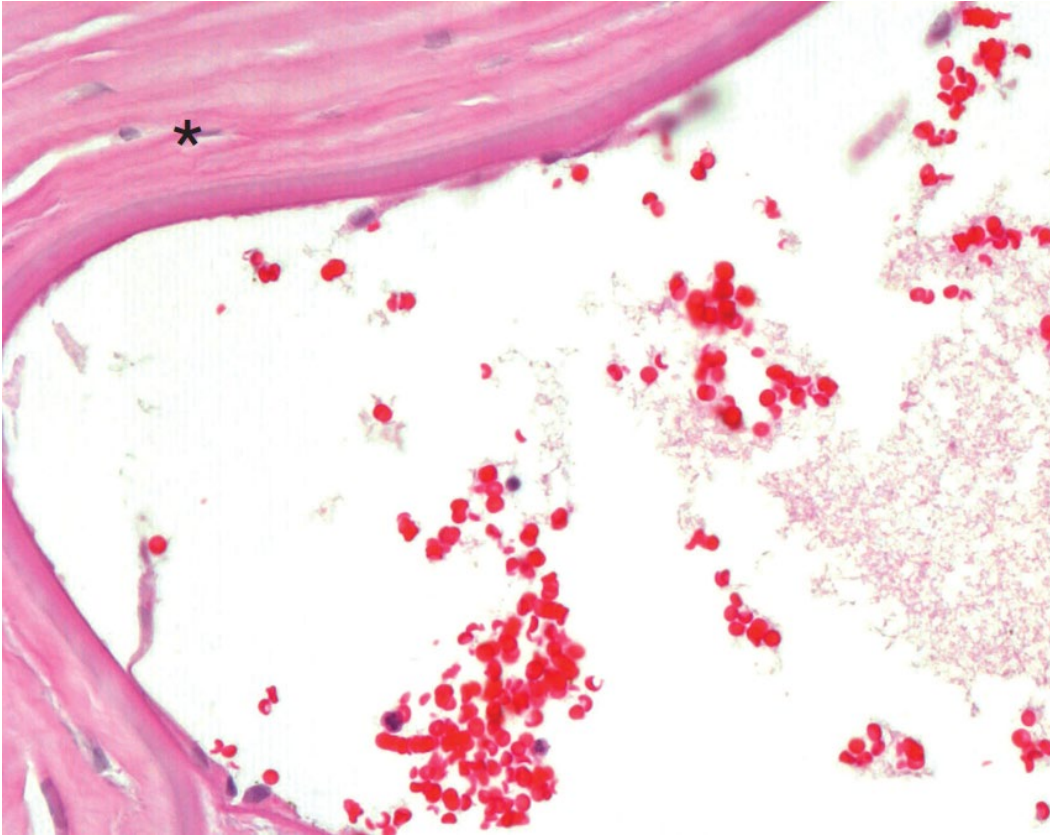
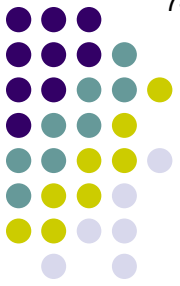


?

As for slides depicting **cell in the AC**:
--If the cells are bright red, that's a



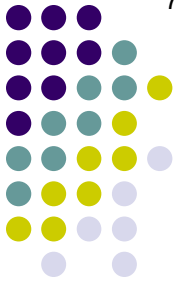
Pathwatching



Erythrocytes in the anterior chamber (hyphema)
posterior to the cornea (*asterisk*)

As for slides depicting **cell in the AC**:
--If the cells are bright red, that's a
hyphema

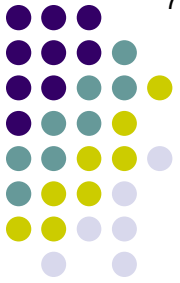
Pathwatching



As for slides depicting **cell in the AC**:
--If the cells are bright red, that's a
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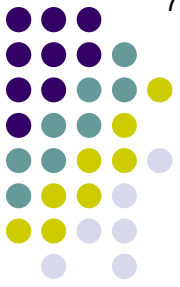
If the cells are **not** bright red, they are
likely **specific cell type** .

Pathwatching



As for slides depicting **cell in the AC**:
--If the cells are bright red, that's a
hyphema

If the cells are **not** bright red, they are
likely macrophages .



Pathwatching



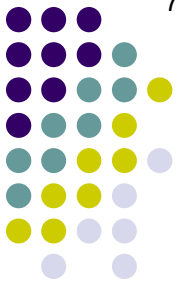
?

As for slides depicting **cell in the AC**:
--If the cells are bright red, that's a
hyphema

If the cells are **not** bright red, they are
likely **macrophages** .

--If the macrophages are jet black,
you're dealing with a **diagnosis**

Pathwatching

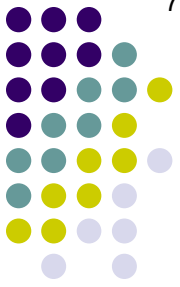


?

As for slides depicting **cell in the AC**:
--If the cells are bright red, that's a
hyphema

If the cells are **not** bright red, they are
likely **macrophages** .

--If the macrophages are jet black,
you're dealing with a melanoma



Pathwatching

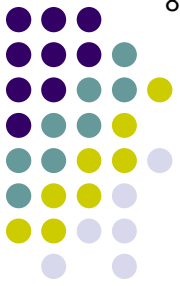


?

As for slides depicting **cell in the AC**:
 --If the cells are bright red, that's a
 hyphema

If the cells are **not** bright red, they are
 likely **macrophages** .

--If the macrophages are jet black,
 you're dealing with a **melanoma** (that
 is likely inducing diff diagnosis)



Pathwatching

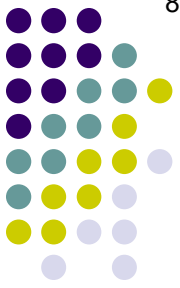


Melanomalytic glaucoma. The trabecular meshwork (*between arrows*) is obstructed by macrophages that have ingested pigment from a necrotic intraocular melanoma.

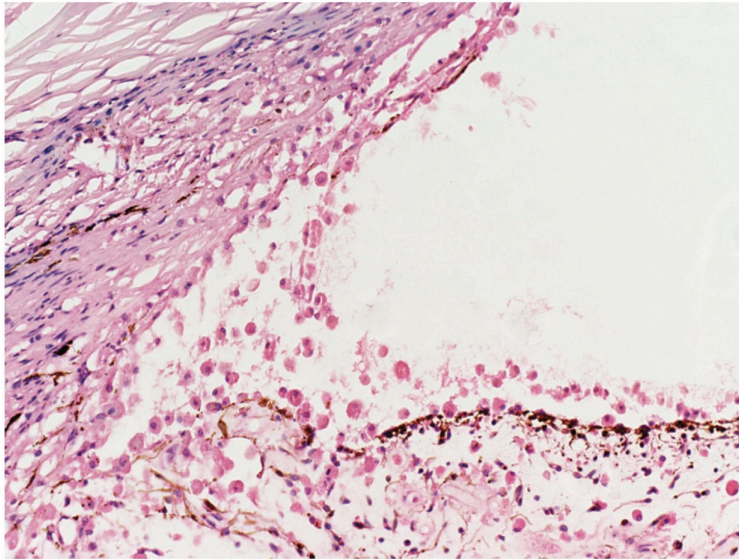
As for slides depicting **cell in the AC**:
 --If the cells are bright red, that's a hyphema

If the cells are **not** bright red, they are likely macrophages .

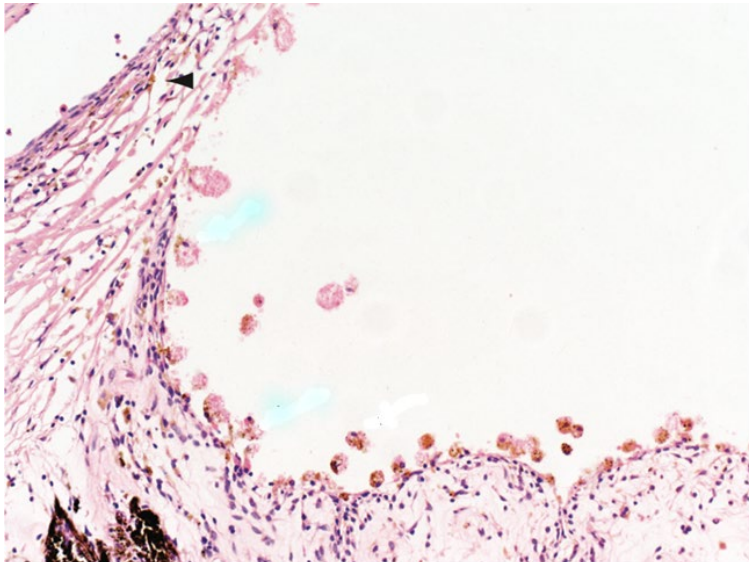
--If the macrophages are jet black, you're dealing with a melanoma (that is likely inducing glaucoma)



atching



?



?

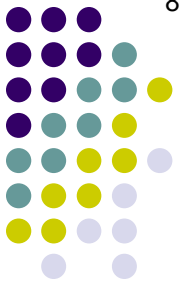
As for slides depicting **cell in the AC**:
 --If the cells are bright red, that's a
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If the cells are **not** bright red, they are
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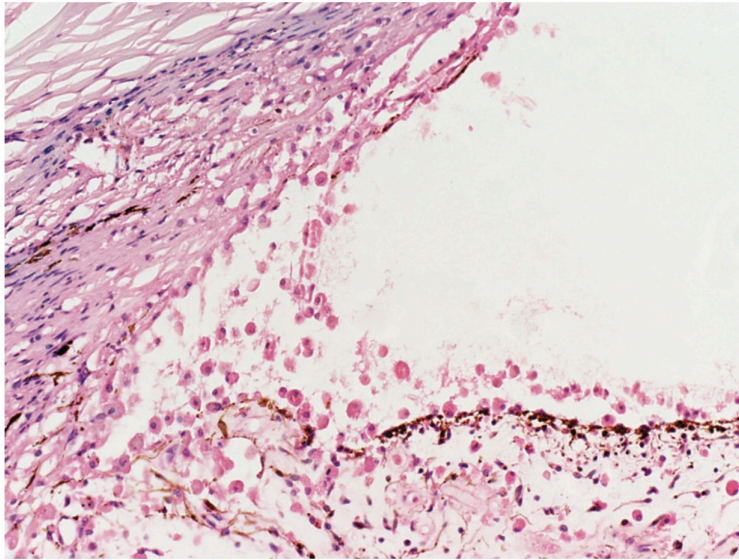
--If the macrophages are jet black,
 you're dealing with a melanoma (that
 is likely inducing glaucoma)

If the macrophages aren't jet black,
 it's likely one of two entities:

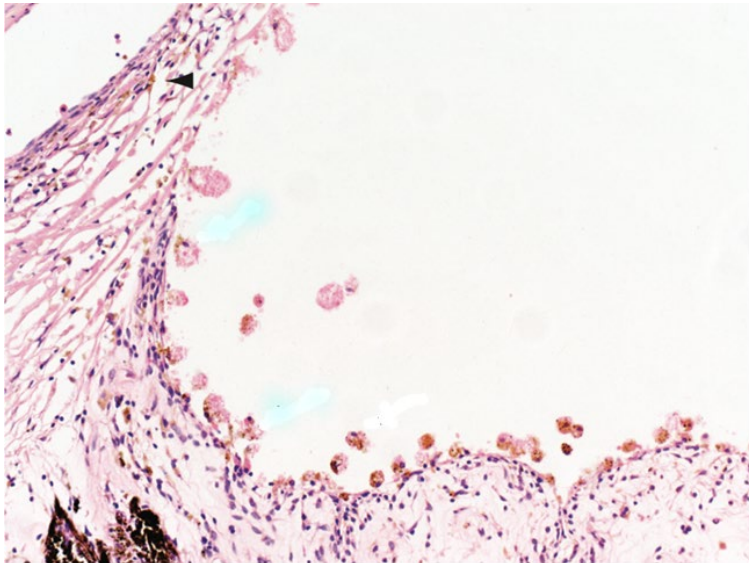
- [redacted] glaucoma, or
- [redacted] glaucoma



atching



Phacolytic glaucoma showing macrophages filled with degenerated lens cortical material in the angle



Hemolytic glaucoma showing macrophages with erythrocytic debris and hemosiderin in the angle

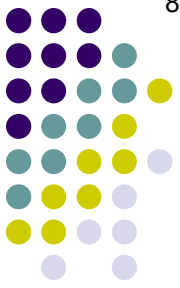
As for slides depicting **cell in the AC**:
 --If the cells are bright red, that's a hyphema

If the cells are **not** bright red, they are likely macrophages .

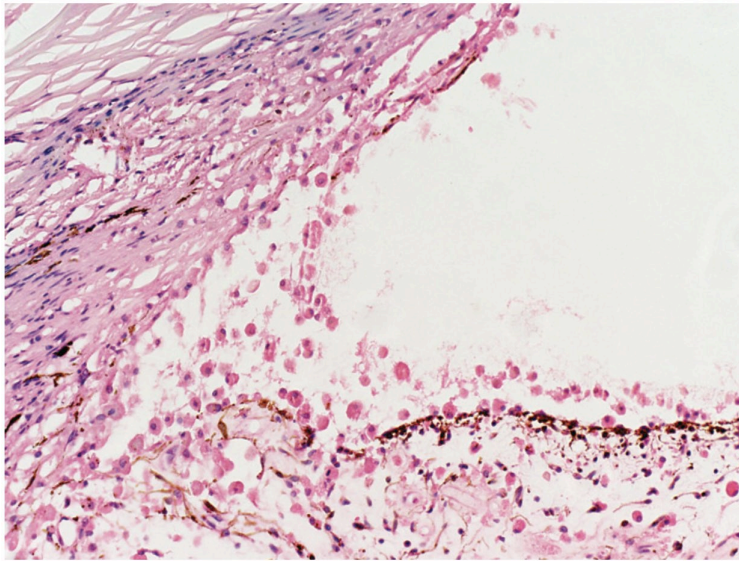
--If the macrophages are jet black, you're dealing with a melanoma (that is likely inducing glaucoma)

If the macrophages aren't jet black, it's likely one of two entities:

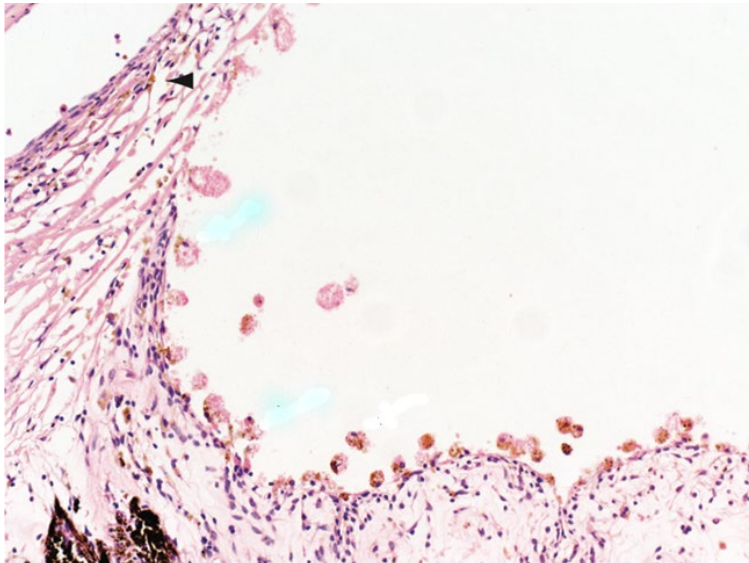
- Phacolytic glaucoma, or
- Hemolytic glaucoma



atching



Phacolytic glaucoma showing macrophages filled with degenerated lens cortical material in the angle



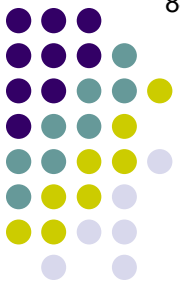
Hemolytic glaucoma showing macrophages with erythrocytic debris and hemosiderin in the angle

As for slides depicting **cell in the AC**:
 --If the cells are bright red, that's a hyphema

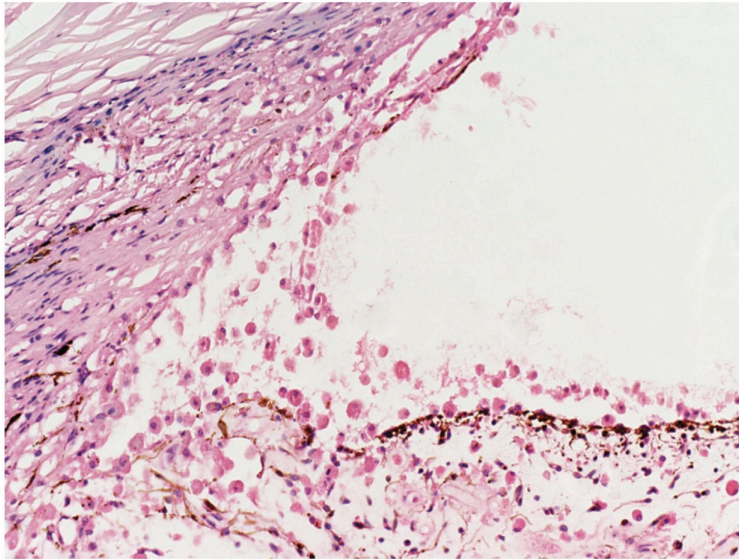
If the cells are **not** bright red, they are likely macrophages .
 --If the macrophages are jet black, you're dealing with a melanoma (that is likely inducing glaucoma)

If the macrophages aren't jet black, it's likely one of two entities:
 --Phacolytic glaucoma, or
 --Hemolytic glaucoma

(It's not apparent to me that these can be reliably distinguished on the basis of appearance, so I suspect clinical context will play a role in doing so.)



atching



Phacolytic glaucoma showing macrophages filled

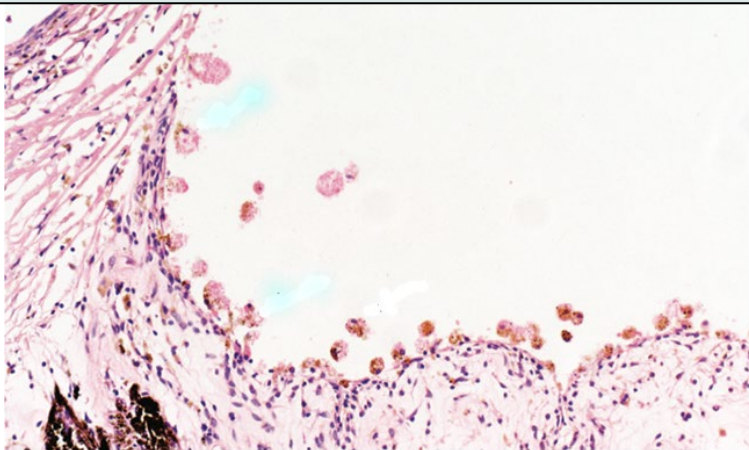
As for slides depicting **cell in the AC**:
 --If the cells are bright red, that's a
 hyphema

If the cells are **not** bright red, they are
 likely macrophages .

If the macrophages are jet black,

***For more on phacolytic and hemolytic glaucoma,
 see slide-sets G13 and G14***

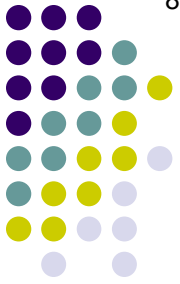
that



Hemolytic glaucoma showing macrophages with
 erythrocytic debris and hemosiderin in the angle

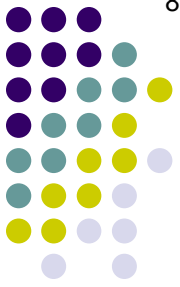
it's likely one of two entities:
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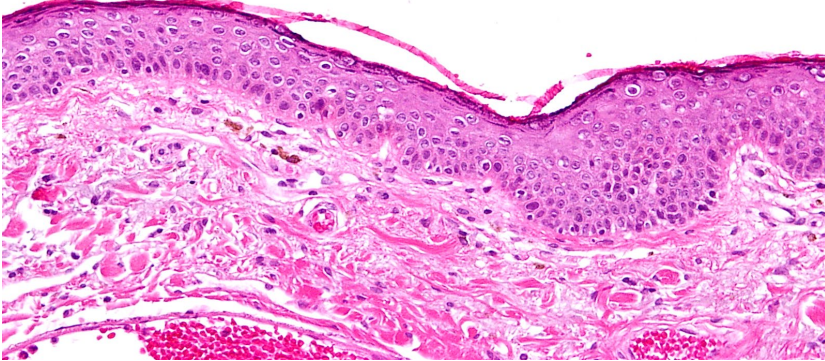


Conj and Lid Skin

These images will include a tissue edge—a boundary between tissue and nothing. Identifying pathology on such images requires that one first determine which tissue (lid skin vs conj) one is dealing with, so we'll start by tackling how to make this distinction.

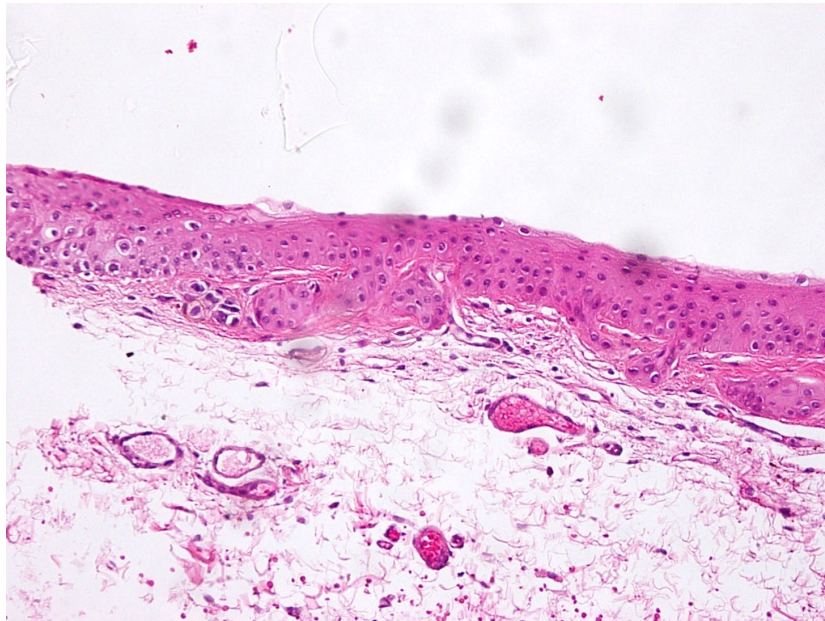


Pathwatching

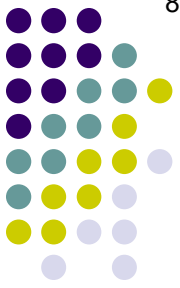


(Photomicrographs courtesy of Dr. Nick Mamalis and his lab)

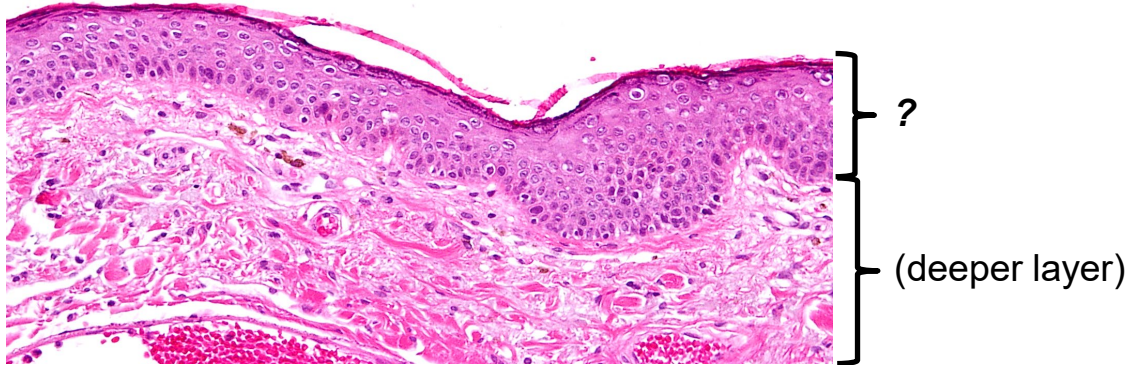
Here we have conj and lid skin—*but which is which?*



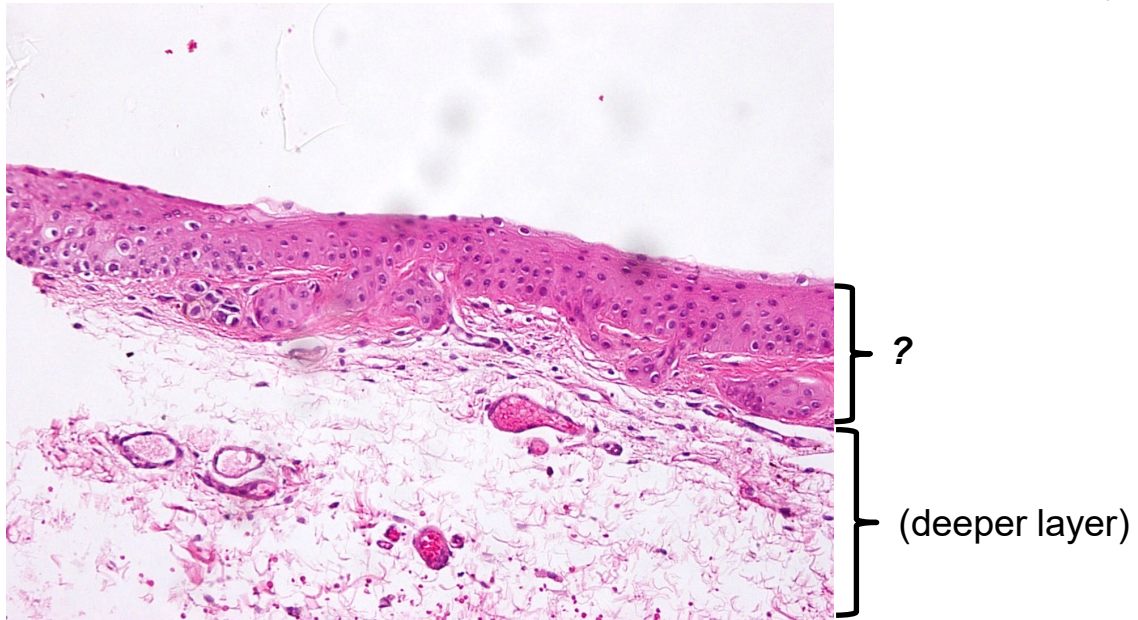
(Rhetorical question—keep going)

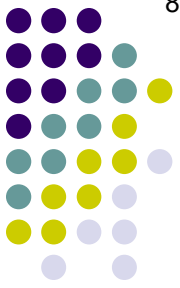


Pathwatching

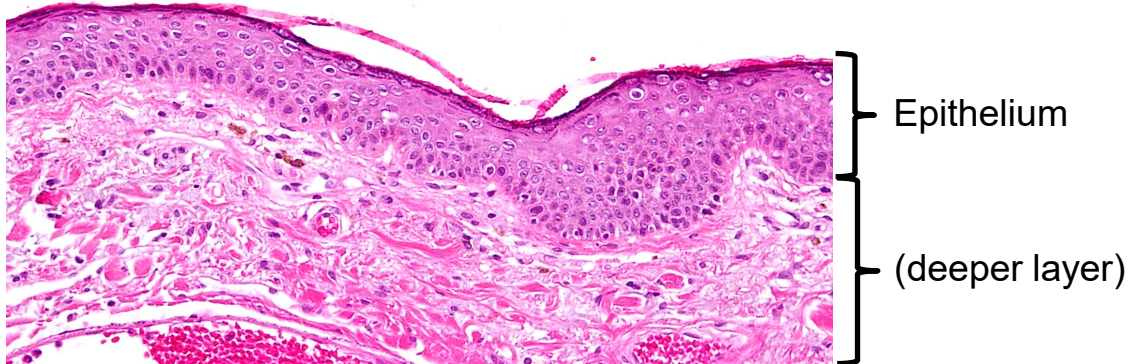


Here we have conj and lid skin—but *which is which?*
 Both consist of two broad layers: An over
 a deeper layer (to be named shortly).

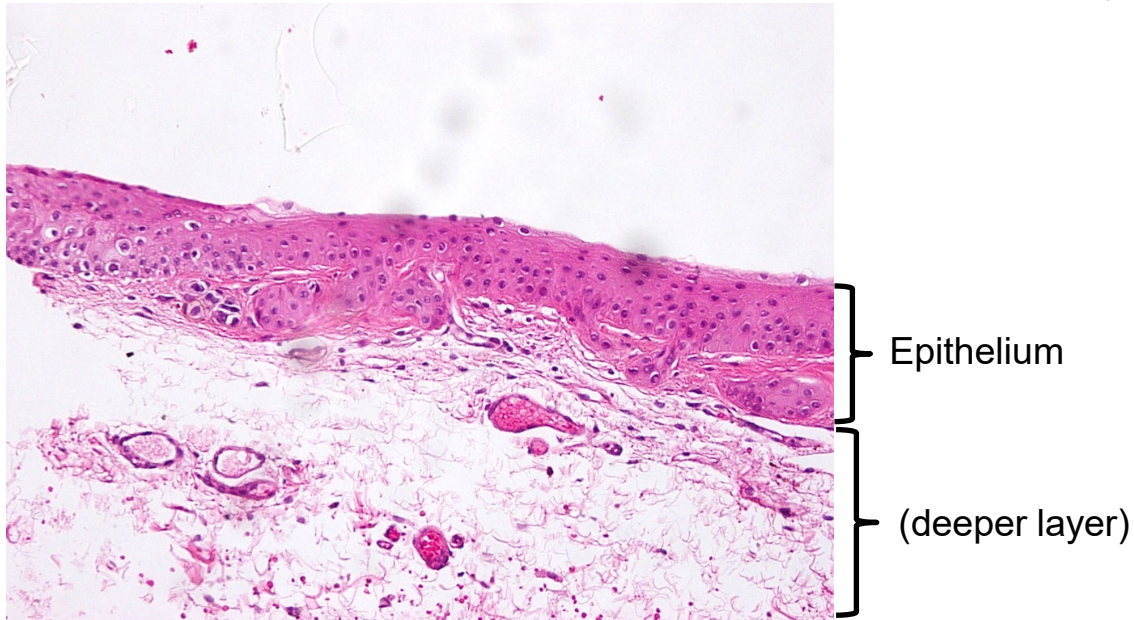


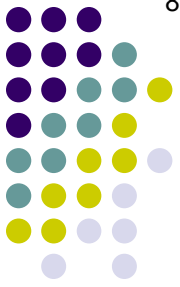


Pathwatching

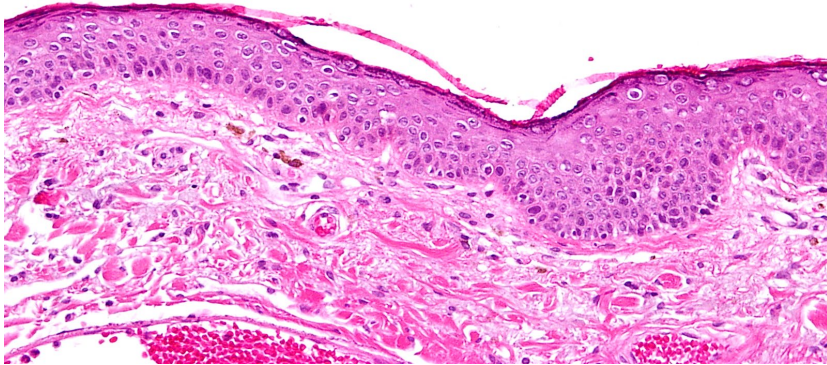


Here we have conj and lid skin—but which is which?
Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly).





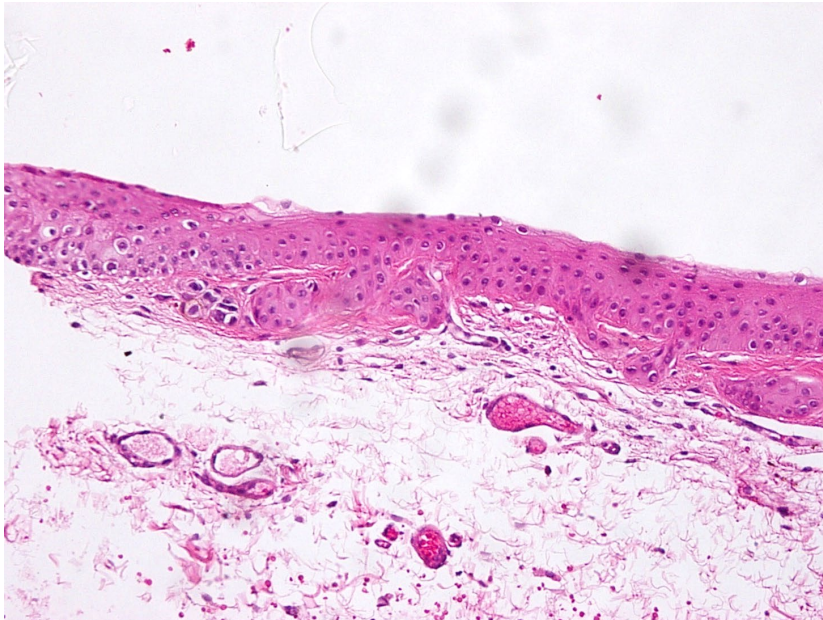
Pathwatching



Epithelium: cell shape

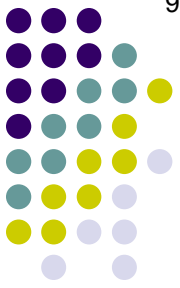
(deeper layer)

Here we have conj and lid skin—but which is which?
Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is cell shape

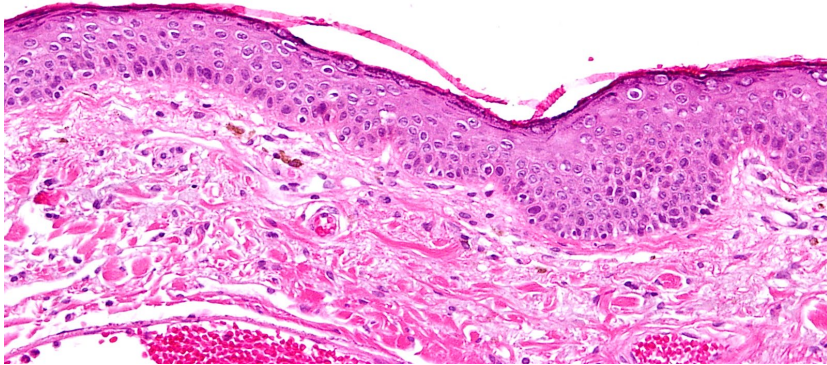


Epithelium: cell shape

(deeper layer)



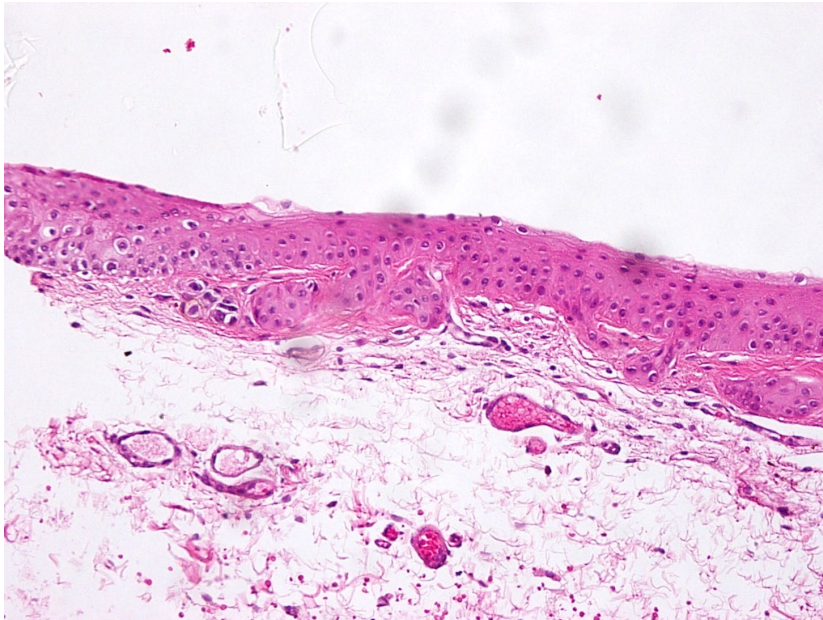
Pathwatching



Epithelium: Squamous

(deeper layer)

Here we have conj and lid skin—but which is which?
Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous

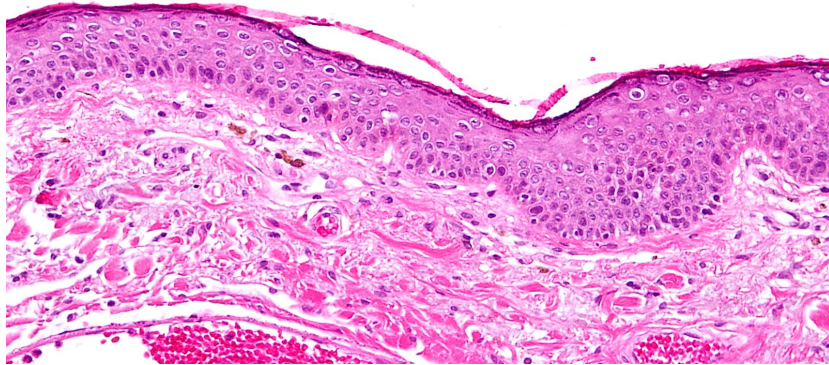


Epithelium: Squamous

(deeper layer)



Pathwatching



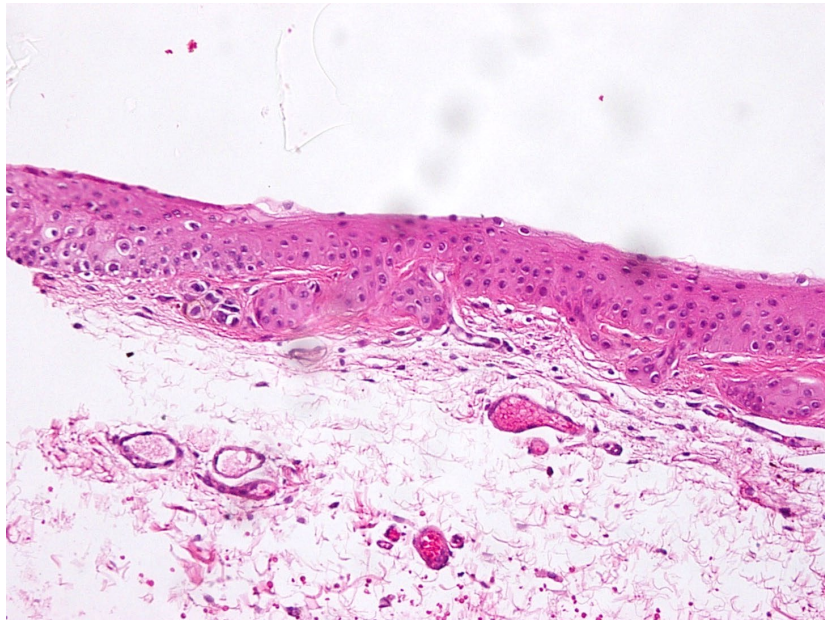
Epithelium: Squamous,

layered-ness

(deeper layer)

Here we have conj and lid skin—but which is which?
Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous, and

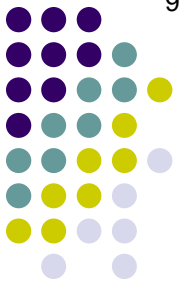
layered-ness



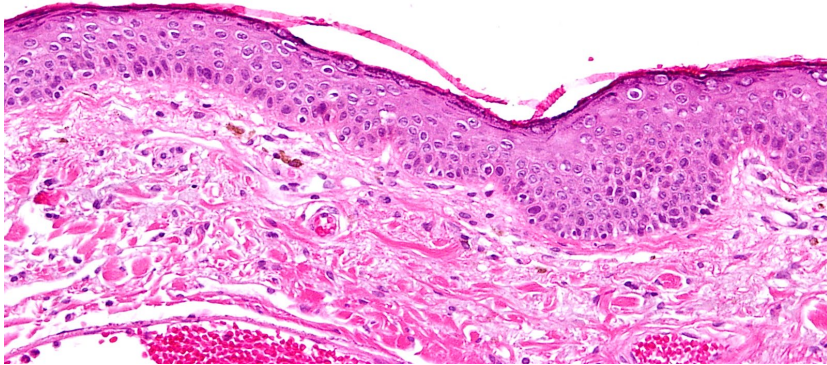
Epithelium: Squamous,

layered-ness

(deeper layer)



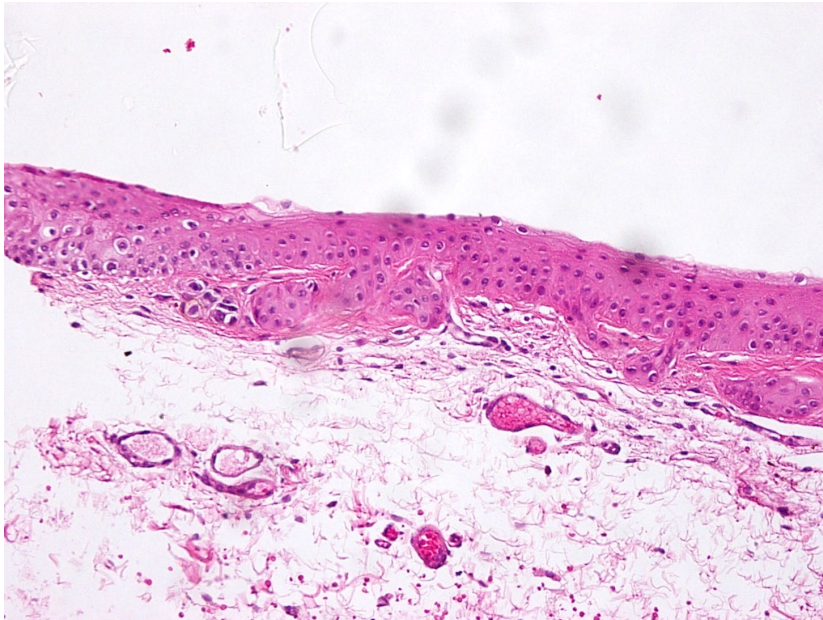
Pathwatching



Epithelium: Squamous, stratified

(deeper layer)

Here we have conj and lid skin—but which is which?
Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous, and stratified.

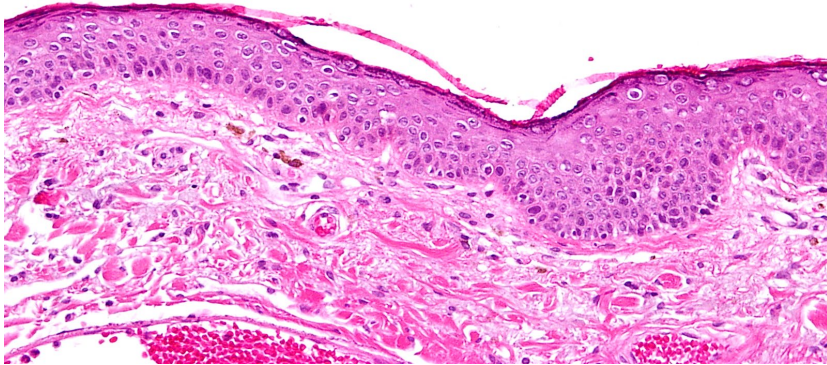


Epithelium: Squamous, stratified

(deeper layer)



Pathwatching

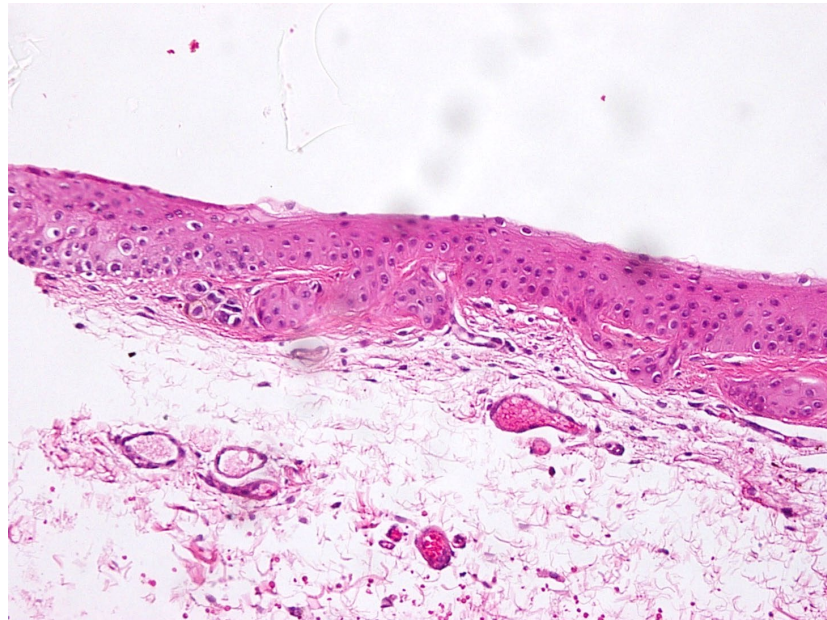


Epithelium: Squamous, stratified,

state

(deeper layer)

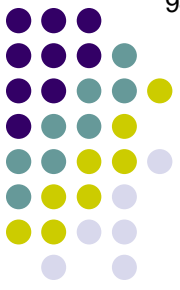
Here we have conj and lid skin—but which is which? Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous, and stratified. However, the epithelia differ in a key aspect—one is state and the other is not.



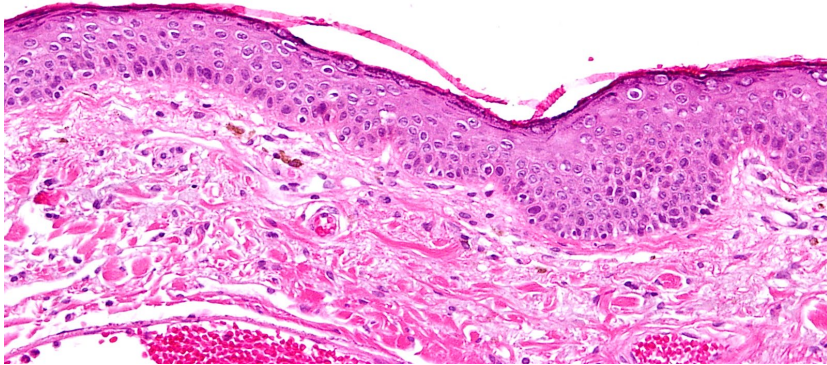
Epithelium: Squamous, stratified,

state

(deeper layer)



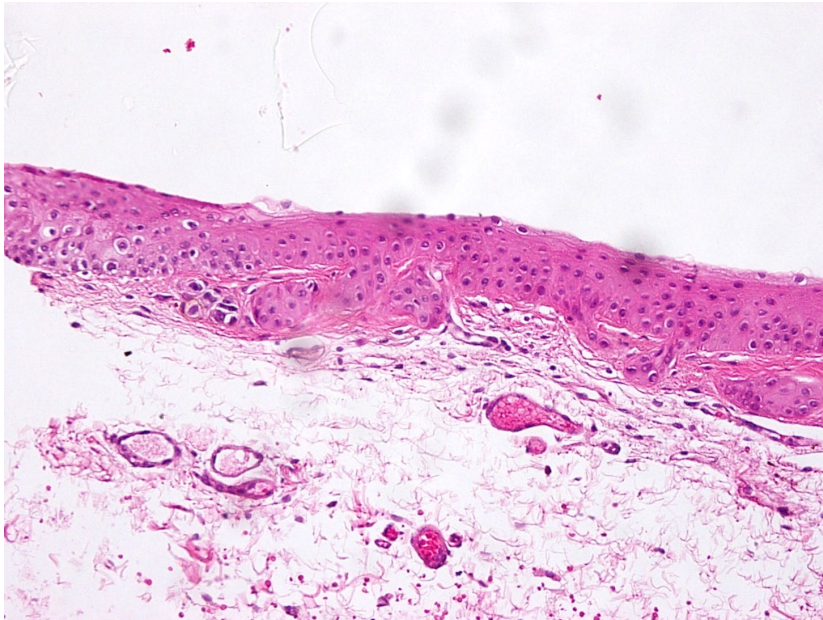
Pathwatching



Epithelium: Squamous, stratified, **keratinized**

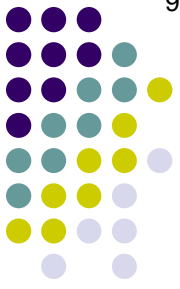
(deeper layer)

Here we have conj and lid skin—but which is which? Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous, and stratified. However, the epithelia differ in a key aspect—one is keratinized and the other is not.

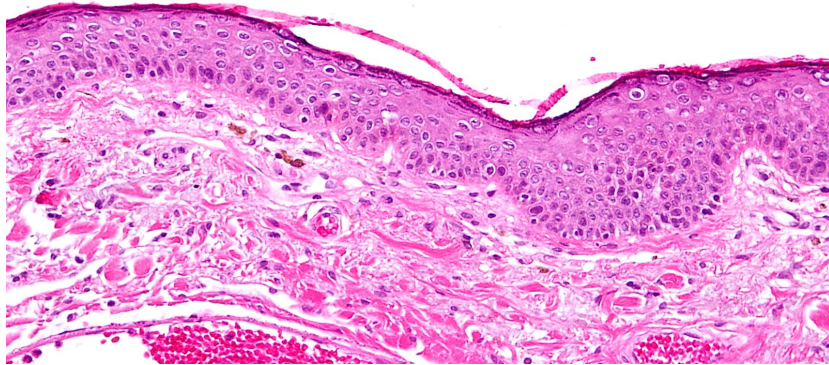


Epithelium: Squamous, stratified, **non-keratinized**

(deeper layer)



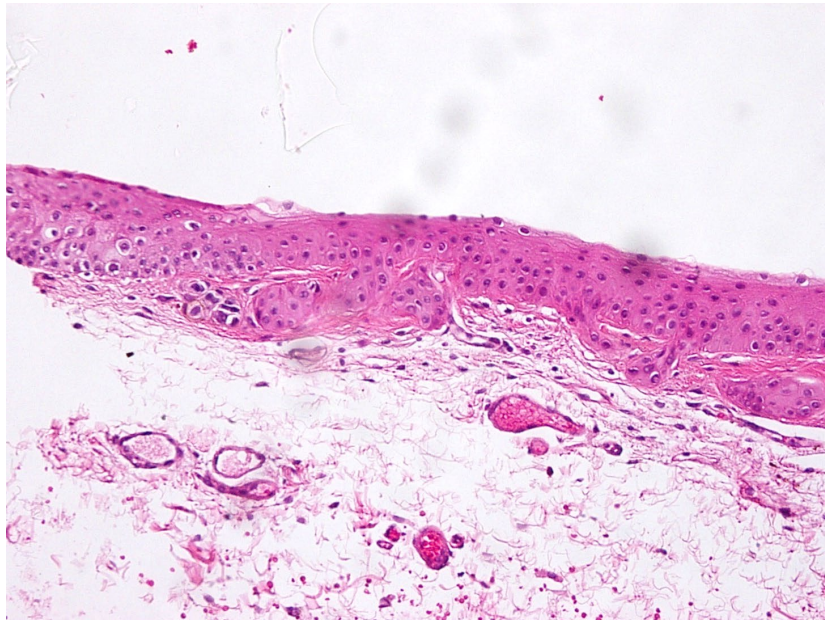
Pathwatching



Epithelium: Squamous, stratified, **keratinized**

(deeper layer)

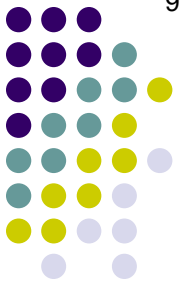
Here we have conj and lid skin—but which is which? Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous, and stratified. However, the epithelia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because one is keratinized, whereas (normal) the other isn't.



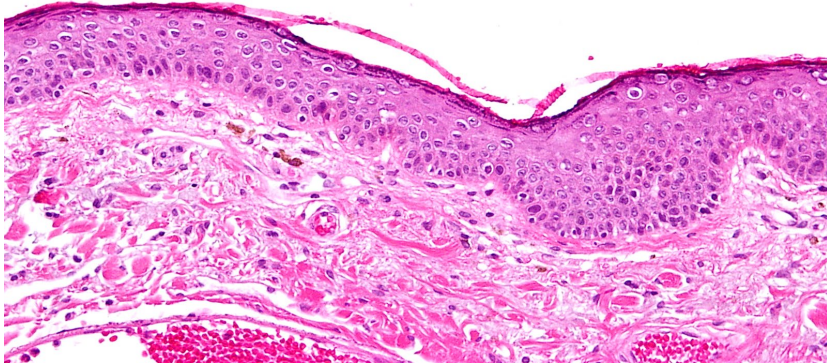
Epithelium: Squamous, stratified, **non-keratinized**

(deeper layer)

Pathwatching



Lid skin

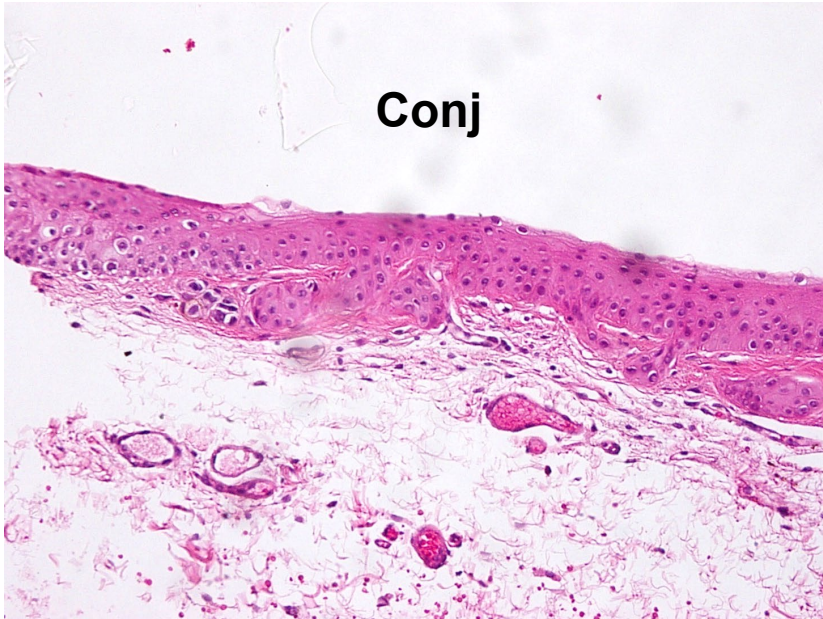


Epithelium: Squamous, stratified, **keratinized**

(deeper layer)

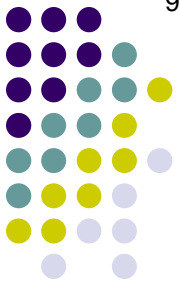
Here we have conj and lid skin—but which is which? Both consist of two broad layers: An epithelium over a deeper layer (to be named shortly). In both, the epithelium is squamous, and stratified. However, the epithelia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because skin is keratinized, whereas (normal) conj isn't.

Conj



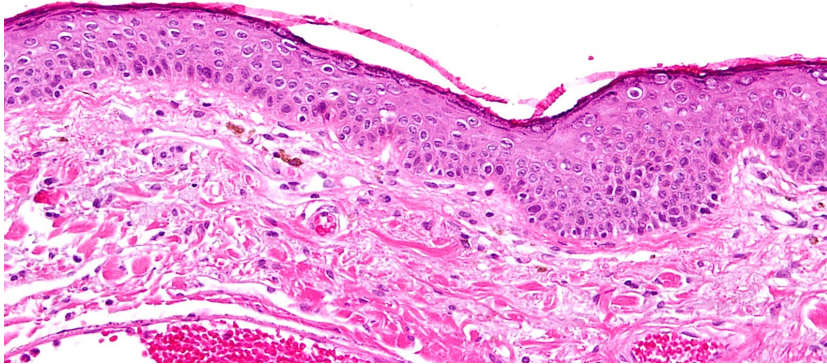
Epithelium: Squamous, stratified, **non-keratinized**

(deeper layer)



Pathwatching

Lid skin



Epithelium: Squamous, stratified, keratinized

?

Here we have conj and lid skin—but *which is which?*
Both consist of two broad layers: An epithelium over

Finally, the deeper layers in skin and conj are the (skin) the
and the (conj) ver,

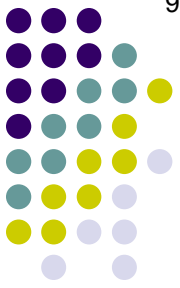
the epitneia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because skin is keratinized, whereas (normal) conj isn't.

Conj



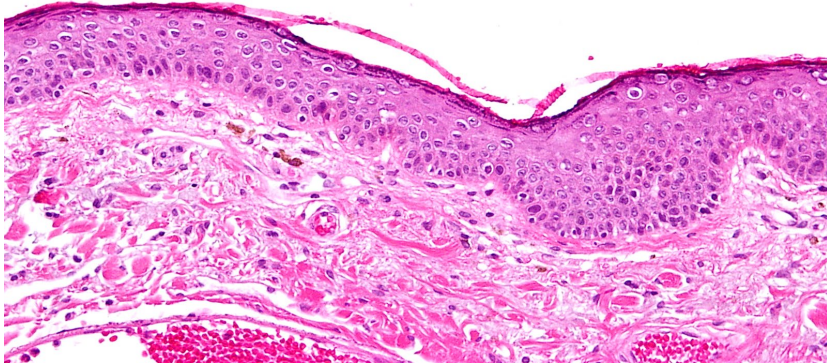
Epithelium: Squamous, stratified, **non**-keratinized

?



Pathwatching

Lid skin



Epithelium: Squamous, stratified, keratinized

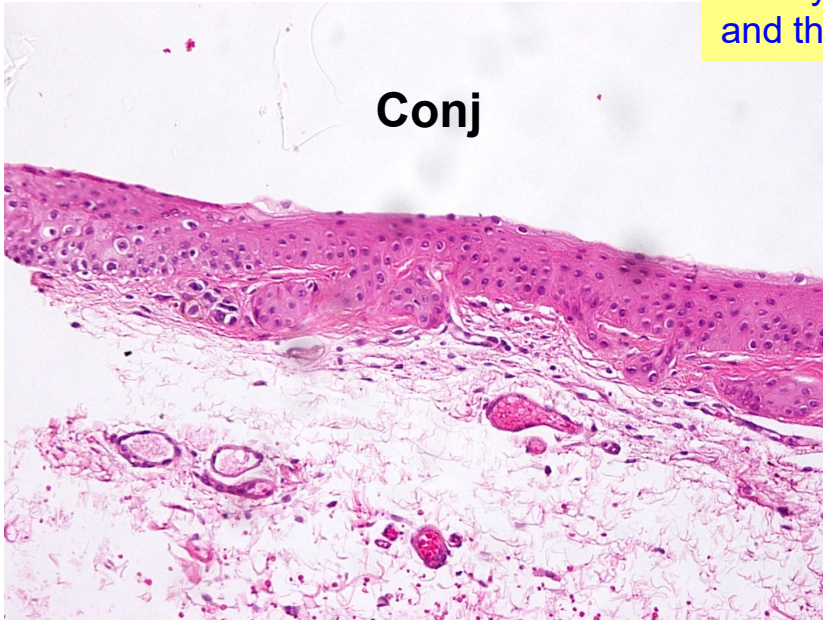
Dermis

Here we have conj and lid skin—but *which is which?*
Both consist of two broad layers: An epithelium over

Finally, the deeper layers in skin and conj are the **dermis** and the **stroma**

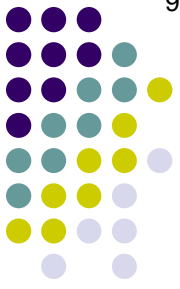
the epitneia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because skin is keratinized, whereas (normal) conj isn't.

Conj



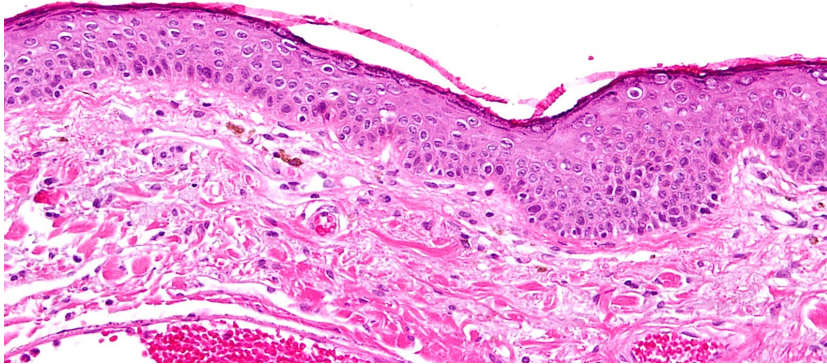
Epithelium: Squamous, stratified, **non-keratinized**

Stroma



Pathwatching

Lid skin



Epithelium: Squamous, stratified, keratinized

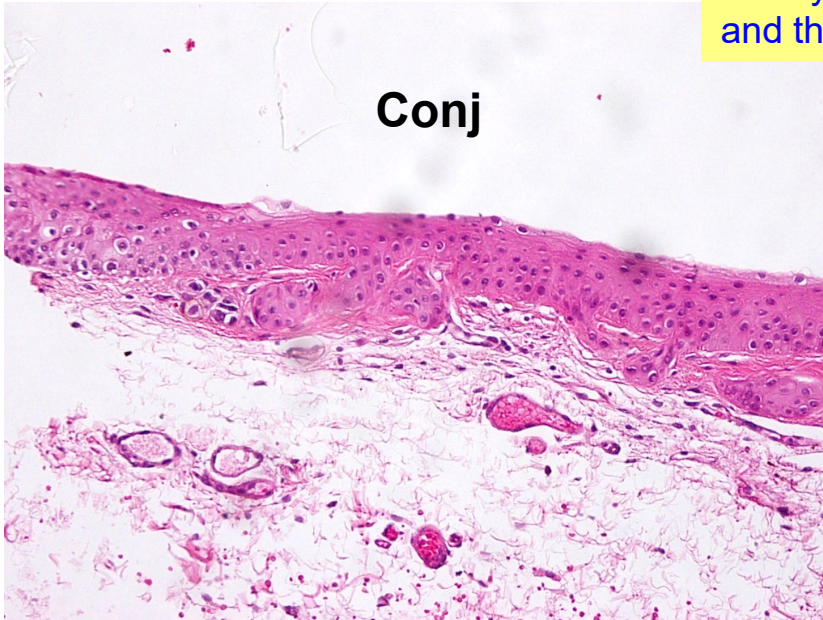
Dermis

Here we have conj and lid skin—but *which is which?*
Both consist of two broad layers: An epithelium over

Finally, the deeper layers in skin and conj are the *dermis* and the *stroma* (aka two words) respectively

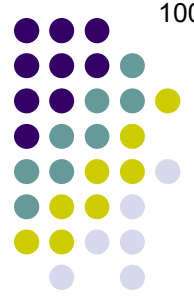
the epitnelia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because skin is keratinized, whereas (normal) conj isn't.

Conj



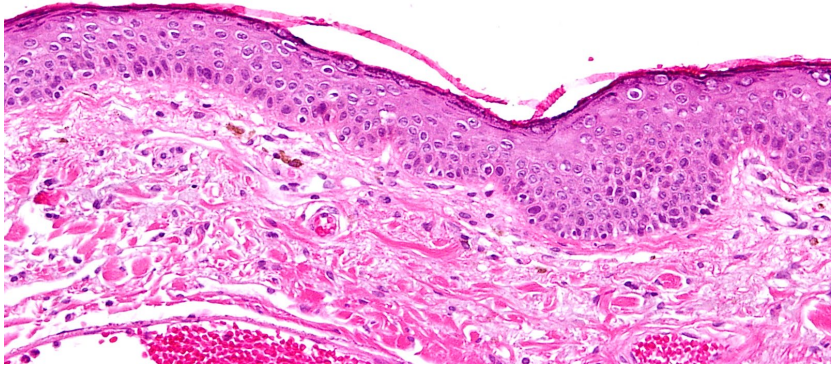
Epithelium: Squamous, stratified, **non**-keratinized

Stroma or two words



Pathwatching

Lid skin



Epithelium: Squamous, stratified, keratinized

Dermis

Here we have conj and lid skin—but which is which? Both consist of two broad layers: An epithelium over

Finally, the deeper layers in skin and conj are the *dermis* and the *stroma* (aka *substantia propria*) respectively

the epithelia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because skin is keratinized, whereas (normal) conj isn't.

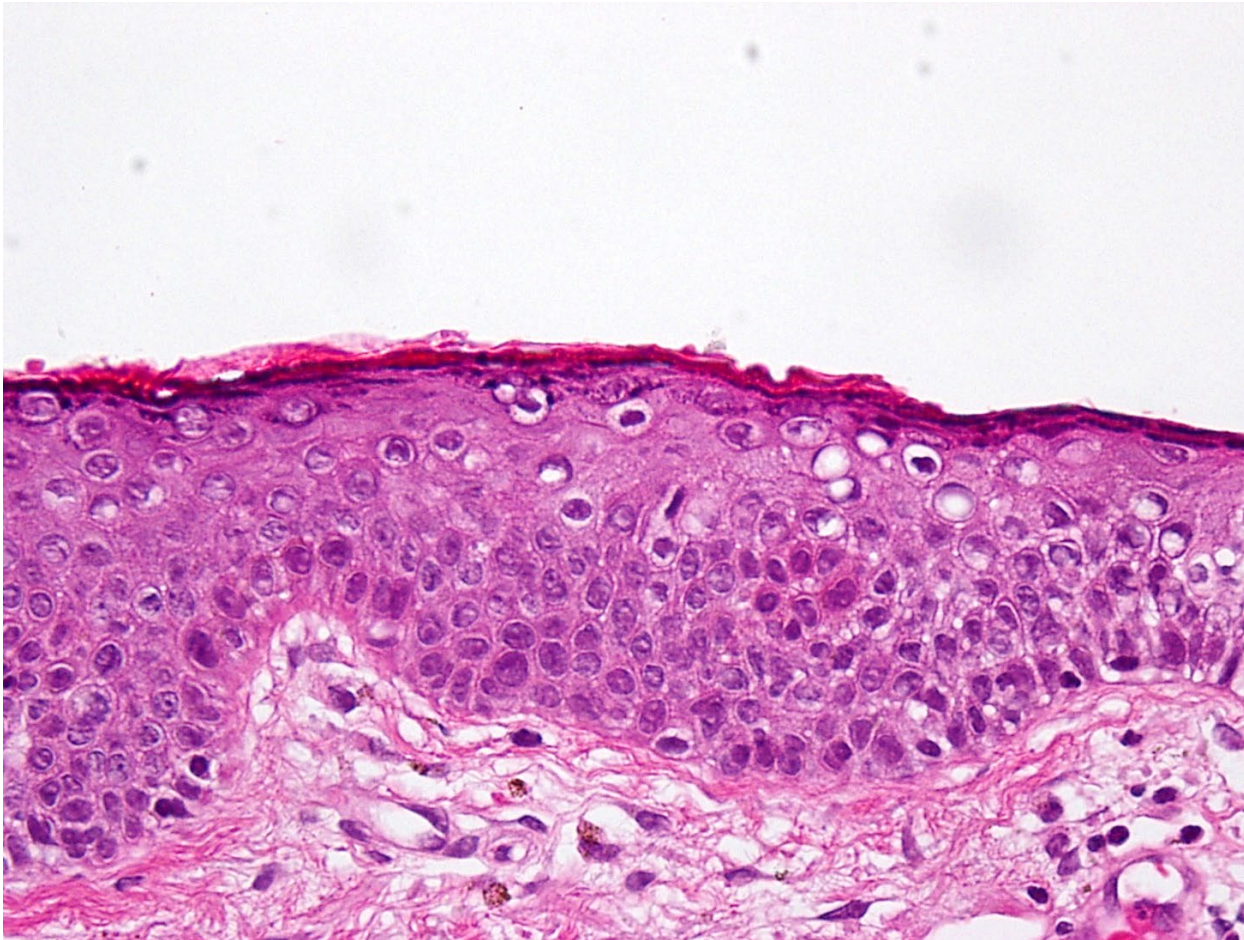
Conj



Epithelium: Squamous, stratified, **non-keratinized**

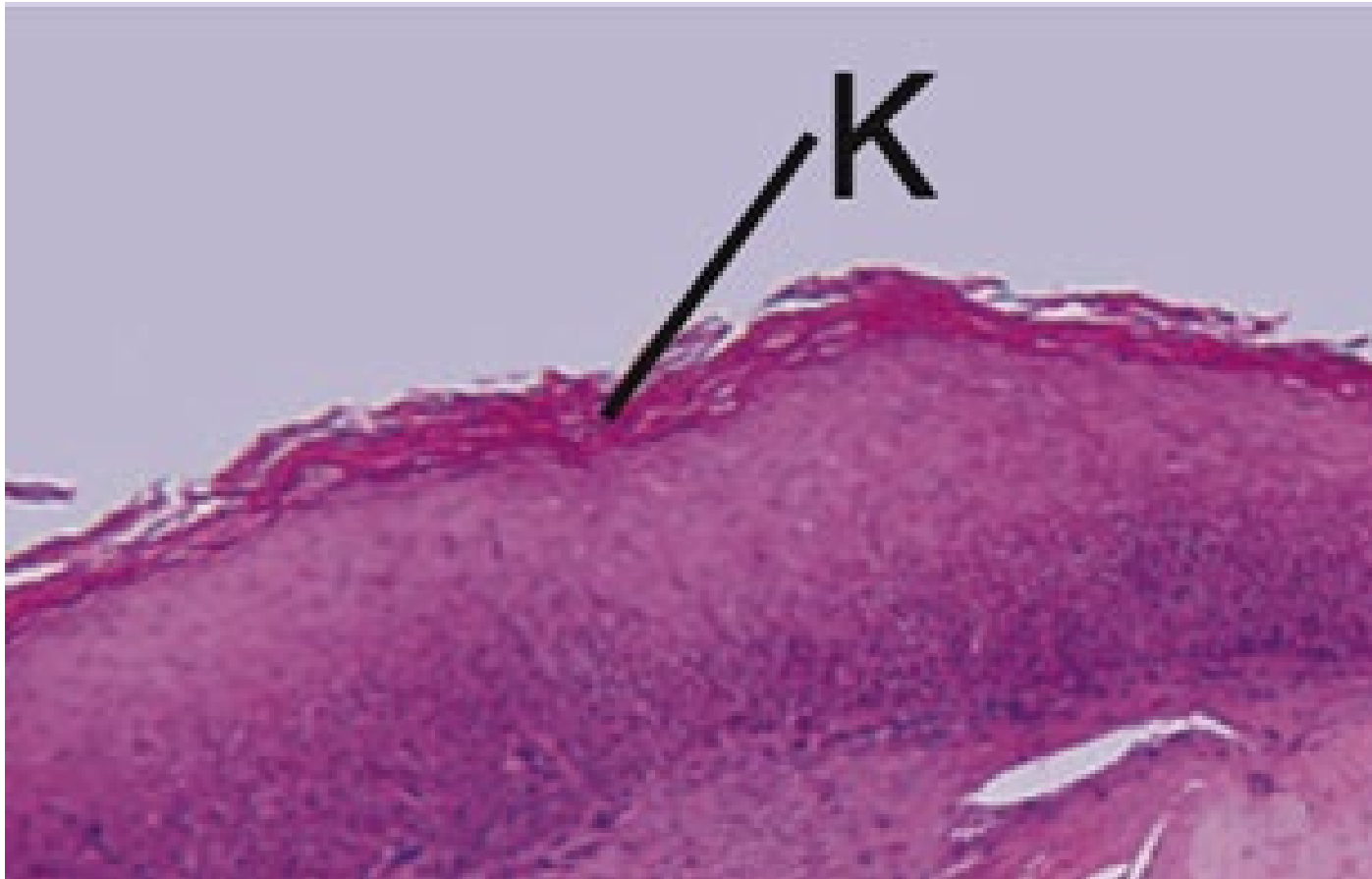
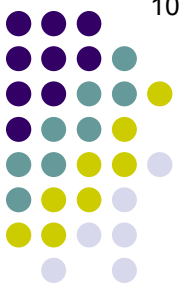
Stroma *or* substantia propria

Pathwatching



Note 1: Lid keratinization can be subtler than depicted previously

Pathwatching

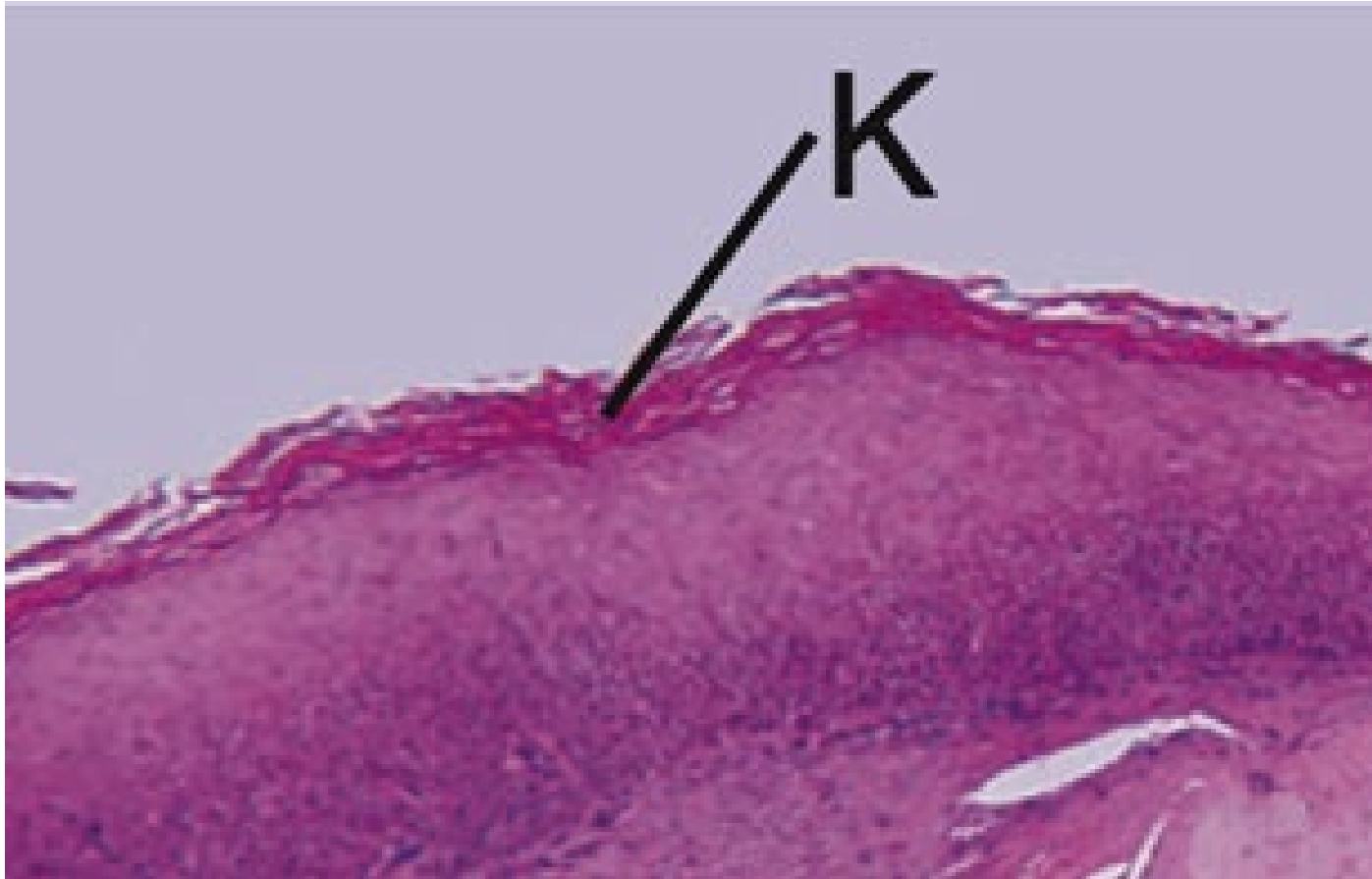
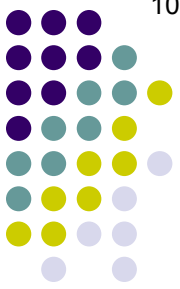


Note 2: Keratinization occurs in some conj pathologies (OSSN* in this case)

*Which stands for

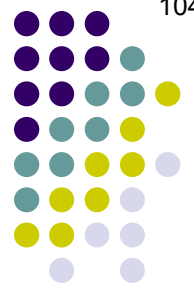


Pathwatching

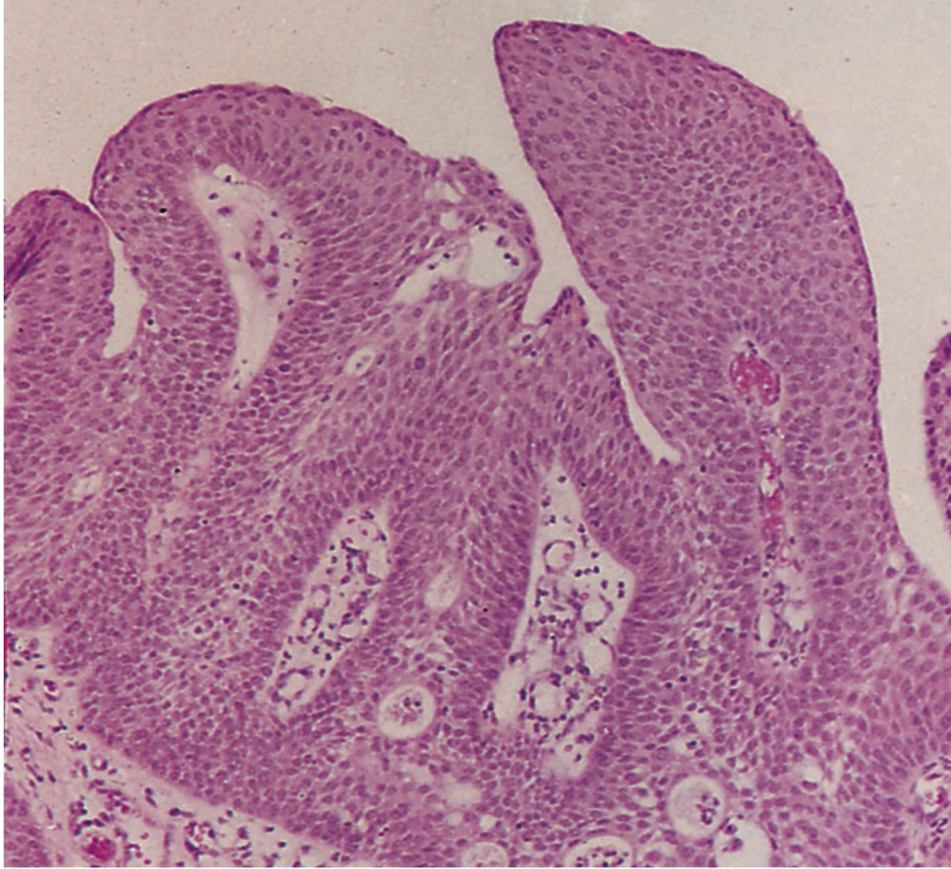


Note 2: Keratinization occurs in some conj pathologies (OSSN* in this case)

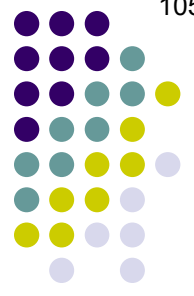
*Which stands for *ocular surface squamous neoplasia*



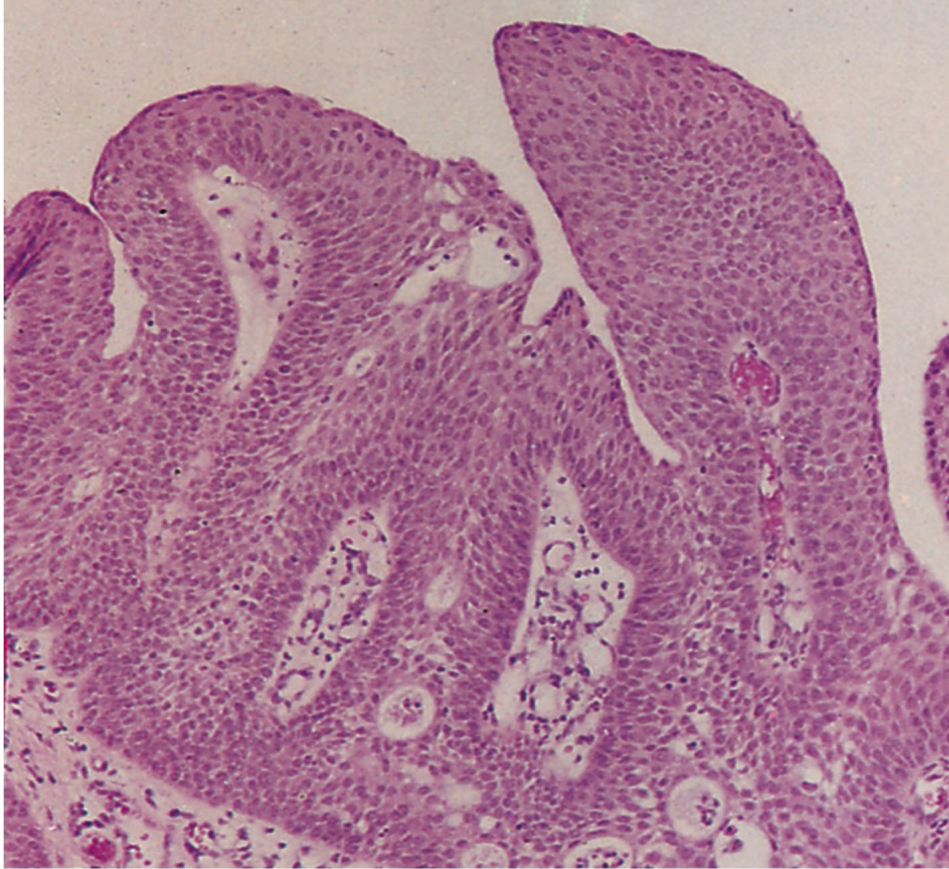
Pathwatching



First things first: Skin, or conj?

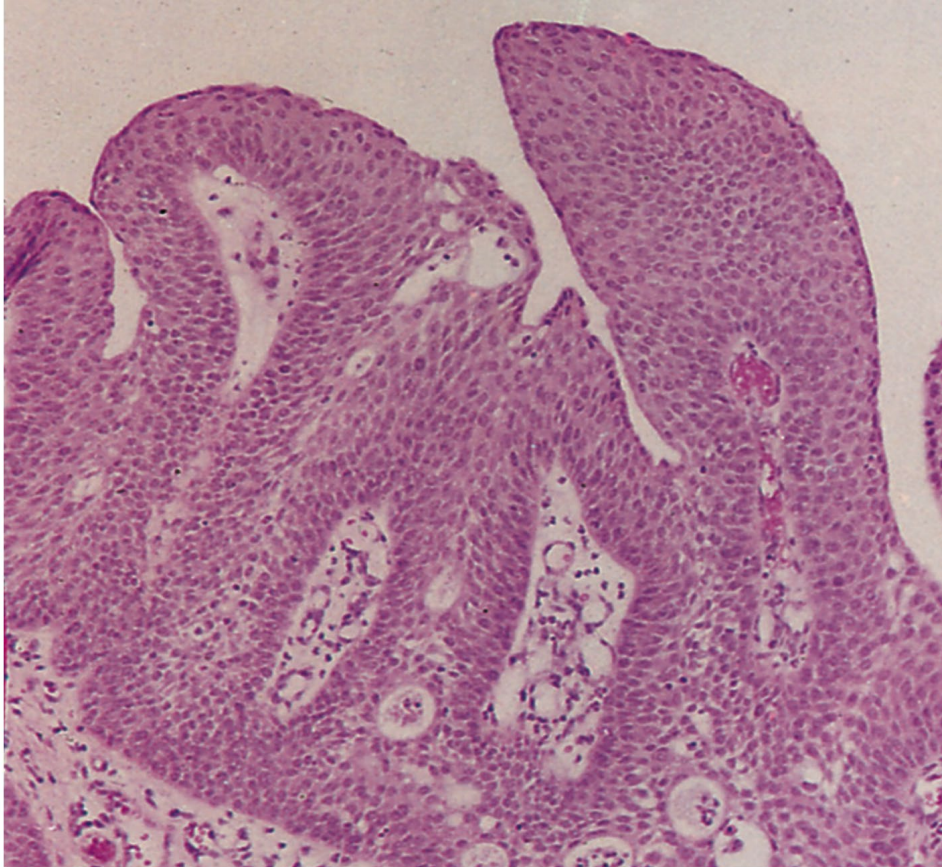
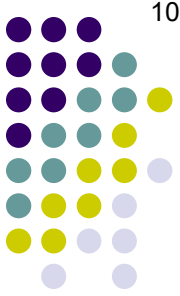


Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

Pathwatching

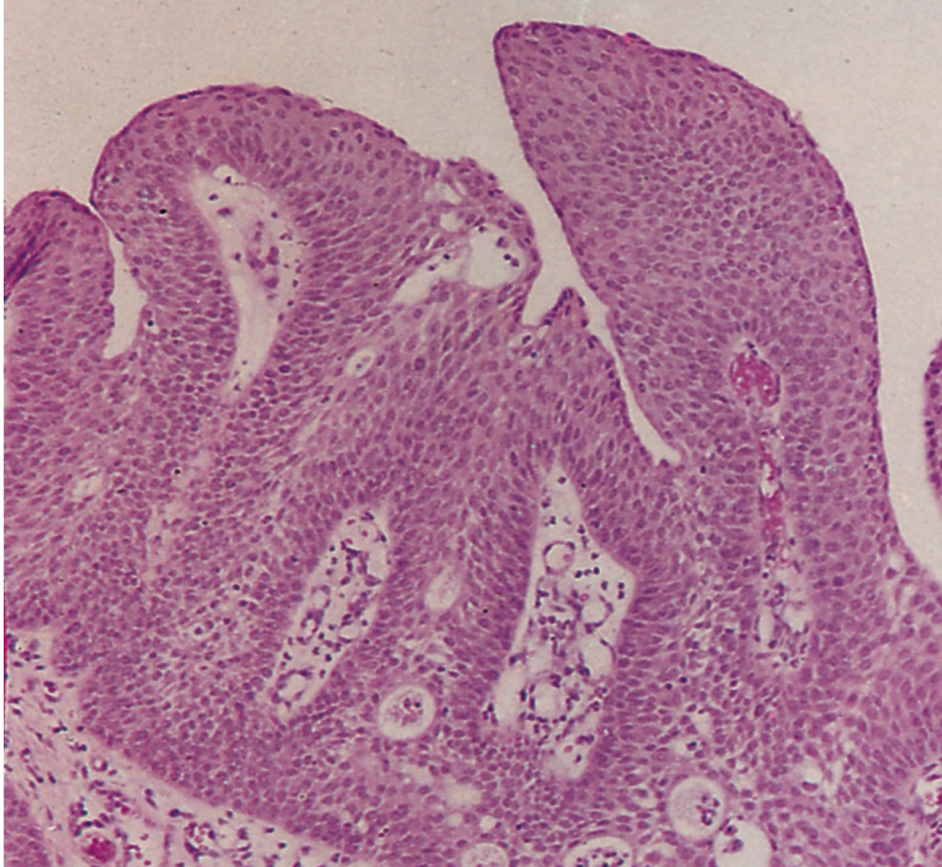
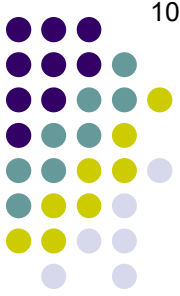


First things first: Skin, or conj?

Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a .

Pathwatching

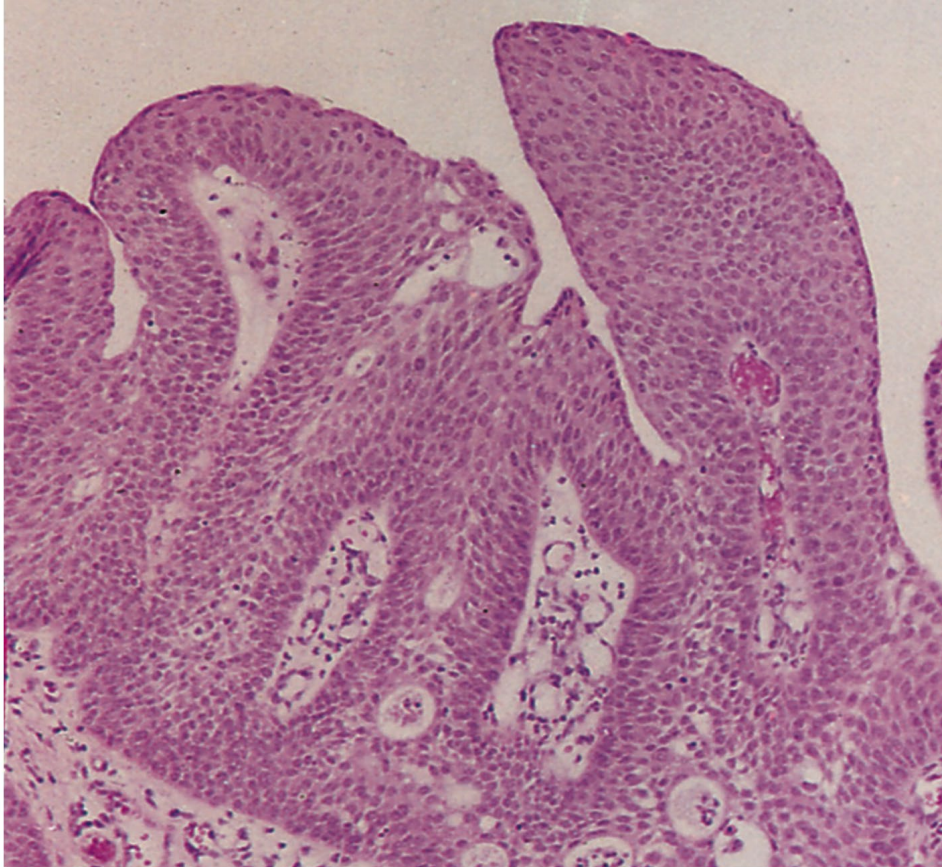


First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia* .

*Remember, *neoplasia* just means abnormal growth—it does **not** mean 'malignancy'!

Pathwatching



First things first: Skin, or conj?

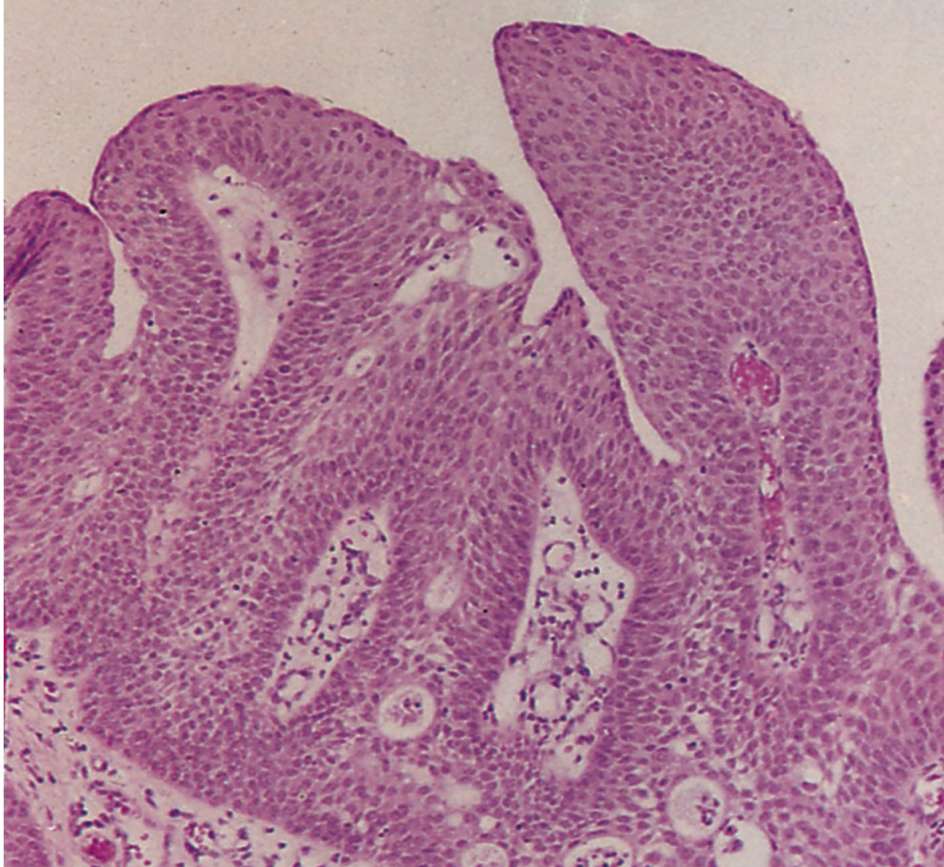
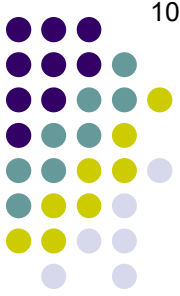
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia* .

But how to begin identifying it?

Begin by recognizing there are # broad categories of conj neoplasias:

Pathwatching



First things first: Skin, or conj?

Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia* .

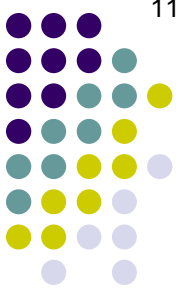
But how to begin identifying it?

Begin by recognizing there are three broad categories of conj neoplasias:

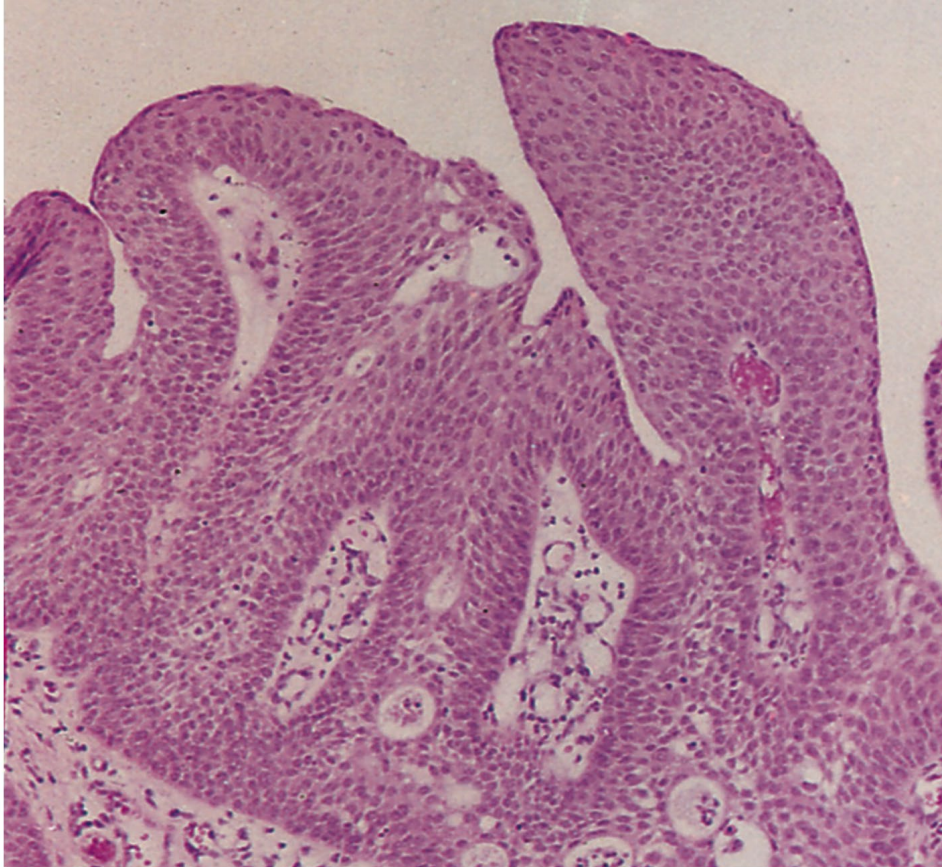
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Pathwatching



First things first: Skin, or conj?

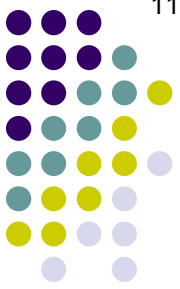
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia* .

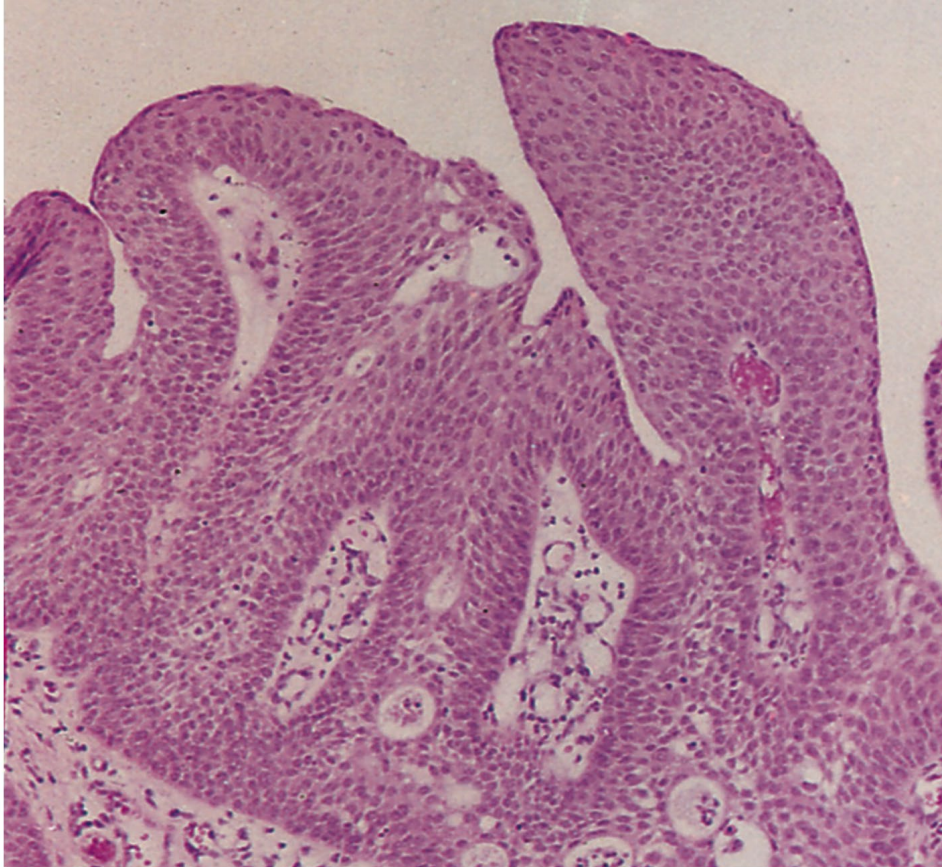
But how to begin identifying it?

Begin by recognizing there are three broad categories of conj neoplasias:

- Lymphatic
- Melanocytic
- Epithelial



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

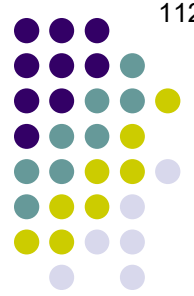
Clear Is it **lymphatic**? Unlikely; such lesions
exuber are characterized by large channels in
But h the substantia propria underlying a
Begin normal-appearing epithelium

categories of conj neoplasias:

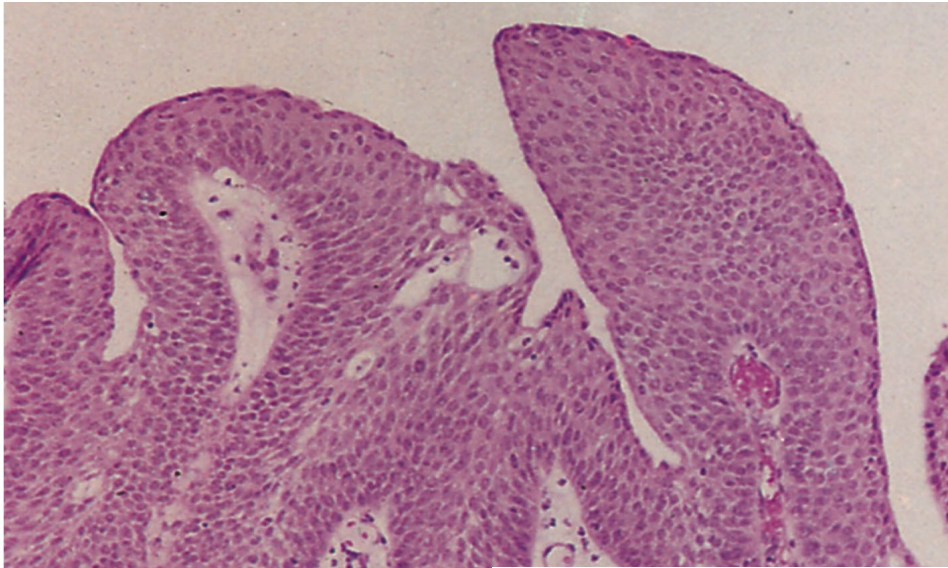
--**Lymphatic?**

--Melanocytic

--Epithelial



Pathwatching

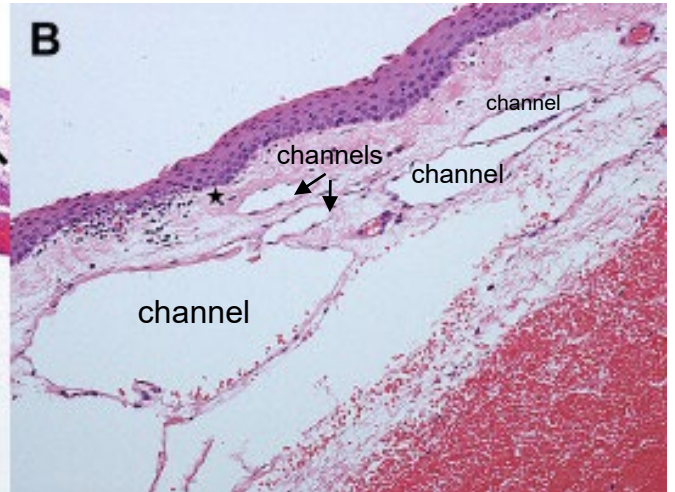
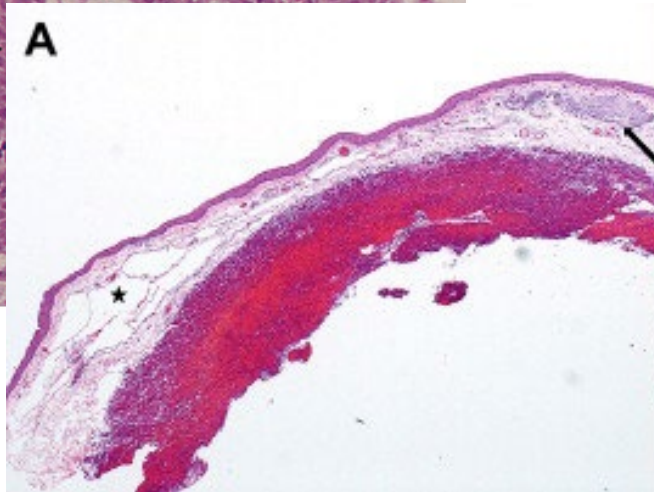


First things first: Skin, or conj?
Lack of keratinization = conj

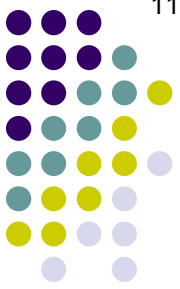
Clear Is it **lymphatic**? Unlikely; such lesions
exuber are characterized by large channels in
But h the substantia propria underlying a
Begin normal-appearing epithelium, **like this:**

categories of conj neoplasias:

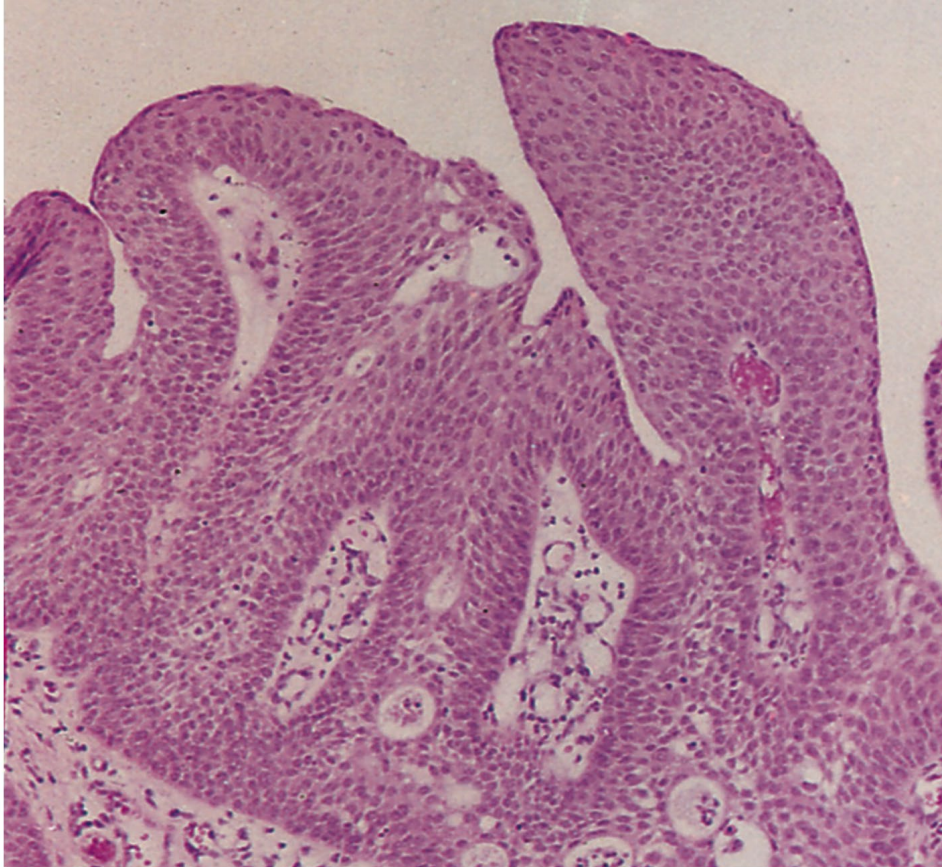
- Lymphatic?
- Melanocytic
- Epithelial



Lymphangiectasia. A, low power; B, higher power



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

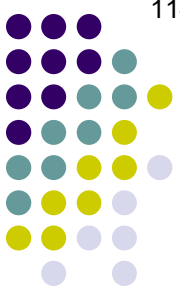
Clear Is it **melanocytic**? Also unlikely, as such
exuberant lesions typically contain an attention-
But he grabbing amount of melanin

Begin
categories of conj neoplasias:

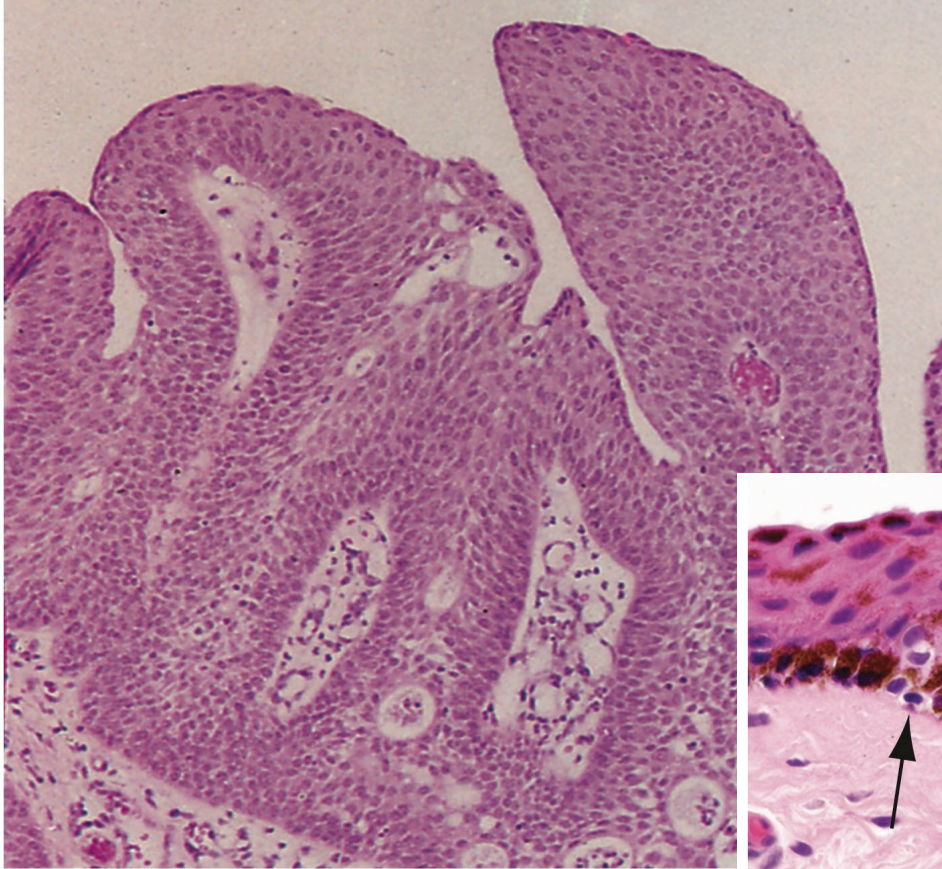
--Lymphatic

--**Melanocytic?**

--Epithelial



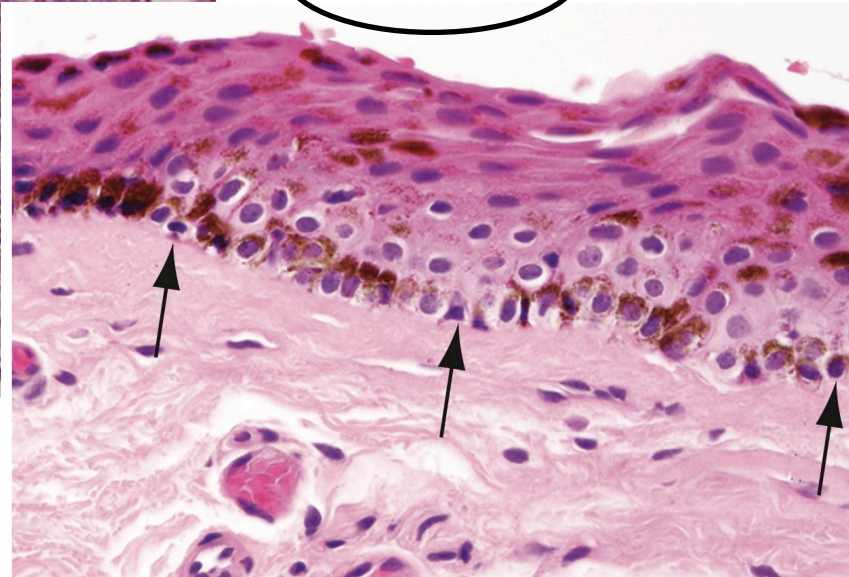
Pathwatching



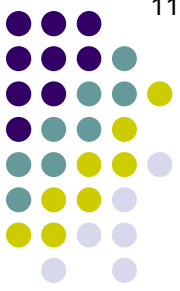
First things first: Skin, or conj?
Lack of keratinization = conj

Clear Is it **melanocytic**? Also unlikely, as such exuberant lesions typically contain an attention-grabbing amount of melanin like **this**
Begin categories of conj neoplasias:

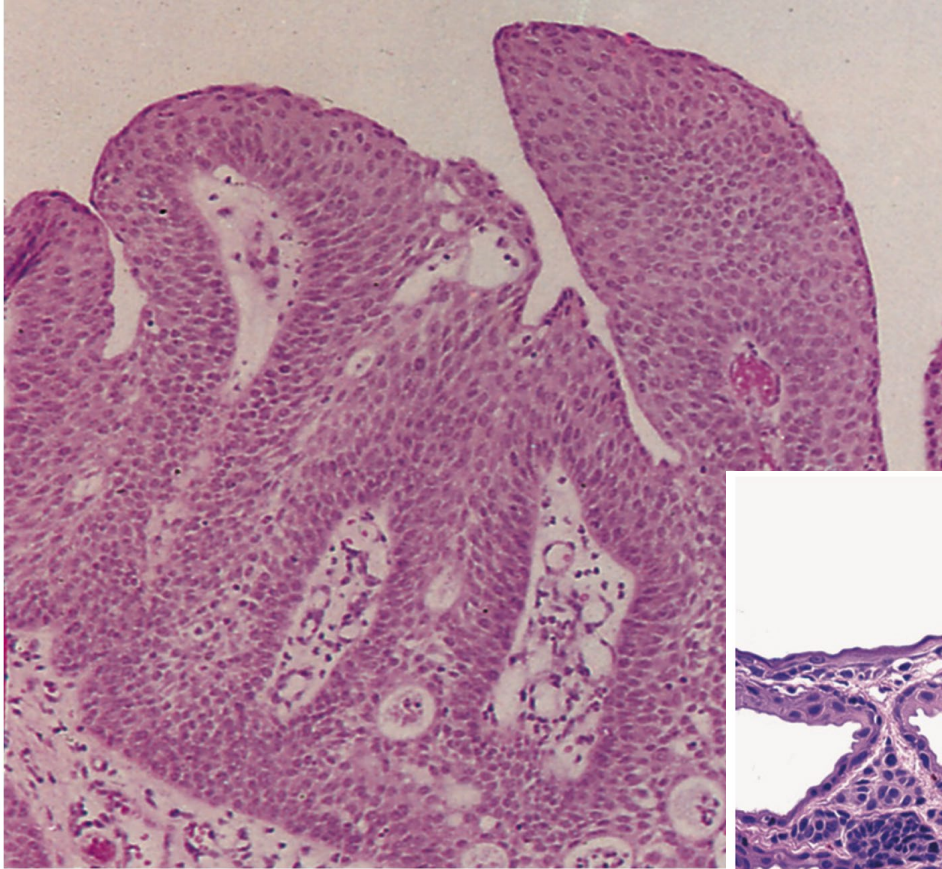
- Lymphatic
- **Melanocytic?**



Complexion-associated (*aka* racial, *aka* benign-acquired) melanosis



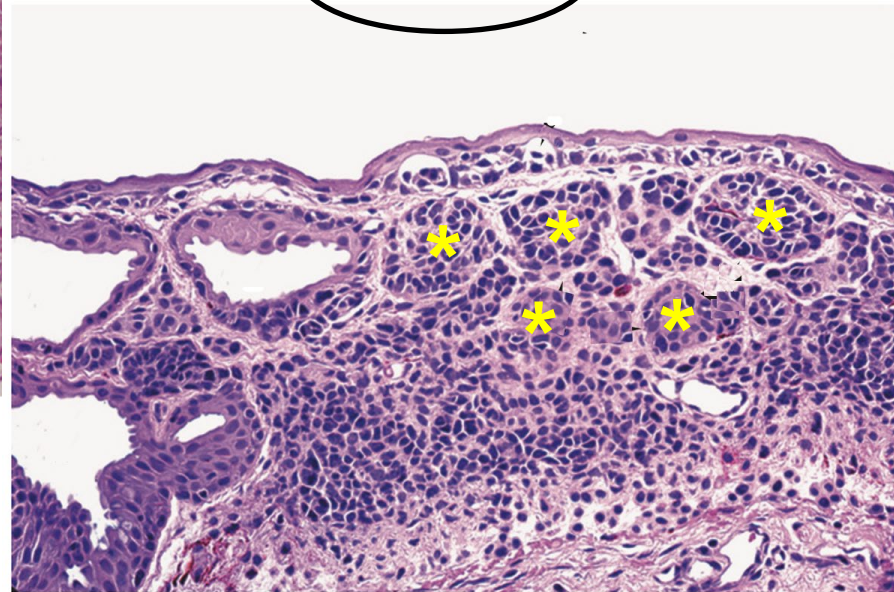
Pathwatching



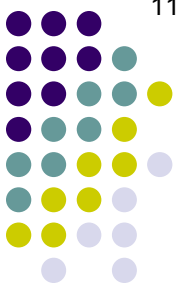
First things first: Skin, or conj?
Lack of keratinization = conj

Clear Is it **melanocytic**? Also unlikely, as such exuberant lesions typically contain an attention-grabbing amount of melanin like **this**, Begin and/or lots of melanocytes like **this**
categories of conj neoplasias:

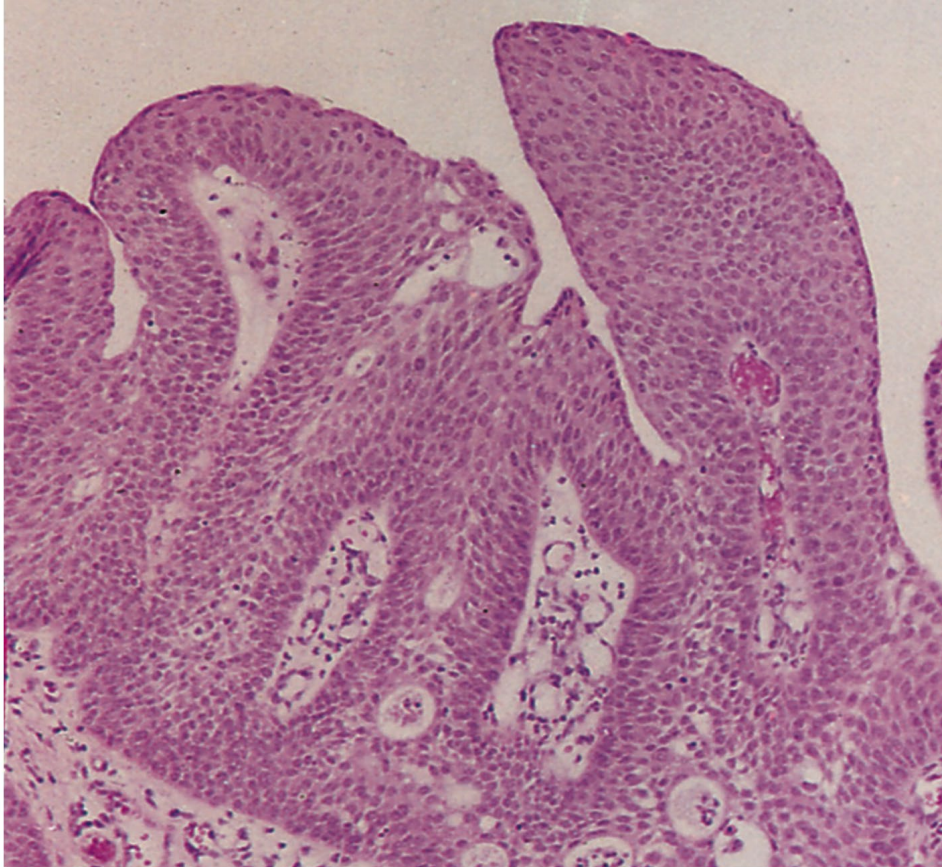
- Lymphatic
- **Melanocytic?**



Conj nevus with beaucoup melanocytes in nests (*asterisks*)



Pathwatching

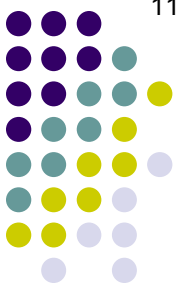


First things first: Skin, or conj?
Lack of keratinization = conj

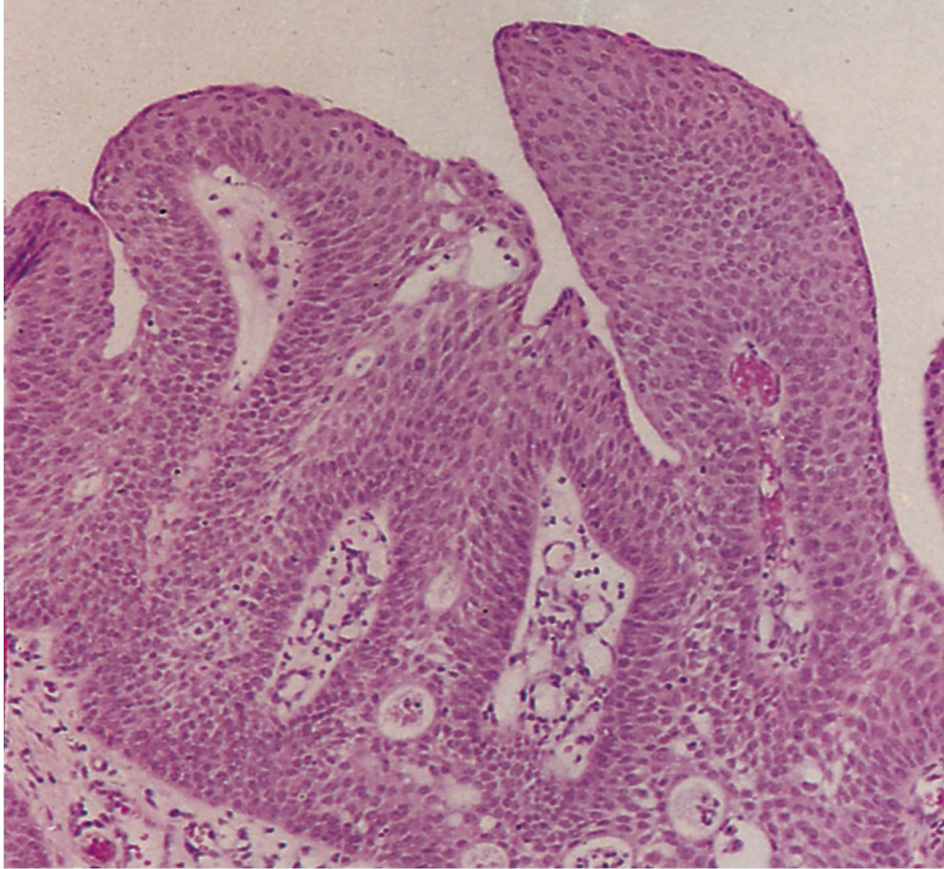
Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia .
But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:

- Lymphatic
- Melanocytic
- Epithelial**

So by process of elimination, it's **epithelial**.



Pathwatching



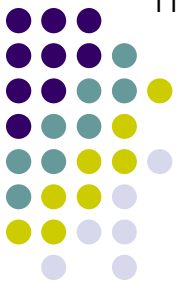
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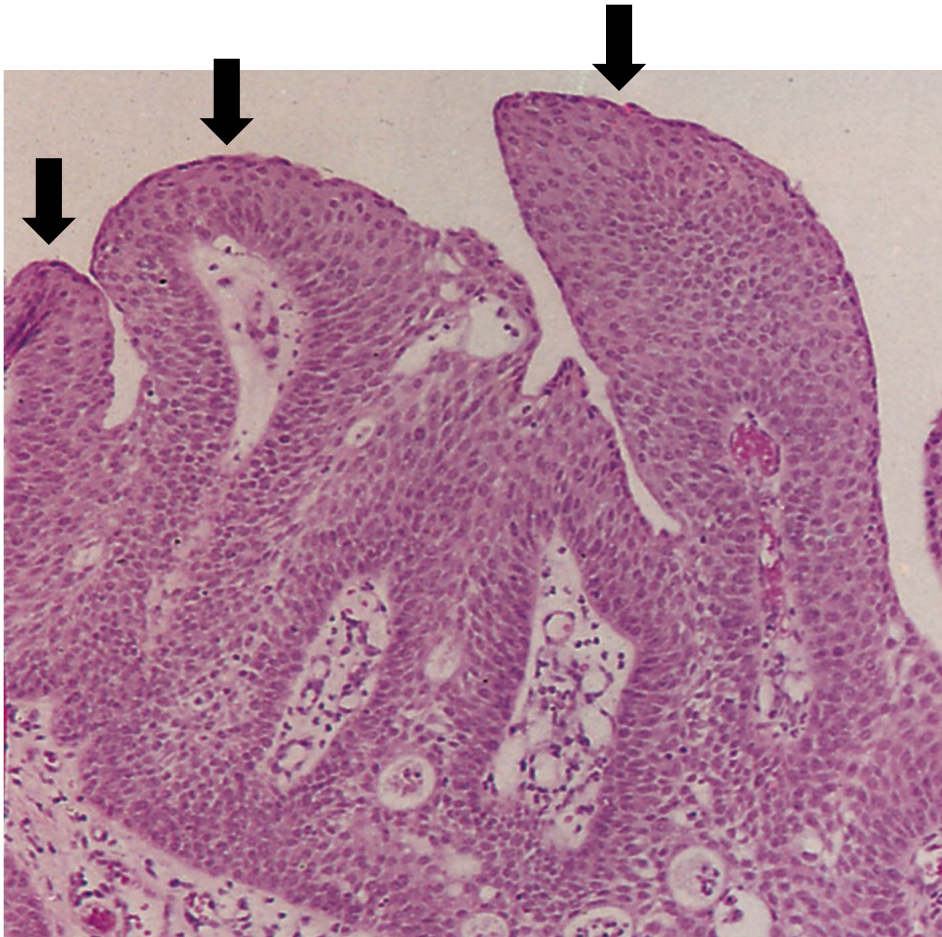
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So by process of elimination, it's **epithelial**.

But what is it? In this case, there's a classic field mark:



Pathwatching



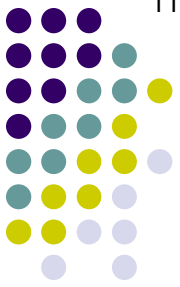
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia .
But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:

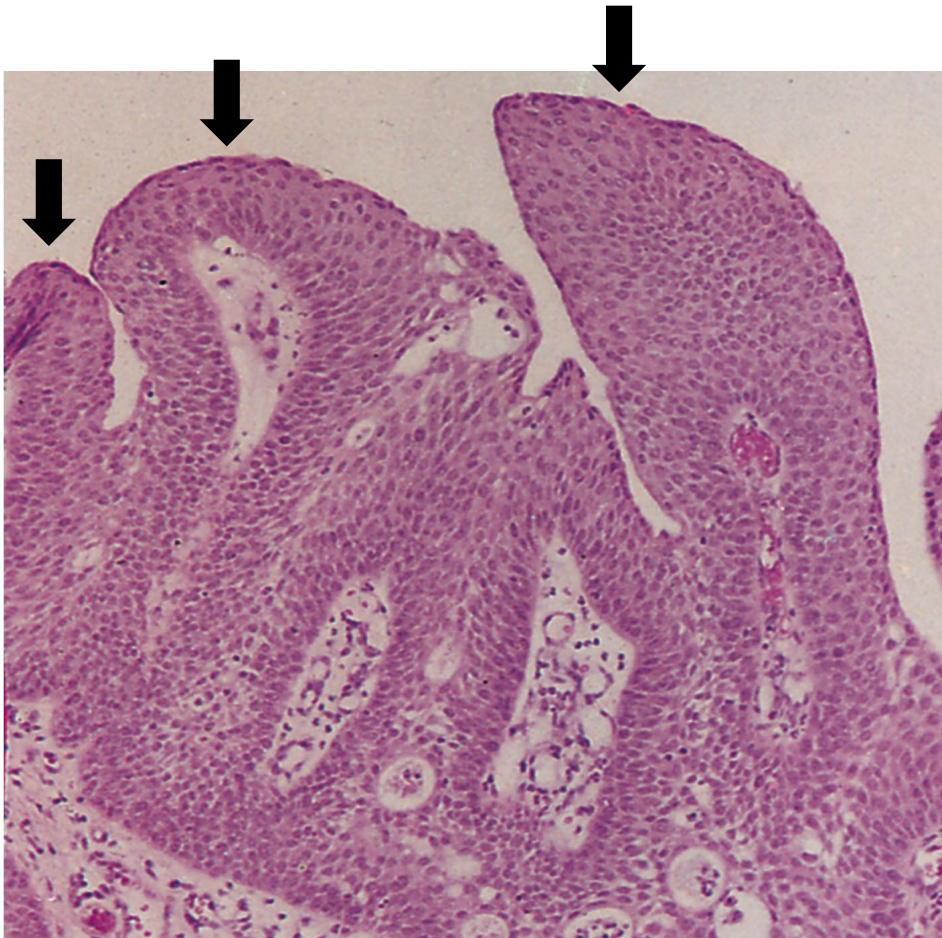
- Lymphatic
- Melanocytic
- Epithelial

So by process of elimination, it's **epithelial**.

But what is it? In this case, there's a classic field mark: **These projections**, classically described as .



Pathwatching



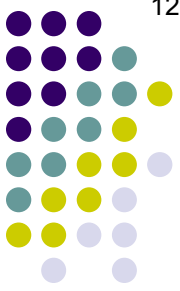
First things first: Skin, or conj?
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But how to begin identifying it?
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- Lymphatic
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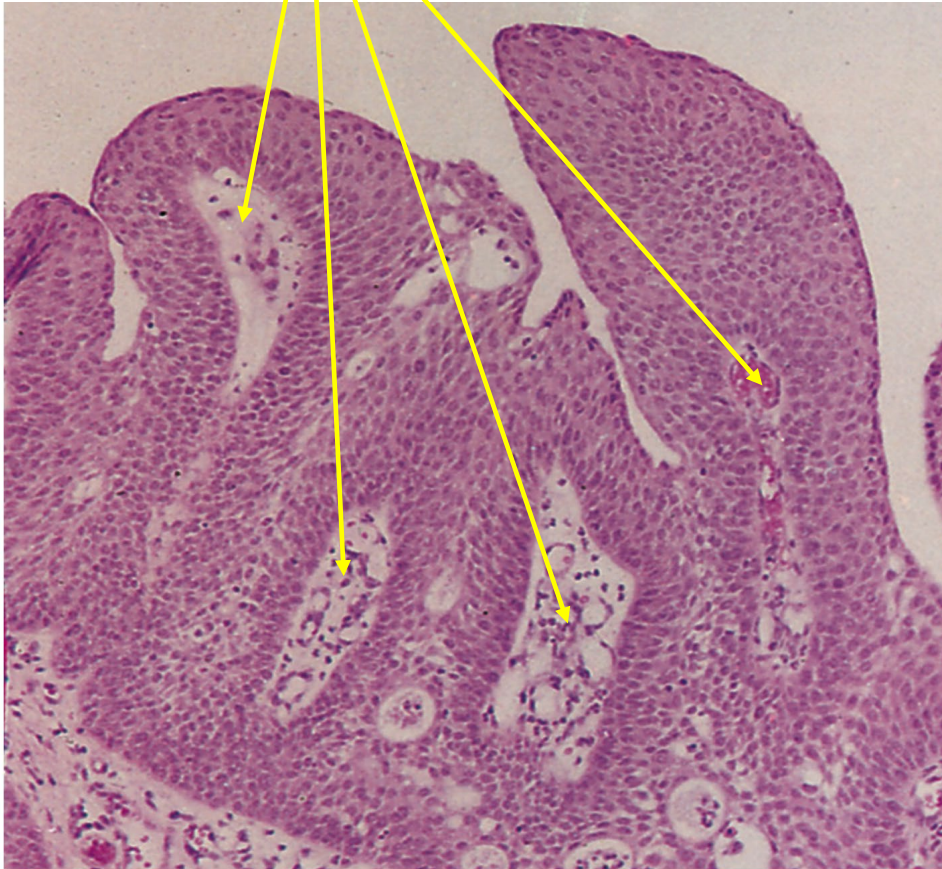
So by process of elimination, it's **epithelial**.

But what is it? In this case, there's a classic field mark: **These projections**, classically described as 'fronds' .



Note that the 'cores' of the fronds are structures

Pathwatching



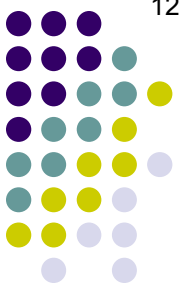
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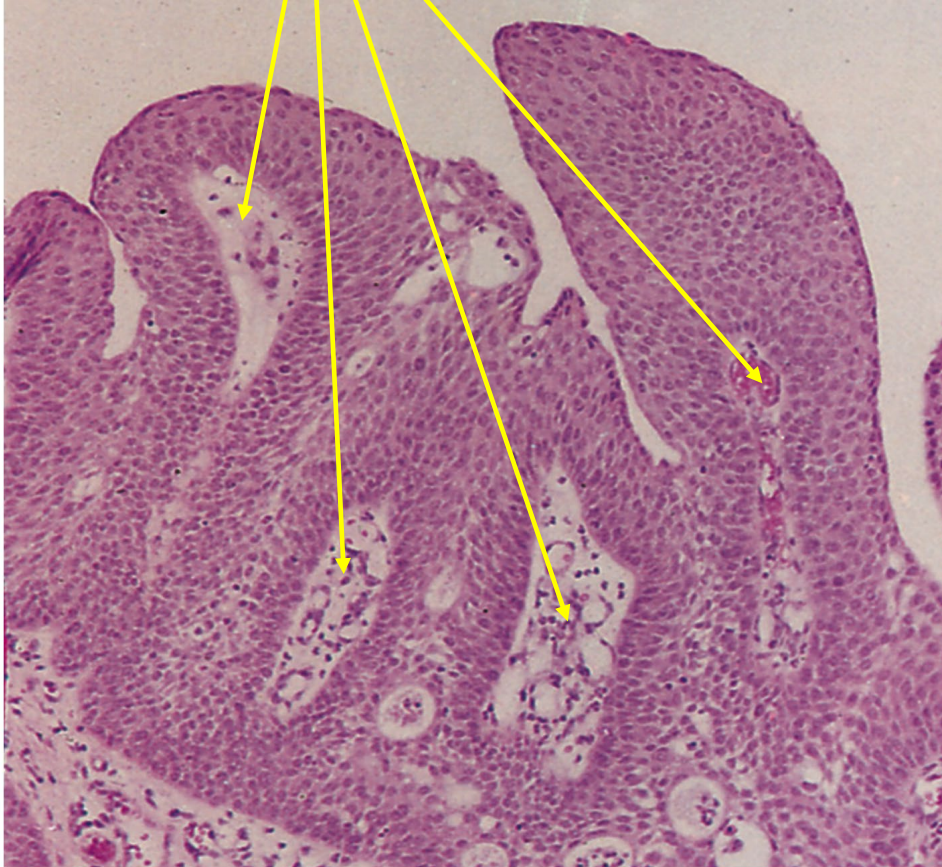
So by process of elimination, it's **epithelial**.

But what is it? In this case, there's a classic field mark: **These projections**, classically described as 'fronds' .



Note that the 'cores' of the fronds are fibrovascular structures

Pathwatching



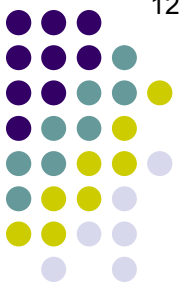
First things first: Skin, or conj?
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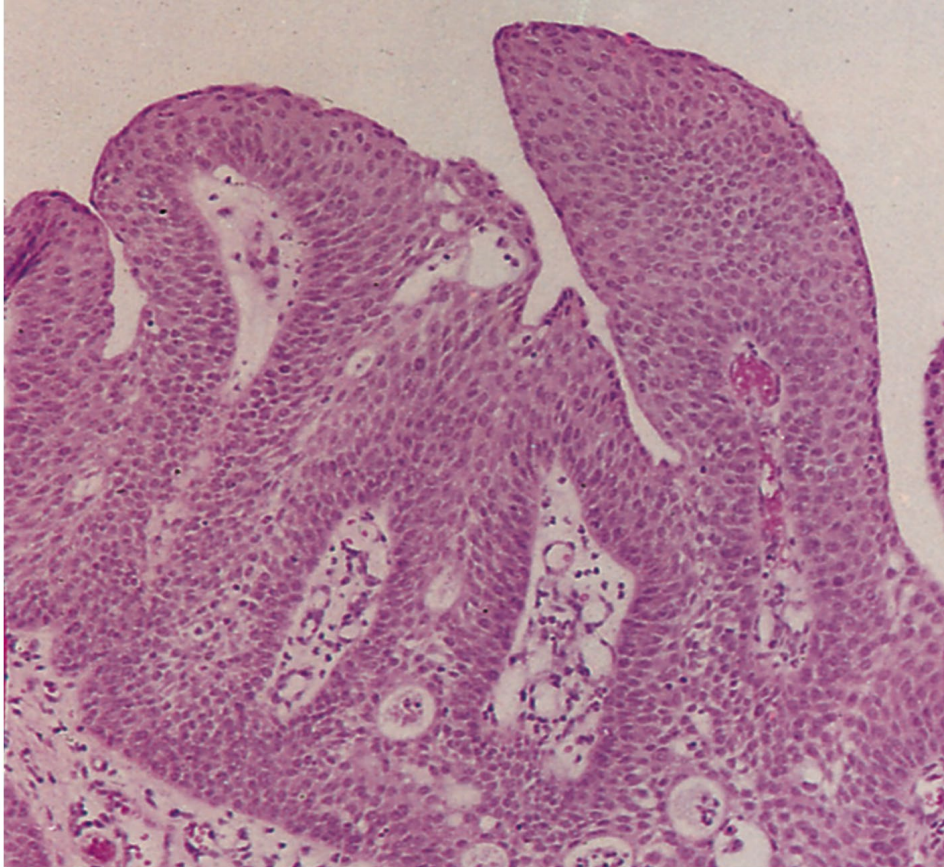
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So by process of elimination, it's **epithelial**.

But what is it? In this case, there's a classic field mark: **These projections**, classically described as 'fronds' .



Pathwatching



What's the diagnosis?

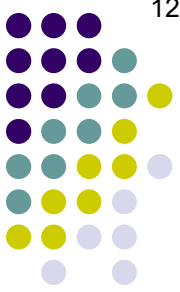
First things first: Skin, or conj?
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Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia .
But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:

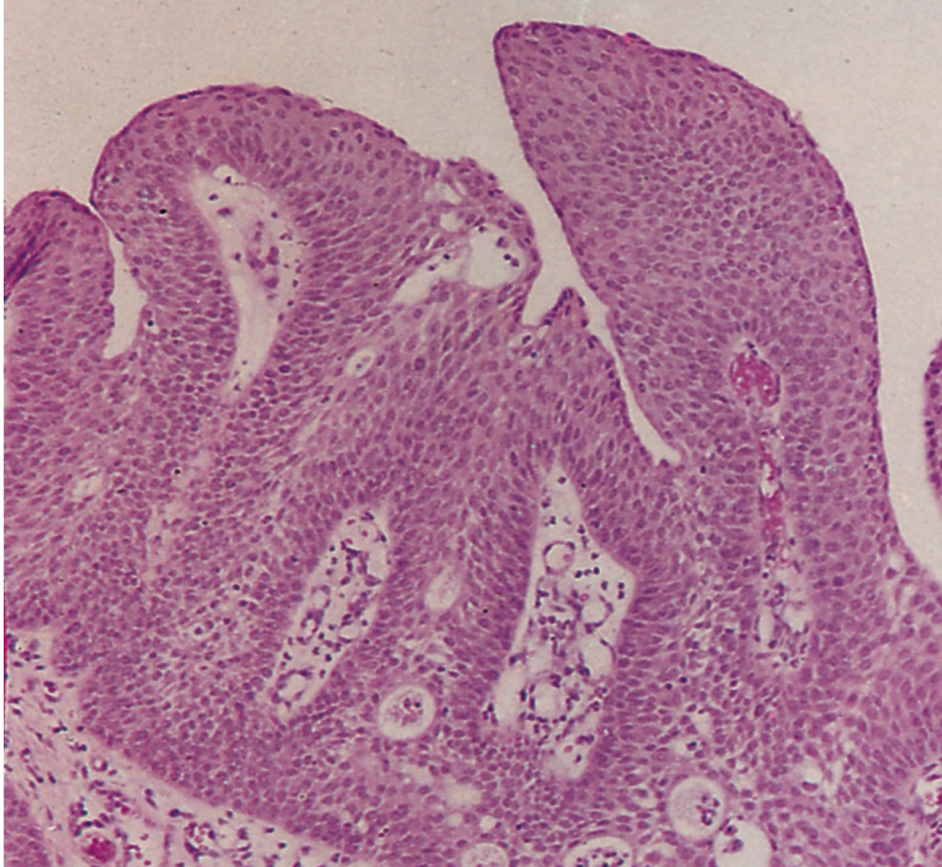
- Lymphatic
- Melanocytic
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So by process of elimination, it's **epithelial**.

But what is it? In this case, there's a classic field mark: **These projections**, classically described as 'fronds' . **When you see a conj lesion with a 'frond' appearance, one term should come to mind:**



Pathwatching



First things first: Skin, or conj?
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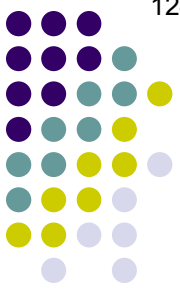
- Lymphatic
- Melanocytic
- Epithelial

So by process of elimination, it's **epithelial**.

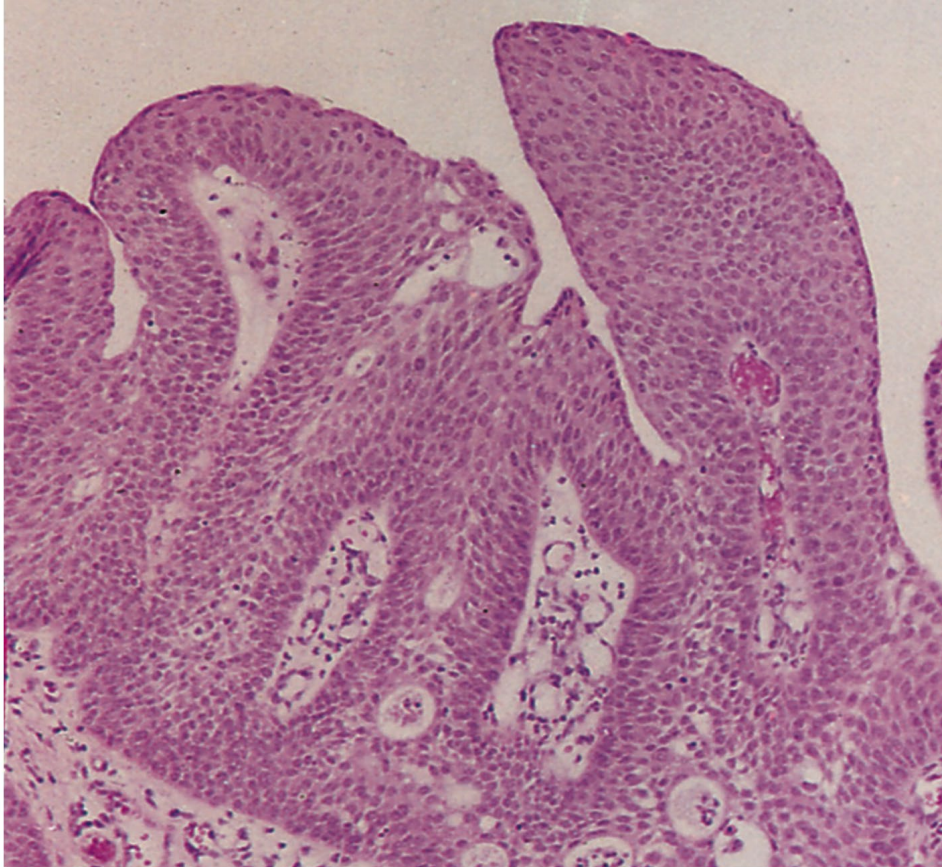
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Pedunculated papilloma of the conj occur more often in

adults
v kids



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

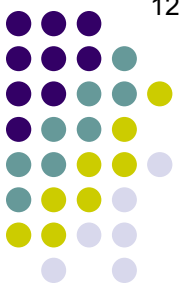
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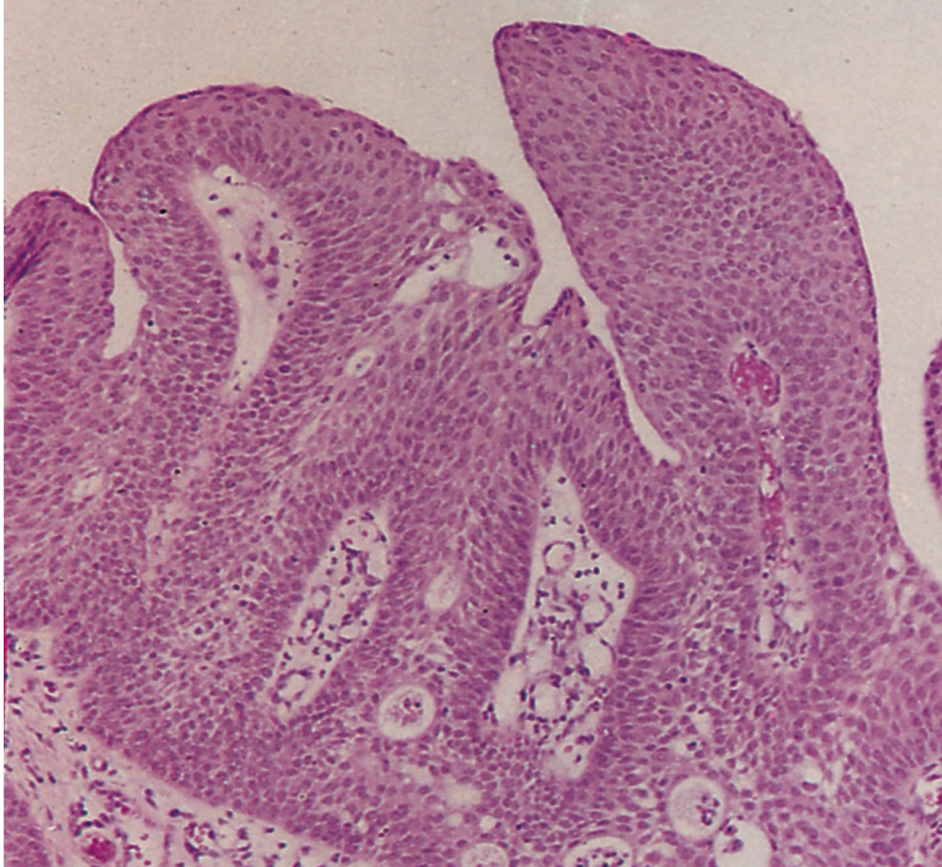
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Pathwatching



First things first: Skin, or conj?
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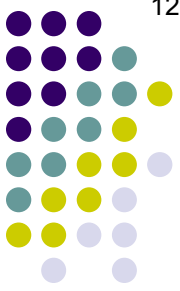
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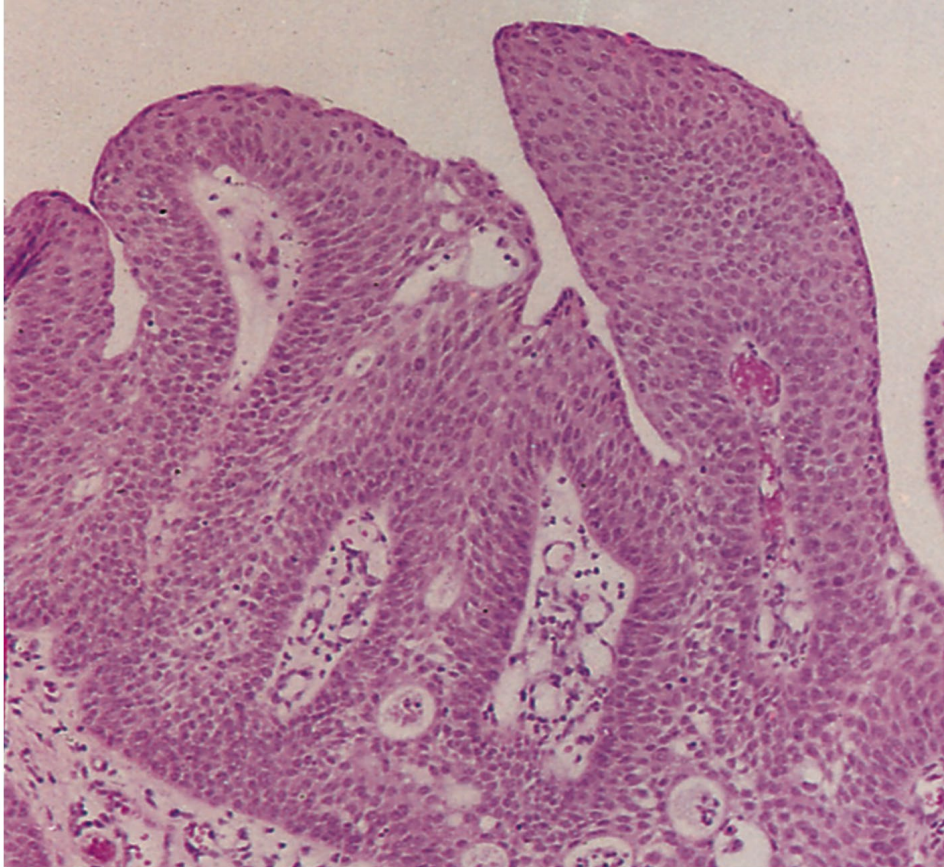
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Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of **abb.** infection.



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

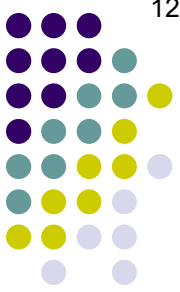
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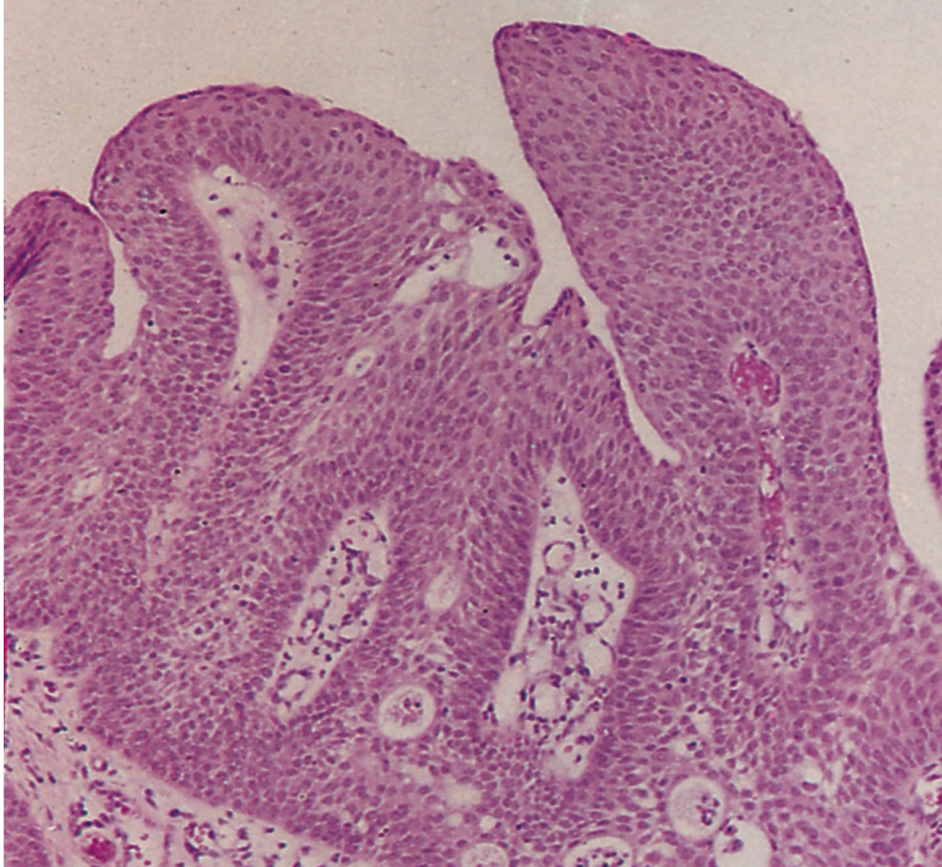
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Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of HPV infection.



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

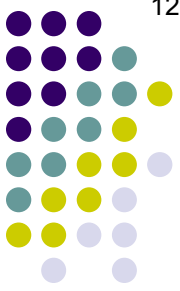
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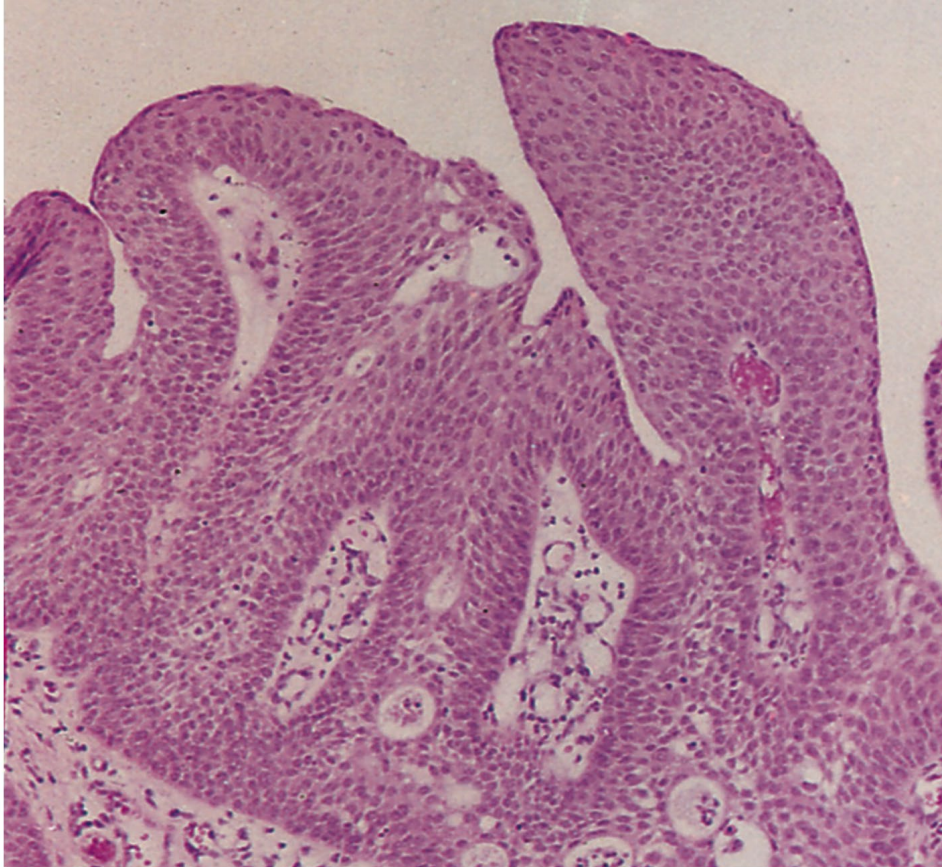
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Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of HPV infection. They have significant vs no malignant potential.



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

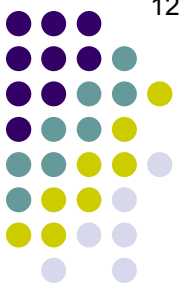
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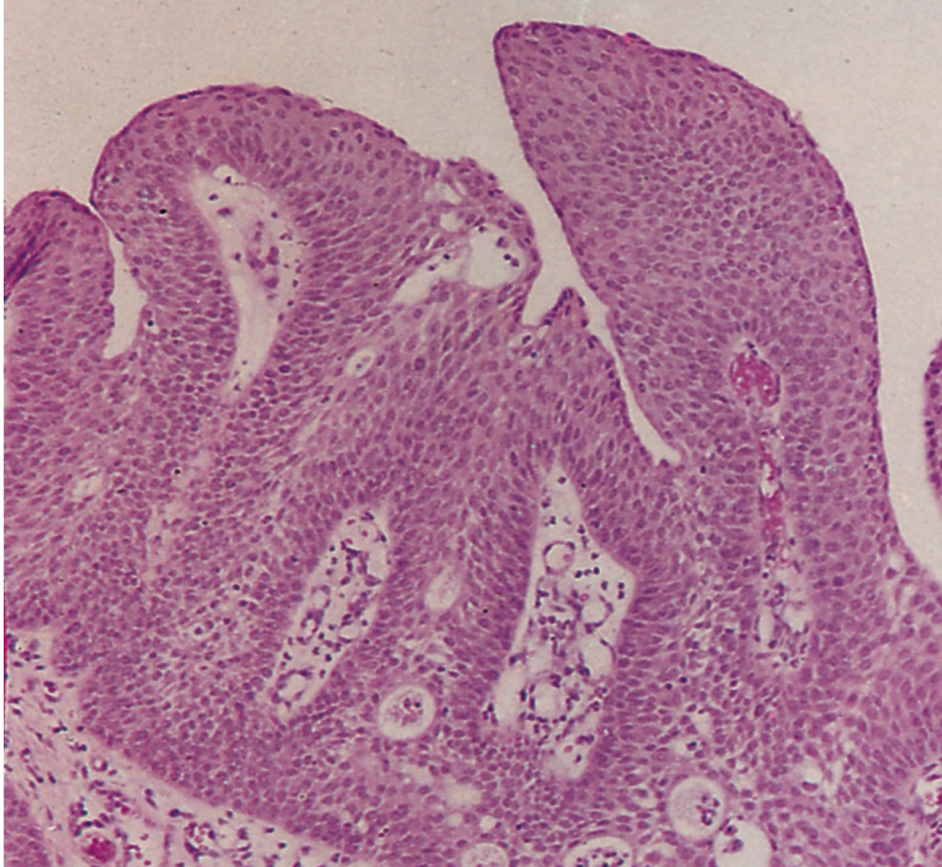
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But what is it? In this case, there's a classic field mark: **These projections**, classically described as 'fronds' . When you see a conj lesion with a 'frond' appearance, one term should come to mind:

Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of HPV infection. They have negligible malignant potential.



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia .
But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:

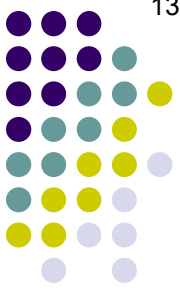
- Lymphatic
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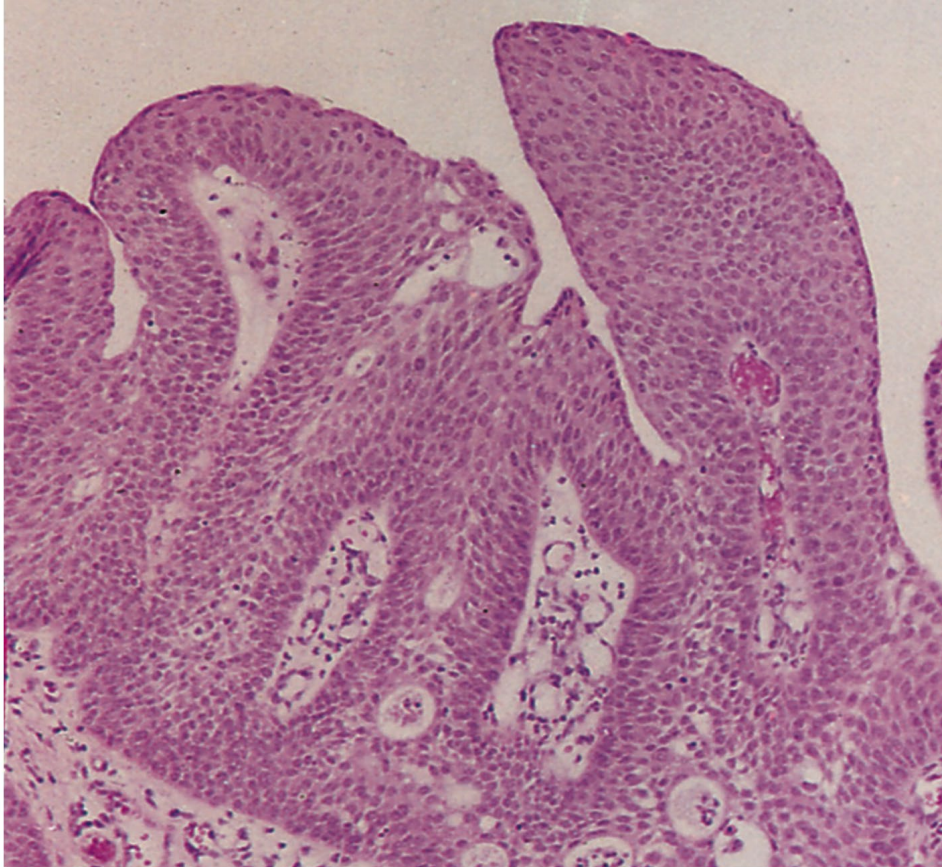
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Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of HPV infection. They have negligible malignant potential. In contrast, the other type papillomas are more common in adults.

the other type



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

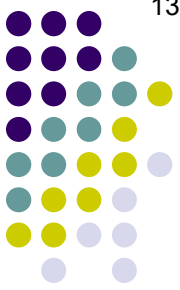
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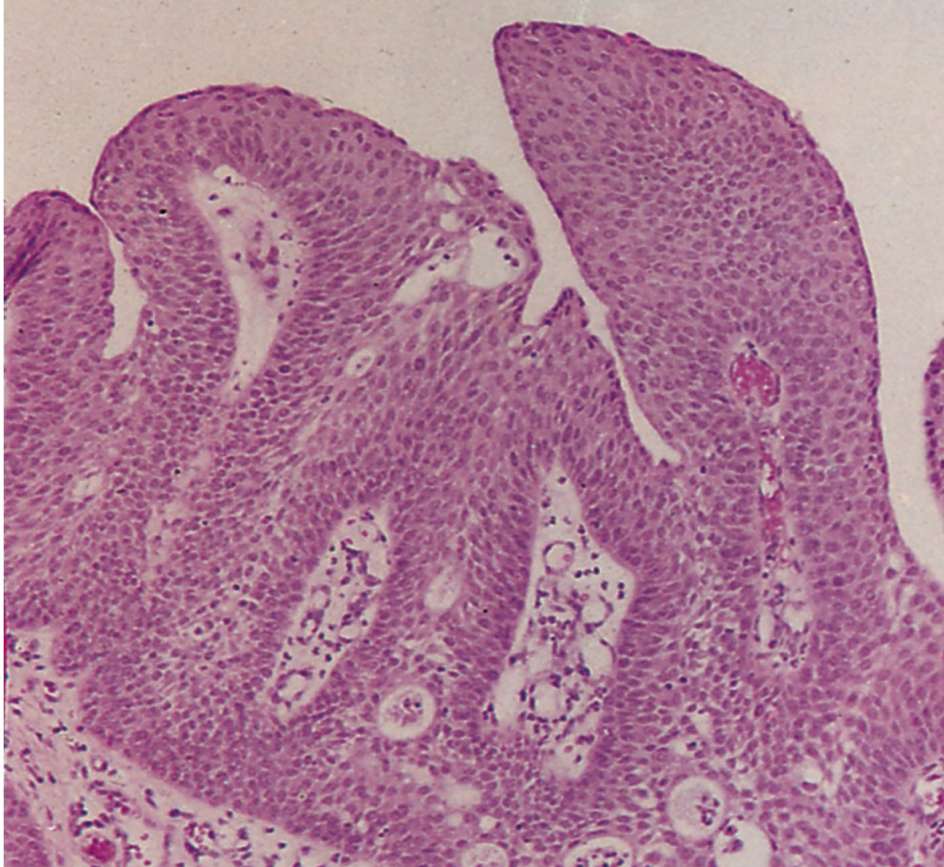
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Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of HPV infection. They have negligible malignant potential. In contrast, sessile papillomas are more common in adults.



Pathwatching



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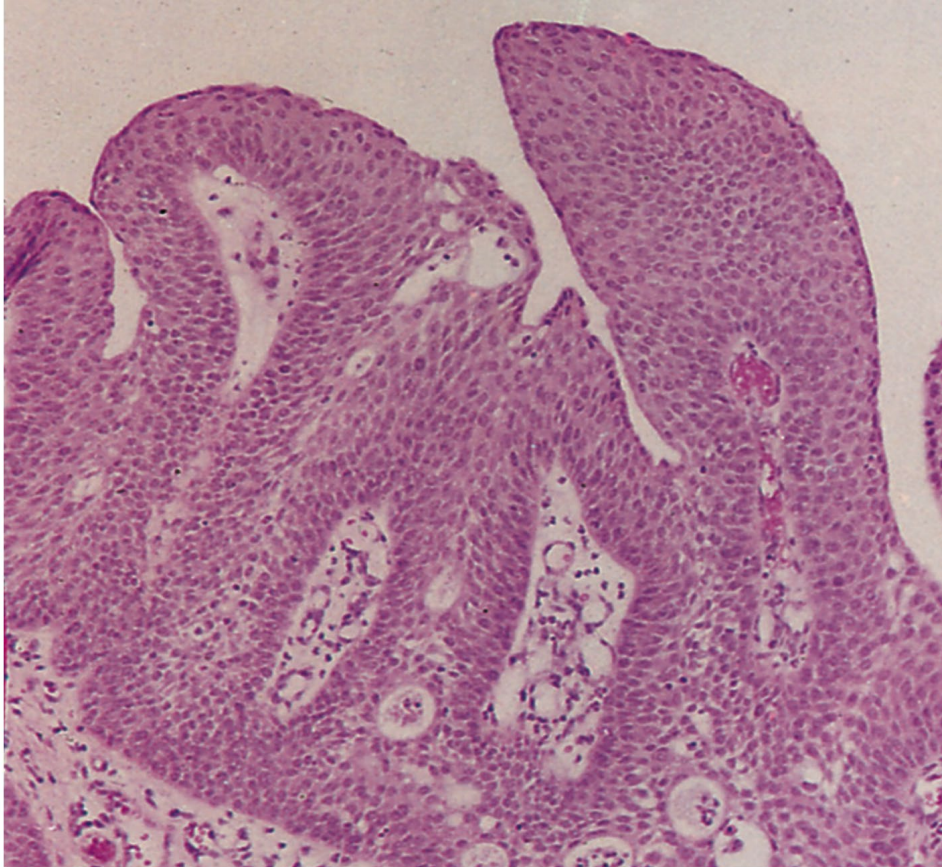
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Pedunculated papilloma of the conj occur more often in kids . They are associated with certain subtypes of HPV infection. They have negligible malignant potential. In contrast, sessile papillomas are more common in adults. They also are associated with certain (different) HPV subtypes. Their malignant potential is

significant vs negligible



Pathwatching



First things first: Skin, or conj?
Lack of keratinization = conj

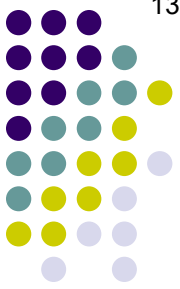
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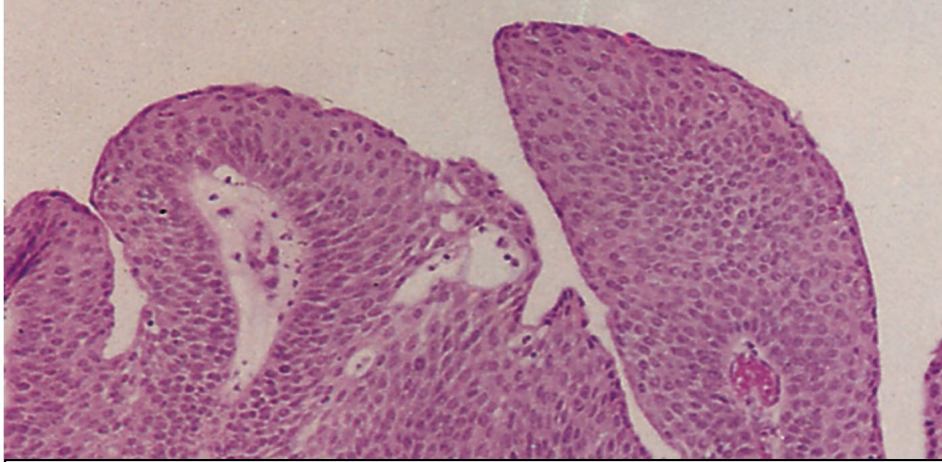
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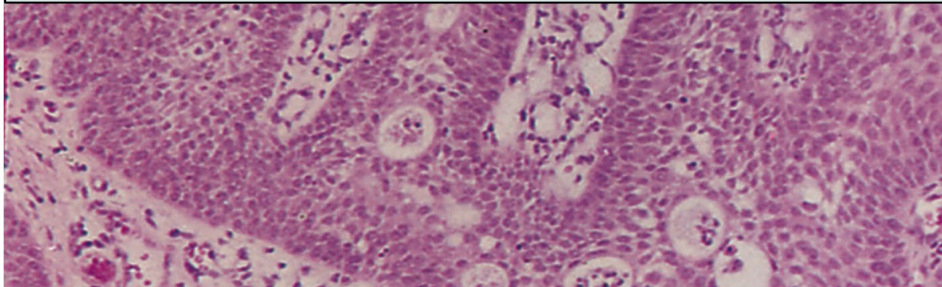
Pathwatching



First things first: Skin, or conj?
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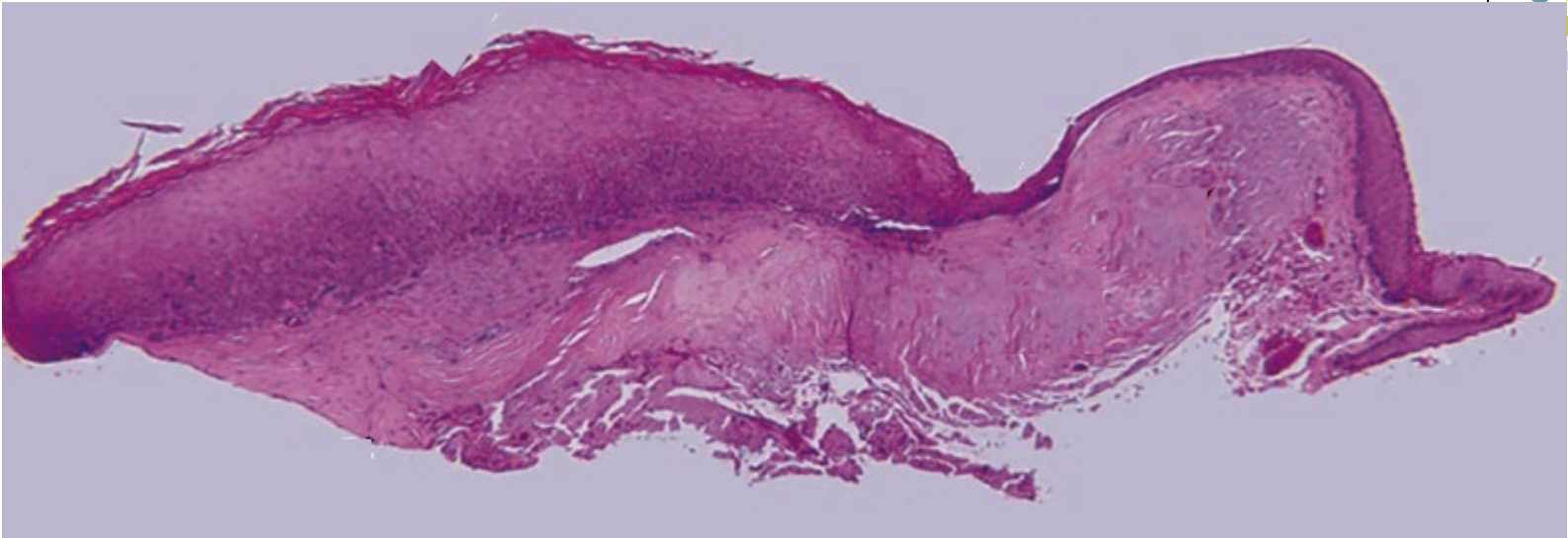
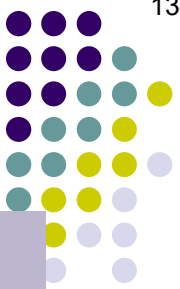
For more on conj papillomas, see slide-set K25



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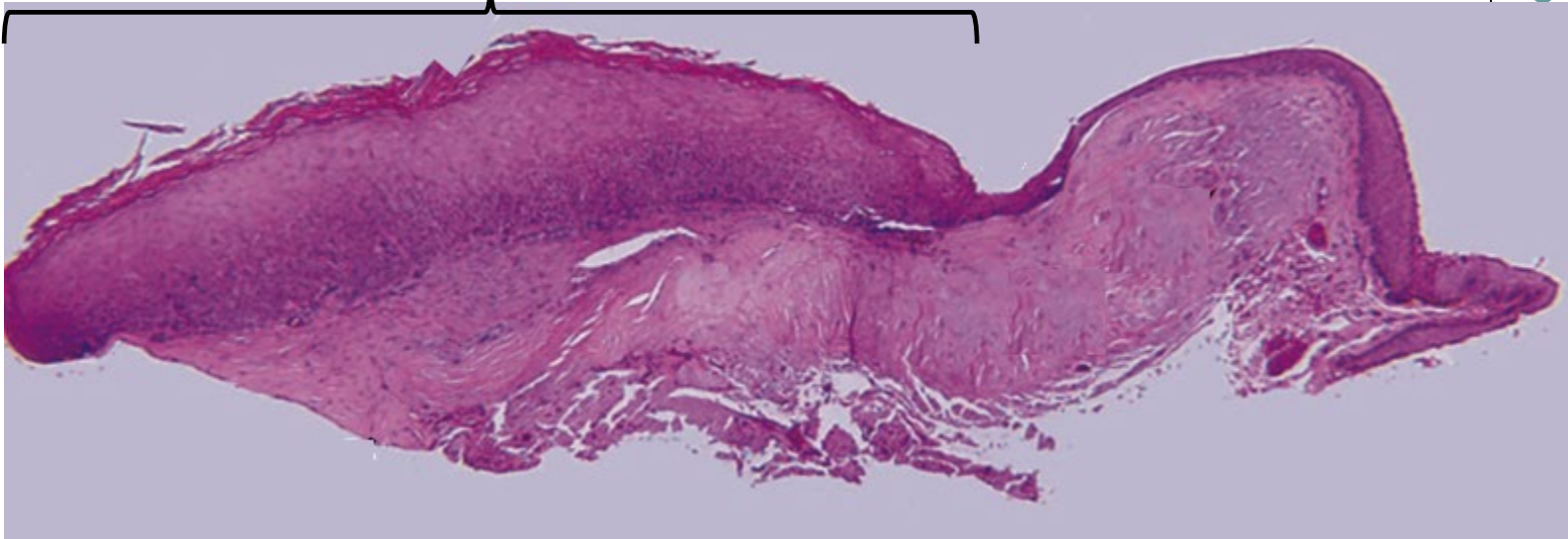
Pathwatching



Again, first things first: Skin, or conj?

Pathwatching

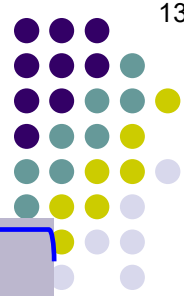
Keratinized



Again, first things first: Skin, or conj?

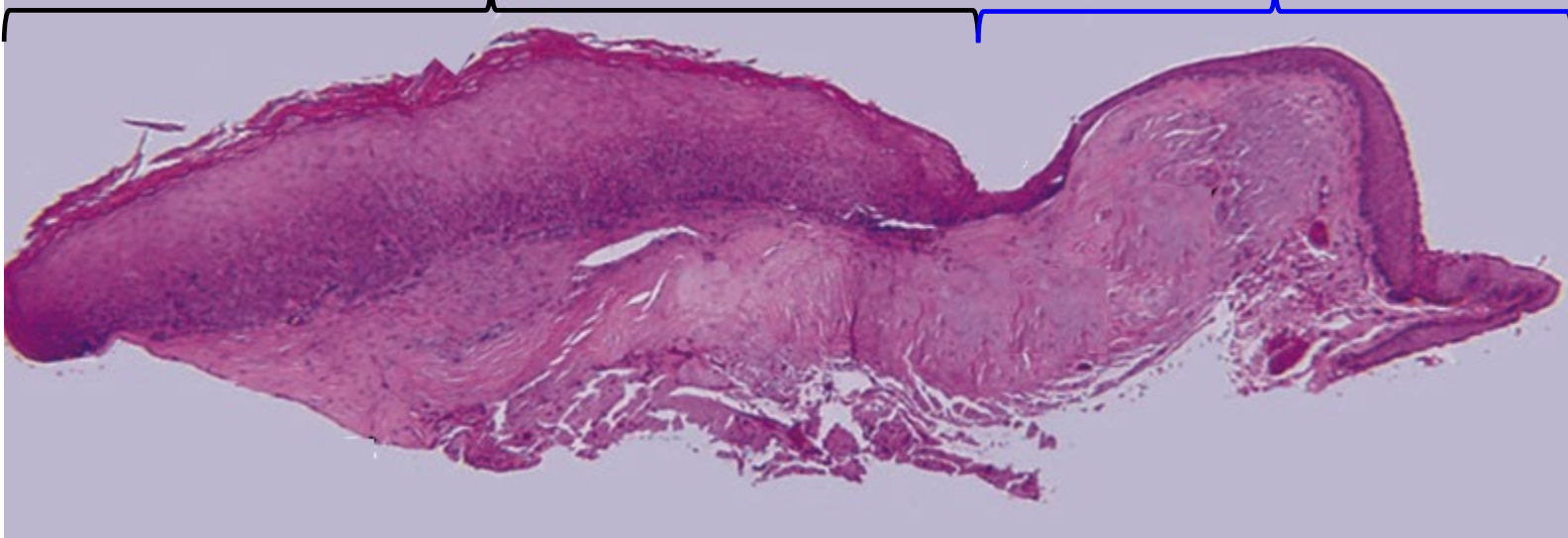
At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin)

Pathwatching



Keratinized

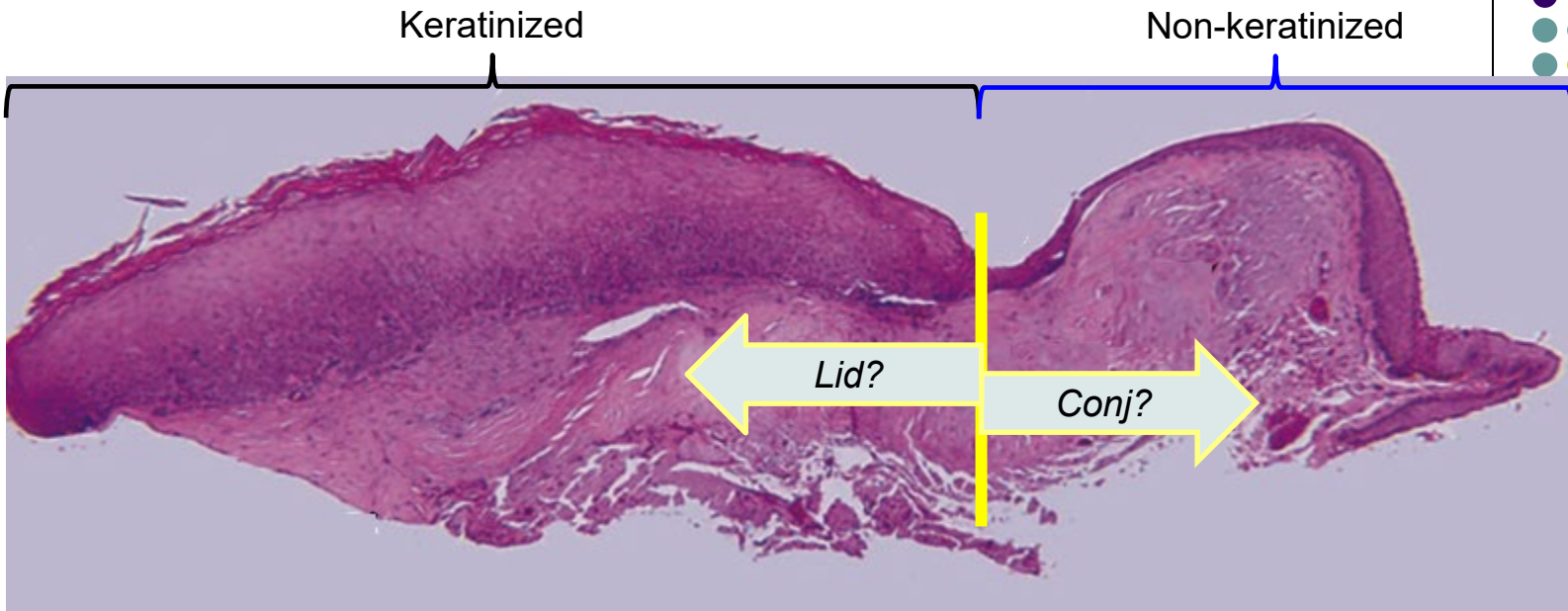
Non-keratinized



Again, first things first: Skin, or conj?

At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) and part of it isn't (indicating conj).

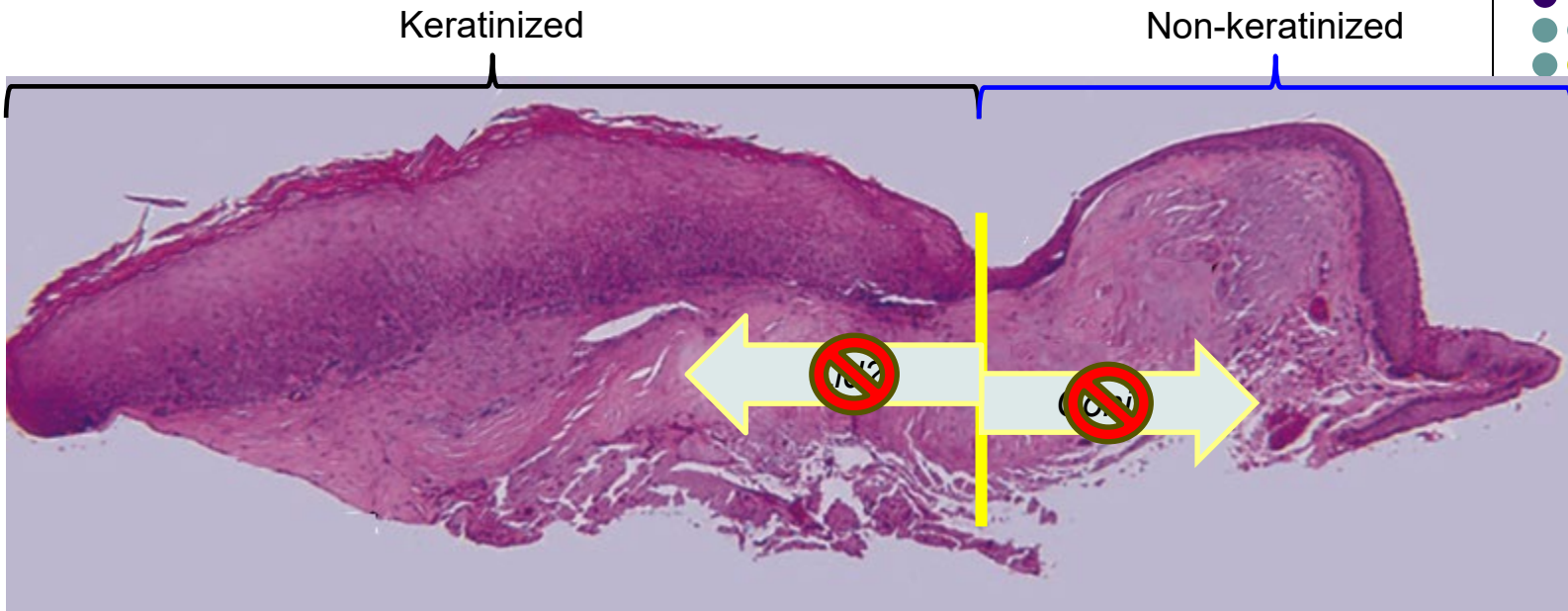
Pathwatching



Again, first things first: Skin, or conj?

At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) **and part of it isn't (indicating conj)**. *Could this be a junction between lid skin and conj?*

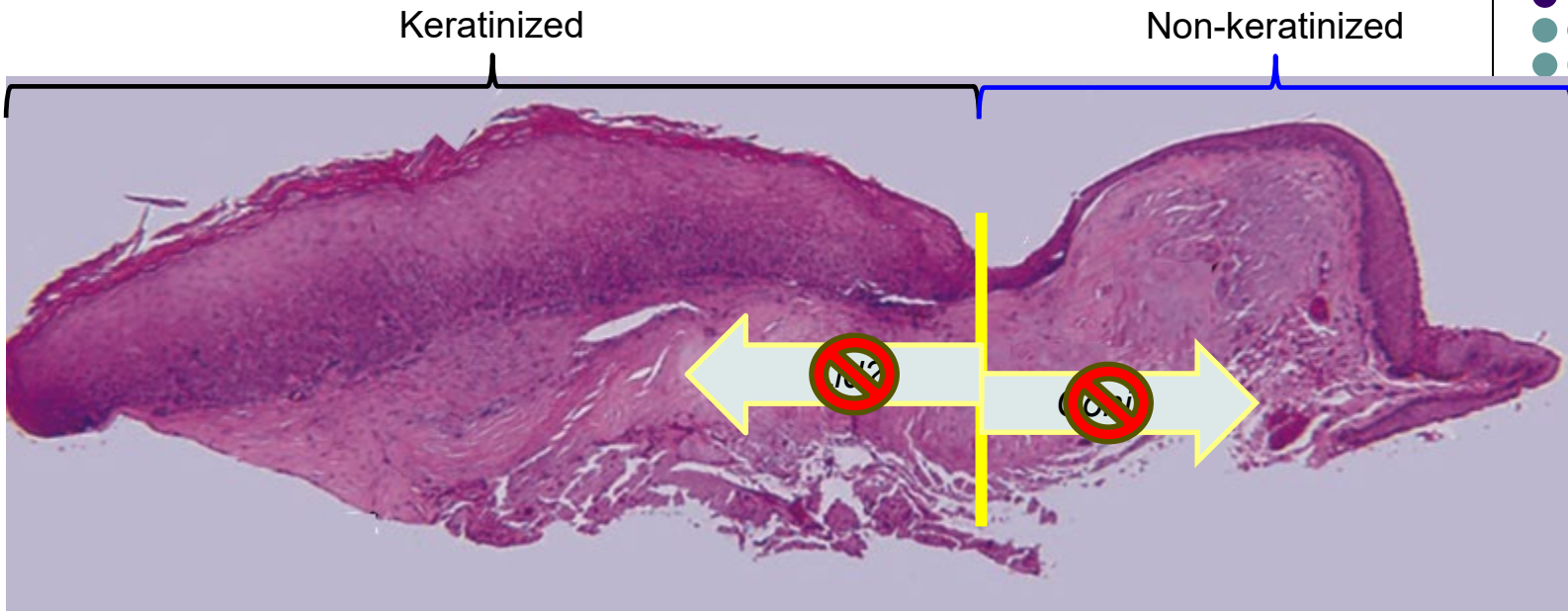
Pathwatching



Again, first things first: Skin, or conj?

At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) **and part of it isn't (indicating conj)**. *Could this be a junction between lid skin and conj?* No, because no such junction exists (without intervening landmarks of the two words).

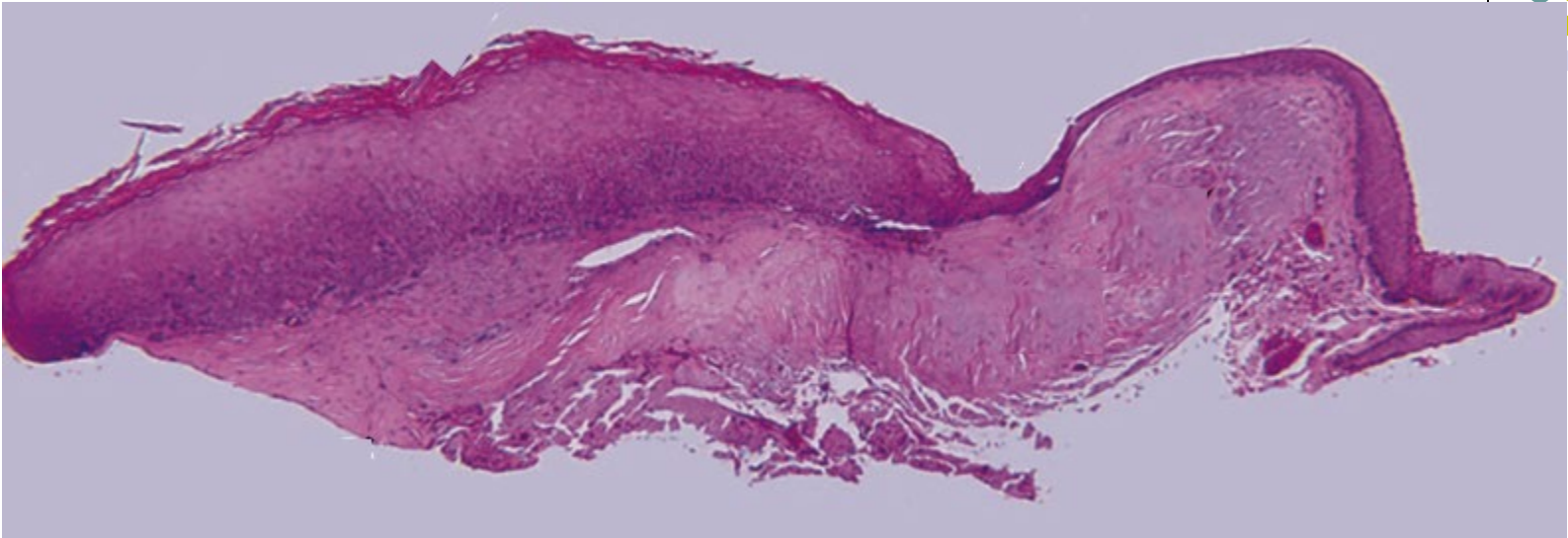
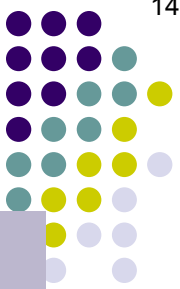
Pathwatching



Again, first things first: Skin, or conj?

At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) and part of it isn't (indicating conj). *Could this be a junction between lid skin and conj?* No, because no such junction exists (without intervening landmarks of the lid margin).

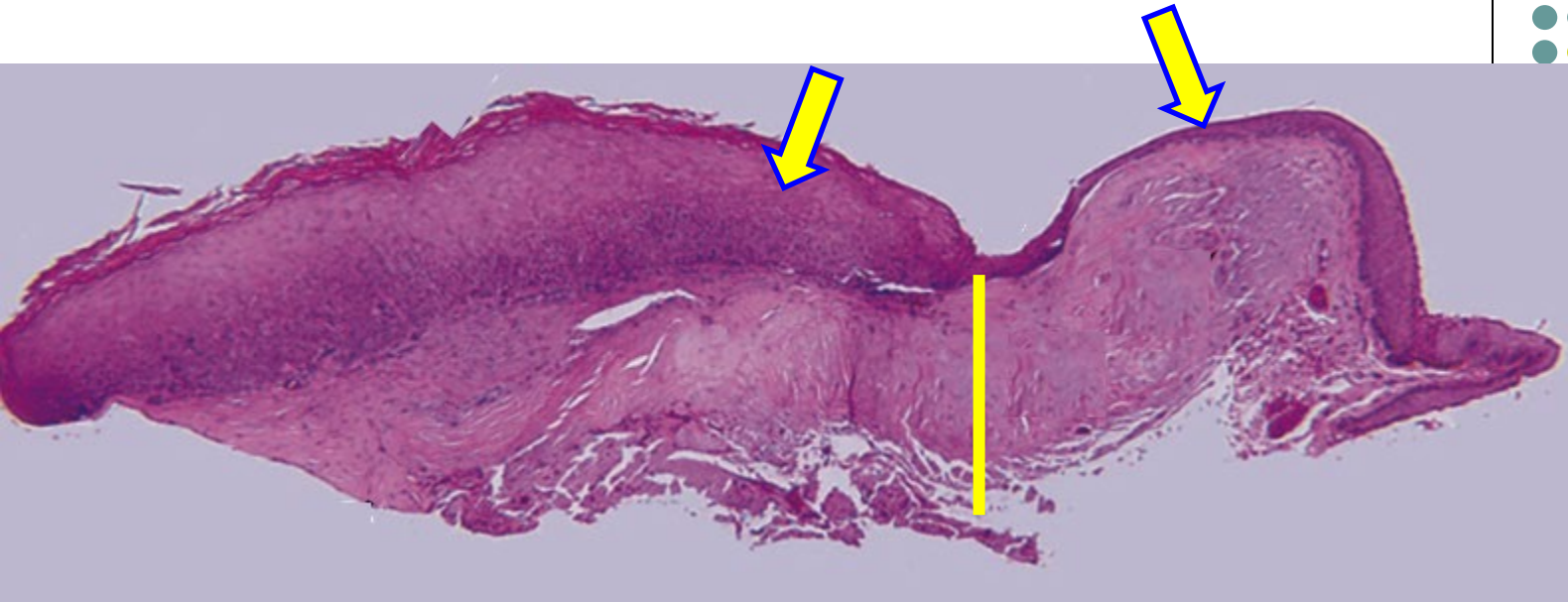
Pathwatching



Again, first things first: Skin, or conj?

At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) **and part of it isn't (indicating conj)**. *Could this be a junction between lid skin and conj?* No, because no such junction exists (without intervening landmarks of the lid margin). **So this is either skin that lost keratinization or conj that acquired it. But which is it?**

Pathwatching

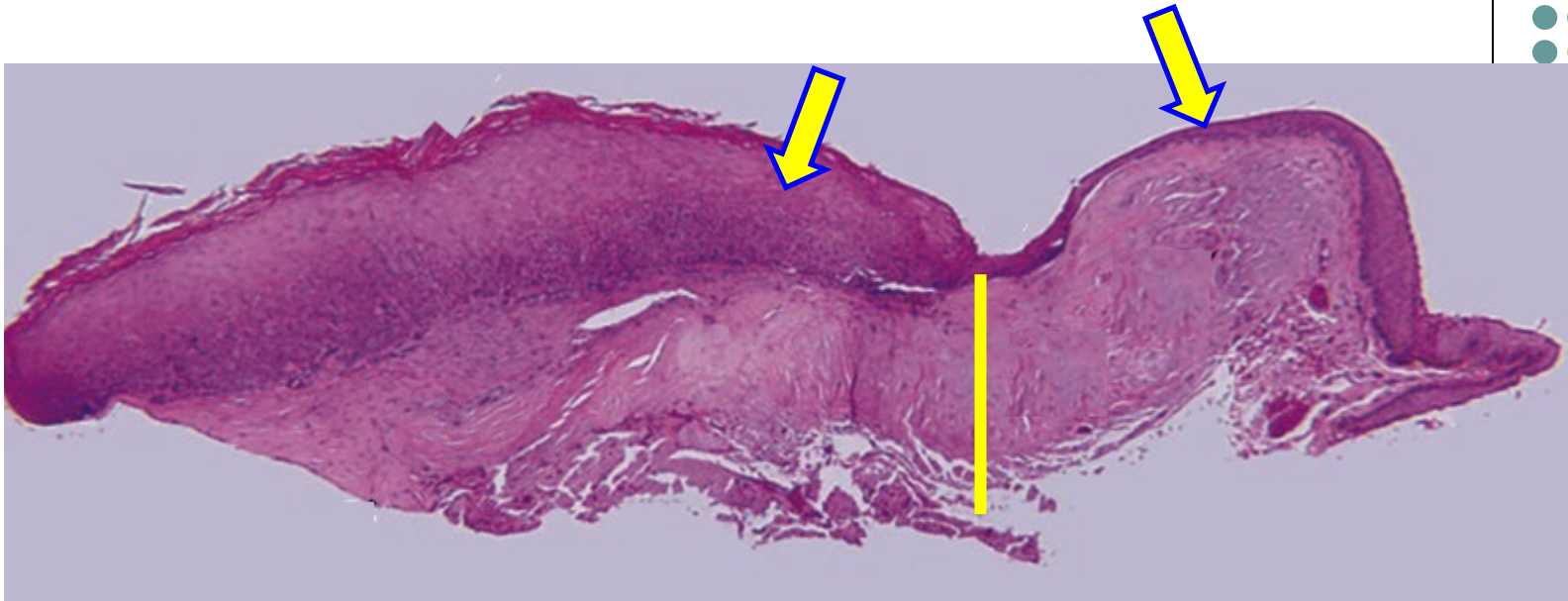


Again, first things first: Skin, or conj?

At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) **and part of it isn't (indicating conj)**. *Could this be a junction between lid skin and conj?* No, because no such junction exists (without intervening landmarks of the lid margin). **So this is either skin that lost keratinization or conj that acquired it. But which is it?**

The answer is clear once we compare the epithelia on the two sides of the change in keratinization status.

Pathwatching

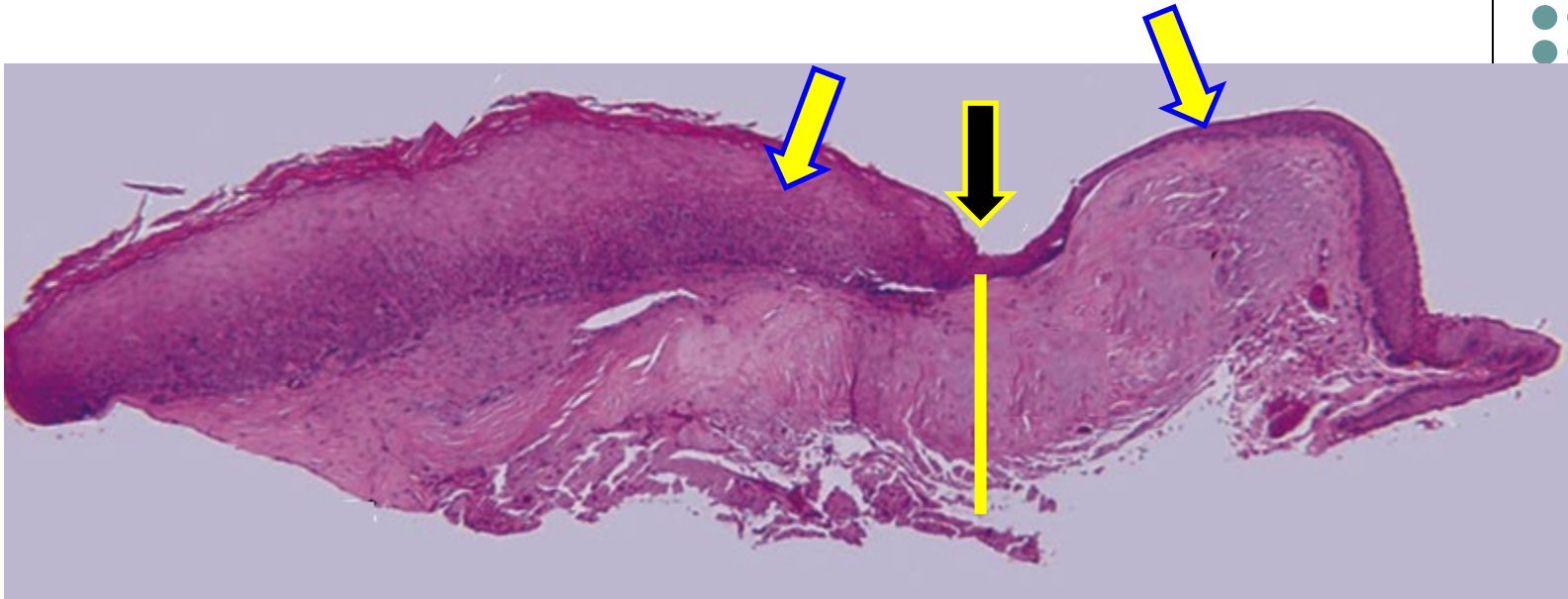


Again, first things first: Skin, or conj?

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The answer is clear once we compare the epithelia on the two sides of the change in keratinization status. *The epithelium on the keratinized side is vastly thicker than that on the nonkeratinized side, strongly suggesting it (the keratinized epithelium) is neoplastic.*

Pathwatching



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Pathwatching



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four words

Pathwatching

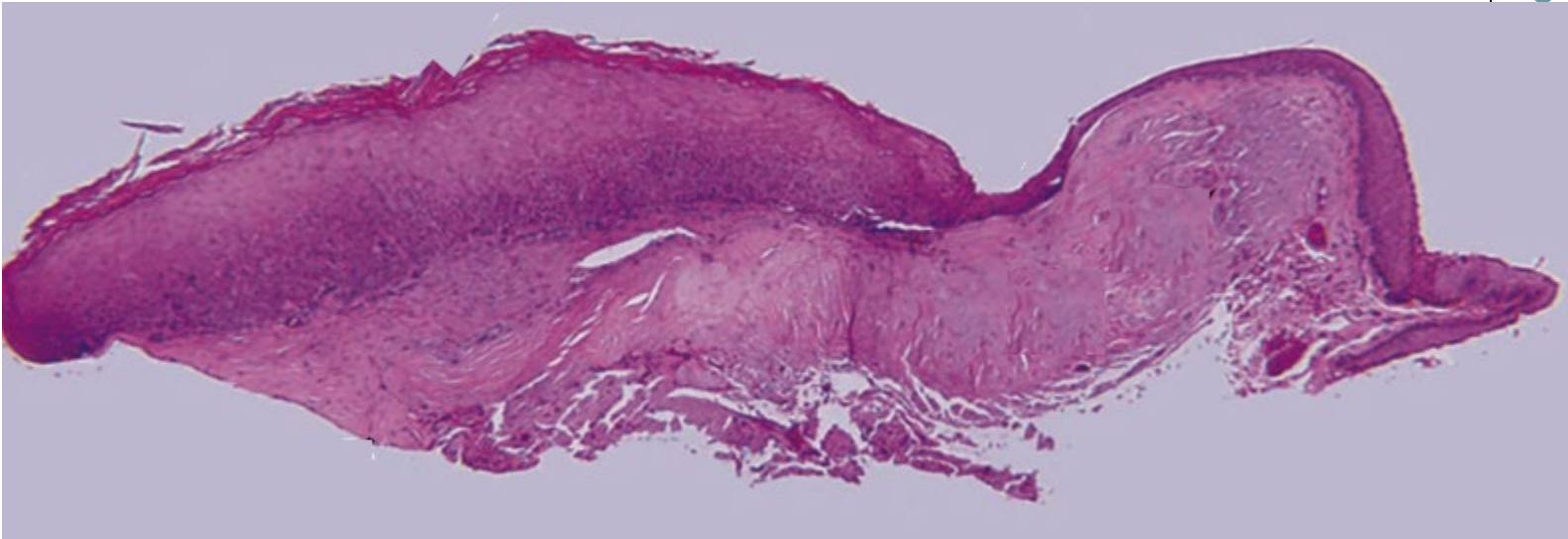


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Pathwatching



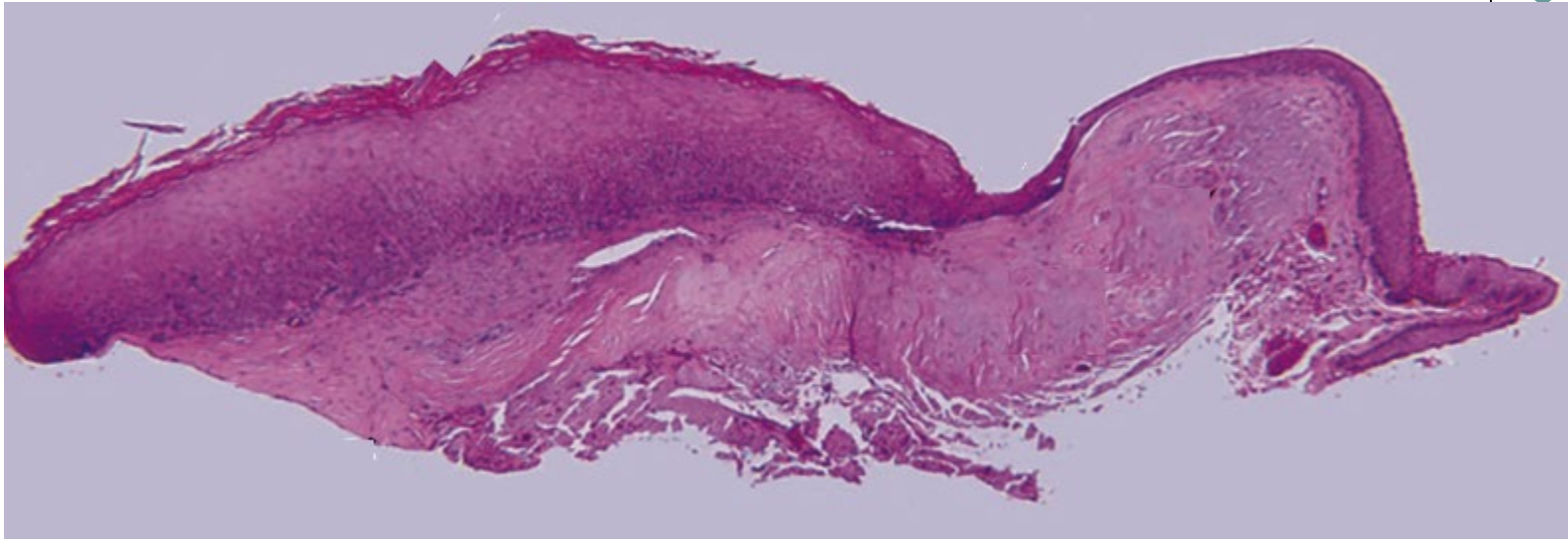
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OSSN arises on two-words portions of the conj

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Pathwatching



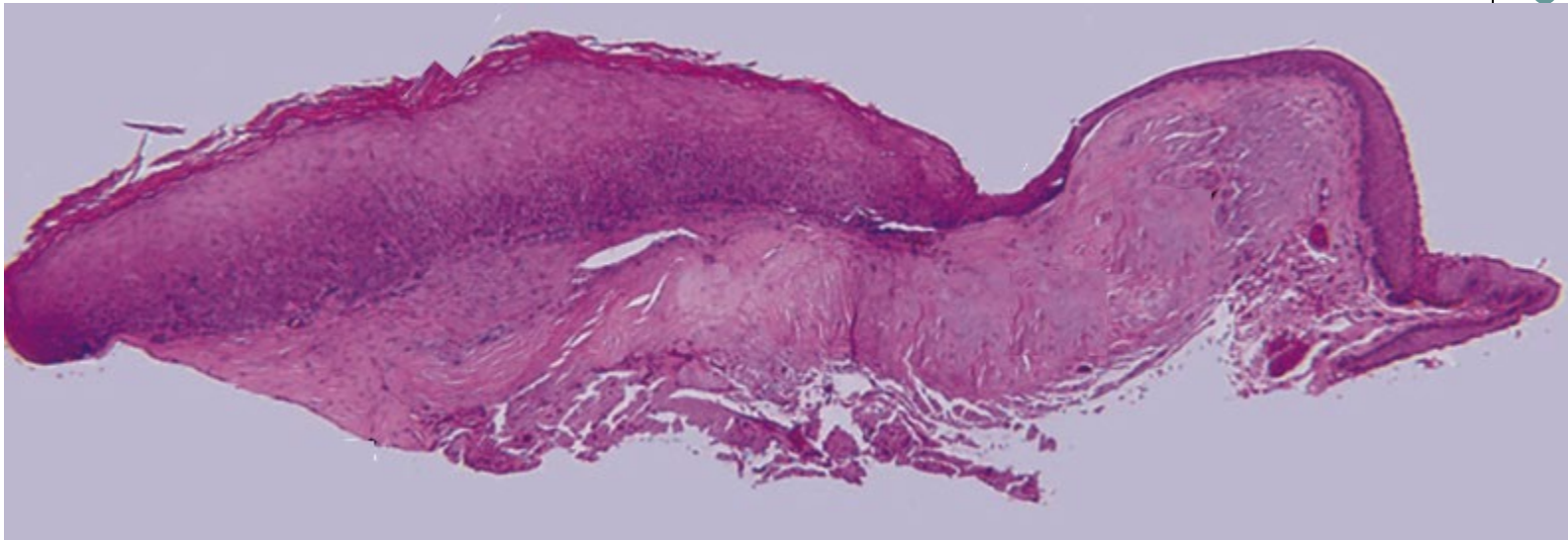
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Pathwatching



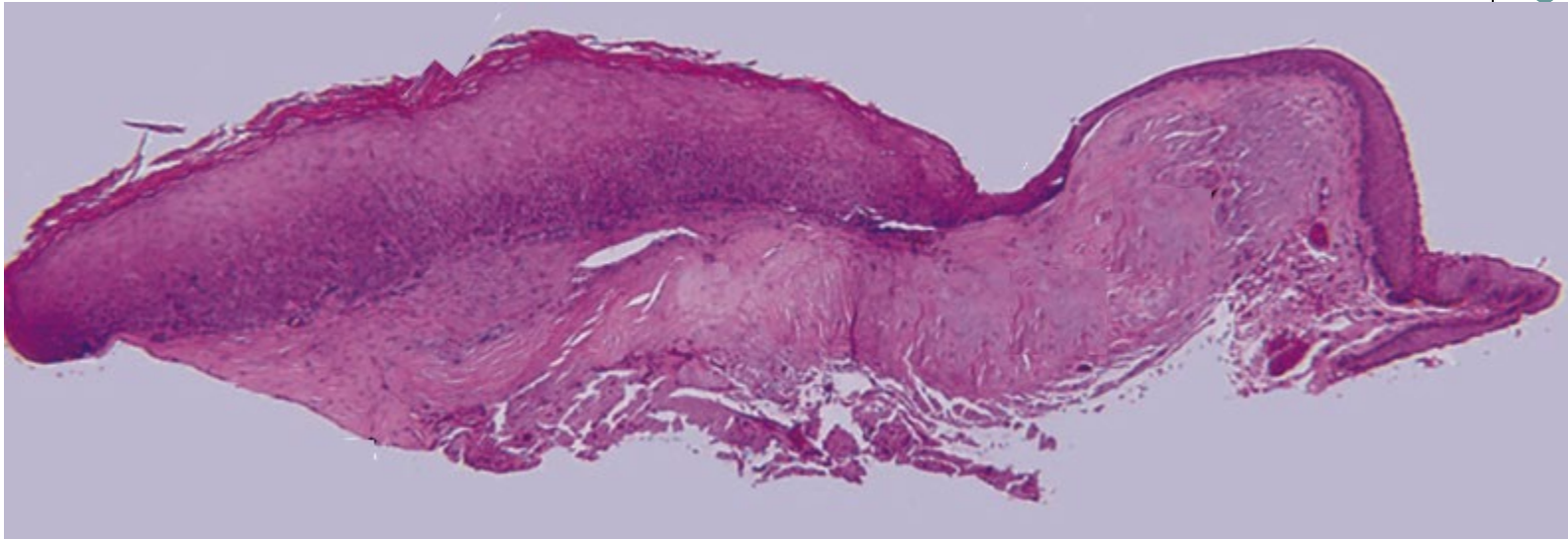
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Pathwatching



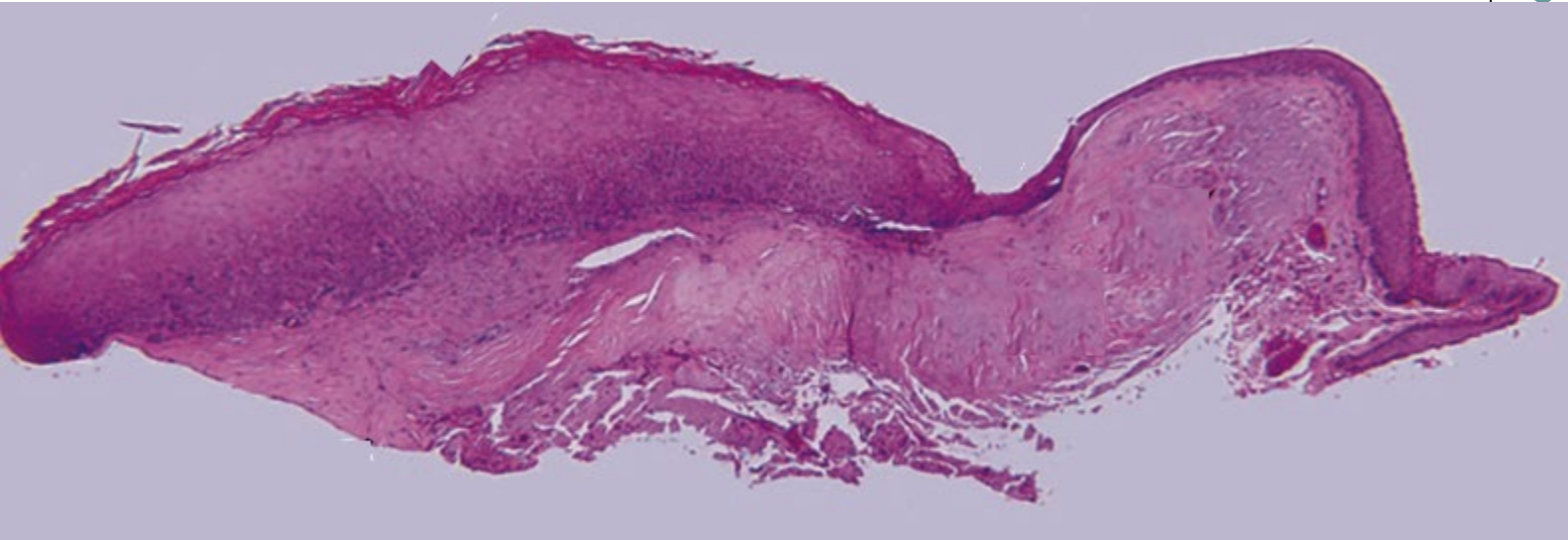
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Pathwatching



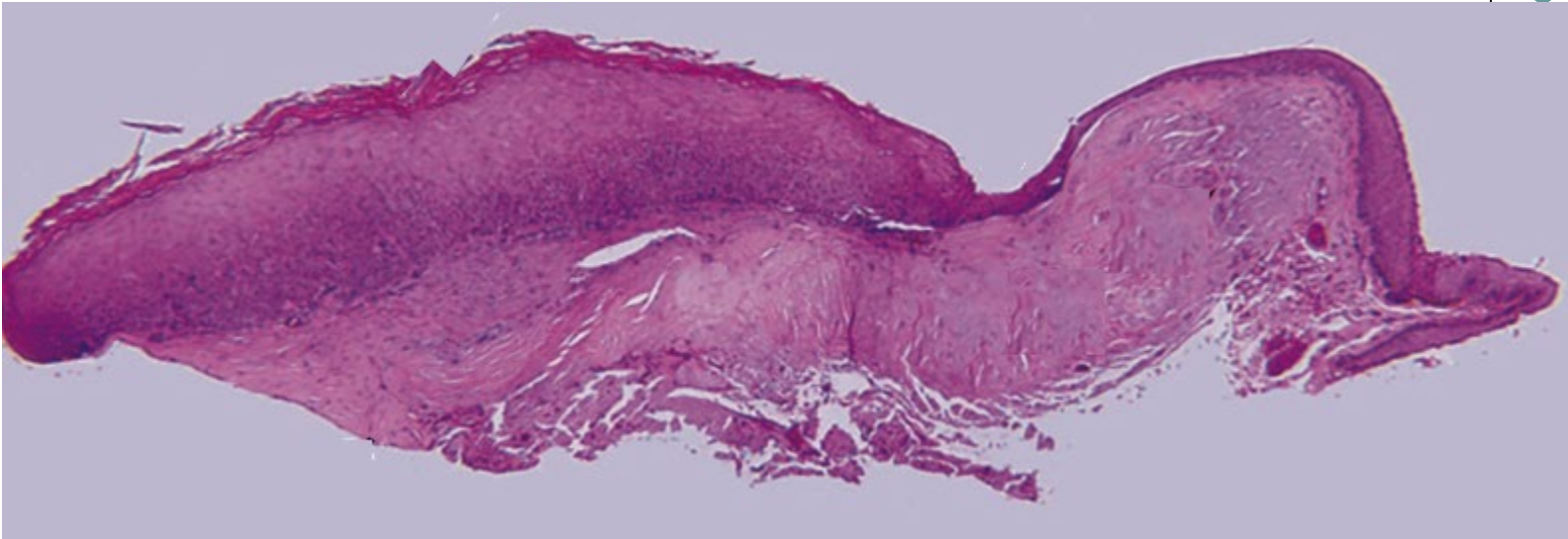
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Pathwatching



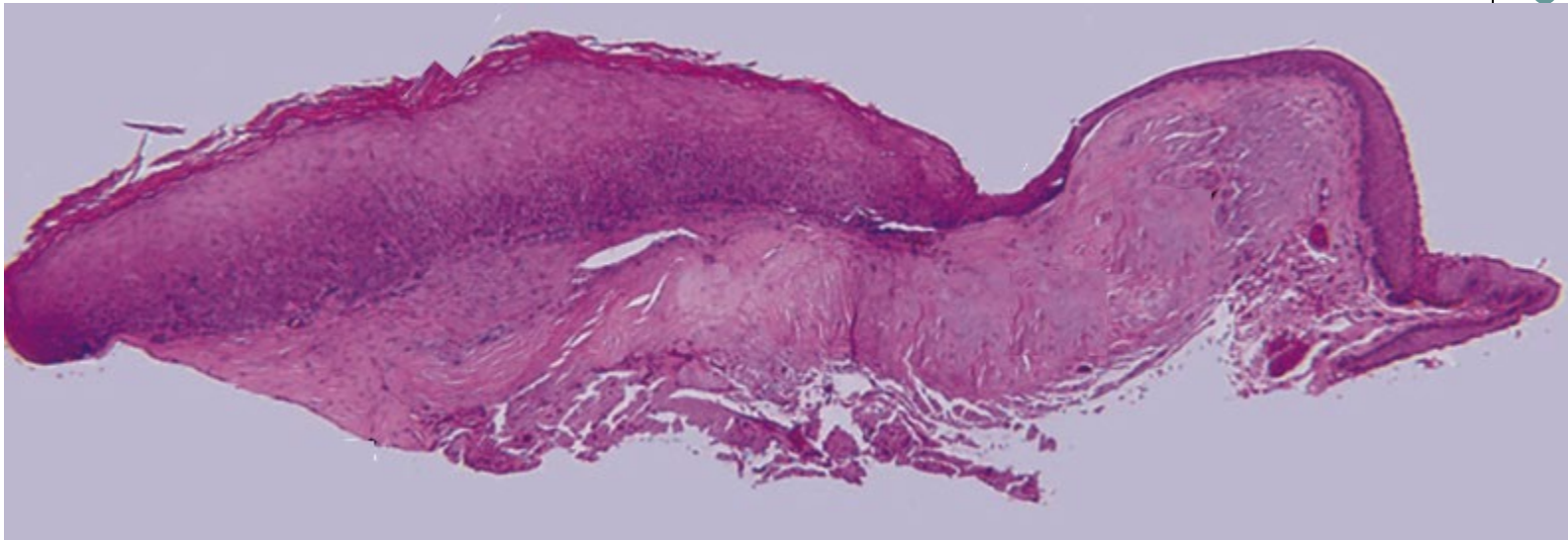
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Pathwatching



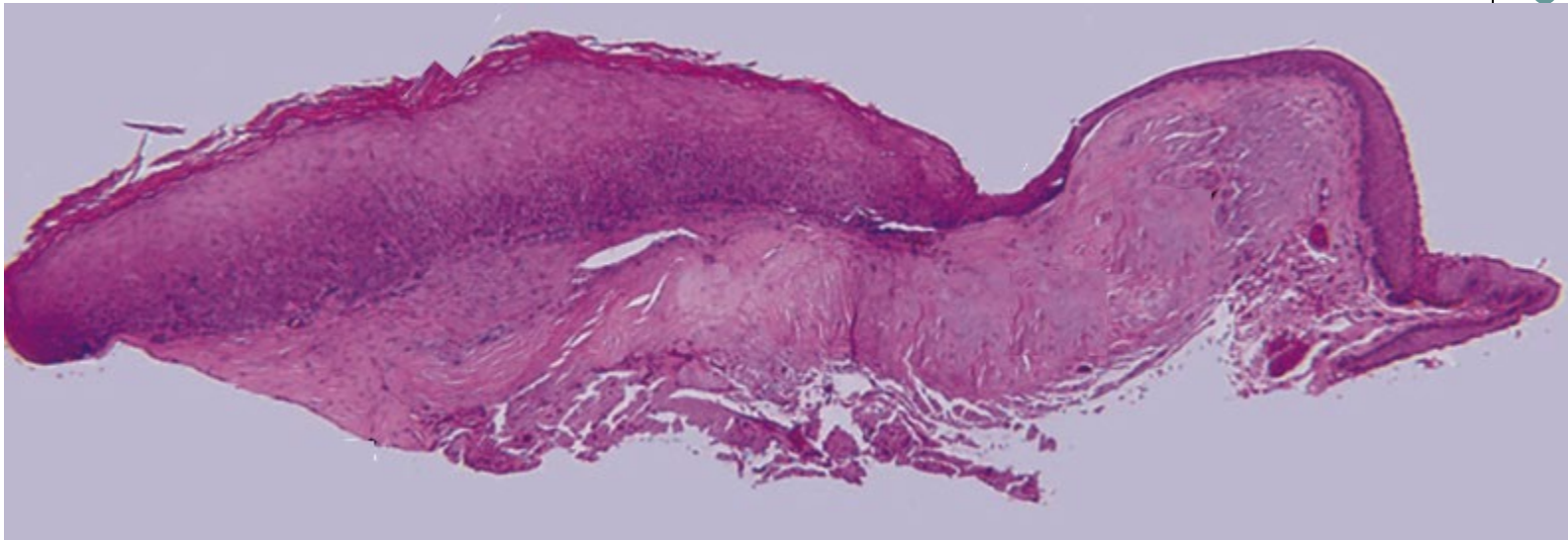
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Pathwatching



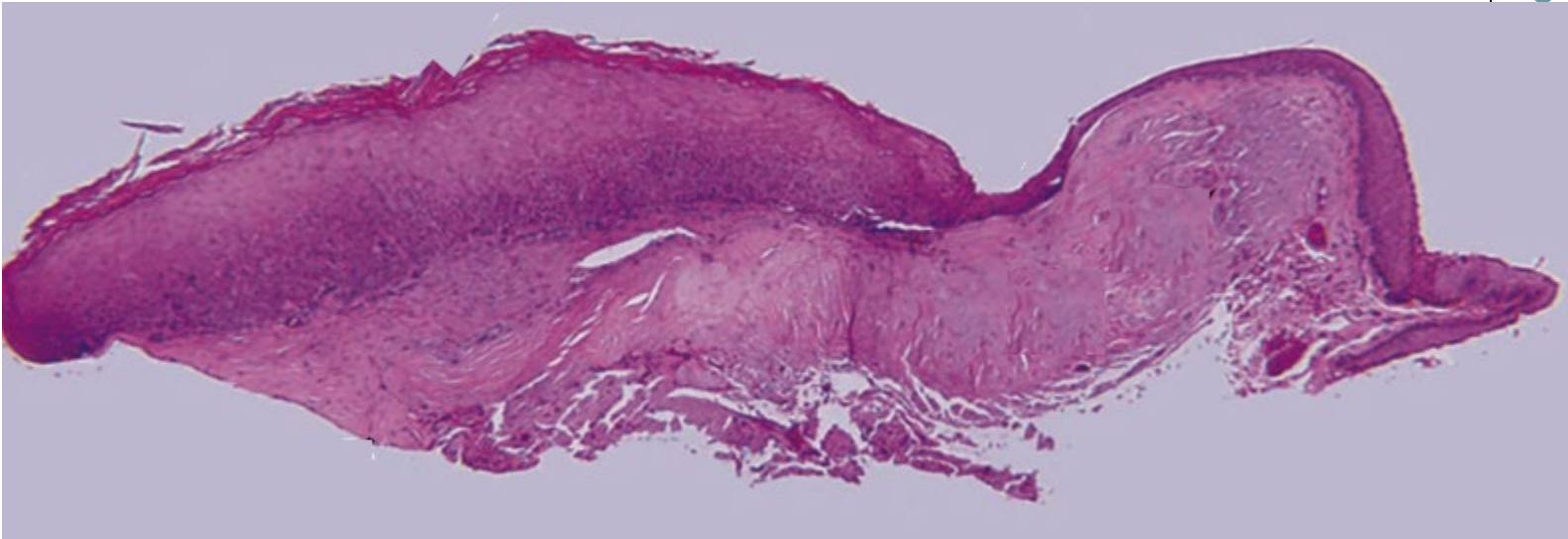
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Pathwatching



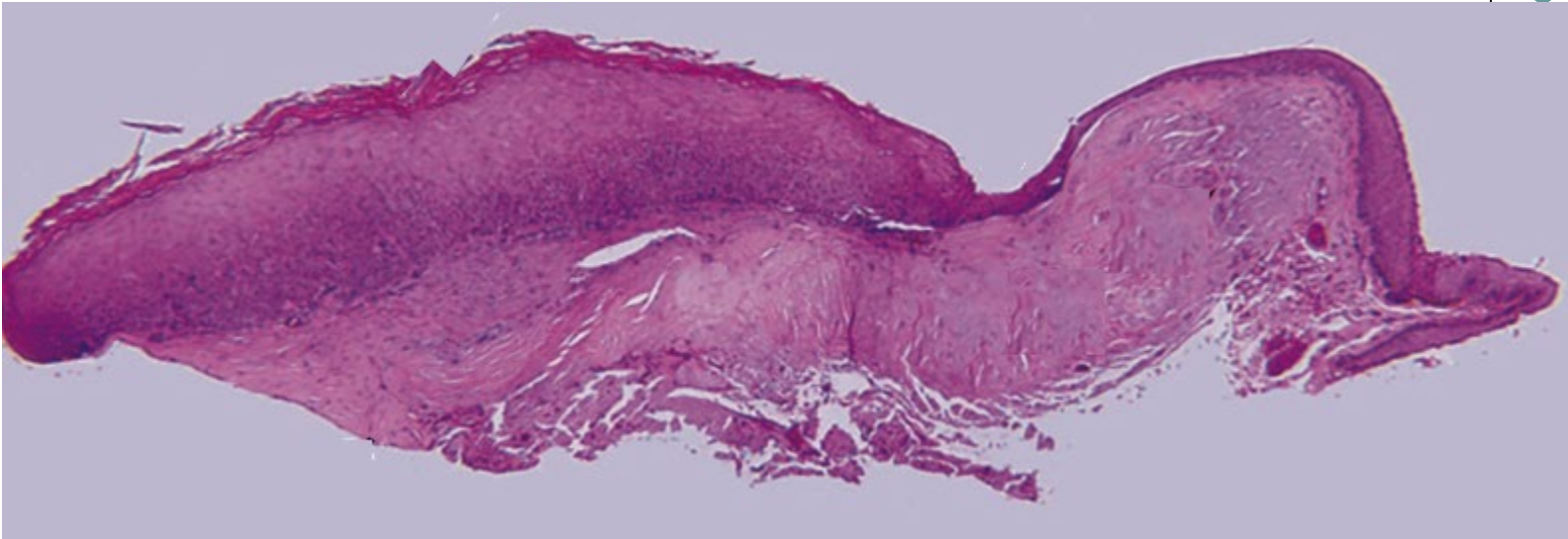
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Pathwatching



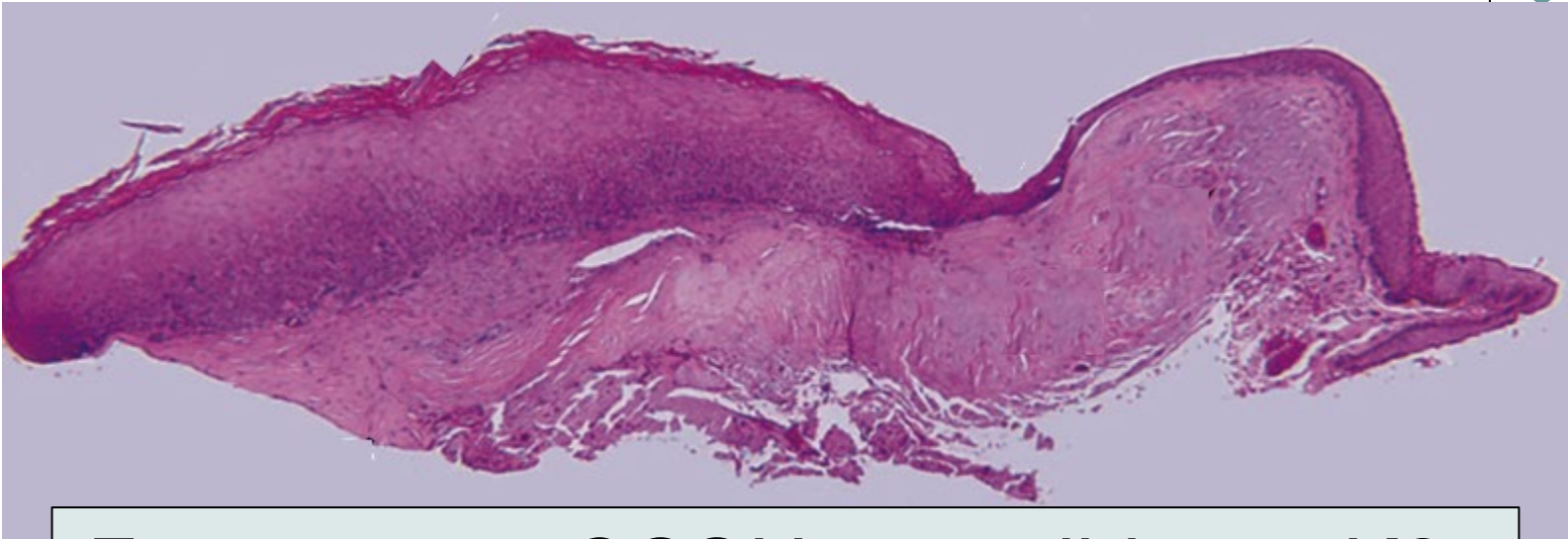
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Pathwatching



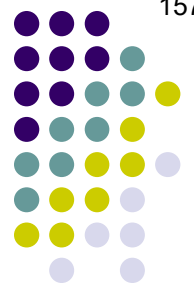
For more on OSSN, see slide-set K25

Ag

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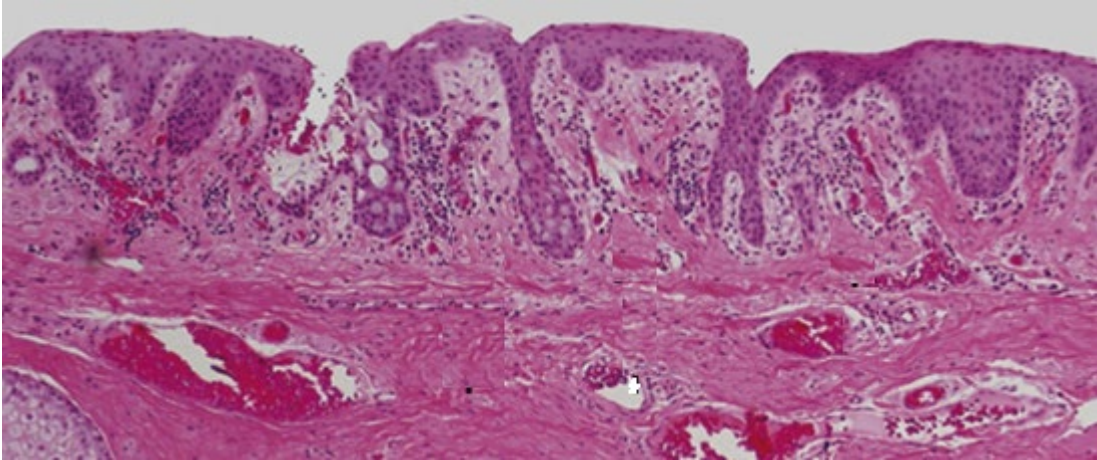
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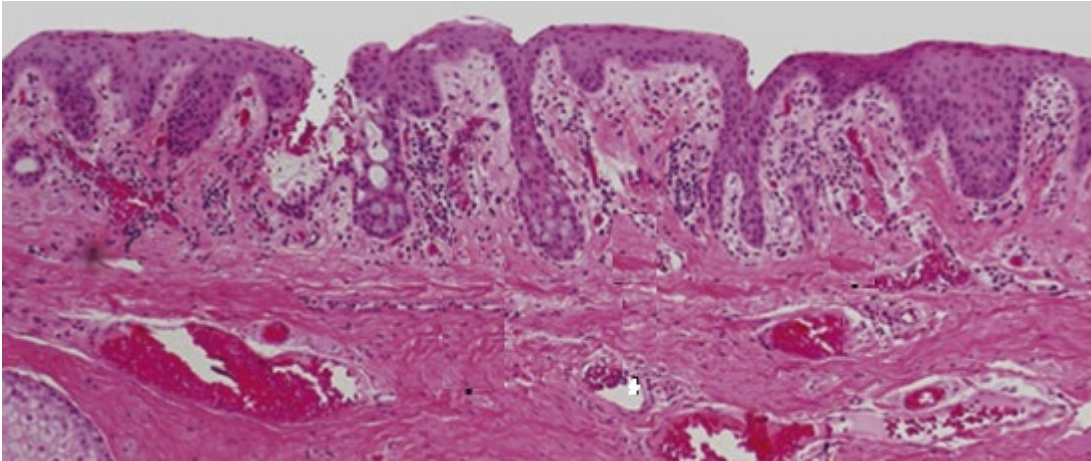
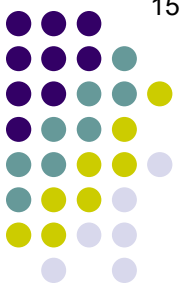


Pathwatching

Skin or conj?

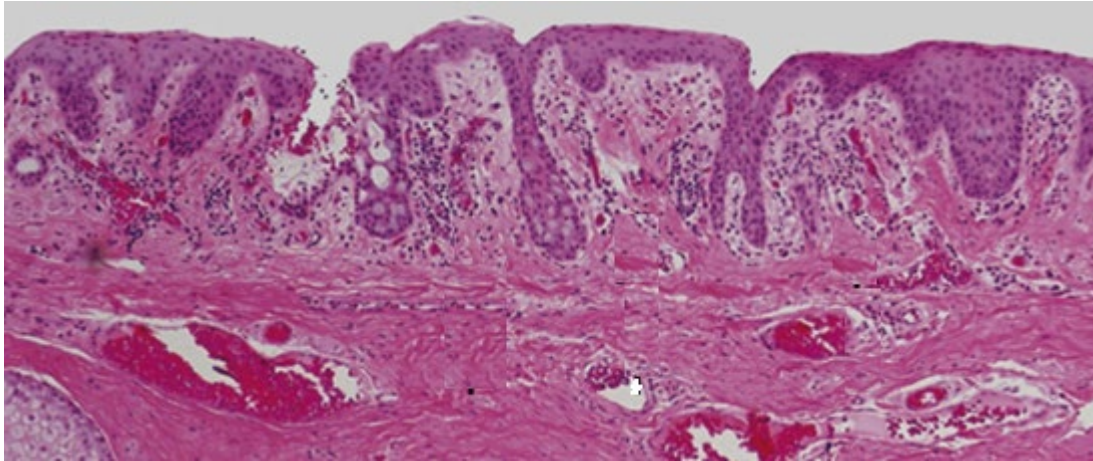
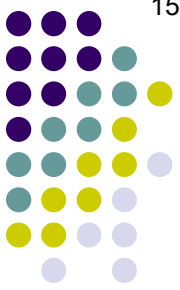


Pathwatching



Skin or conj?
No keratinization = conj

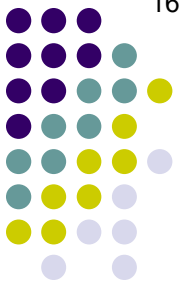
Pathwatching



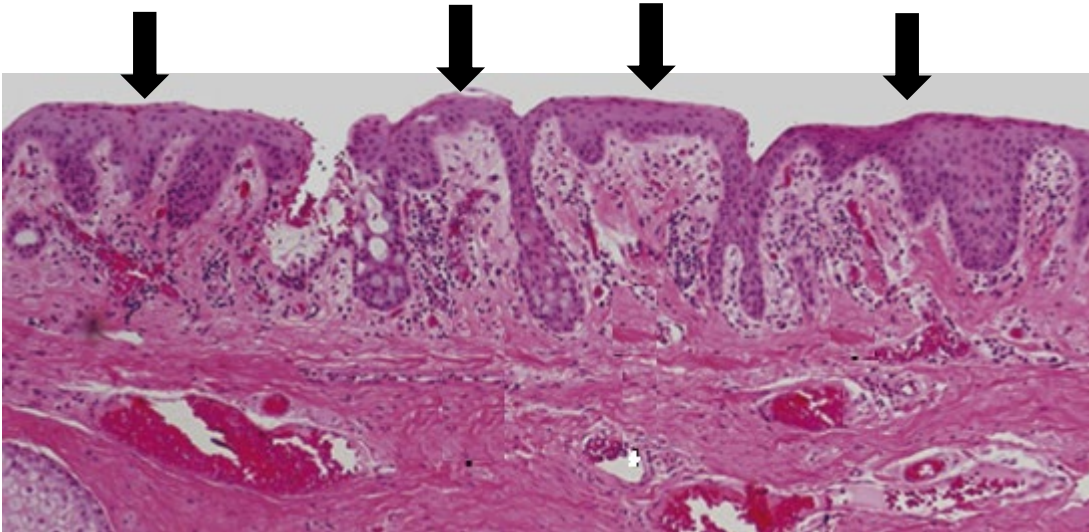
Skin or conj?

No keratinization = conj

*There's a classic field mark here—
what is it?*



Pathwatching



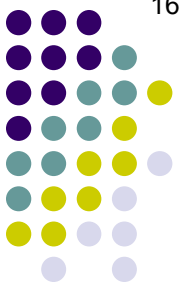
Skin or conj?

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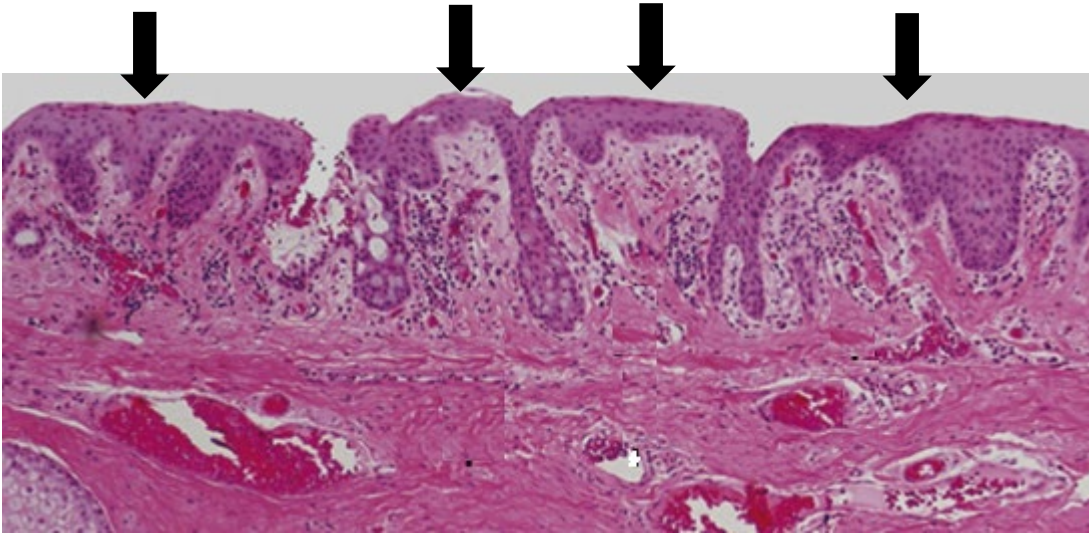
*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped
mesa-looking structures. These
correspond to a slit-lamp finding of





Pathwatching



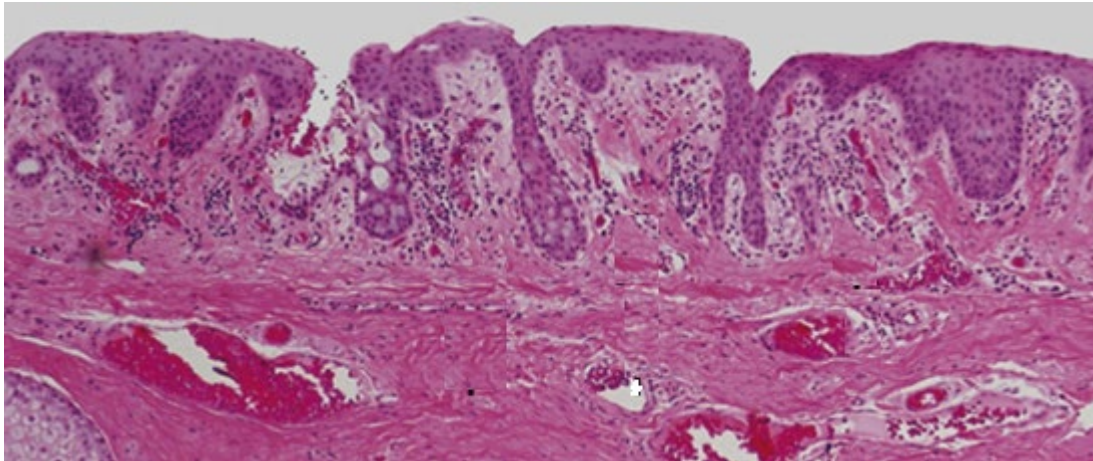
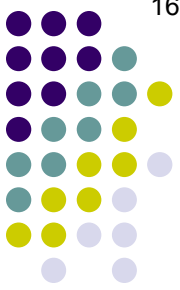
Skin or conj?

No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped
mesa-looking structures. These
correspond to a slit-lamp finding of
'cobblestones'.

Pathwatching



What's the diagnosis?

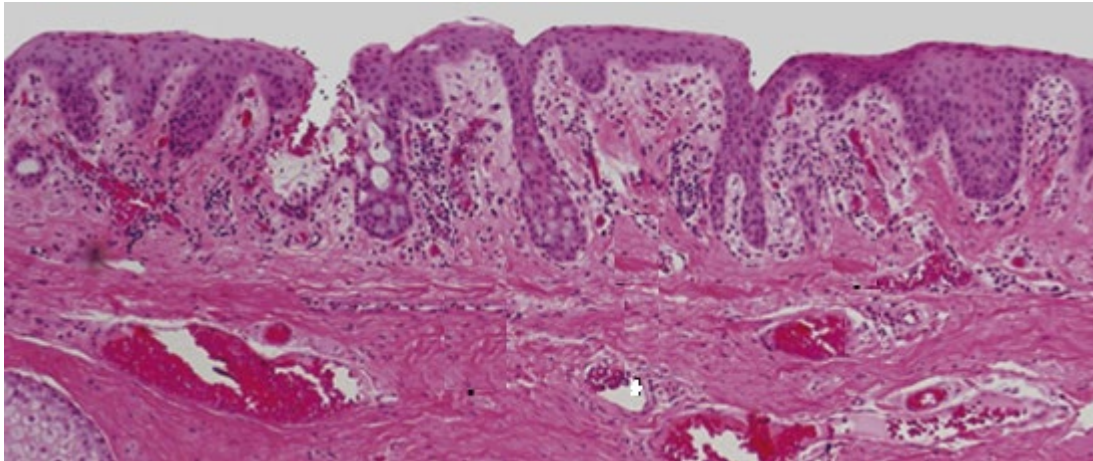
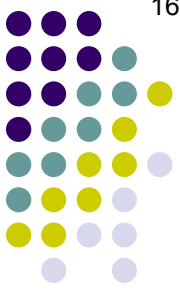
Skin or conj?

No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Pathwatching



Skin or conj?

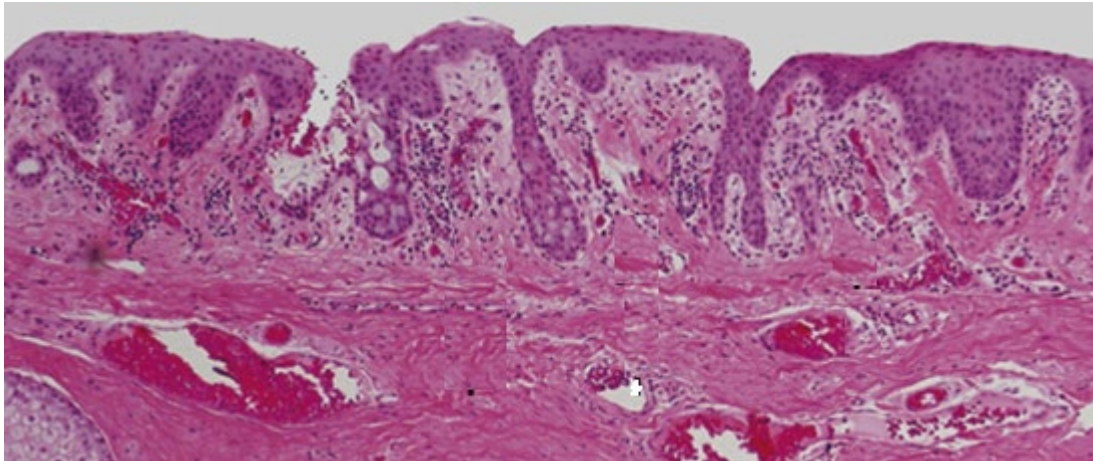
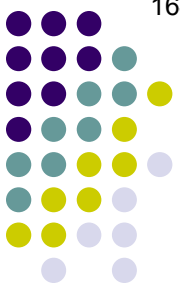
No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Papillary conjunctivitis is one of # main forms of conjunctivitis

Pathwatching



Skin or conj?

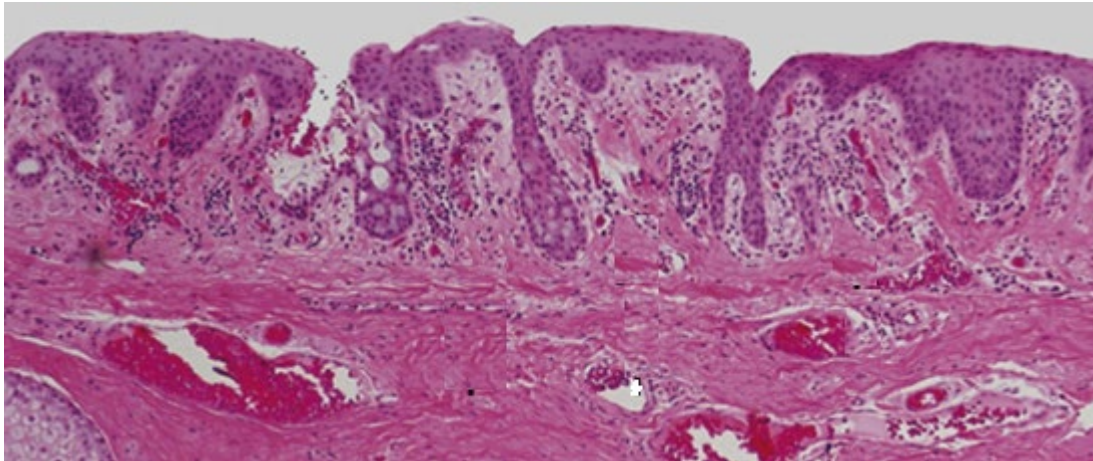
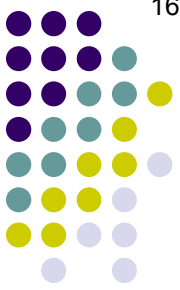
No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Papillary conjunctivitis is one of two main forms of conjunctivitis

Pathwatching



Skin or conj?

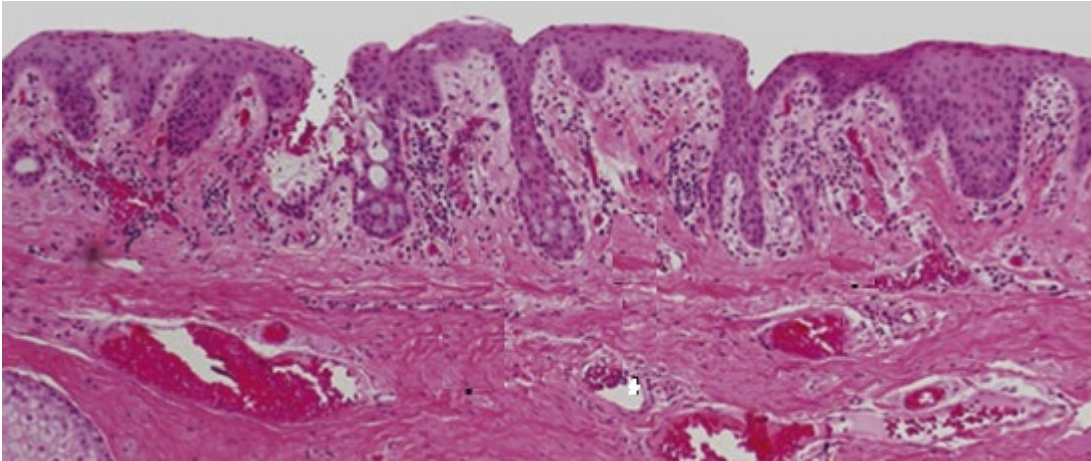
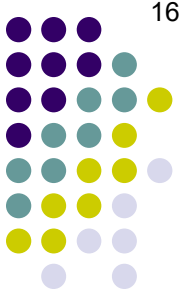
No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Papillary conjunctivitis is one of two main forms of conjunctivitis (the other being).

Pathwatching



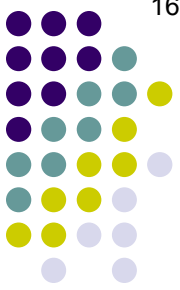
Skin or conj?

No keratinization = conj

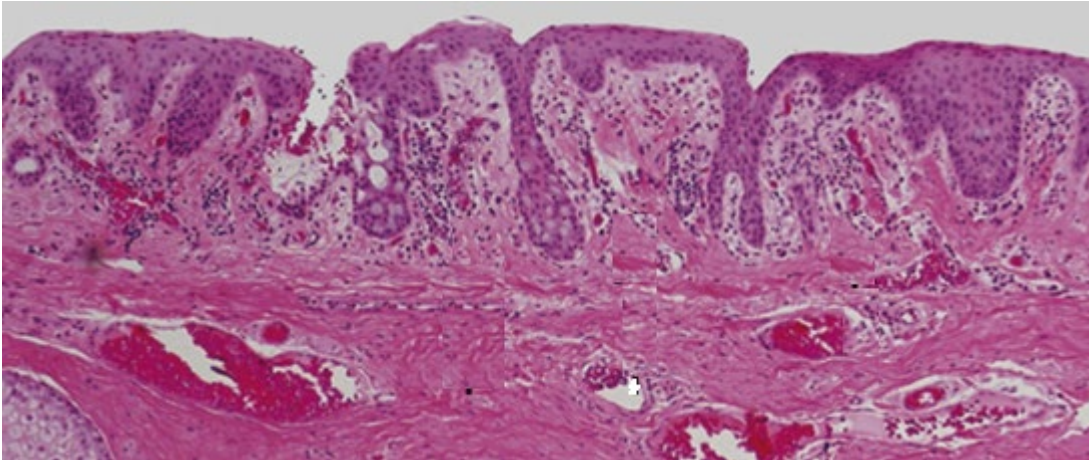
*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Papillary conjunctivitis is one of two main forms of conjunctivitis (the other being *follicular*).



Pathwatching



Skin or conj?

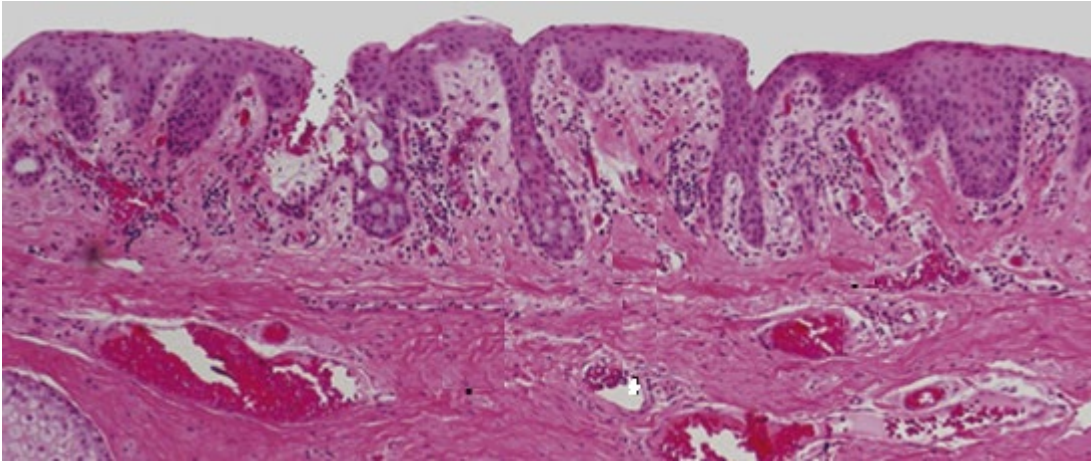
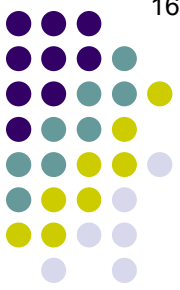
No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Papillary conjunctivitis is one of two main forms of conjunctivitis (the other being *follicular*). It is most commonly associated with either **broad dz cat.** or a **two words** response.

Pathwatching



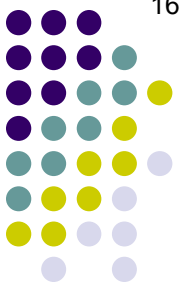
Skin or conj?

No keratinization = conj

*There's a classic field mark here—
what is it?*

It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. **When you see these, one thing should come to mind:**

Papillary conjunctivitis is one of two main forms of conjunctivitis (the other being *follicular*). It is most commonly associated with either allergies or a foreign body response.



Pathwatching

Skin or conj?

No keratinization = conj

*There's a classic field mark here—
what is it?*

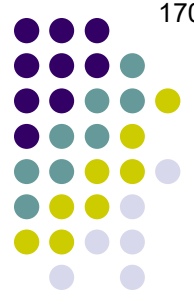
It's these closely packed, flat-topped

These
finding of
I see these,
mind:

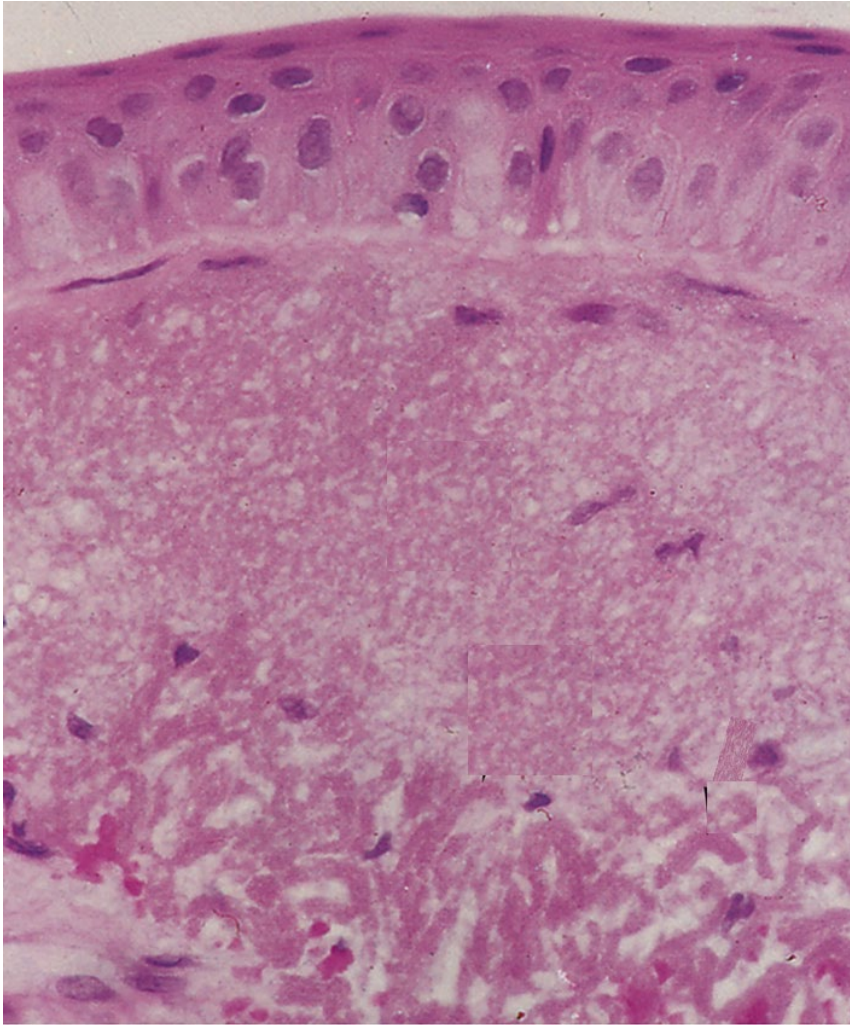
*For more on papillary (and follicular)
conjunctivitis, see slide-set K3*



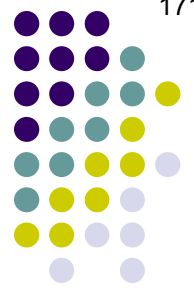
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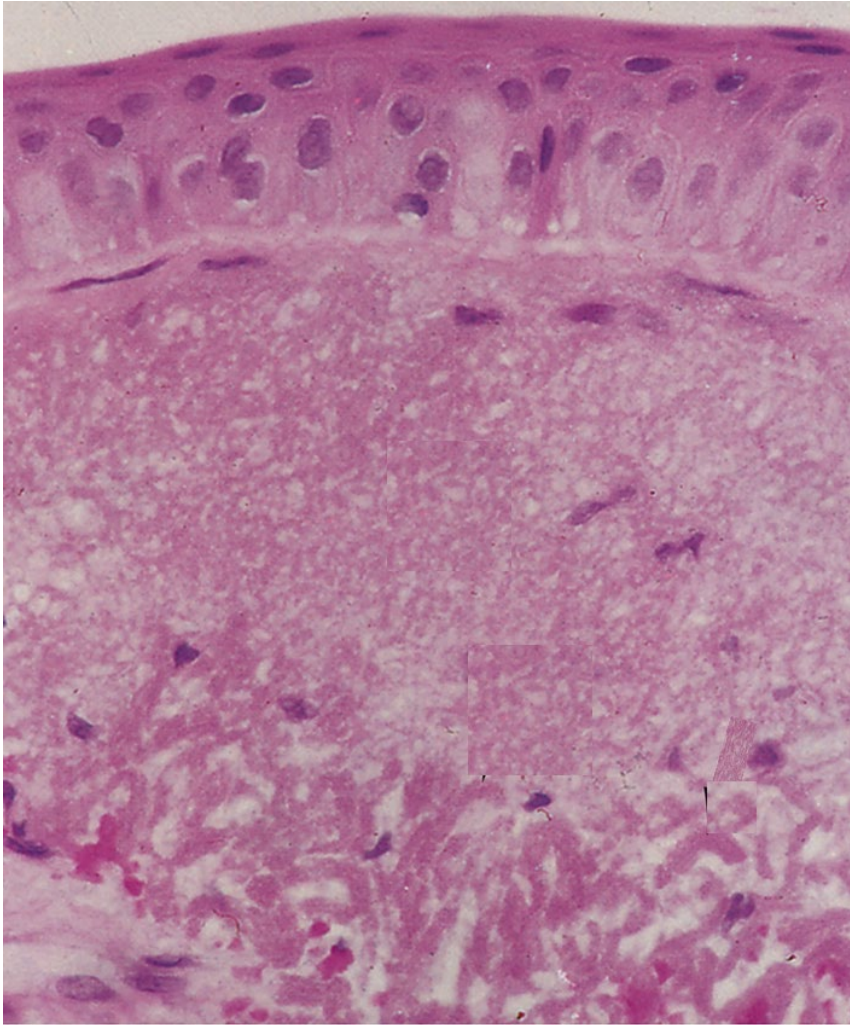
Pathwatching



Skin or conj?

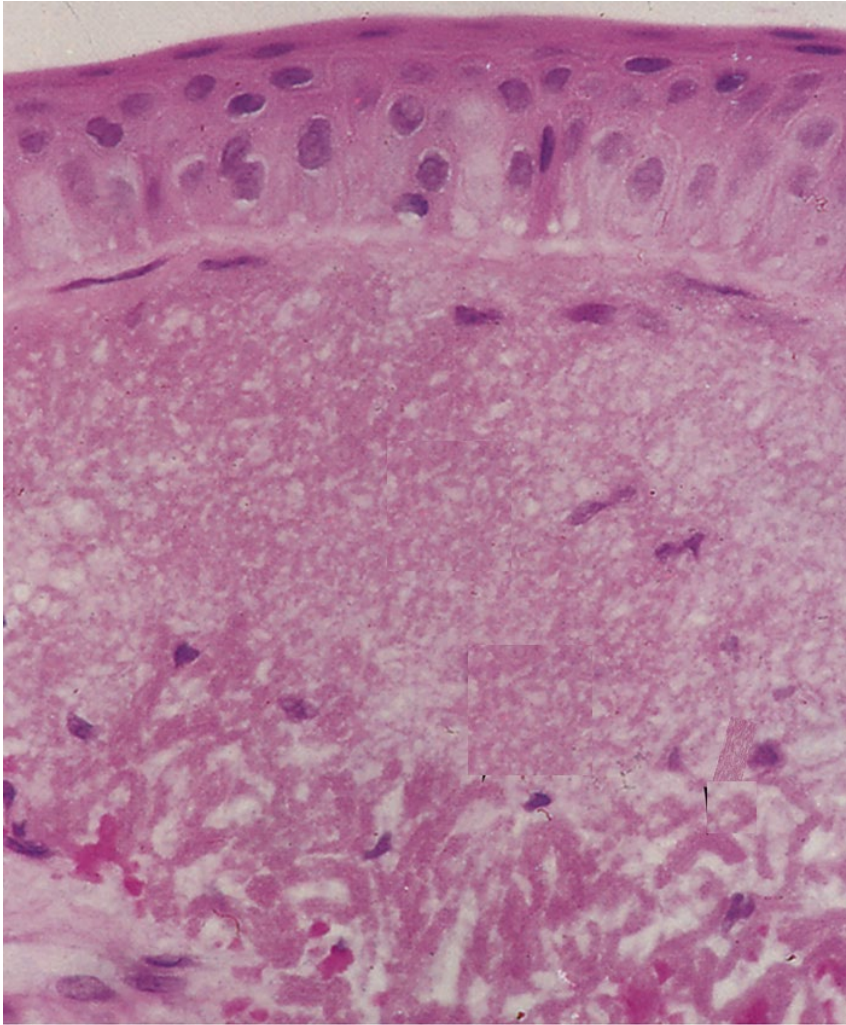
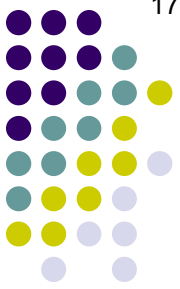


Pathwatching



Skin or conj?
No keratinization = conj

Pathwatching

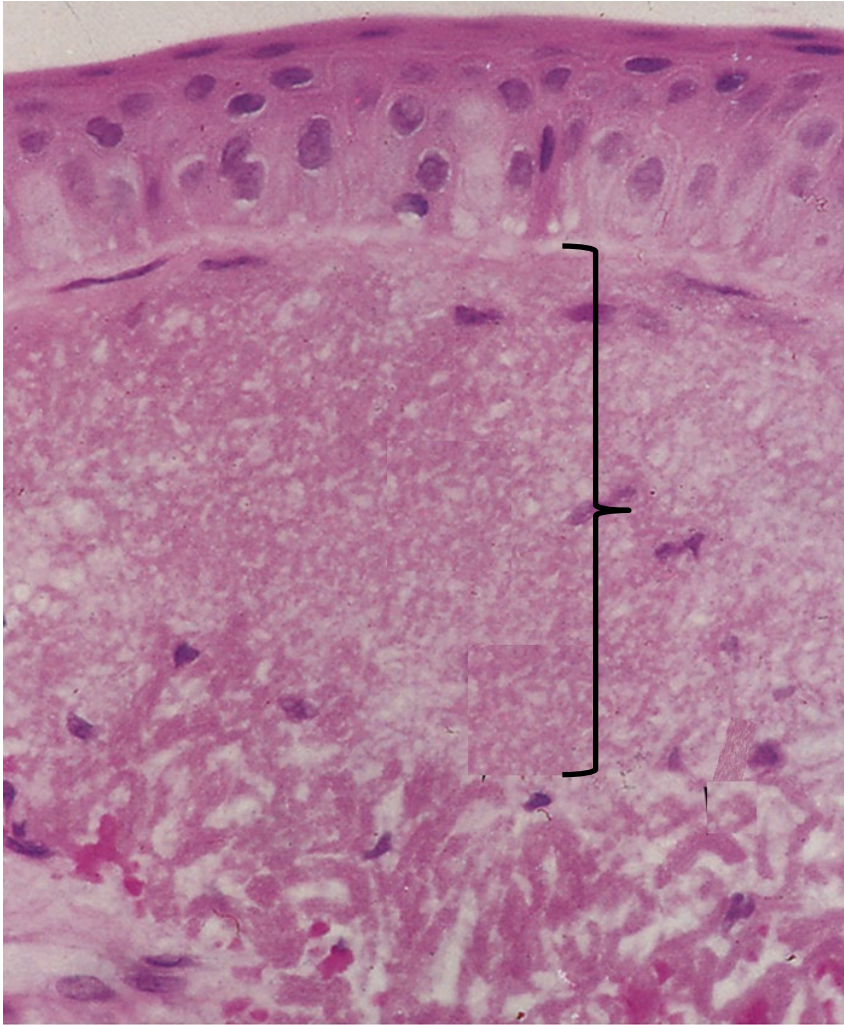
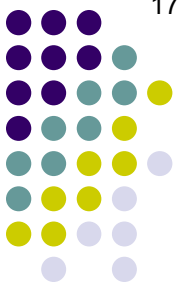


Skin or conj?

No keratinization = conj

There's a good field mark here—what is it?

Pathwatching

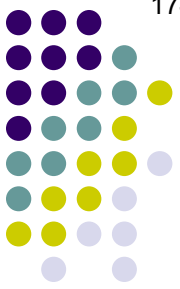


Skin or conj?

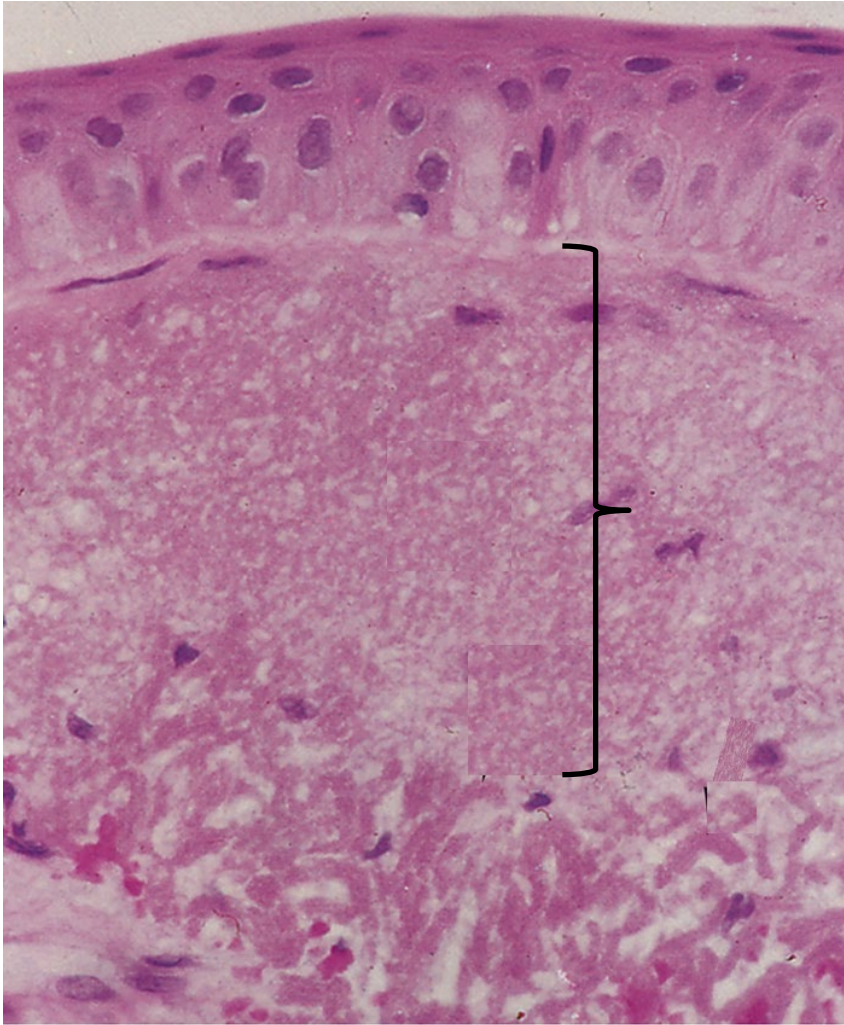
No keratinization = conj

There's a good field mark here—what is it?

It's this large acellular region in the stroma.



Pathwatching



Skin or conj?

No keratinization = conj

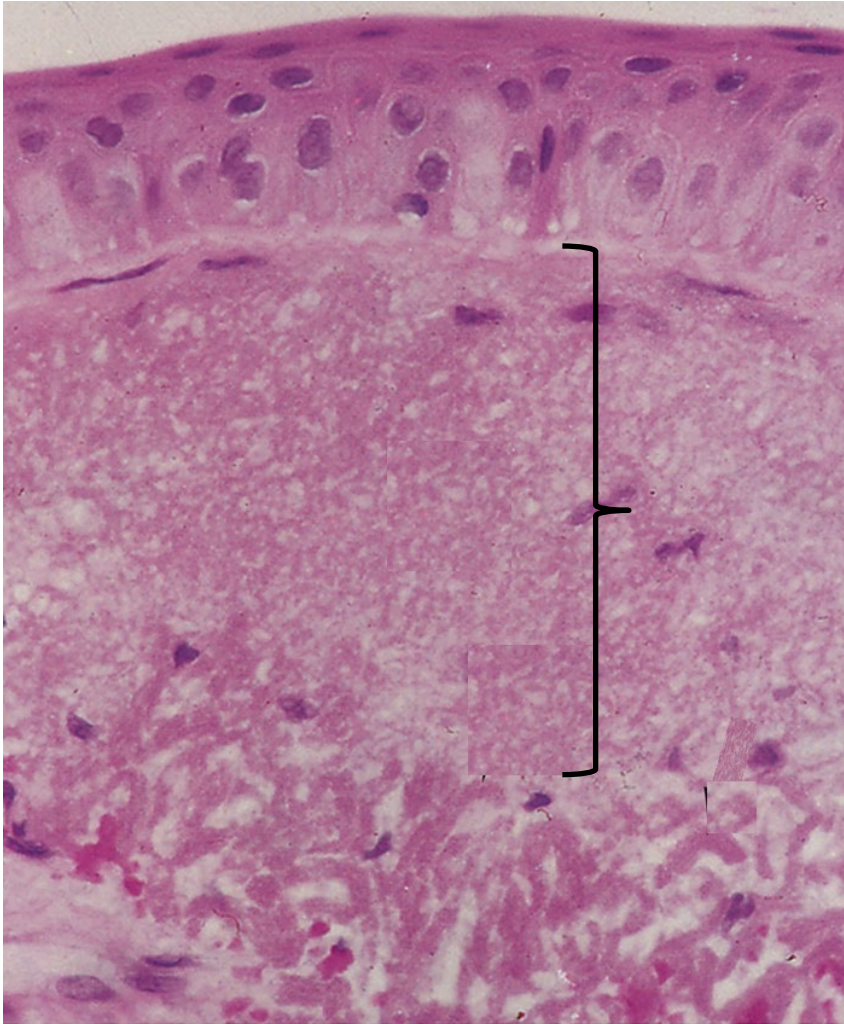
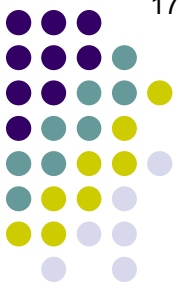
There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think

two words

Pathwatching



Skin or conj?

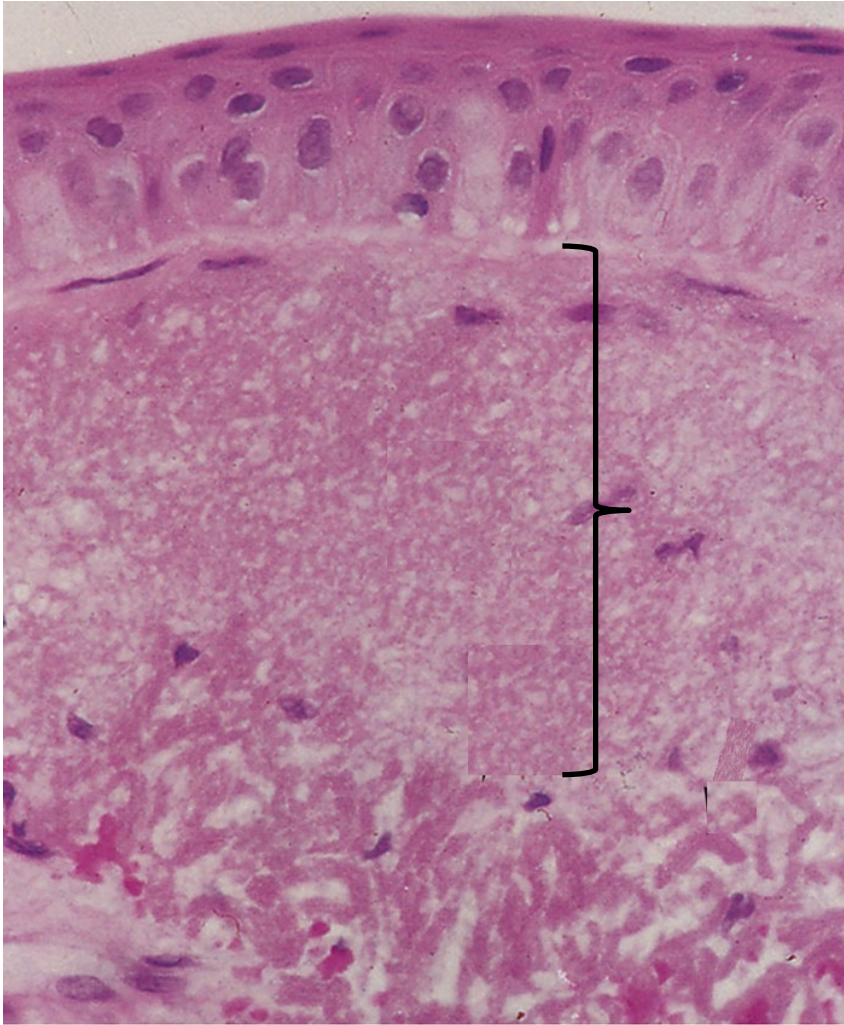
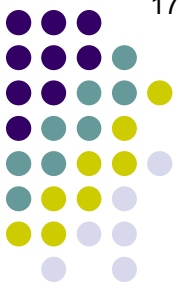
No keratinization = conj

There's a good field mark here—what is it?

It's this large acellular region in the stroma.

*When you see this in a conj specimen, think
elastotic degeneration*

Pathwatching



Skin or conj?

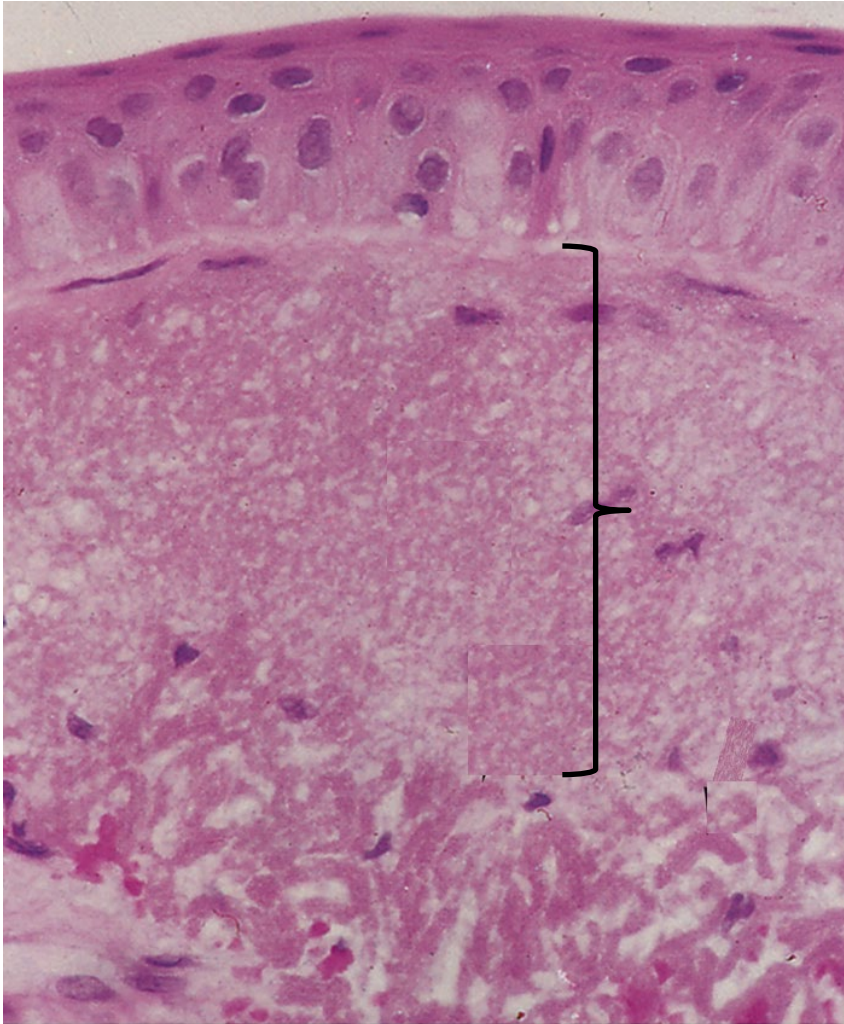
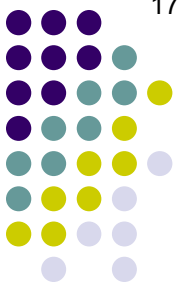
No keratinization = conj

There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal .

Pathwatching



Skin or conj?

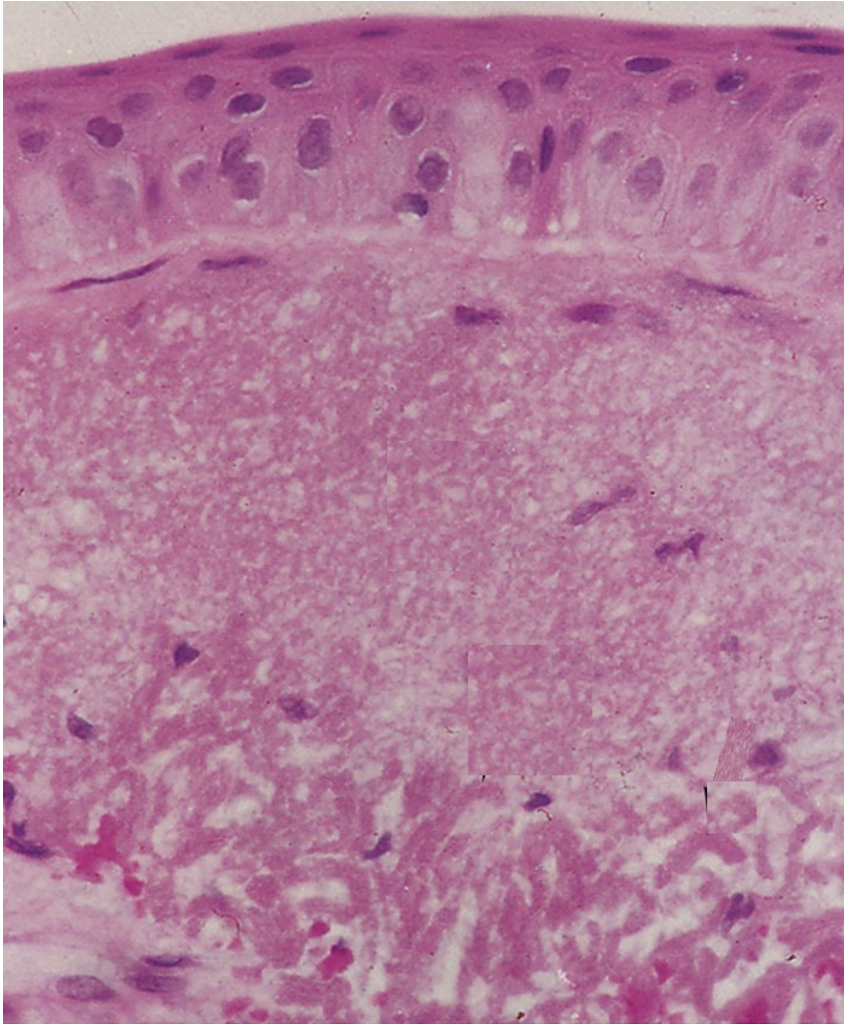
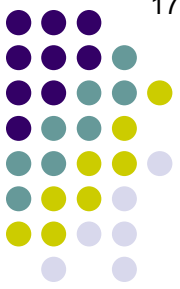
No keratinization = conj

There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen .

Pathwatching



Skin or conj?

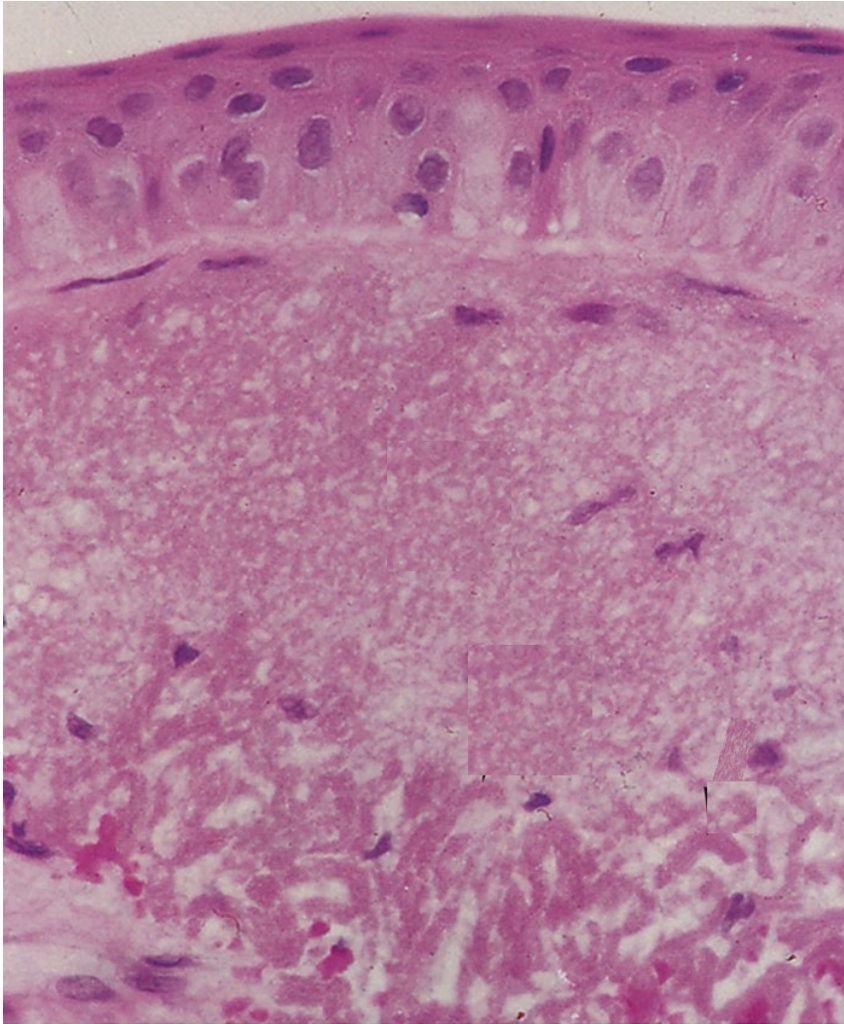
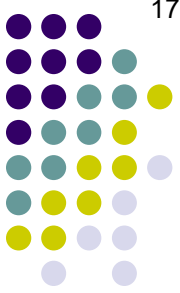
No keratinization = conj

There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you're looking at one of two related conditions: and .

Pathwatching



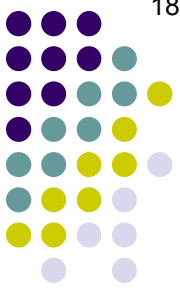
Skin or conj?

No keratinization = conj

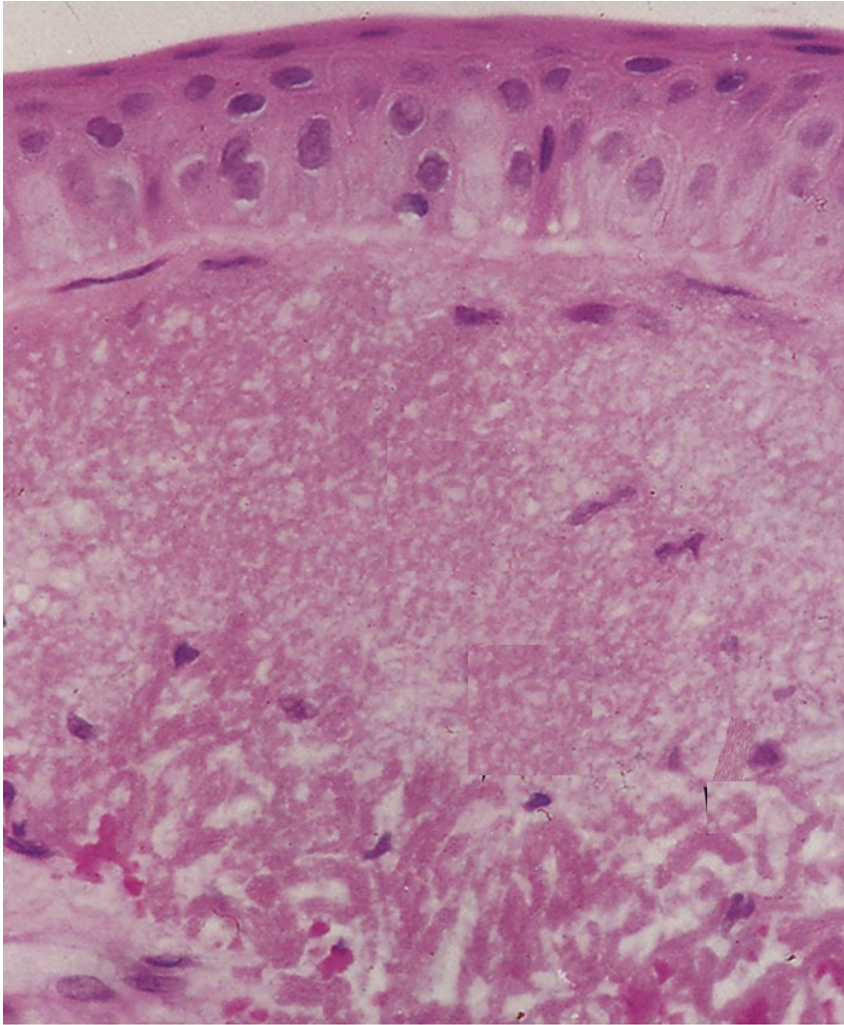
There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you're looking at one of two related conditions: Pterygium and pinguecula.



Pathwatching



Skin or conj?

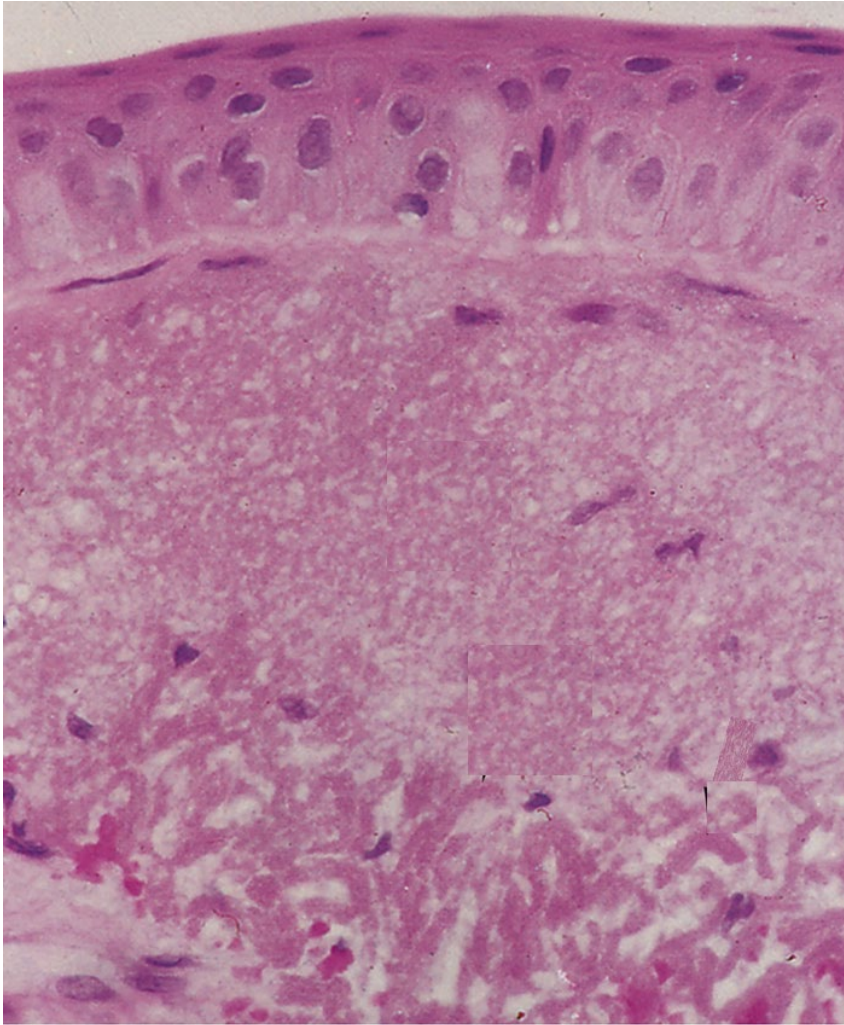
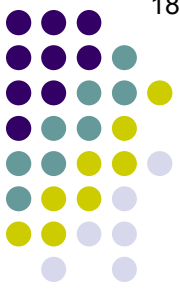
No keratinization = conj

There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you're looking at one of two related conditions: Pterygium and pinguecula. These are distinguishable via whether prominent two words are present (= pterygium) or absent (= pinguecula).

Pathwatching



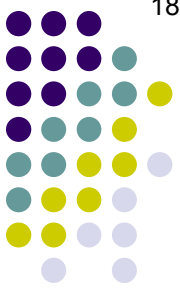
Skin or conj?

No keratinization = conj

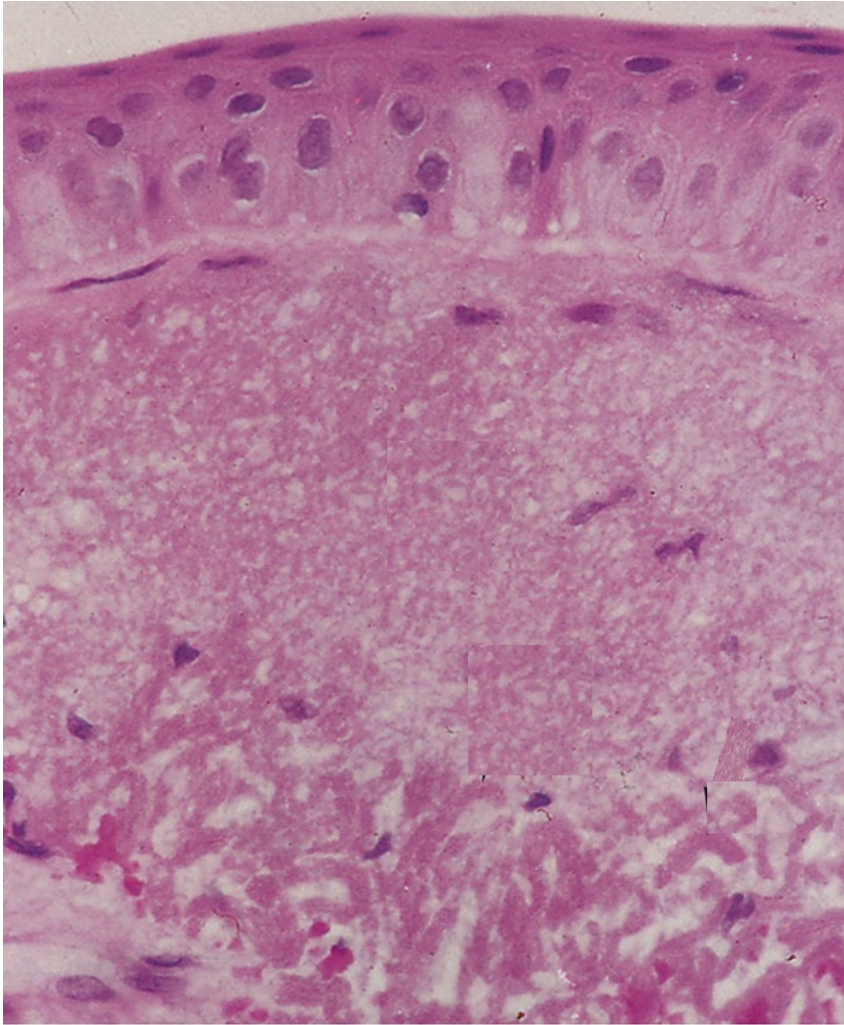
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When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you're looking at one of two related conditions: *Pinguecula* and *pterygium*. These are distinguishable via whether prominent blood vessels are present (= pterygium) or absent (= pinguecula).



Pathwatching



Skin or conj?

No keratinization = conj

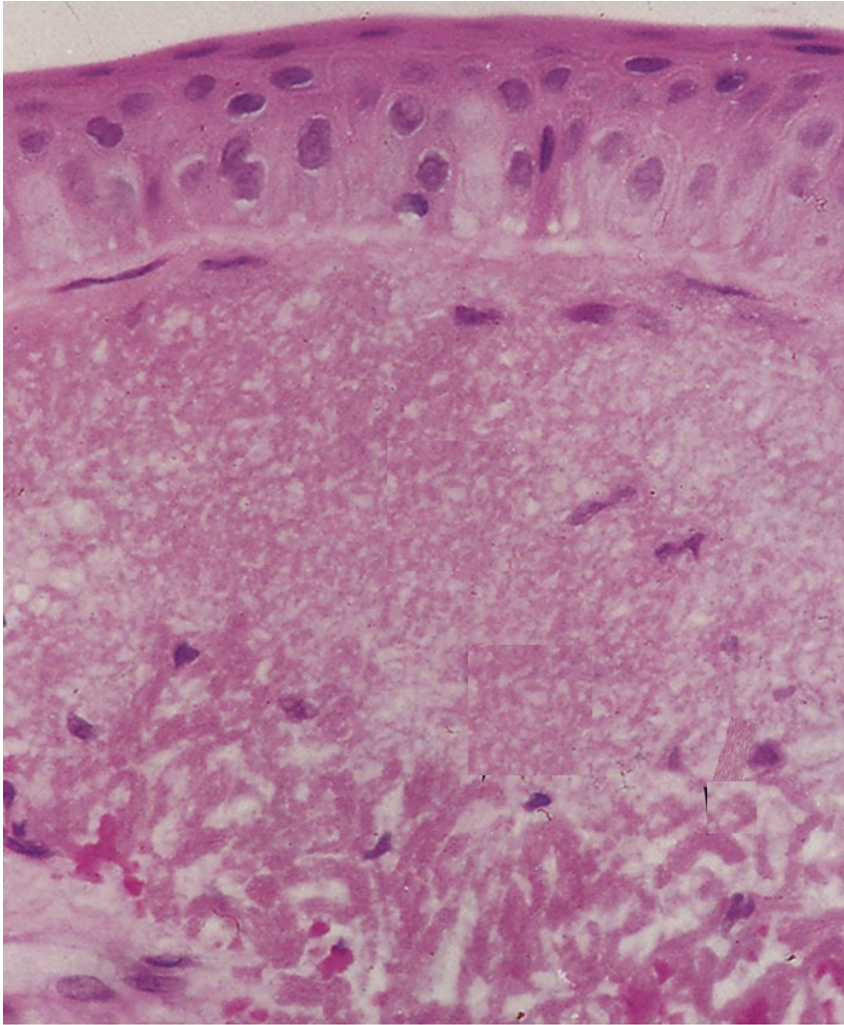
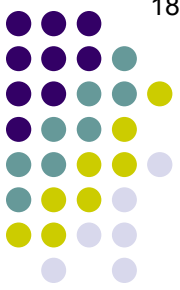
There's a good field mark here—what is it?

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When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If *elastotic degeneration* is present, it means you're looking at one of two related conditions: *Pinguecula* and *pterygium*. These are distinguishable via whether prominent blood vessels are present (= *pterygium*) or absent (= *pinguecula*).

What's the diagnosis?

Pathwatching



Skin or conj?

No keratinization = conj

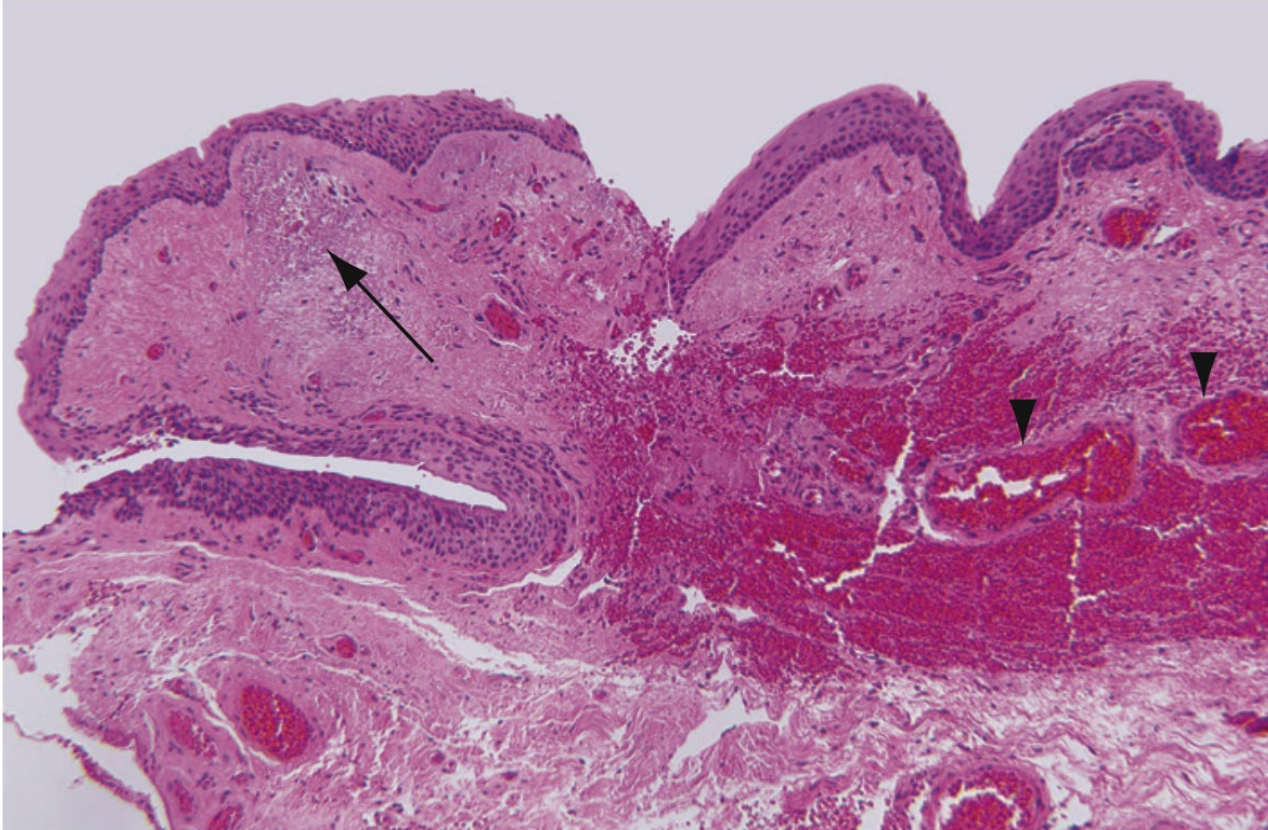
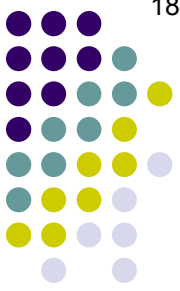
There's a good field mark here—what is it?

It's this large acellular region in the stroma.

When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If *elastotic degeneration* is present, it means you're looking at one of two related conditions: *Pinguecula* and *pterygium*. These are distinguishable via whether prominent blood vessels are present (= *pterygium*) or absent (= *pinguecula*).

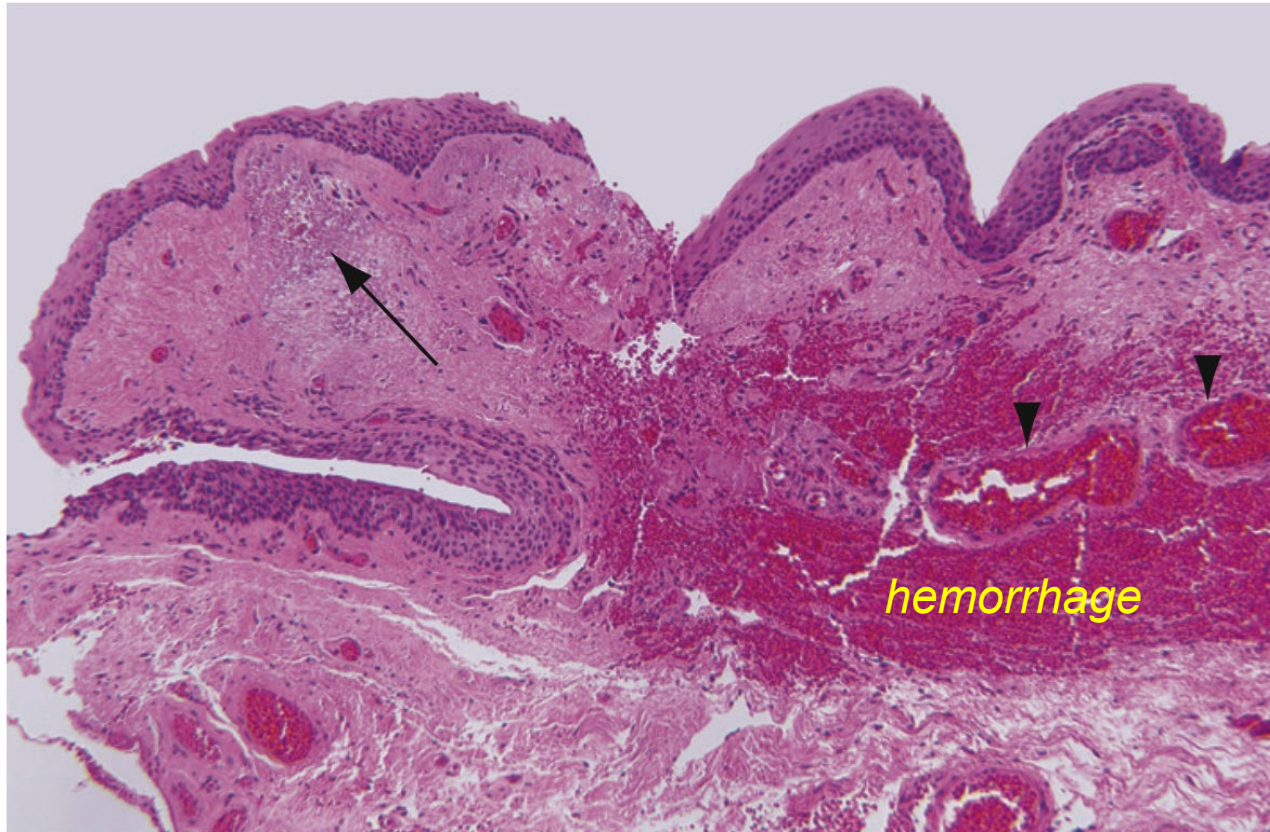
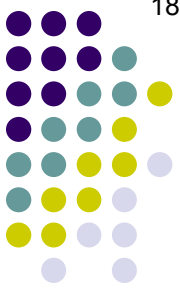
Pinguecula (no prominent blood vessels present)

Pathwatching



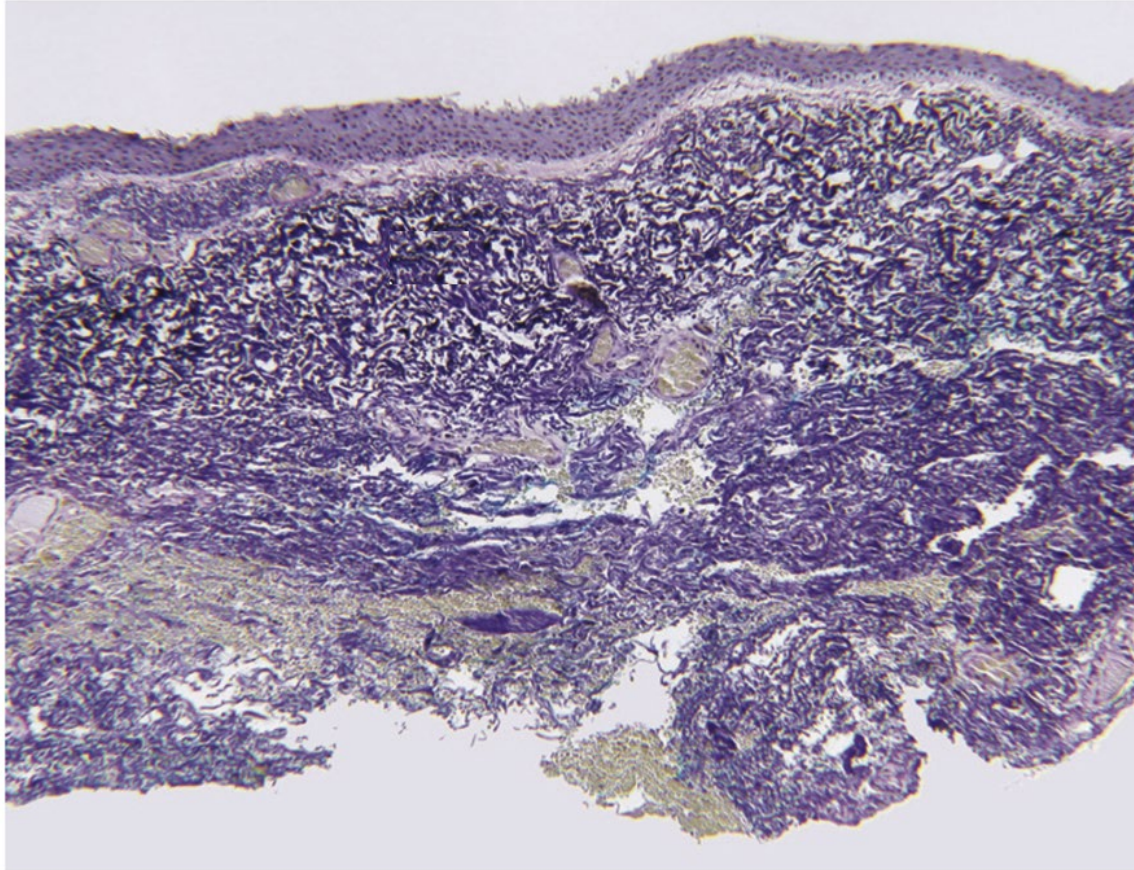
For comparison, here is a **pterygium**. Note the elastotic degeneration (*arrow*) as well as the blood vessels (*arrowheads*).

Pathwatching



For comparison, here is a **pterygium**. Note the elastotic degeneration (*arrow*) as well as the blood vessels (*arrowheads*). **Surgically-induced hemorrhage is present as well.**

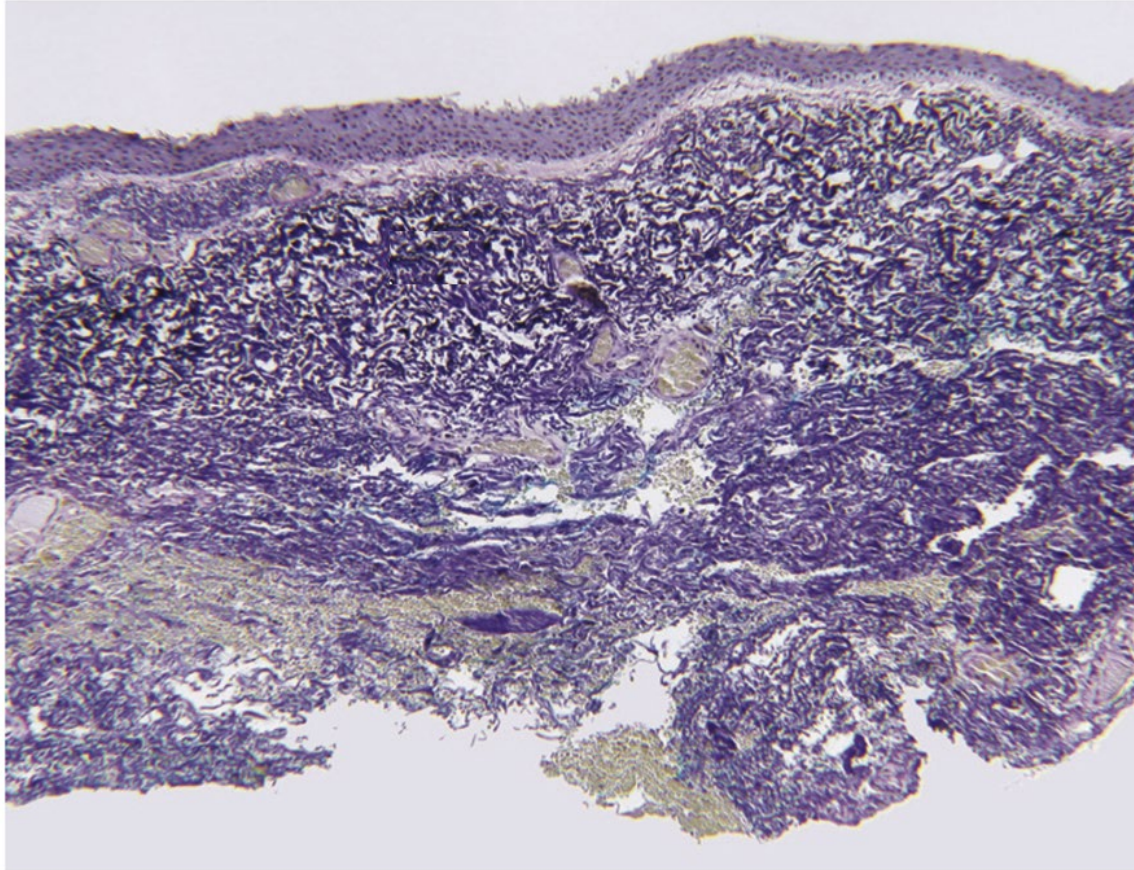
Pathwatching



Protip: If a slide is stained for and is positive as all get-out like this, it's elastotic degeneration (and therefore a pinguecula or pterygium)



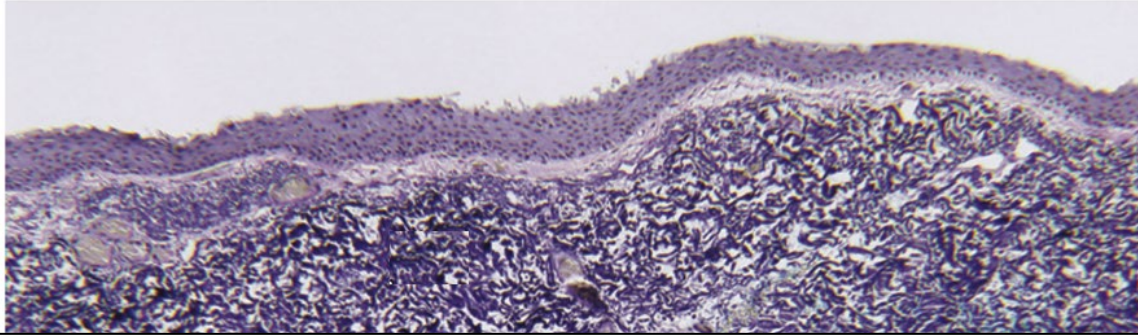
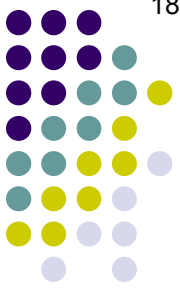
Pathwatching



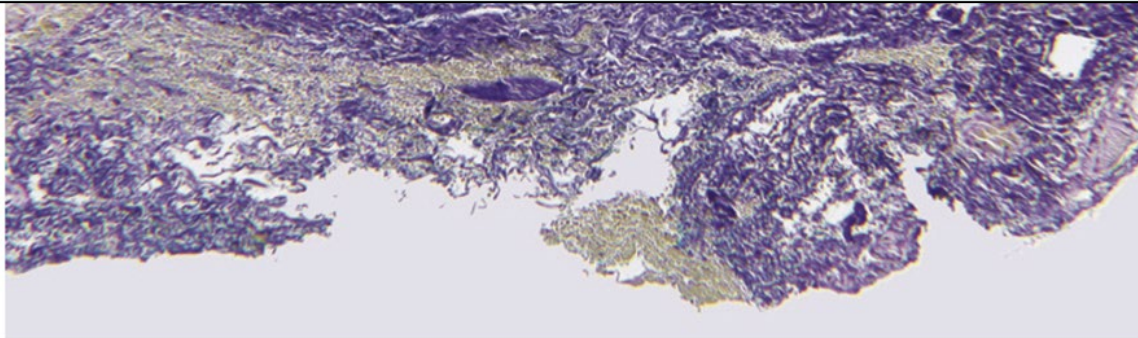
Protip: If a slide is stained for elastin and is positive as all get-out like this, it's elastotic degeneration (and therefore a pinguecula or pterygium)



Pathwatching



*For more on pinguecula and pterygium,
see slide-set K24*

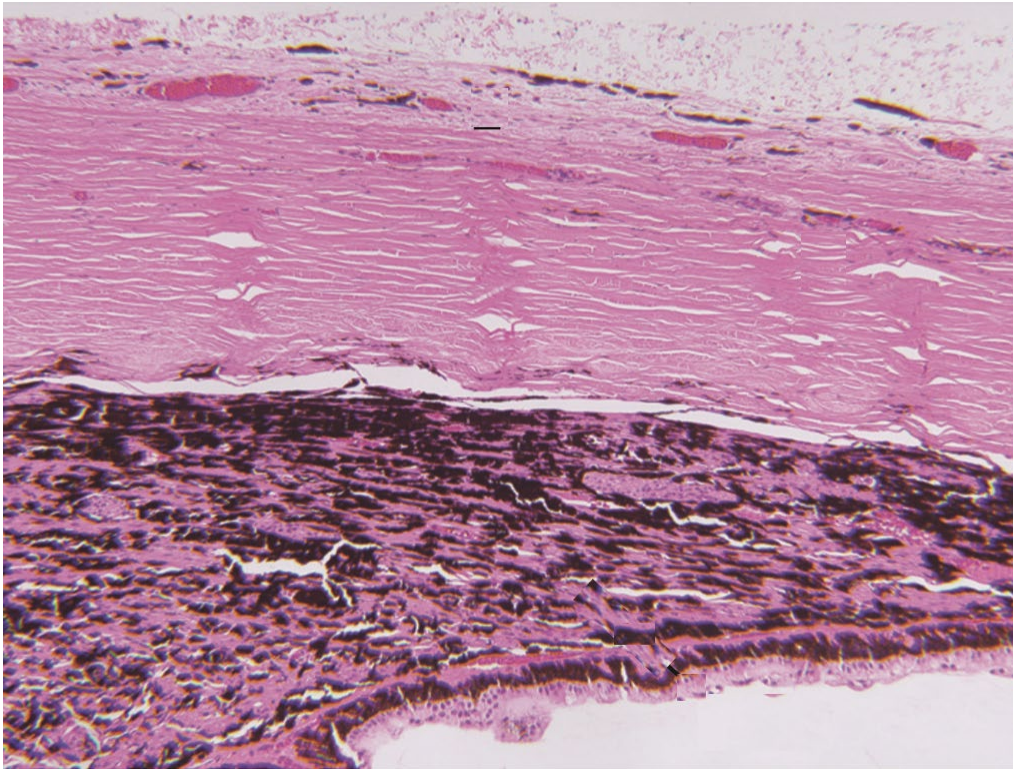


Protip: If a slide is stained for elastin and is positive as all get-out like this, it's elastotic degeneration (and therefore a pinguecula or pterygium)

Pathwatching

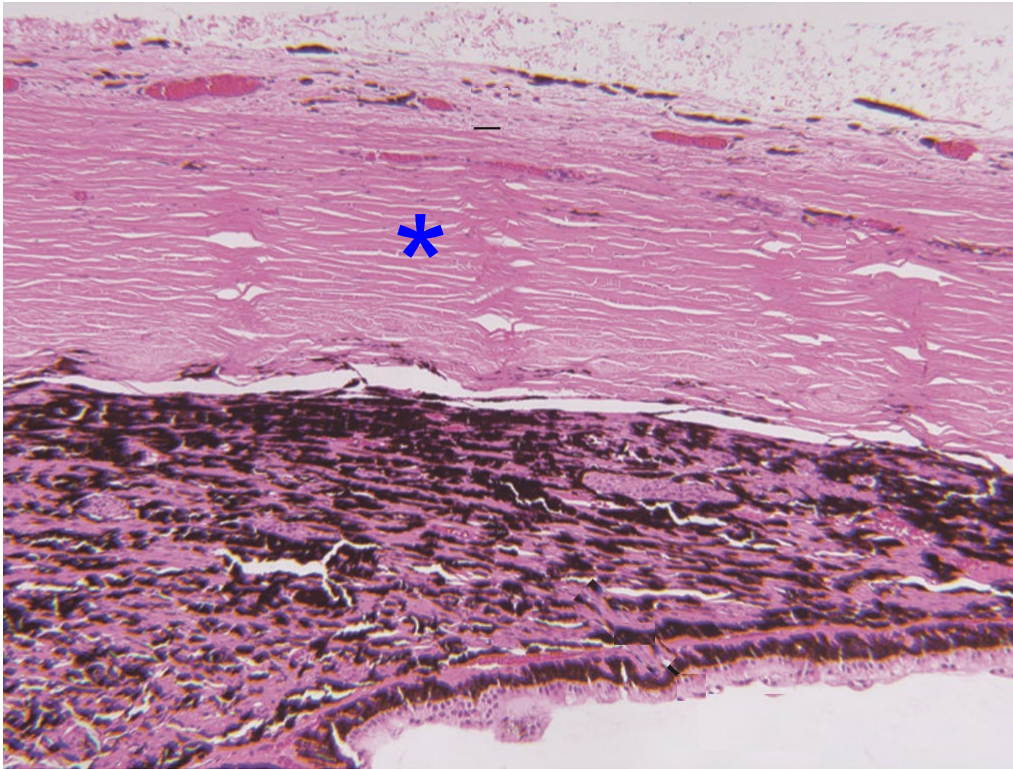


This one is puzzling at first. What tissue(s) are we looking at?



(Rhetorical question—keep going)

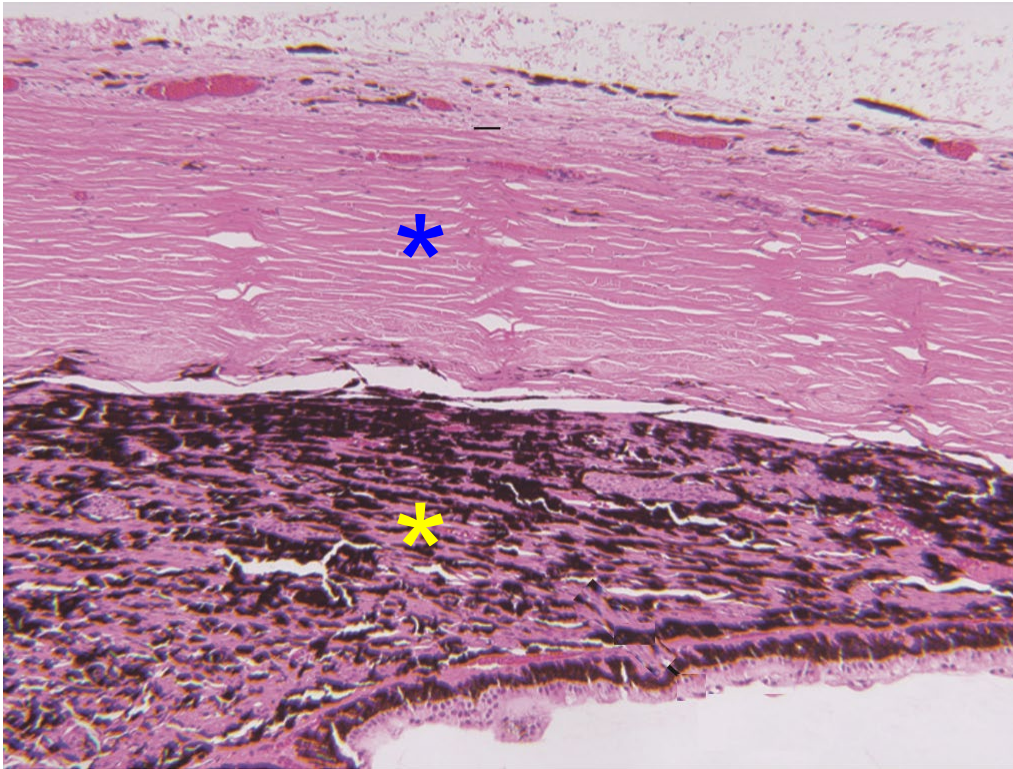
Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea

Pathwatching

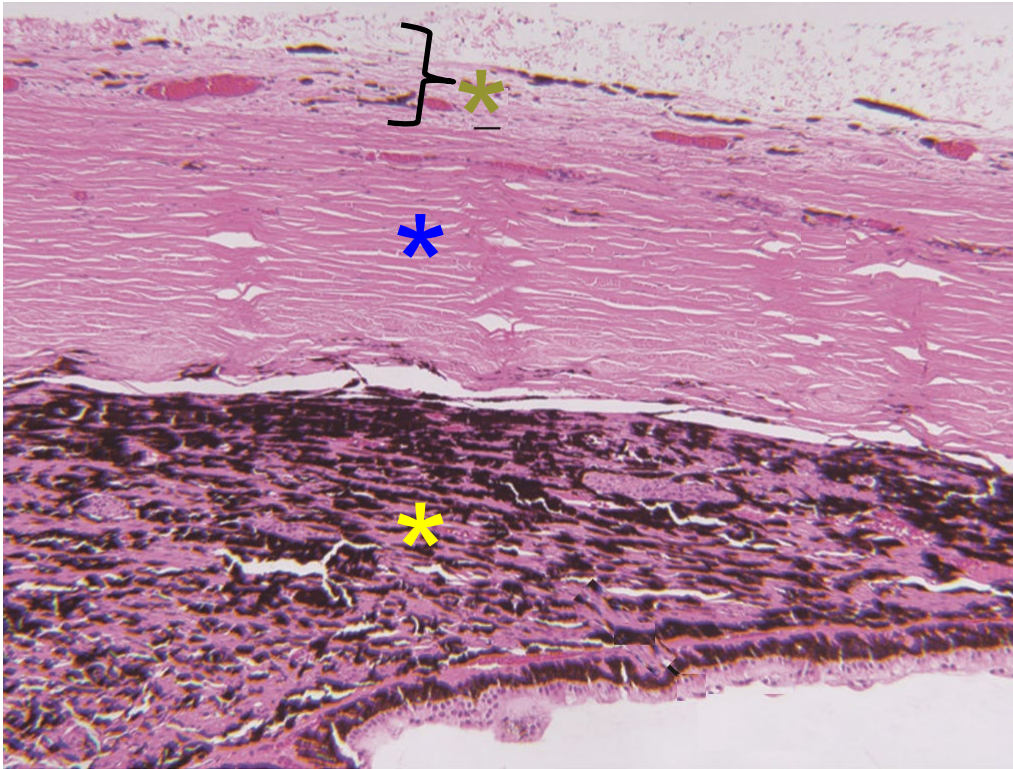


This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event?



Pathwatching

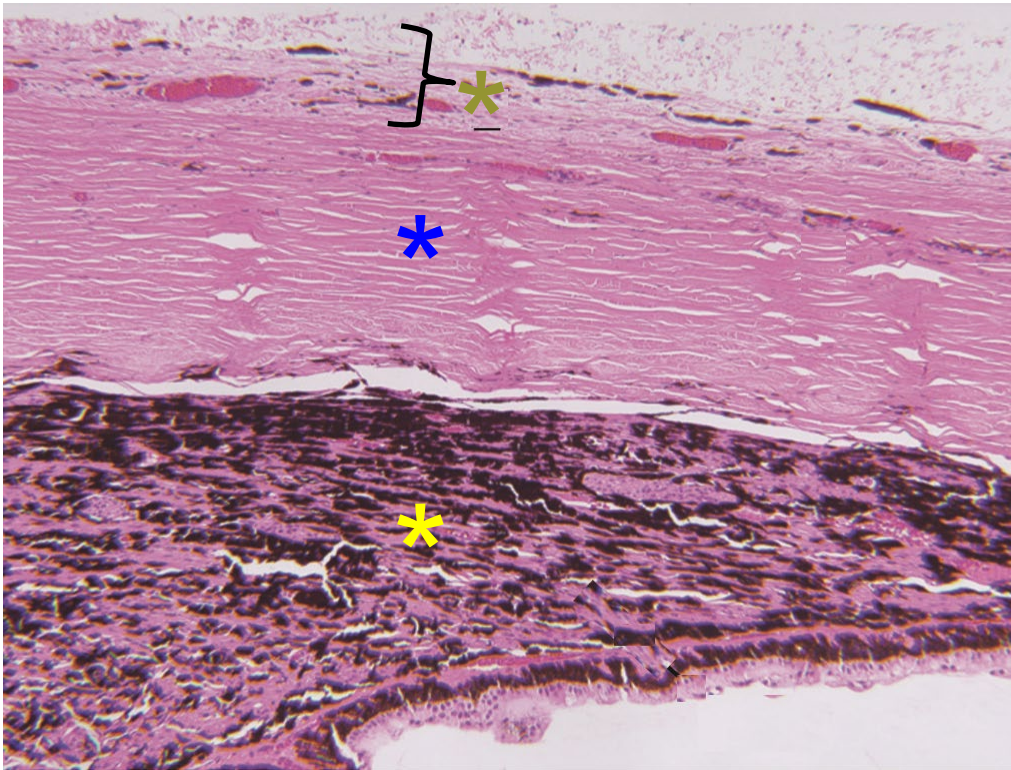


This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.



Pathwatching



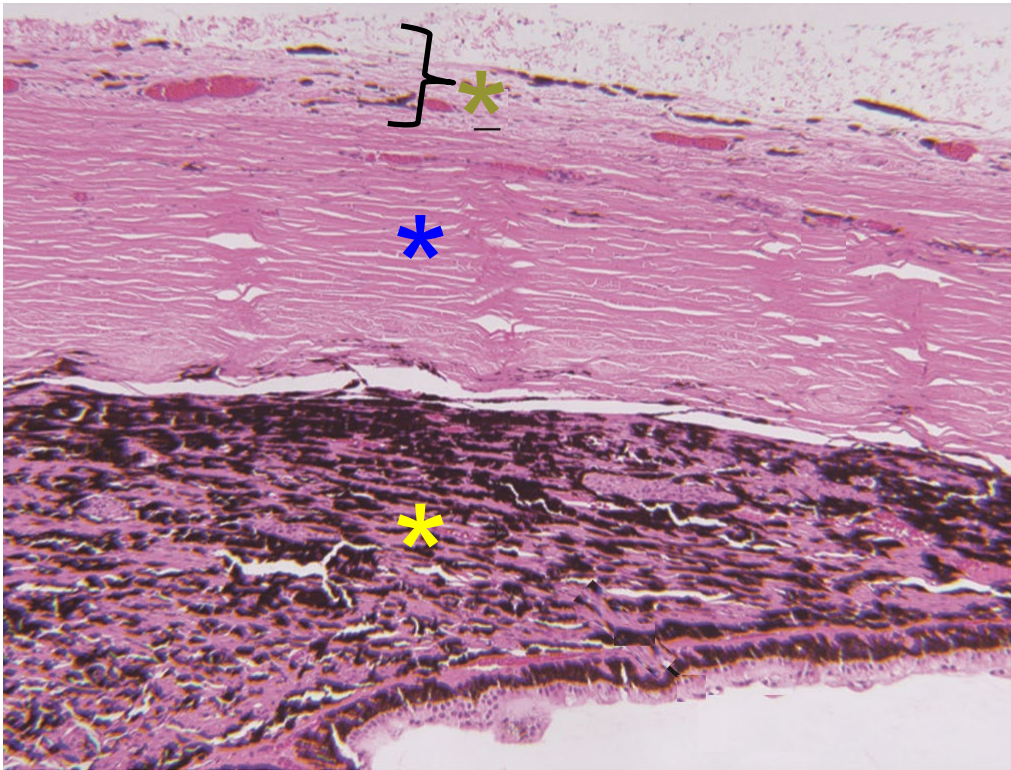
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Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be— . (Only the cornea and same word have this lamellar appearance.)



Pathwatching



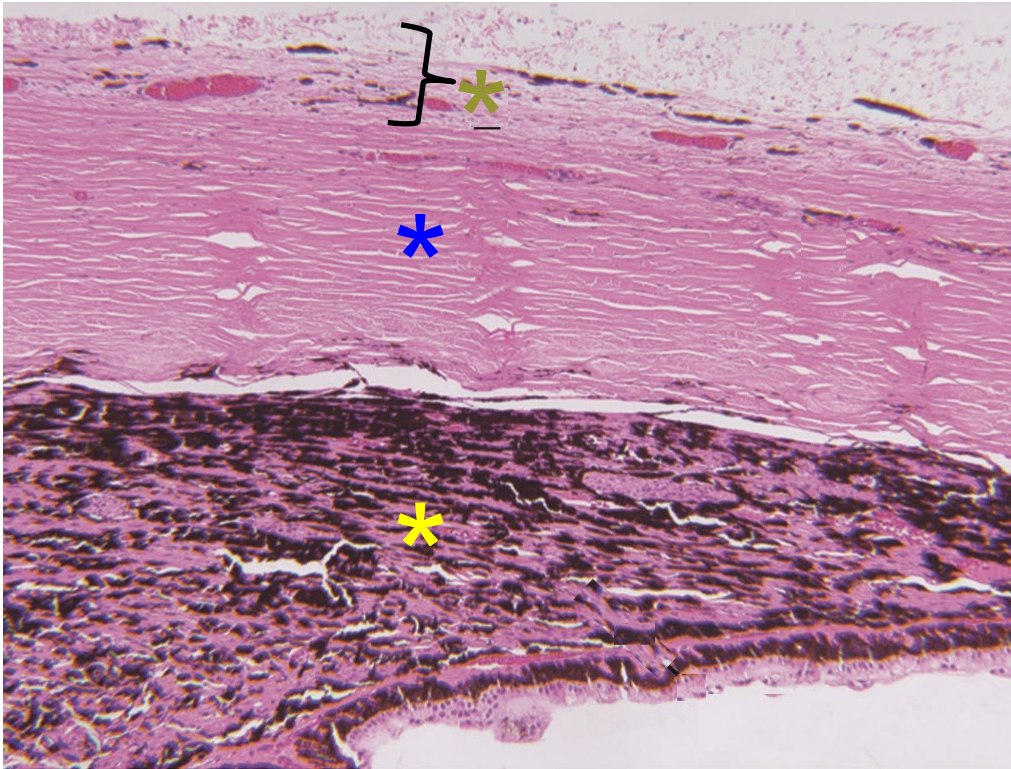
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If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this lamellar appearance.)



Pathwatching



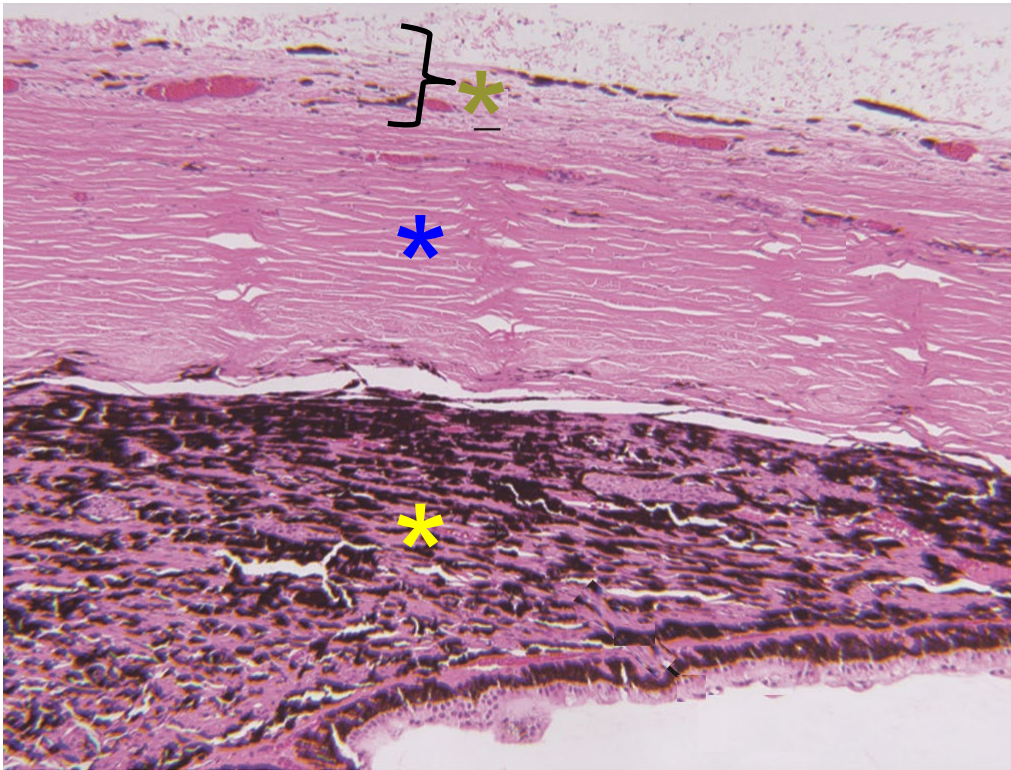
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Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this lamellar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be [redacted].



Pathwatching



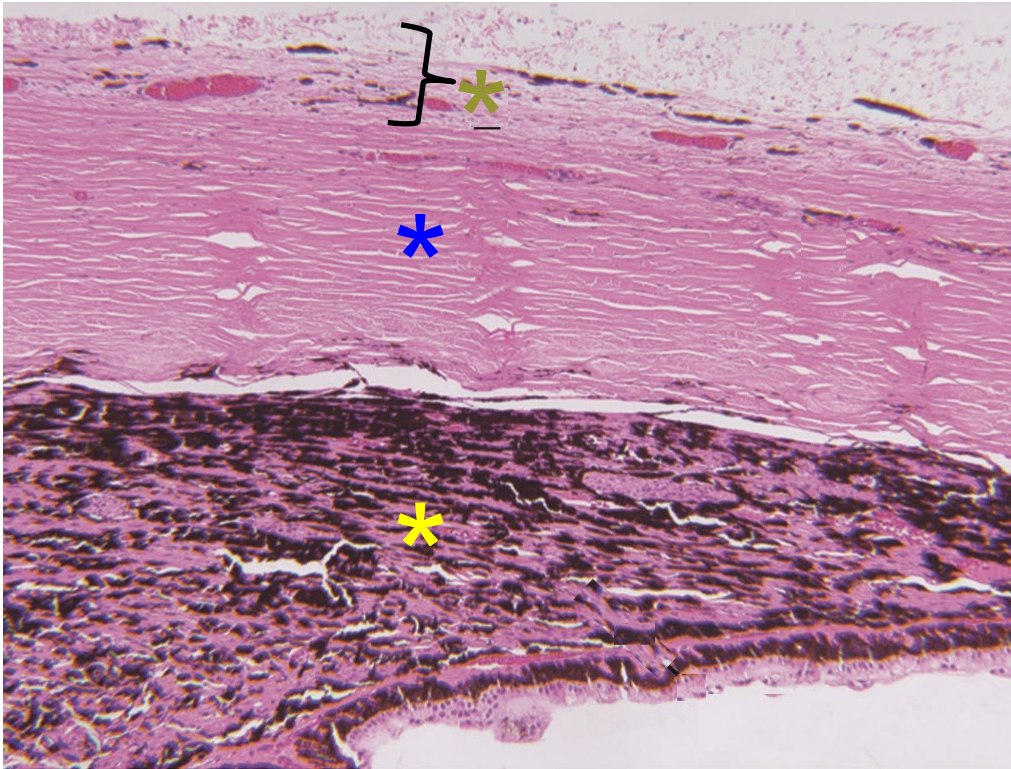
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Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this laminar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be **uvea**.



Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

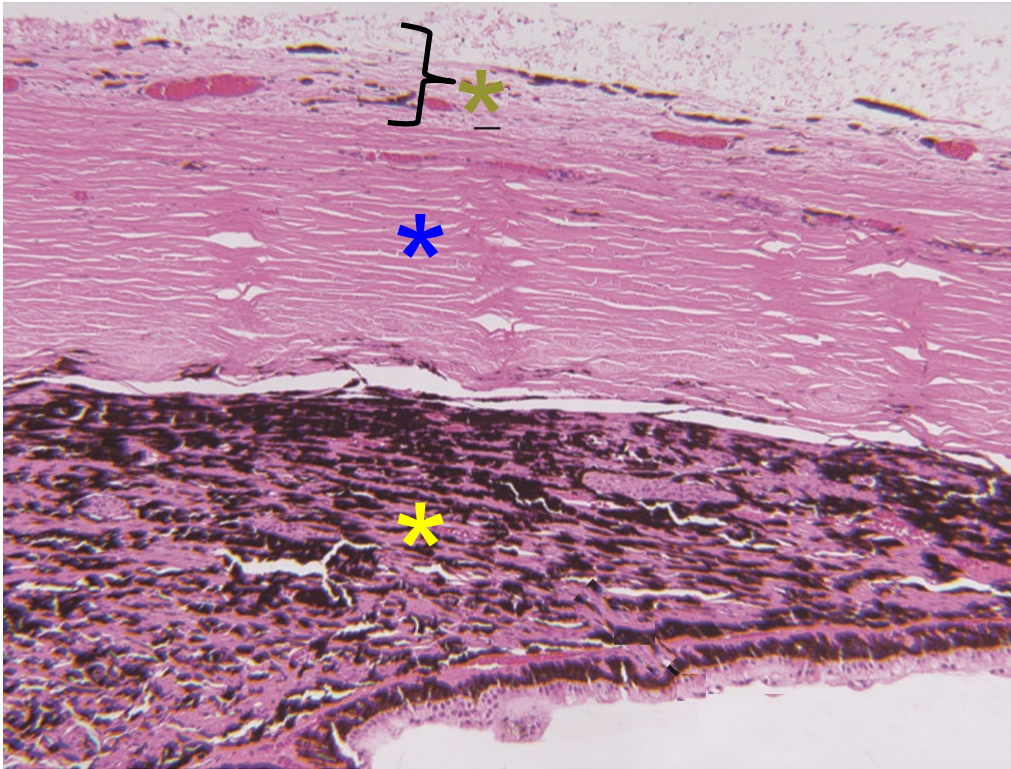
Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this lamellar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be

retina.



Pathwatching

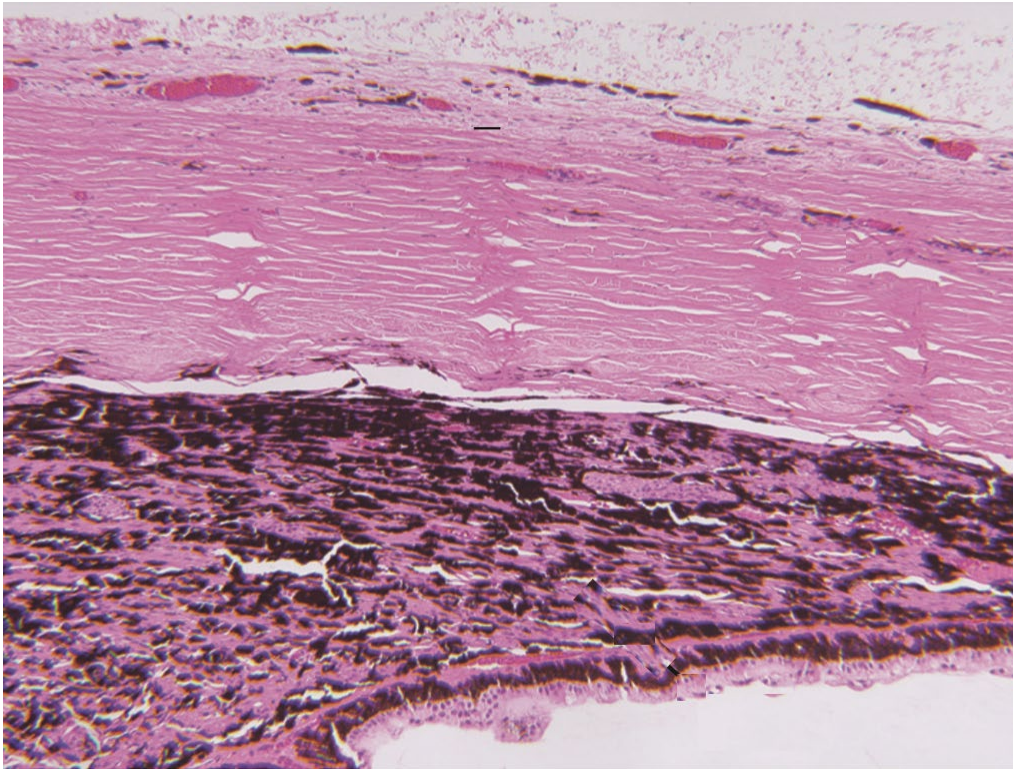


This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this lamellar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

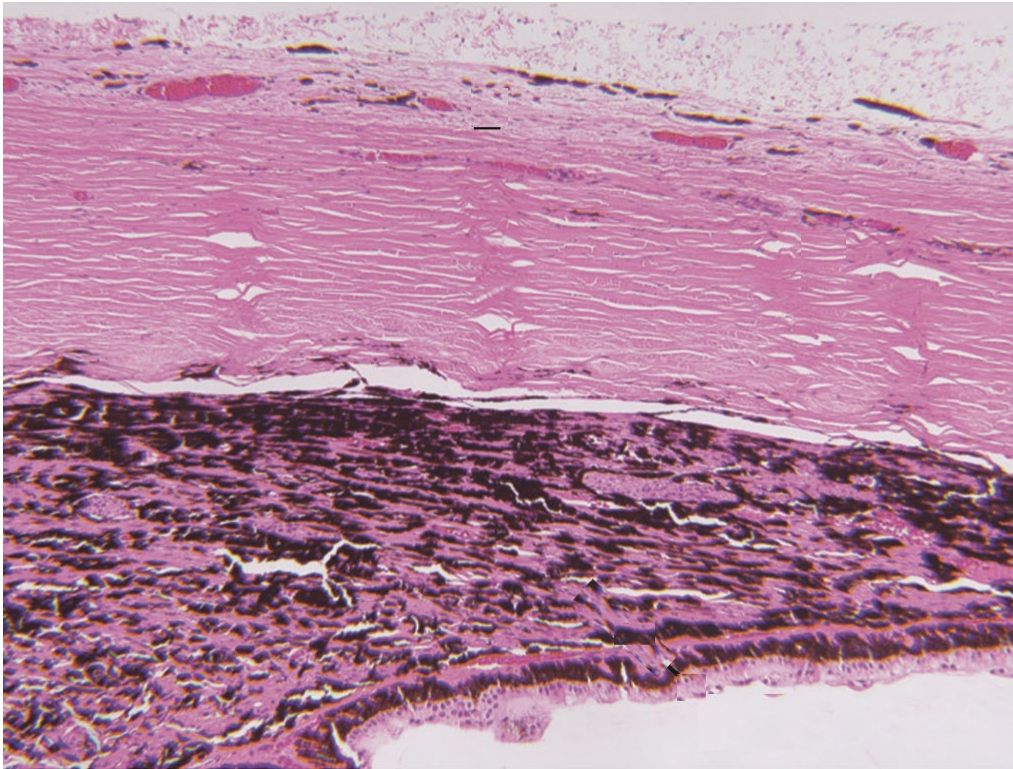
Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this laminar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of

[REDACTED].

Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

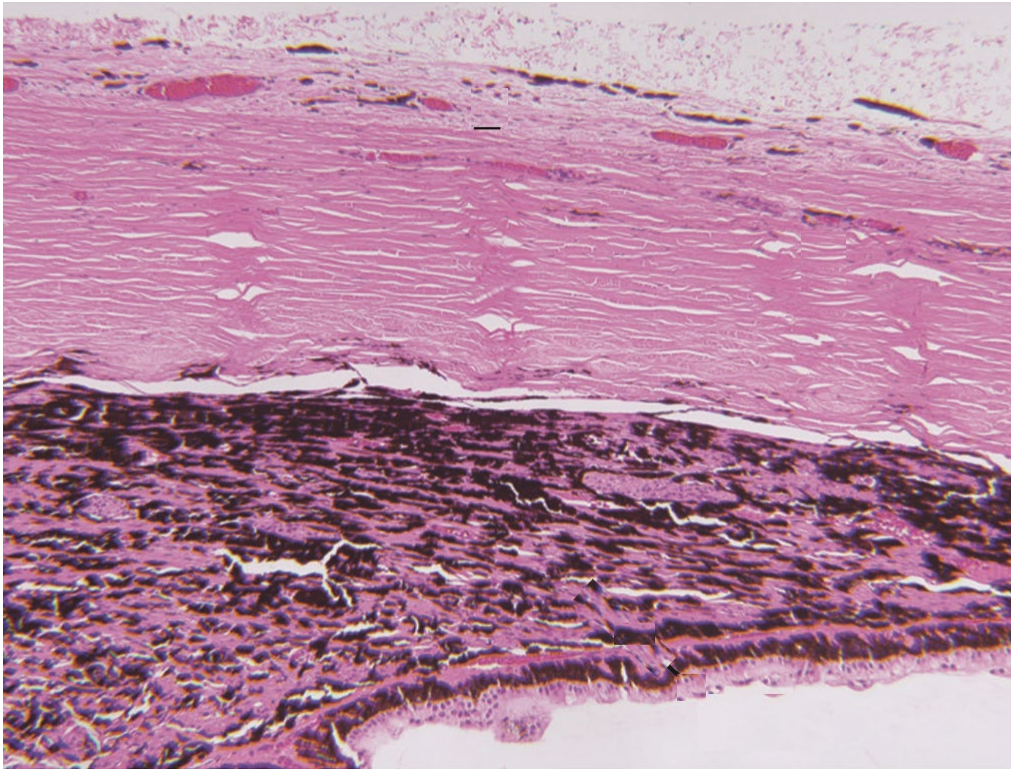
Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this lamellar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes.



Pathwatching



What's the diagnosis?

This one is puzzling at first. What tissue(s) are we looking at?

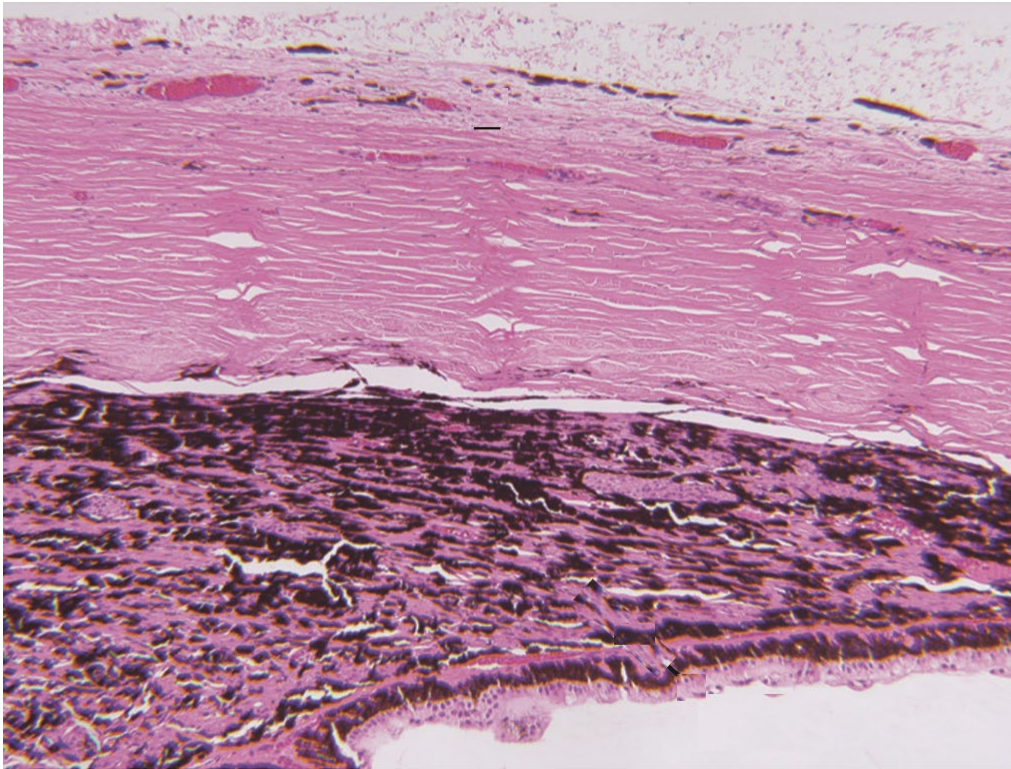
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If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this laminar appearance.) And if **this** is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes. **When you encounter heavy episcleral melanin-related findings, one thing should come to mind:**



Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

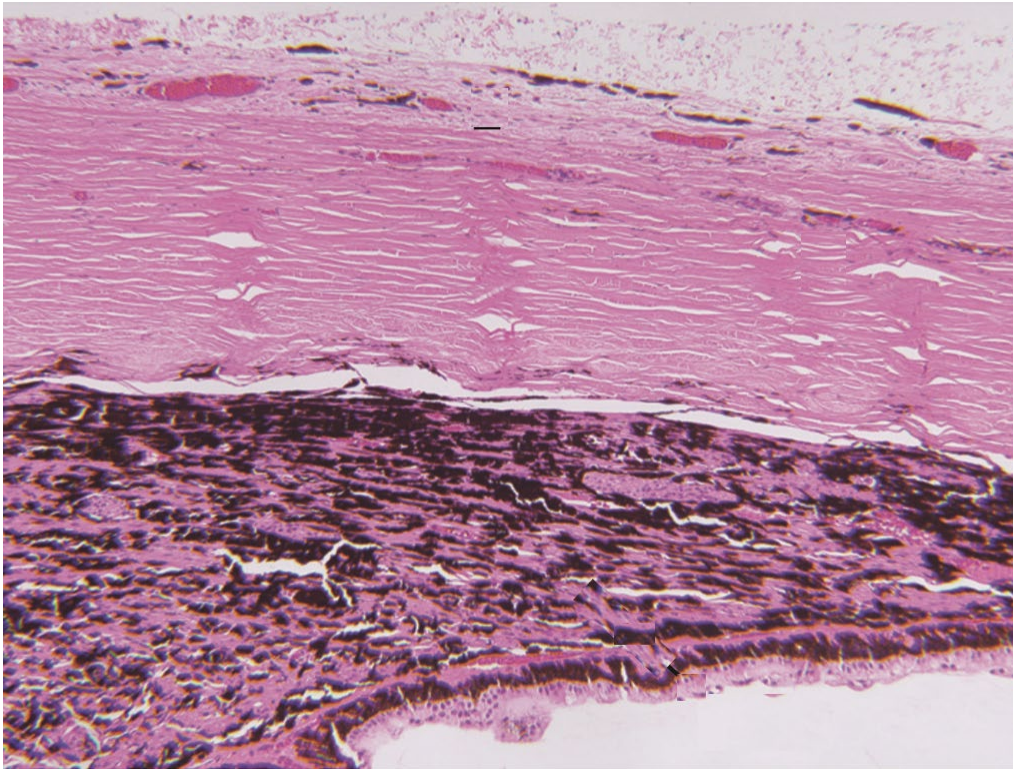
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If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes. When you encounter heavy episcleral melanin-related findings, one thing should come to mind:

Ocular melanocytosis is a involving the deep episclera and sclera.

Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

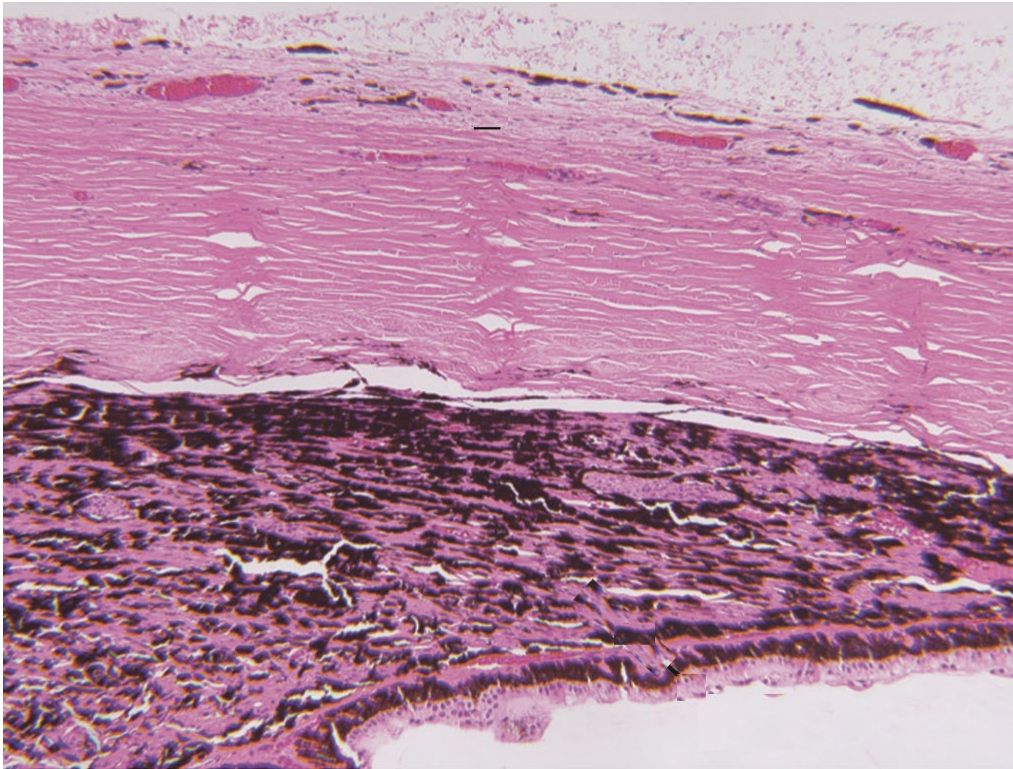
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OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes. When you encounter heavy episcleral melanin-related findings, one thing should come to mind:

Ocular melanocytosis is a nevus involving the deep episclera and sclera.



Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

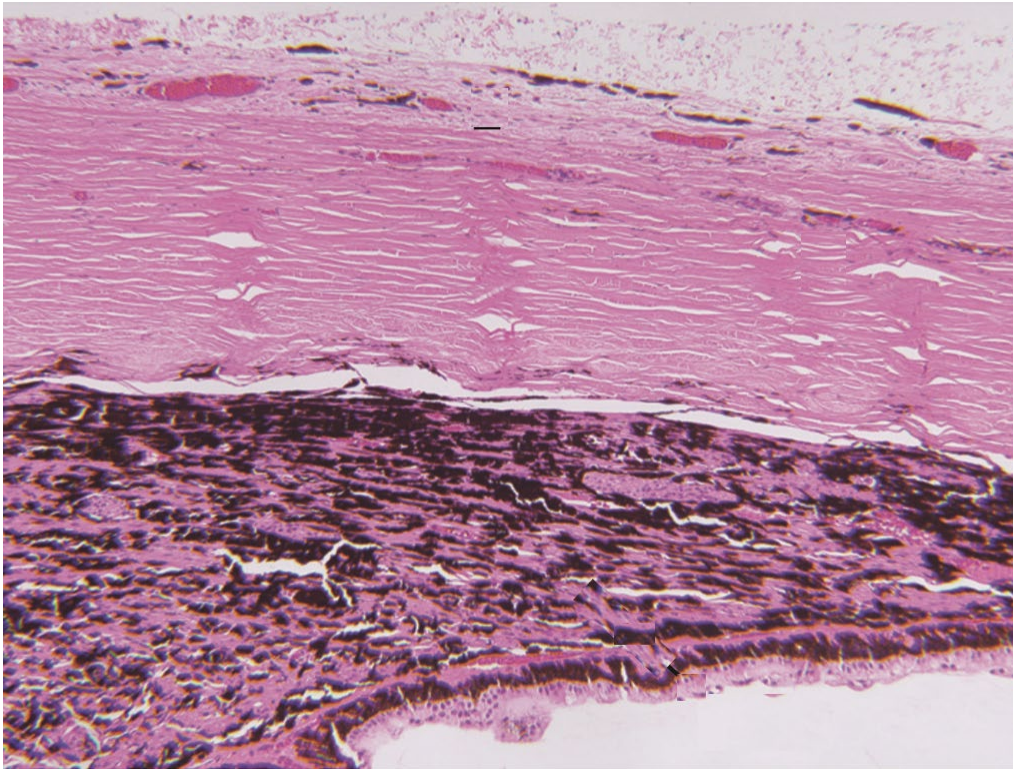
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OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes. When you encounter heavy episcleral melanin-related findings, one thing should come to mind:

Ocular melanocytosis is a nevus involving the deep episclera and sclera. If the periorcular skin is also involved, the condition is called **nevus of Ota** melanocytosis



Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn't work, because it doesn't explain **this** tissue.

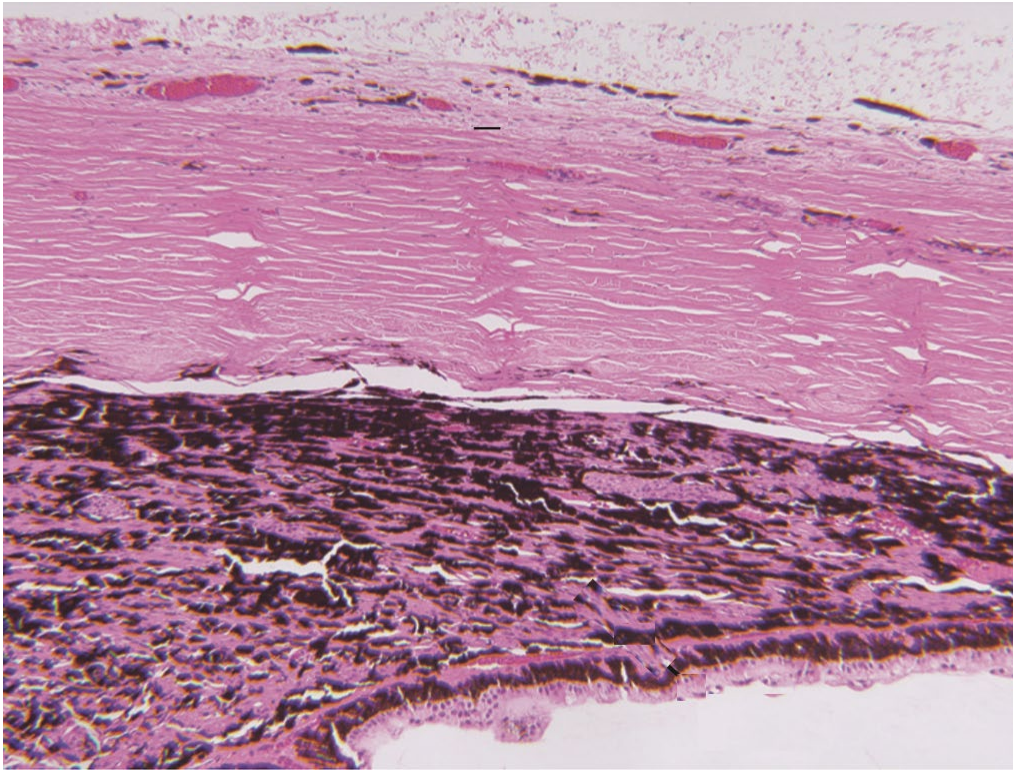
If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes. When you encounter heavy episcleral melanin-related findings, one thing should come to mind:

Ocular melanocytosis is a nevus involving the deep episclera and sclera. **If the periocular skin is also involved, the condition is called oculodermal melanocytosis**



Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

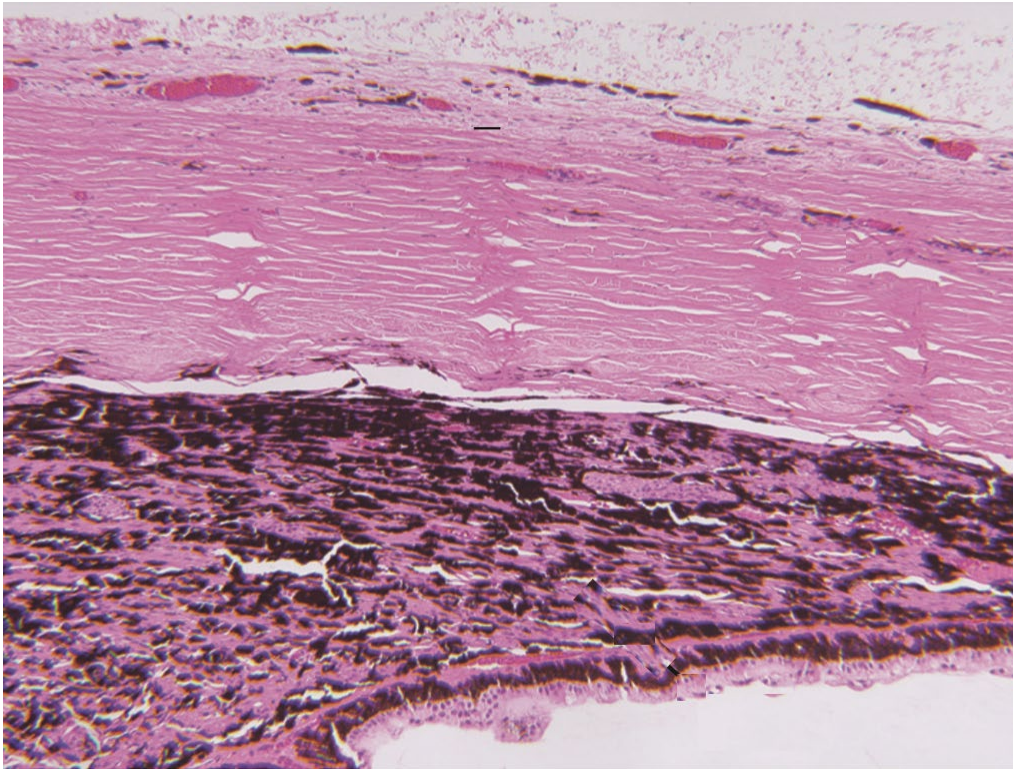
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If **this** isn't the cornea, there's only one thing it could be—**sclera**. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, **this** deeply pigmented tissue must be **uvea**. Which means **this** tissue must be **episclera**.

OK, now that we know where we are, what are we looking at, ie, what's the pathology? Look carefully at the sclera and (especially) the episclera—there's something unusual there. It's the relatively heavy presence of melanin/melanocytes. When you encounter heavy episcleral melanin-related findings, one thing should come to mind:

Ocular melanocytosis is a nevus involving the deep episclera and sclera. **If the periorcular skin is also involved, the condition is called oculodermal melanocytosis (aka** three words**).**

Pathwatching



This one is puzzling at first. What tissue(s) are we looking at?

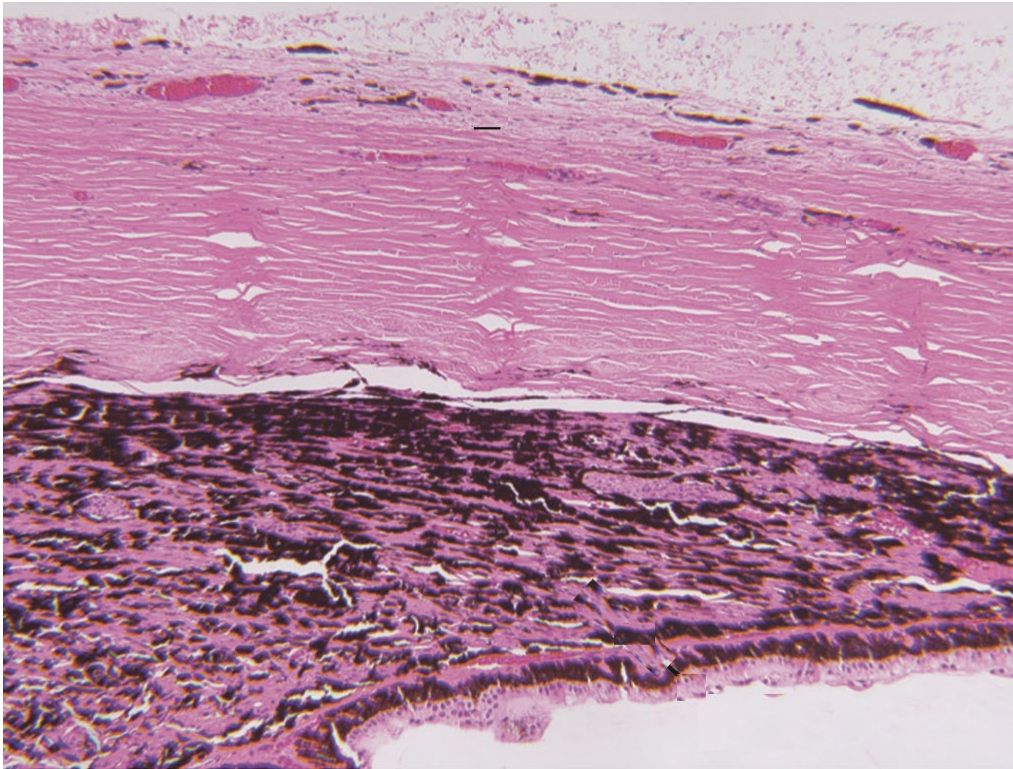
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Ocular melanocytosis is a nevus involving the deep episclera and sclera. **If the periorcular skin is also involved, the condition is called oculodermal melanocytosis (aka *Nevus of Ota*).**

Pathwatching



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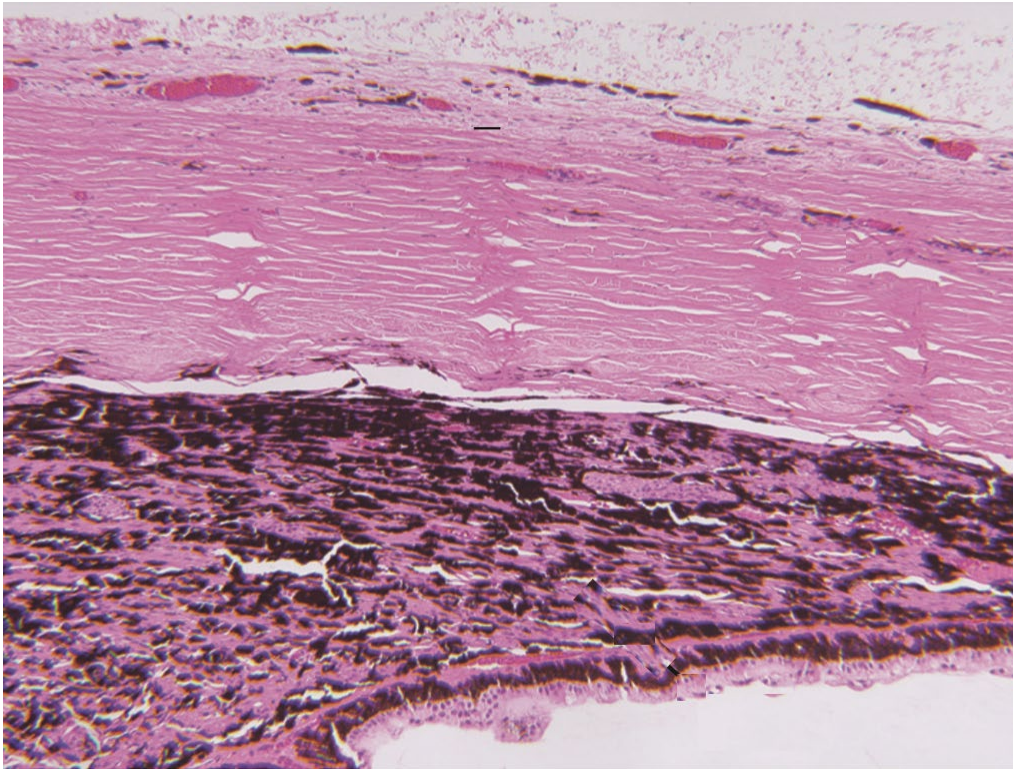
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Lightly vs
Highly

Lightly vs Highly pigmented individuals with melanocytosis are at significantly increased of

Pathwatching



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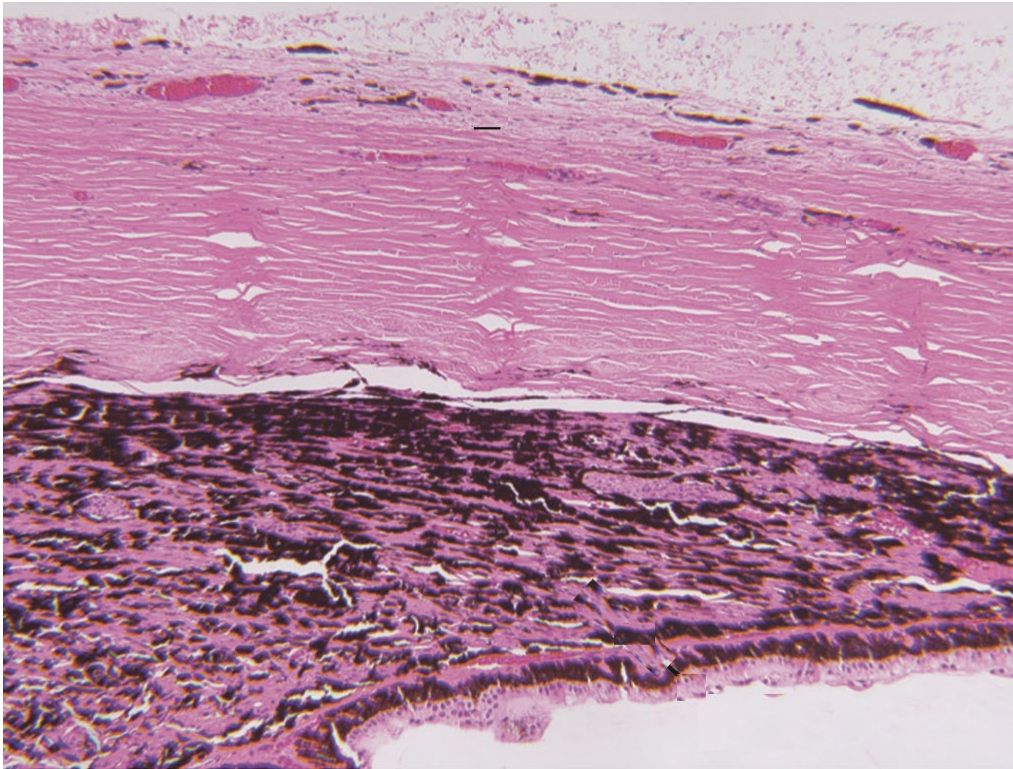
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Pathwatching



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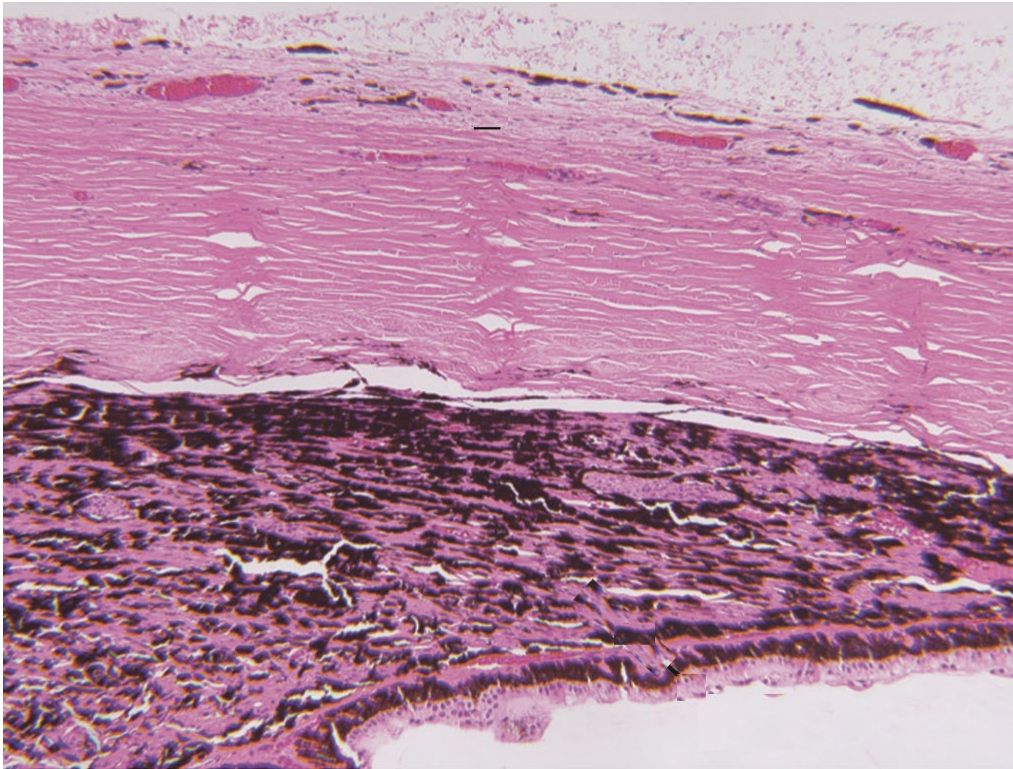
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Ocular melanocytosis is a nevus involving the deep episclera and sclera. If the periorcular skin is also involved, the condition is called **oculodermal melanocytosis** (aka *Nevus of Ota*). Lightly pigmented individuals with melanocytosis are at significantly increased of melanoma, almost always of the structure

Pathwatching



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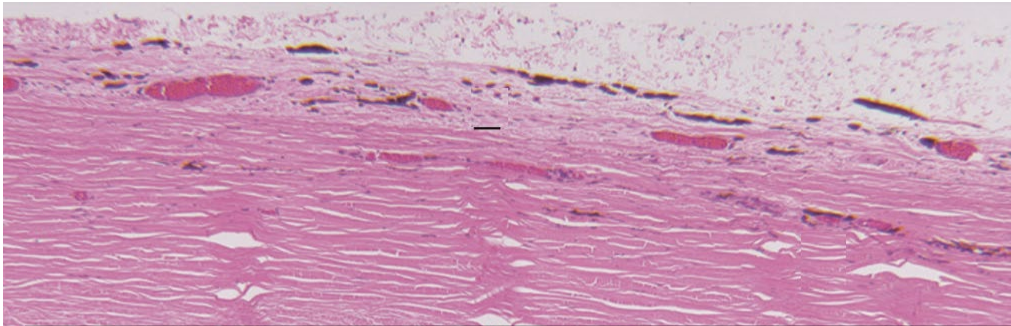
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Pathwatching

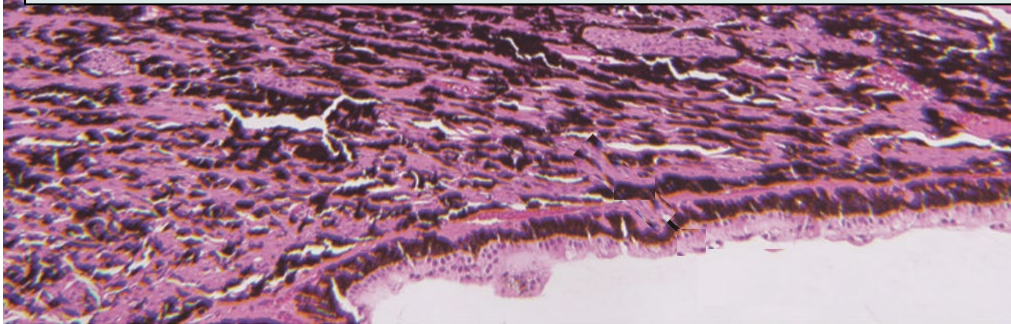


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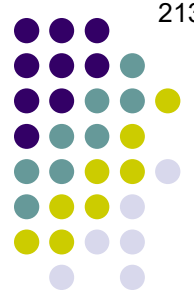
For more on melanocytosis, see slide-set O9



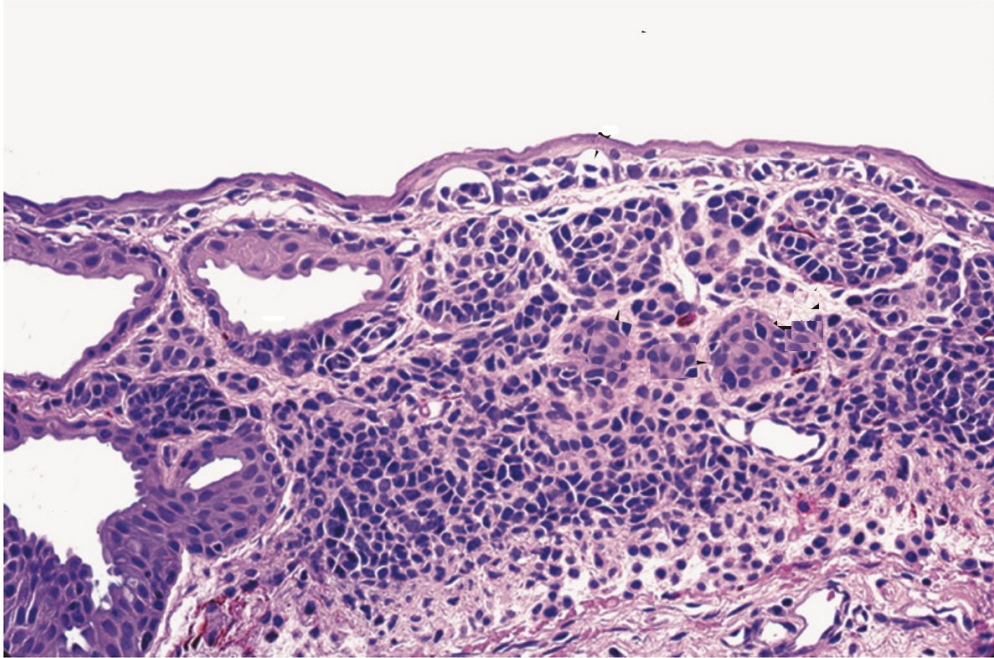
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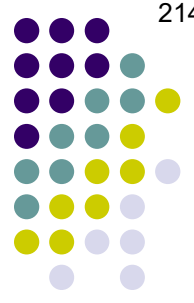
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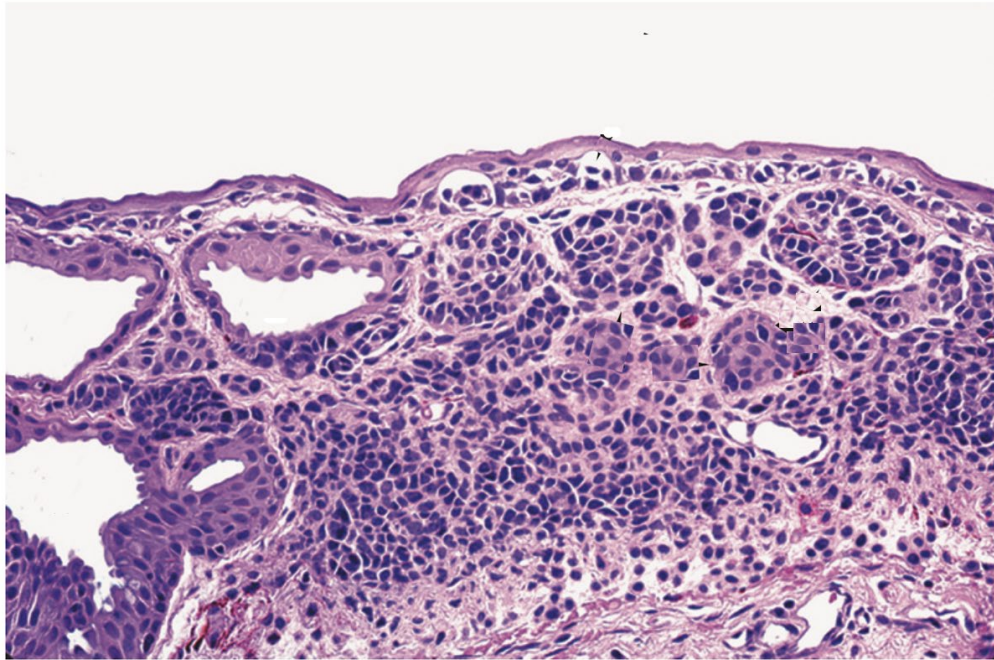
Pathwatching



Skin/conj?

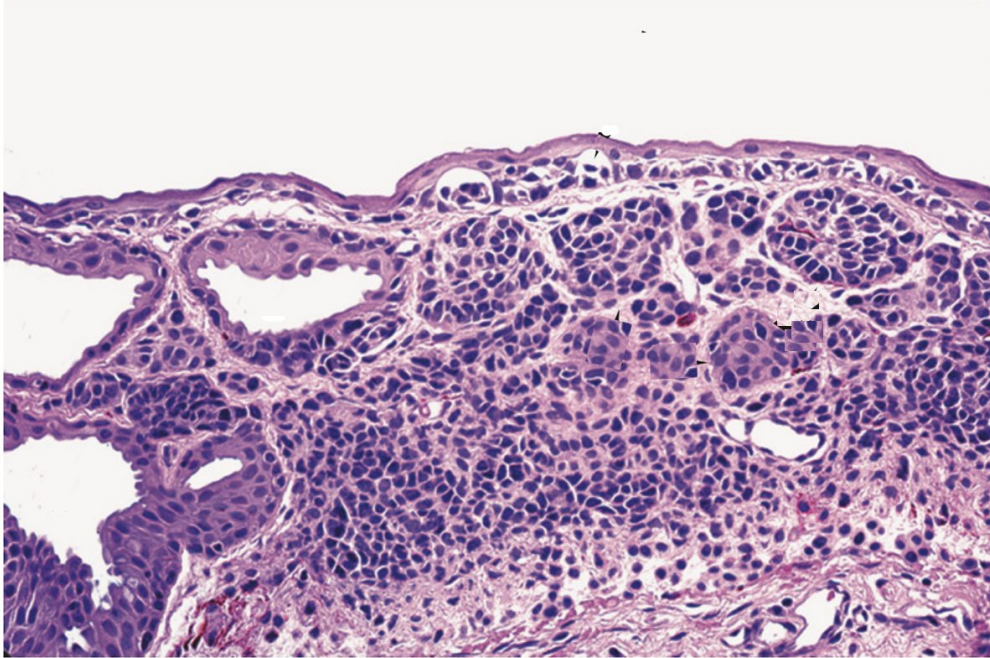
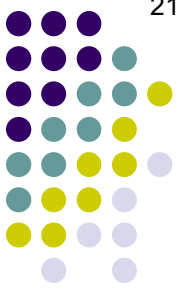


Pathwatching



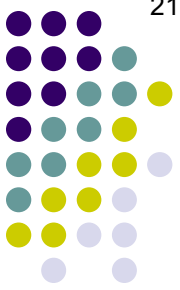
Skin/conj?
Conj

Pathwatching

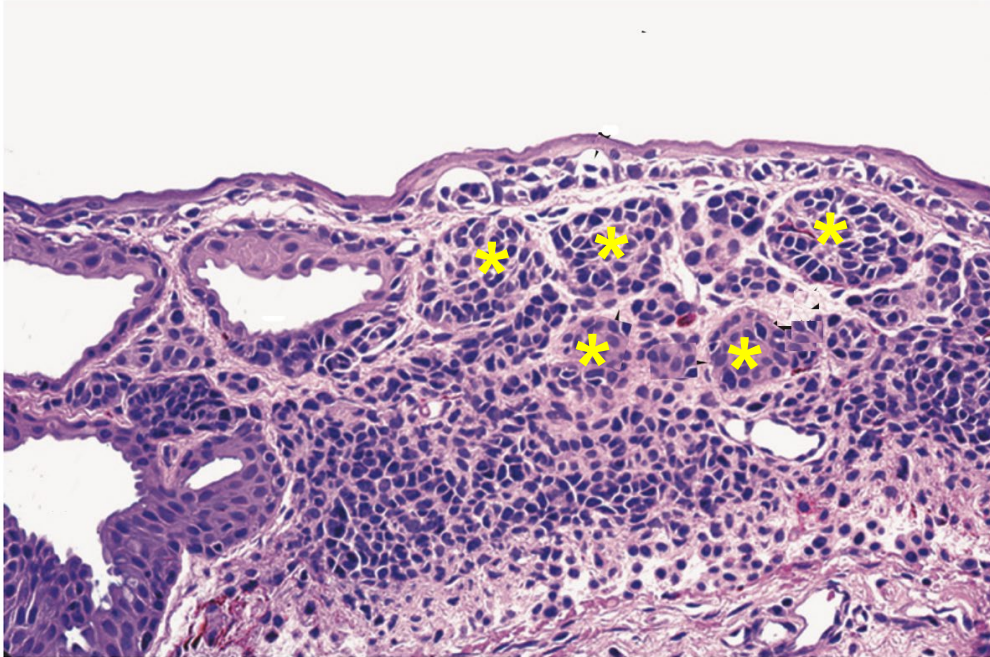


Skin/conj?
Conj

There are a couple of field marks that, taken together, nail the diagnosis. What are they?



Pathwatching



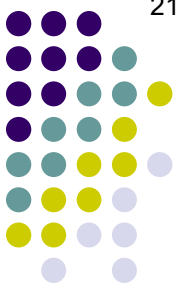
Skin/conj?

Conj

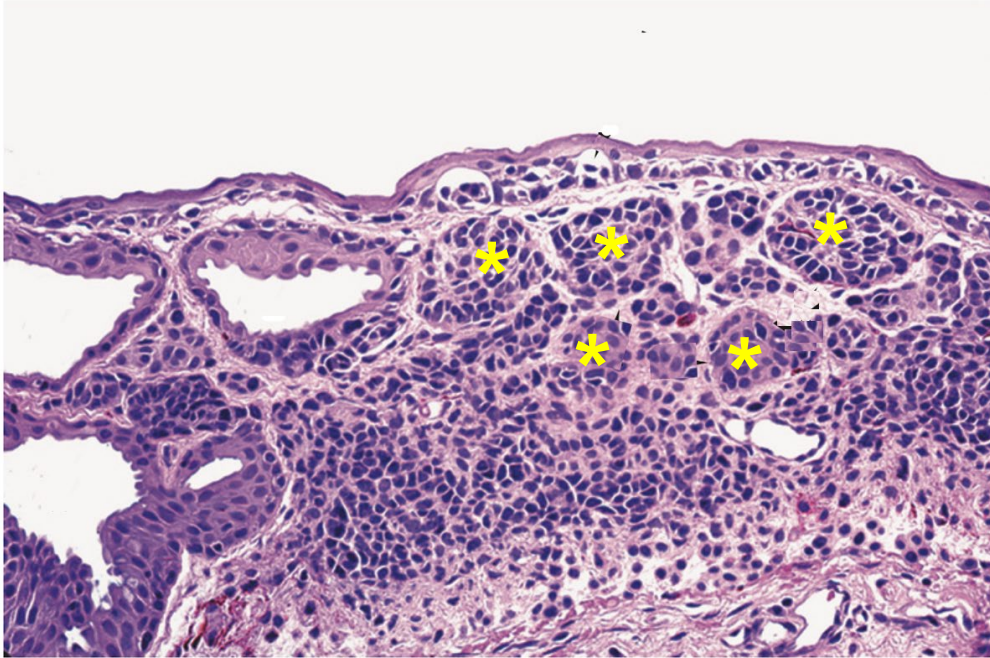
There are a couple of field marks that, taken together, nail the diagnosis. What are they?

-- **These** tight clusters of **cell type** are called

--?



Pathwatching



Skin/conj?

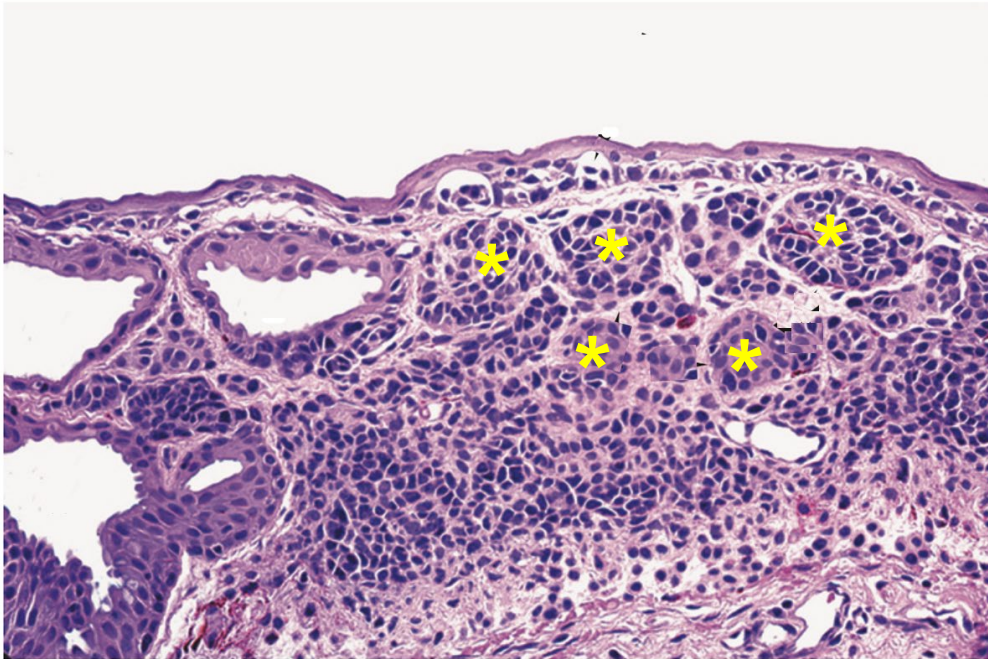
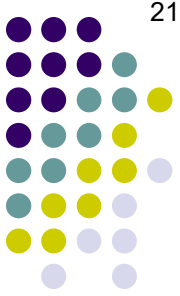
Conj

There are a couple of field marks that, taken together, nail the diagnosis. What are they?

-- **These** tight clusters of melanocytes are called nests

--?

Pathwatching



Skin/conj?

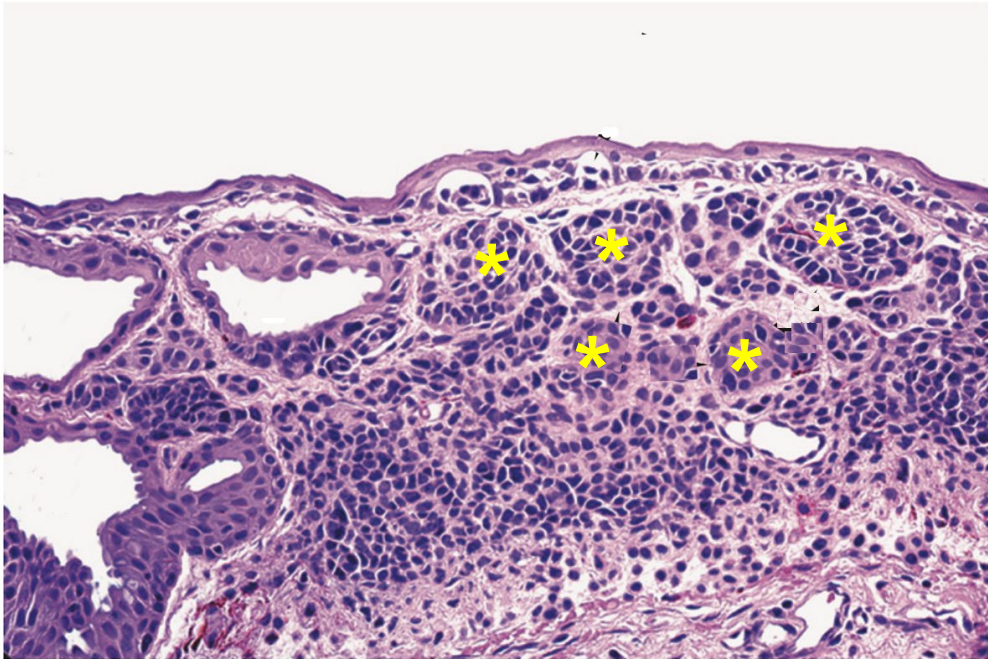
Conj

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-- **These** tight clusters of melanocytes are called nests (aka)

--?

Pathwatching

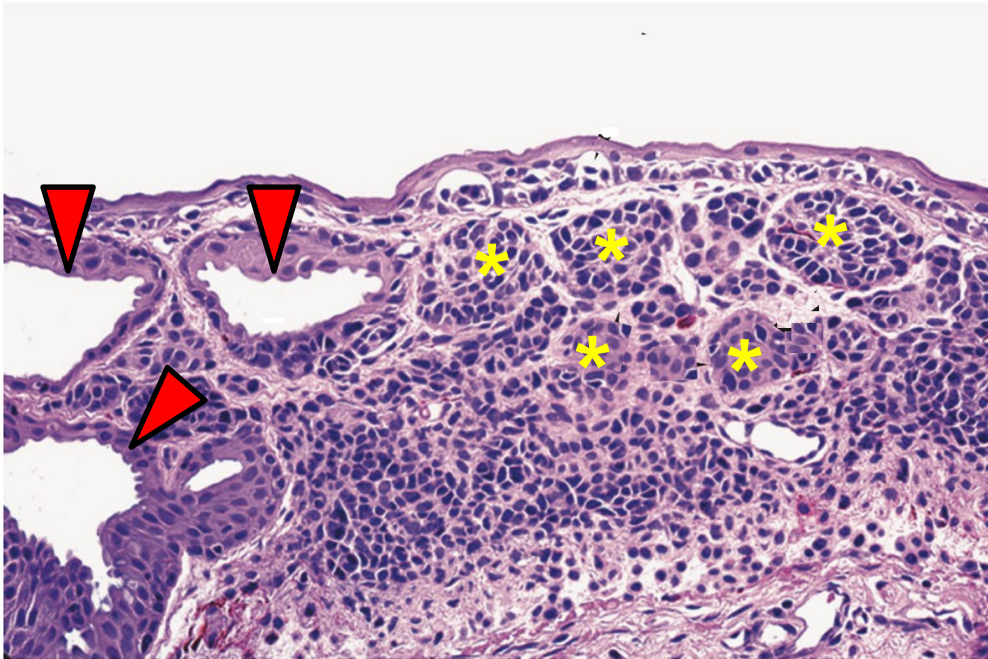


Skin/conj?
Conj

There are a couple of field marks that, taken together, nail the diagnosis. What are they?
-- **These** tight clusters of melanocytes are called nests (aka *theques*)
--?



Pathwatching



Skin/conj?

Conj

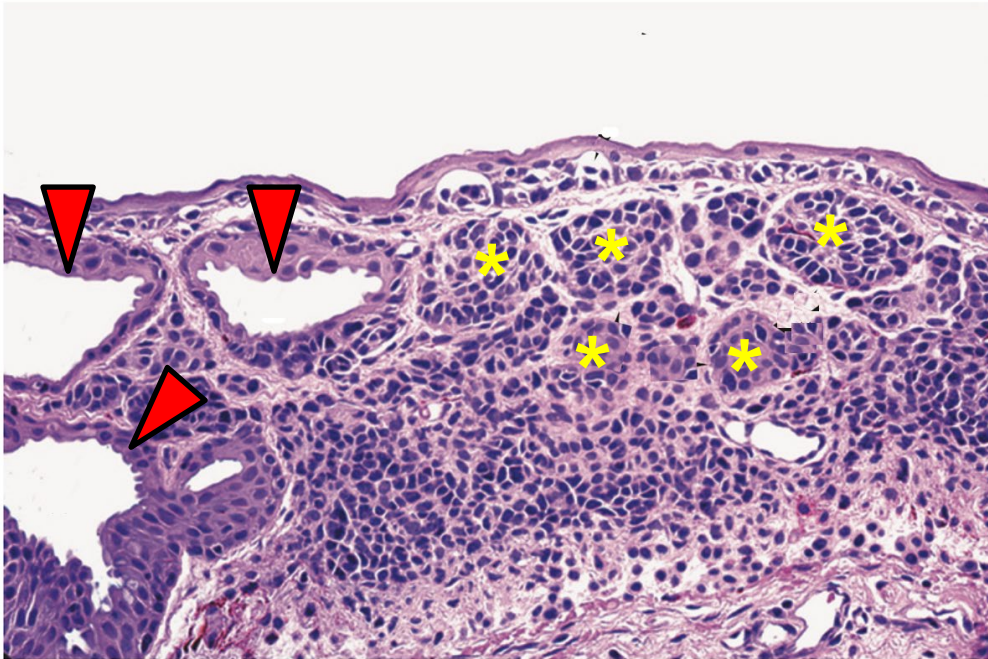
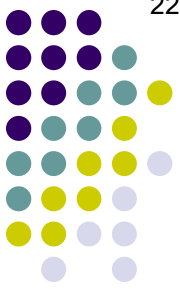
There are a couple of field marks that, taken together, nail the diagnosis. What are they?

--**These** tight clusters of melanocytes are called nests (aka *theques*) and

--**these**

three words

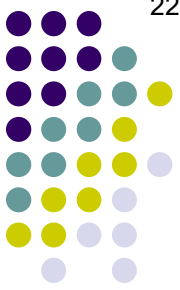
Pathwatching



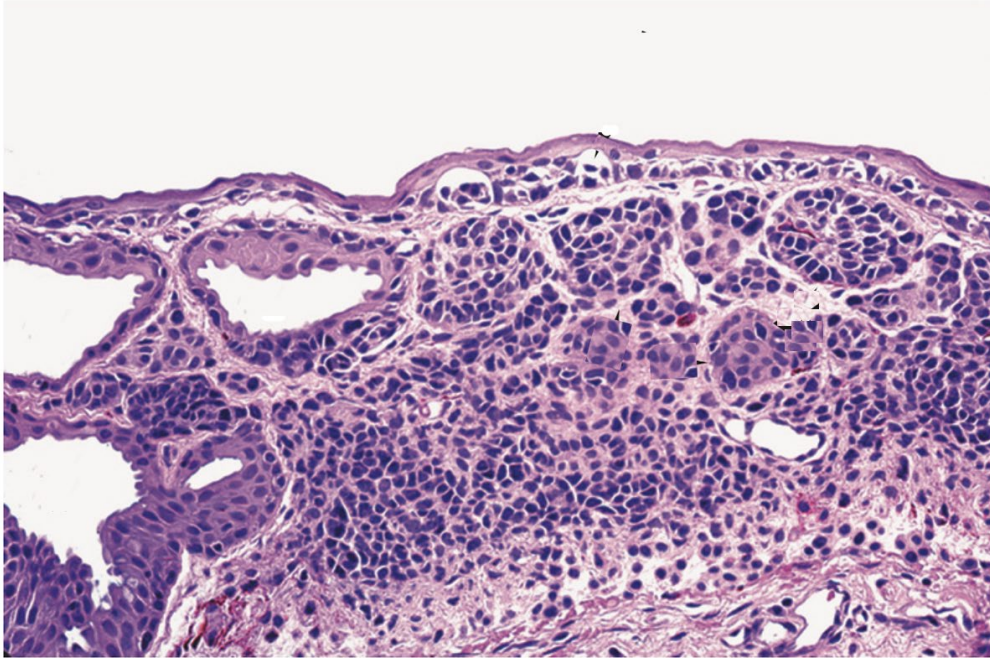
Skin/conj?
Conj

There are a couple of field marks that, taken together, nail the diagnosis. What are they?

--**These** tight clusters of melanocytes are called nests (*aka theques*) and
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Pathwatching



What's the diagnosis?

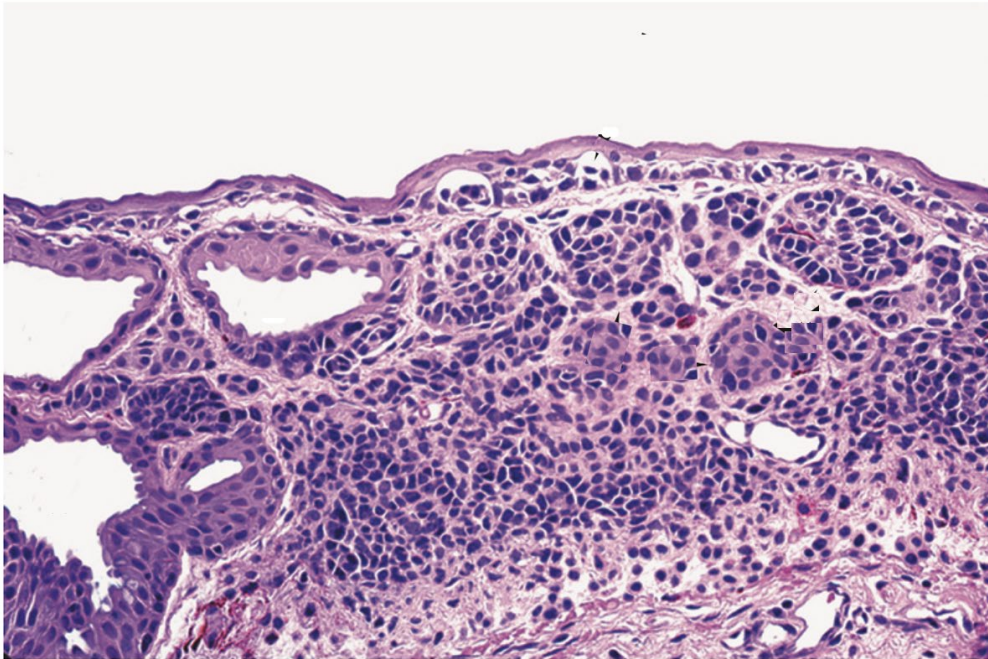
*Skin/conj?
Conj*

There are a couple of field marks that, taken together, nail the diagnosis. What are they?

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When you encounter melanocytes in nests associated with cysts, one condition should come to mind:

Pathwatching



What's the diagnosis?

Melanocytic nevi almost always appear on the **portion** conj

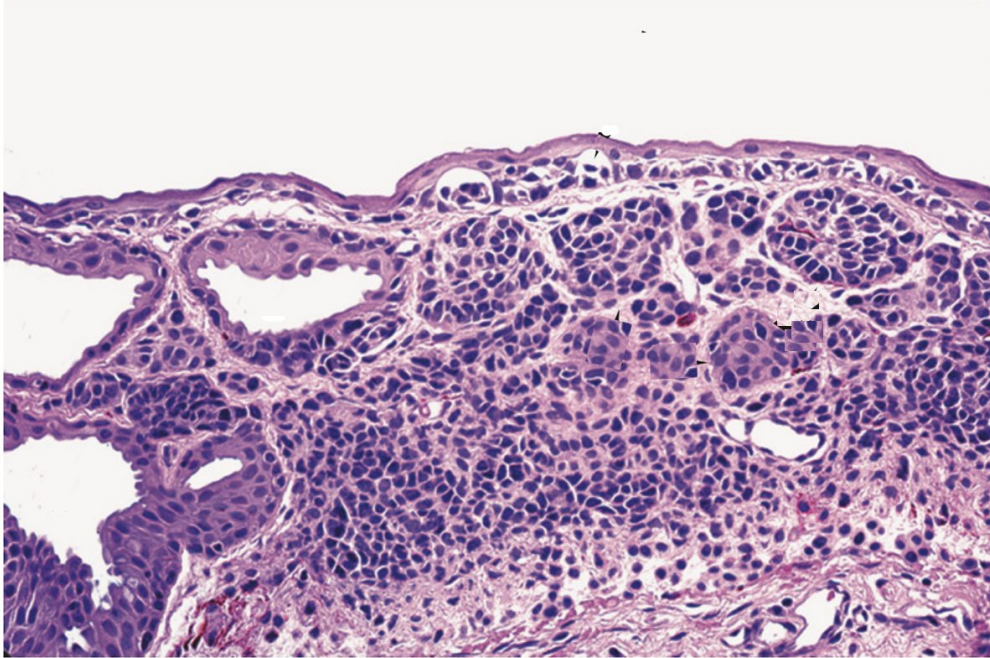
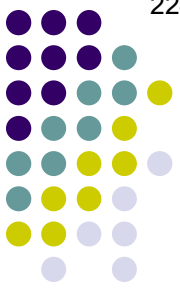
Skin/conj?
Conj

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Pathwatching



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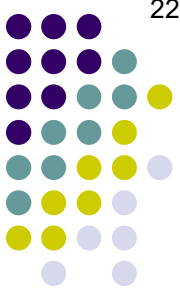
*Skin/conj?
Conj*

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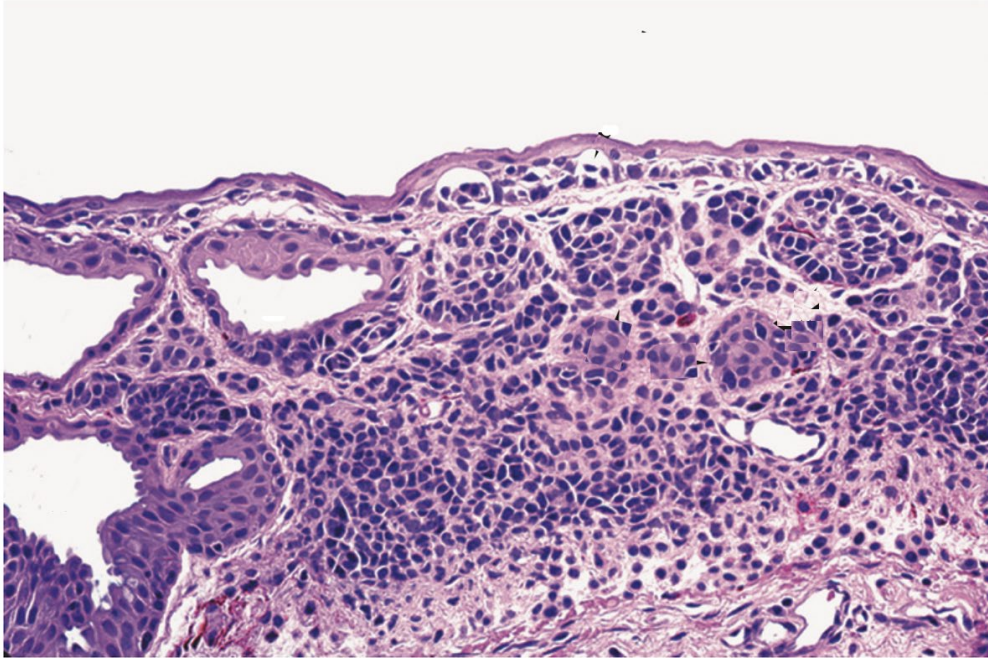
-- **These** tight clusters of melanocytes are called nests (aka *theques*) and --**these** epithelial inclusion cysts

When you encounter melanocytes in nests associated with cysts, one condition should come to mind:

Melanocytic nevi almost always appear on the bulbar conj



Pathwatching



What's the diagnosis?

*Skin/conj?
Conj*

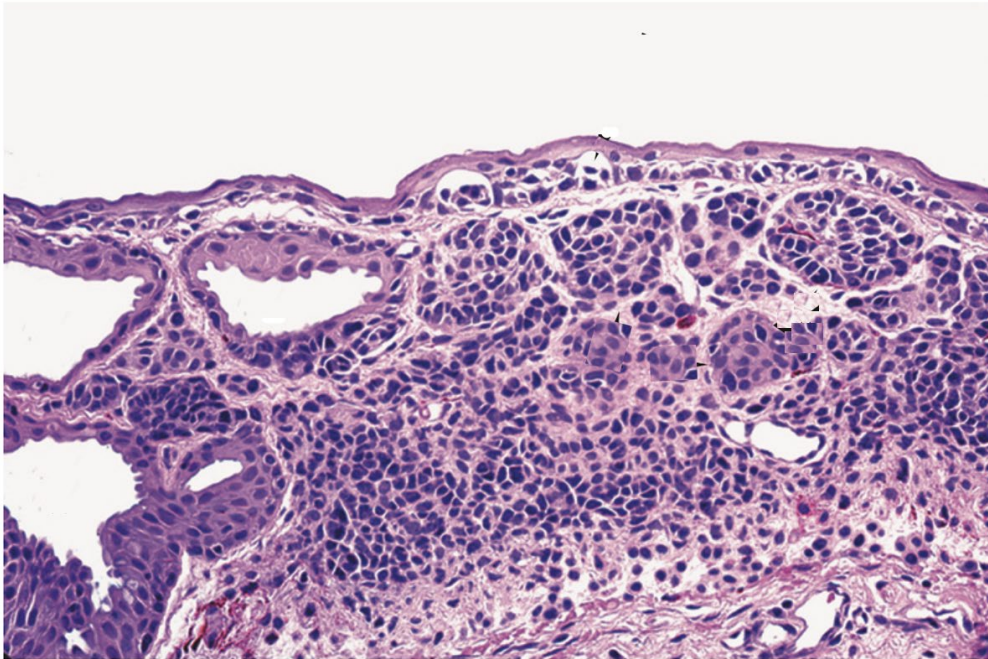
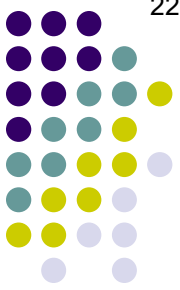
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When you encounter melanocytes in nests associated with cysts, one condition should come to mind:

Melanocytic nevi almost always appear on the bulbar conj during life stage.

Pathwatching



What's the diagnosis?

*Skin/conj?
Conj*

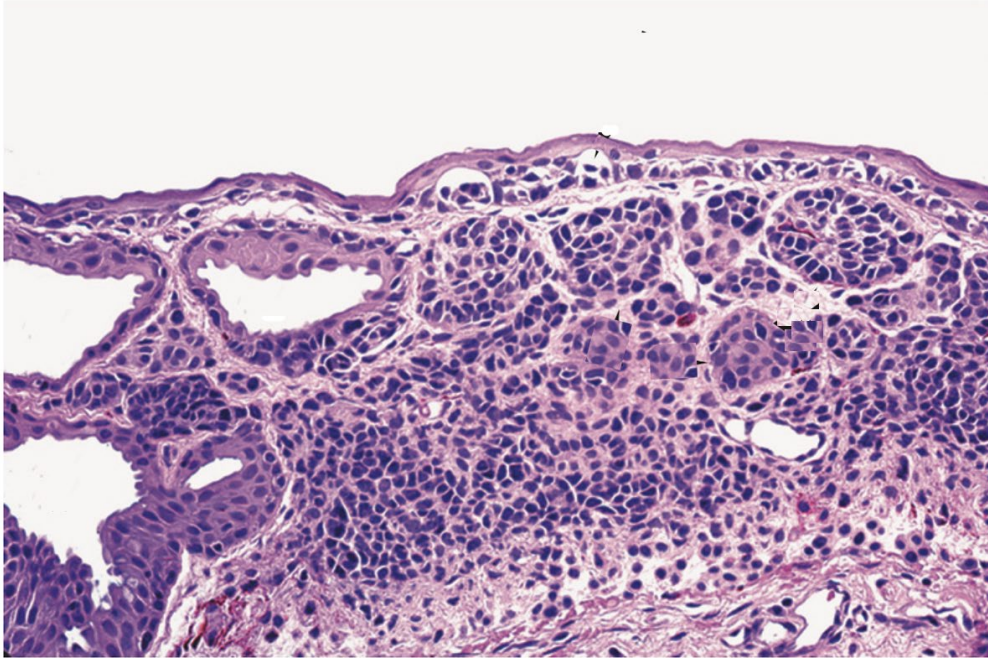
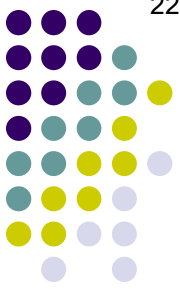
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When you encounter melanocytes in nests associated with cysts, one condition should come to mind:

Melanocytic nevi almost always appear on the bulbar conj during childhood .

Pathwatching



Skin/conj?
Conj

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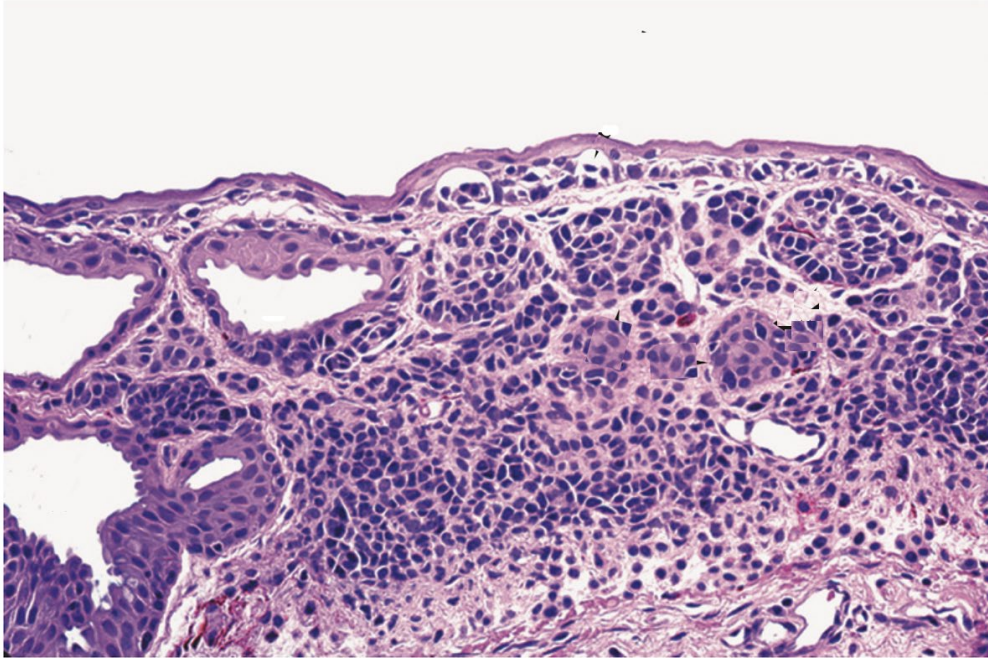
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What's the diagnosis?

Melanocytic nevi almost always appear on the bulbar conj during childhood . As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) [] to [] to [] .

Pathwatching



What's the diagnosis?

*Skin/conj?
Conj*

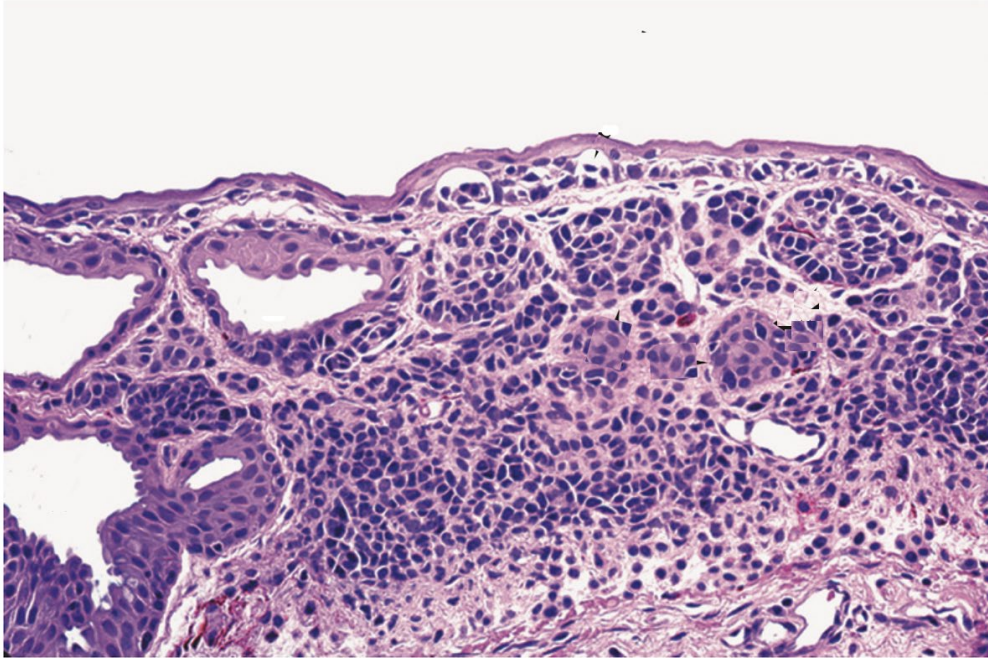
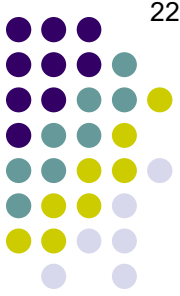
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When you encounter melanocytes in nests associated with cysts, one condition should come to mind:

Melanocytic nevi almost always appear on the bulbar conj **during childhood** . As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to stromal .

Pathwatching



Skin/conj?
Conj

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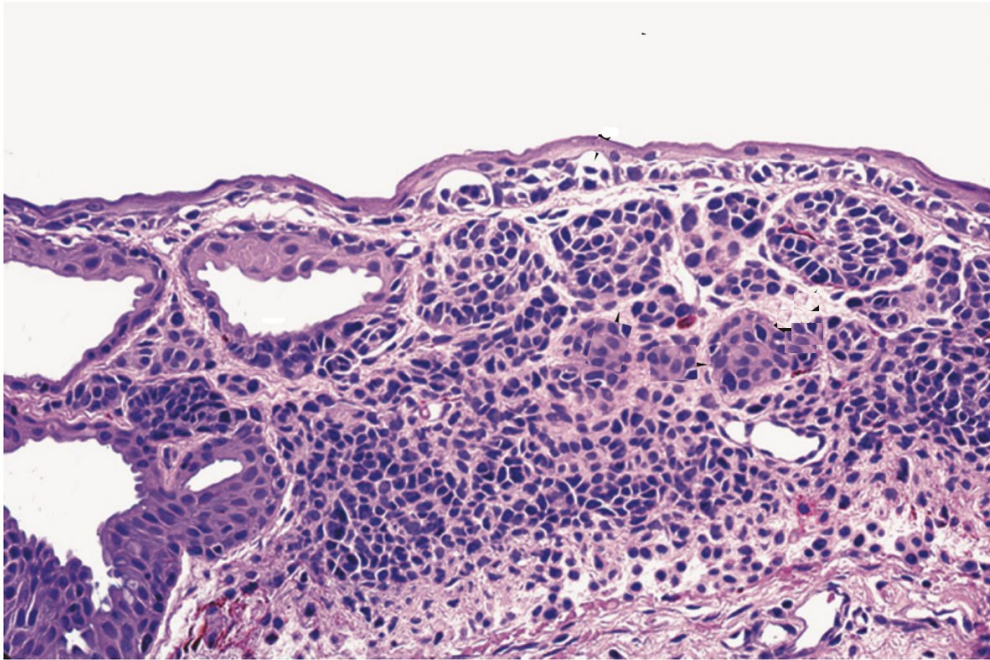
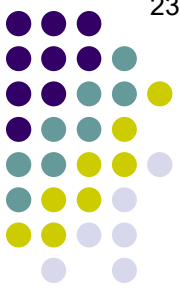
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What's the diagnosis?

Melanocytic nevi almost always appear on the bulbar conj during childhood . As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to stromal . Conj nevi have low vs high malignant potential.

Pathwatching



What's the diagnosis?

*Skin/conj?
Conj*

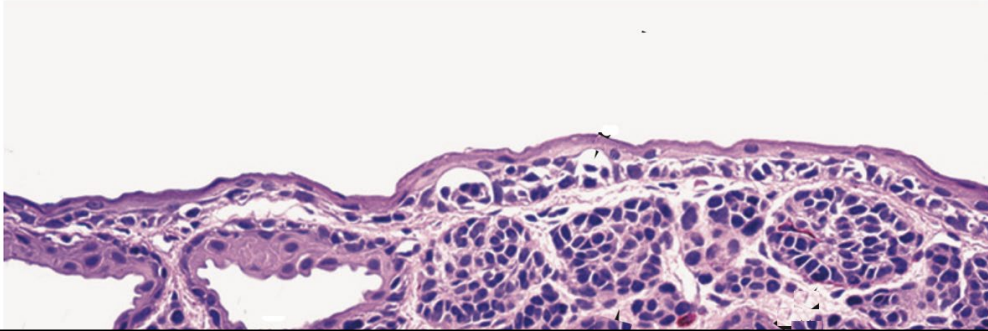
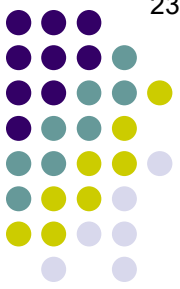
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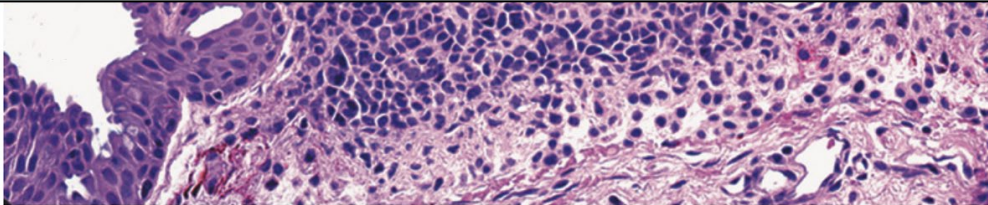
Pathwatching



Skin/conj?
Conj

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For more on melanocytic nevi, see slide-set O9



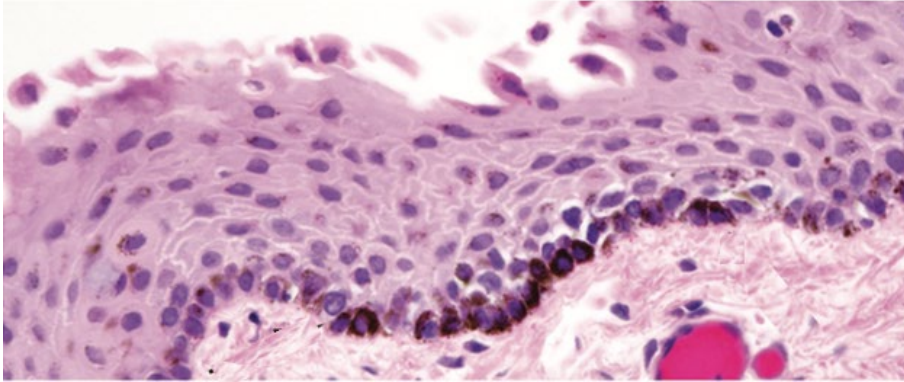
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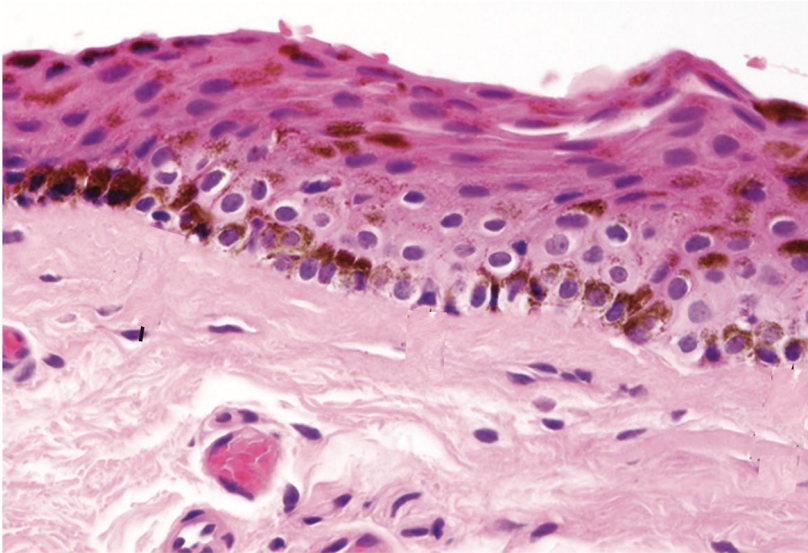


Pathwatching



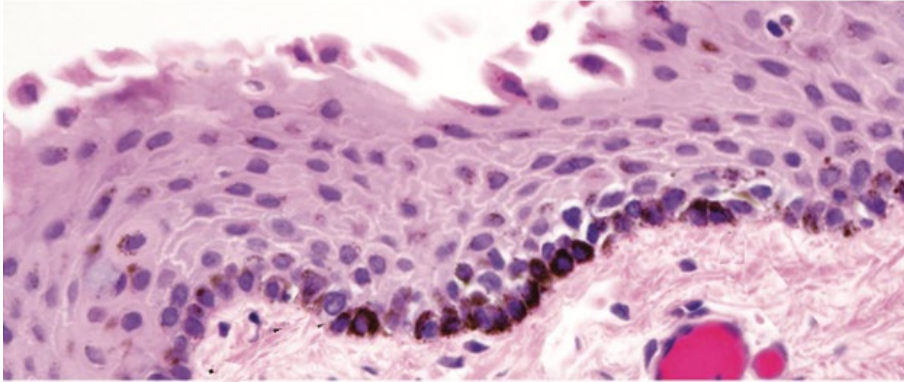
These both represent the same tissue, with related-but-different diagnoses.

(No question yet—keep going)



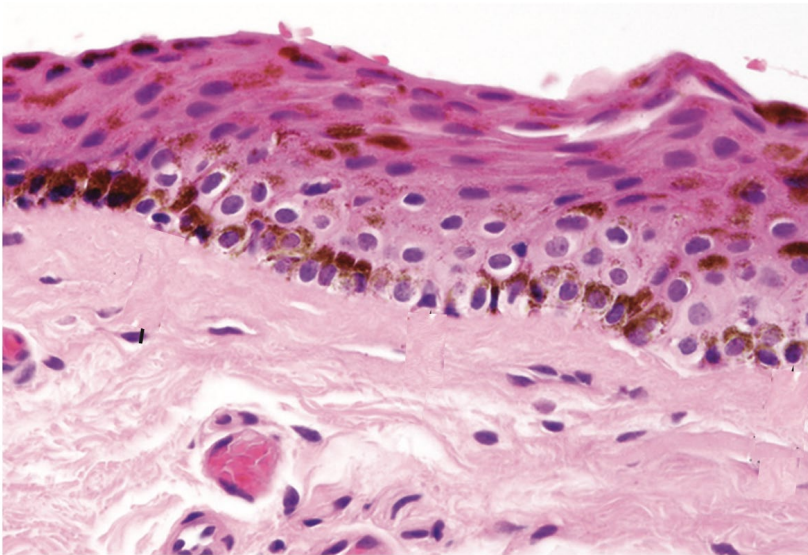


Pathwatching



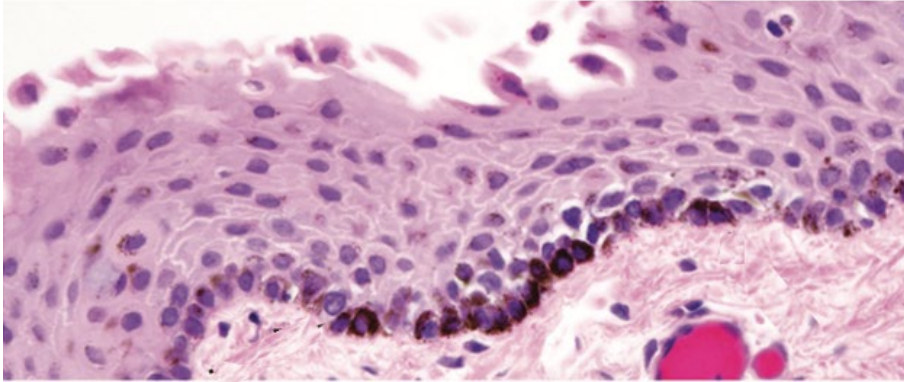
These both represent the same tissue, with related-but-different diagnoses.

Skin, or conj?





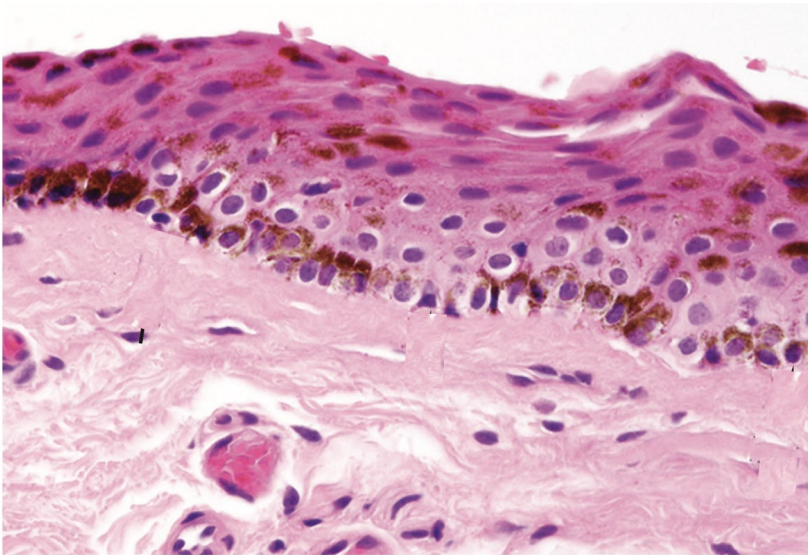
Pathwatching



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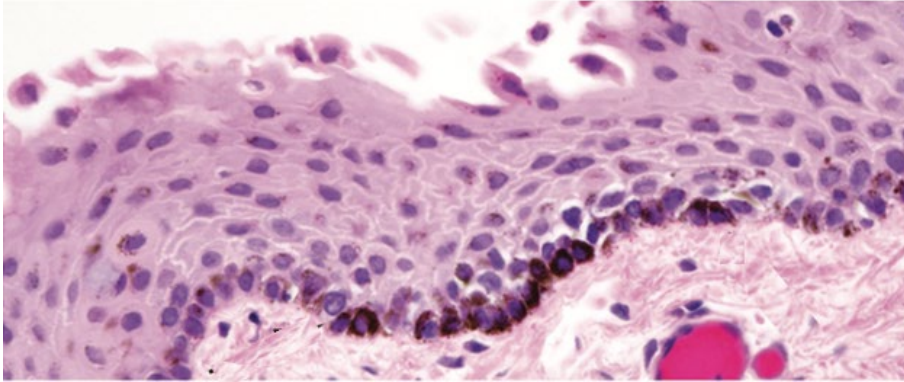
Skin, or conj?

No keratinization, so conj





Pathwatching

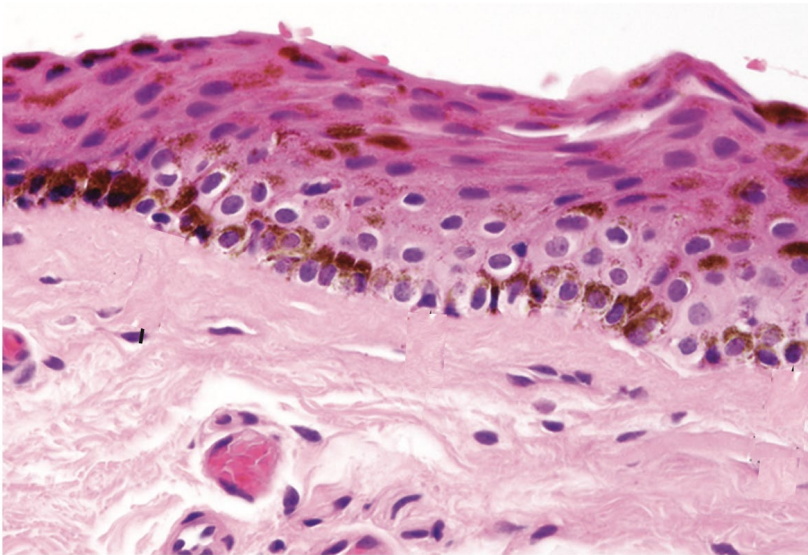


These both represent the same tissue, with related-but-different diagnoses.

Skin, or conj?

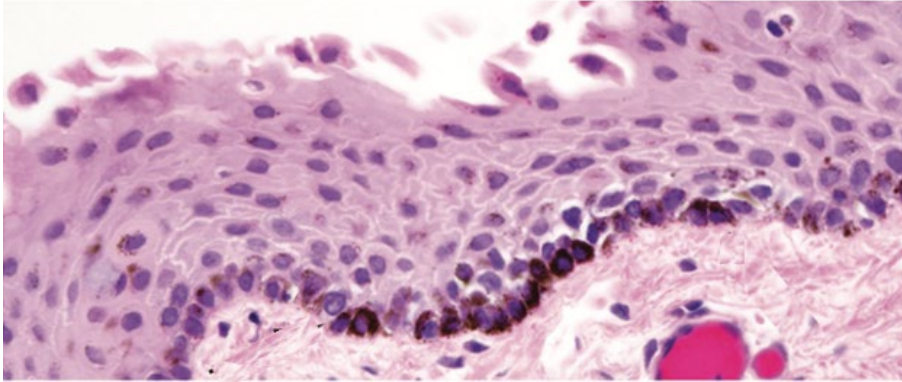
No keratinization, so conj

What are we supposed to notice in these images?





Pathwatching



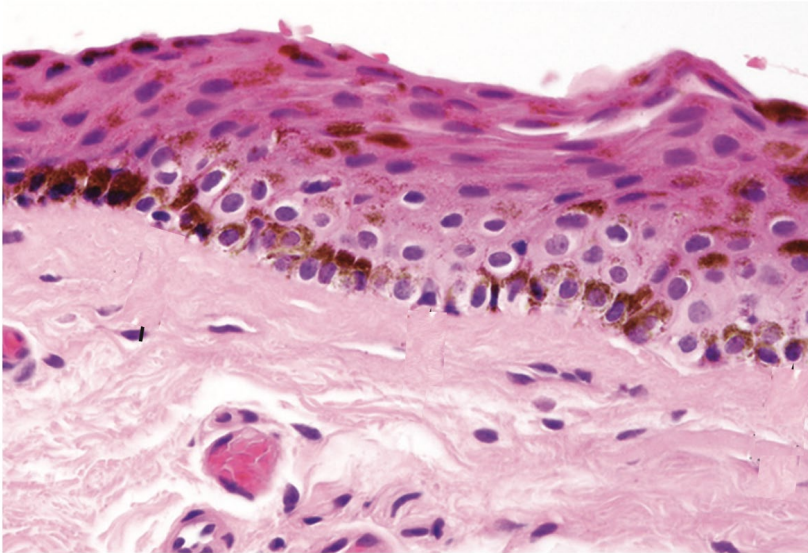
These both represent the same tissue, with related-but-different diagnoses.

Skin, or conj?

No keratinization, so conj

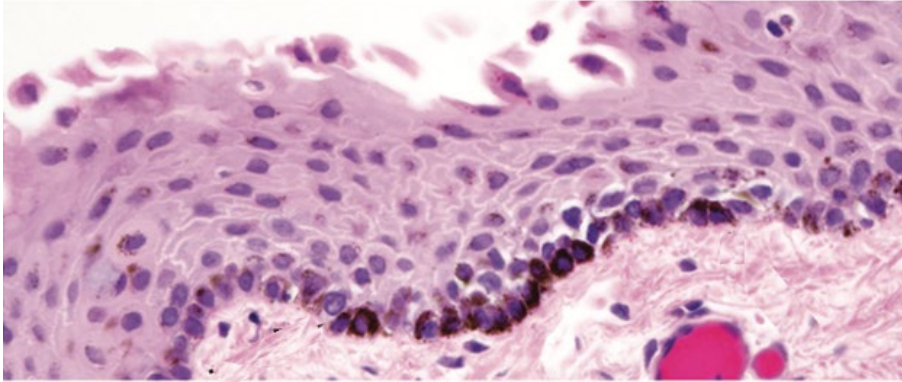
What are we supposed to notice in these images?

Dat melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions?





Pathwatching



These both represent the same tissue, with related-but-different diagnoses.

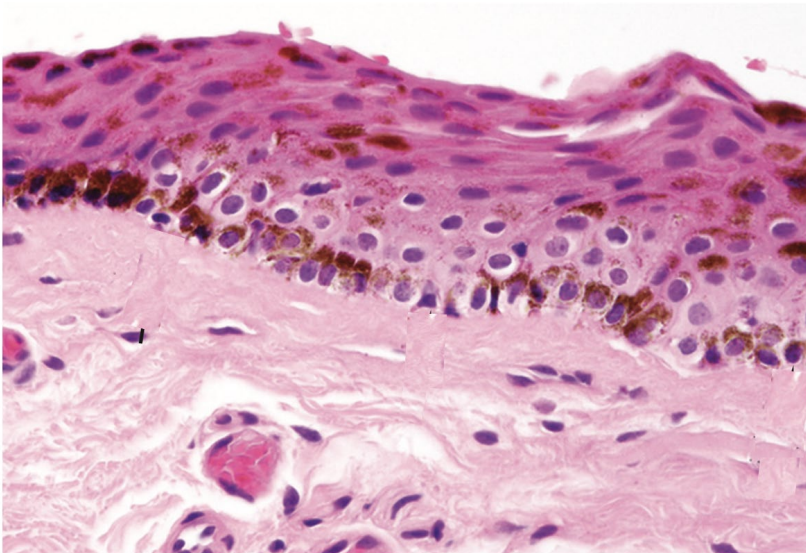
Skin, or conj?

No keratinization, so conj

What are we supposed to notice in these images?

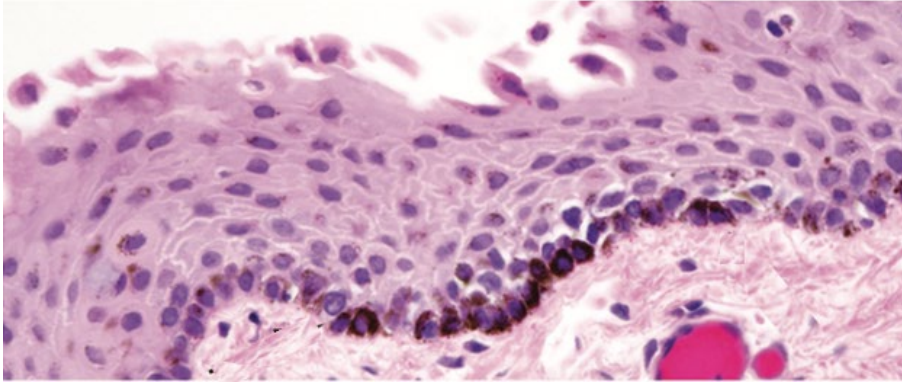
Dat melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions?

While oversimplified, we can think of melanocytic conj lesions as falling into one of [] categories:





Pathwatching



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Skin, or conj?

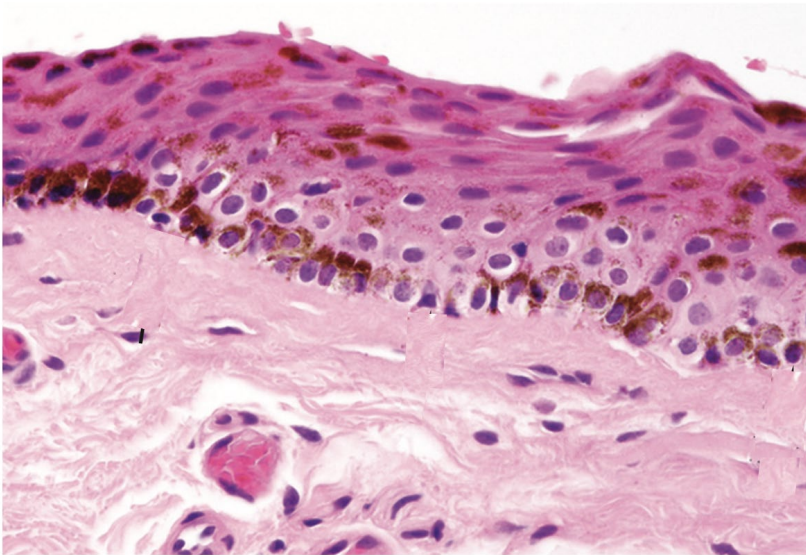
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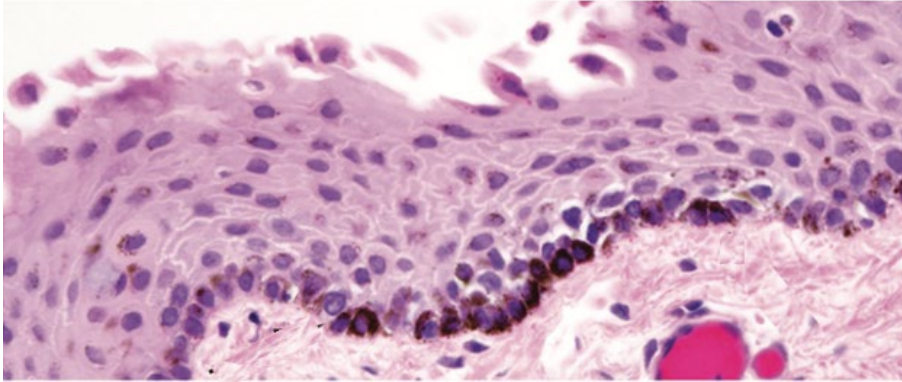
While oversimplified, we can think of melanocytic conj lesions as falling into one of five categories:

- ?
- ?
- ?
- ?
- ?





Pathwatching



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Skin, or conj?

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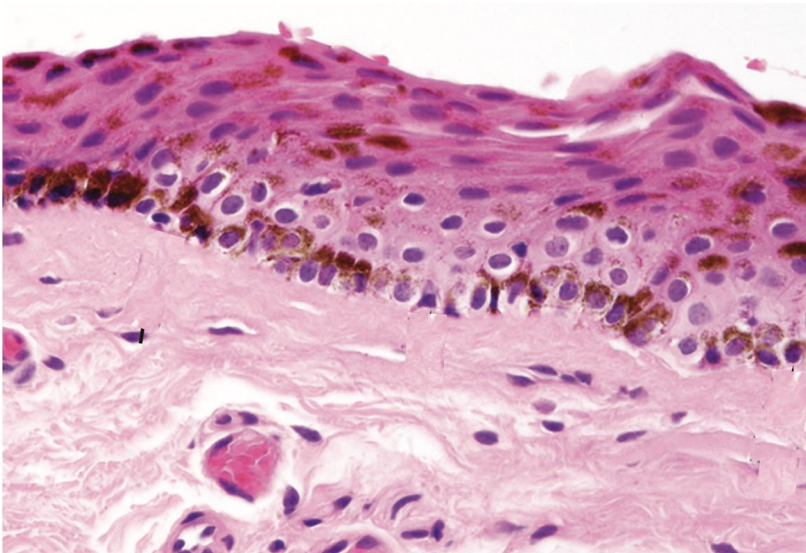
--Nevus (already addressed)

--CAM*

--PAM** without lotsa words

--PAM with lotsa words

--Melanoma

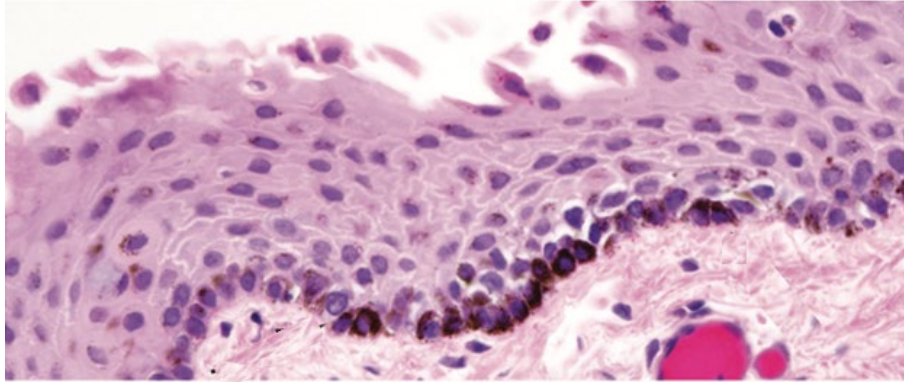


*Complexion-associated melanosis; aka *benign acquired melanosis* (BAM); aka *racial melanosis*

***Primary acquired melanosis*



Pathwatching



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Skin, or conj?

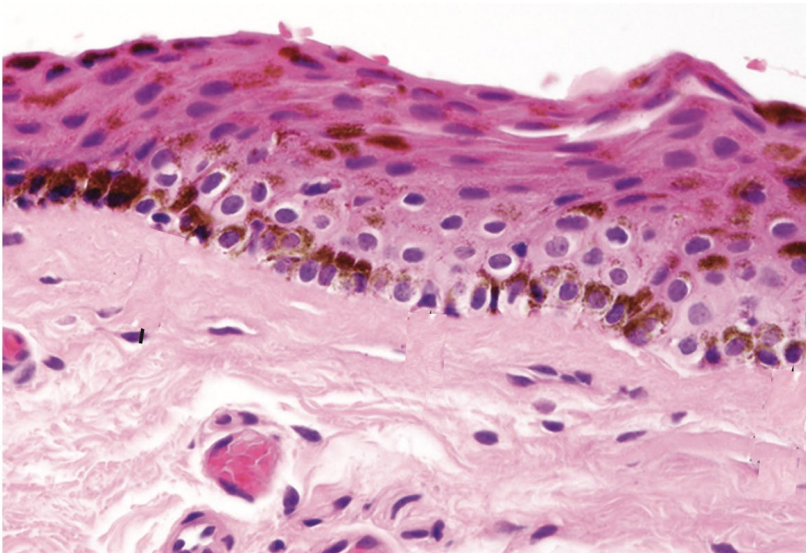
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While oversimplified, we can think of melanocytic conj lesions as falling into one of five categories:

- Nevus (already addressed)
- CAM*
- PAM** without atypia, or with minimal atypia
- PAM with moderate to severe atypia
- Melanoma

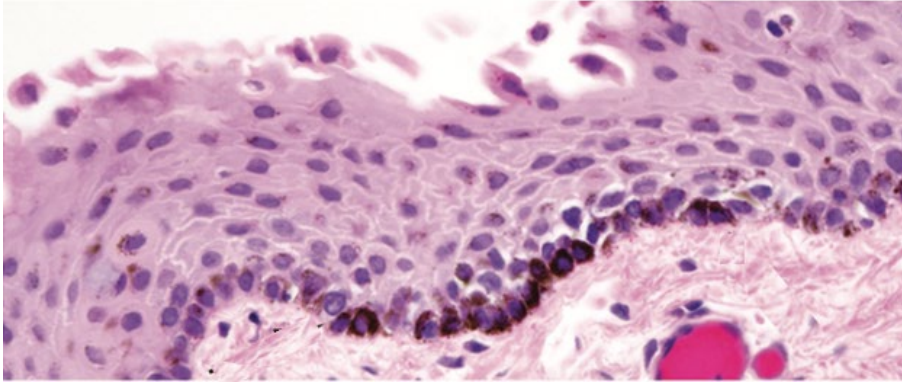


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Skin, or conj?

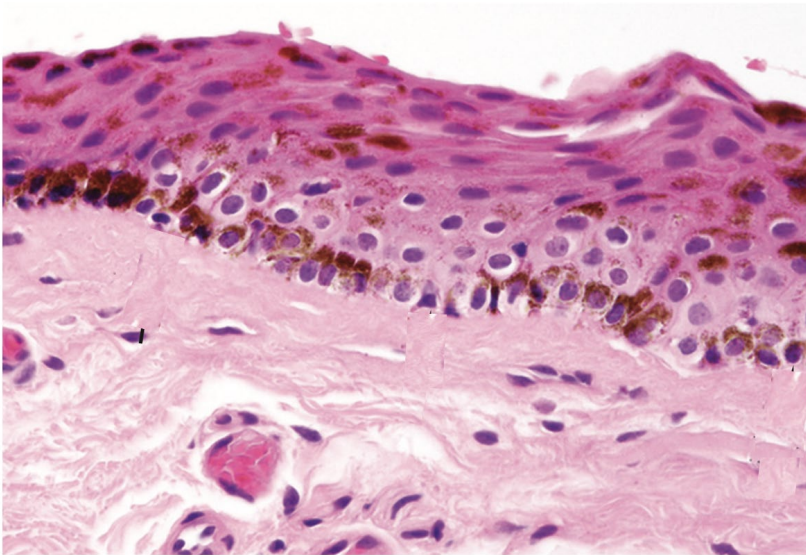
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What are we supposed to notice in these images?

That melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions?

While oversimplified, we can think of melanocytic conj lesions as falling into one of five categories:

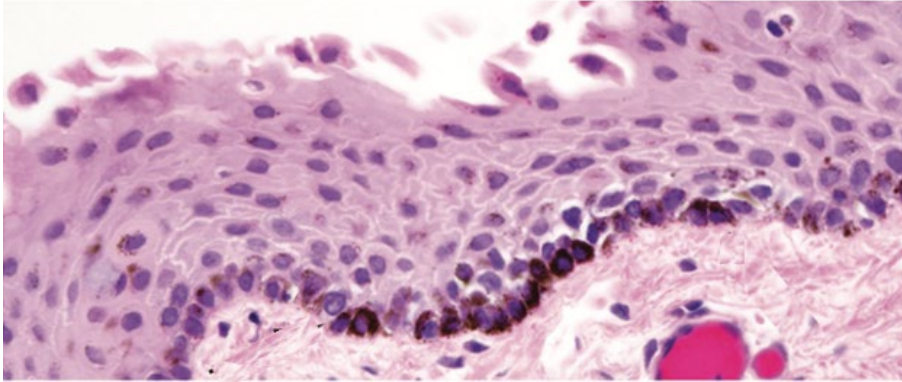
- Nevus (already addressed)
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With regard to malignant potential: CAM and PAM with no/minimal atypia have essentially none, whereas PAM with moderate or severe atypia do.



Pathwatching



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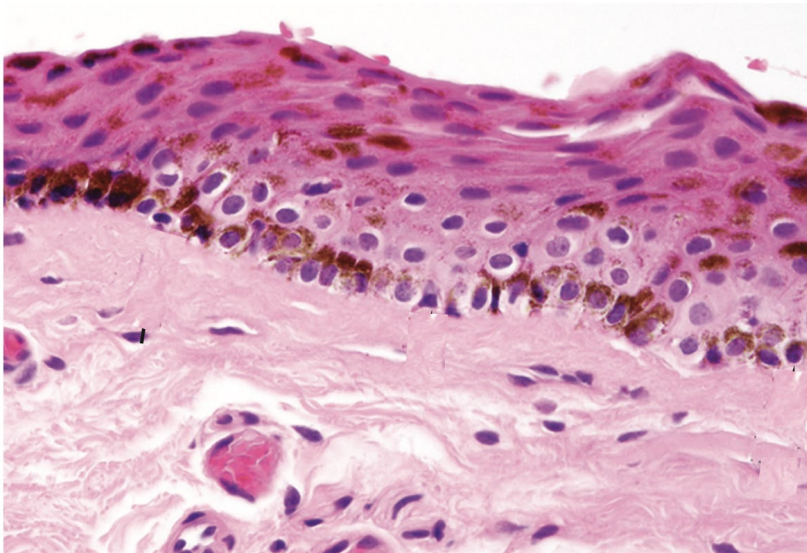
Skin, or conj?

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Dat melanin and all those melanocytes. The question

So what are we looking at here? Note that in both images the melanocytes are confined mainly to the basal layer of the epithelium*



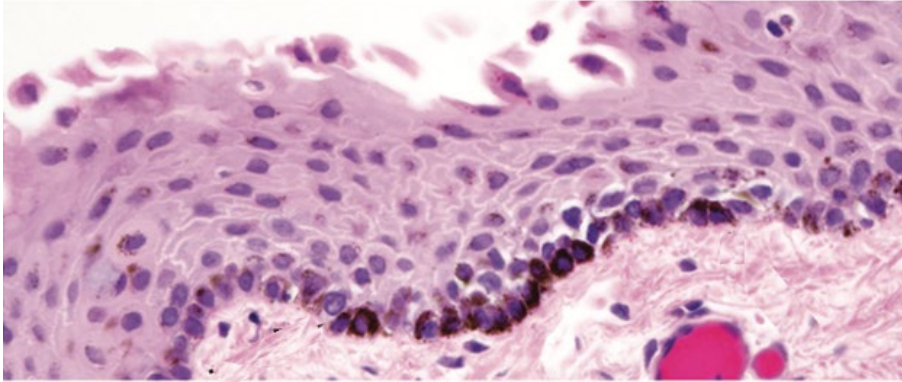
--PAM with moderate to severe atypia

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*Which is not to say that **melanin** is confined to the basal layer—remember, melanocytes package their melanin in for distribution to neighboring epi cells



Pathwatching



These both represent the same tissue, with related-but-different diagnoses.

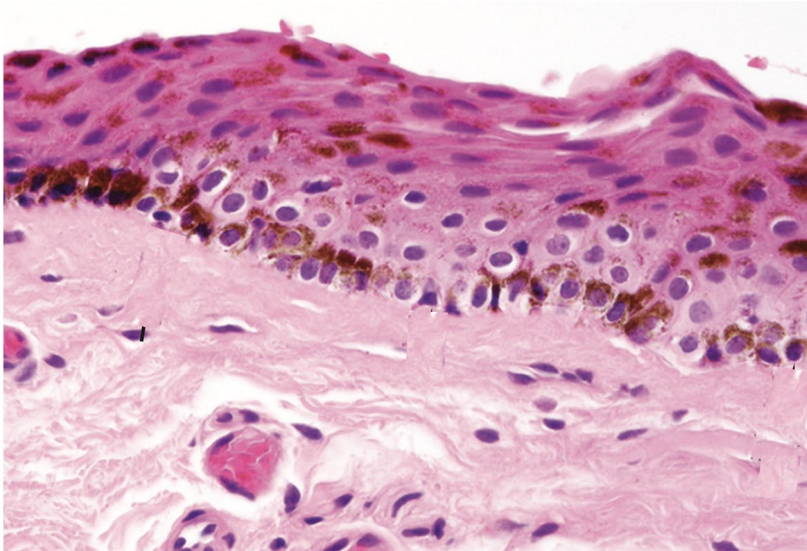
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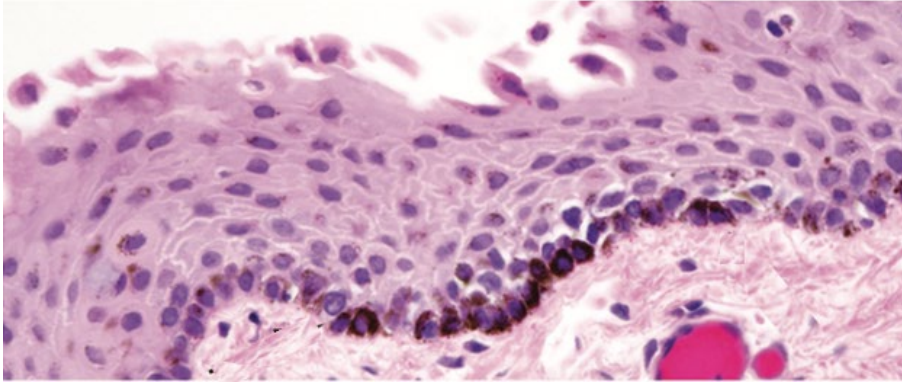
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Pathwatching



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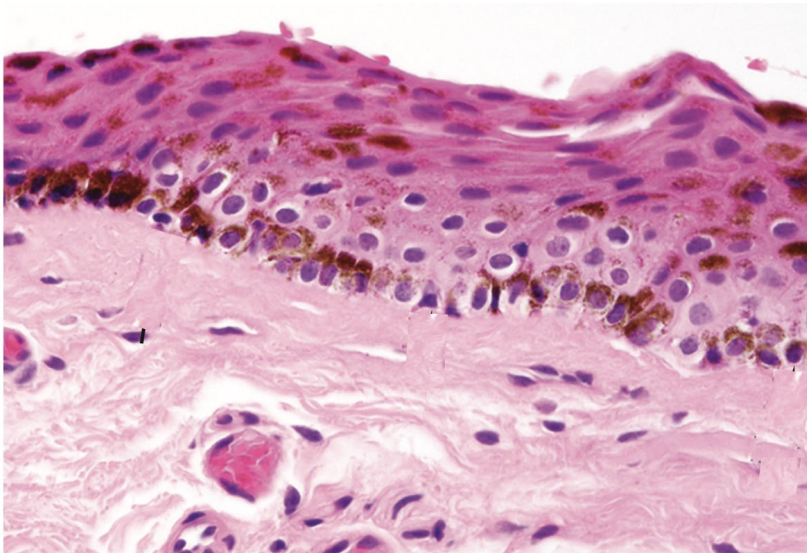
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So what are we looking at here? Note that in both images the melanocytes are confined mainly to the basal layer of the epithelium*, and their appearance could be described as typical—or if you'll forgive a double negative, not atypical.*



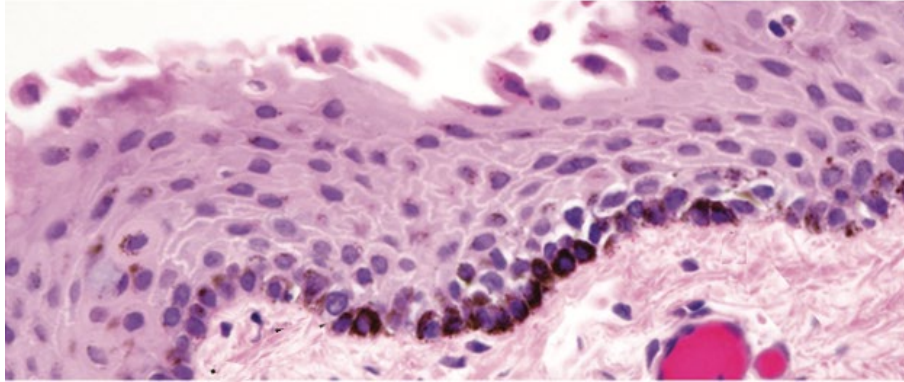
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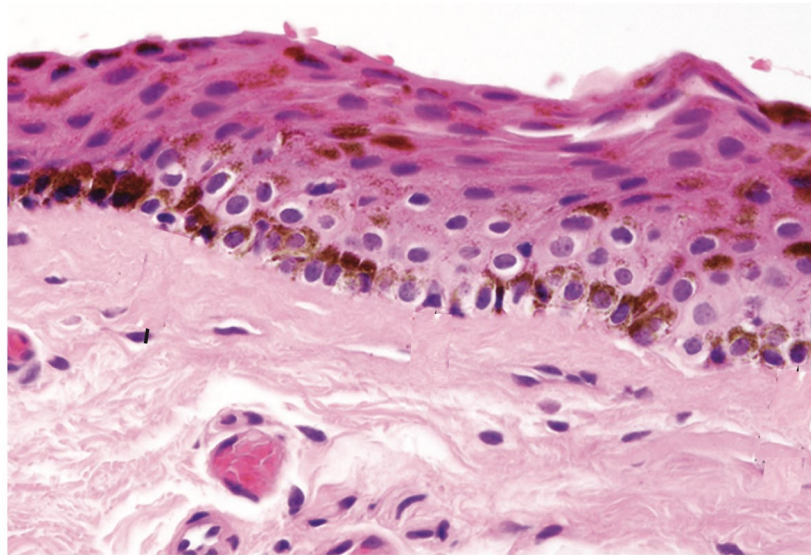
**See what I did there?*



Pathwatching



PAM without atypia



CAM

These both represent the same tissue, with related-but-different diagnoses.

Skin, or conj?

No keratinization, so conj

What are we supposed to notice in these images?

Dat melanin and all those melanocytes. The question

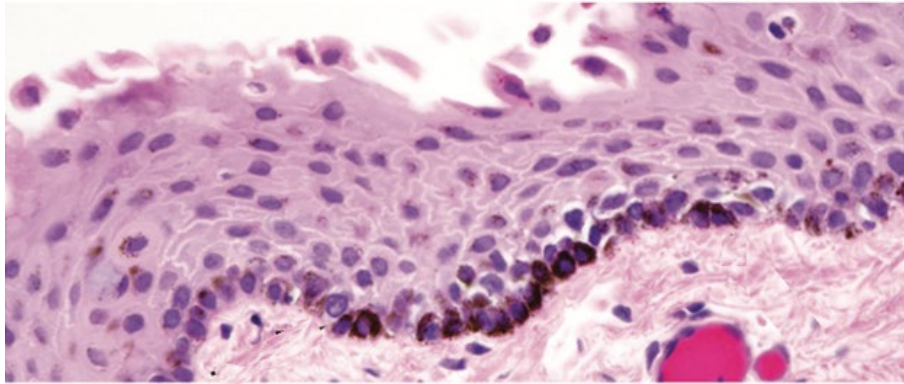
So what are we looking at here? Note that in both images the melanocytes are confined mainly to the basal layer of the epithelium*, and their appearance could be described as typical—or if you'll forgive a double negative, not atypical.* Benign-looking melanocytes confined to the basal epi layer is consistent with both CAM and PAM without/with minimal atypia.

--PAM with moderate to severe atypia

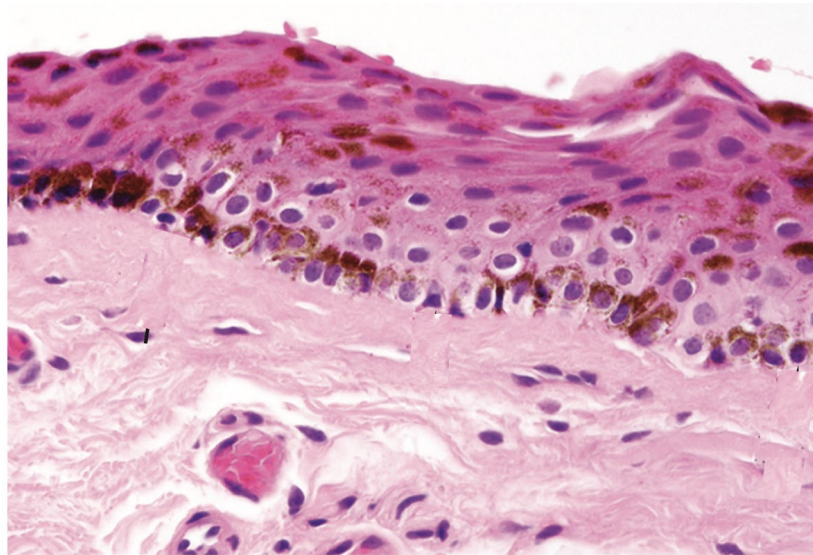
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Pathwatching



PAM without atypia



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Dat melanin and all those melanocytes. The question

So what are we looking at here? Note that in both

How am I supposed to tell them apart?

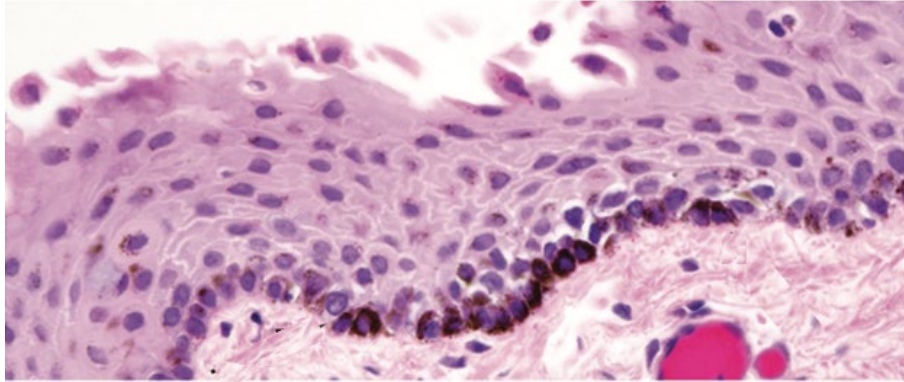
with **both** CAM and PAM without/with minimal atypia.

--PAM with moderate to severe atypia

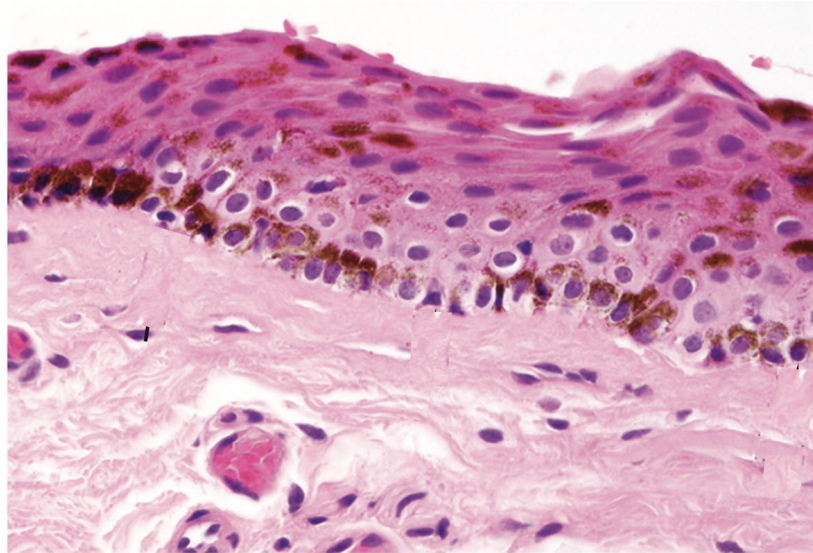
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Pathwatching



PAM without atypia



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What are we supposed to notice in these images?

Dat melanin and all those melanocytes. The question

So what are we looking at here? Note that in both

How am I supposed to tell them apart?

You're not—not from an H&E slide, anyway. If such a distinction is expected on a test, it would likely be based on clinical info.

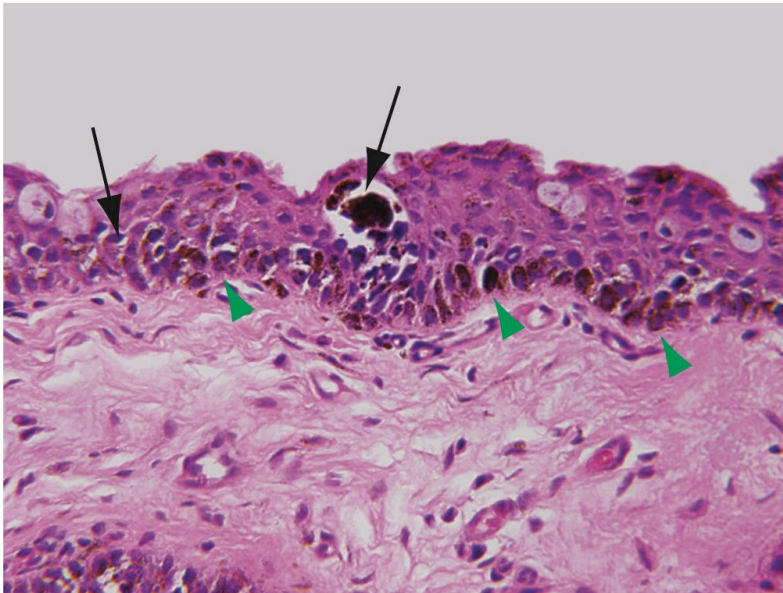
with both CAM and PAM without/with minimal atypia.

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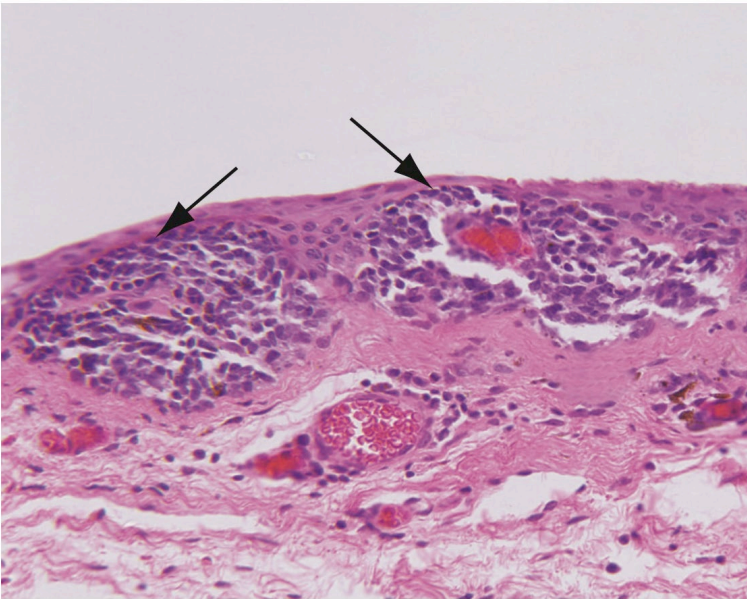


Watching

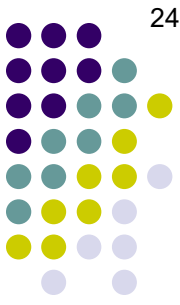


PAM with moderate atypia

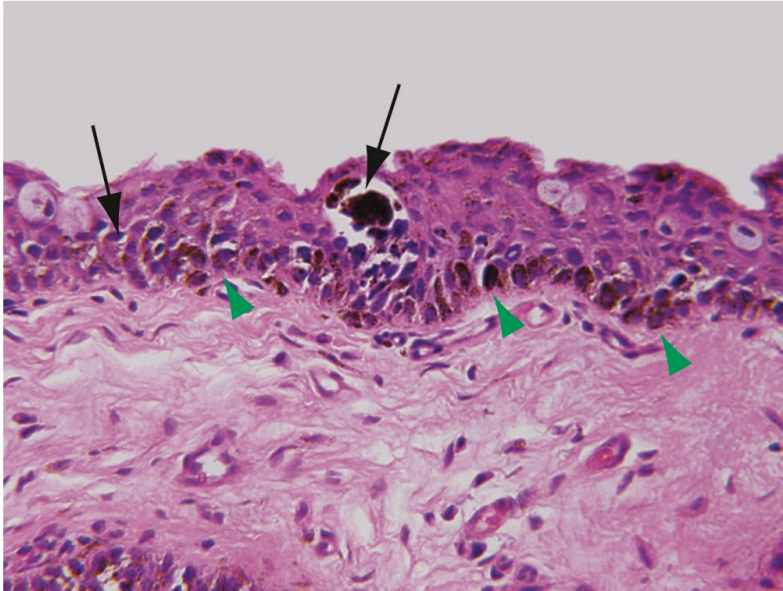
These are what melanocytic badness look like.



PAM with severe atypia (melanoma in situ)



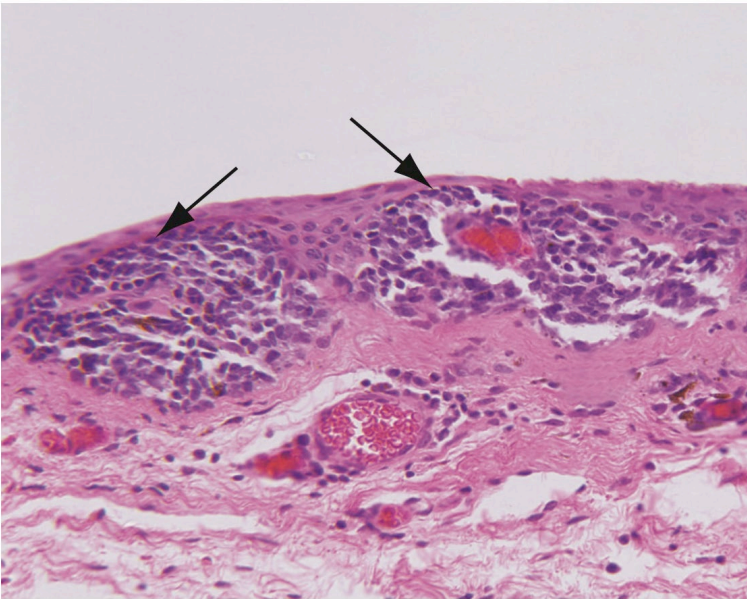
Watching



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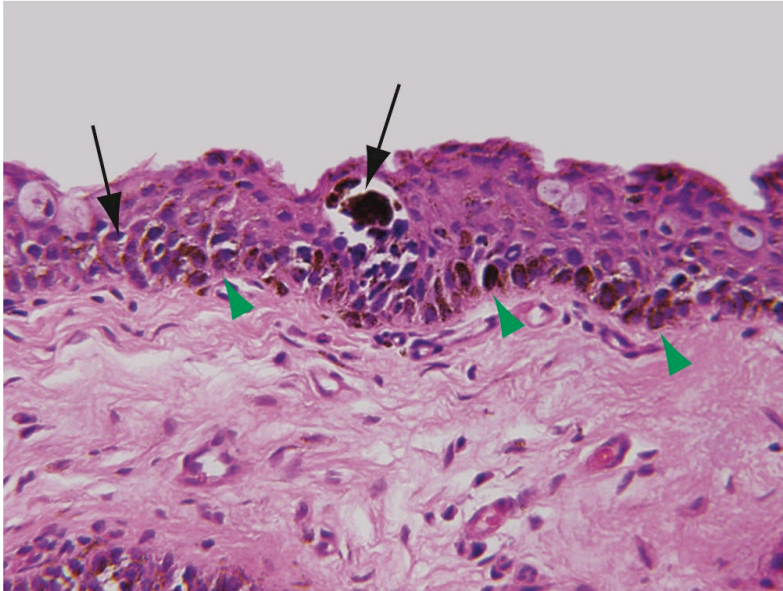
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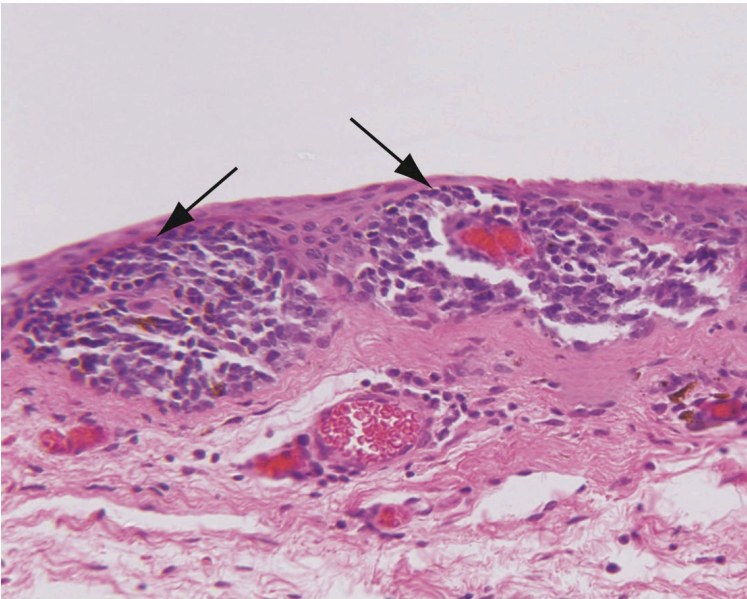
Watching



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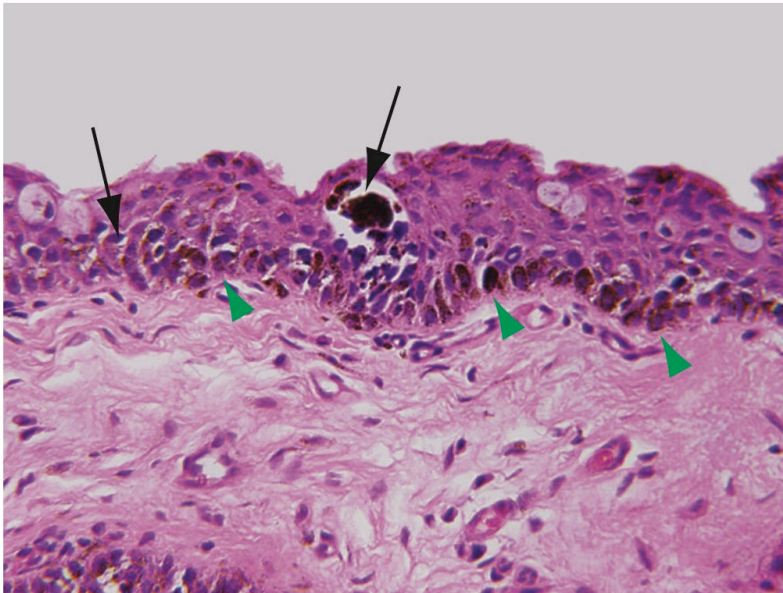
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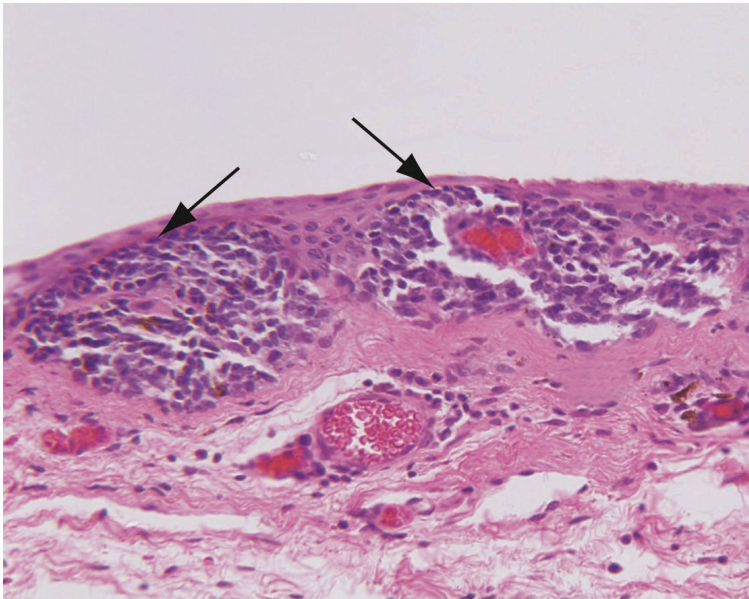
Watching



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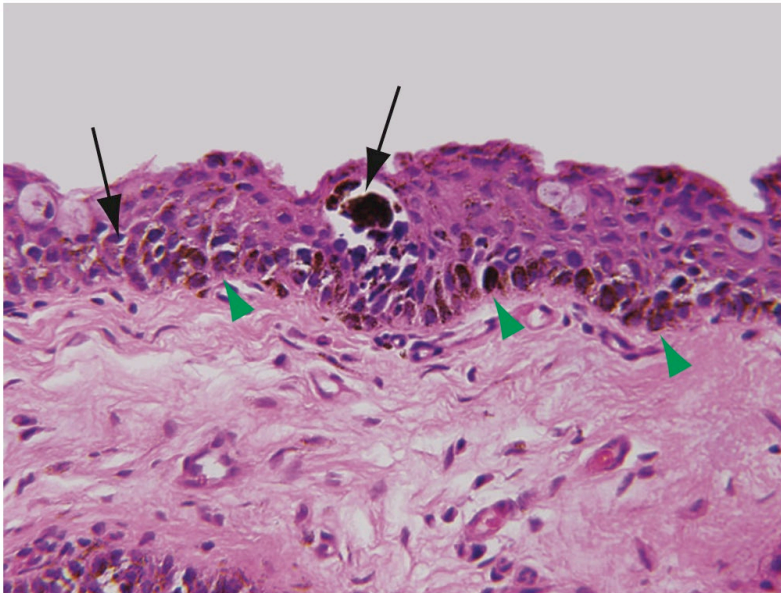
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In the *PAM with severe atypia* pic, the melanocytic proliferation extends into the superficial epidermis (*arrows*)—an ominous finding.

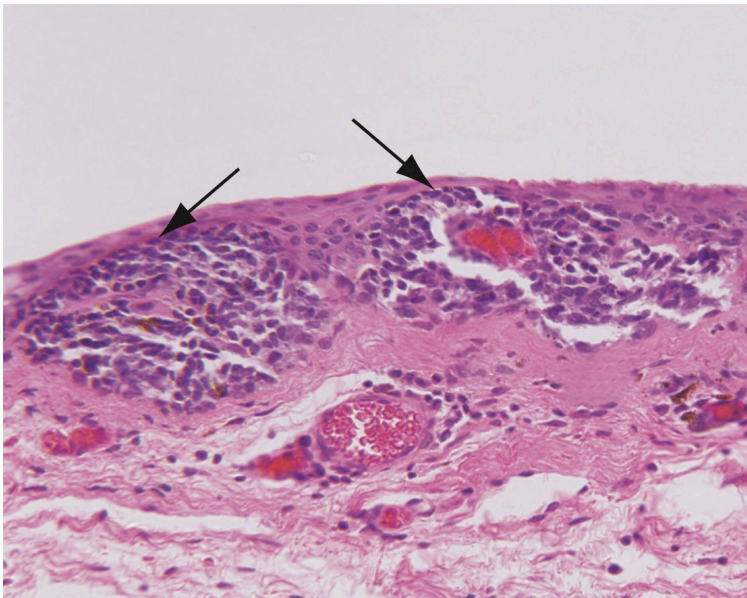
Watching



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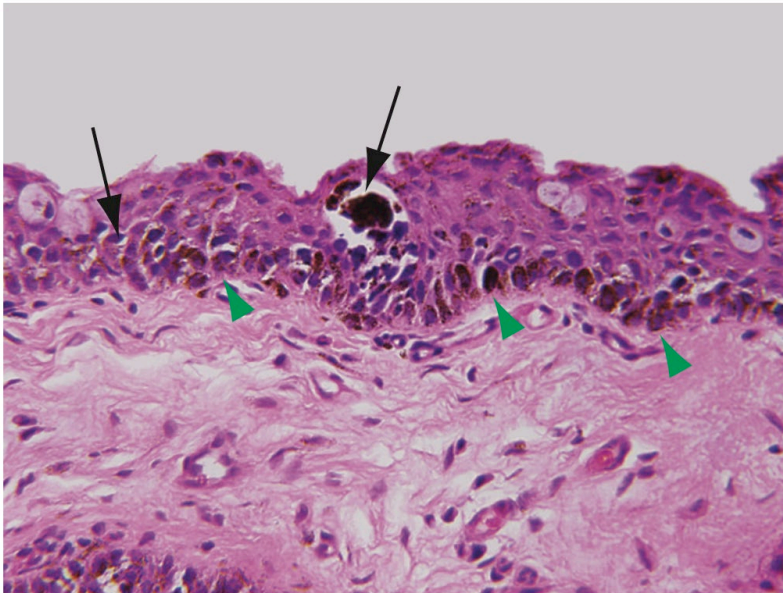
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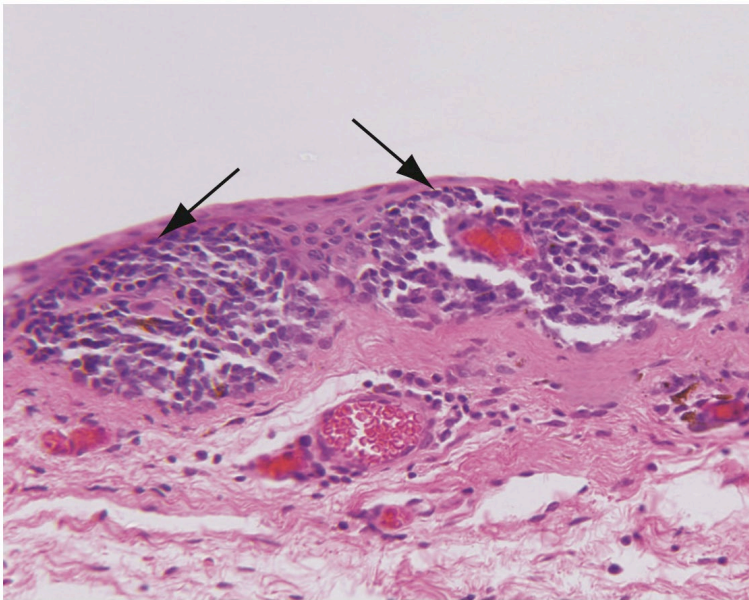
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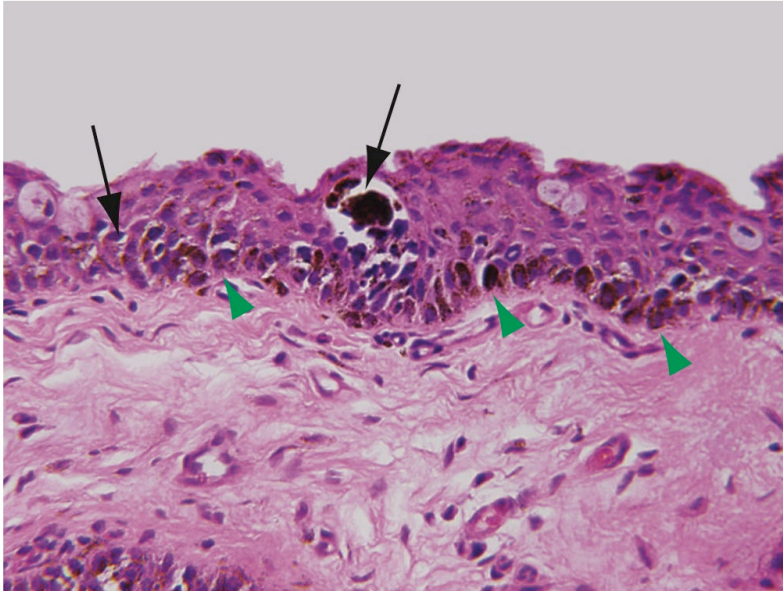
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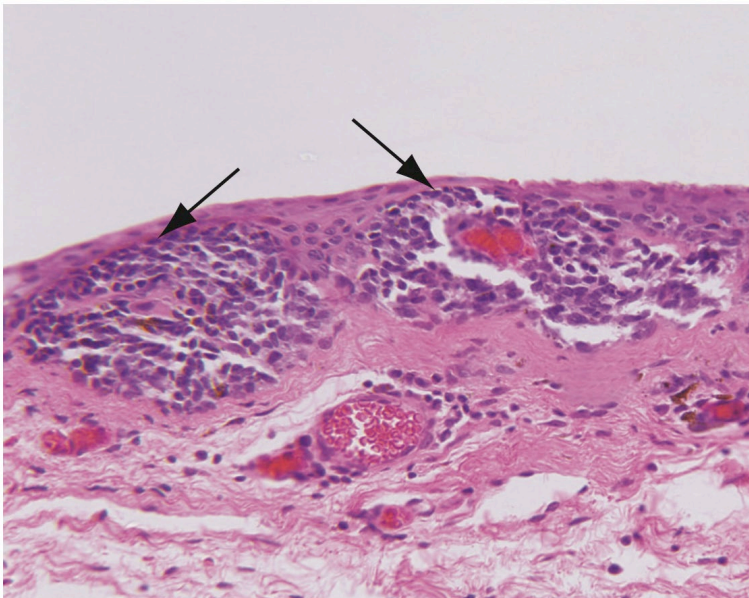
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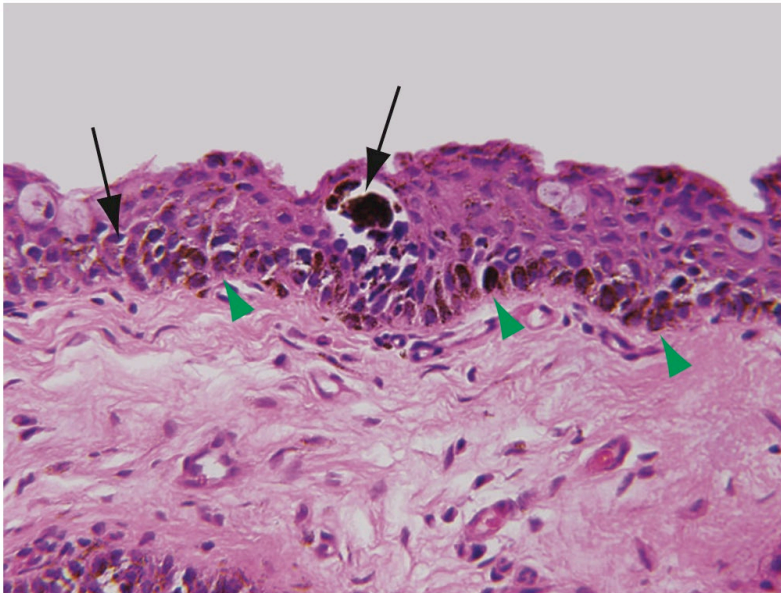
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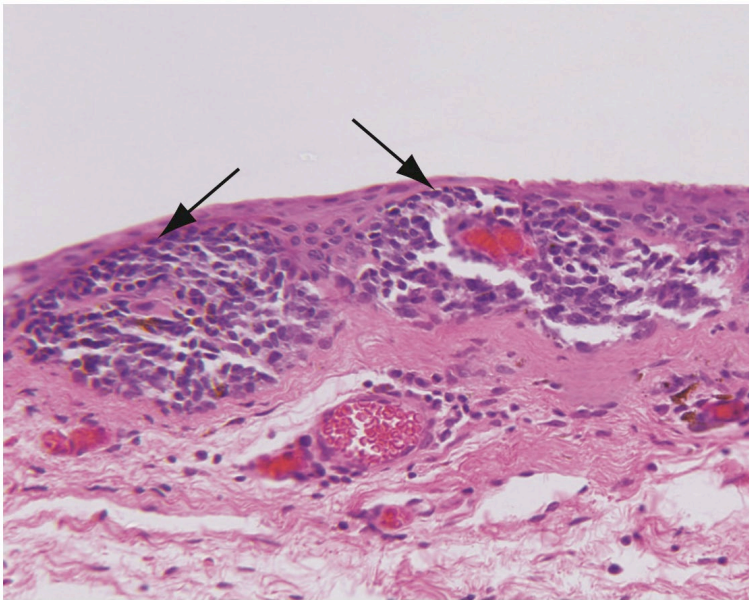
Watching



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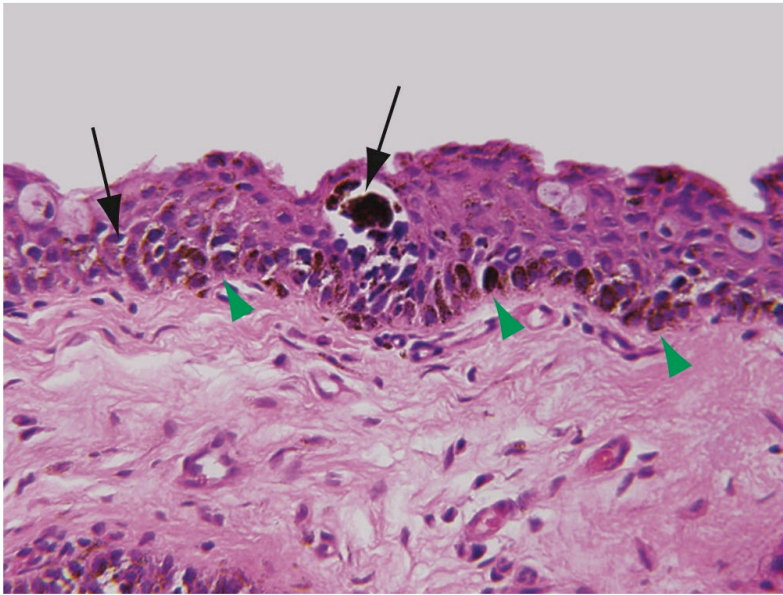
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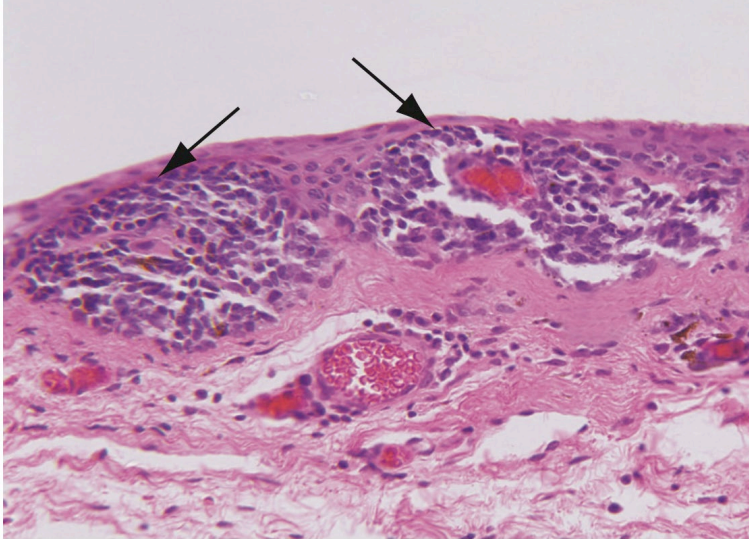
Watching



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For more on CAM and PAM, see slide-set O9

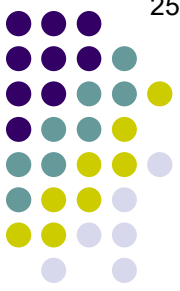


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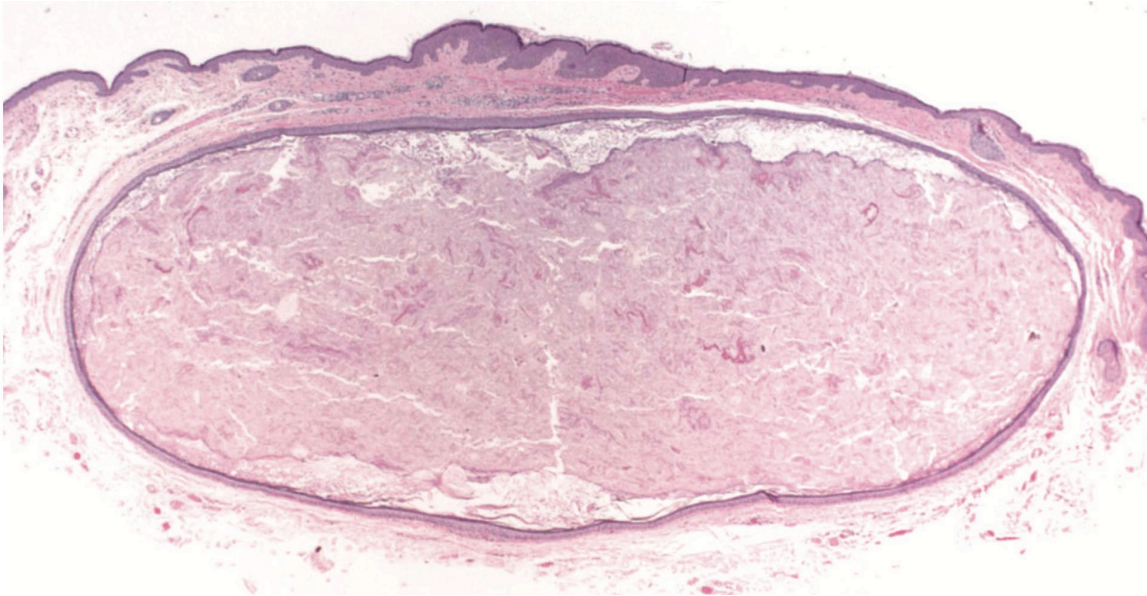
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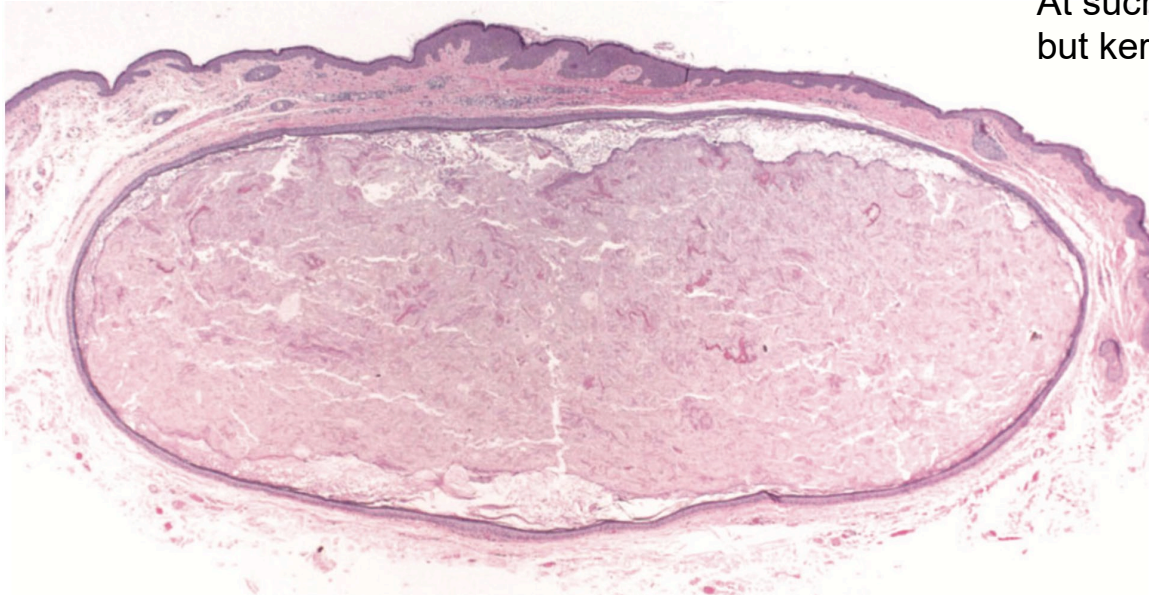
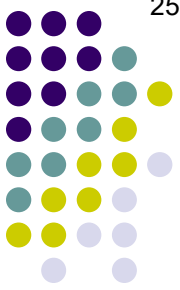
Pathwatching



Skin, or conj?



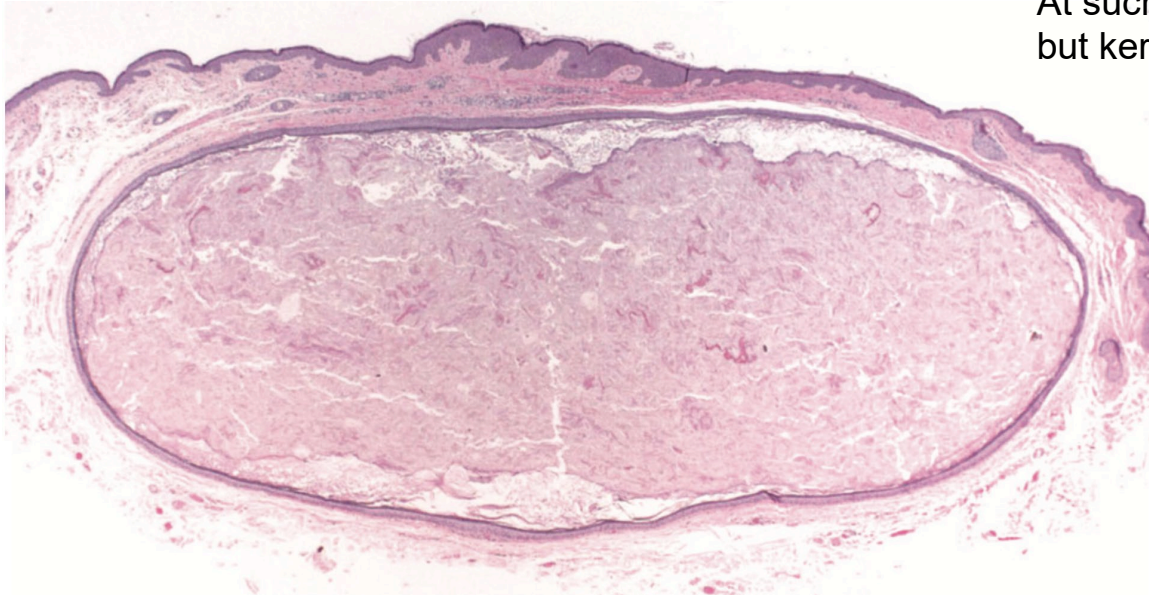
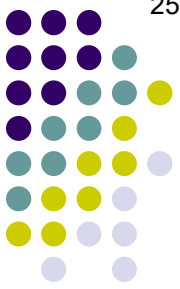
Pathwatching



Skin, or conj?

At such a low power it's tough to see,
but keratinization is v
isn't present

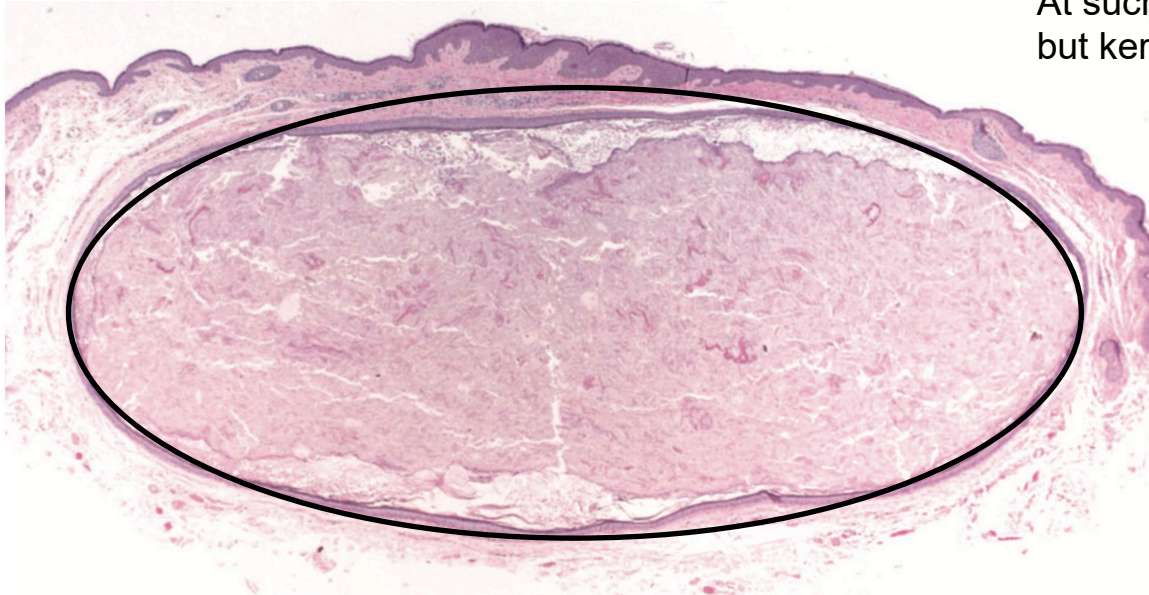
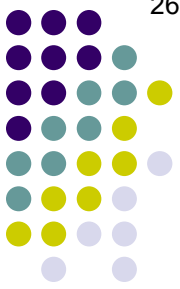
Pathwatching



Skin, or conj?

At such a low power it's tough to see,
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Pathwatching

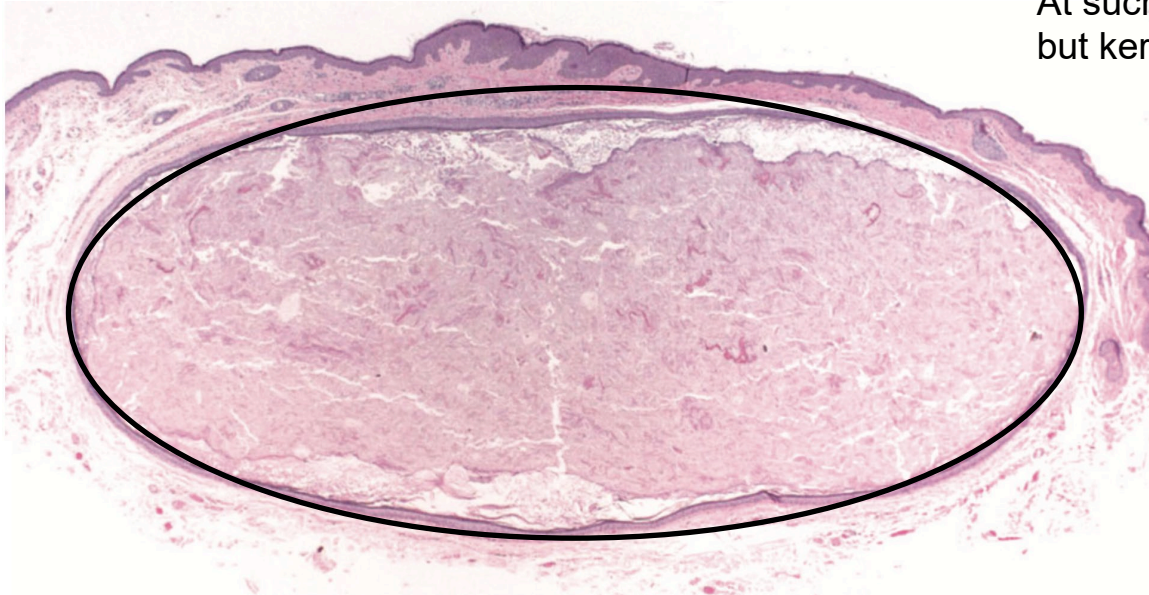
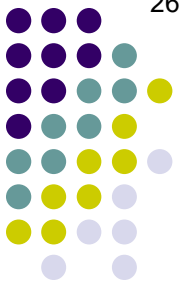


Skin, or conj?

At such a low power it's tough to see, but keratinization is present, so skin

So what's going on here? The most obvious finding is **this** large something-like structure.

Pathwatching

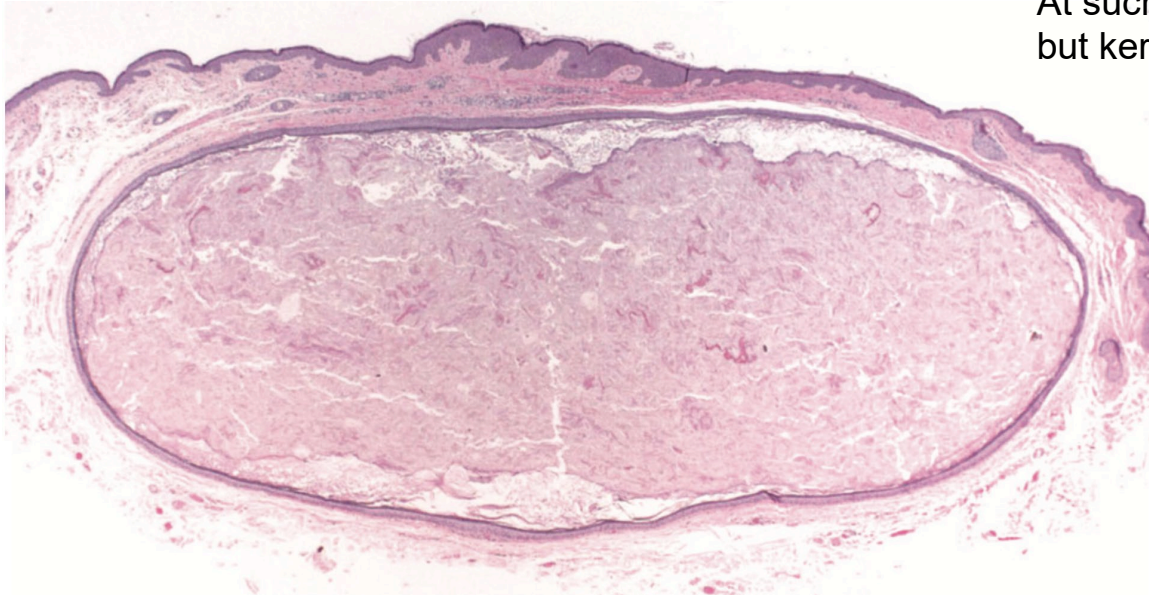
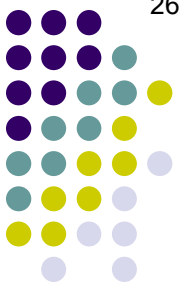


Skin, or conj?

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So what's going on here? The most obvious finding is **this** large cyst-like structure.

Pathwatching

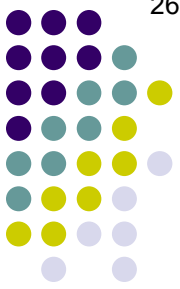


Skin, or conj?

At such a low power it's tough to see, but keratinization is present, so skin

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Pathwatching

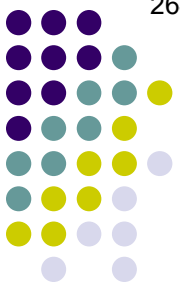


Skin, or conj?

At such a low power it's tough to see, but keratinization is present, **so skin**

So what's going on here? The most obvious finding is **this** large cyst-like structure. **In this regard, note:**
--The cyst is lined by something that looks an awful lot like

Pathwatching

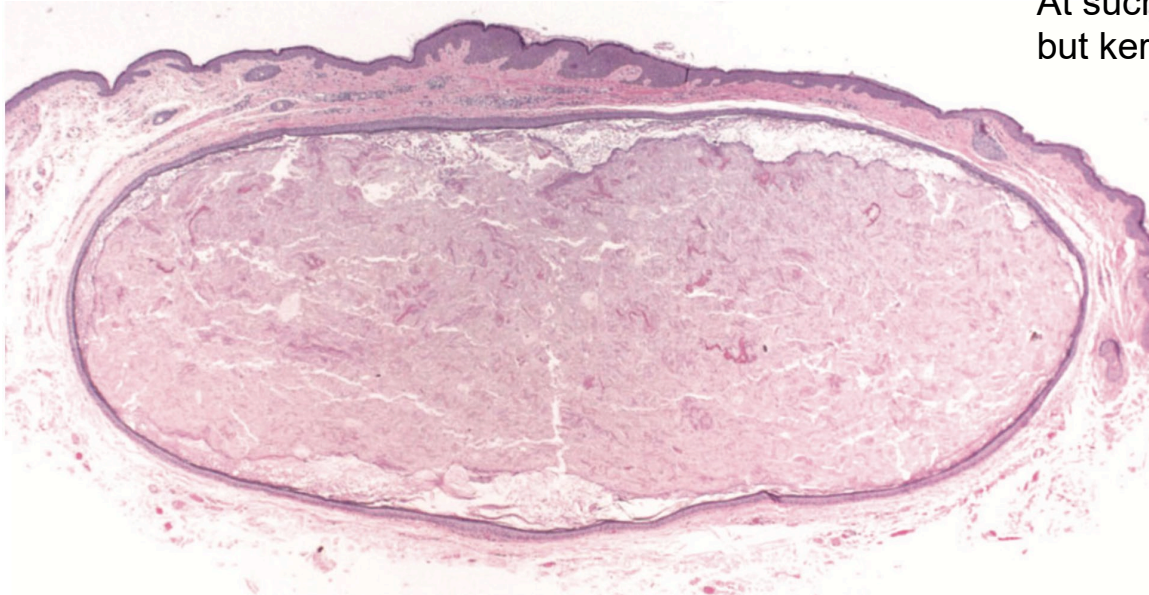
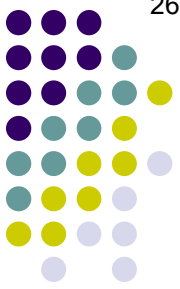


Skin, or conj?

At such a low power it's tough to see, but keratinization is present, so skin

So what's going on here? The most obvious finding is **this** large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium .

Pathwatching



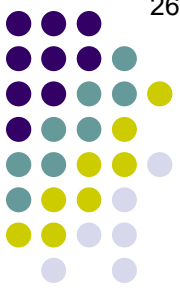
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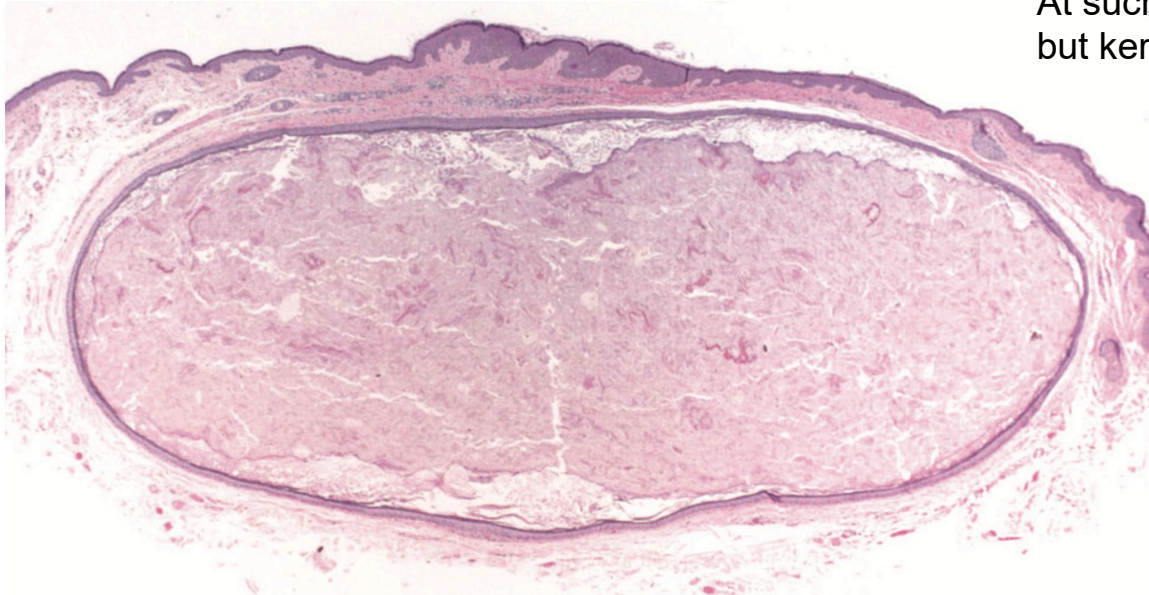
- The cyst is lined by something that looks an awful lot like epithelium .
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Pathwatching



Skin, or conj?

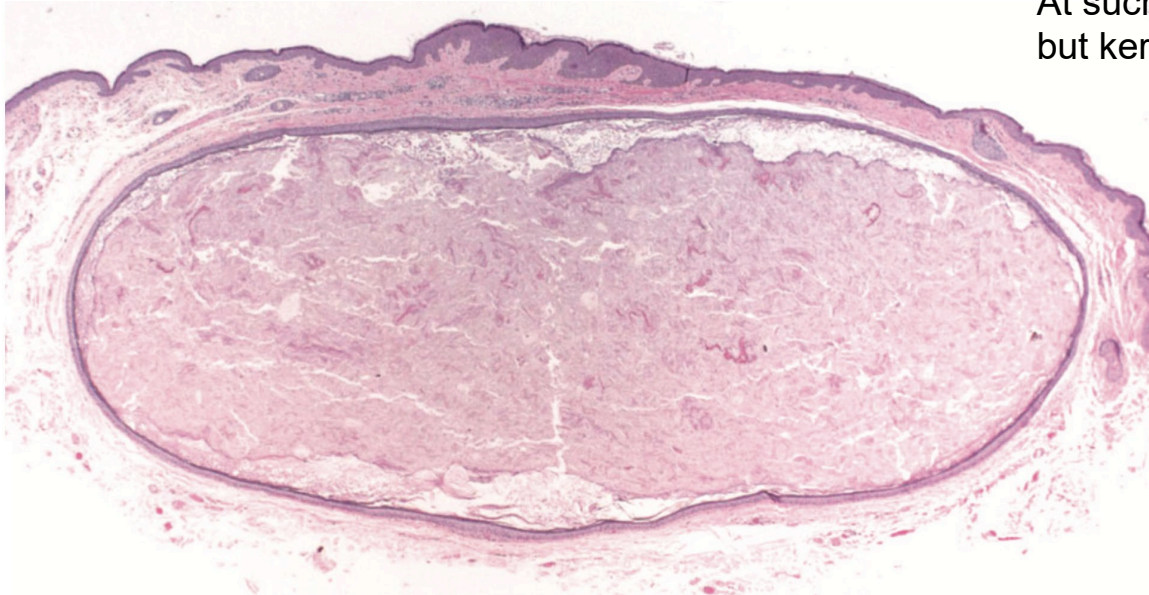
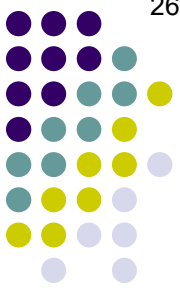
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Pathwatching



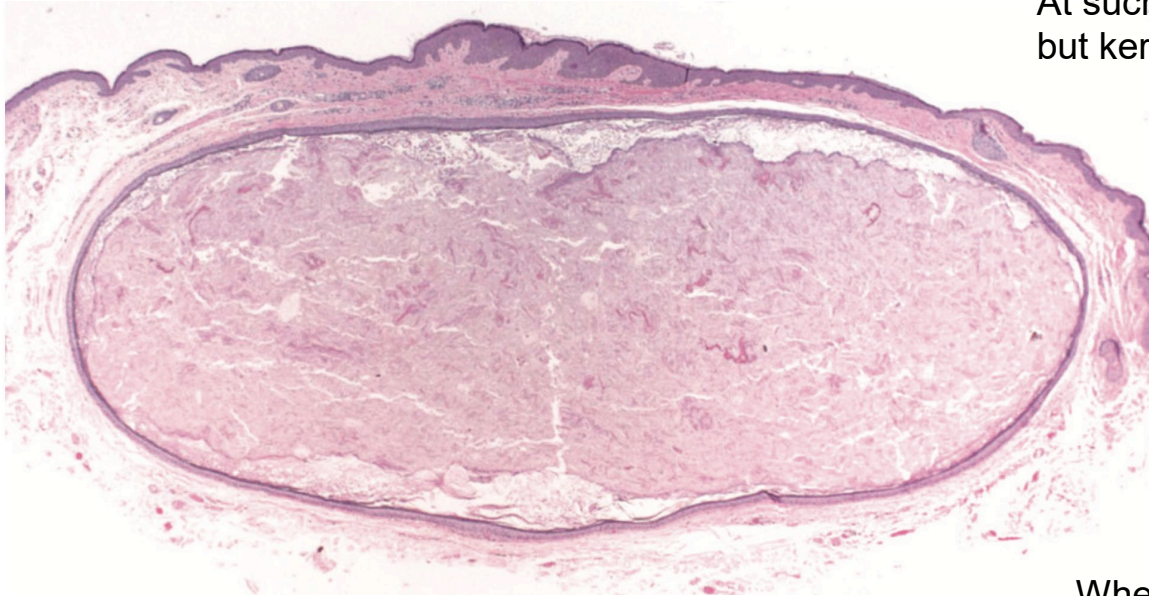
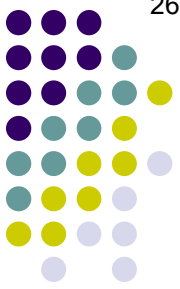
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Pathwatching



What's the diagnosis?

Skin, or conj?

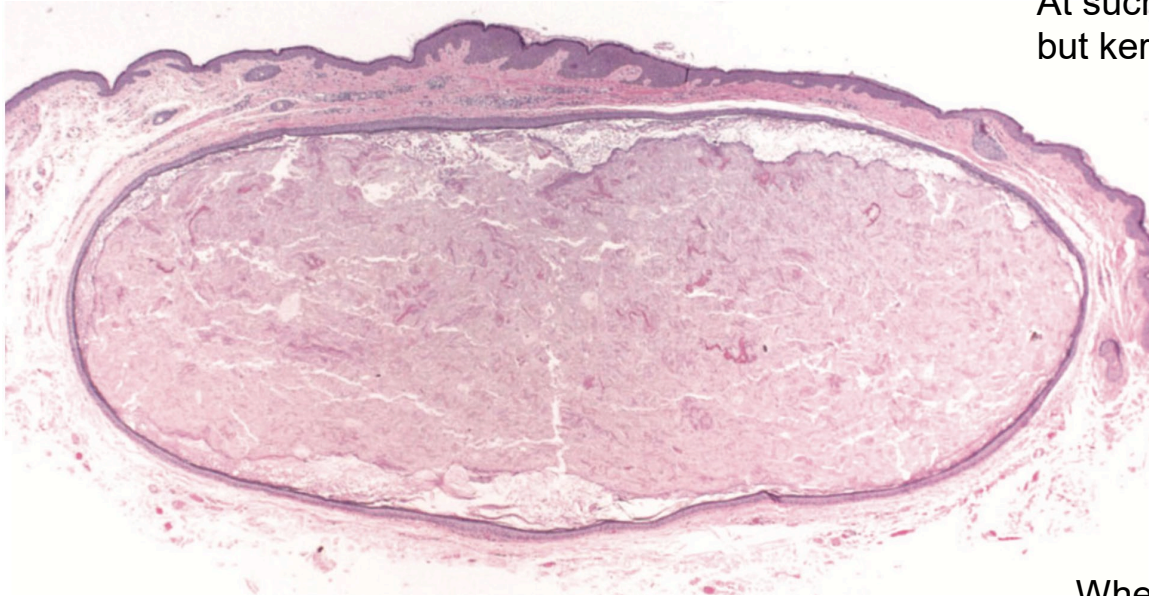
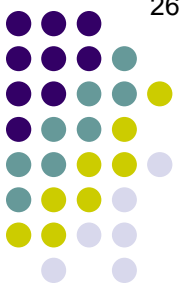
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Pathwatching



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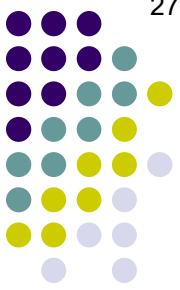
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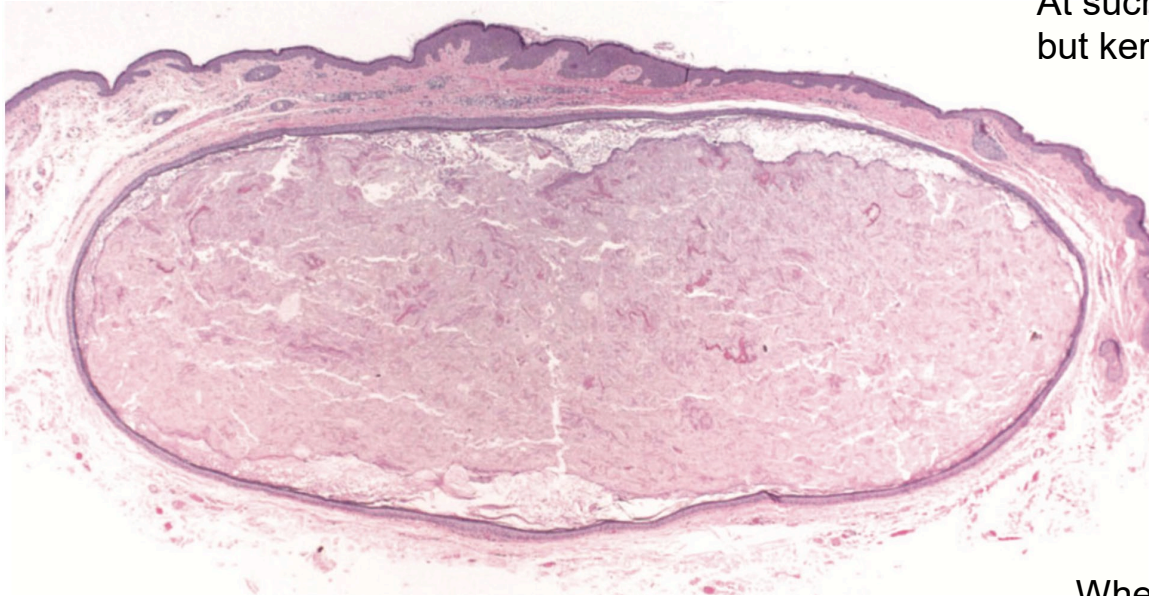
Epidermal inclusion cyst (aka cyst) is a common lid finding.

Pathwatching



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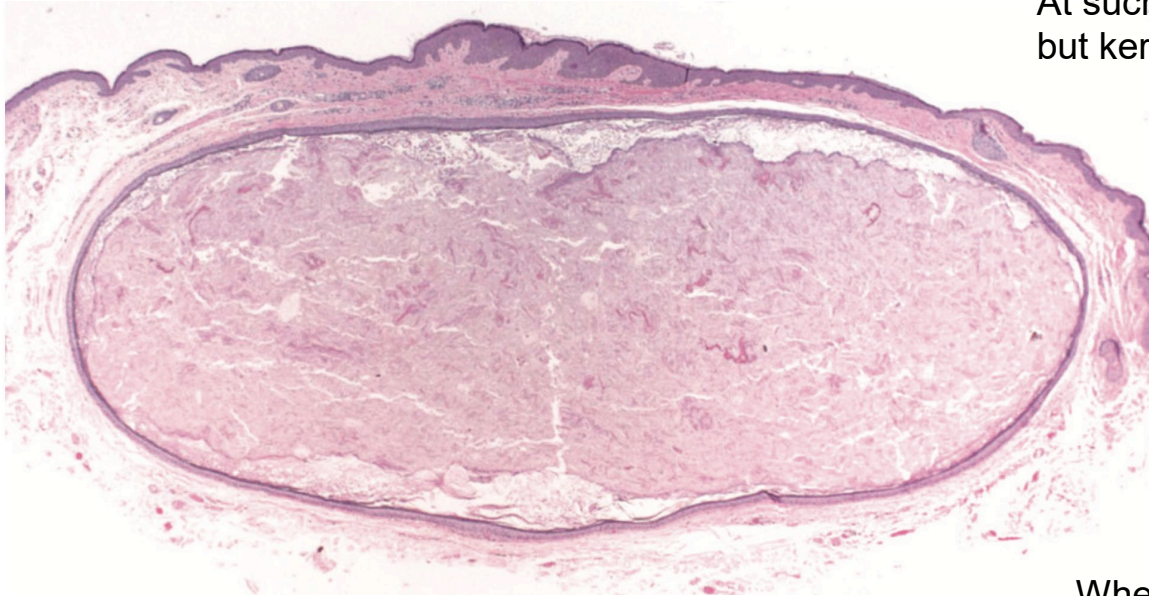
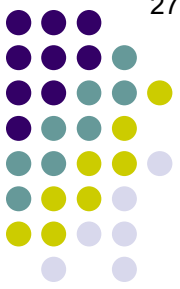
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Pathwatching



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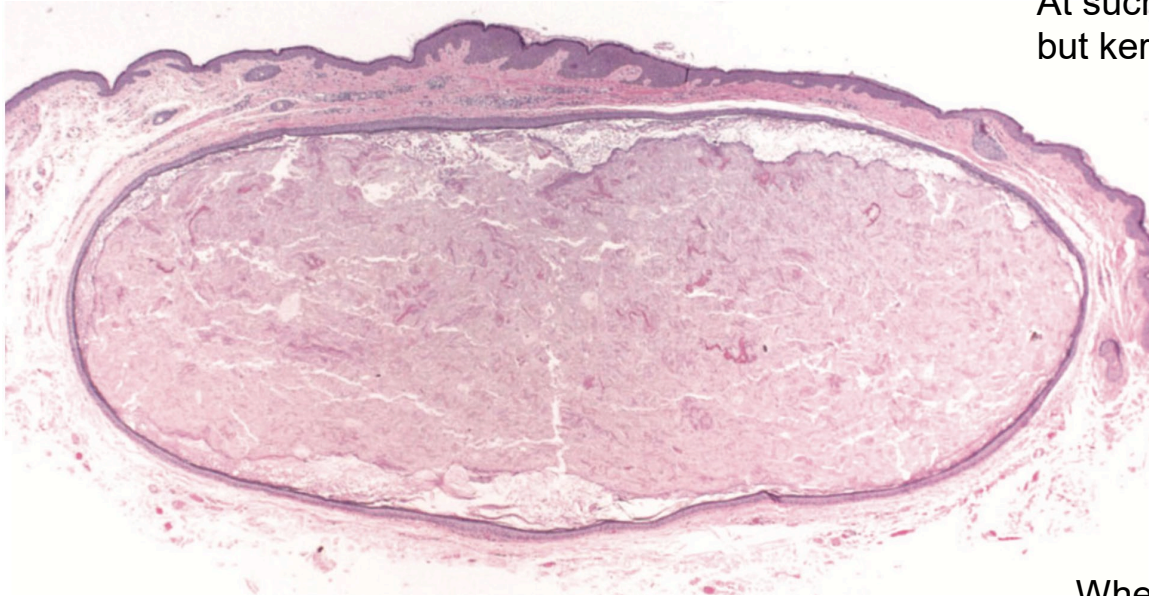
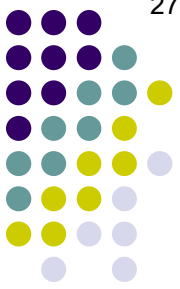
layering

shape

action

epithelium.

Pathwatching



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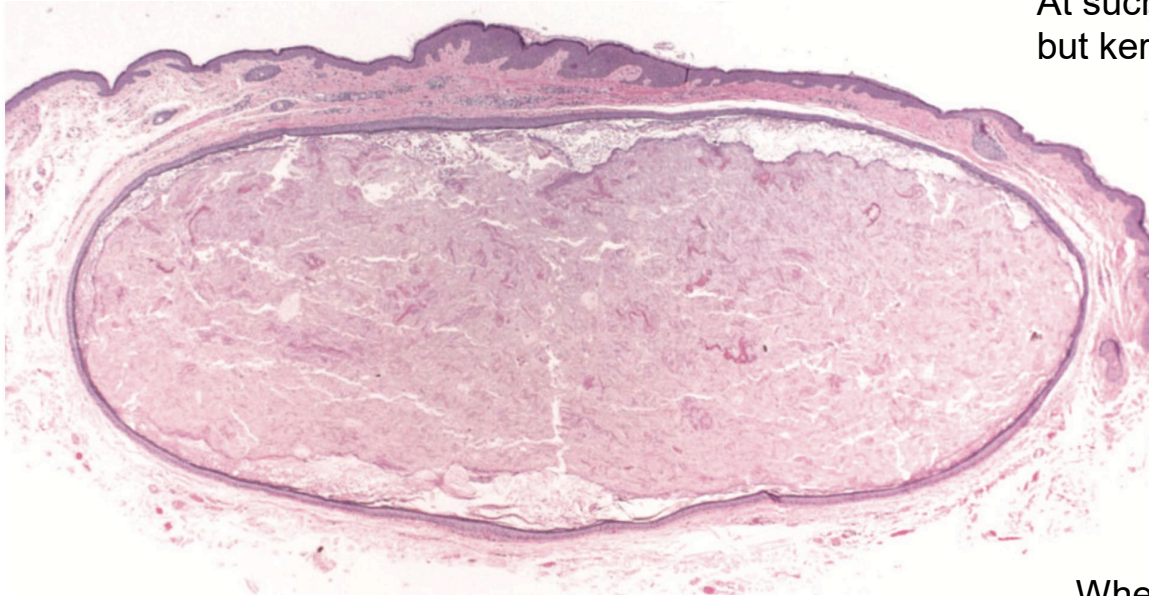
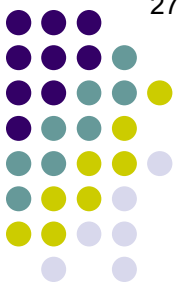
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Pathwatching



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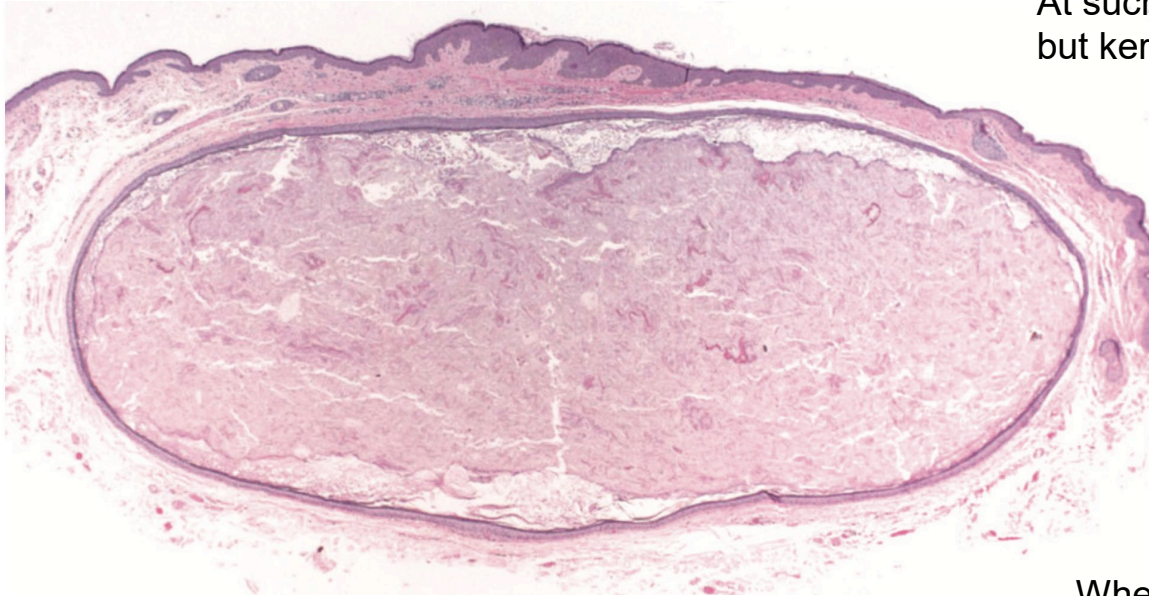
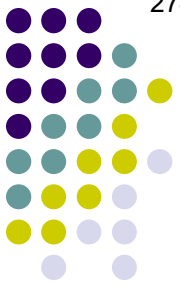
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Pathwatching



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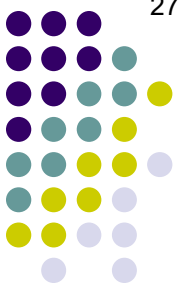
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Pathwatching

Skin, or conj?

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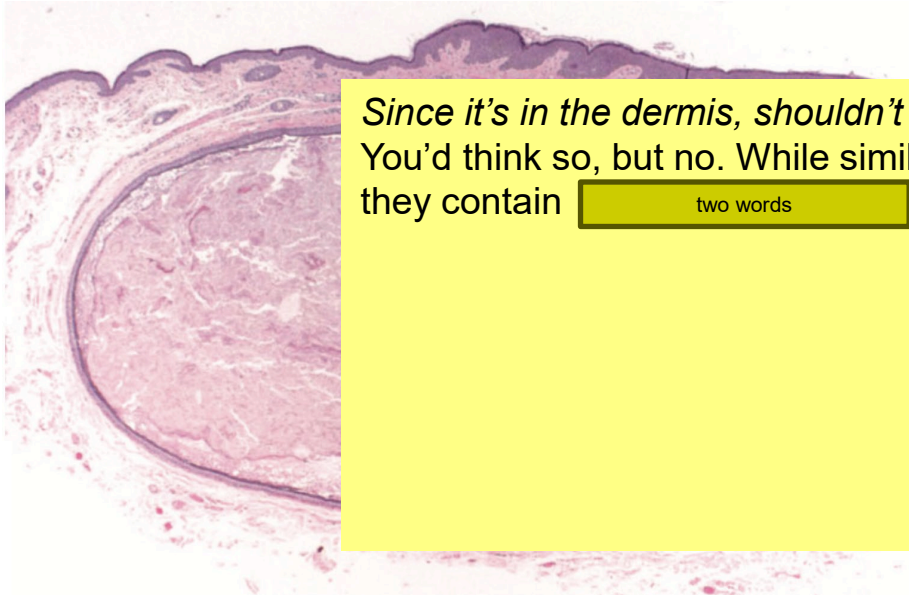
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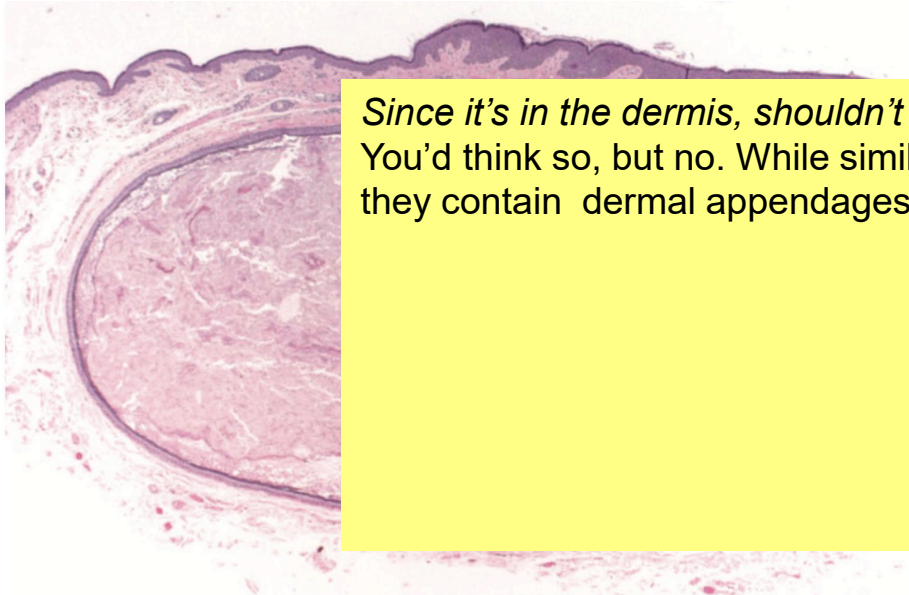
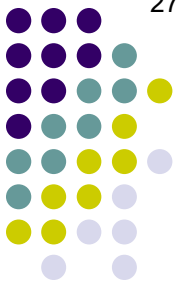
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Pathwatching



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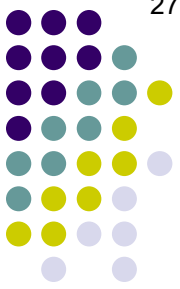
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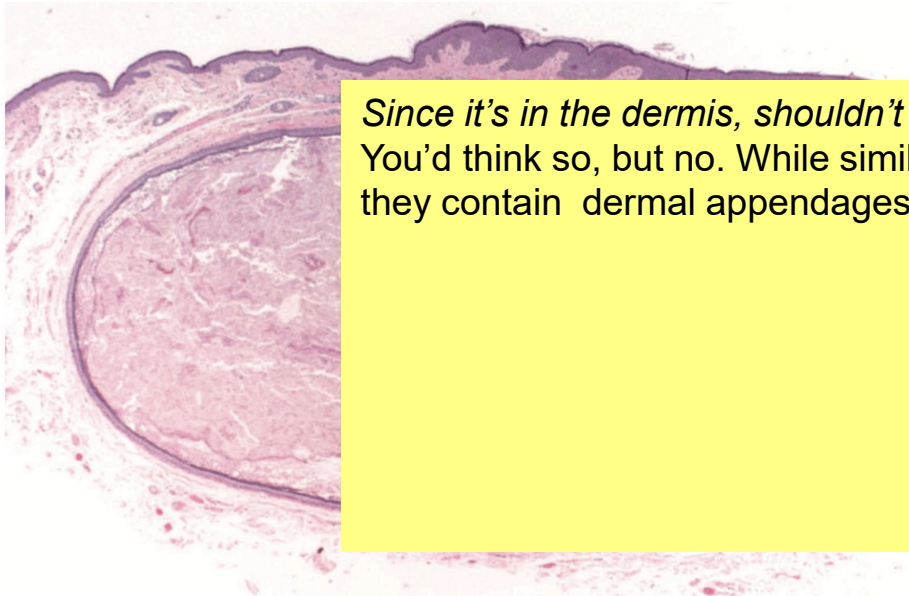
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Pathwatching



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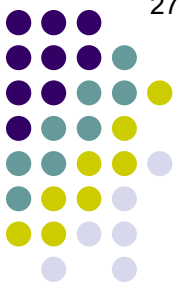
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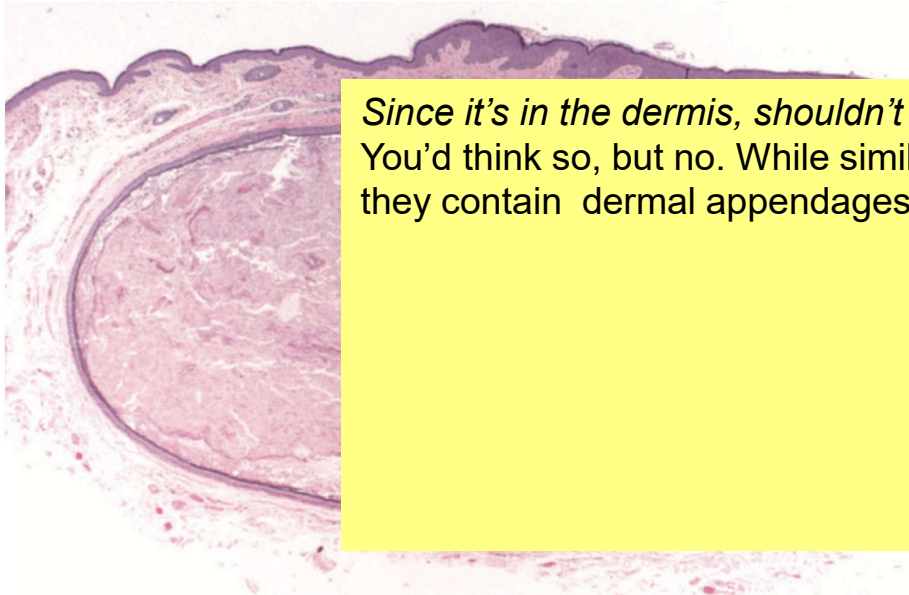
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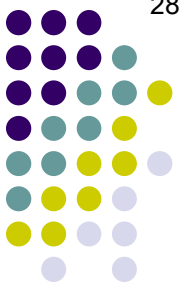
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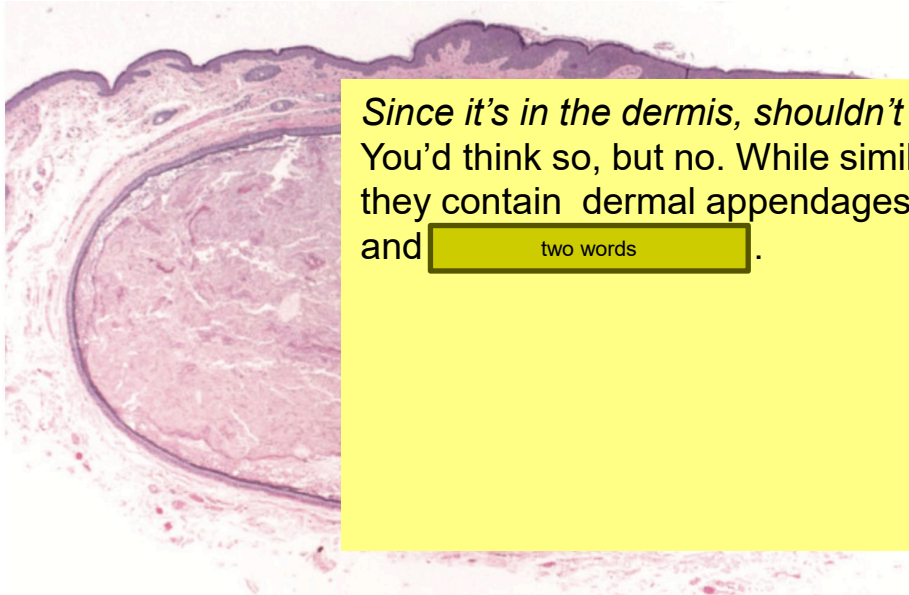
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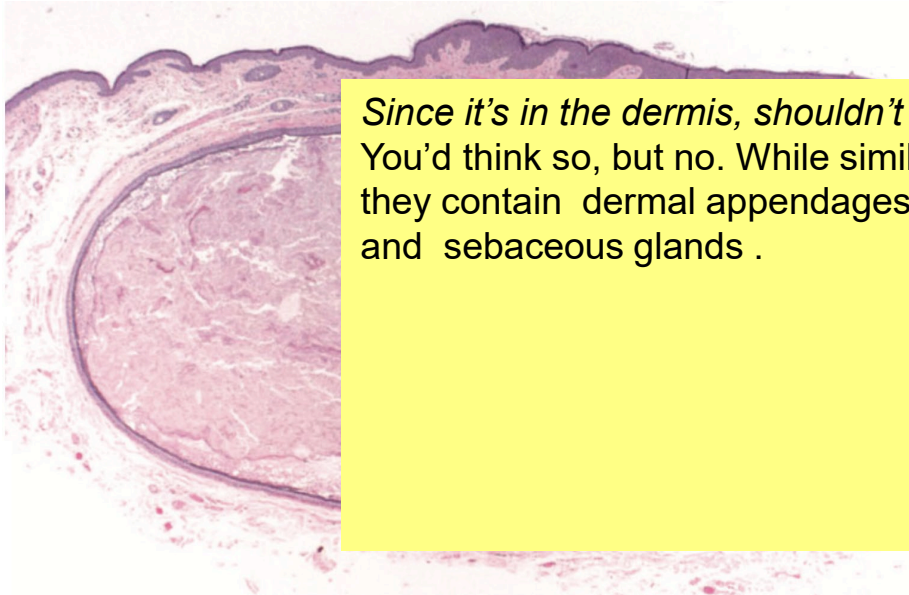
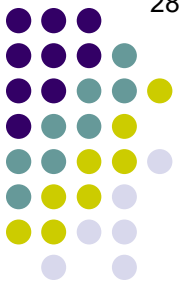
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Pathwatching



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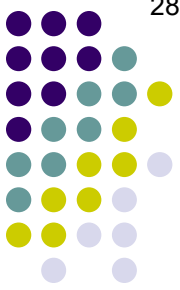
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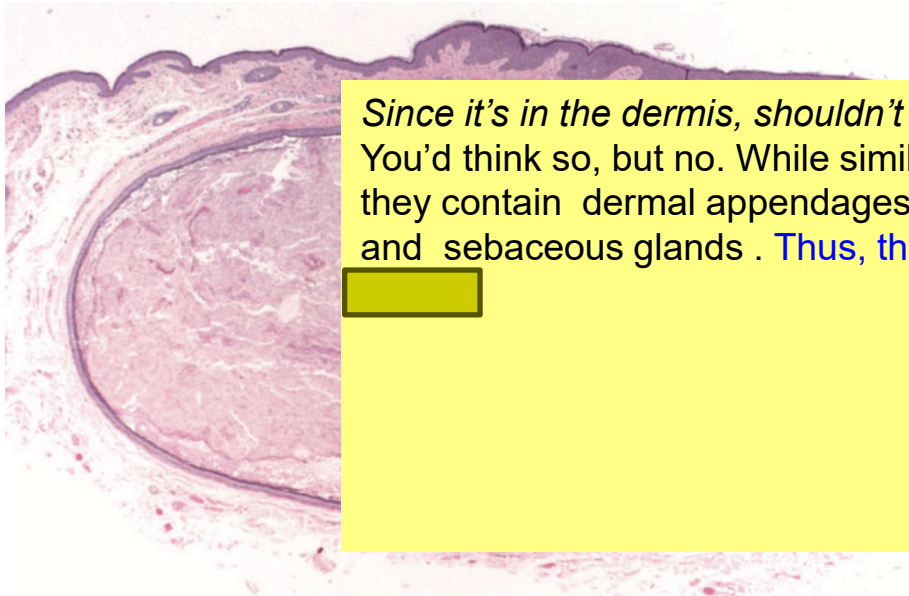


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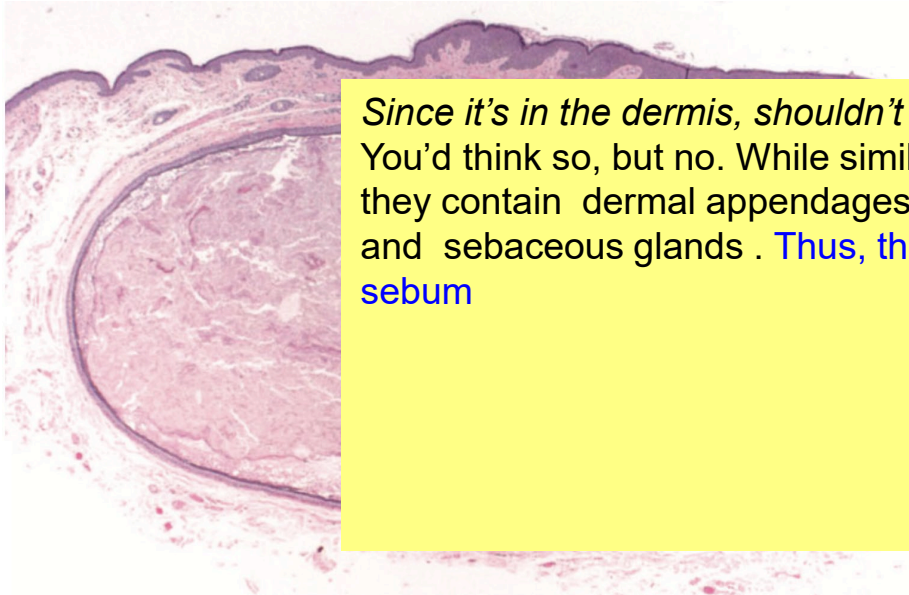
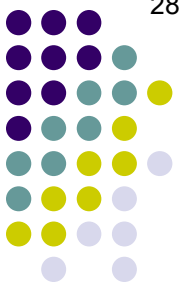
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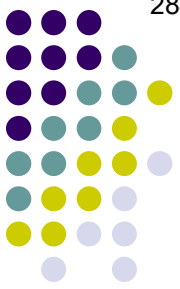
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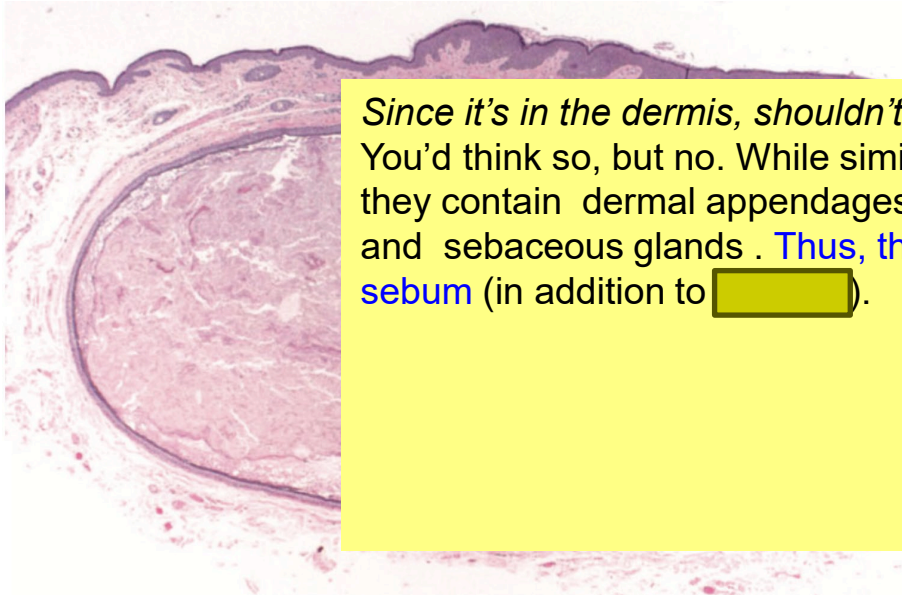
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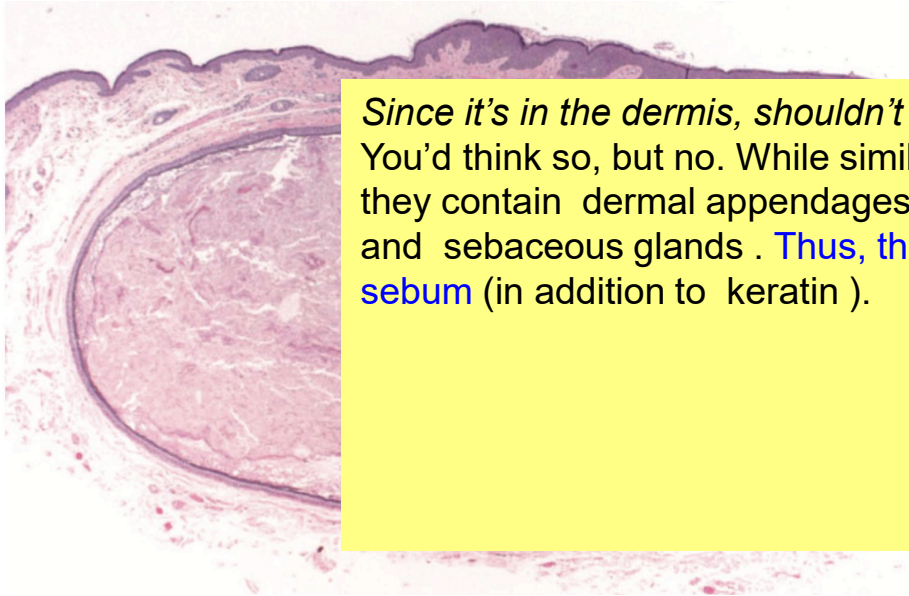


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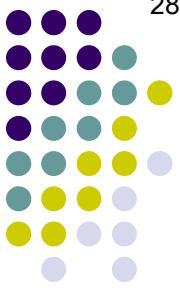
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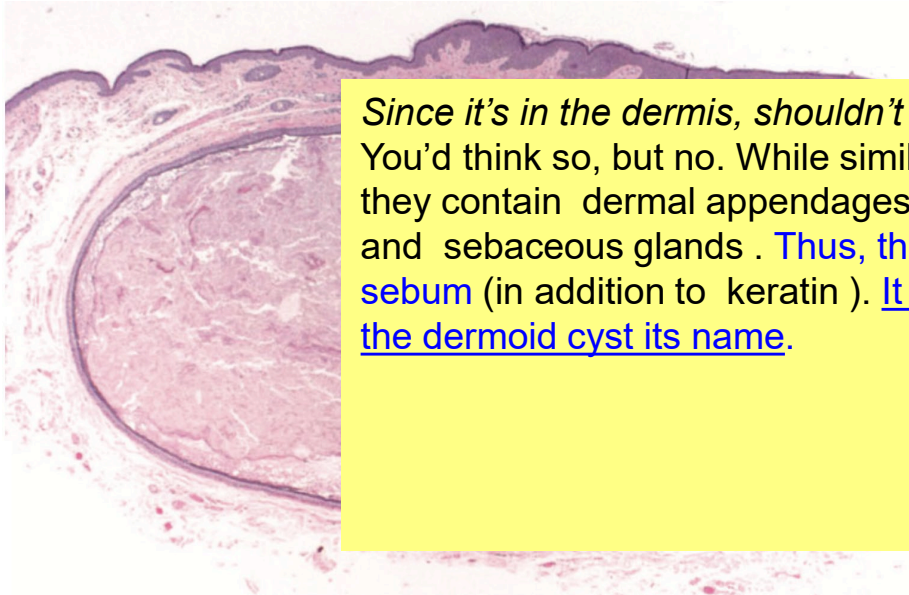
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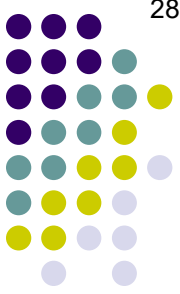
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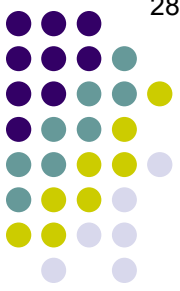
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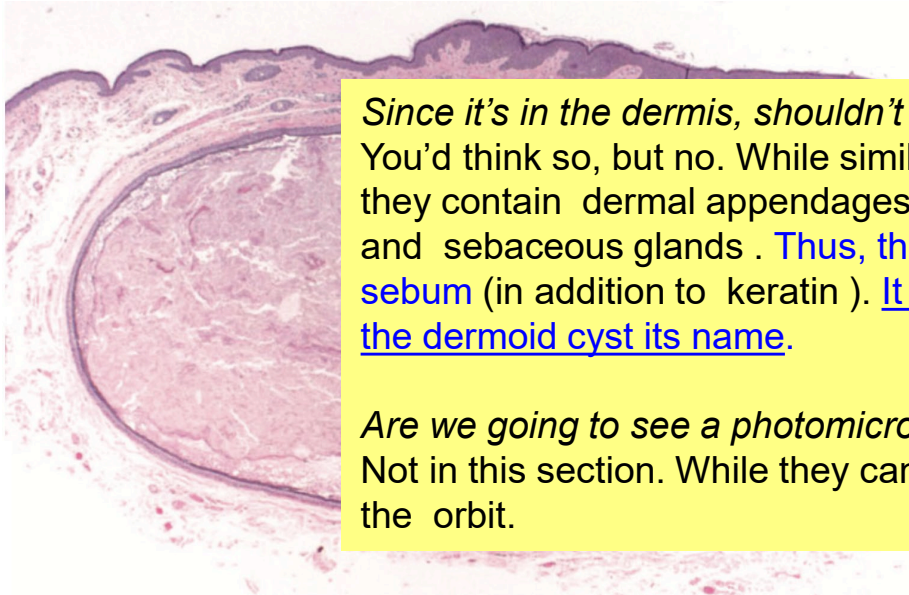
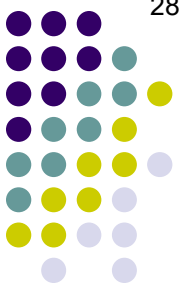
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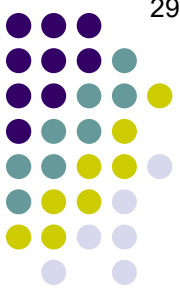
You'd think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (*aka **adnexal structures***) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain hair and sebum (in addition to keratin). It is the presence of dermal appendages that give the dermoid cyst its name.

Are we going to see a photomicrograph of a dermoid cyst?

Not in this section. While they can occur in the lids, they are much more common in the orbit.

When you encounter a **cyst in the dermis** lined with epi and containing an amorphous material, one dx should come to mind:

Epidermal inclusion cyst (*aka **epidermoid** cyst*) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)



Pathwatching

Skin, or conj?

At such a low power it's tough to see, but keratinization is present, so skin

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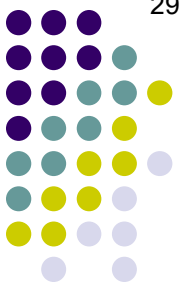
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When you encounter a **cyst in the dermis** lined with epi and containing an amorphous material, one dx should come to mind:

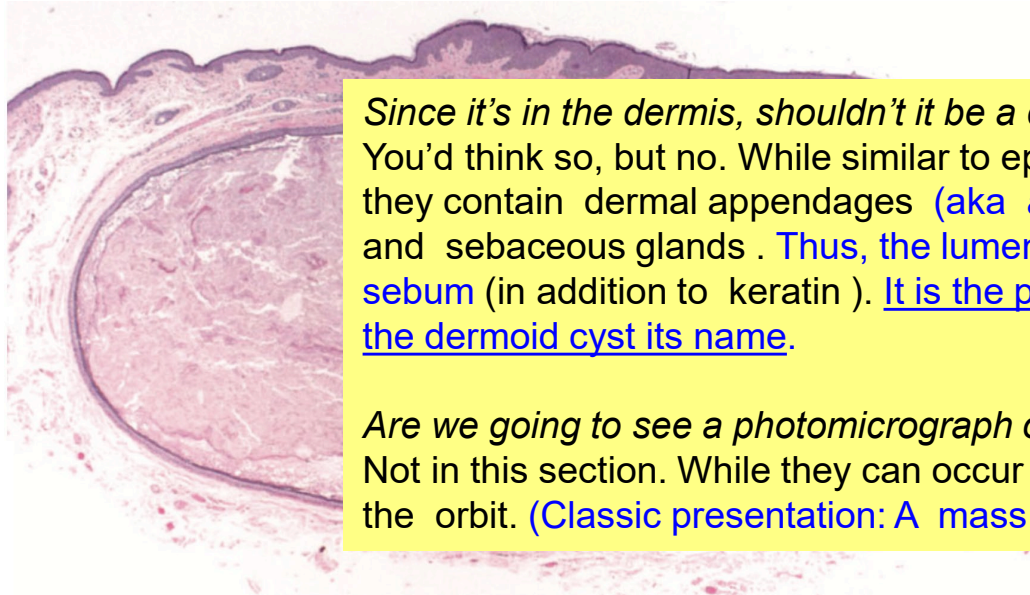
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Pathwatching



Skin, or conj?

At such a low power it's tough to see, but keratinization is present, so skin



*Since it's in the dermis, shouldn't it be a **dermal cyst**?*

You'd think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka *adnexal structures*) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain hair and sebum (in addition to keratin). It is the presence of dermal appendages that give the dermoid cyst its name.

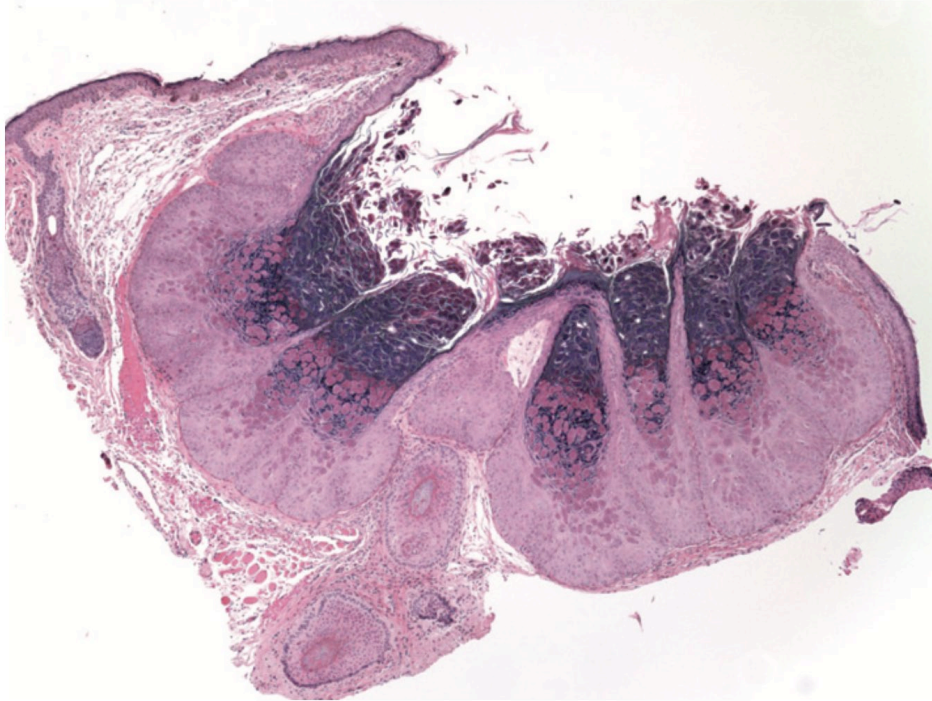
Are we going to see a photomicrograph of a dermoid cyst?

Not in this section. While they can occur in the lids, they are much more common in the orbit. (Classic presentation: A mass in the superotemporal orbit of a child.)

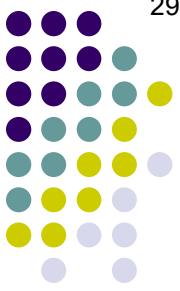
When you encounter a **cyst in the dermis** lined with epi and containing an amorphous material, one dx should come to mind:

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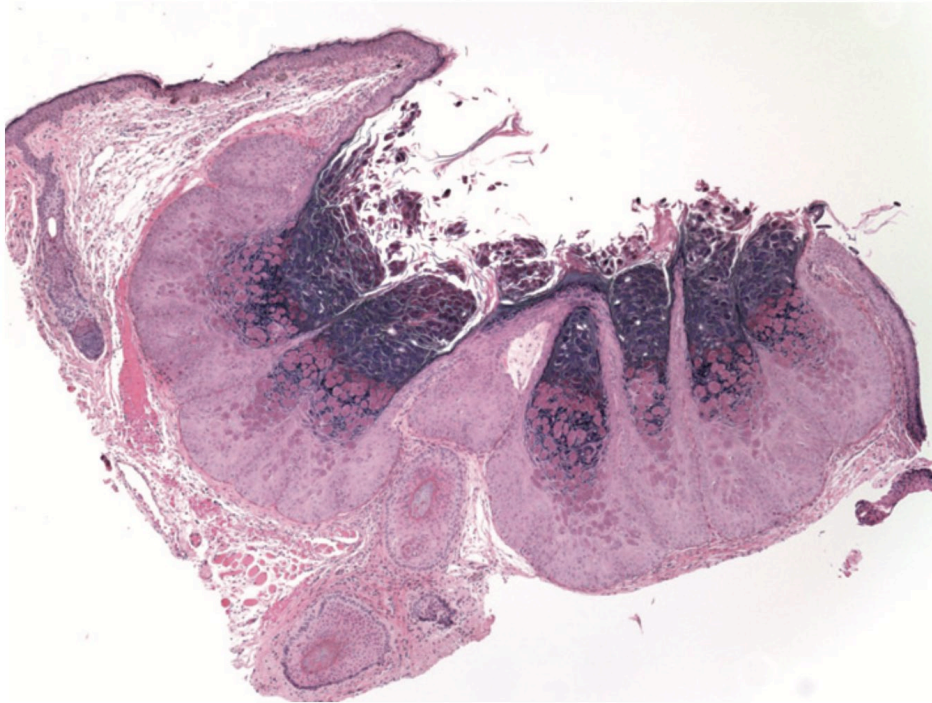
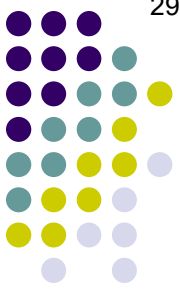
Pathwatching



Skin, or conj?

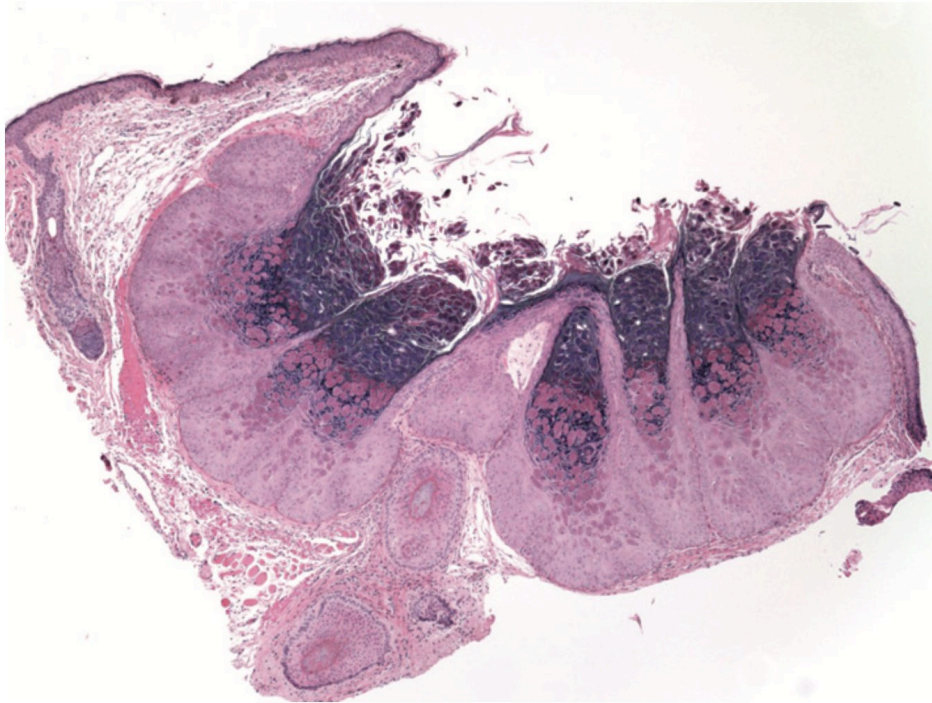
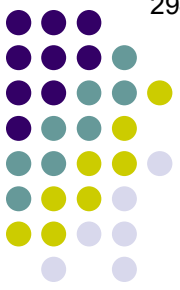


Pathwatching



Skin, or conj?
Again, low mag makes it a tough call.

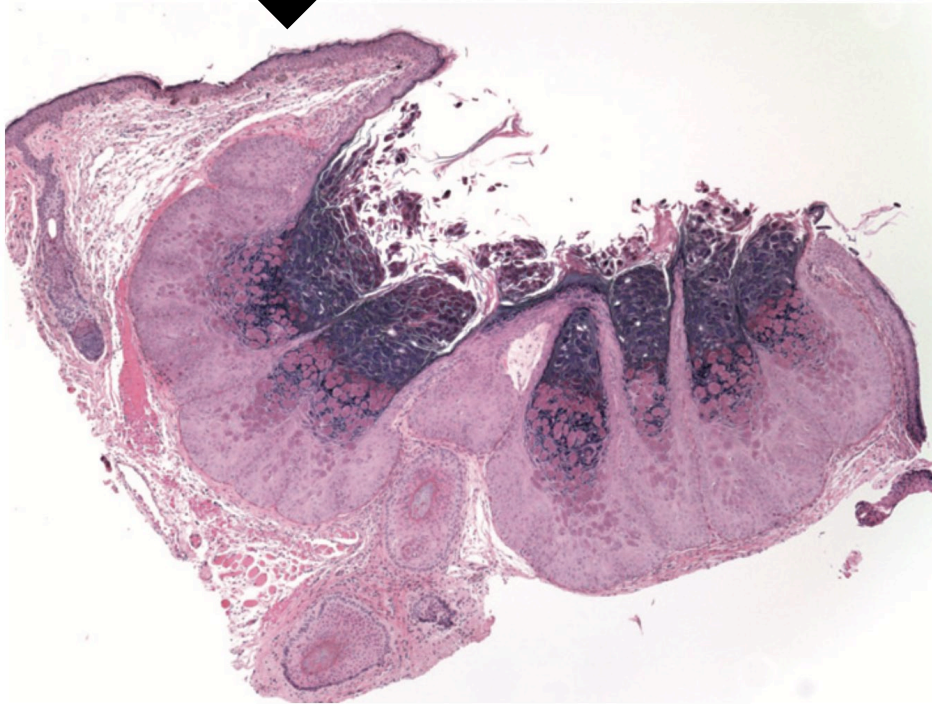
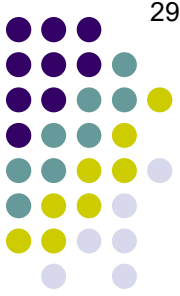
Pathwatching



Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is v
isn't present

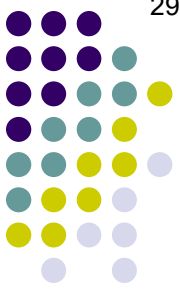
Pathwatching



Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

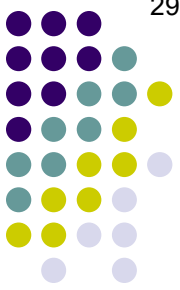
Pathwatching



Skin, or conj?

Again, low mag makes it a tough call. **That said, keratinization is present, so skin.**

So what are we to make of this? First, note the unusual shape of the lesion.



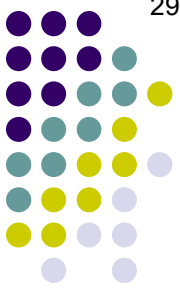
Pathwatching



Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is two-words.)



Pathwatching

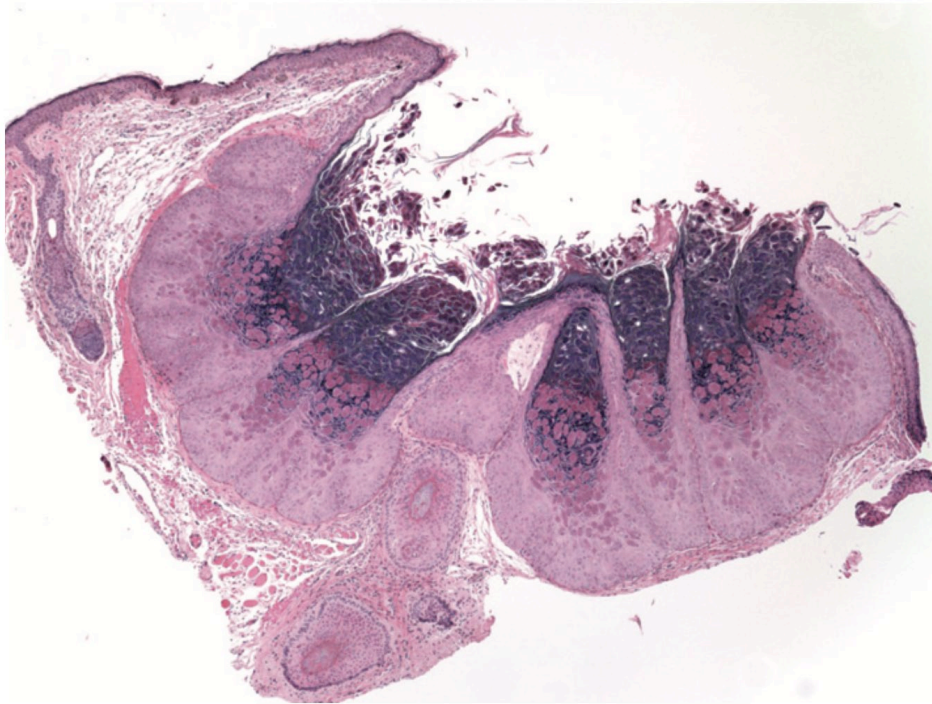
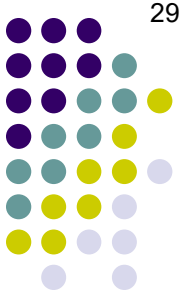


Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is 'cup-like'.)

Pathwatching

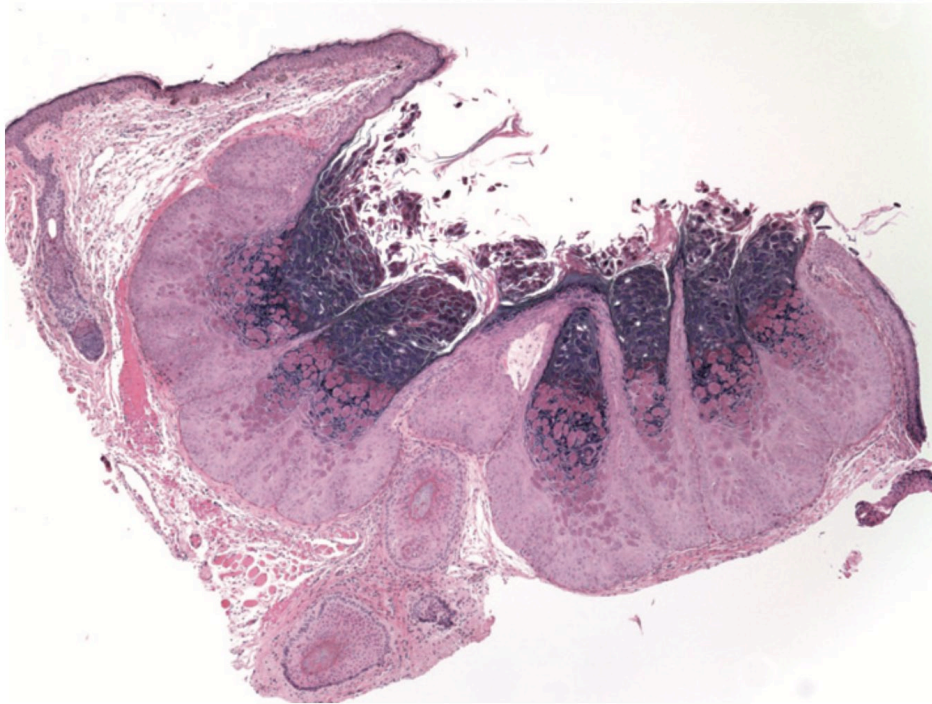
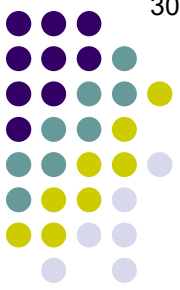


Skin, or conj?

Again, low mag makes it a tough call. **That said, keratinization is present, so skin.**

So what are we to make of this? First, note the unusual shape of the lesion. **(The term of art for its shape is 'cup-like' .)** The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material that seems friable.

Pathwatching



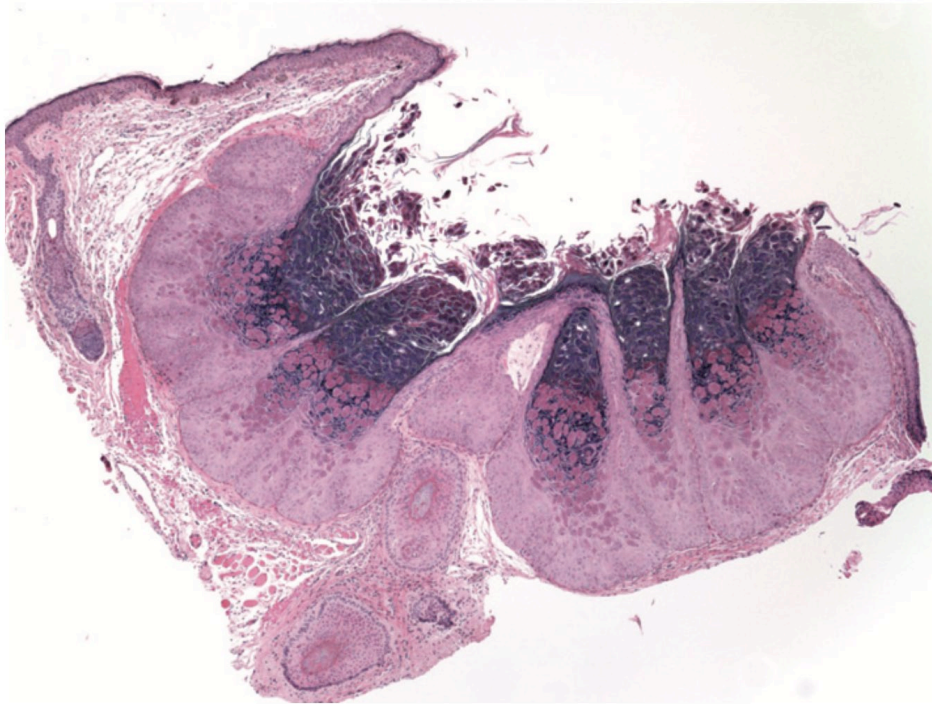
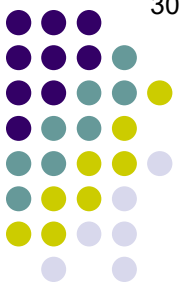
What's the diagnosis?

Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is 'cup-like'.) The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material that seems friable. A lid lesion with a gradeau-filled 'cup' should bring to mind one lesion in particular:

Pathwatching



Skin, or conj?

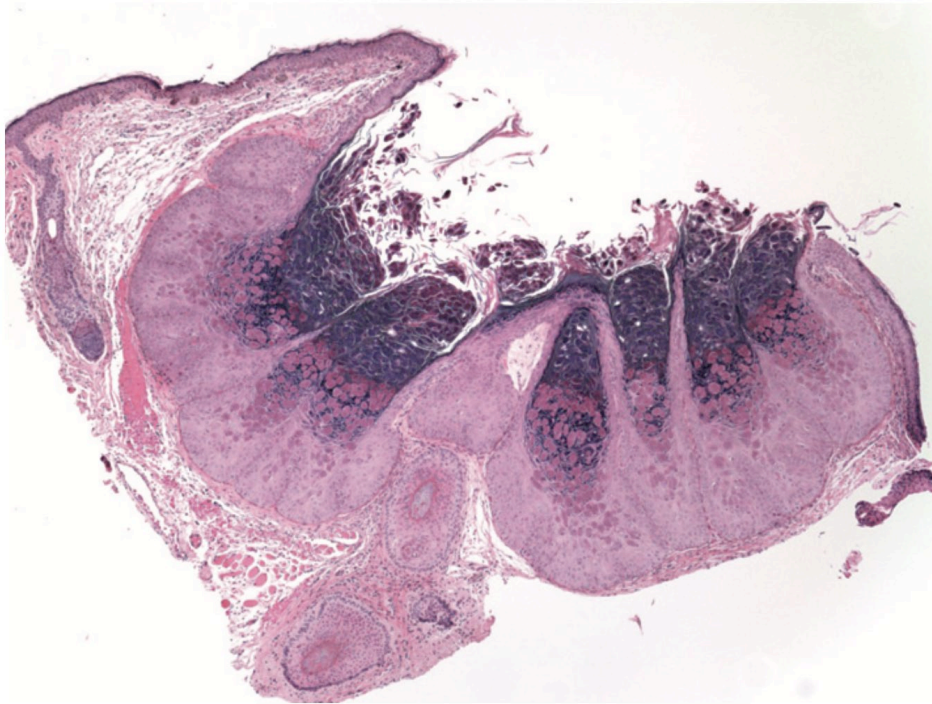
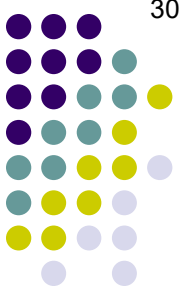
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is 'cup-like'.) The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material that seems friable. A lid lesion with a gradeau-filled 'cup' should bring to mind one lesion in particular:

What's the diagnosis?

Molluscum contagiosum lesions arise from a type of bug infection.

Pathwatching



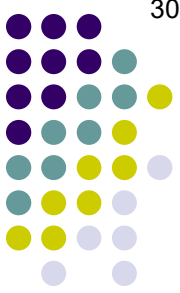
Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

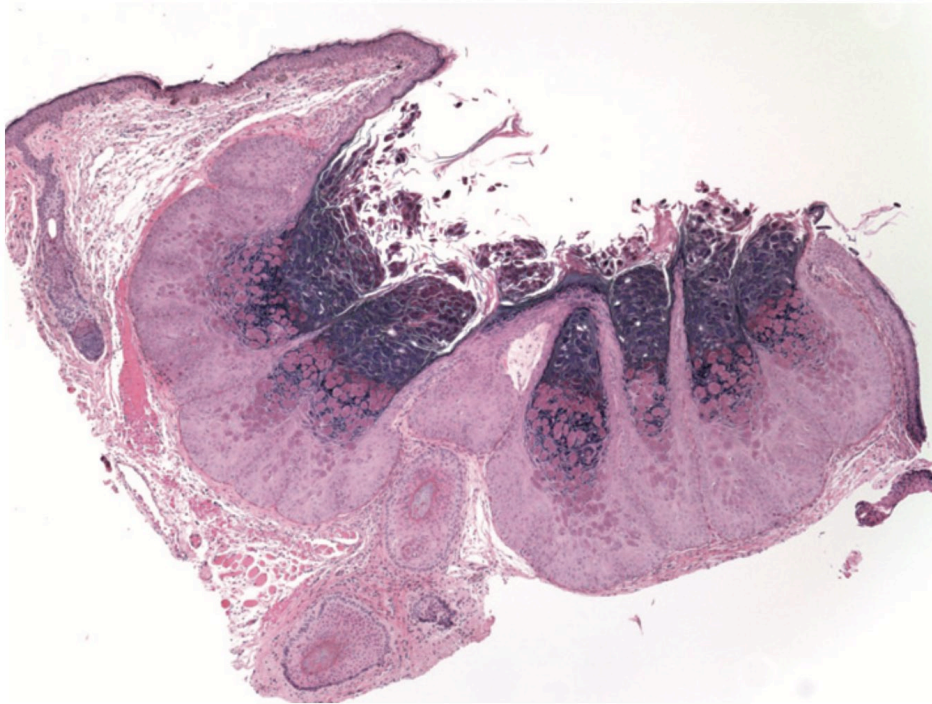
So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is 'cup-like'.) The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material that seems friable. A lid lesion with a gradeau-filled 'cup' should bring to mind one lesion in particular:

What's the diagnosis?

Molluscum contagiosum lesions arise from a viral infection.



Pathwatching



Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is 'cup-like'.) The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material that seems friable. A lid lesion with a gradeau-filled 'cup' should bring to mind one lesion in particular:

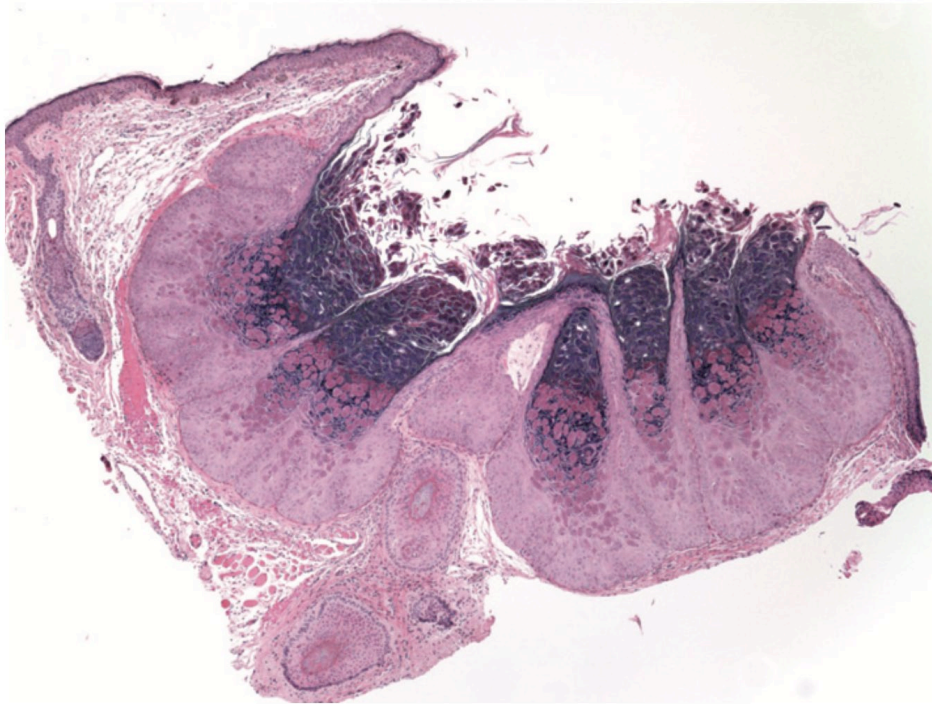
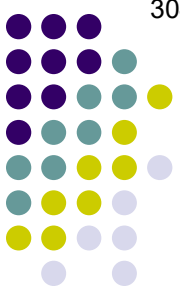
What's the diagnosis?

Molluscum contagiosum lesions arise from a viral infection. Clinically they are

NOT
'cup'

—shaped nodules

Pathwatching



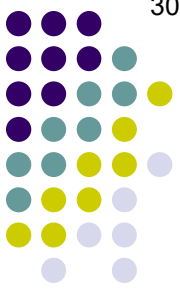
Skin, or conj?

Again, low mag makes it a tough call. That said, keratinization is present, so skin.

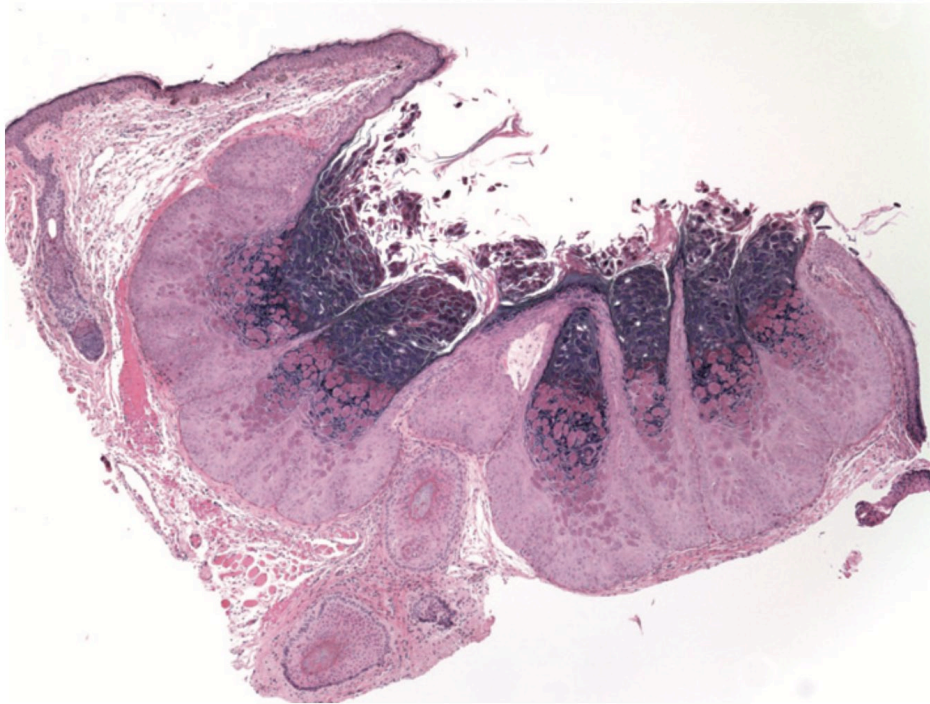
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What's the diagnosis?

Molluscum contagiosum lesions arise from a viral infection. Clinically they are dome-shaped nodules



Pathwatching



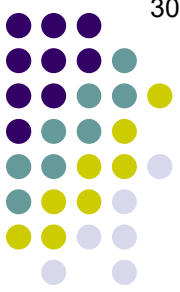
Skin, or conj?

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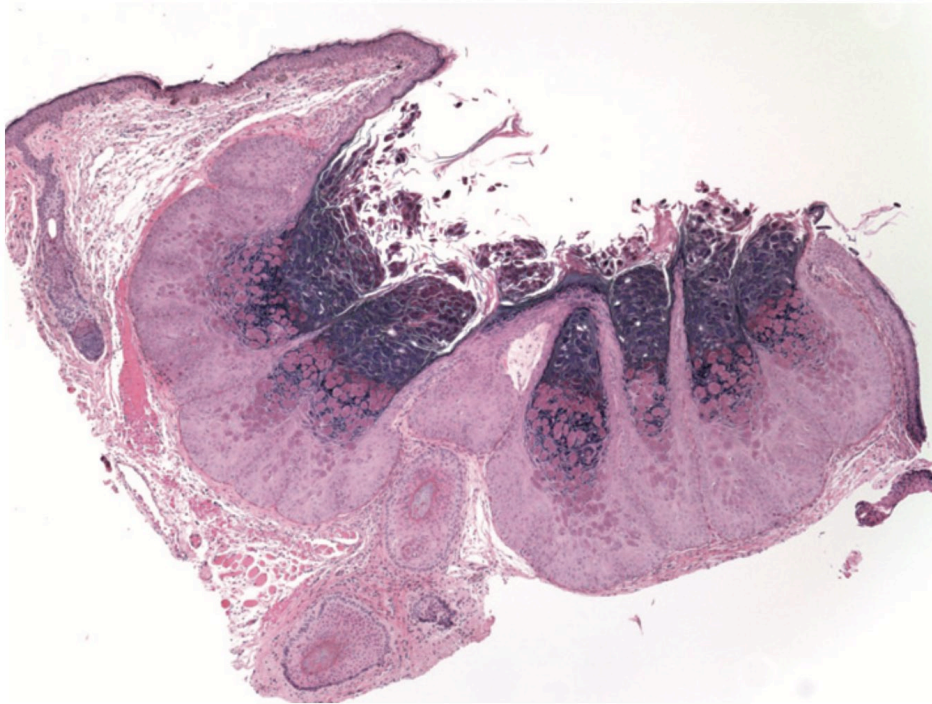
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What's the diagnosis?

Molluscum contagiosum lesions arise from a viral infection. Clinically they are dome-shaped nodules with a central term of art (the 'cup' component of the lesion).



Pathwatching



Skin, or conj?

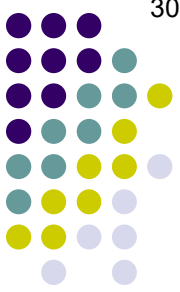
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is 'cup-like'.) The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material. This is characteristic of molluscum contagiosum, a viral infection of the skin. The lesion is dome-shaped with a central umbilication (the 'cup' component of the lesion).

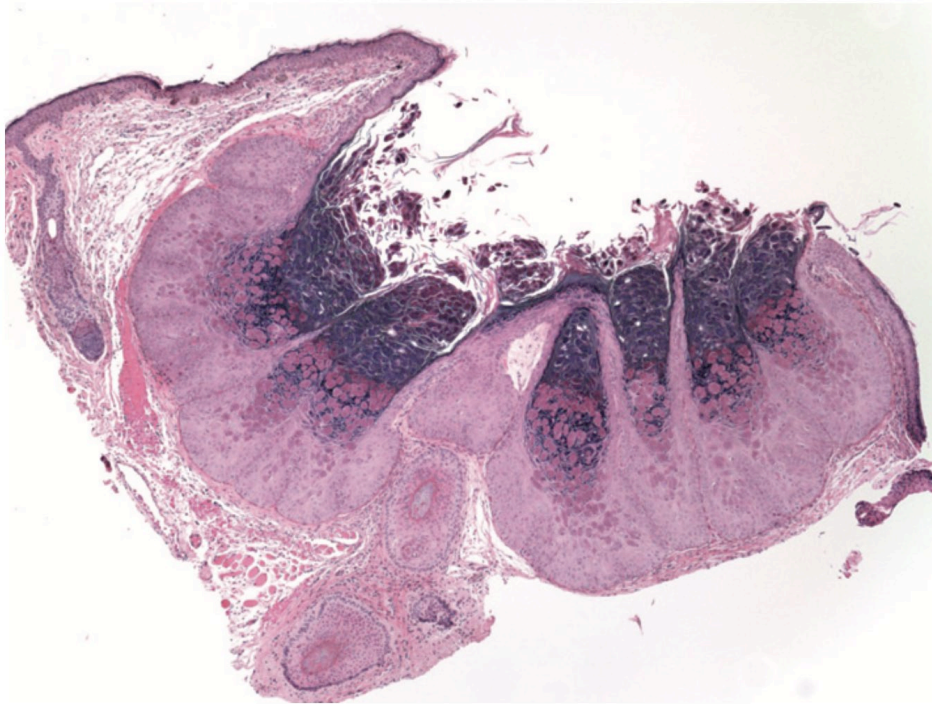


What's the diagnosis?

Molluscum contagiosum lesions arise from a viral infection. Clinically they are dome-shaped nodules with a central umbilication (the 'cup' component of the lesion).



Pathwatching



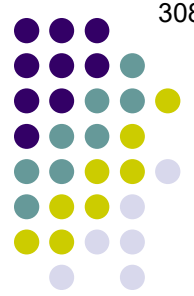
What's the diagnosis?

Molluscum contagiosum lesions arise from a viral infection. Clinically they are dome-shaped nodules with a central umbilication (the 'cup' component of the lesion). Necrotic cells are shed, filling the cup with amorphous junk.

Skin, or conj?

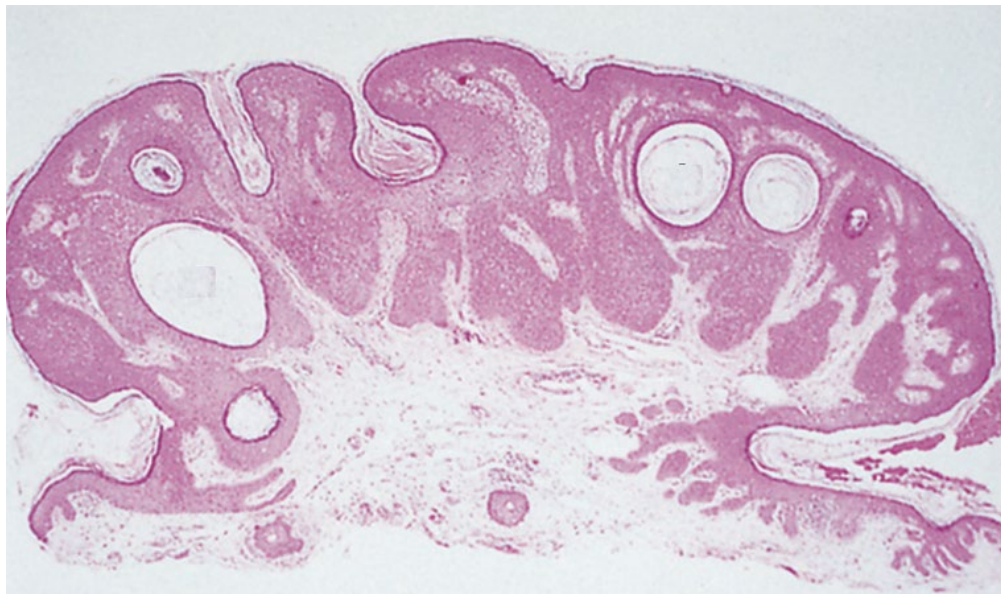
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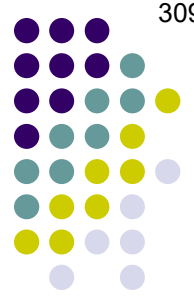
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Pathwatching

Skin or conj?





Pathwatching

Skin or conj?
Skin



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:

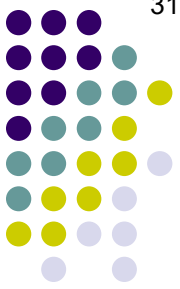
--?

--?

--?



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:

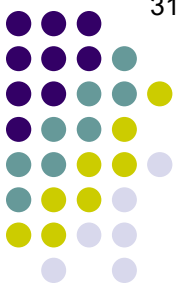
--The overall configuration is -shaped

--?

--?



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:

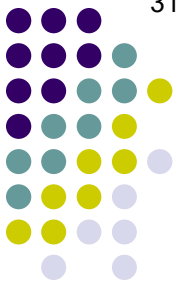
--The overall configuration is dome-shaped

--?

--?



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:

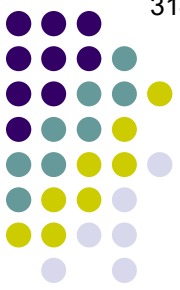
--The overall configuration is dome-shaped

--The epi is , and looks benign vs malignant

--?



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:

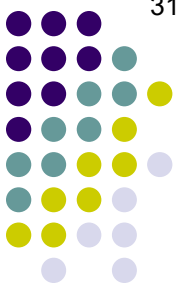
--The overall configuration is dome-shaped

--The epi is hyperplastic, and looks benign

--?



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:

--The overall configuration is dome-shaped

--The epi is hyperplastic, **and looks benign**

--The lesion has a number of cysts containing

distribution (two words)

collections of surface



Pathwatching



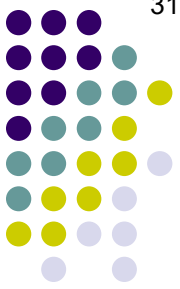
Skin or conj?

Skin

What are we supposed to notice? A few things:
--The overall configuration is dome-shaped
--The epi is hyperplastic, **and looks benign**
--The lesion has a number of cysts containing concentrically laminated collections of surface keratin



Pathwatching



Skin or conj?

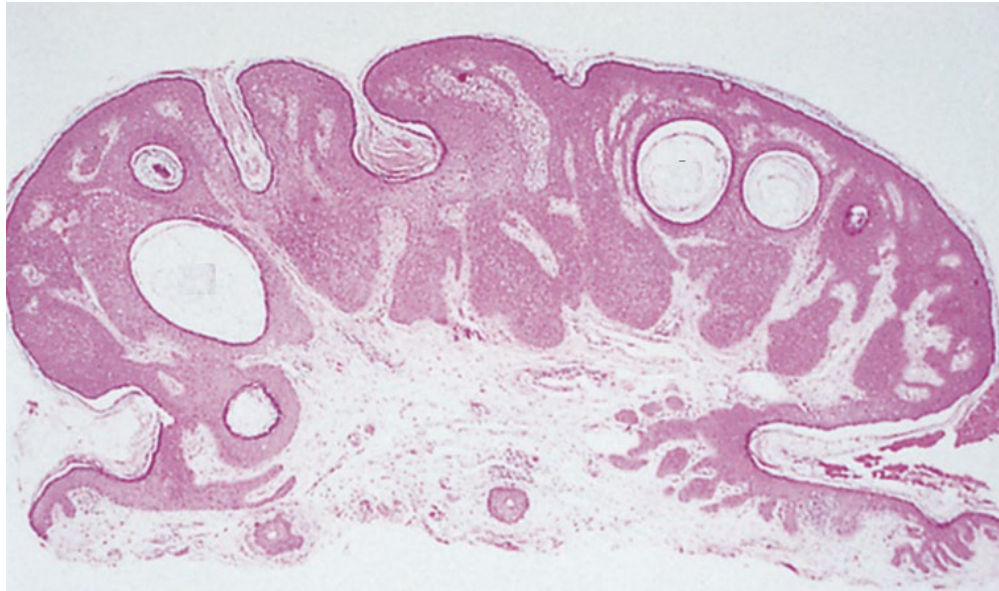
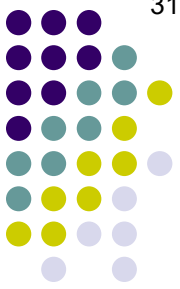
Skin

What are we supposed to notice? A few things:

- The overall configuration is dome-shaped
- The epi is hyperplastic, and looks benign
- The lesion has a number of cysts containing concentrically laminated collections of surface keratin

Here is a close-up wherein the concentric lamination is easier to appreciate (both *asterisk* and *arrows*)

Pathwatching



What's the diagnosis?

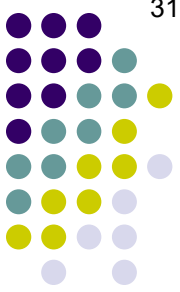
Skin or conj?

Skin

What are we supposed to notice? A few things:
 --The overall configuration is dome-shaped
 --The epi is hyperplastic, **and looks benign**
 --The lesion has a number of cysts containing concentrically laminated collections of surface keratin

Here is a close-up wherein the concentric lamination is easier to appreciate (both *asterisk* and *arrows*)

If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:



Pathwatching

Skin or conj?

Skin

What are we supposed to notice? A few things:
 --The overall configuration is dome-shaped
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 --The lesion has a number of cysts containing concentrically laminated collections of surface keratin

Here is a close-up wherein the concentric lamination is easier to appreciate (both *asterisk* and *arrows*)

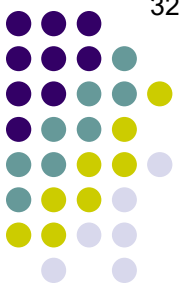
If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:

What's the diagnosis?

Seborrheic keratosis is a common v
uncommon epithelial proliferation



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:
 --The overall configuration is dome-shaped
 --The epi is hyperplastic, and looks benign
 --The lesion has a number of cysts containing concentrically laminated collections of surface keratin

Here is a close-up wherein the concentric lamination is easier to appreciate (both *asterisk* and *arrows*)

If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:

What's the diagnosis?

Seborrheic keratosis is a common epithelial proliferation



Pathwatching



Skin or conj?

Skin

What are we supposed to notice? A few things:
 --The overall configuration is dome-shaped
 --The epi is hyperplastic, and looks benign
 --The lesion has a number of cysts containing concentrically laminated collections of surface keratin

Here is a close-up wherein the concentric lamination is easier to appreciate (both *asterisk* and *arrows*)

If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:

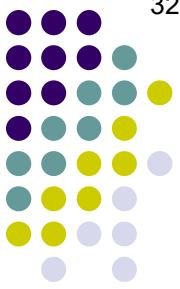
What's the diagnosis?

Seborrheic keratosis is a common epithelial proliferation that presents in

life period



Pathwatching



Skin or conj?
Skin



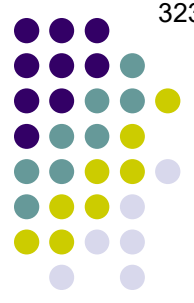
What are we supposed to notice? A few things:
 --The overall configuration is dome-shaped
 --The epi is hyperplastic, and looks benign
 --The lesion has a number of cysts containing concentrically laminated collections of surface keratin

Here is a close-up wherein the concentric lamination is easier to appreciate (both *asterisk* and *arrows*)

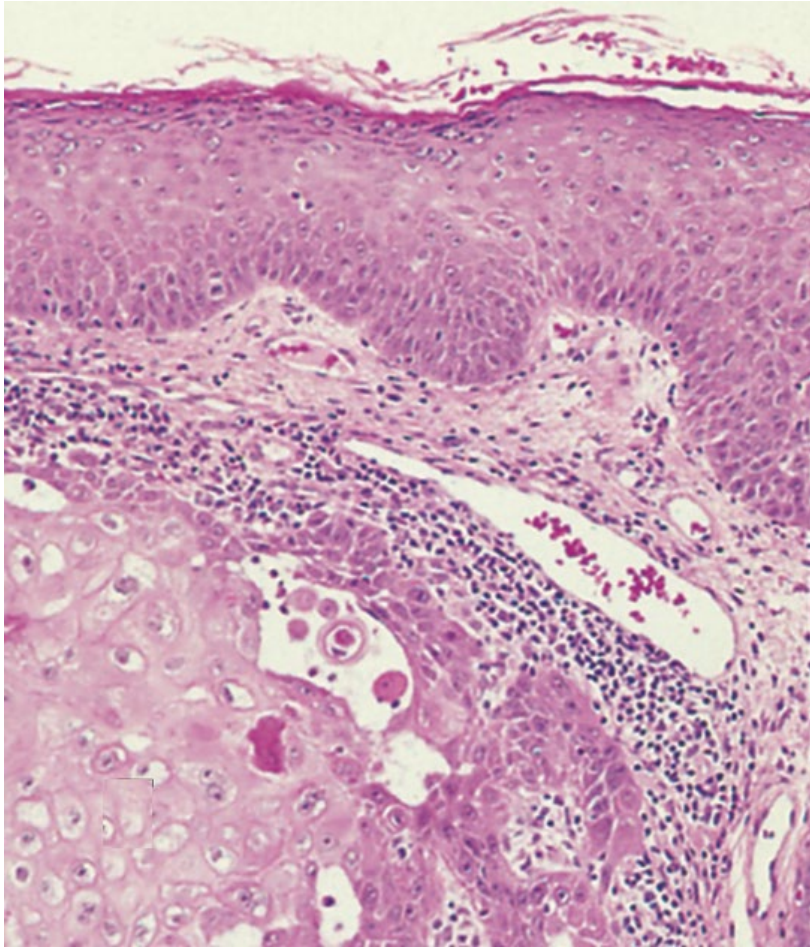
If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:

What's the diagnosis?

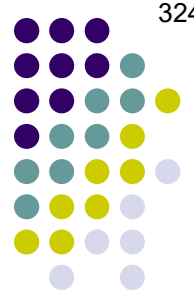
Seborrheic keratosis is a common epithelial proliferation that presents in middle age .



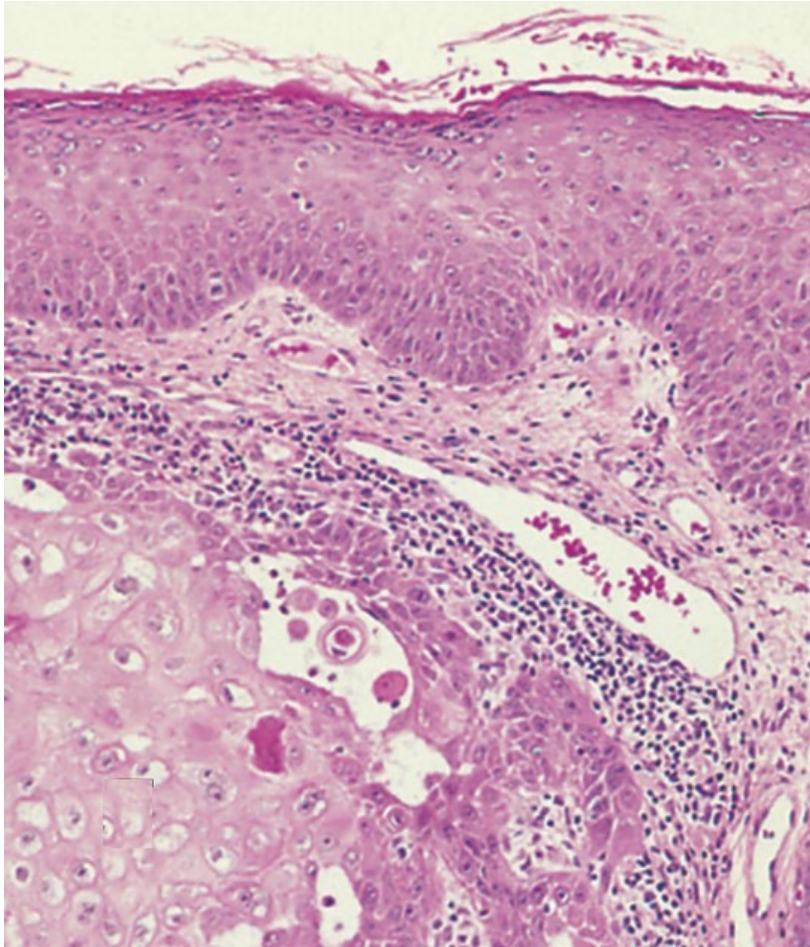
Pathwatching



Skin, or conj?

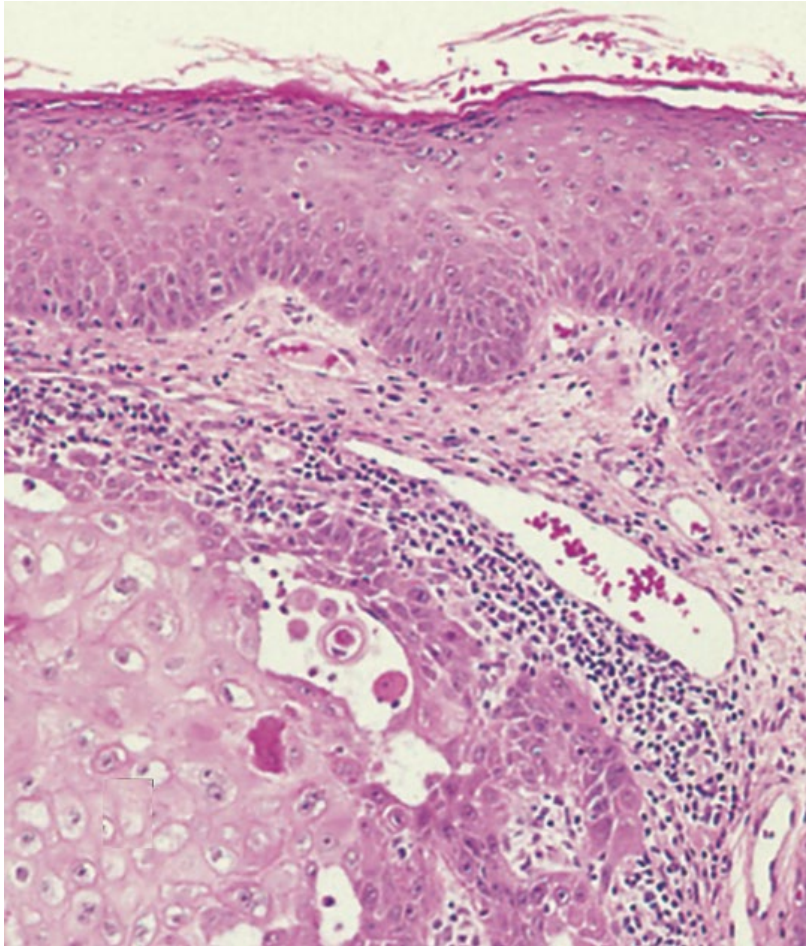
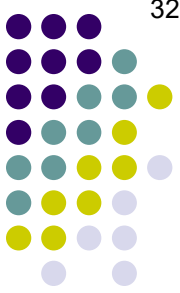


Pathwatching



Skin, or conj?
Skin

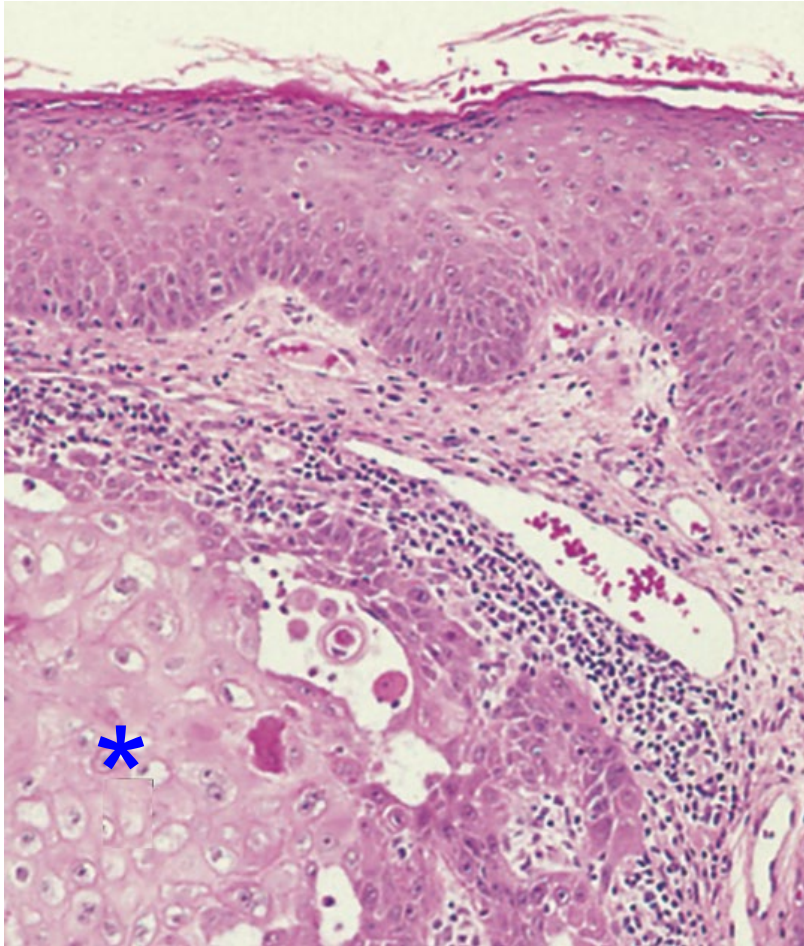
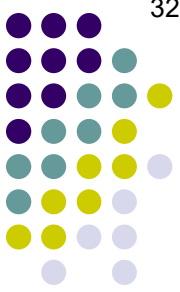
Pathwatching



Skin, or conj?
Skin

What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well.

Pathwatching

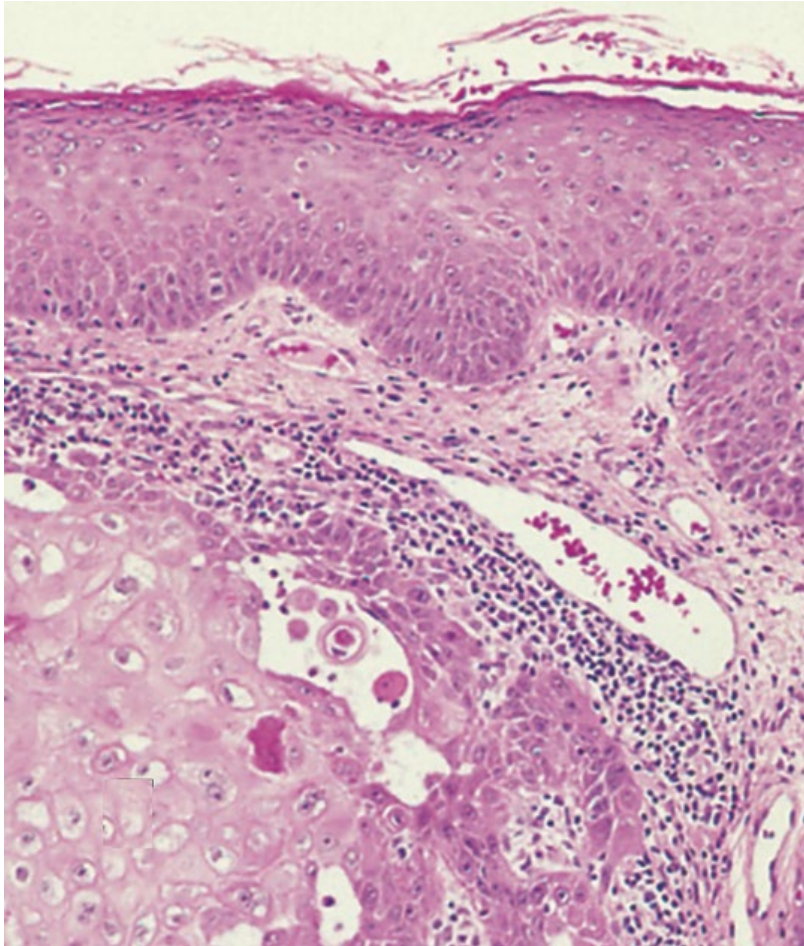
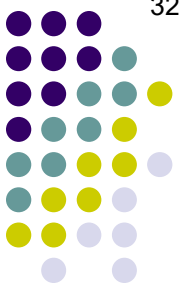


Skin, or conj?

Skin

What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. **But what really stands out is *this* large area of gnarly-looking squamous cells located well into the dermis.**

Pathwatching



Skin, or conj?

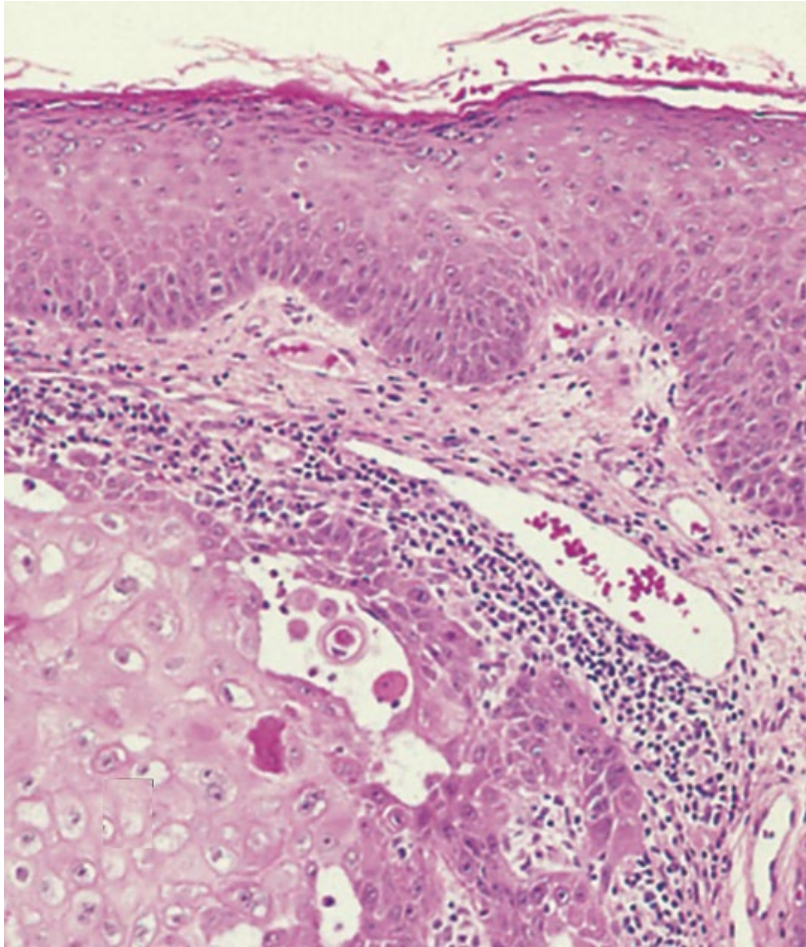
Skin

What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. **But what really stands out is *this* large area of gnarly-looking squamous cells located well into the dermis.**

Needless to say (I hope), the presence of severely atypical squamous cells in the dermis—ie, having apparently broken through their basement membrane—is strongly suggestive of one diagnosis:

What's the diagnosis?

Pathwatching



Skin, or conj?

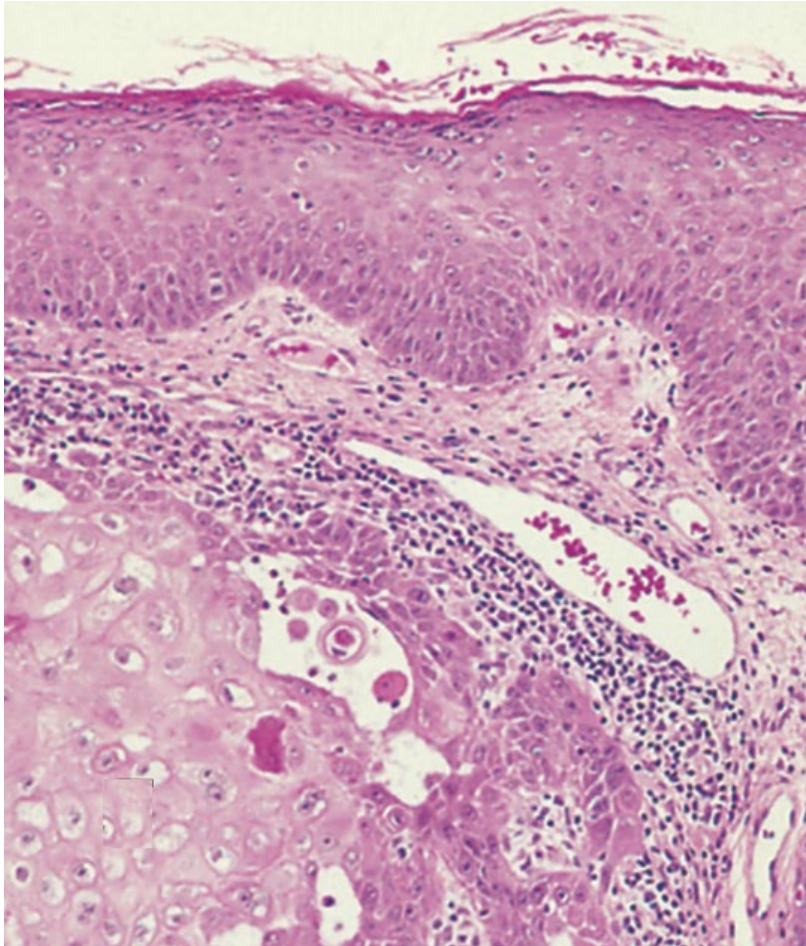
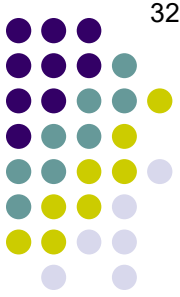
Skin

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What's the diagnosis?

Squamous cell carcinoma (SCC) is far less v
more common than basal cell carcinoma (BCC) in the lids.

Pathwatching



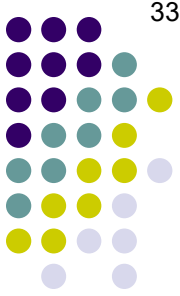
Skin, or conj?

Skin

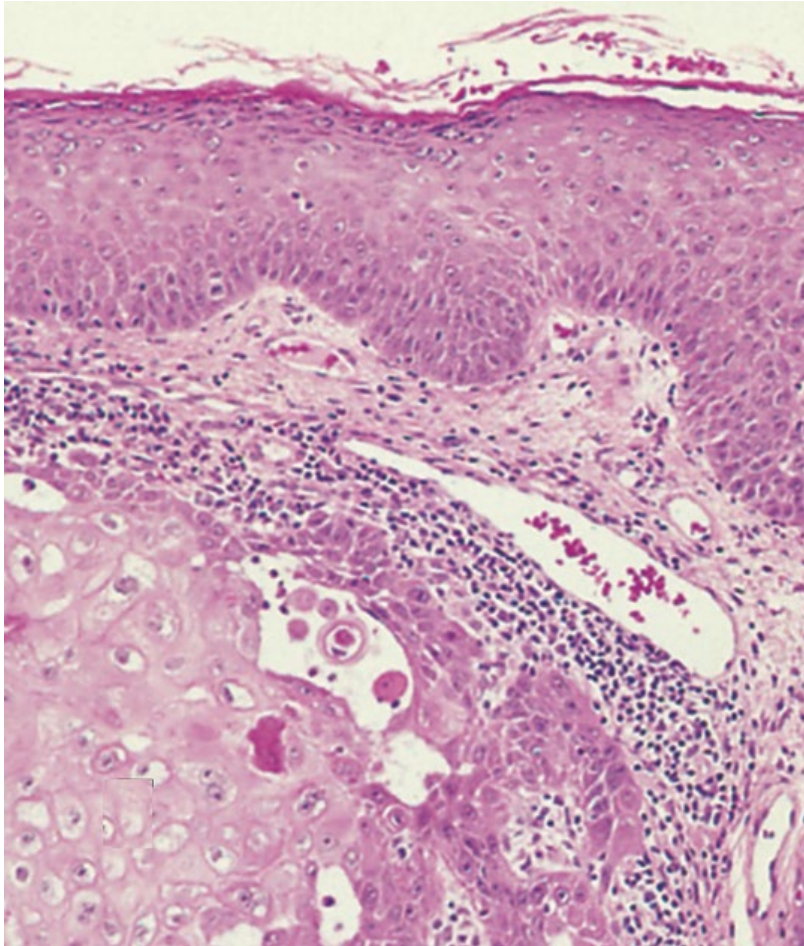
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What's the diagnosis?

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Pathwatching



Skin, or conj?

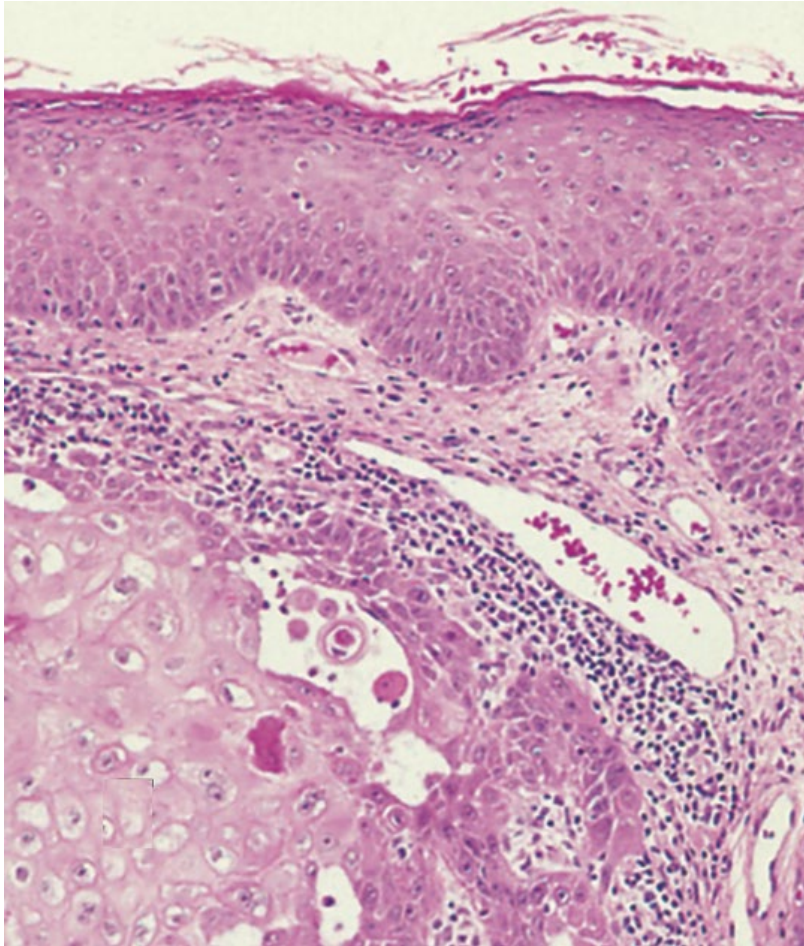
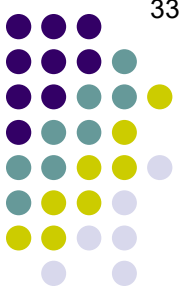
Skin

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What's the diagnosis?

Squamous cell carcinoma (SCC) is far less common than basal cell carcinoma (BCC) in the lids. Like BCC, it has a proclivity for the lower v upper lid.

Pathwatching



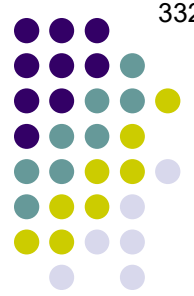
Skin, or conj?

Skin

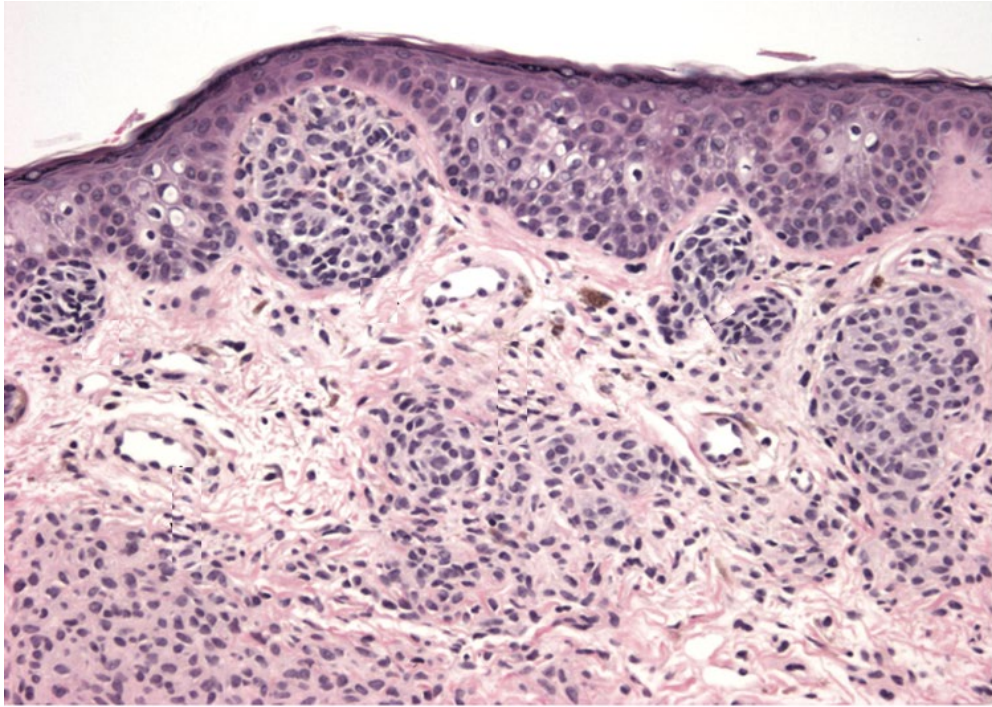
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What's the diagnosis?

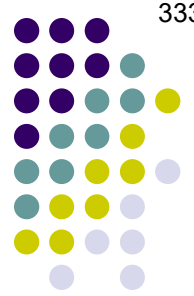
Squamous cell carcinoma (SCC) is far less common than basal cell carcinoma (BCC) in the lids. Like BCC, it has a proclivity for the lower lid.



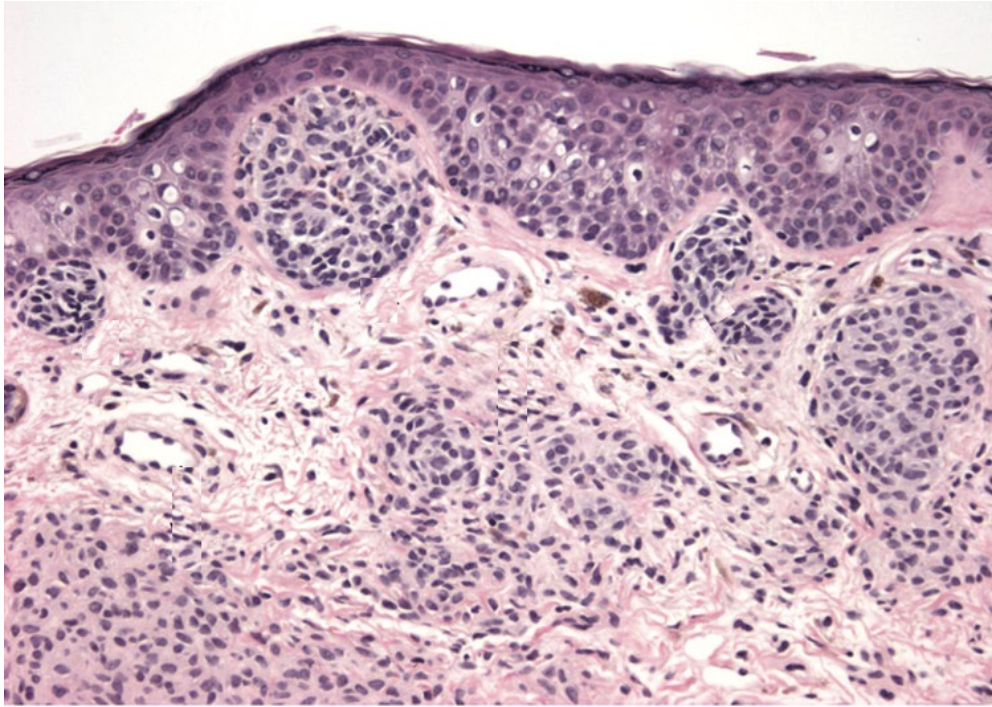
Pathwatching



Skin/conj?

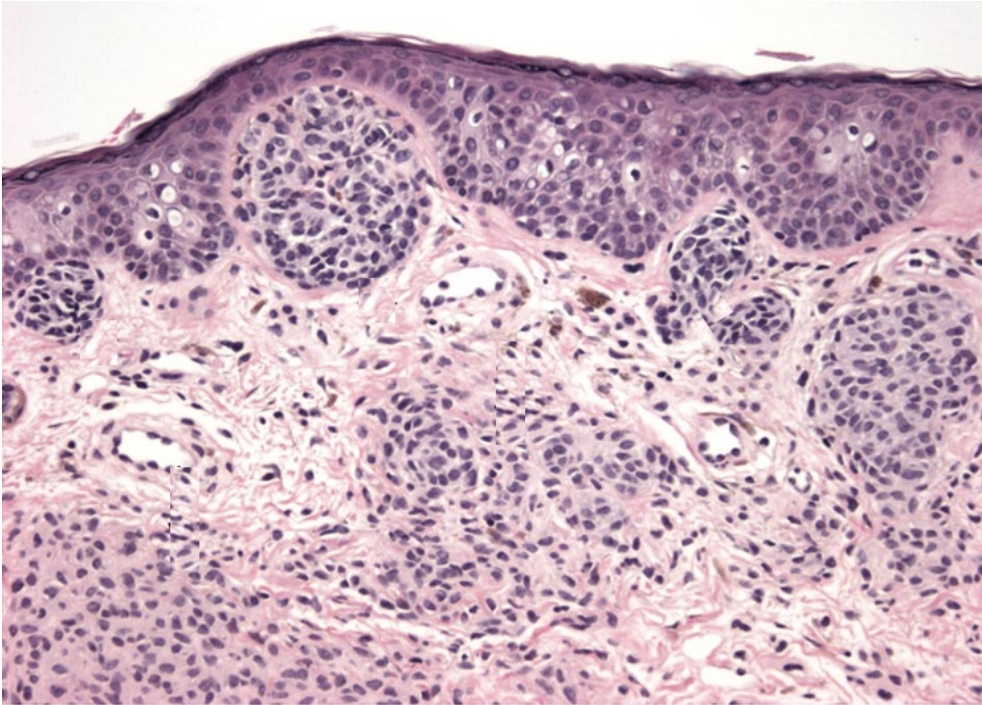
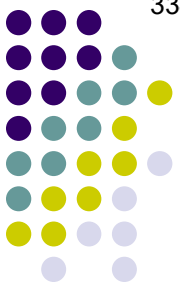


Pathwatching



Skin/conj?
Skin

Pathwatching

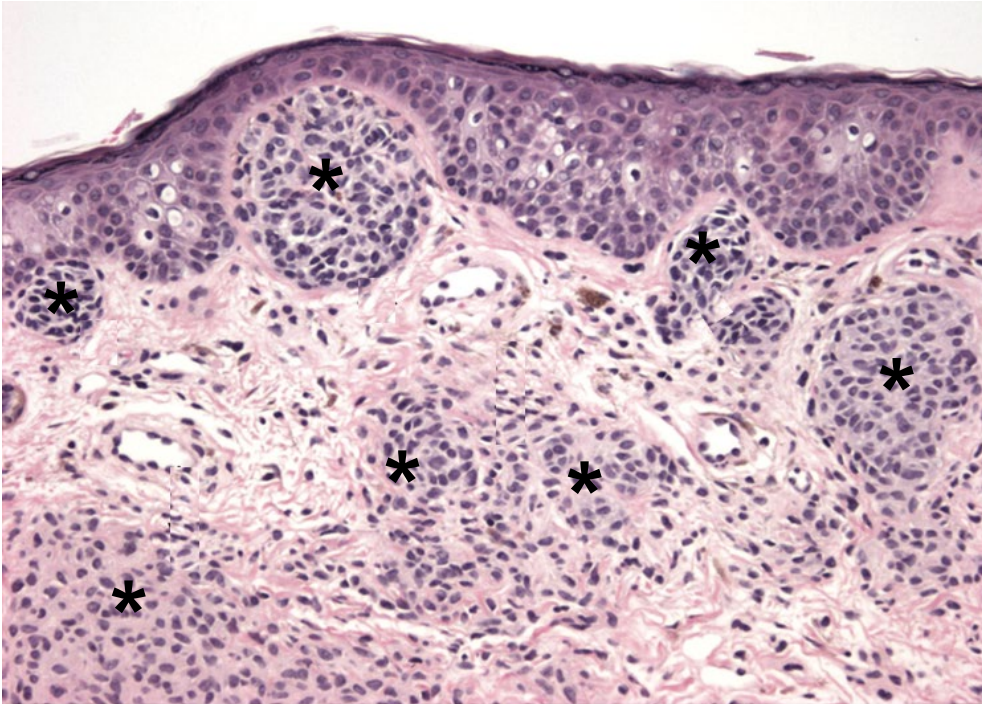


Skin/conj?
Skin

*There's a field mark that nails the diagnosis.
What is it?*



Pathwatching

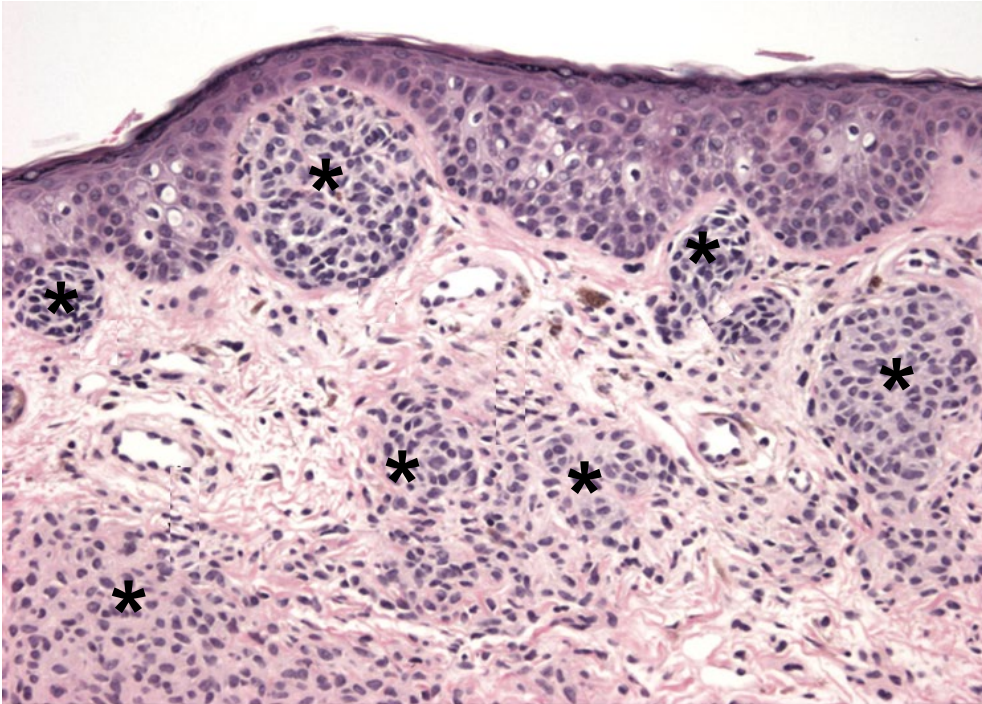


Skin/conj?
Skin

*There's a field mark that nails the diagnosis.
What is it?*

These tight clusters of cell type are called (aka).

Pathwatching

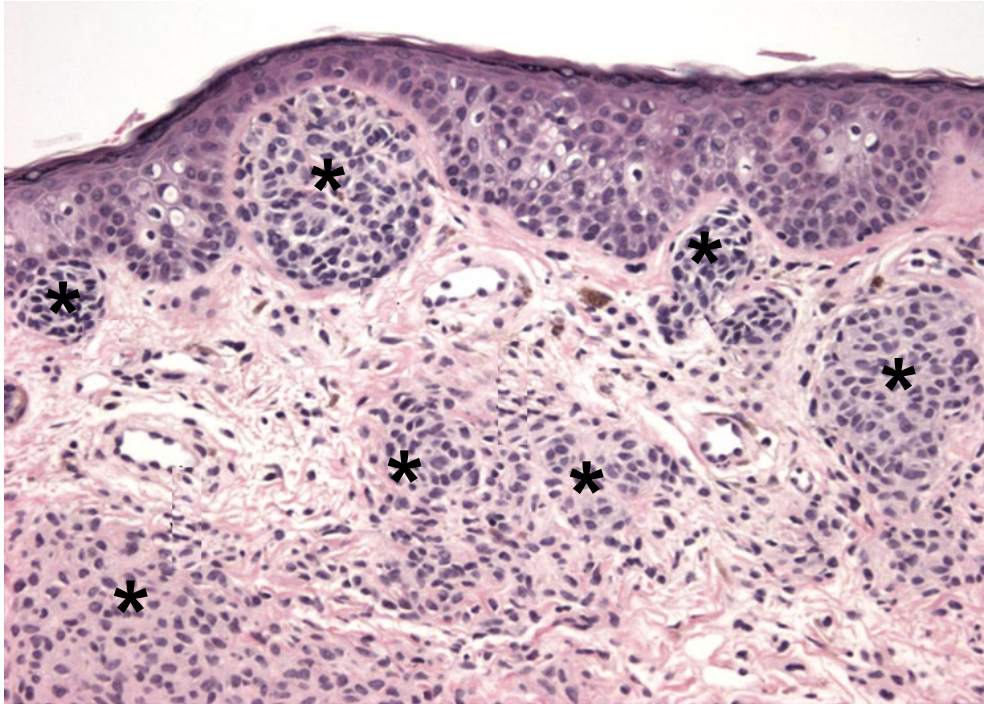
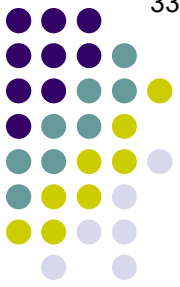


Skin/conj?
Skin

*There's a field mark that nails the diagnosis.
What is it?*

These tight clusters of melanocytes are called **nevi** (aka *theques*).

Pathwatching



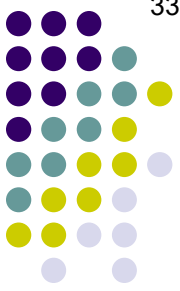
What's the diagnosis?

Skin/conj?
Skin

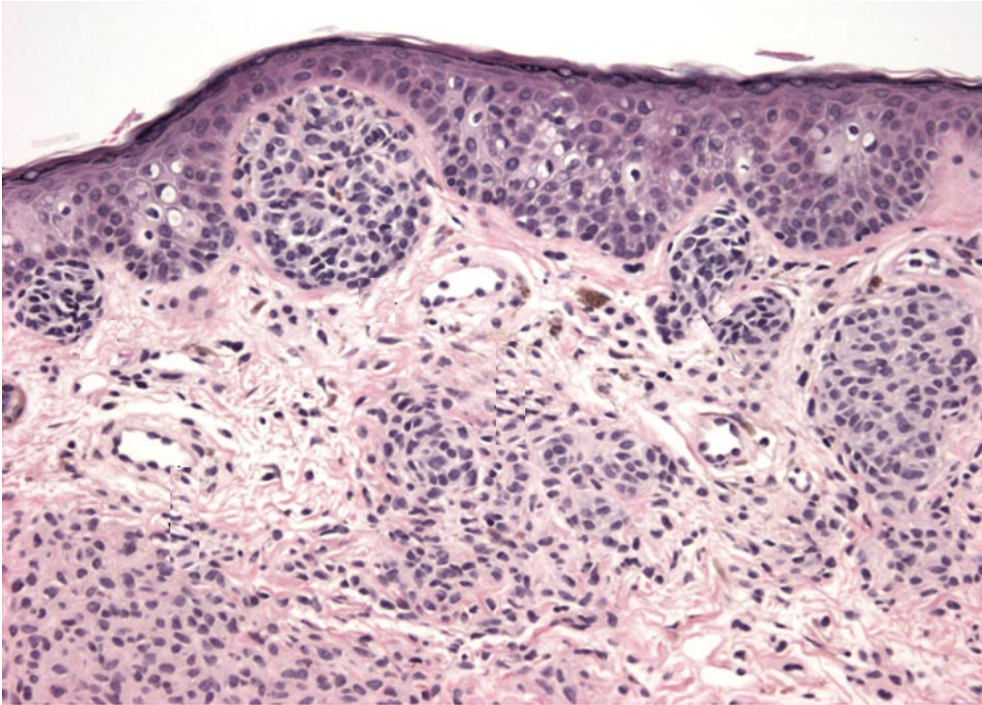
*There's a field mark that nails the diagnosis.
What is it?*

These tight clusters of melanocytes are called **nevi** (aka *theques*).

When you encounter lid skin with melanocytes in nests, one condition should come to mind:



Pathwatching



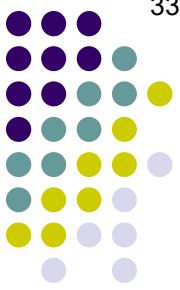
What's the diagnosis?

Skin/conj?
Skin

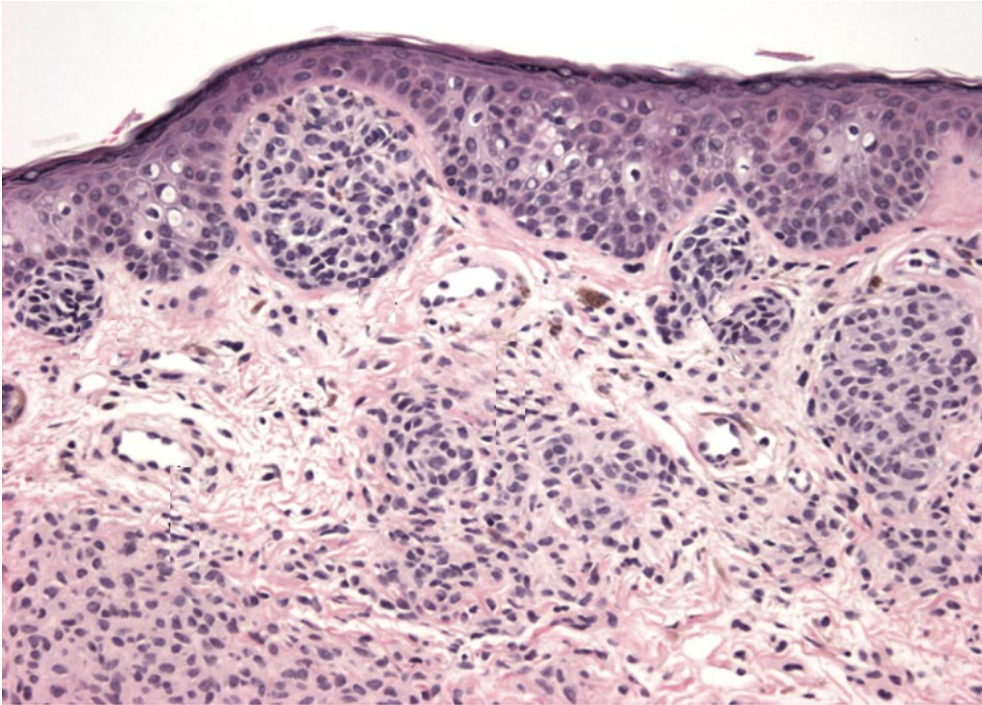
*There's a field mark that nails the diagnosis.
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These tight clusters of melanocytes are called nests (aka *theques*). When you encounter lid skin with melanocytes in nests, one condition should come to mind:

Melanocytic nevi of the lid can be congenital, or arise later in life.



Pathwatching



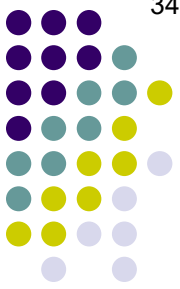
Skin/conj?
Skin

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What is it?*

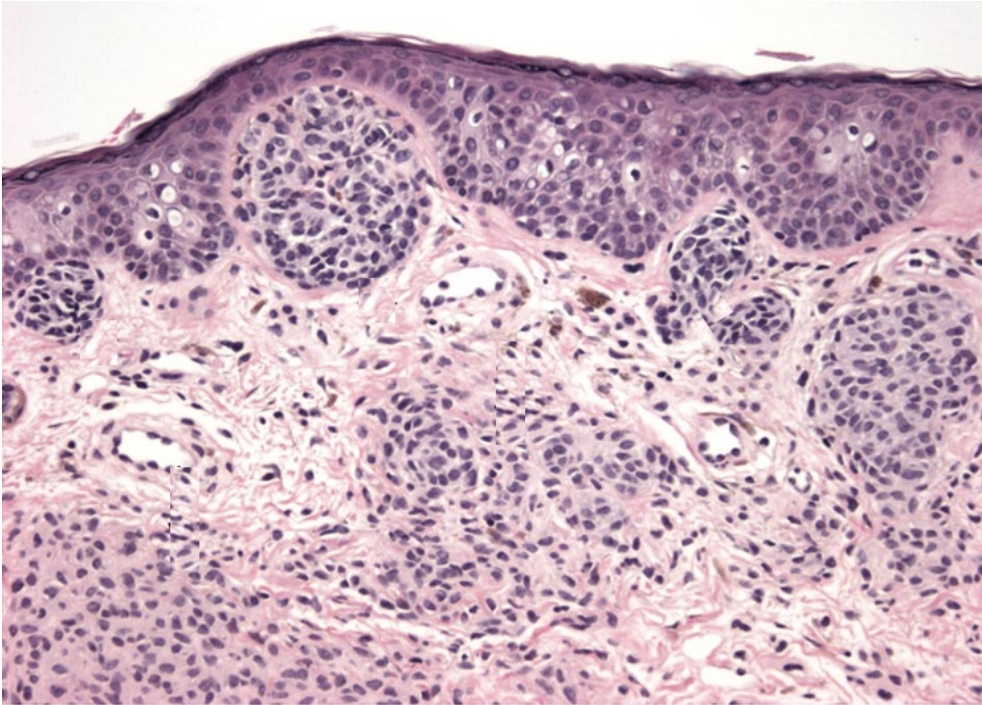
These tight clusters of melanocytes are called nests (aka *theques*). When you encounter lid skin with melanocytes in nests, one condition should come to mind:

What's the diagnosis?

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) to to .



Pathwatching



What's the diagnosis?

*Skin/conj?
Skin*

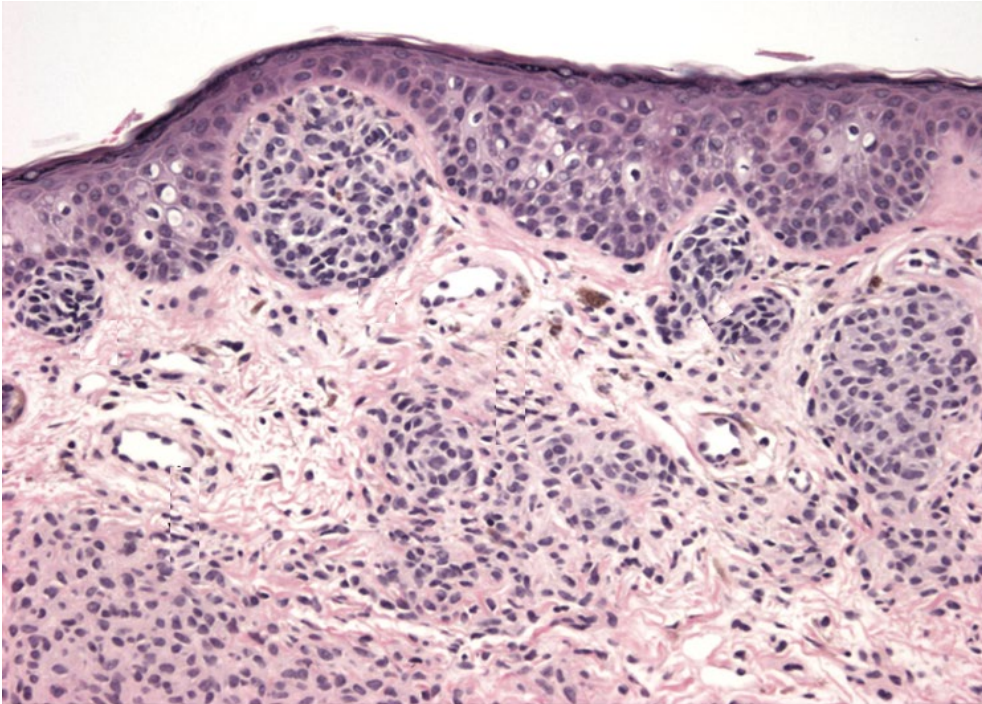
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What is it?*

These tight clusters of melanocytes are called nests (aka *theques*). When you encounter lid skin with melanocytes in nests, one condition should come to mind:

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to intradermal .



Pathwatching



Skin/conj?
Skin

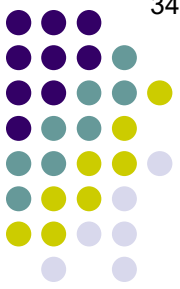
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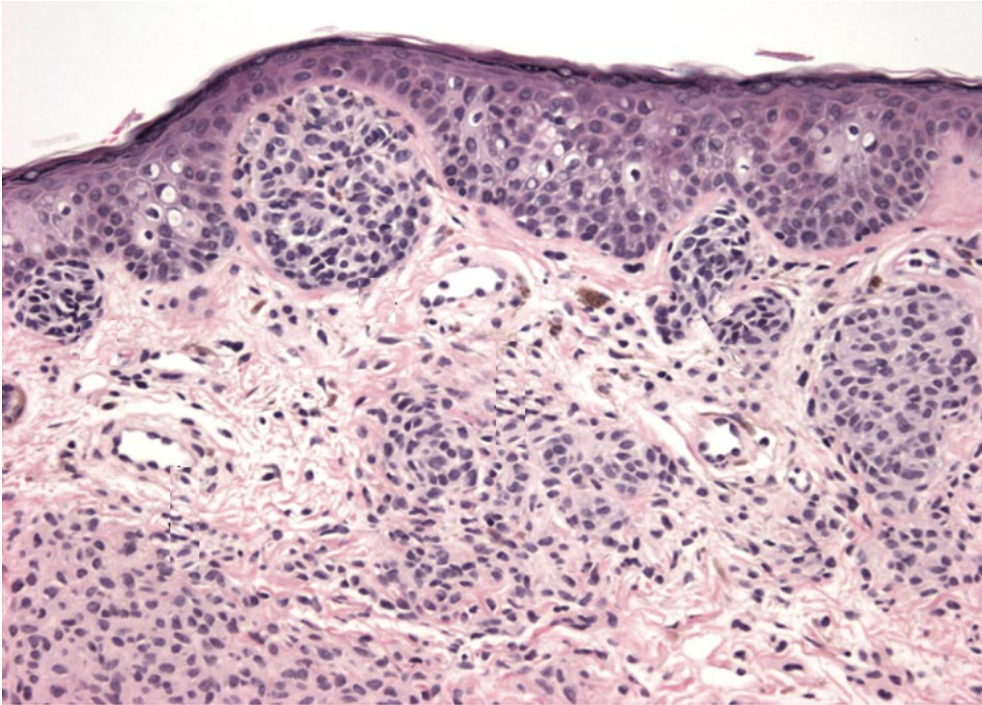
What's the diagnosis?

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to intradermal.

Most cutaneous nevi of the lid have low
vs
high malignant potential



Pathwatching



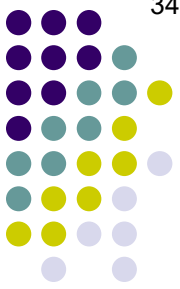
What's the diagnosis?

*Skin/conj?
Skin*

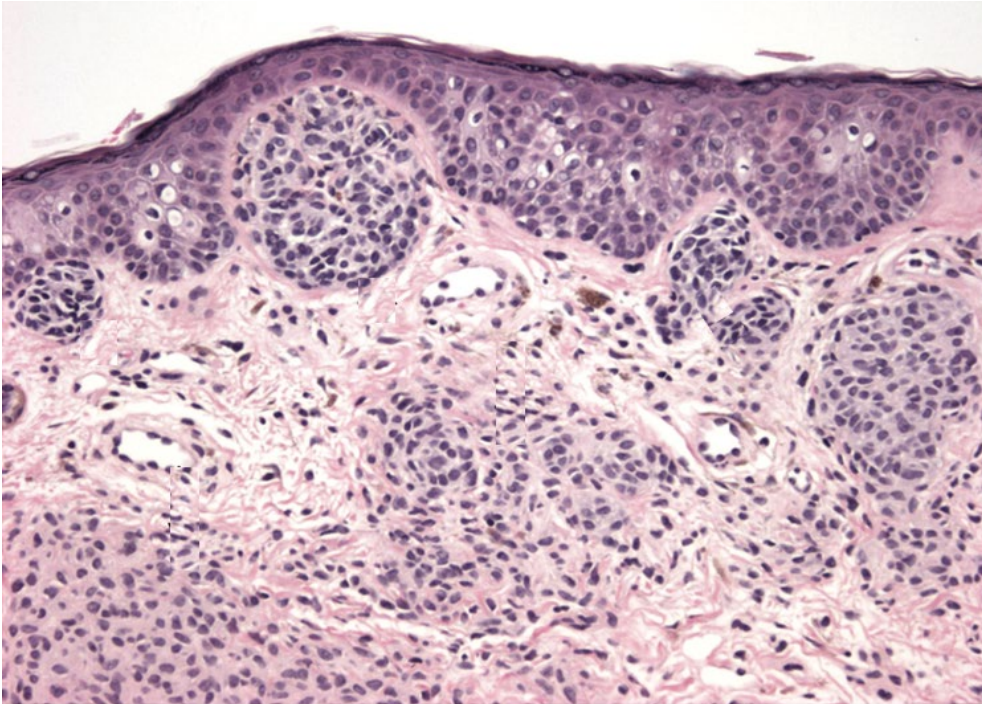
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These tight clusters of melanocytes are called nests (aka *theques*). When you encounter lid skin with melanocytes in nests, one condition should come to mind:

Melanocytic nevi of the lid can be congenital, or arise later in life. **As with conj nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to intradermal.** Most cutaneous nevi of the lid have low malignant potential



Pathwatching



Skin/conj?
Skin

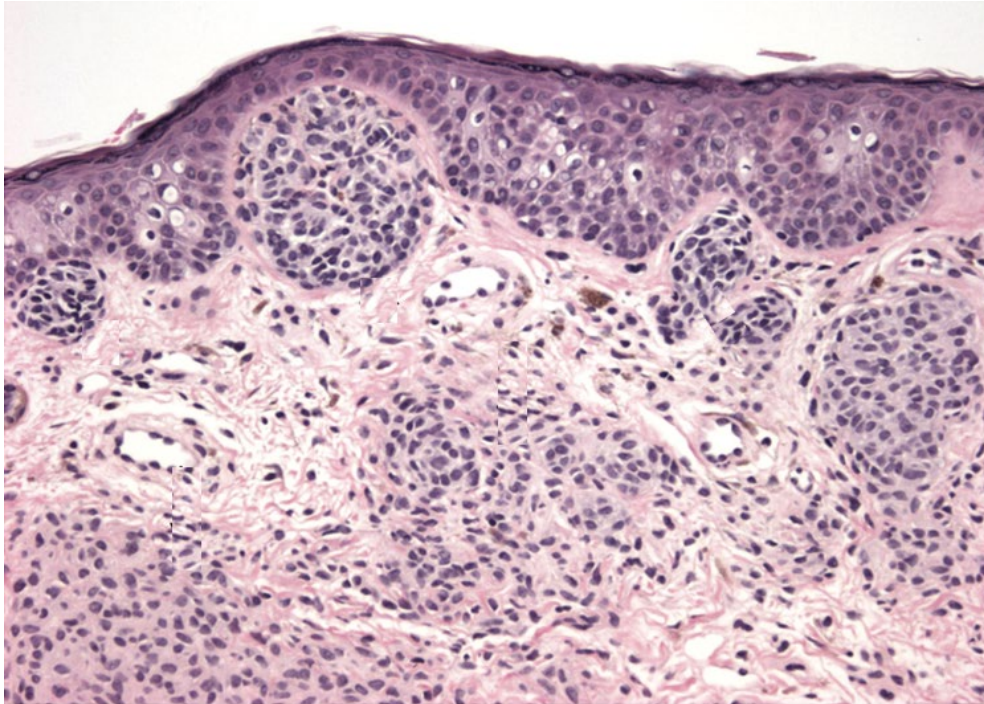
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These tight clusters of melanocytes are called nests (aka *theques*). When you encounter lid skin with melanocytes in nests, one condition should come to mind:

What's the diagnosis?

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to intradermal. Most cutaneous nevi of the lid have low malignant potential; however, **specific term** nevi (those larger than **#** cm; those with irregular or) are at higher risk and should be monitored closely.

Pathwatching



Skin/conj?
Skin

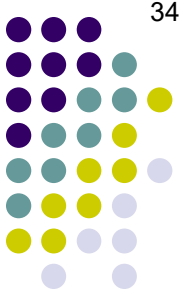
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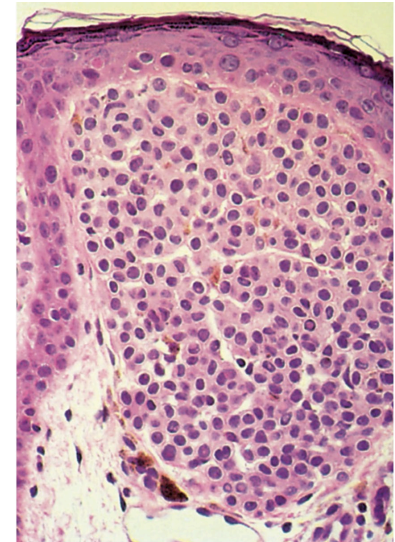
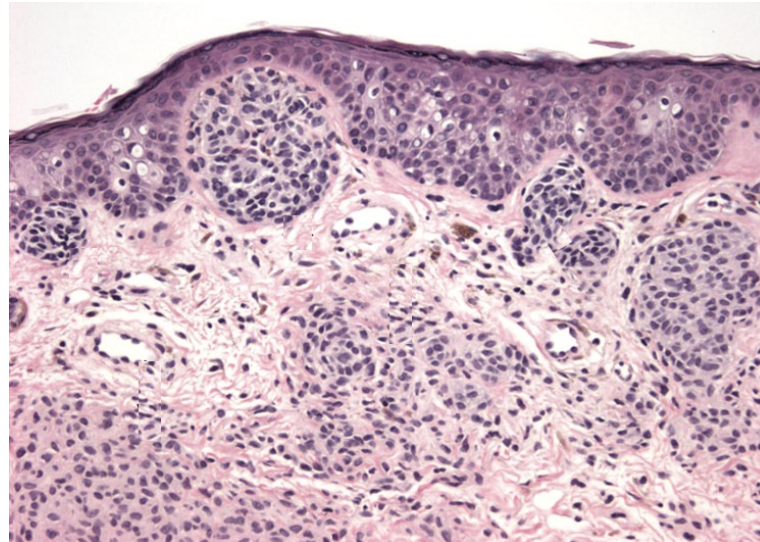
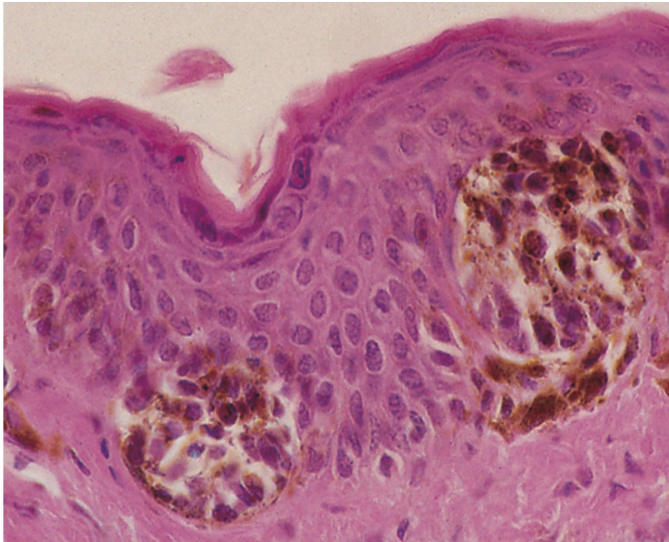
What's the diagnosis?

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to intradermal. Most cutaneous nevi of the lid have low malignant potential; however, *dysplastic* nevi (those larger than 0.5 cm; those with irregular margins or pigmentation) are at higher risk and should be monitored closely.

Pathwatching

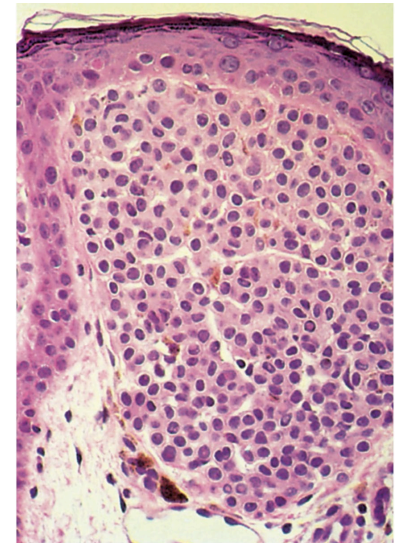
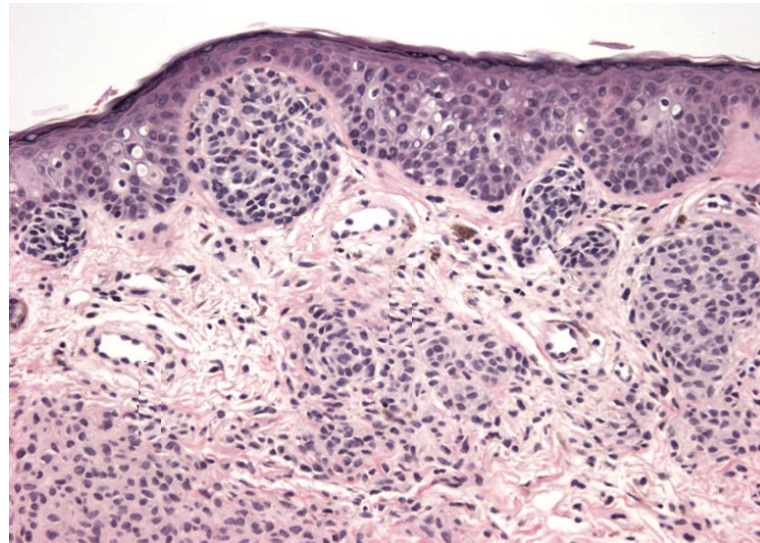
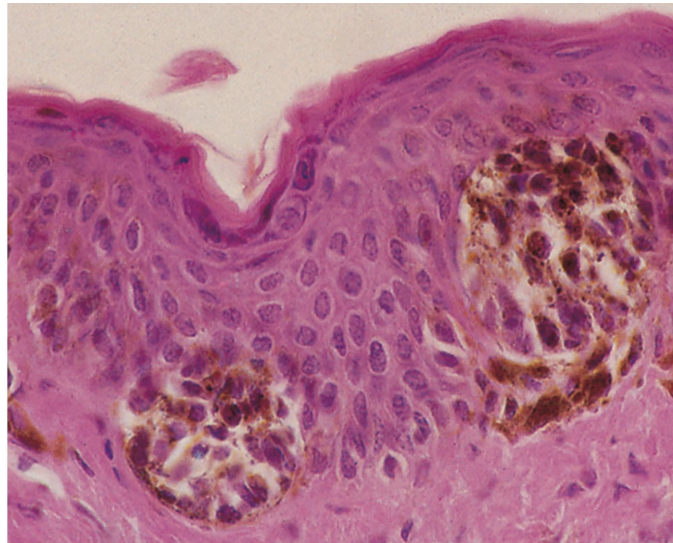
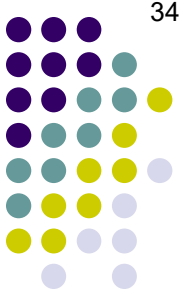


(This is the one we just looked at)



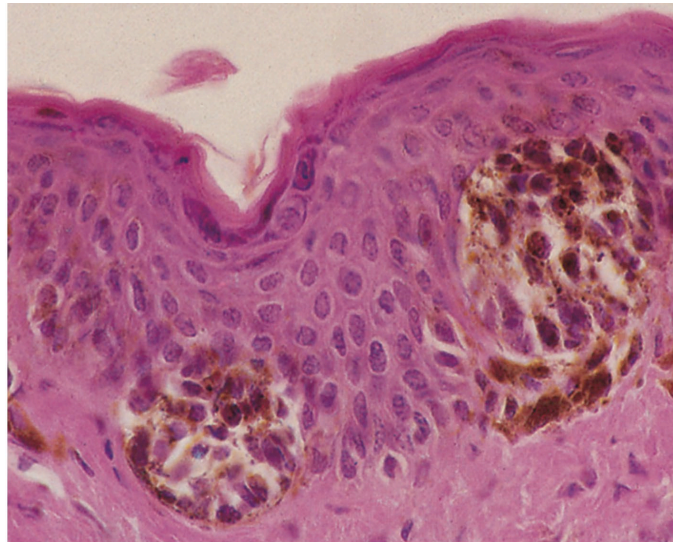
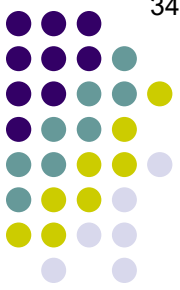
All three above are melanocytic nevi of the lid. In what important way do they differ from one another?

Pathwatching

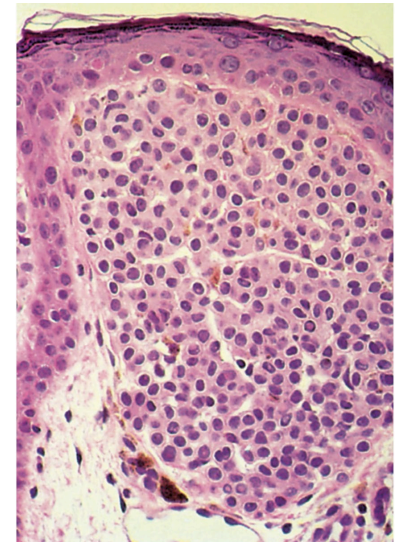
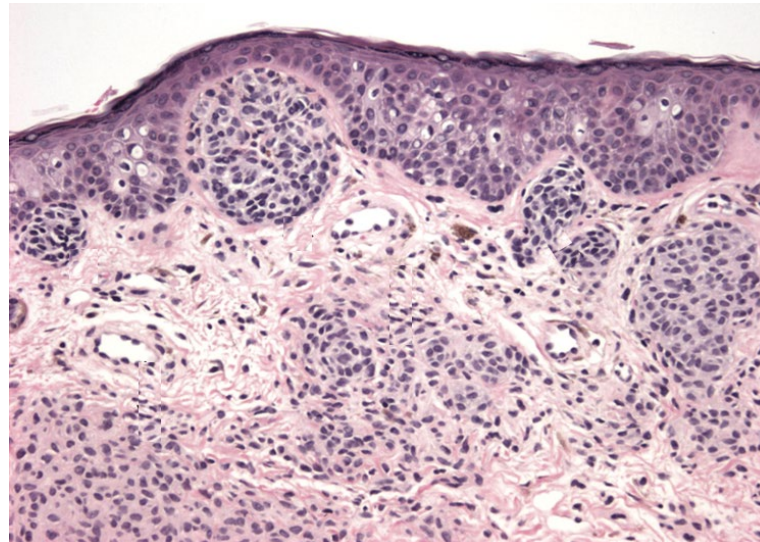


All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.'

Pathwatching

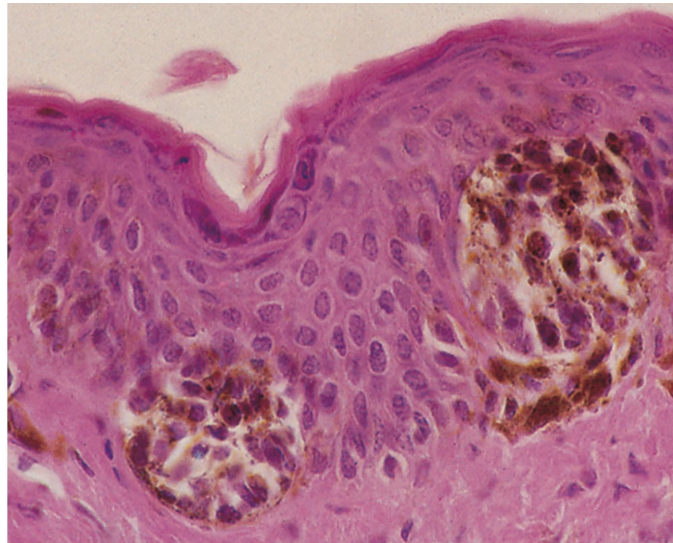
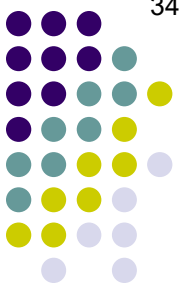


?

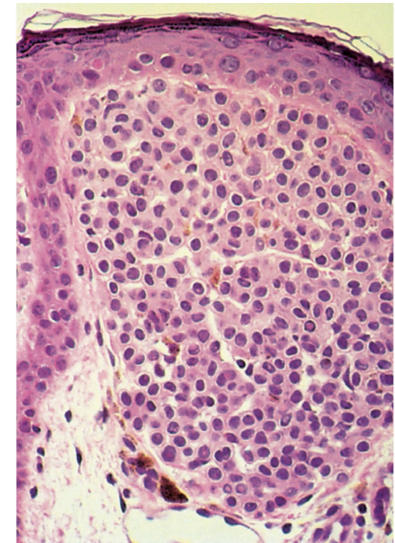
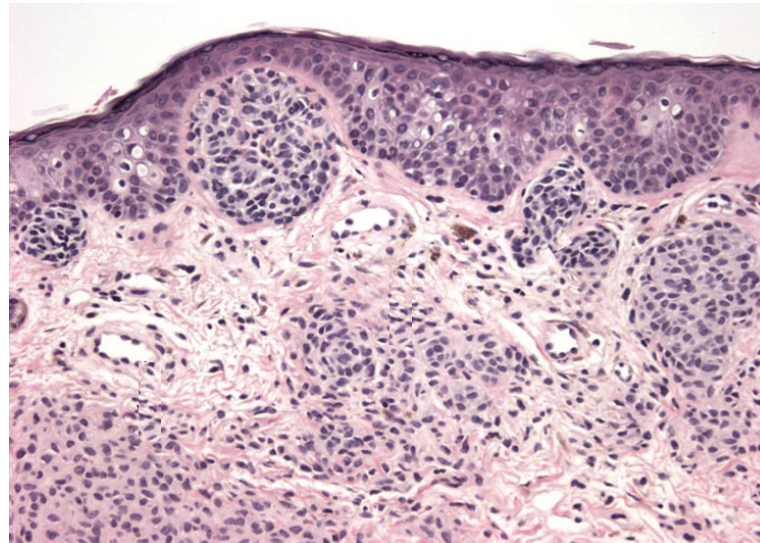


All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.' In the first, the nests are confined to the dermal-epidermal junction and is therefore a nevus.

Pathwatching

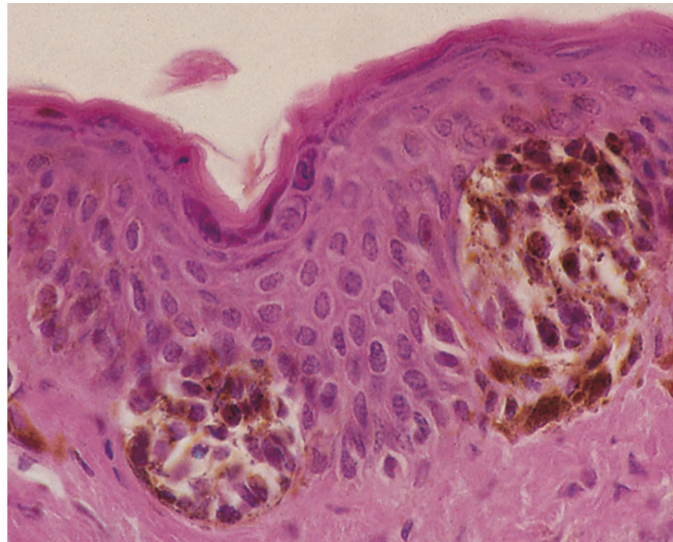
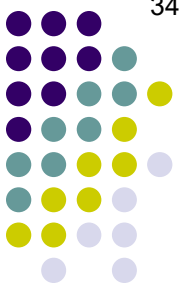


Junctional nevus

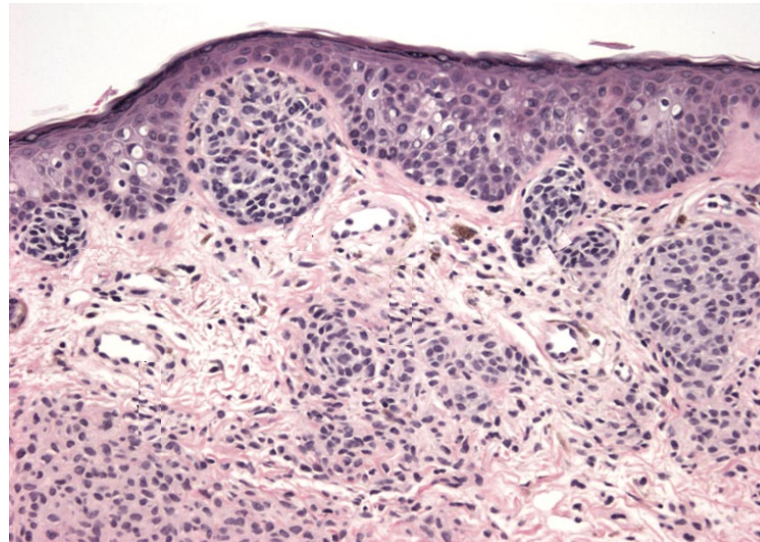


All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.' In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus.

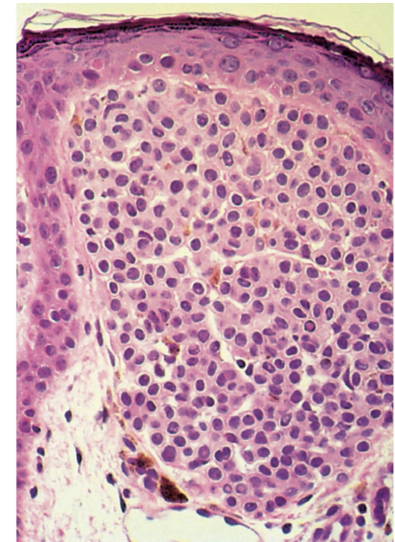
Pathwatching



Junctional nevus

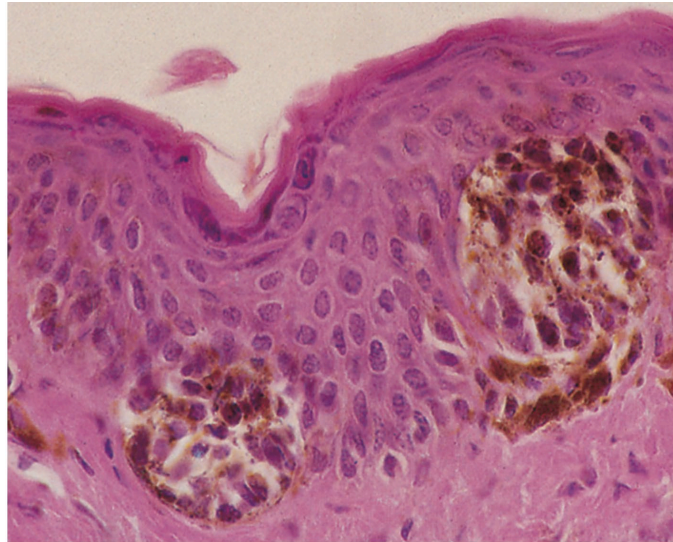
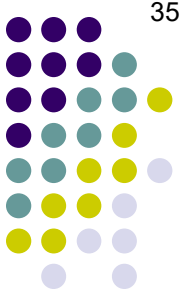


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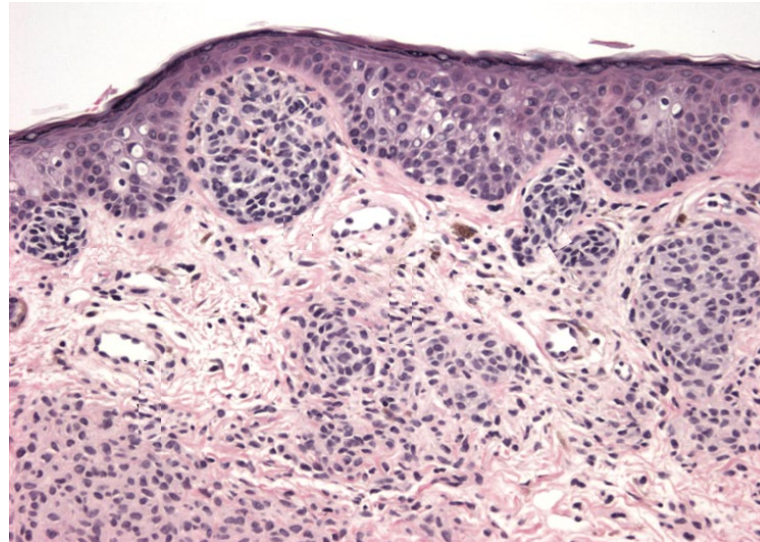


All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.' **In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus.** In the second, the nests are found both at the dermal-epidermal junction as well as in the dermis itself; thus, it is a nevus.

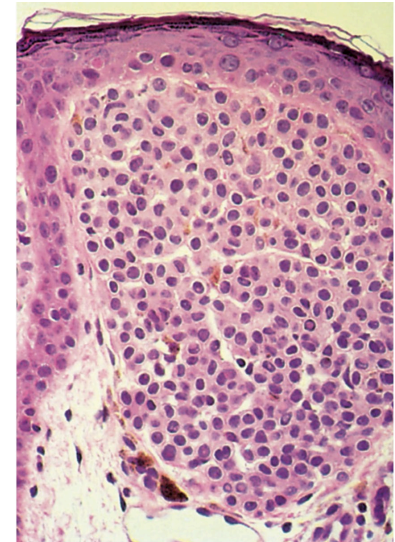
Pathwatching



Junctional nevus

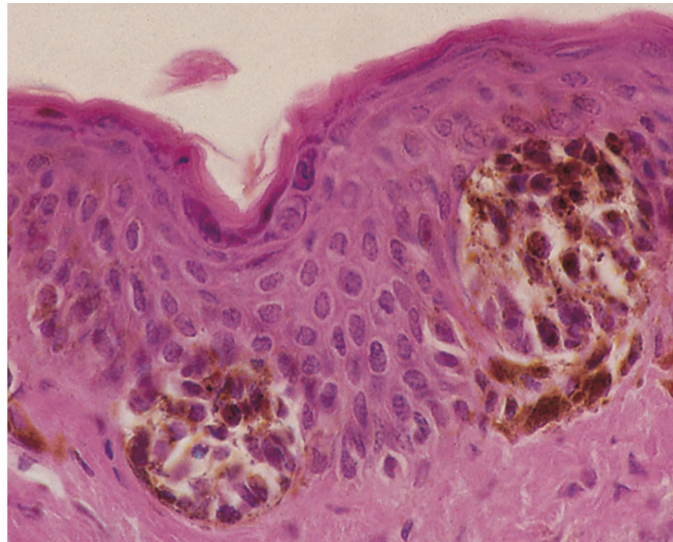
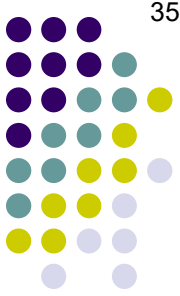


Compound nevus

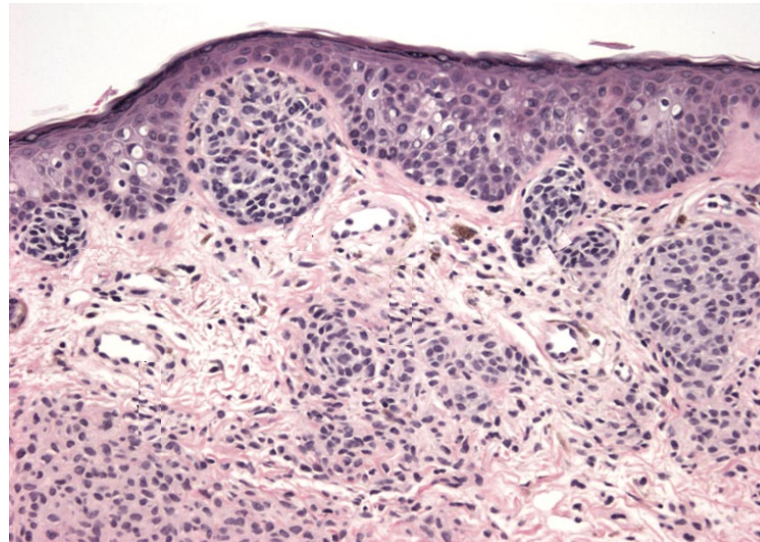


All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.' **In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus.** In the second, the nests are found both at the dermal-epidermal junction as well as in the dermis itself; thus, it is a compound nevus.

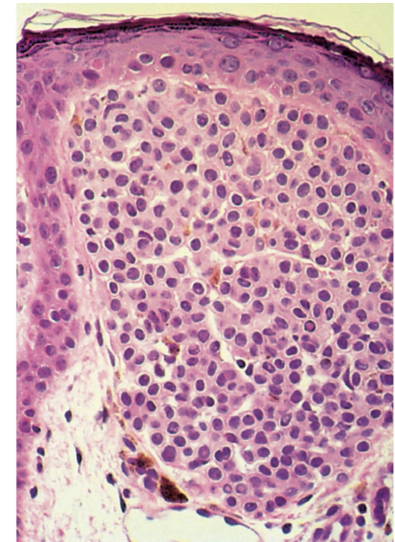
Pathwatching



Junctional nevus



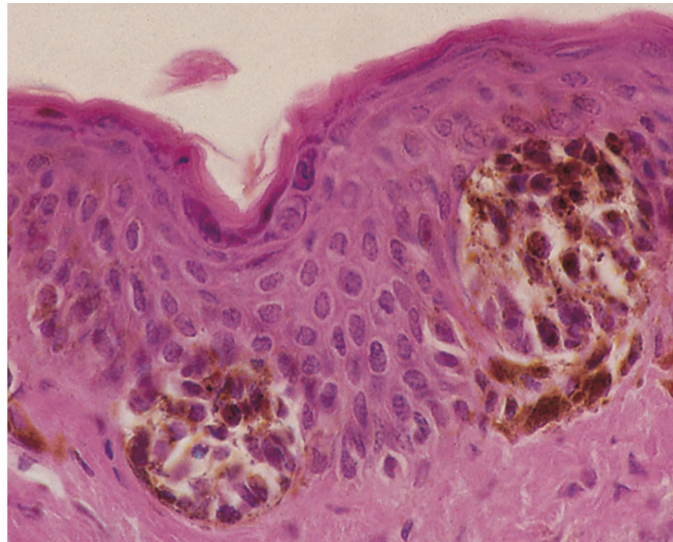
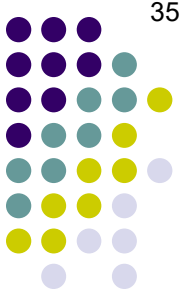
Compound nevus



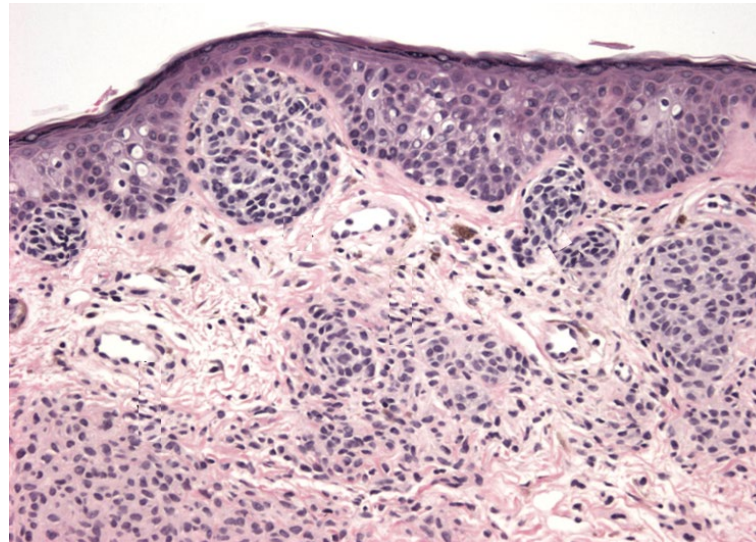
?

All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.' In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus. In the second, the nests are found both at the dermal-epidermal junction as well as in the dermis itself; thus, it is a compound nevus. In the last nevus the nest is confined to the dermis, and it therefore is an intradermal nevus.

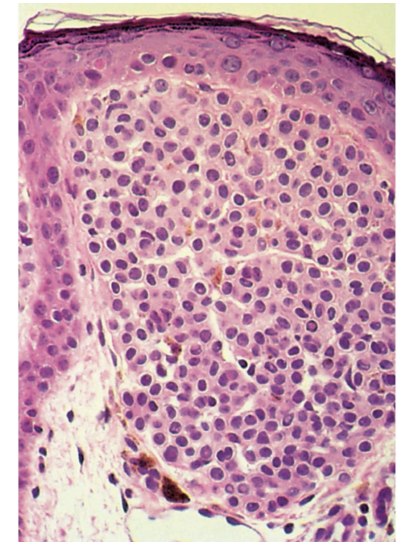
Pathwatching



Junctional nevus

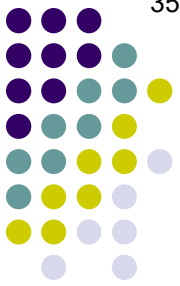


Compound nevus



Intradermal nevus

All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus's conformational 'life cycle.' **In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus.** In the second, the nests are found both at the dermal-epidermal junction as well as in the dermis itself; thus, it is a compound nevus. **In the last nevus the nest is confined to the dermis, and it therefore is an intradermal nevus.**

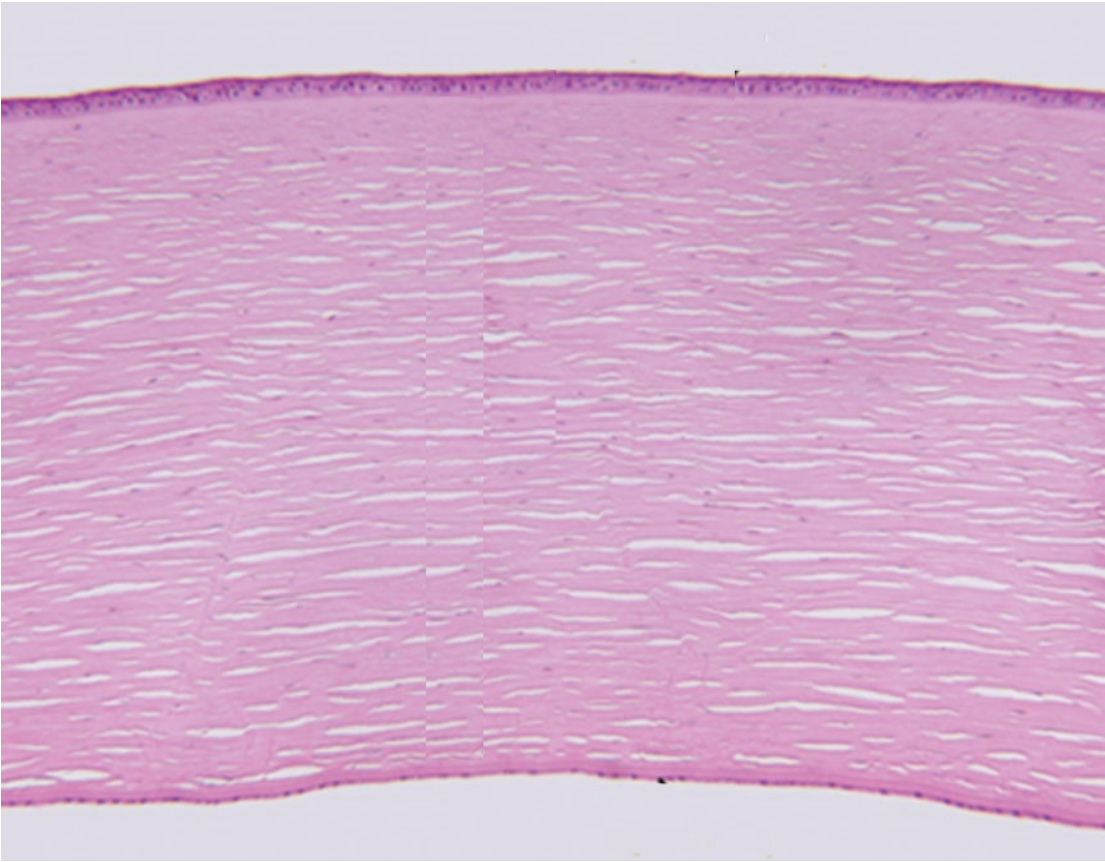


Cornea

Cornea photomicrographs are a high-yield topic. Study them.

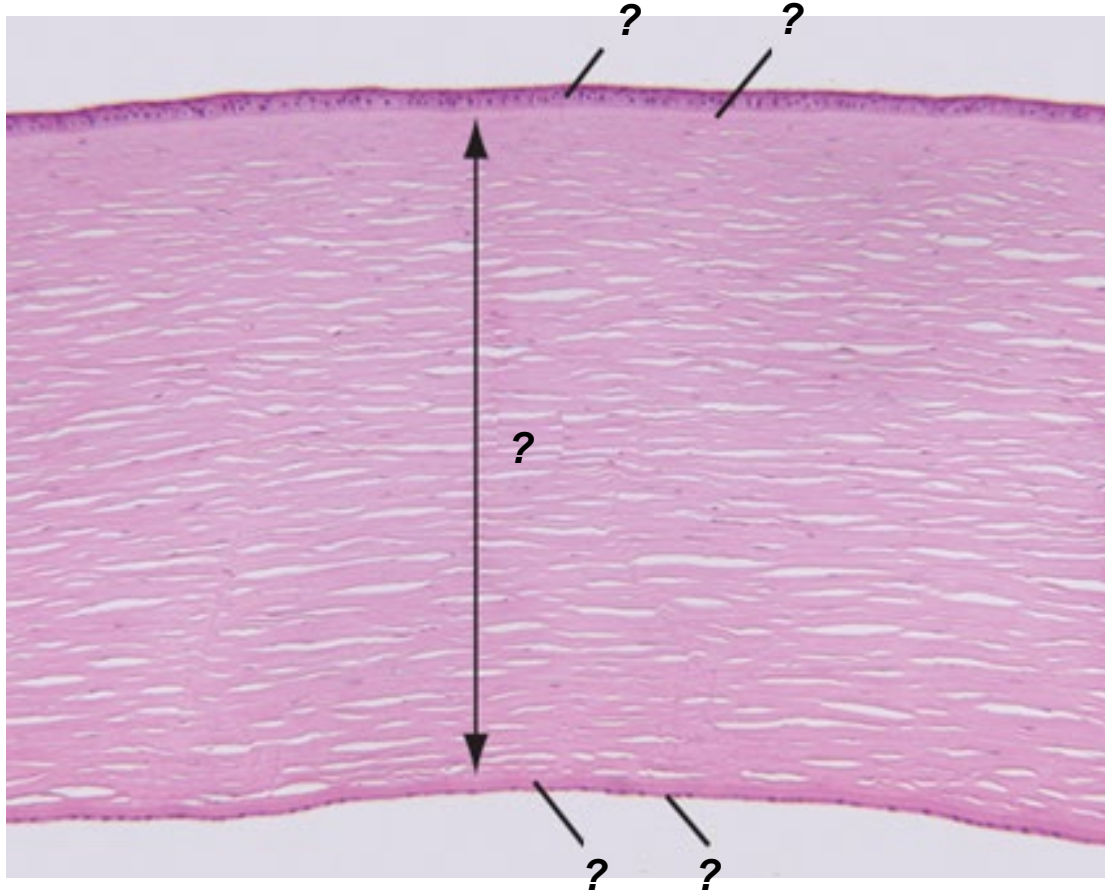
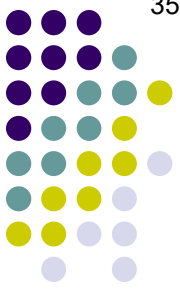


Pathwatching



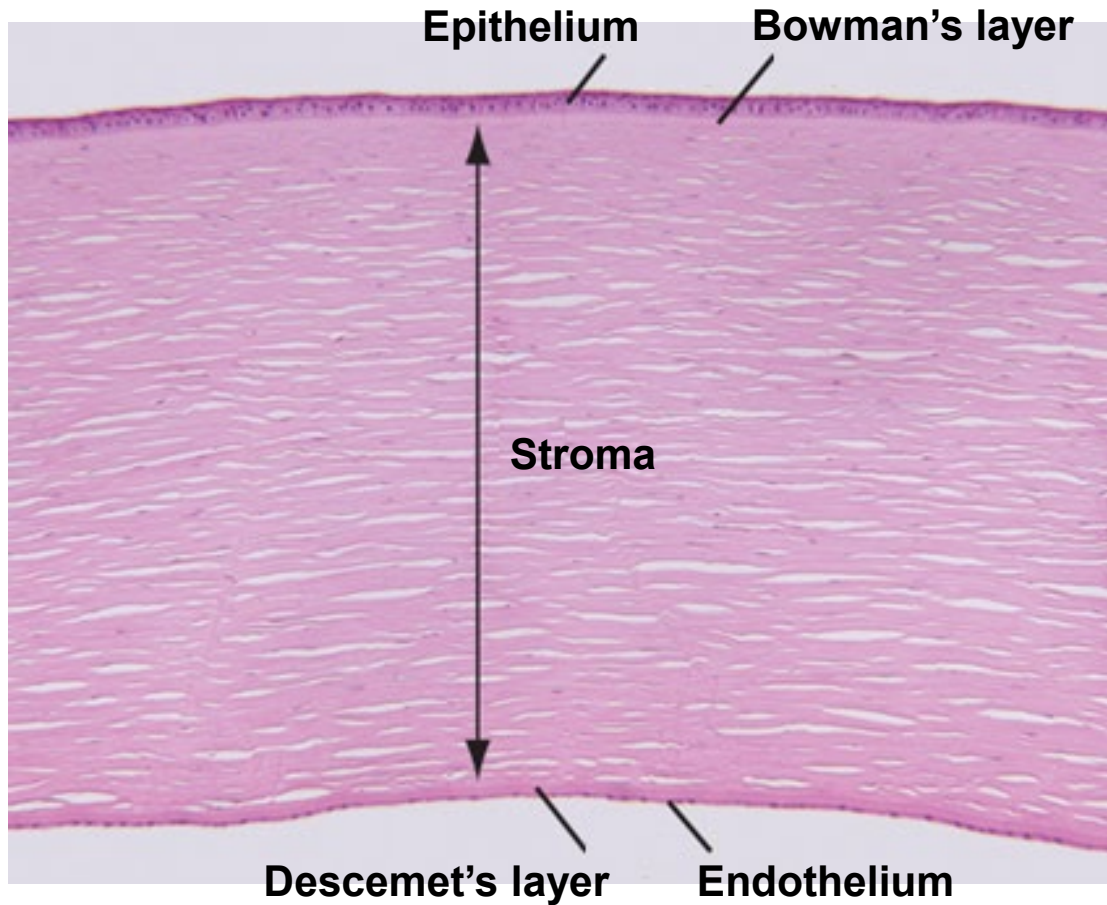
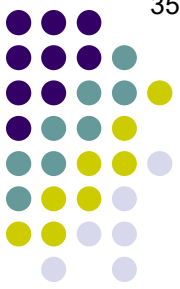
Let's spend a few minutes reviewing normal corneal histology.

Pathwatching



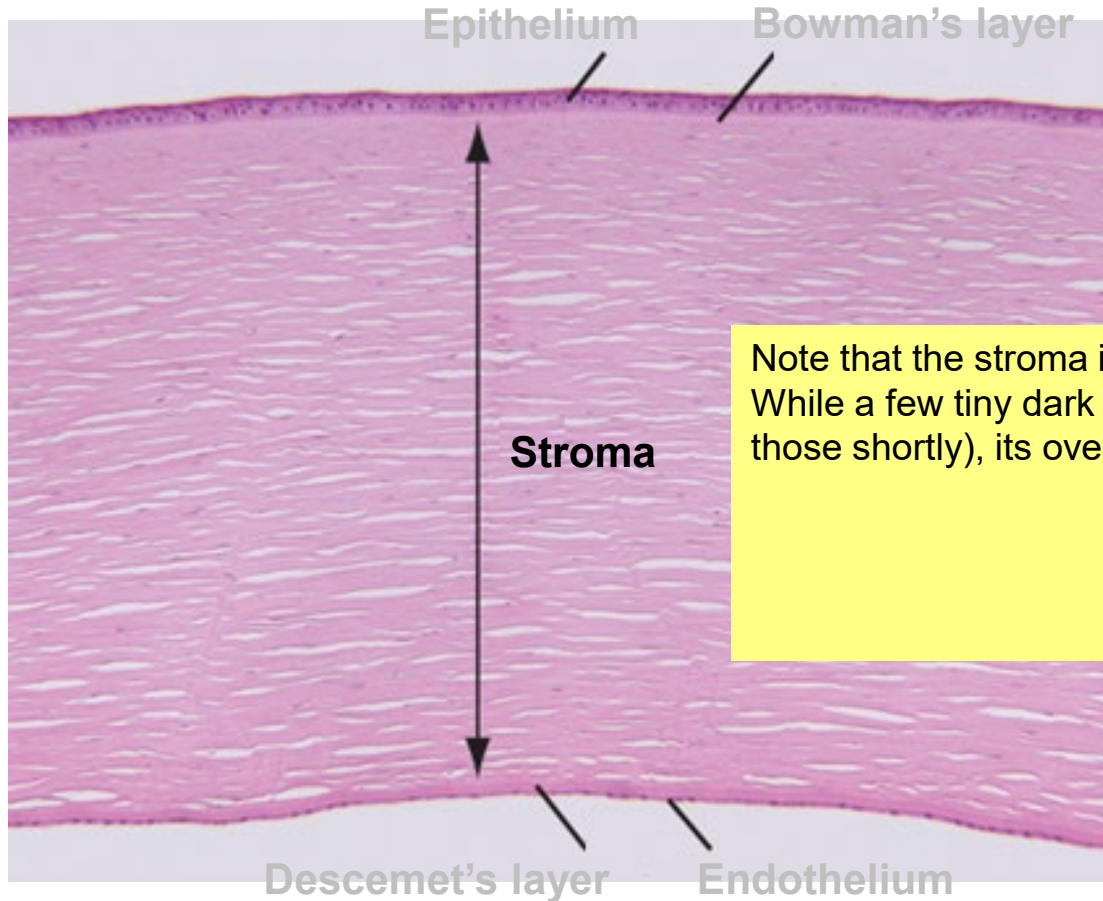
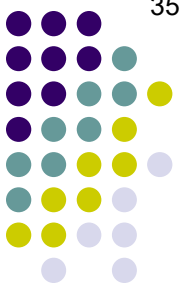
Let's spend a few minutes reviewing normal corneal histology. First, *ID the five basic layers of the cornea:*

Pathwatching



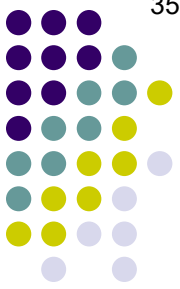
Let's spend a few minutes reviewing normal corneal histology. First, *ID the five basic layers of the cornea:*

Pathwatching

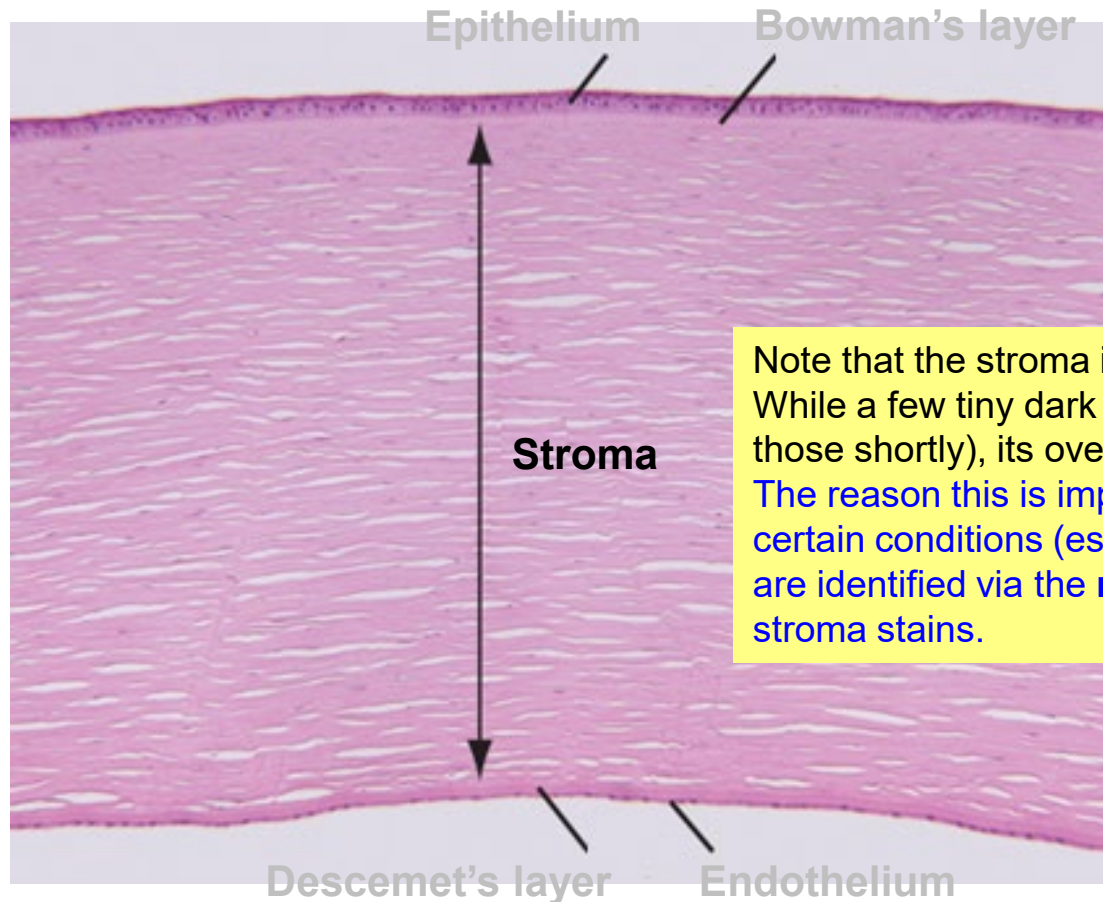


Note that the stroma is very **uniform** in its appearance. While a few tiny dark dots can be appreciated (more on those shortly), its overall appearance is monotone.

ing normal
e basic



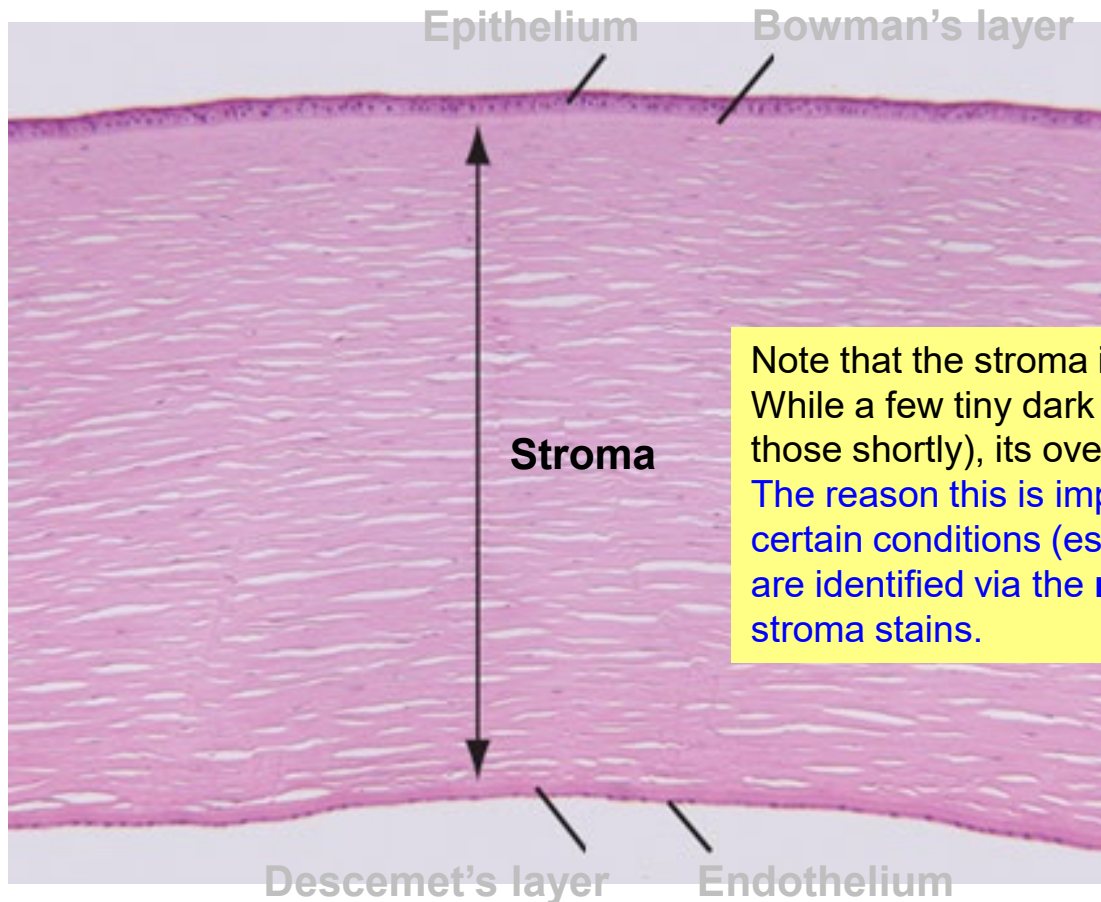
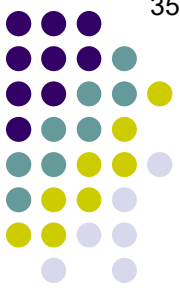
Pathwatching



Note that the stroma is very **uniform** in its appearance. While a few tiny dark dots can be appreciated (more on those shortly), its overall appearance is monotone. The reason this is important: We will soon see that certain conditions (especially the corneal) are identified via the **non-uniform** manner in which the stroma stains.

ing normal
e basic

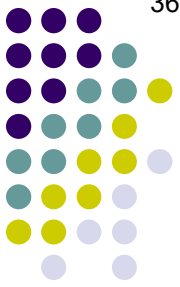
Pathwatching



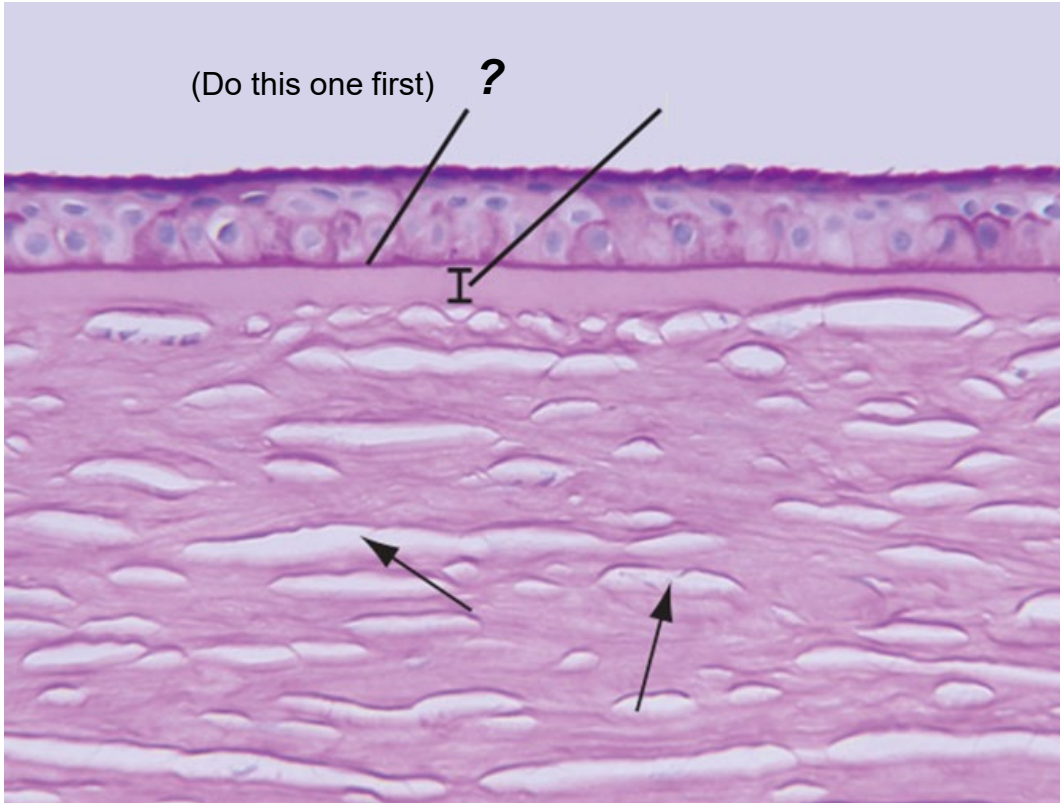
Note that the stroma is very **uniform** in its appearance. While a few tiny dark dots can be appreciated (more on those shortly), its overall appearance is monotone. The reason this is important: We will soon see that certain conditions (especially the corneal *dystrophies*) are identified via the **non-uniform** manner in which the stroma stains.

ing normal
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Pathwatching

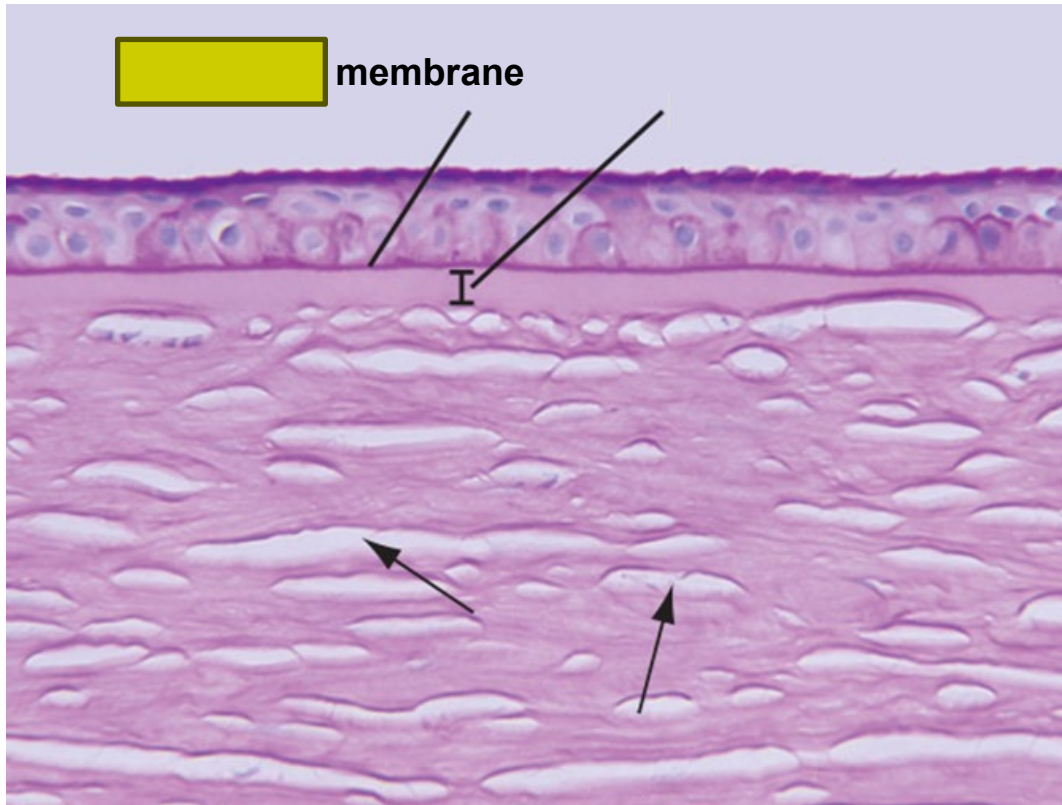
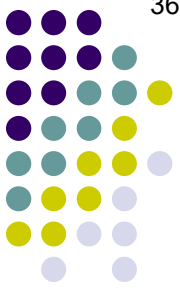


(Do this one first) ?



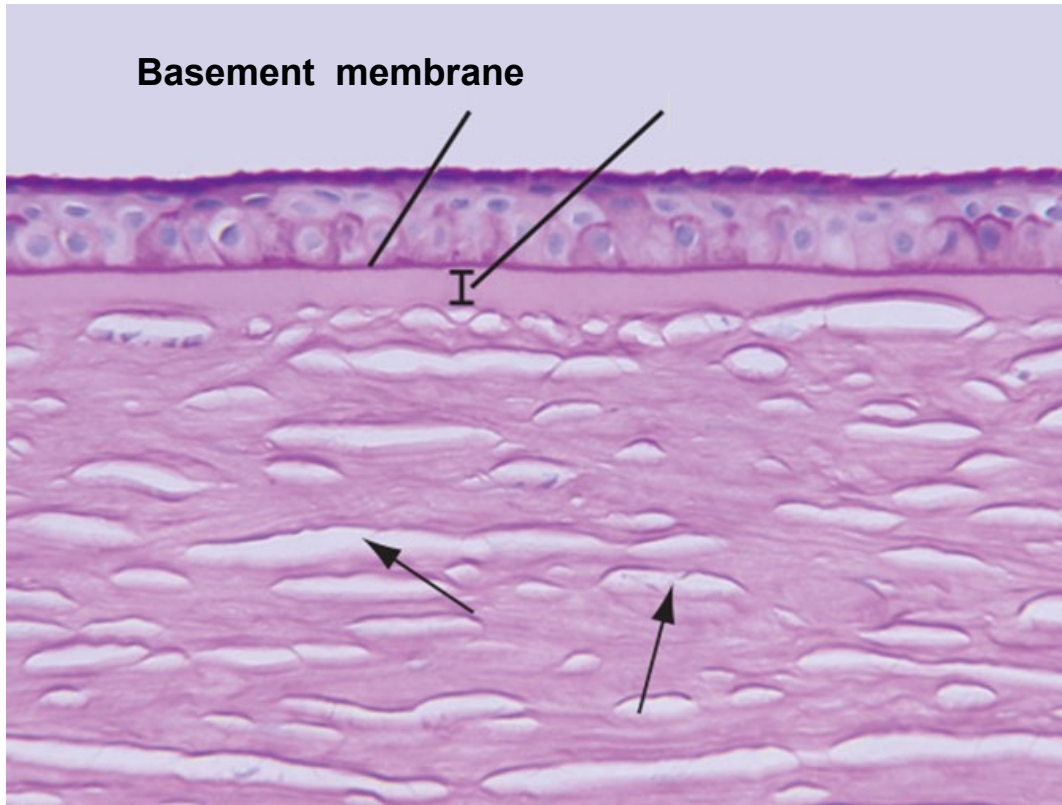
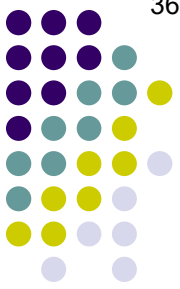
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

Pathwatching

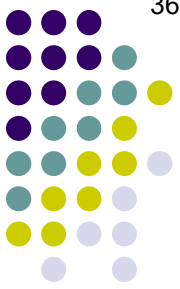


Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

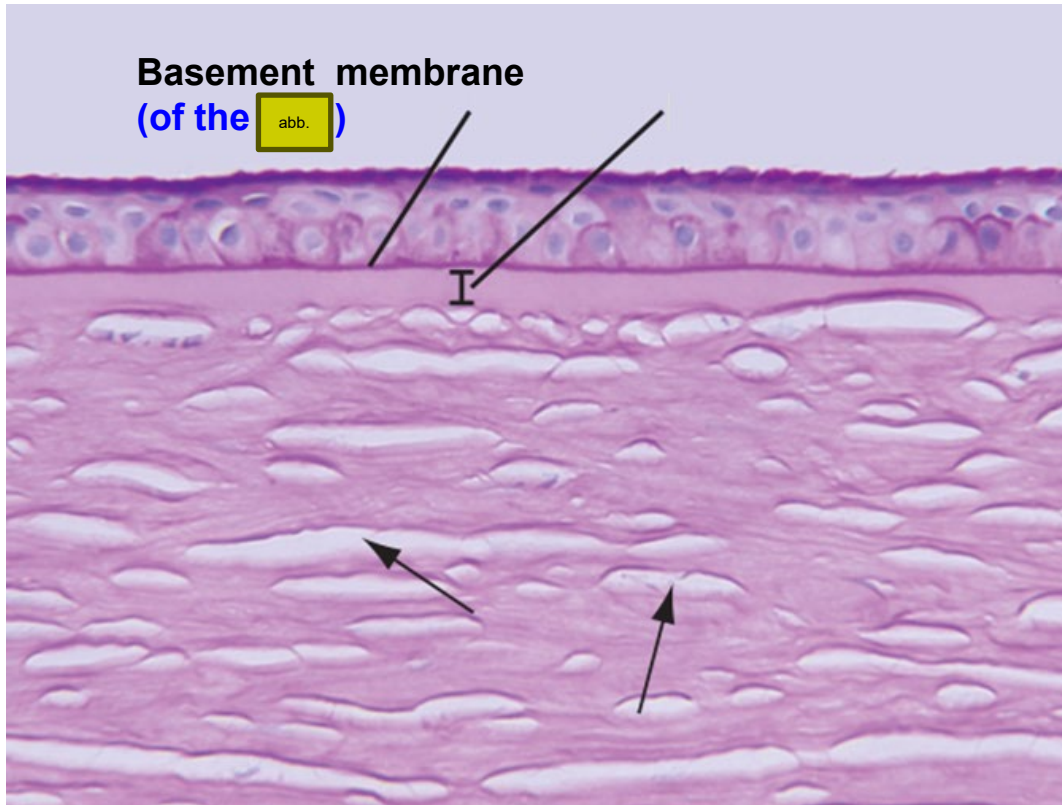
Pathwatching



Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

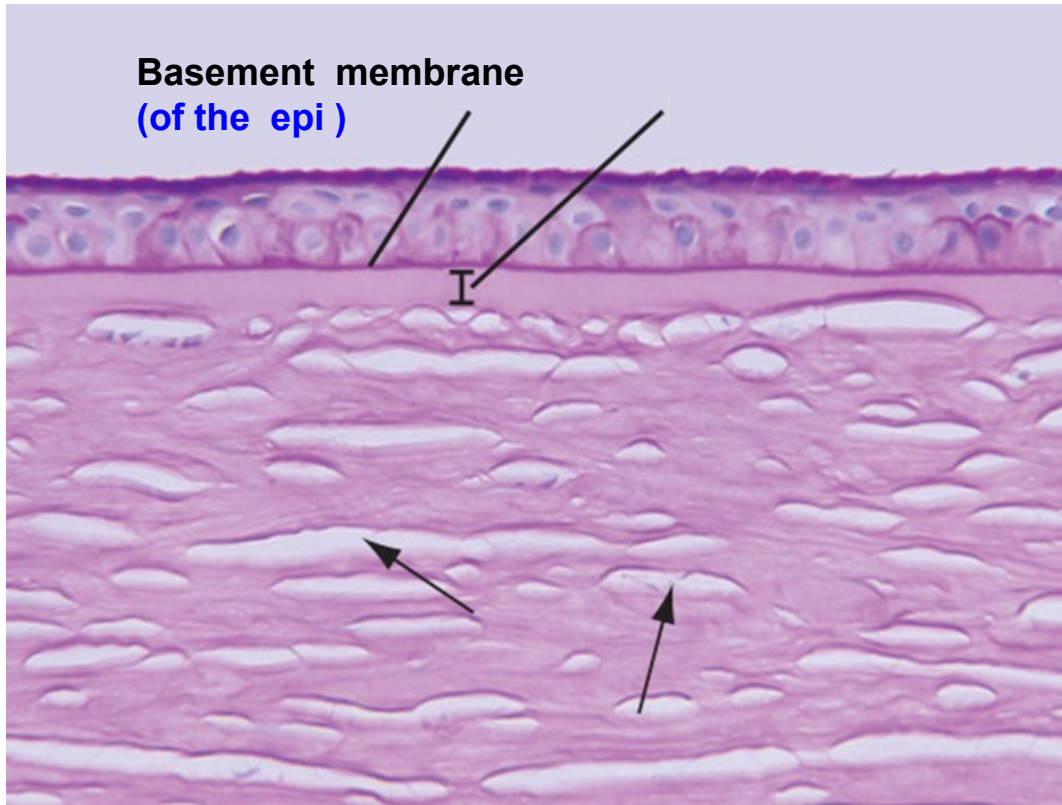
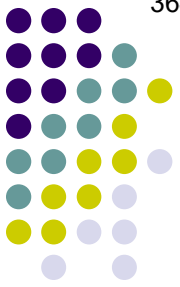


Pathwatching

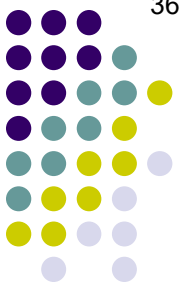


Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

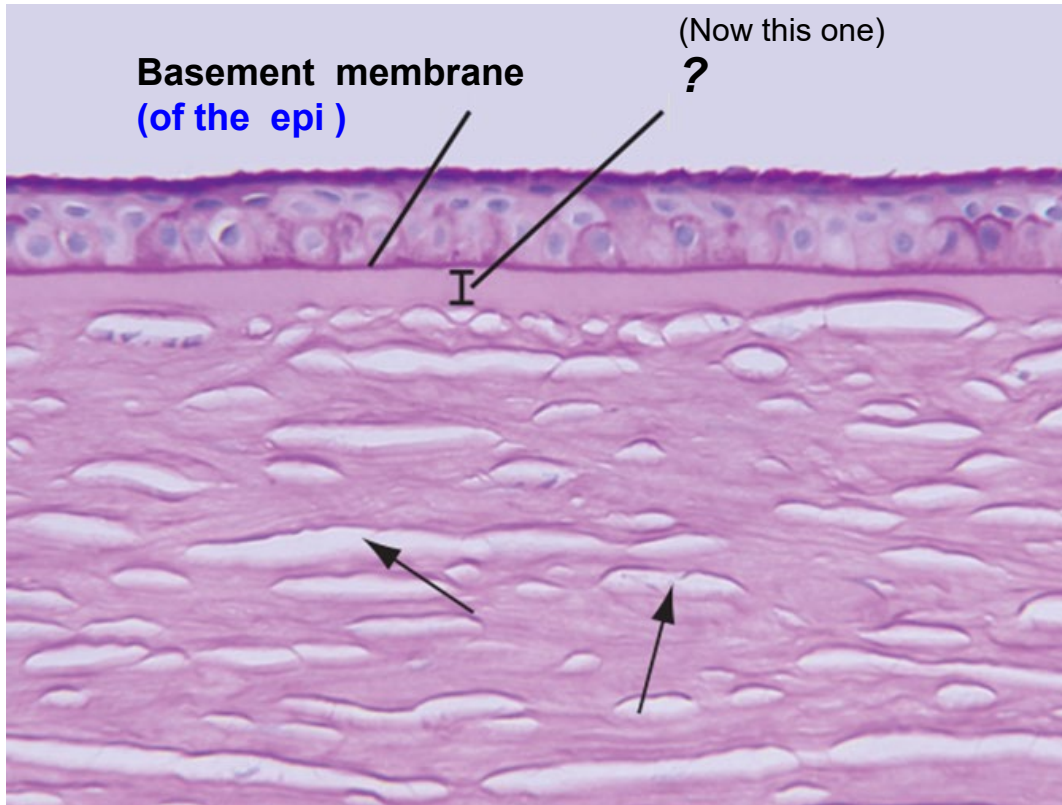
Pathwatching



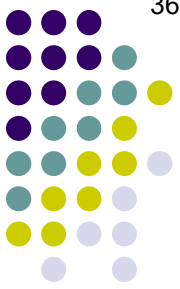
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*



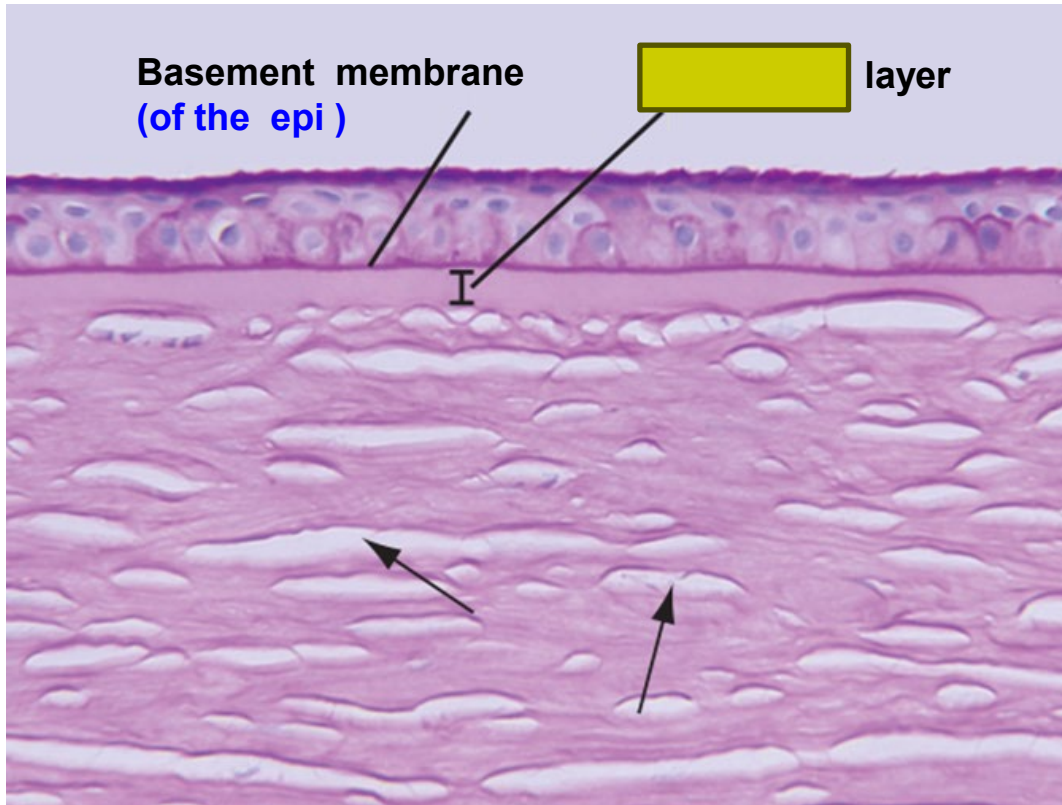
Pathwatching



Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

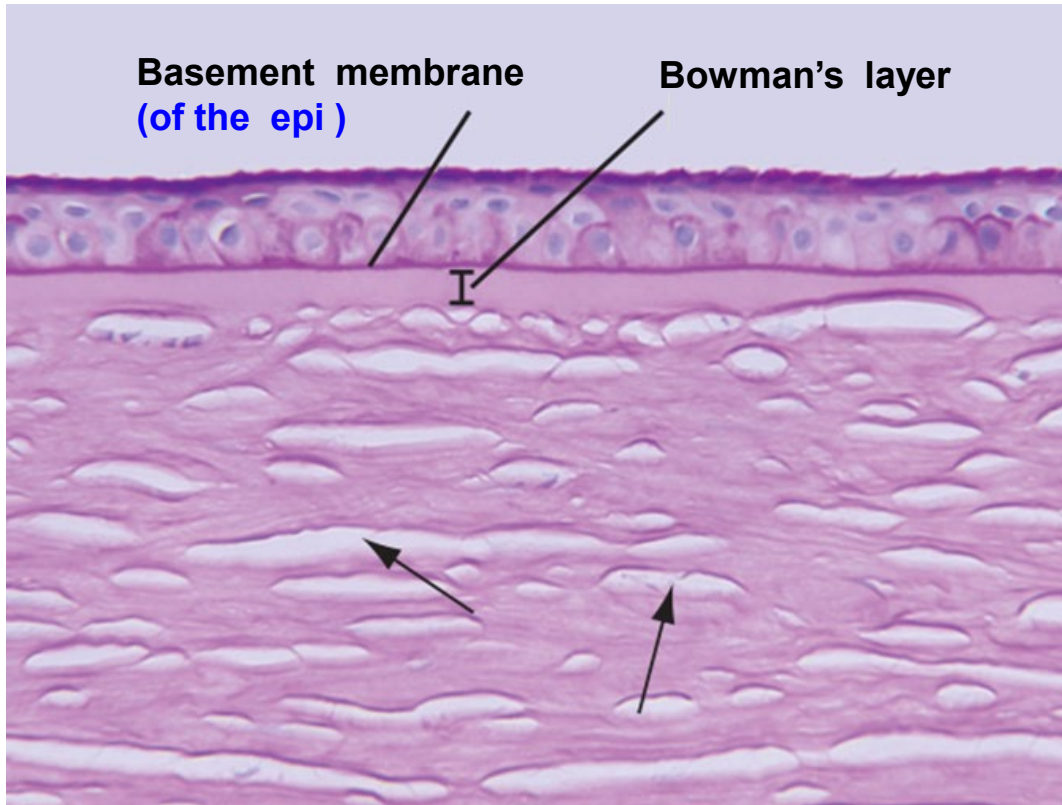
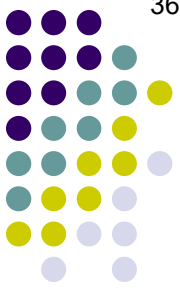


Pathwatching

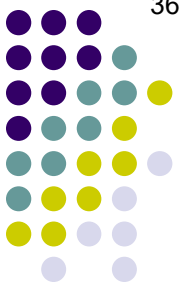


Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

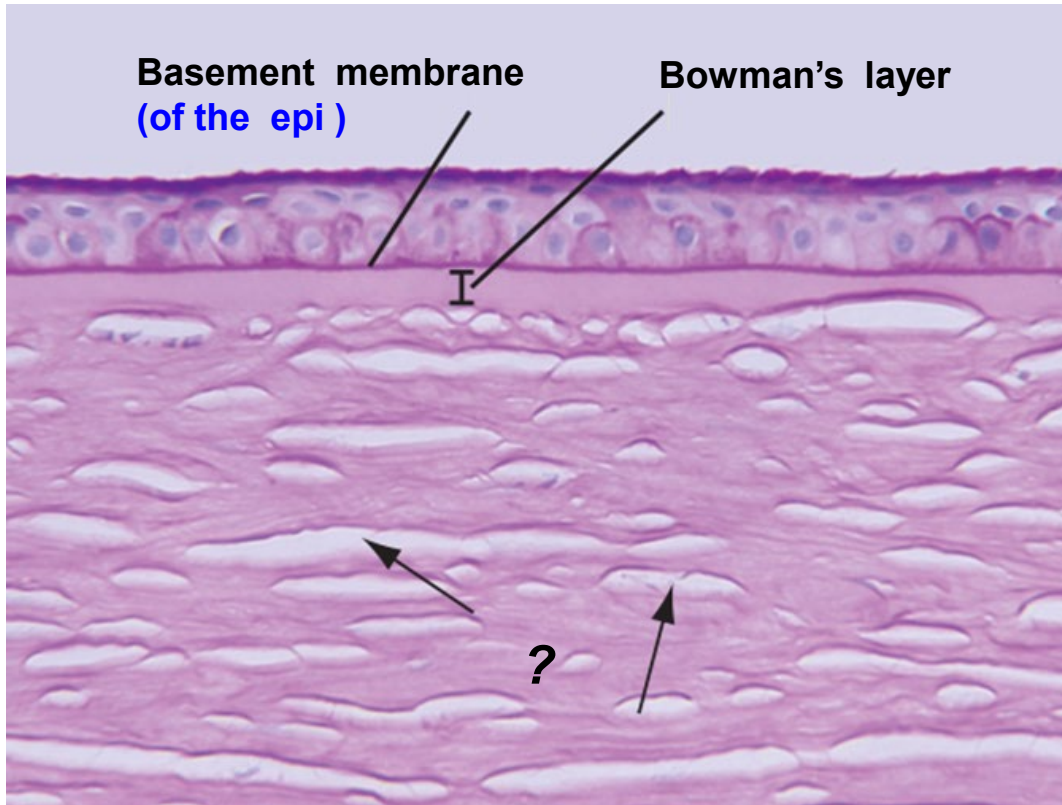
Pathwatching



Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

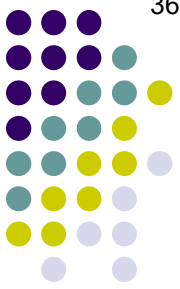


Pathwatching

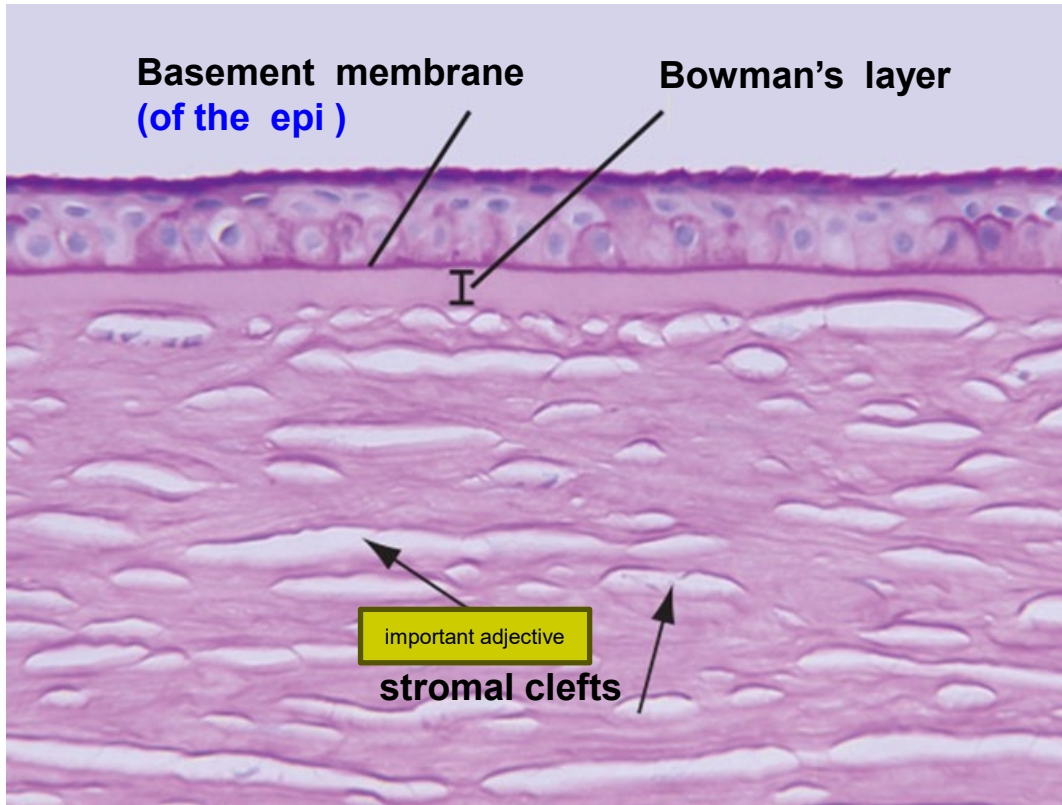


Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

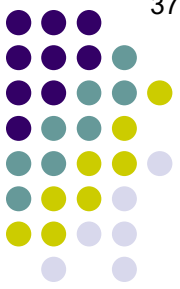
(Note: Both *arrows* are pointing to examples of the same issue of interest)



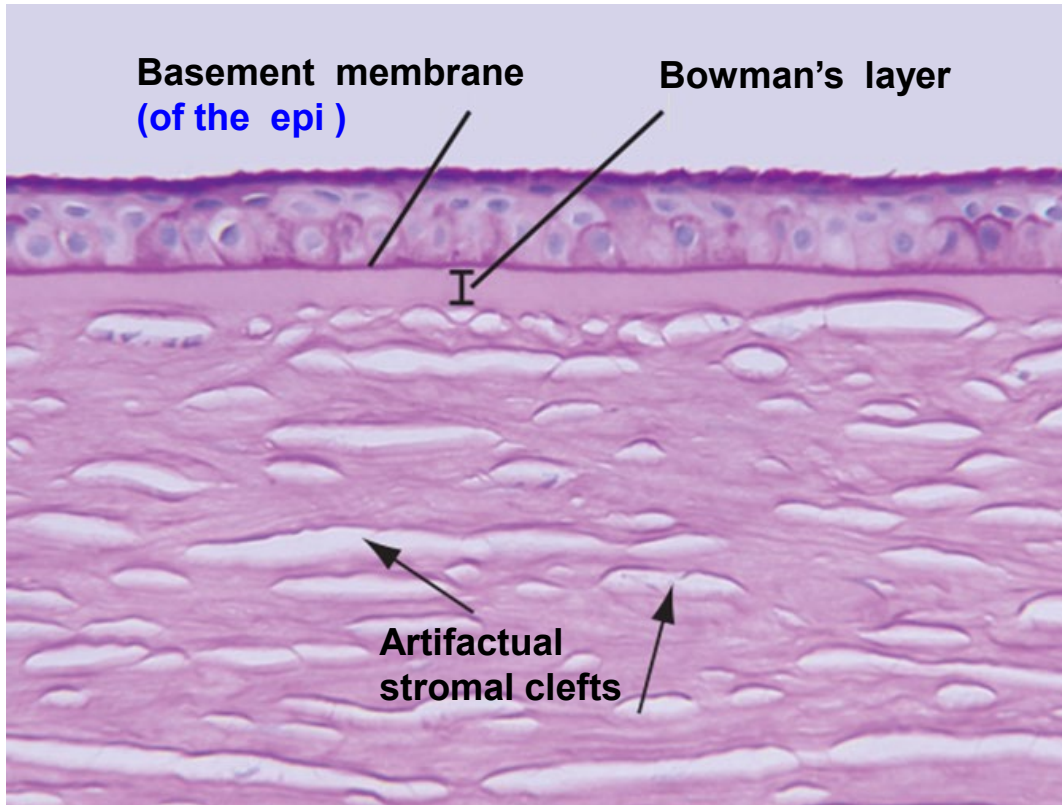
Pathwatching



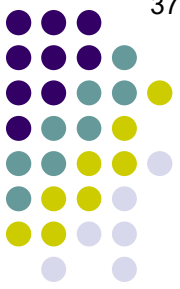
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*



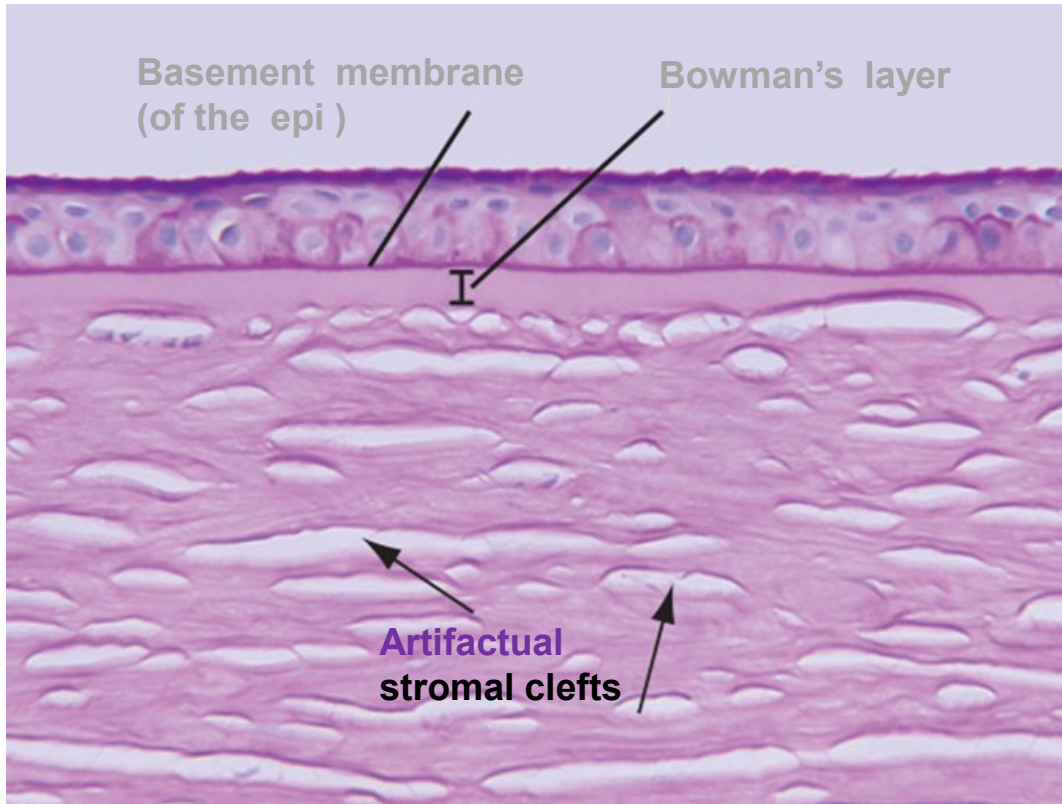
Pathwatching



Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

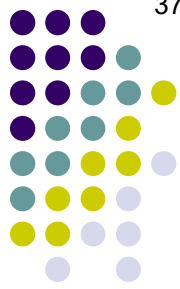


Pathwatching

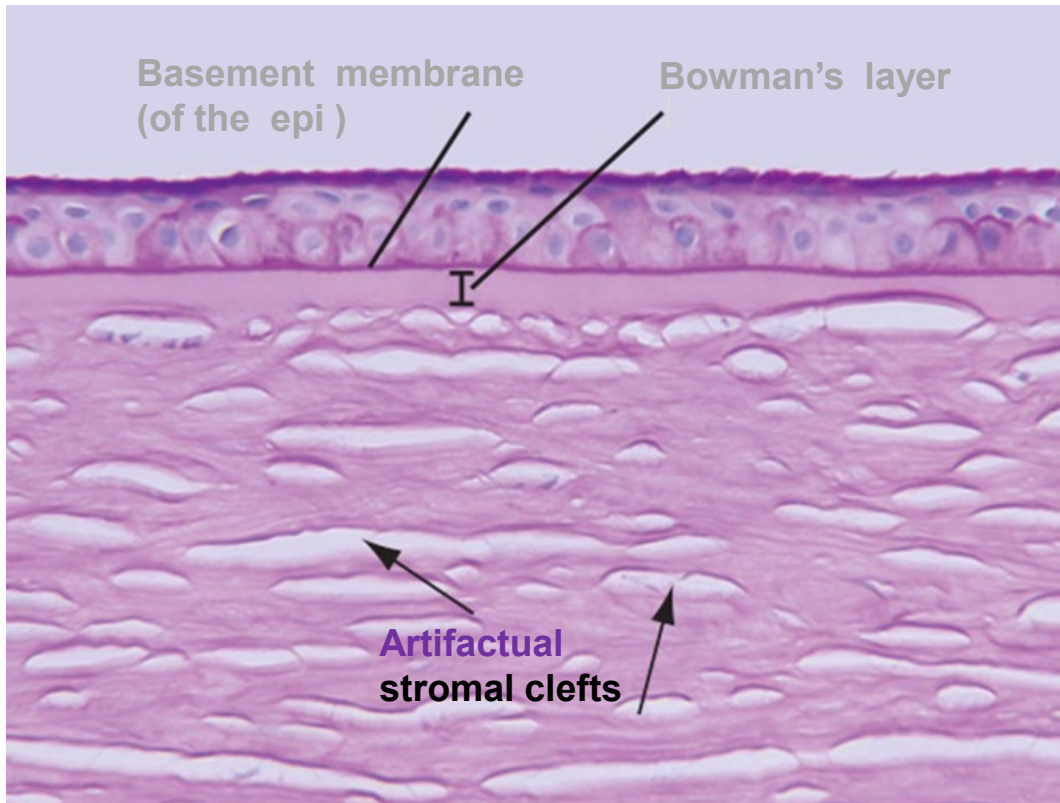


Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

What does it mean to say the stromal clefts are artifactual?



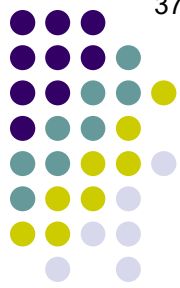
Pathwatching



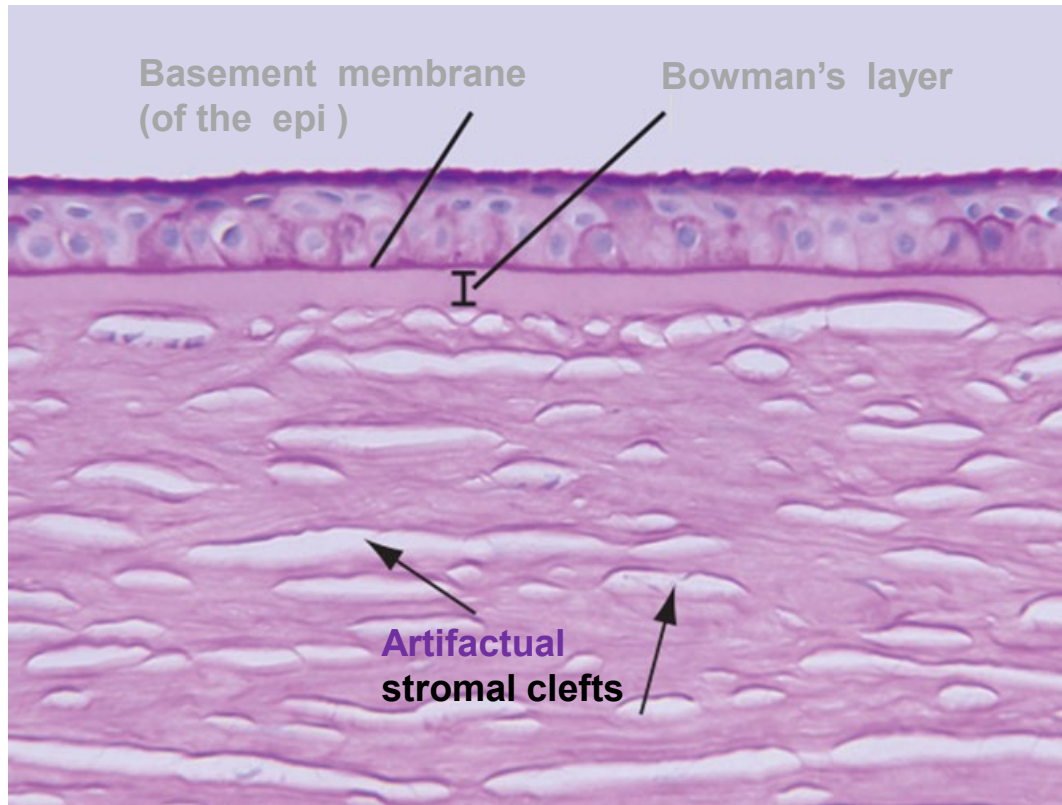
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

What does it mean to say the stromal clefts are artifactual?

It means they arise during tissue prep, ie, are not a normal state of the tissue in vivo



Pathwatching



Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

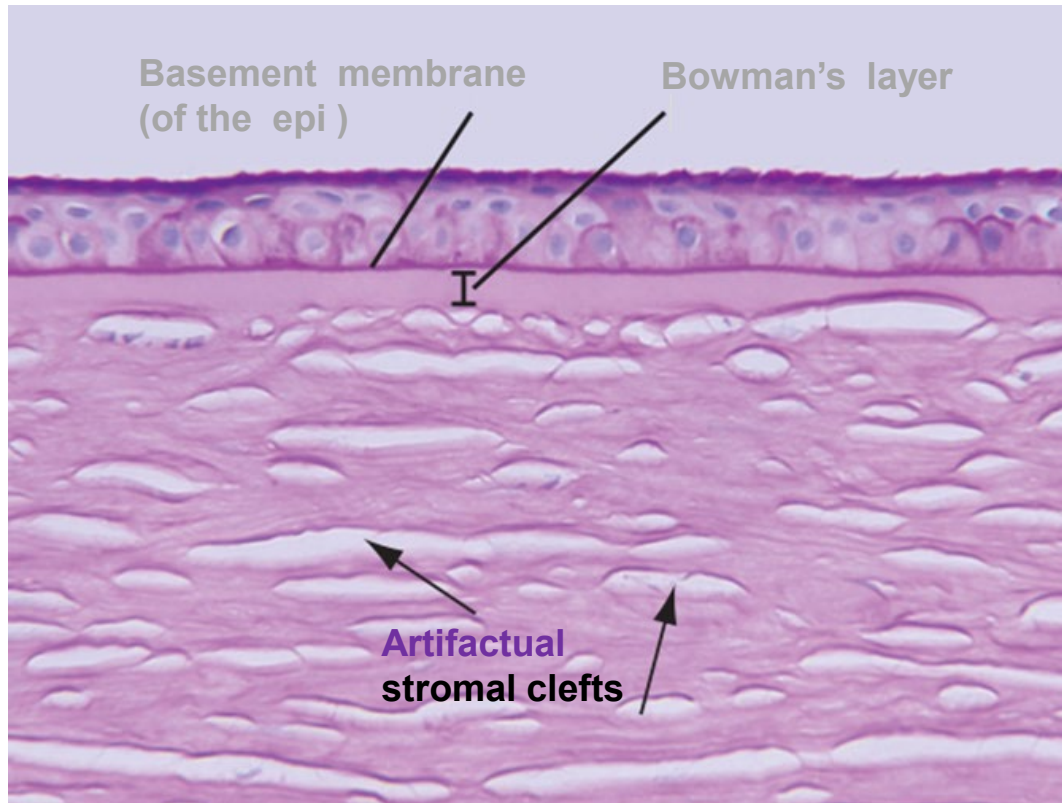
What does it mean to say the stromal clefts are artifactual?

It means they arise during tissue prep, ie, are not a normal state of the tissue in vivo

OK, so the stroma contains artifactual clefts. Why should I care?



Pathwatching



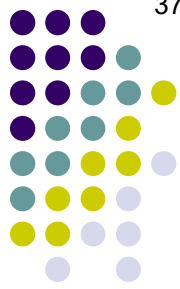
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

What does it mean to say the stromal clefts are artifactual?

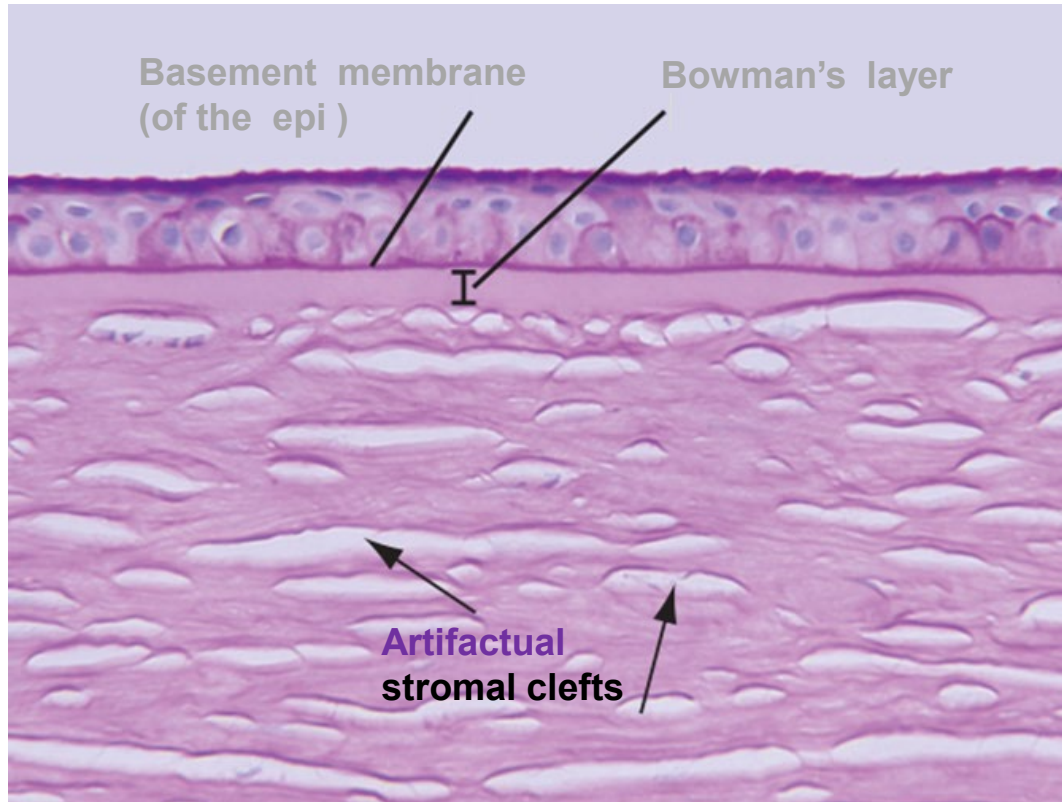
It means they arise during tissue prep, ie, are not a normal state of the tissue in vivo

OK, so the stroma contains artifactual clefts. Why should I care?

Because this artifact is meaningful. If a portion of a cornea photomicrograph contains 'un-clefted' stroma, that portion was either or in vivo.



Pathwatching



Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*

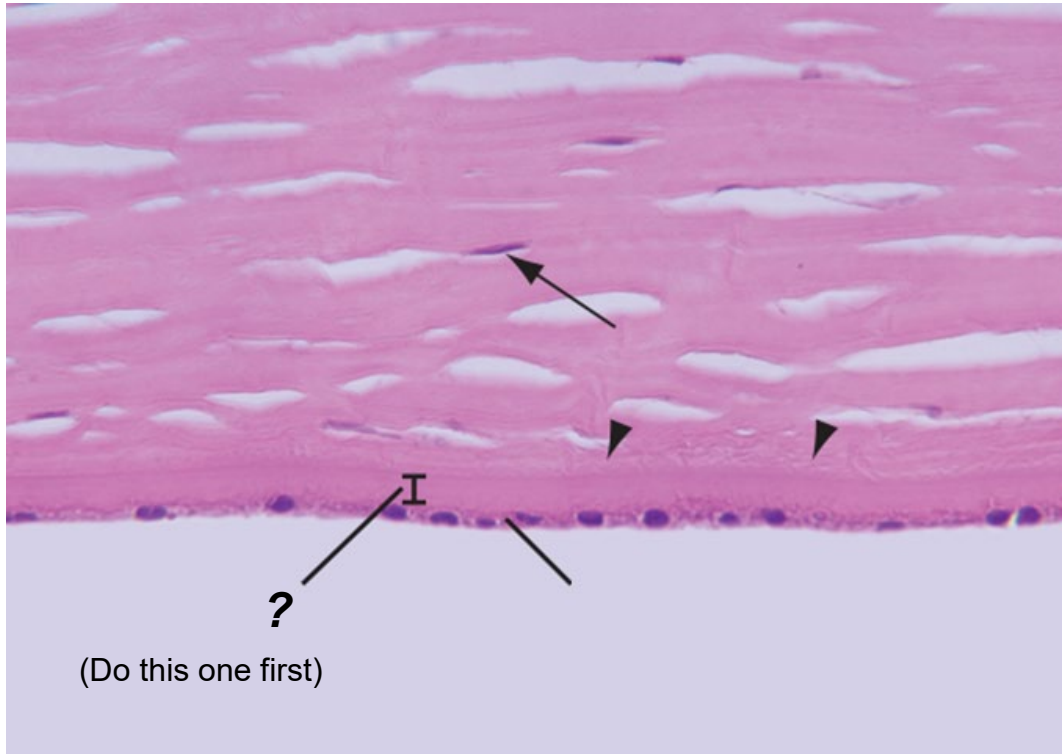
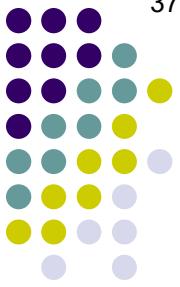
What does it mean to say the stromal clefts are artifactual?

It means they arise during tissue prep, ie, are not a normal state of the tissue in vivo

OK, so the stroma contains artifactual clefts. Why should I care?

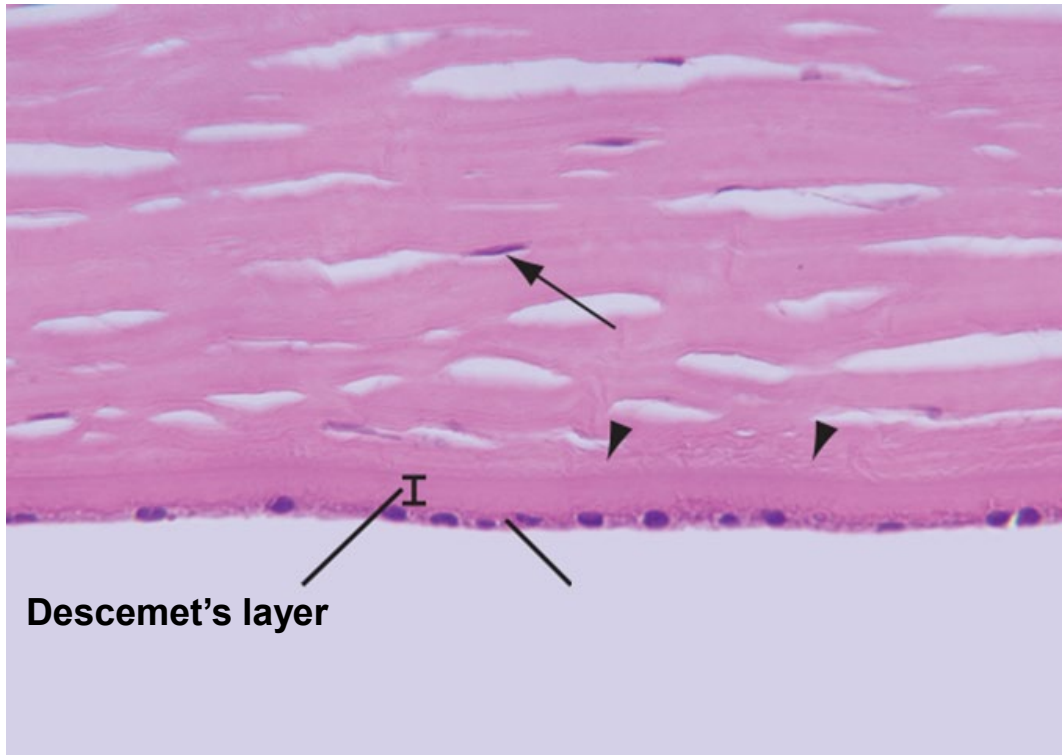
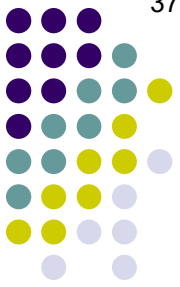
Because this artifact is meaningful. If a portion of a cornea photomicrograph contains 'un-clefted' stroma, that portion was either scarred or edematous in vivo.

Pathwatching



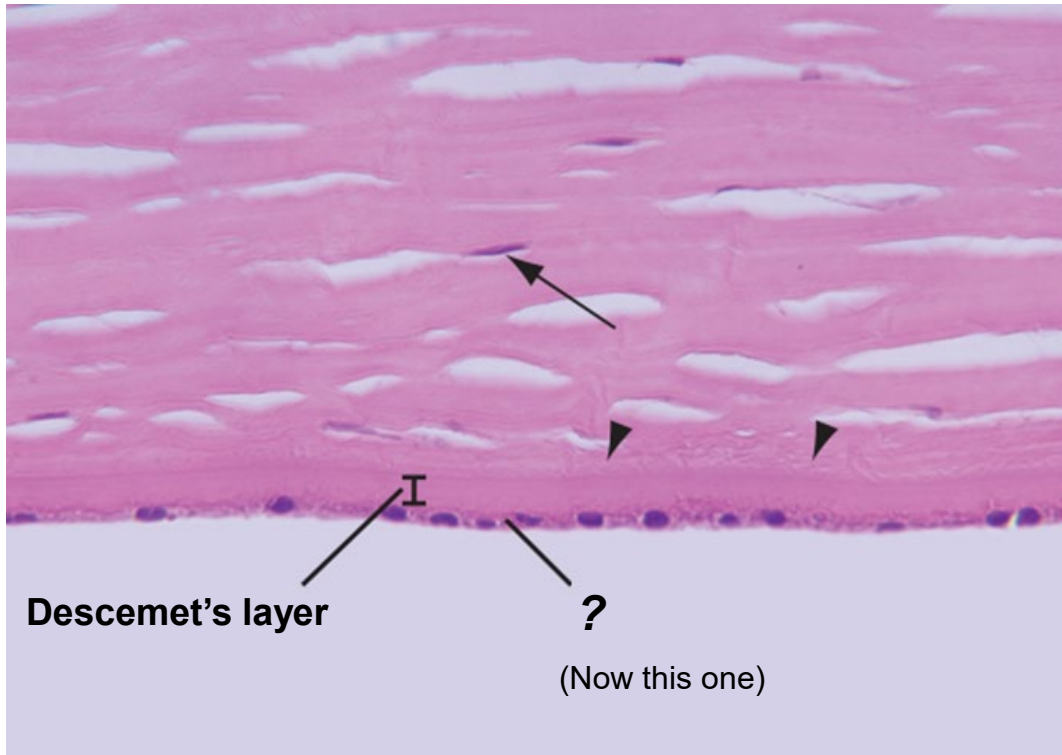
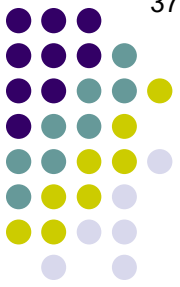
This image is drilling down on the **posterior cornea**. *ID the indicated structures:*

Pathwatching



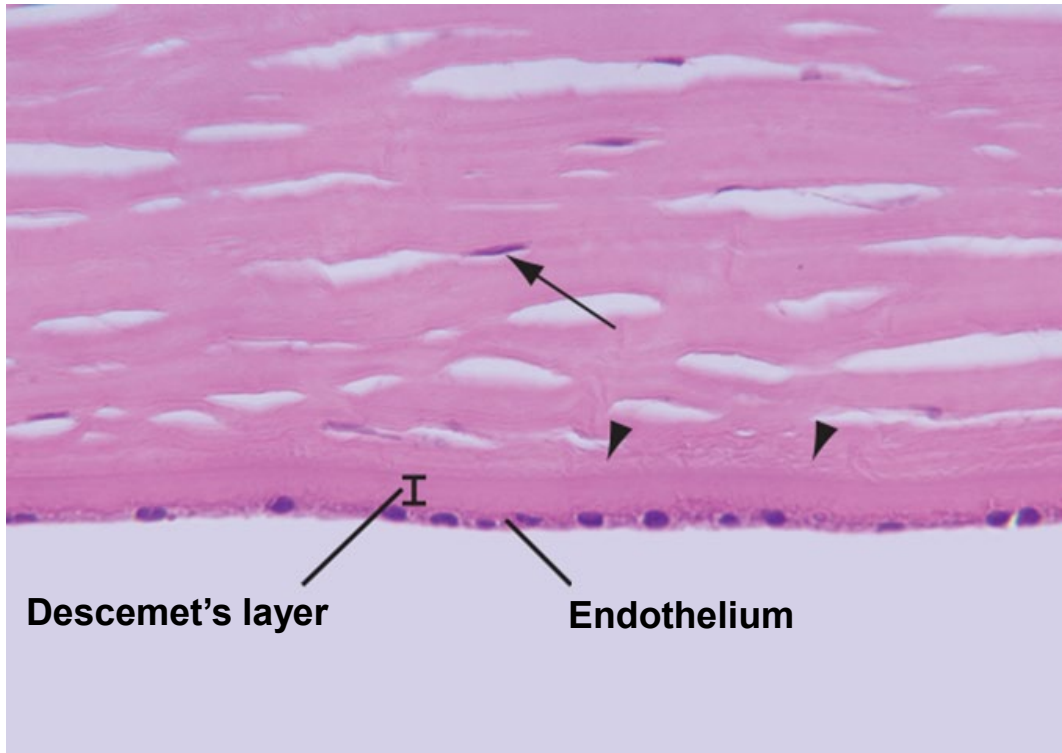
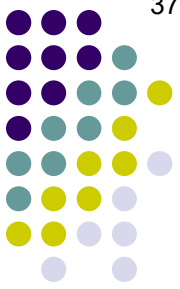
This image is drilling down on the **posterior cornea**. *ID the indicated structures:*

Pathwatching



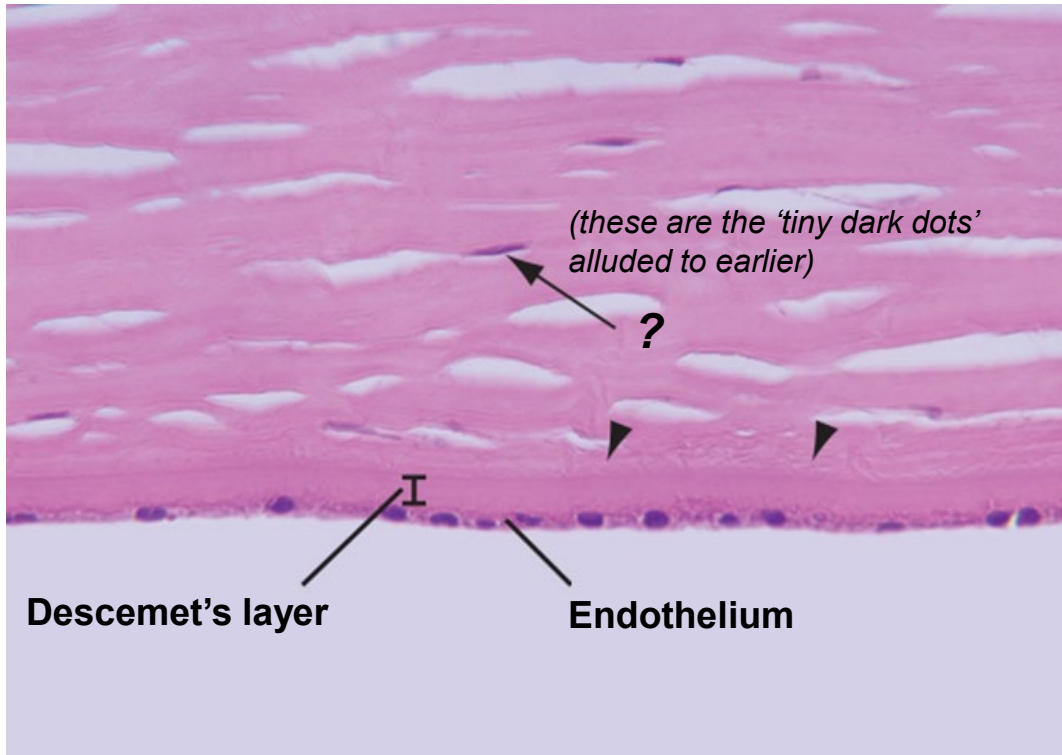
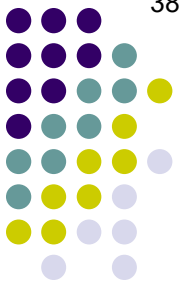
This image is drilling down on the **posterior** cornea. *ID the indicated structures:*

Pathwatching

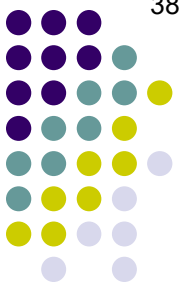


This image is drilling down on the **posterior cornea**. *ID the indicated structures:*

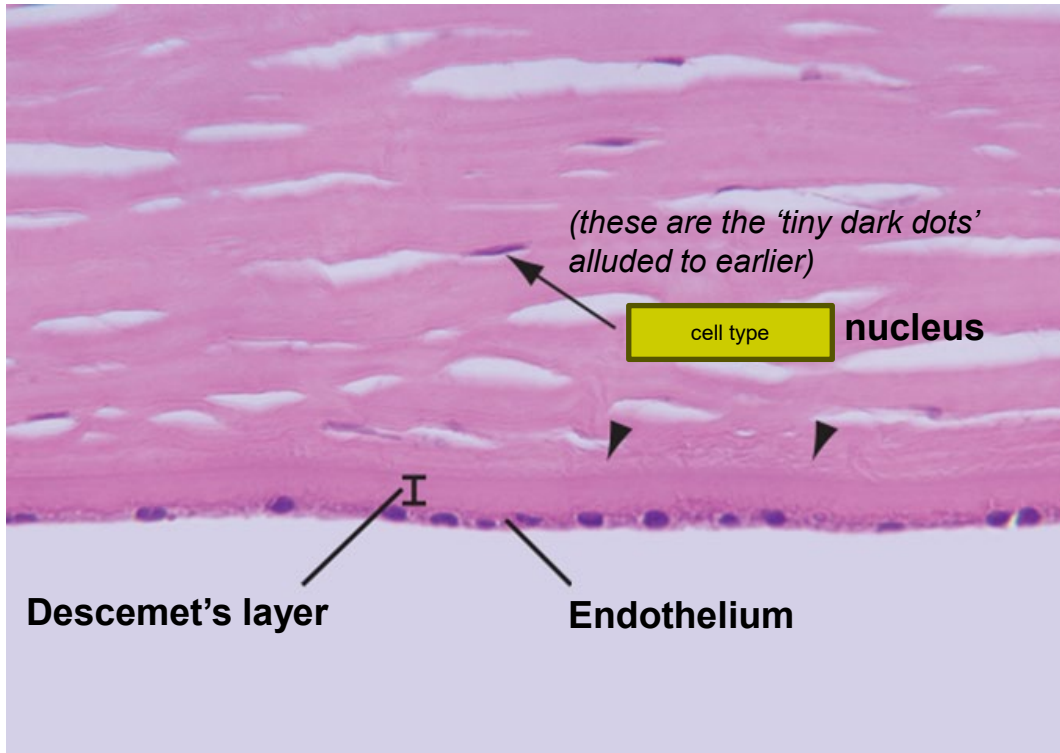
Pathwatching



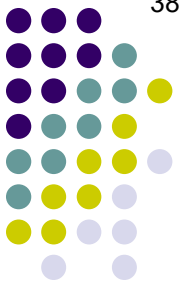
This image is drilling down on the **posterior** cornea. *ID the indicated structures:*



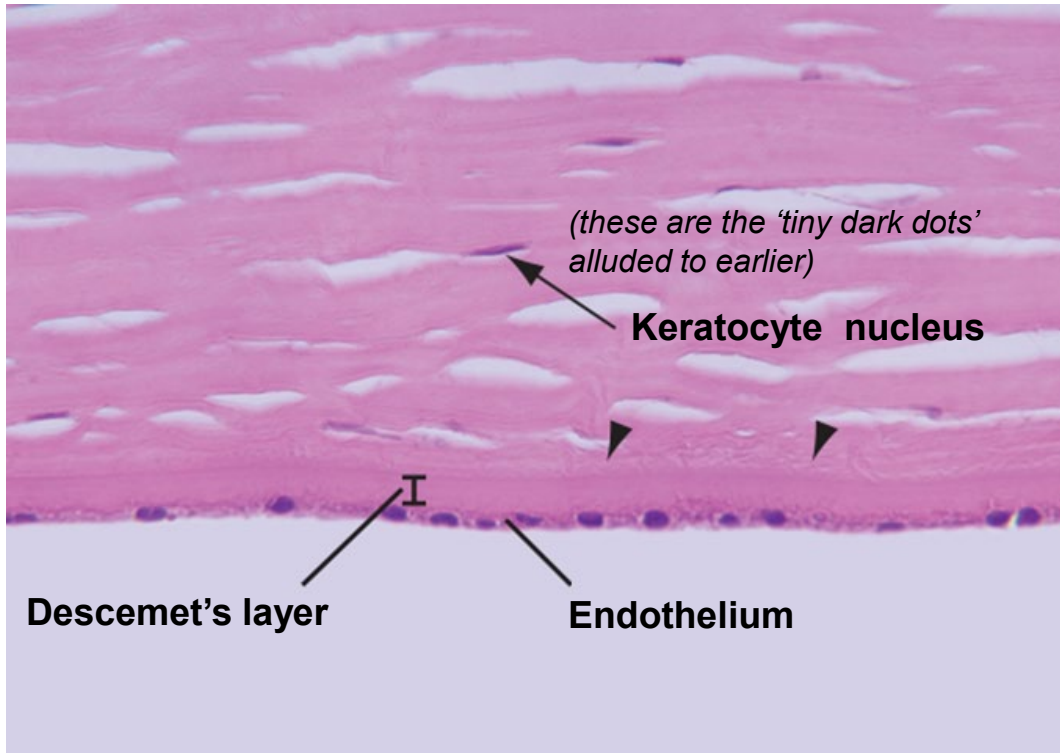
Pathwatching



This image is drilling down on the **posterior** cornea. ID the indicated structures:

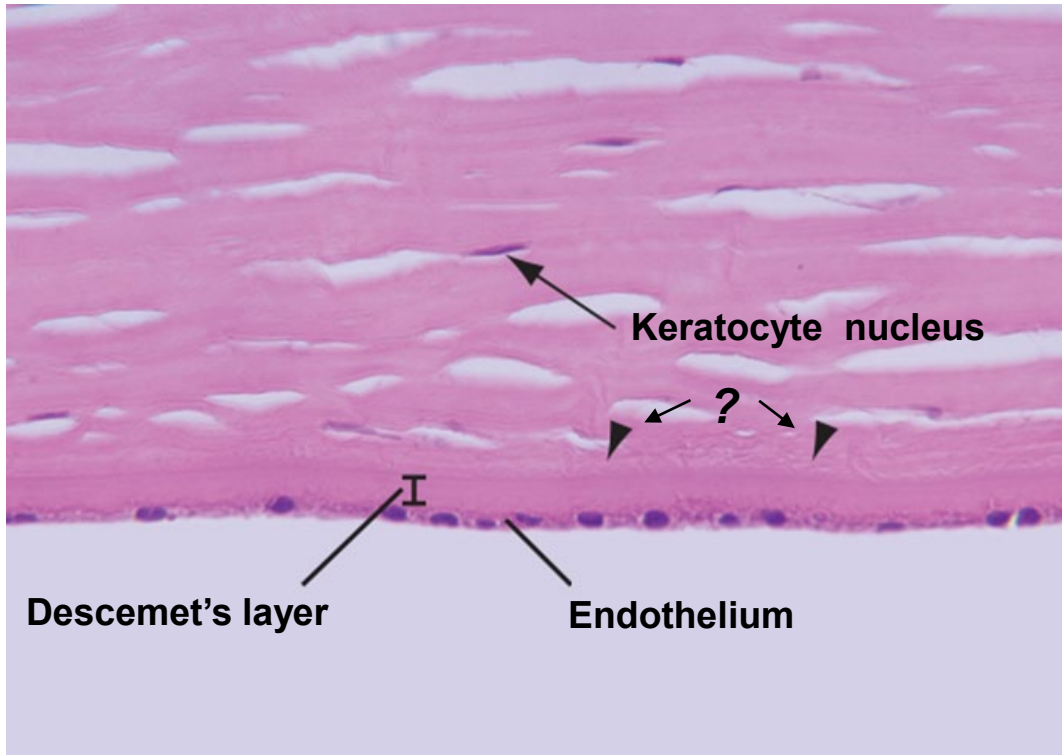
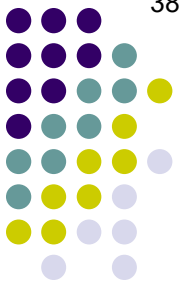


Pathwatching



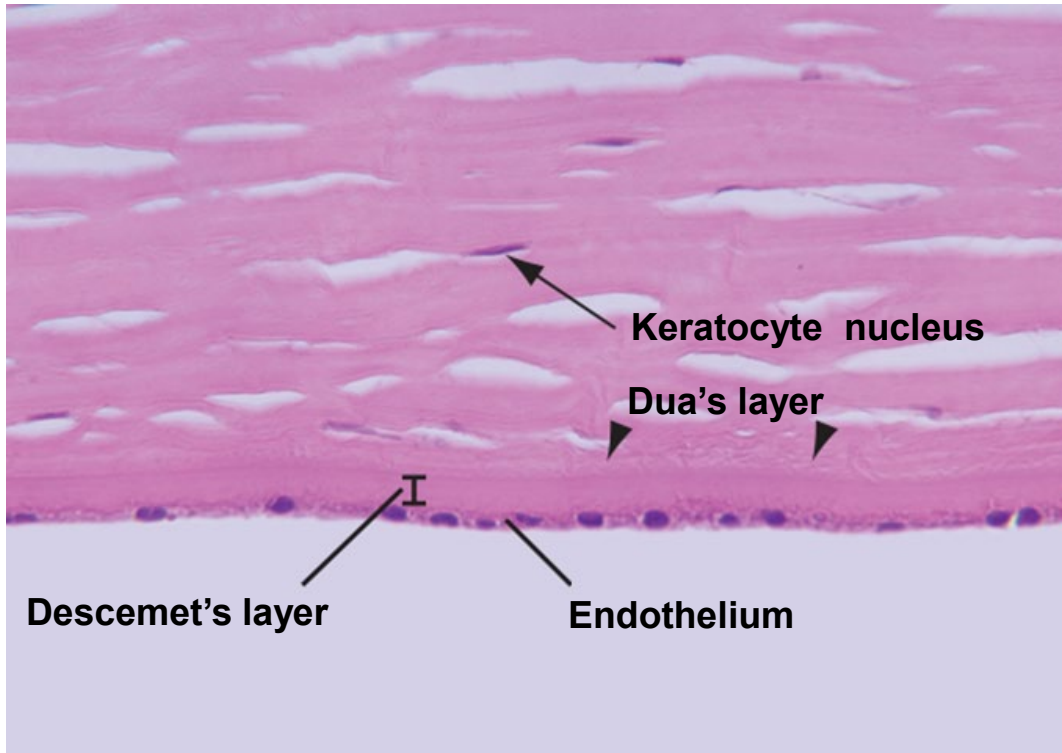
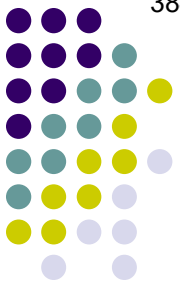
This image is drilling down on the **posterior** cornea. *ID the indicated structures:*

Pathwatching

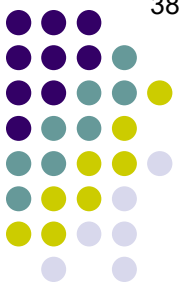


This image is drilling down on the **posterior** cornea. *ID the indicated structures:*

Pathwatching



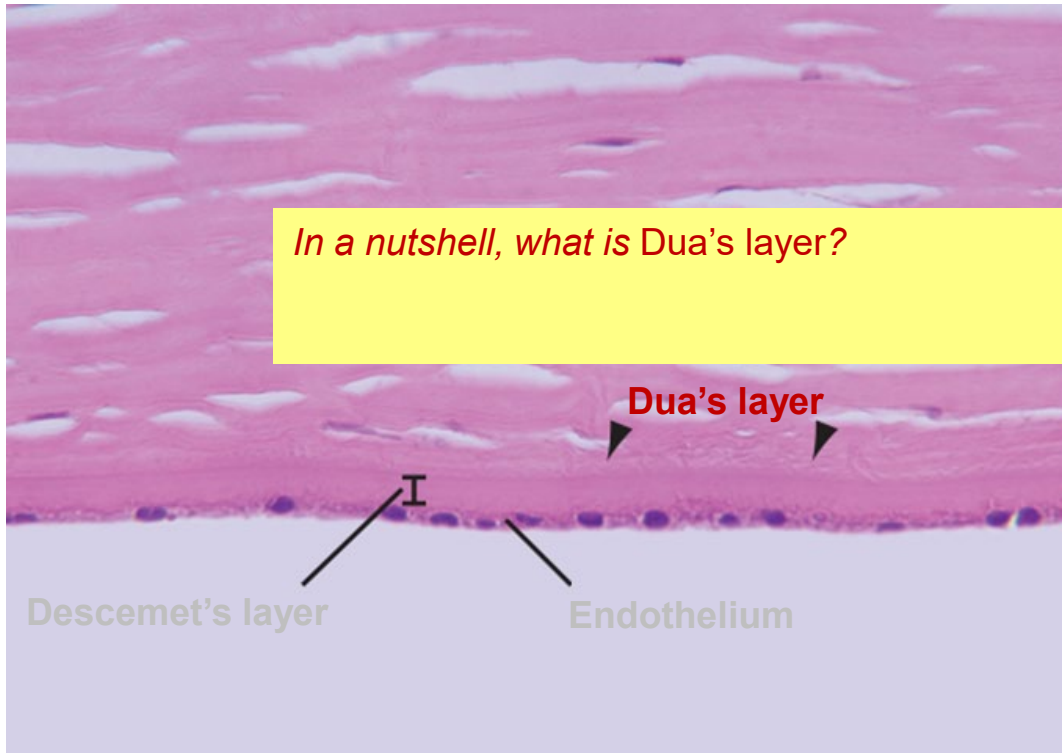
This image is drilling down on the **posterior** cornea. *ID the indicated structures:*

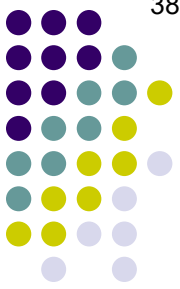


Pathwatching

In a nutshell, what is Dua's layer?

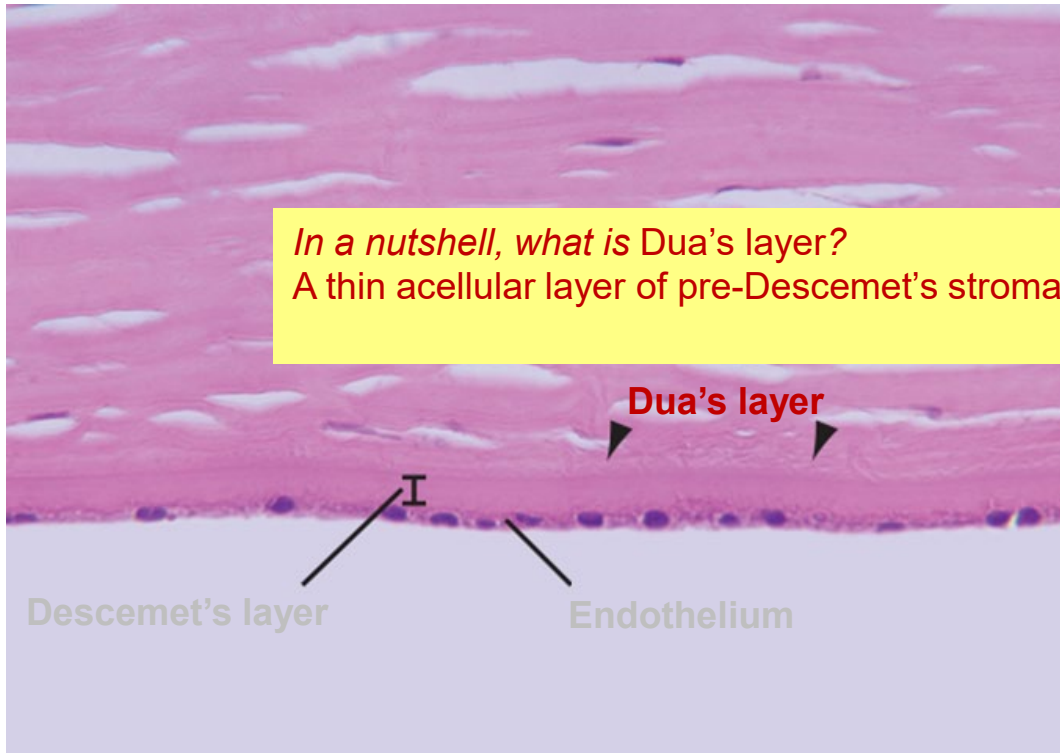
This image is drilling down on the **posterior** area. ID the indicated structures:



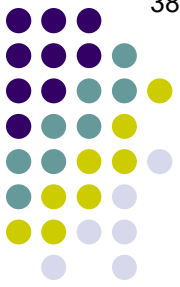


Pathwatching

*In a nutshell, what is Dua's layer?
A thin acellular layer of pre-Descemet's stroma*



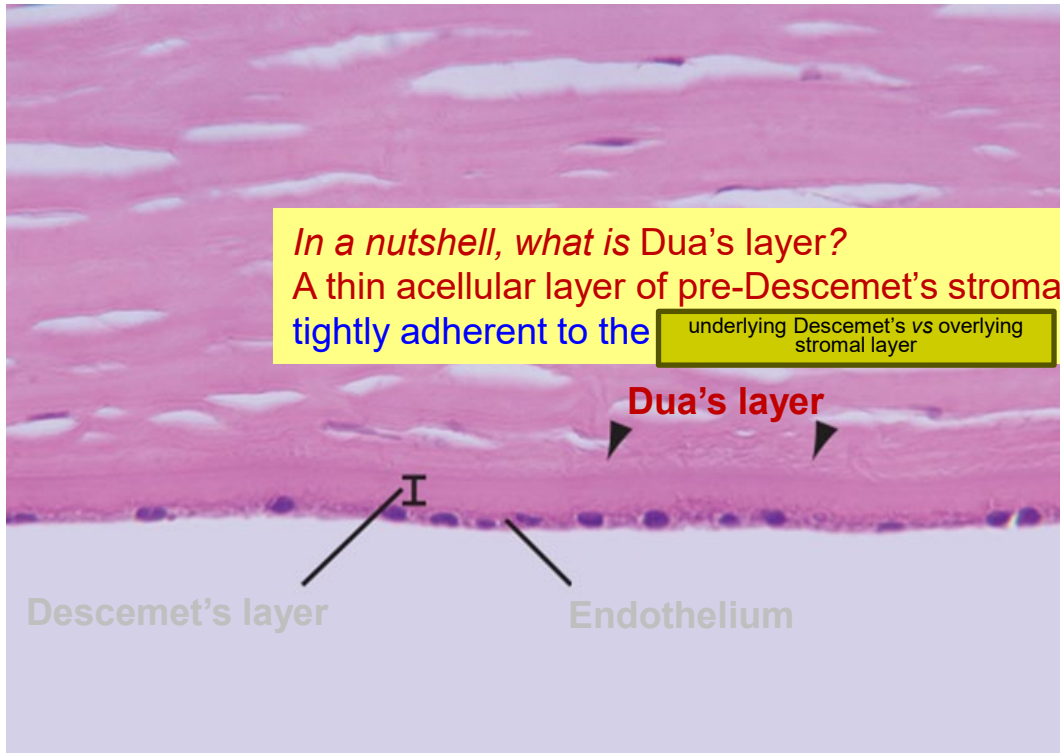
This image is drilling down on the **posterior** area. ID the indicated structures:



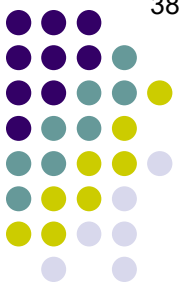
Pathwatching

In a nutshell, what is Dua's layer?
 A thin acellular layer of pre-Descemet's stroma. It is tightly adherent to the

underlying Descemet's vs overlying stromal layer



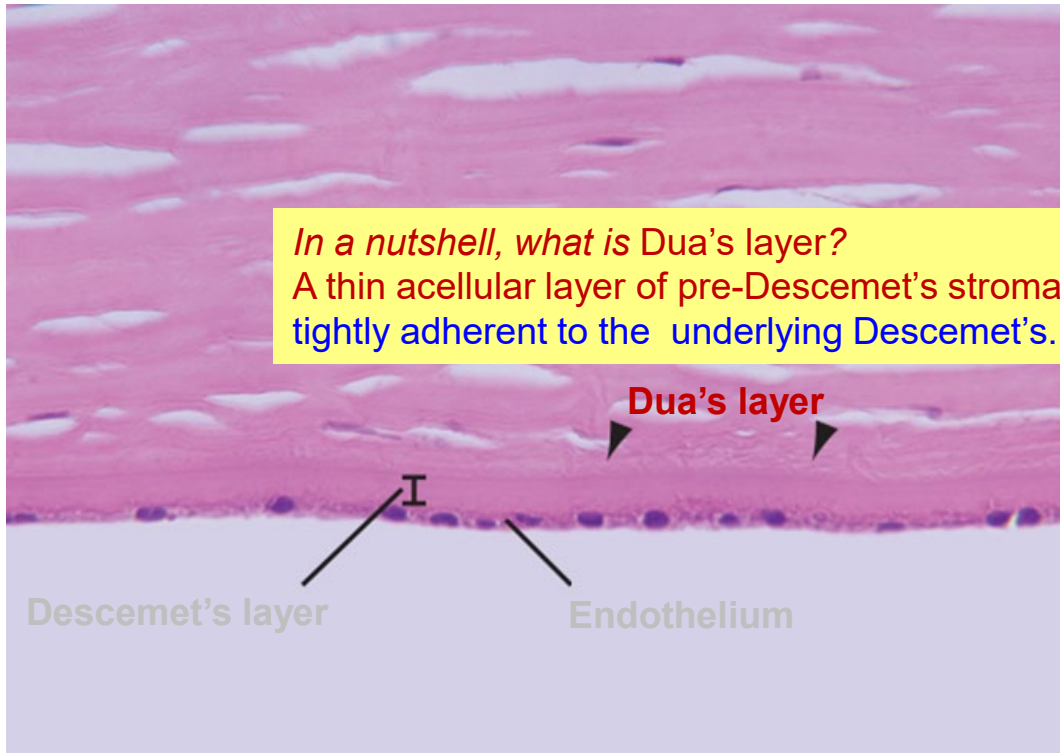
This image is drilling down on the posterior cornea. ID the indicated structures:



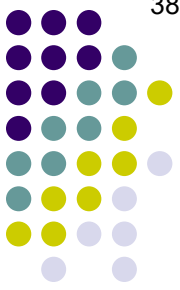
Pathwatching

In a nutshell, what is Dua's layer?

A thin acellular layer of pre-Descemet's stroma. It is tightly adherent to the underlying Descemet's.



This image is drilling down on the posterior cornea. ID the indicated structures:



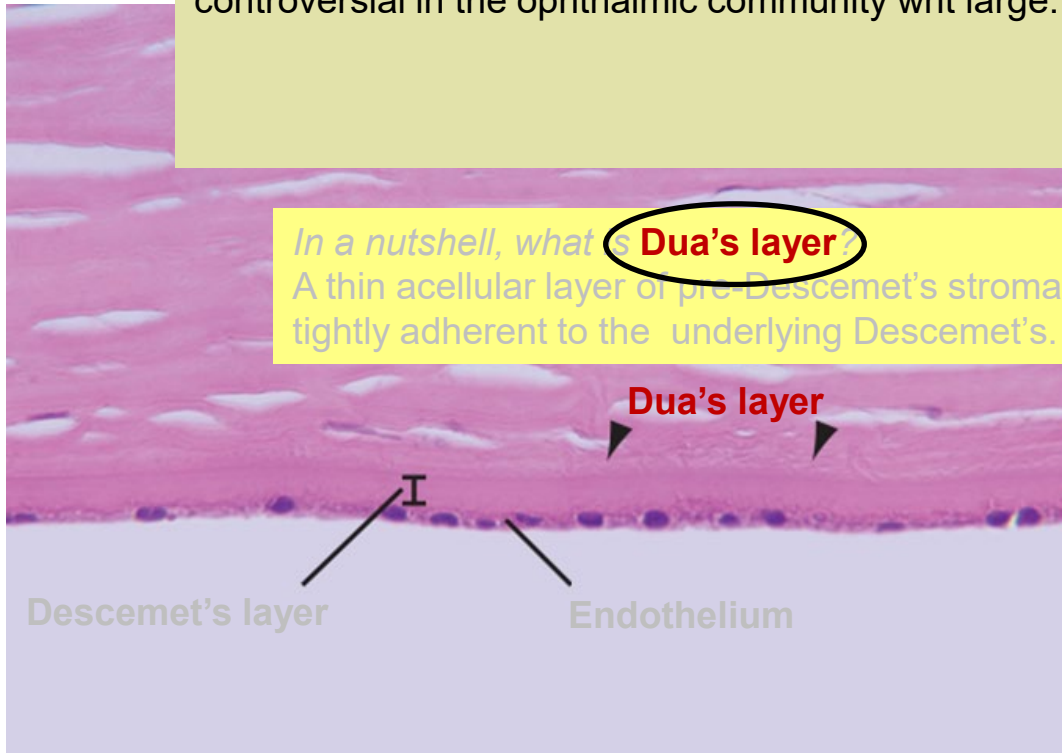
Pathwatching

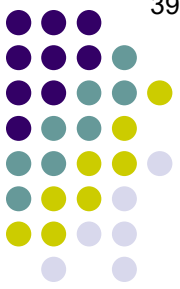
Note: Both the *Path* and *Cornea* books use *Dua layer* to refer to this portion of the cornea. That said, the term is somewhat controversial in the ophthalmic community writ large.

In a nutshell, what's **Dua's layer**?

A thin acellular layer of pre-Descemet's stroma. It is tightly adherent to the underlying Descemet's.

This image is drilling down on the posterior cornea. ID the indicated structures:





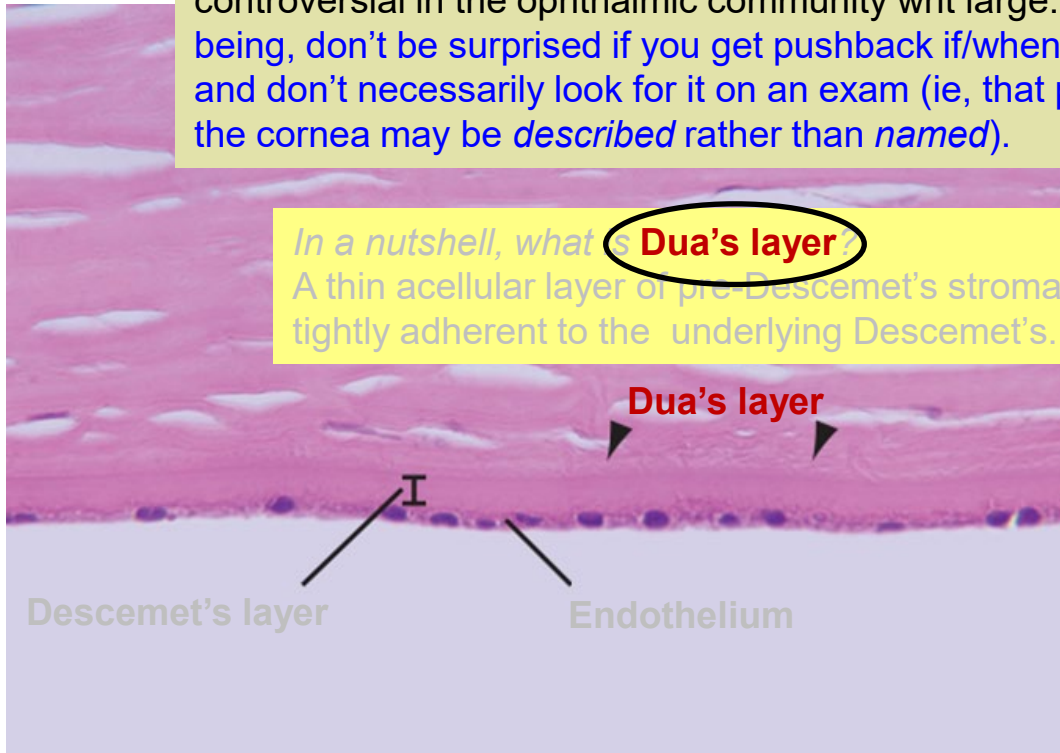
Pathwatching

Note: Both the *Path* and *Cornea* books use *Dua layer* to refer to this portion of the cornea. That said, the term is somewhat controversial in the ophthalmic community writ large. The point being, don't be surprised if you get pushback if/when you use it, and don't necessarily look for it on an exam (ie, that portion of the cornea may be *described* rather than *named*).

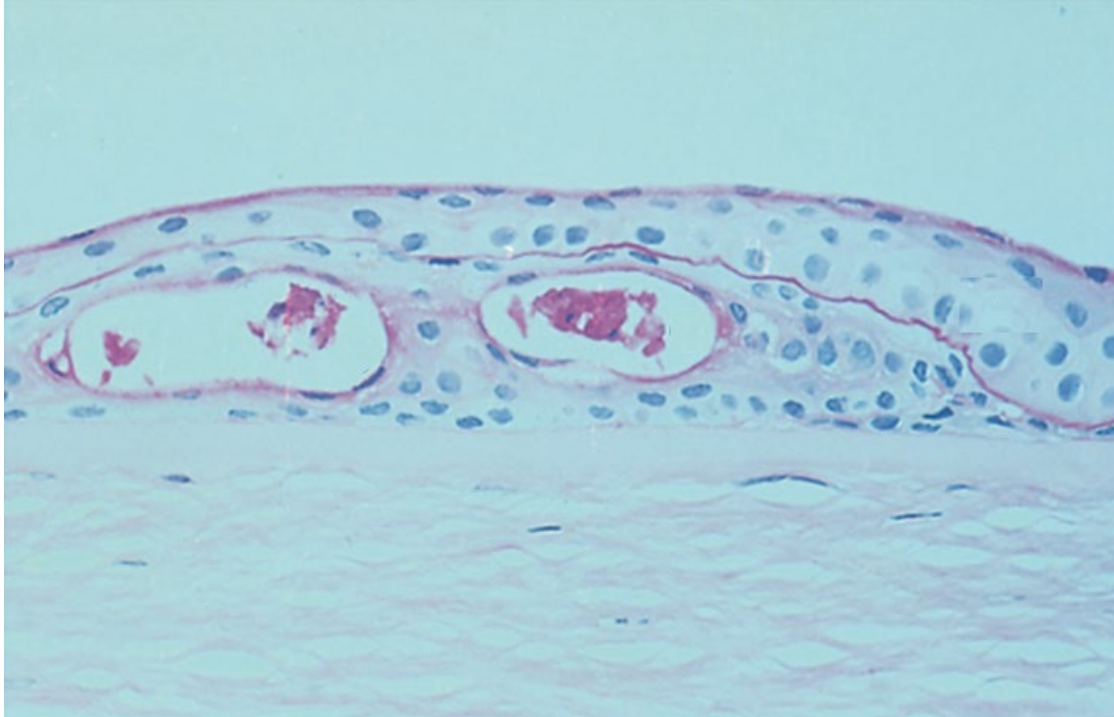
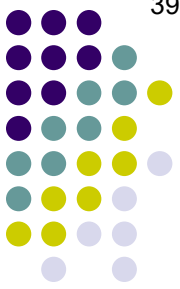
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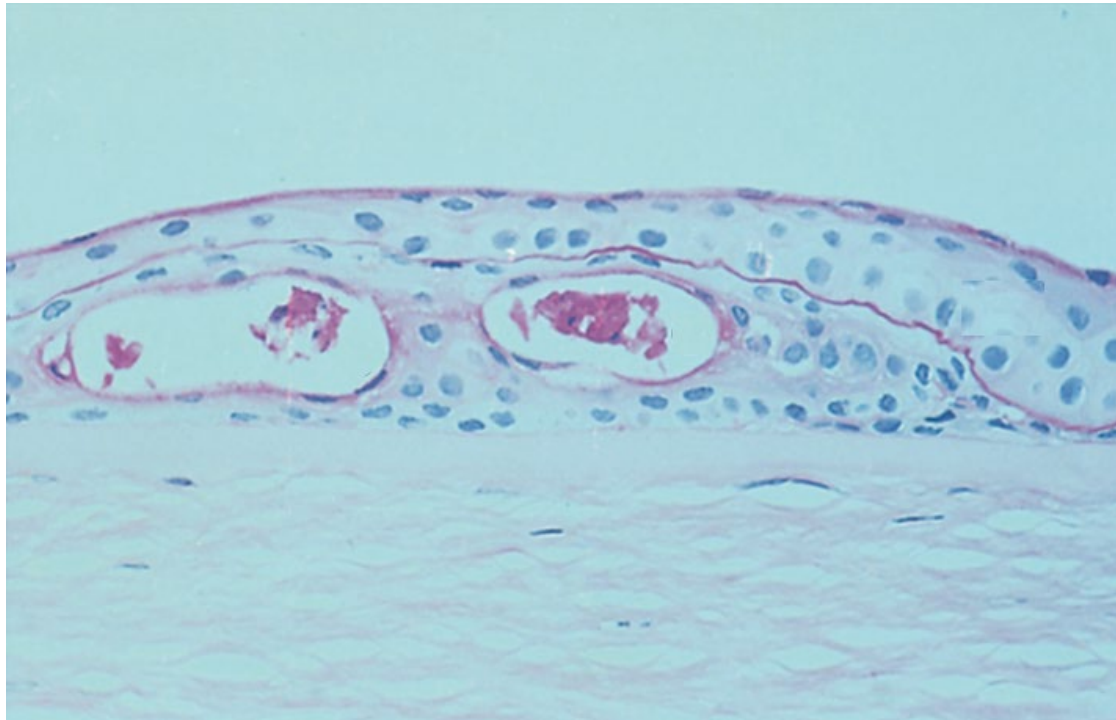
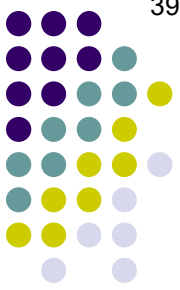


Pathwatching



What's going on here? Before leaping to the obvious, let's take note of what looks **un**remarkable:

Pathwatching

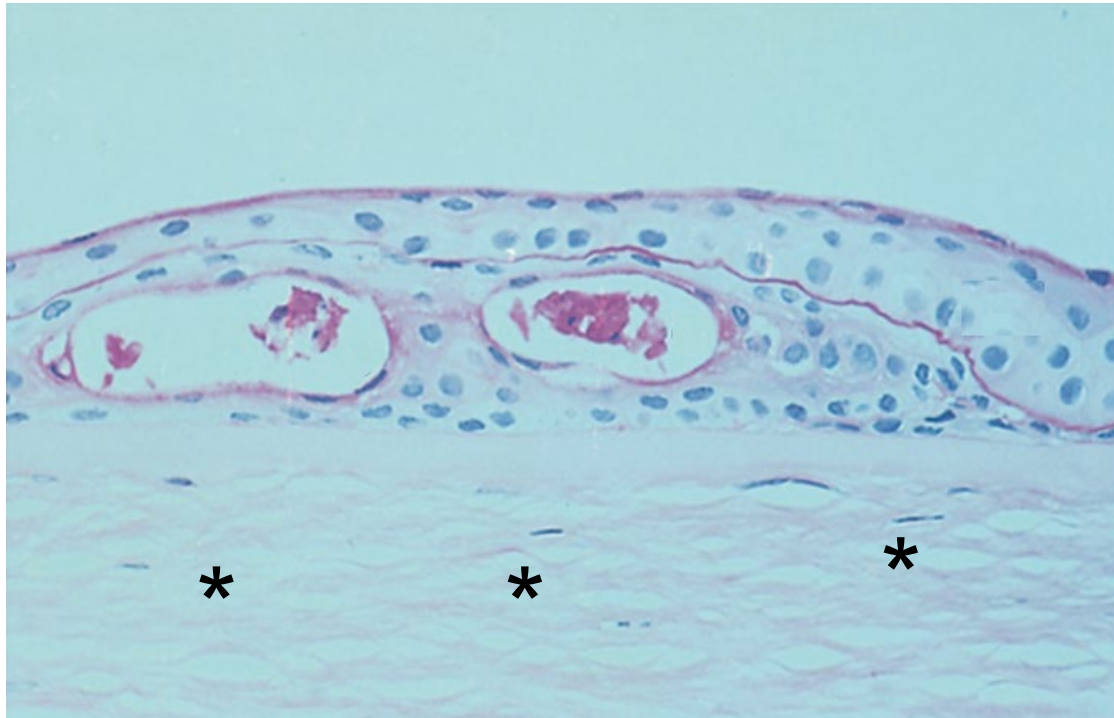
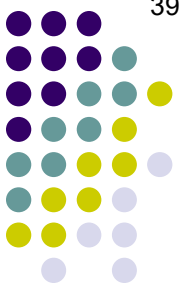


What's going on here? Before leaping to the obvious, let's take note of what looks **un**remarkable:

--The stroma contains the expected

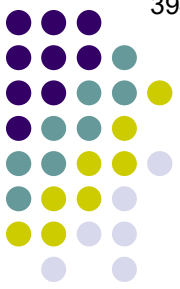
two words

Pathwatching

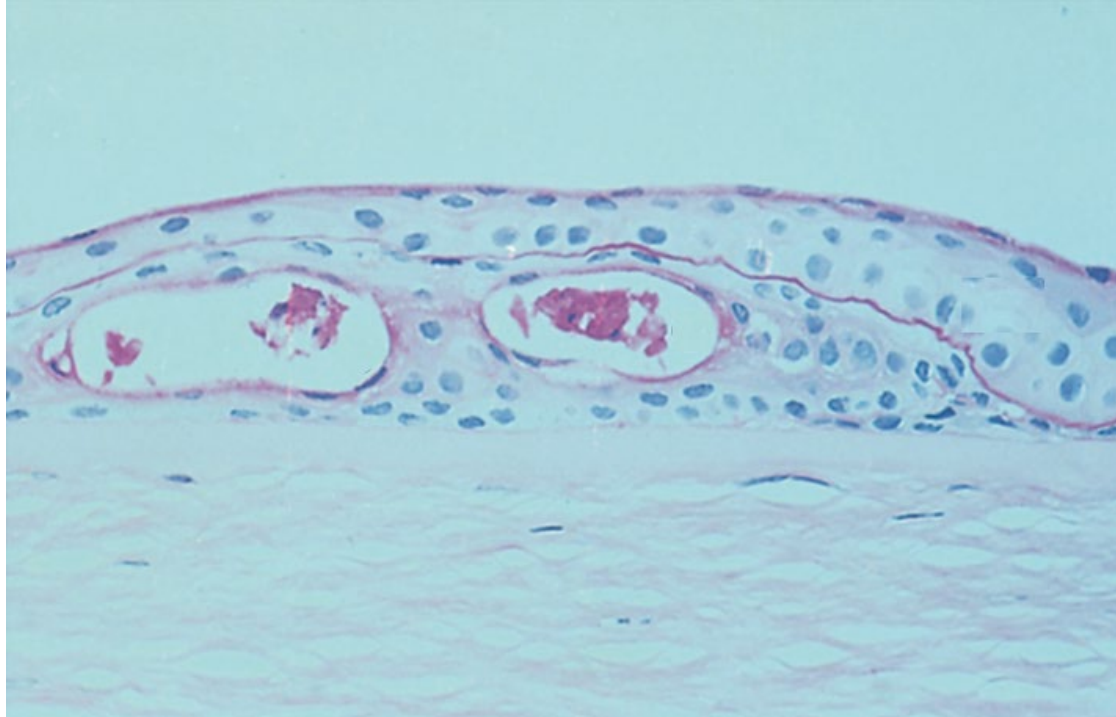


What's going on here? Before leaping to the obvious, let's take note of what looks **unremarkable**:

--The stroma contains the expected artificial clefts



Pathwatching

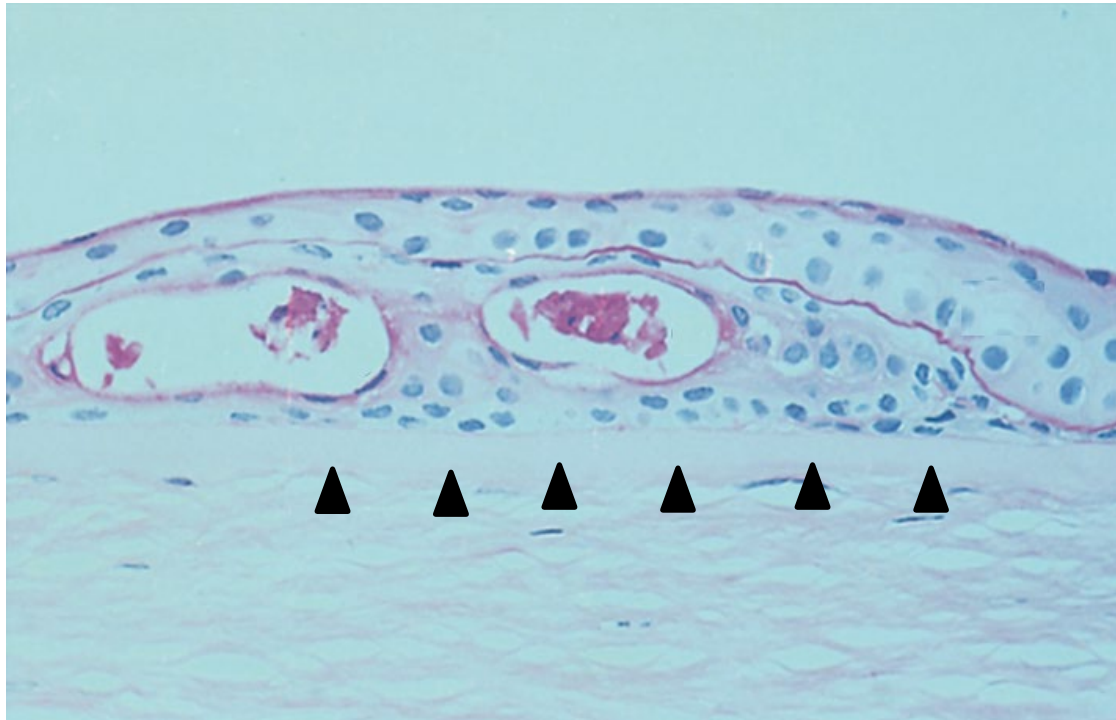
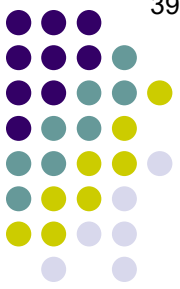


What's going on here? Before leaping to the obvious, let's take note of what looks **unremarkable**:

--The stroma contains the expected **artifactual clefts** ; and

-- **two words** seems intact (albeit hard to discern with this stain).

Pathwatching

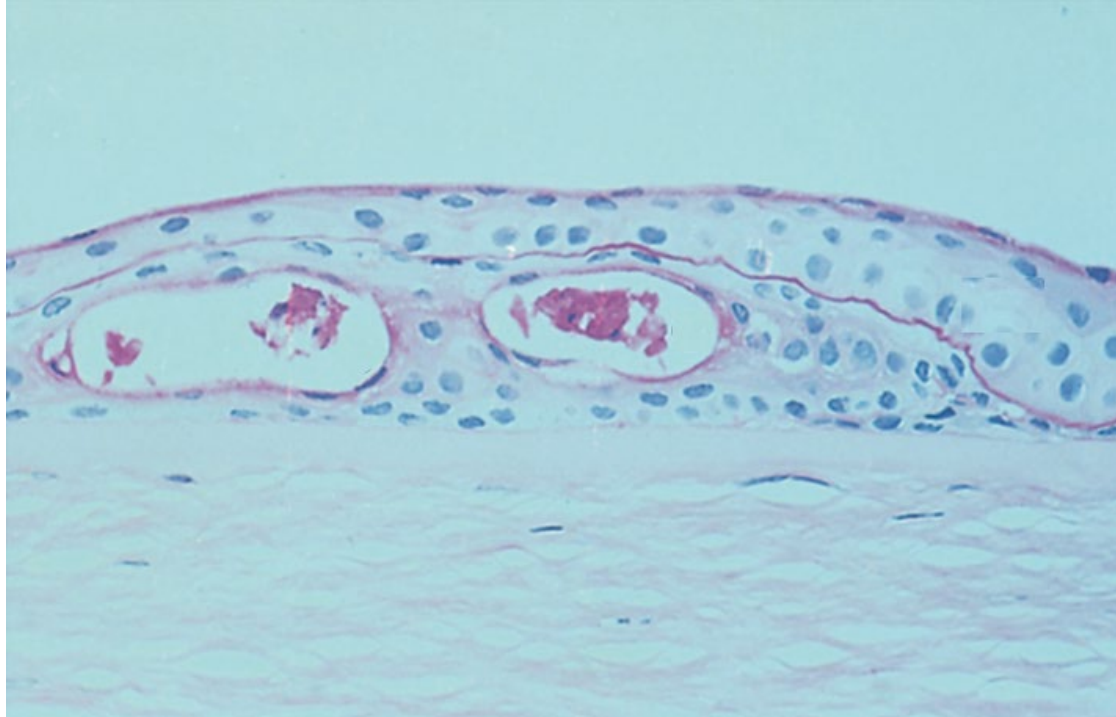
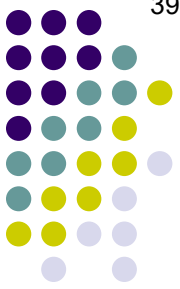


What's going on here? Before leaping to the obvious, let's take note of what looks **unremarkable**:

--The stroma contains the expected **artifactual clefts** ; and

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Pathwatching



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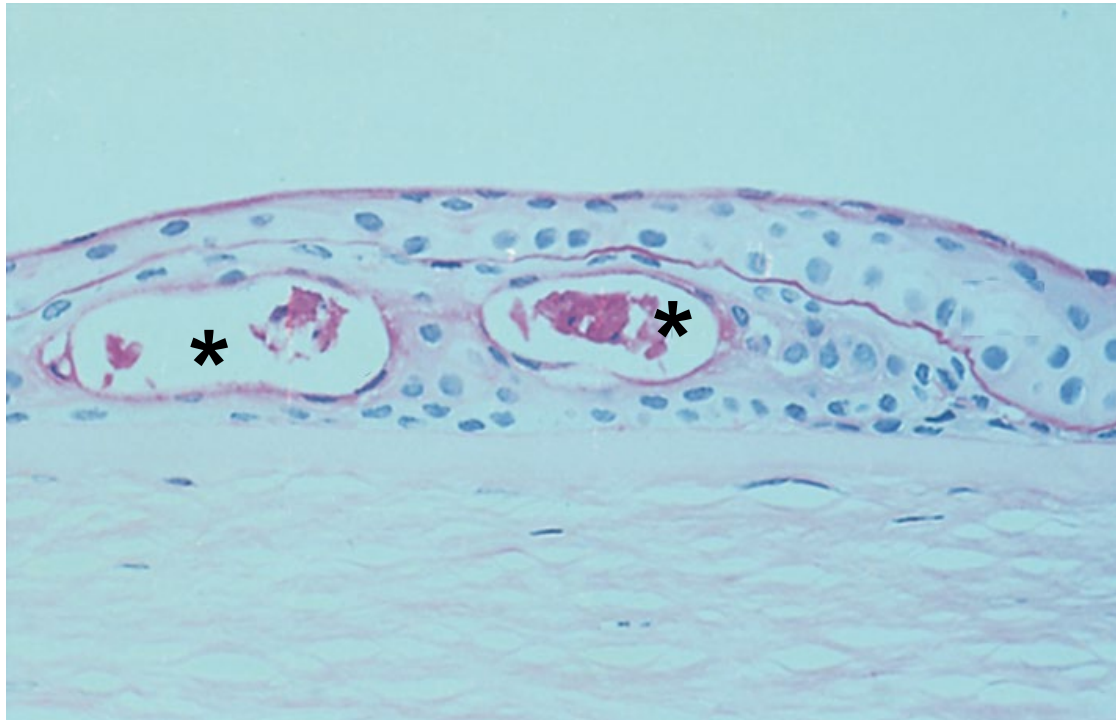
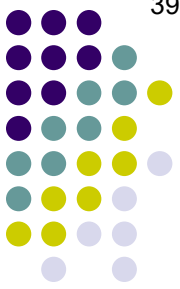
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Now let's talk about the obvious:

--The epi is and

Pathwatching



What's going on here? Before leaping to the obvious, let's take note of what looks **unremarkable**:

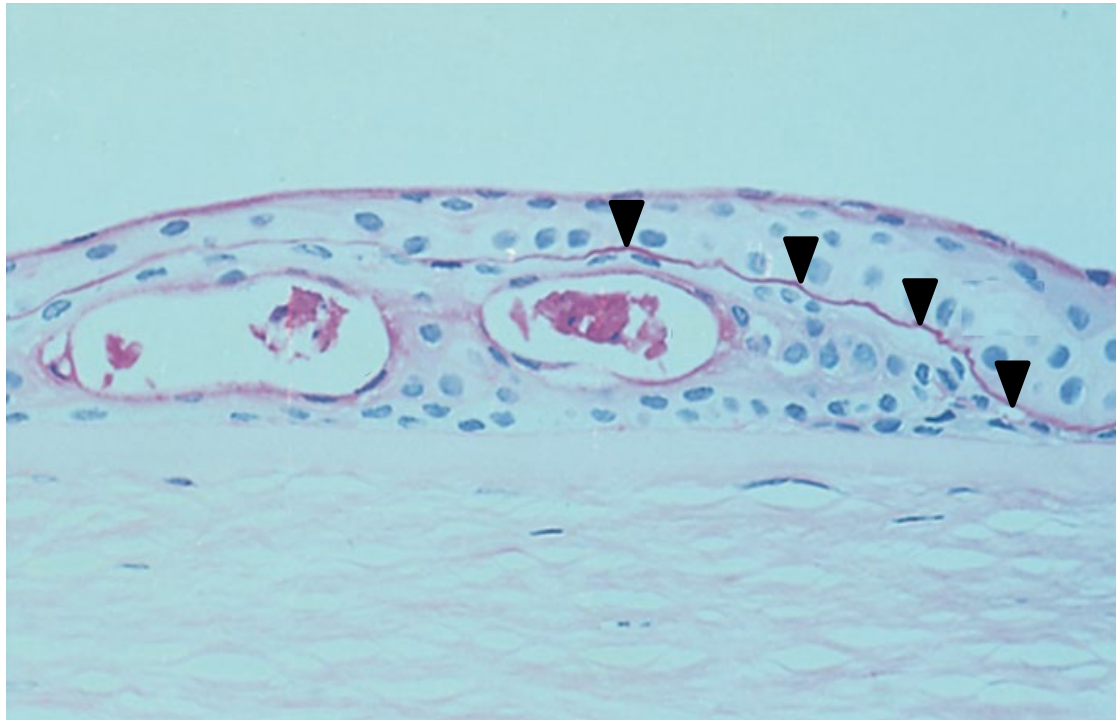
--The stroma contains the expected **artifactual clefts** ; and

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--The **epi is thickened and cystic**

Pathwatching



What's going on here? Before leaping to the obvious, let's take note of what looks **unremarkable**:

--The stroma contains the expected **artificial clefts** ; and

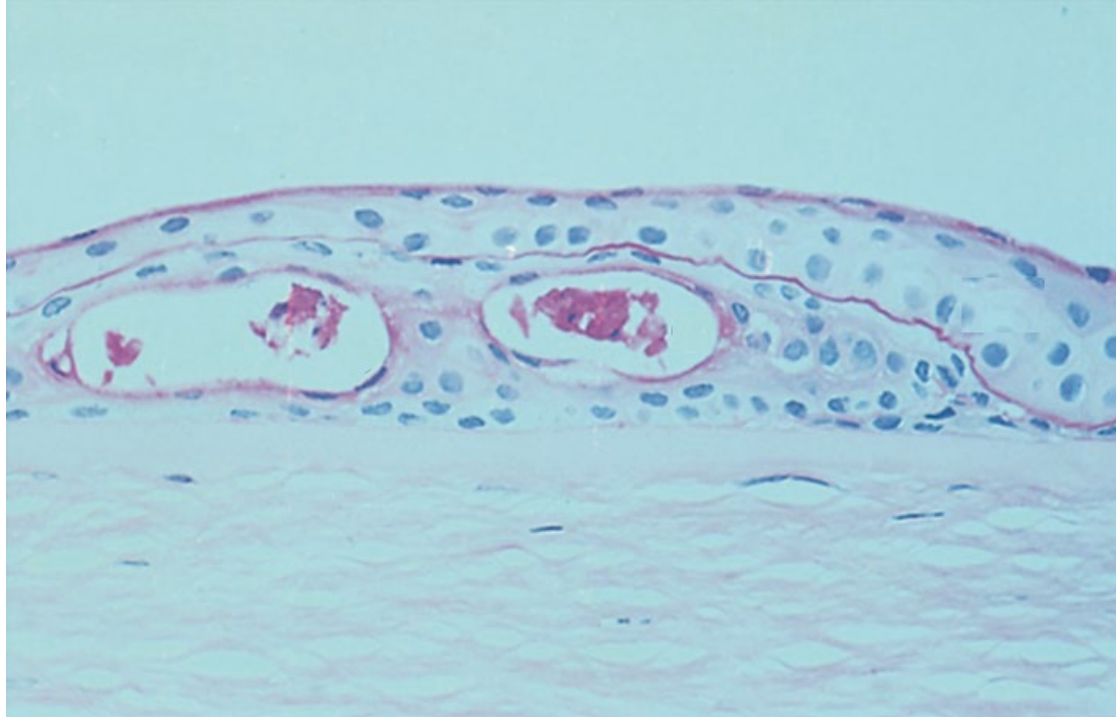
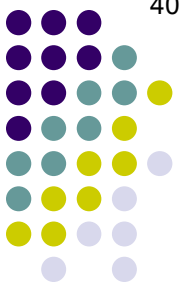
--Bowman's layer seems intact (albeit hard to discern with this stain).

Now let's talk about the obvious:

--The **epi is thickened and cystic**

--The basement membrane (BM) is running up into the epithelium.

Pathwatching



What's the diagnosis?

What's going on here? Before leaping to the obvious, let's take note of what looks **unremarkable**:

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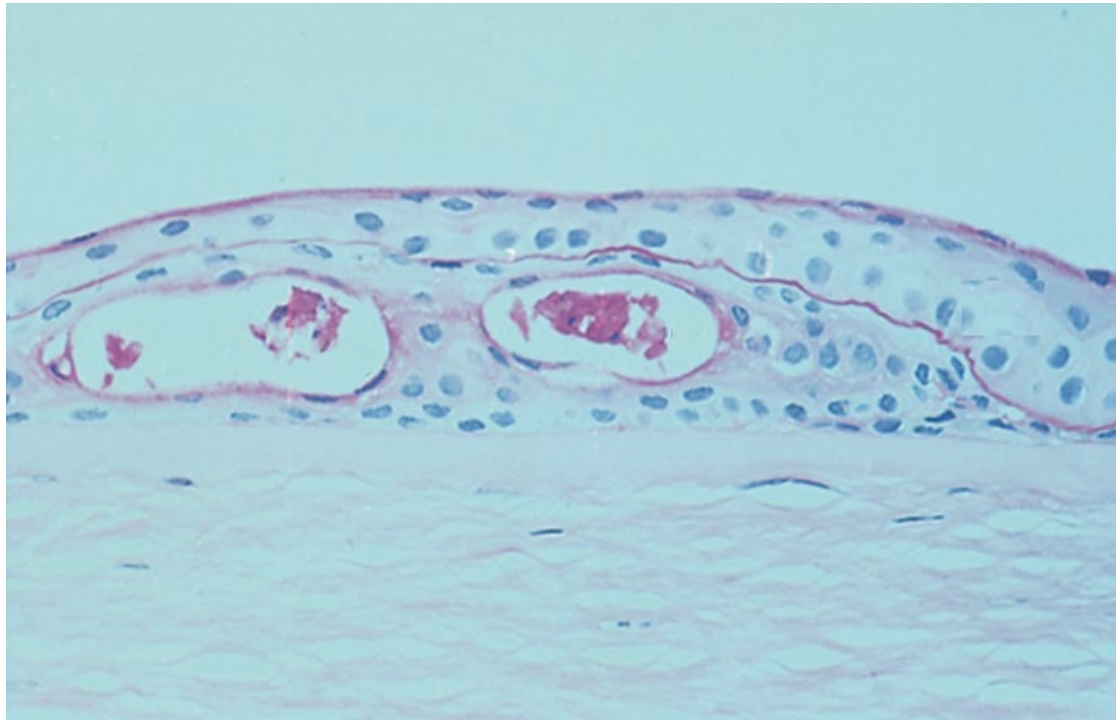
Now let's talk about the obvious:

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--The basement membrane (BM) is running up into the epithelium.

A thickened epi with BM running up into it can only be one thing:

Pathwatching



What's the diagnosis?

Epithelial basement membrane dystrophy (EBMD) is aka three words *dystrophy* on account of its appearance at the slit lamp. (It has other names as well.)

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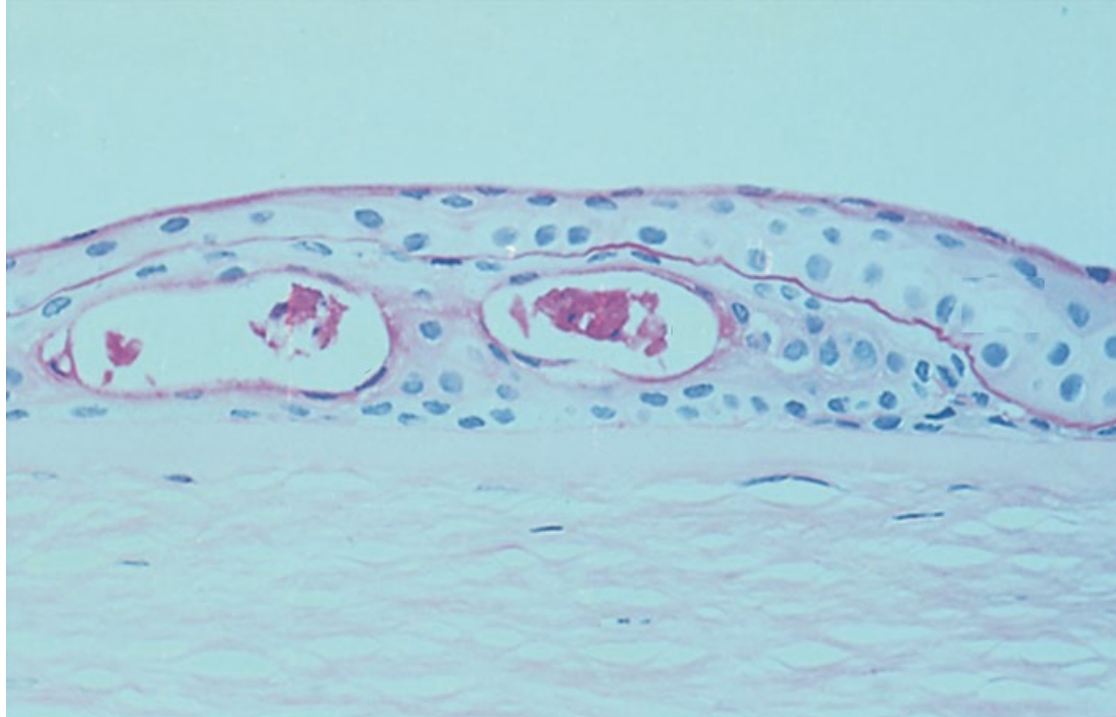
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Pathwatching



What's the diagnosis?

Epithelial basement membrane dystrophy (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.)

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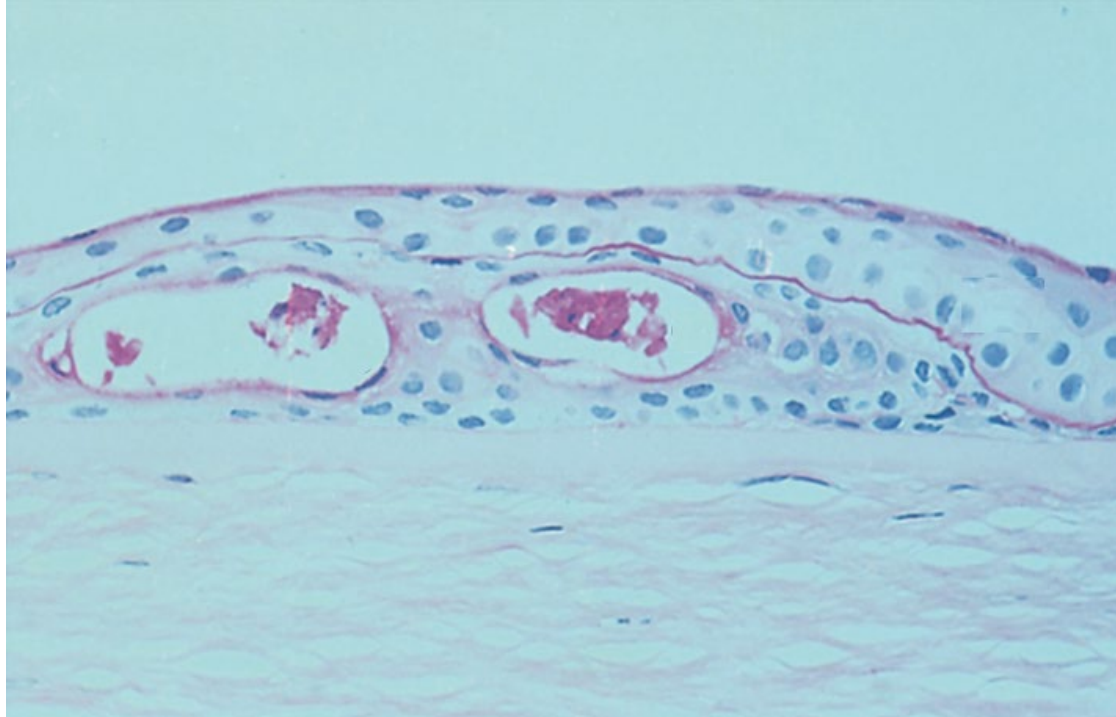
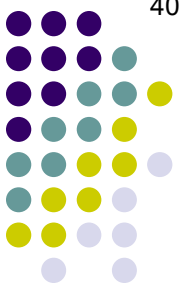
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Pathwatching



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Epithelial basement membrane dystrophy (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.) **The intraepithelial insinuation of BM accounts for the** two of them, whereas the (pseudo)cysts account for the the last one

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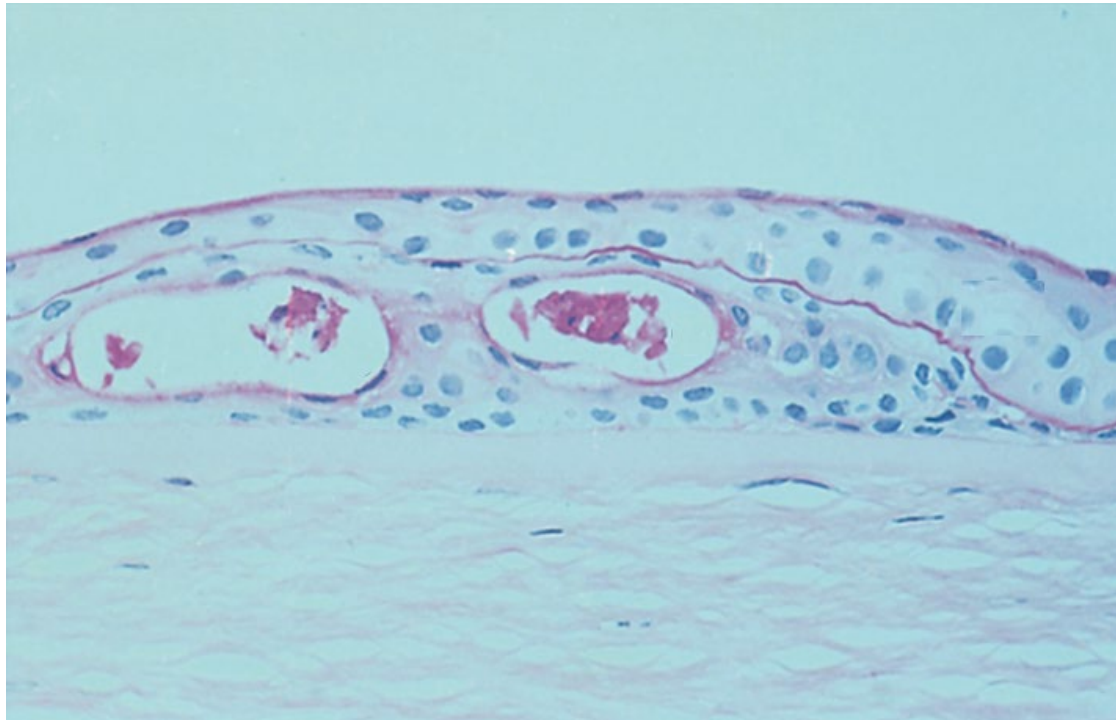
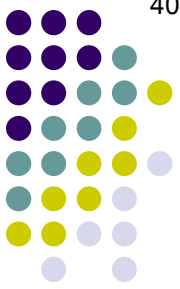
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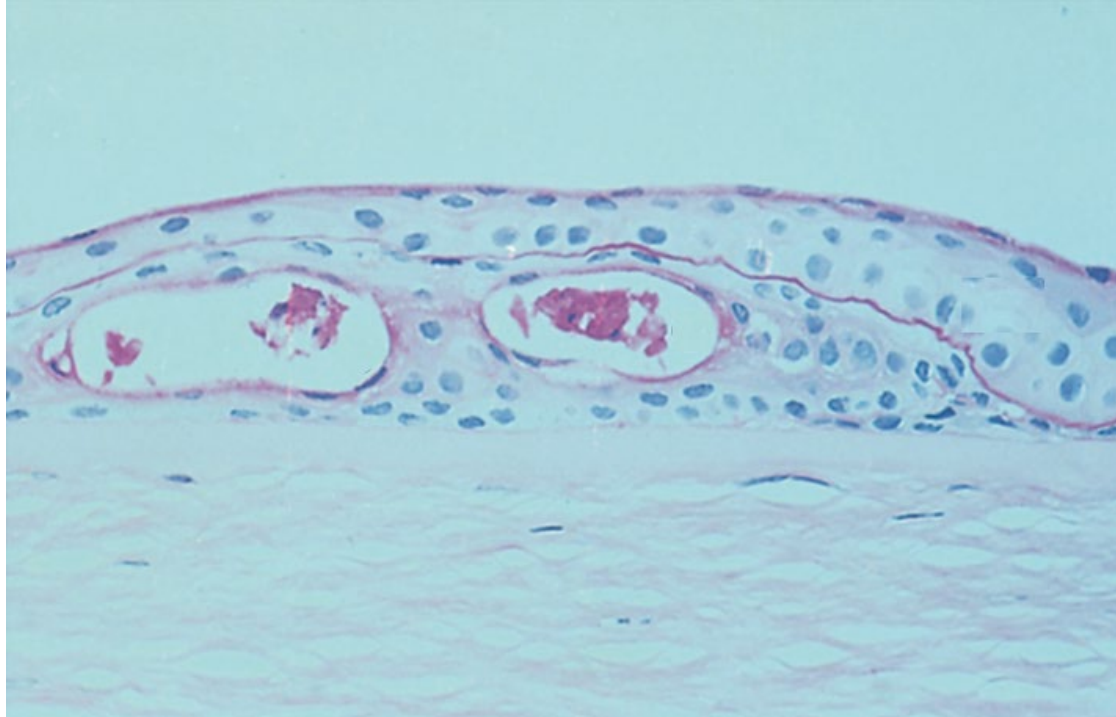
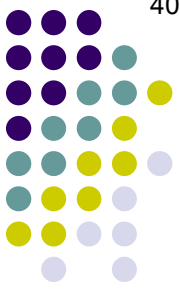
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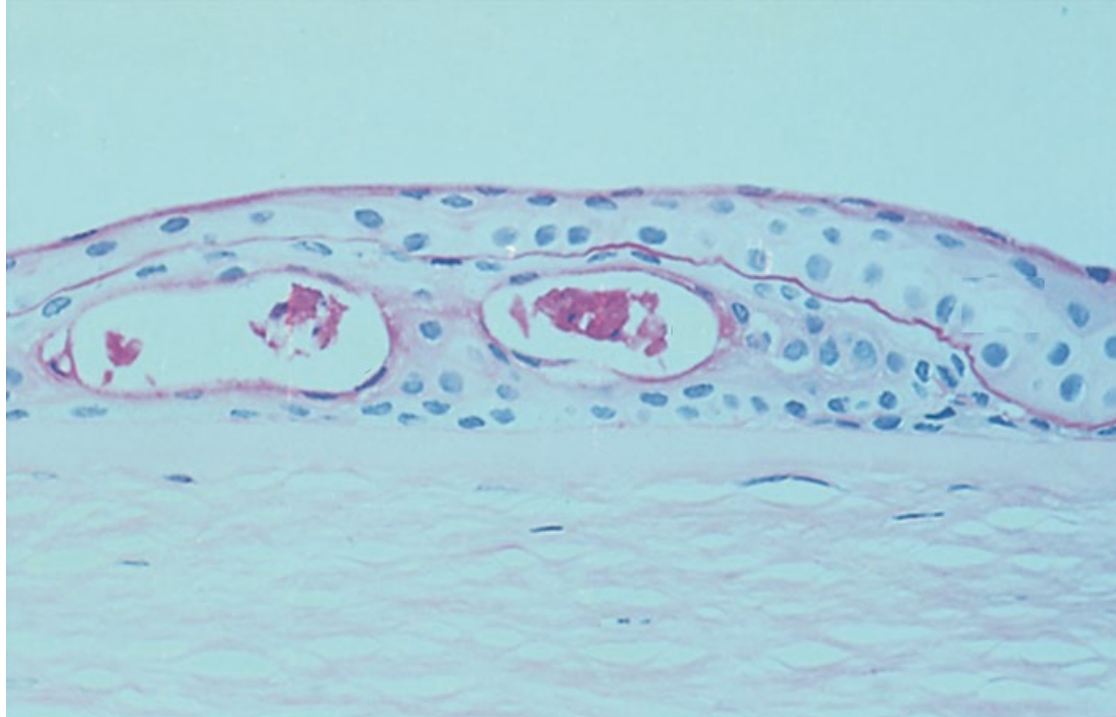
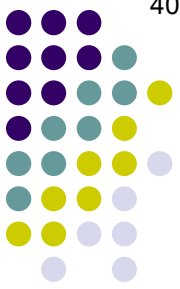
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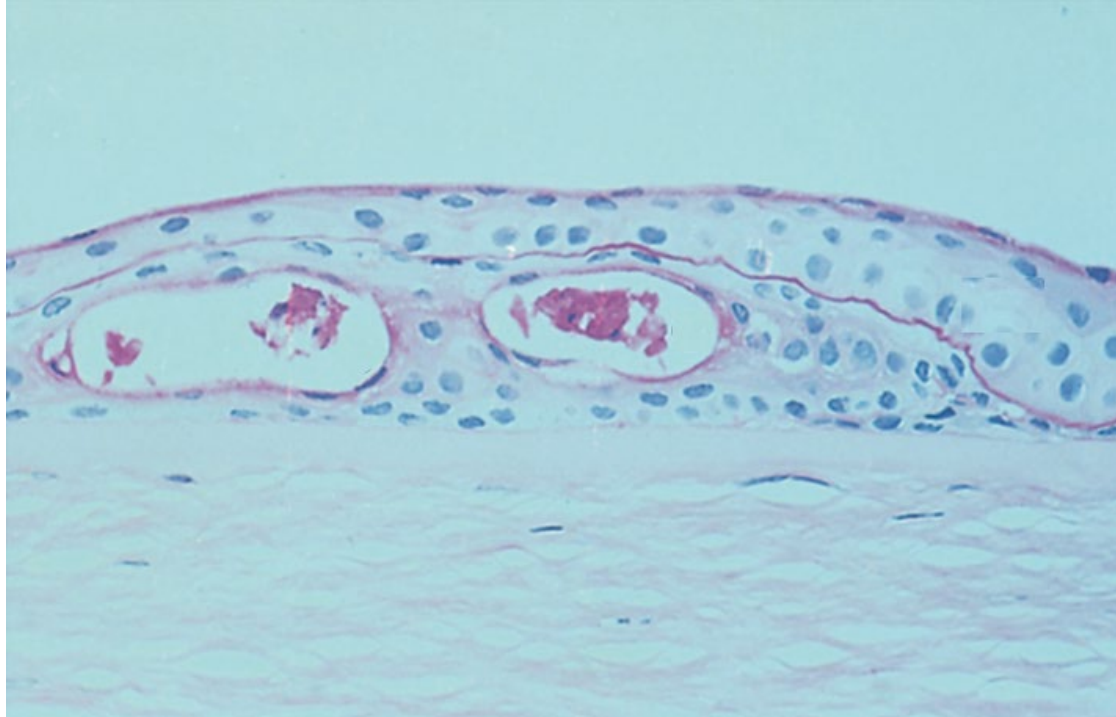
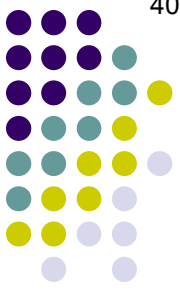
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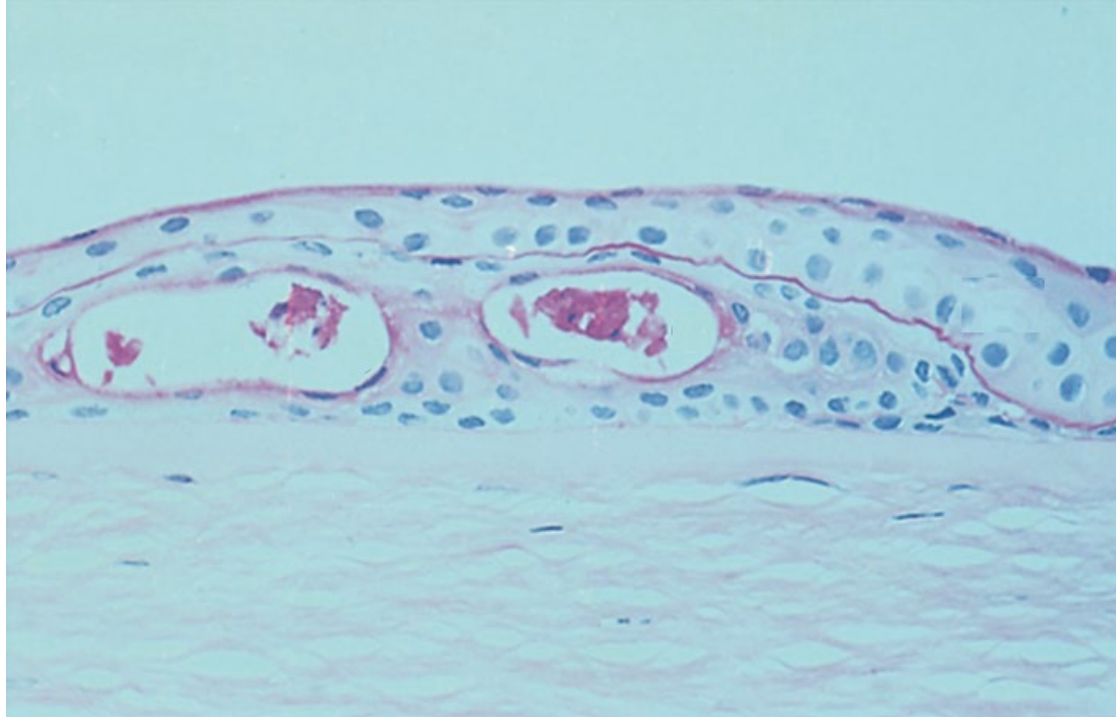
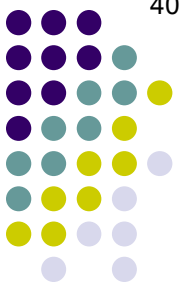
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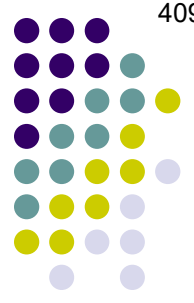
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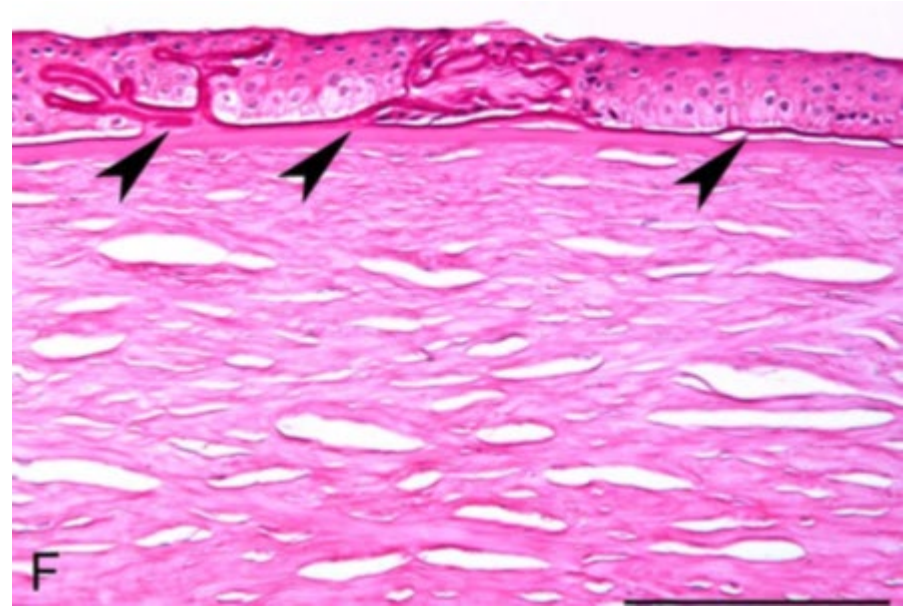
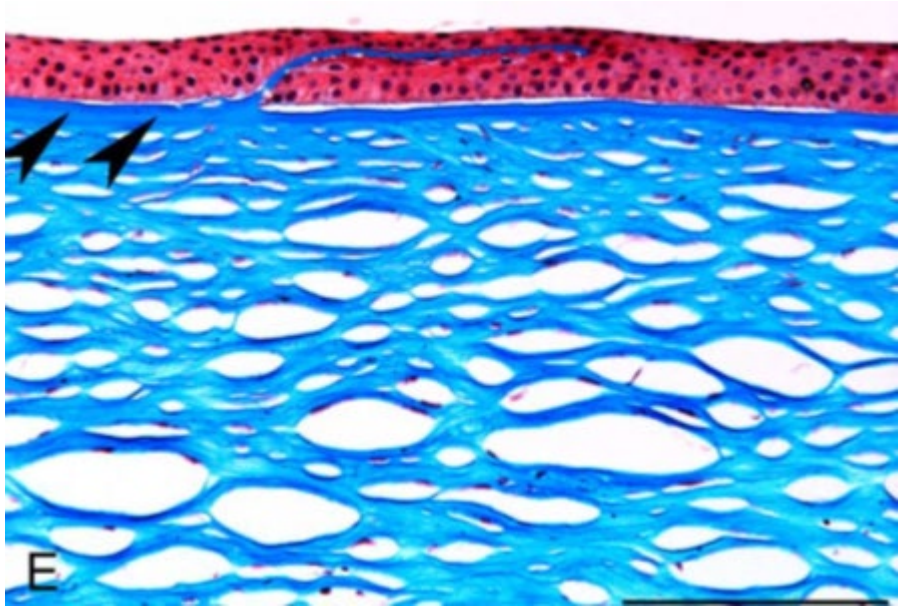
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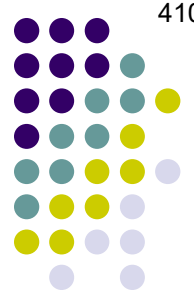
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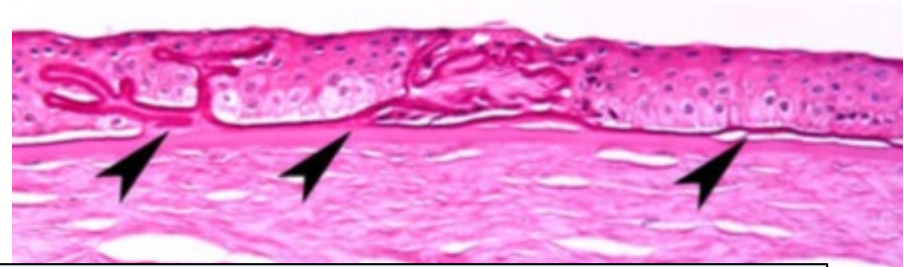
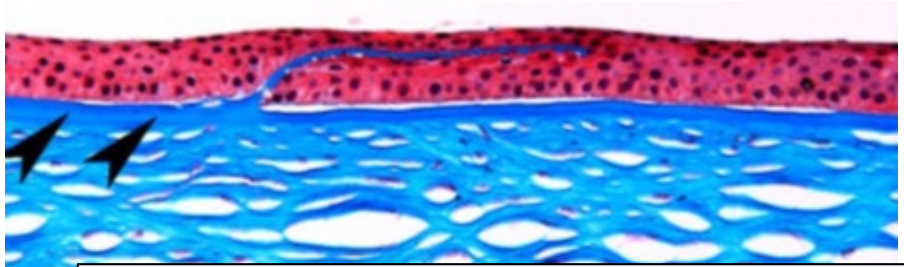
Pathwatching



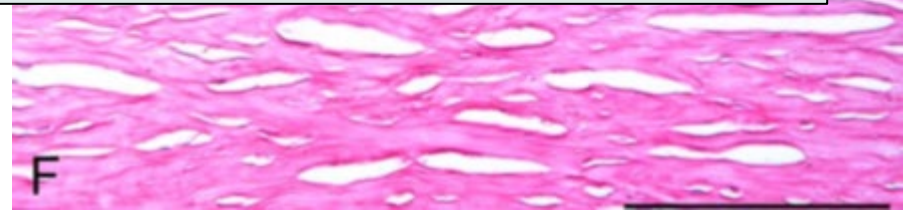
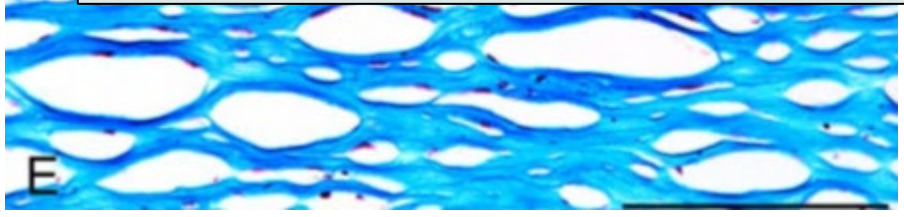
More EBMD examples wherein the BM can be better seen snaking into the epithelium



Pathwatching

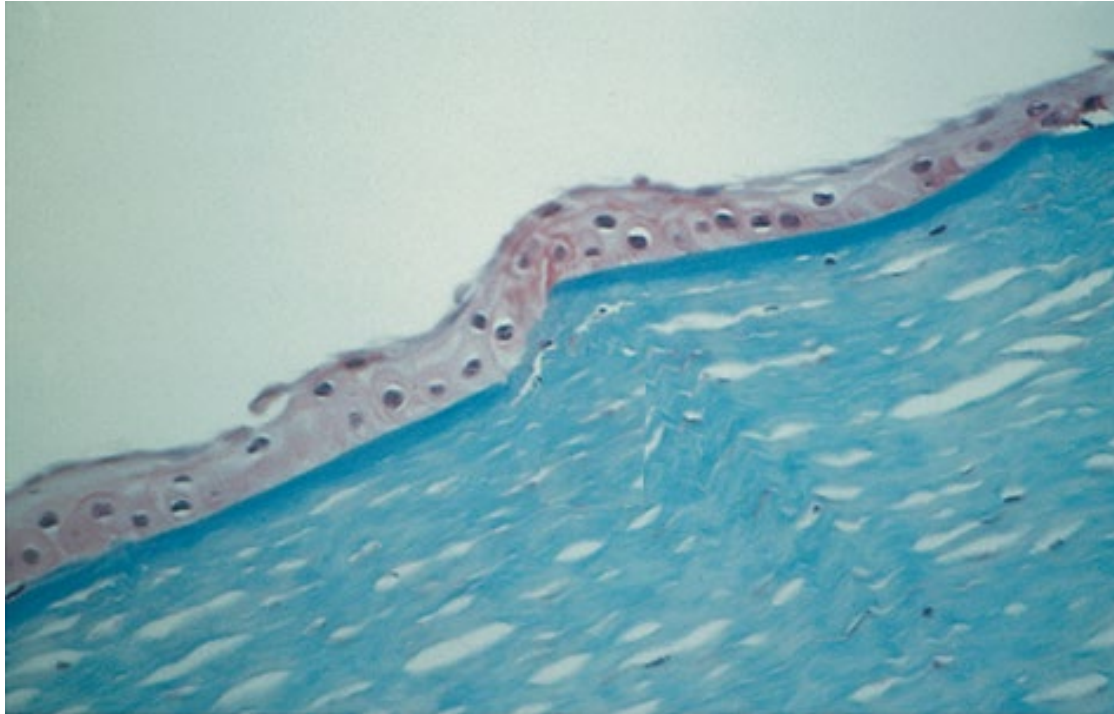


For more on EBMD, see slide-set K41



More EBMD examples wherein the BM can be better seen snaking into the epithelium

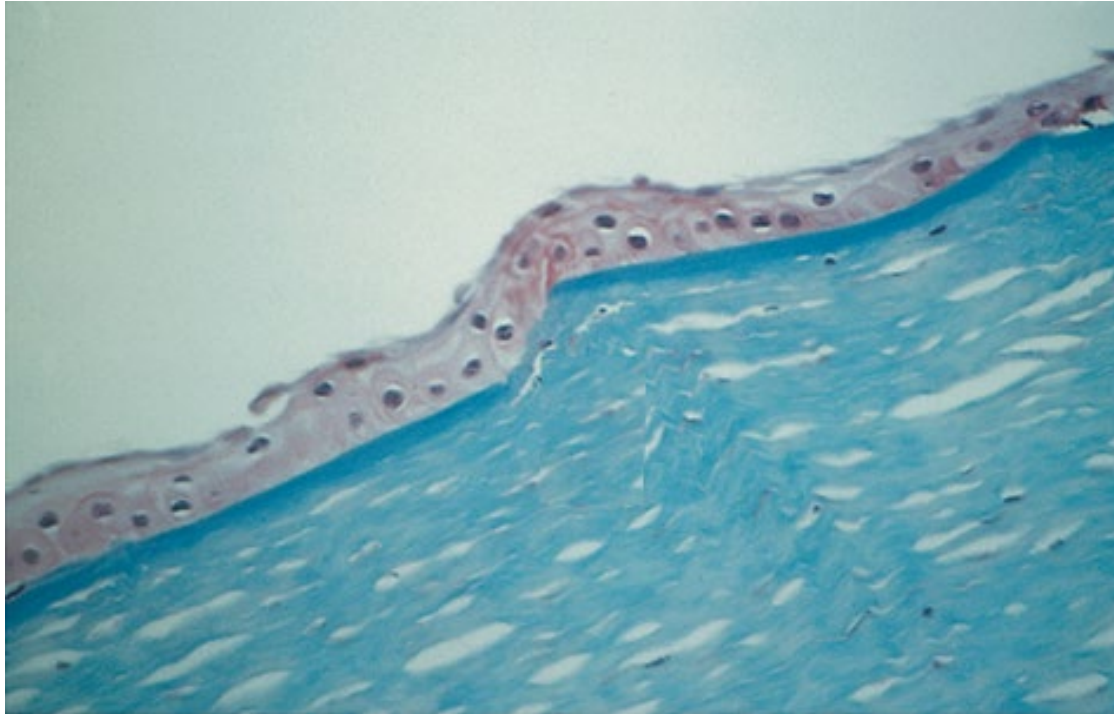
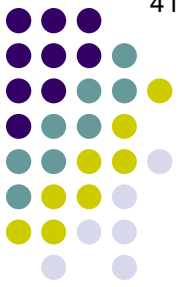
Pathwatching



What's going on here? Again saving the obvious, let's note what looks OK:
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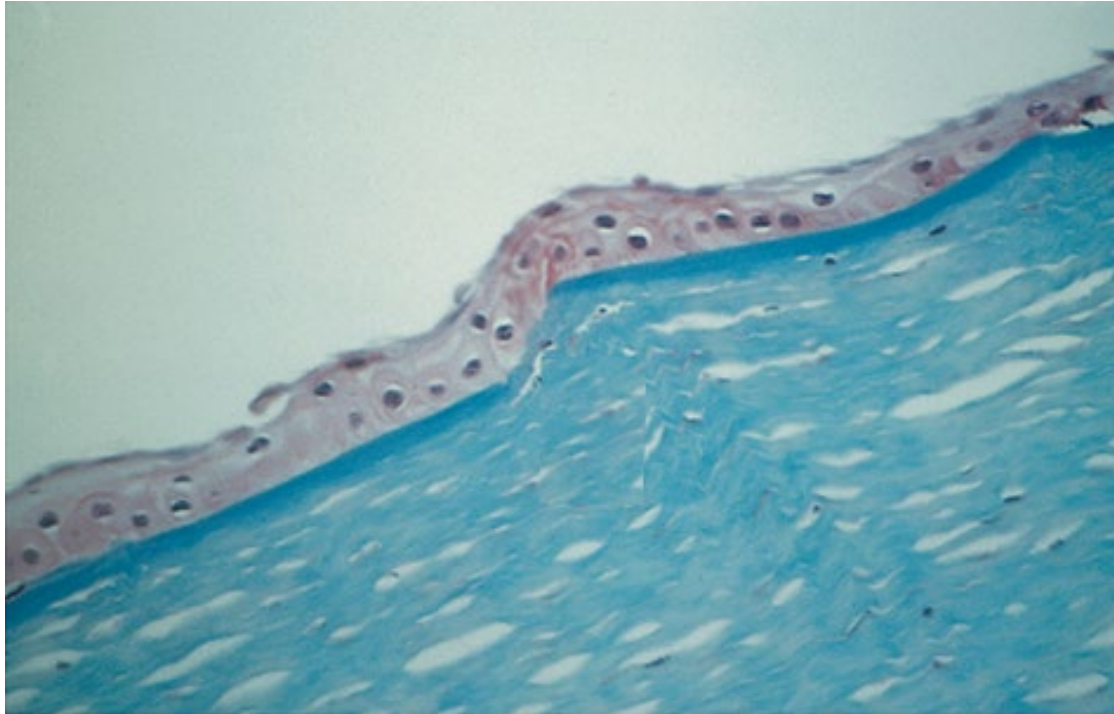
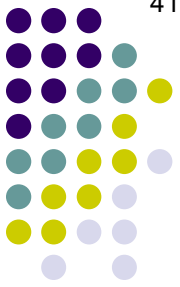
two words

Pathwatching



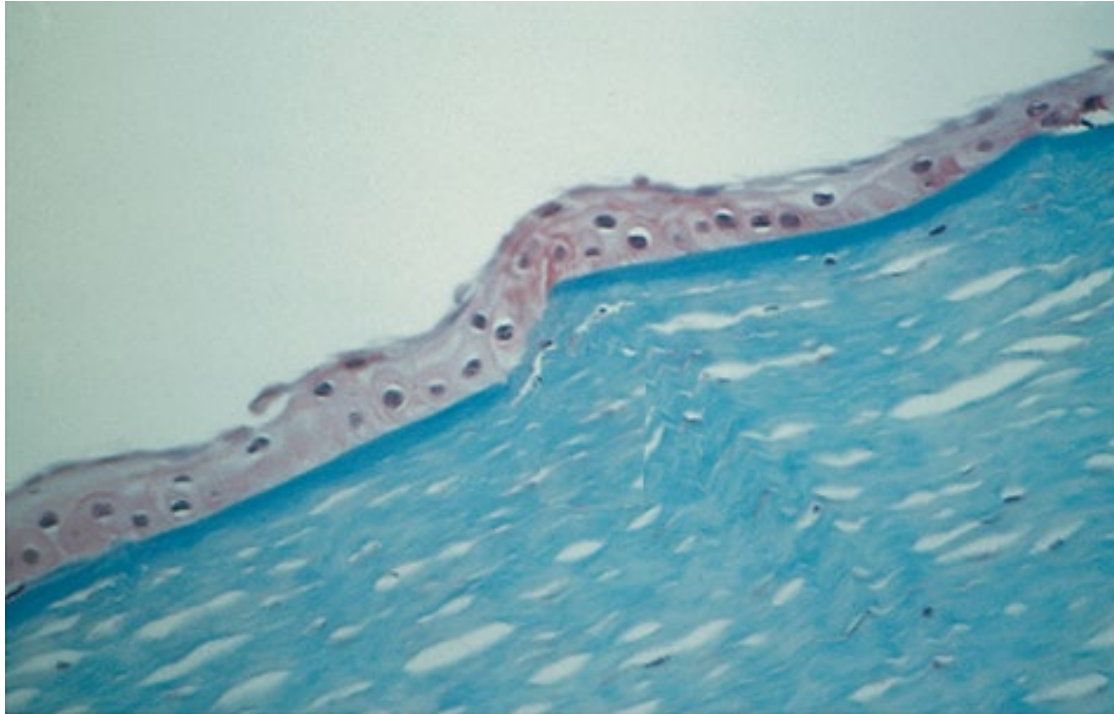
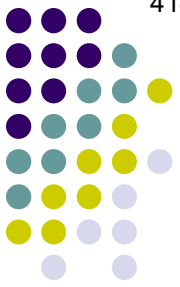
What's going on here? Again saving the obvious, let's note what looks OK:
--The stroma contains the expected artifactual clefts

Pathwatching



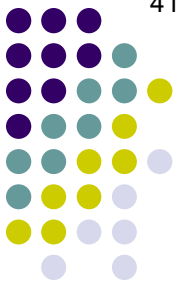
What's going on here? Again saving the obvious, let's note what looks OK:
--The stroma contains the expected artifactual clefts , and isn't picking up stain in a way that suggests it contains some sort of abnormal material.

Pathwatching

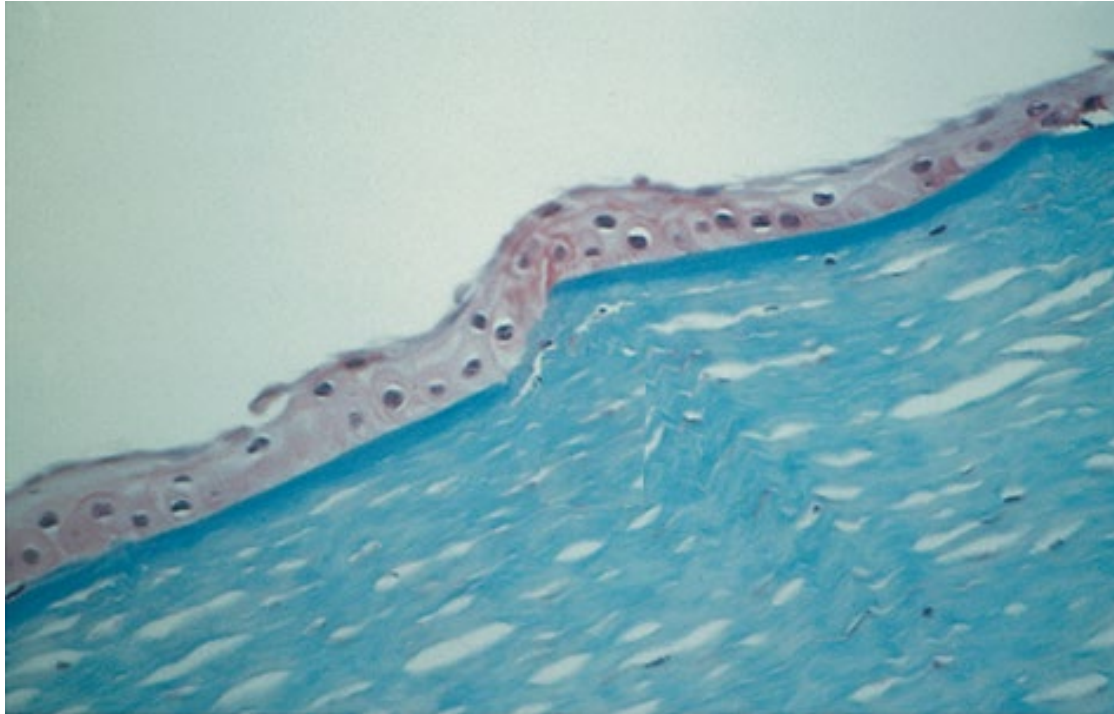


What's going on here? Again saving the obvious, let's note what looks OK:

- The stroma contains the expected artifactual clefts , and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
- While the epithelium looks wonky, it doesn't contain discernible BM running through it.



Pathwatching



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--The stroma contains the expected artifactual clefts , and isn't picking up stain in a way that suggests it contains some sort of abnormal material.

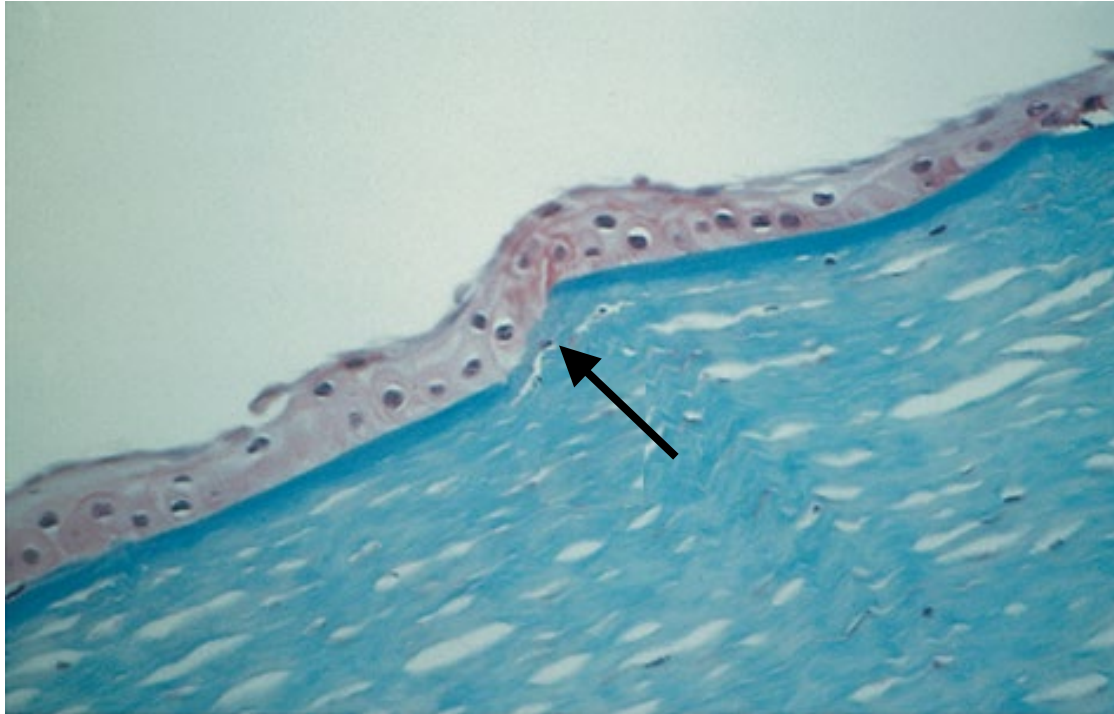
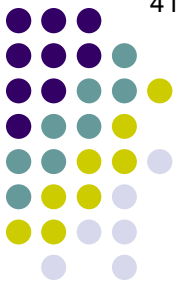
--While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:

two words

is completely disrupted right **here**.

Pathwatching



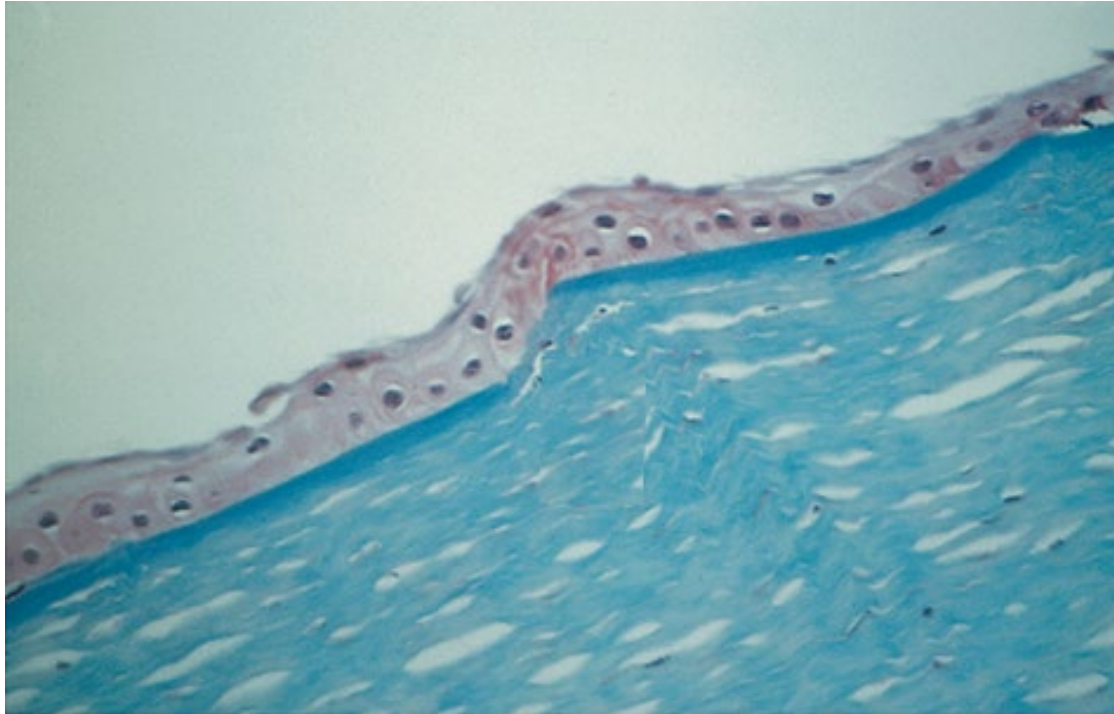
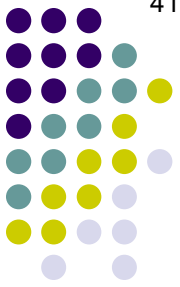
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Now let's talk about the obvious:
Bowman's layer is completely disrupted right **here**.

Pathwatching



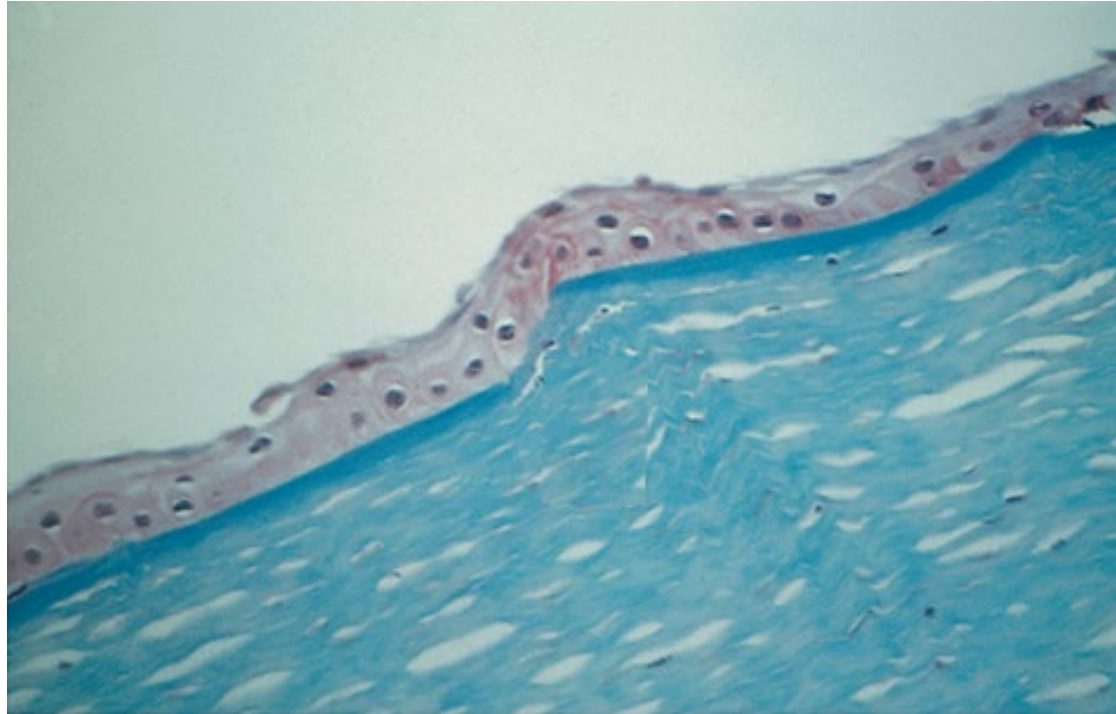
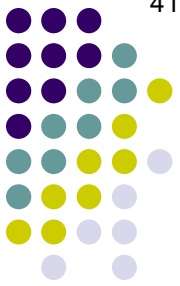
What's the diagnosis?

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts , **and isn't picking up stain in a way that suggests it contains some sort of abnormal material.**
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Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Pathwatching



What's the diagnosis?

Keratoconus is an general
class disorder

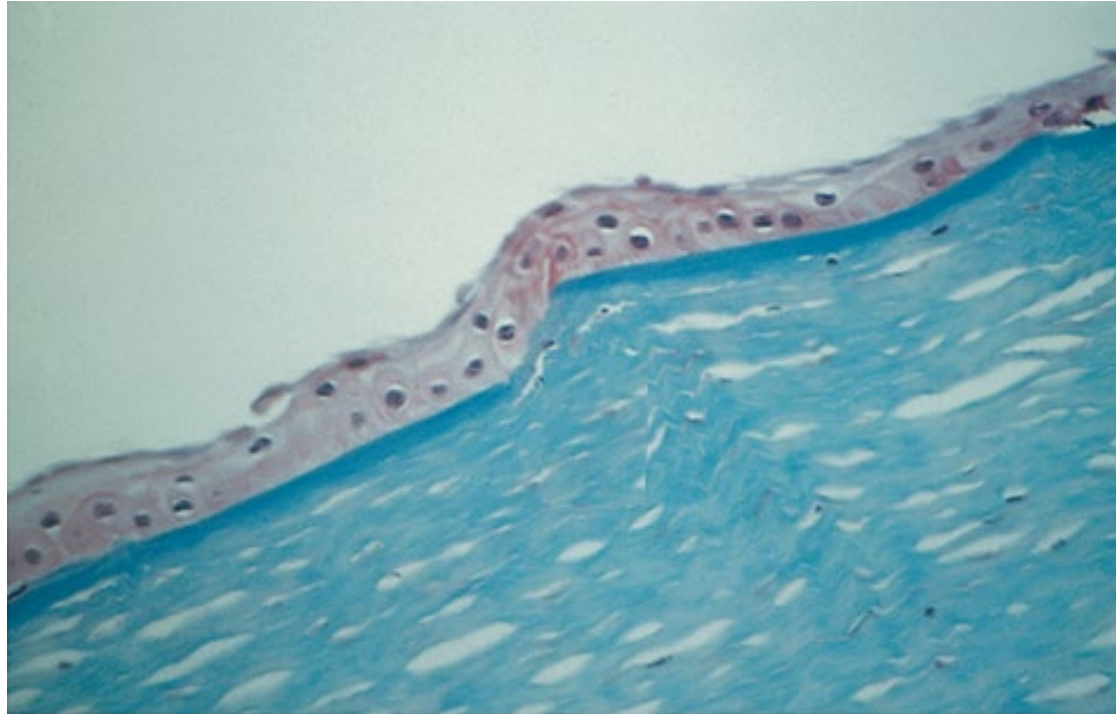
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What's the diagnosis?

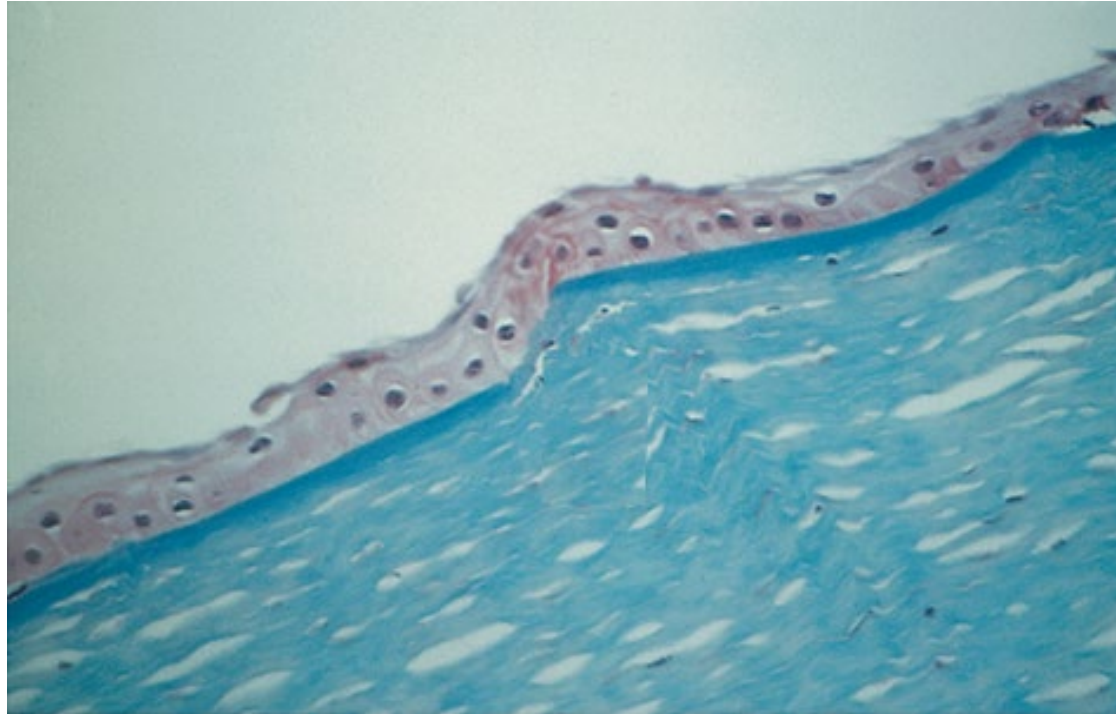
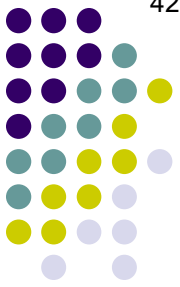
Keratoconus is an ectatic disorder

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Pathwatching



What's the diagnosis?

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
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Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

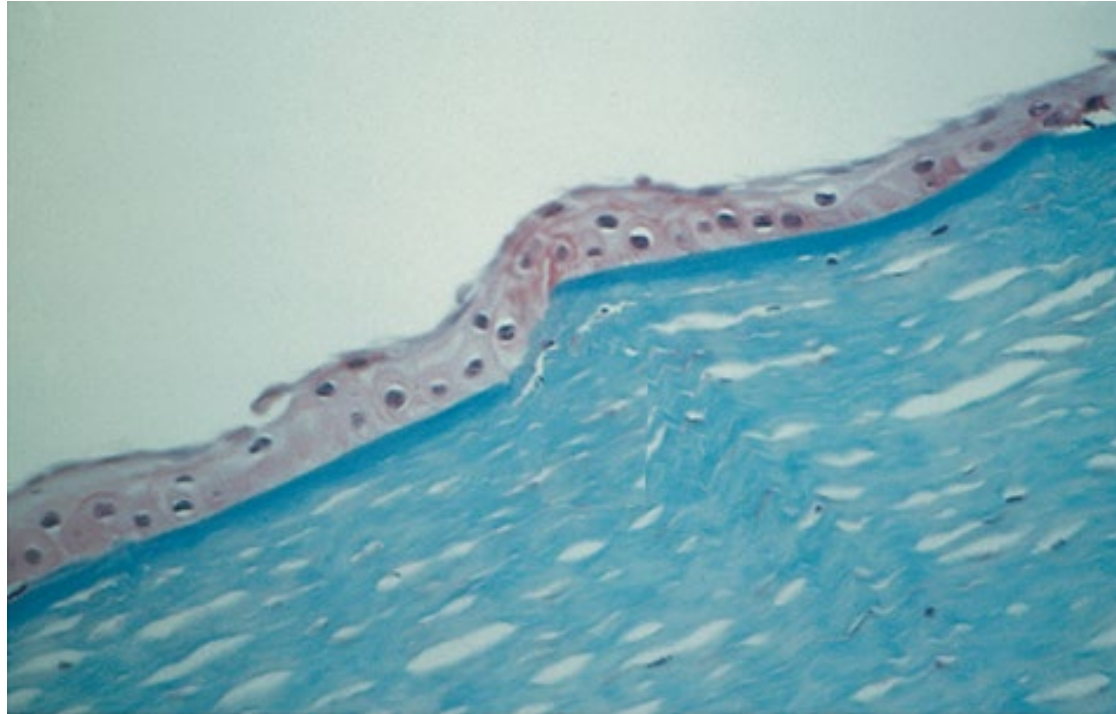
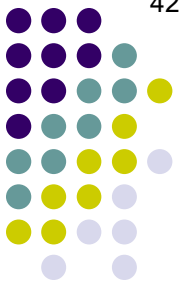
Keratoconus is an ectatic disorder characterized by progressive corneal

change 1

and

change 2

Pathwatching



What's the diagnosis?

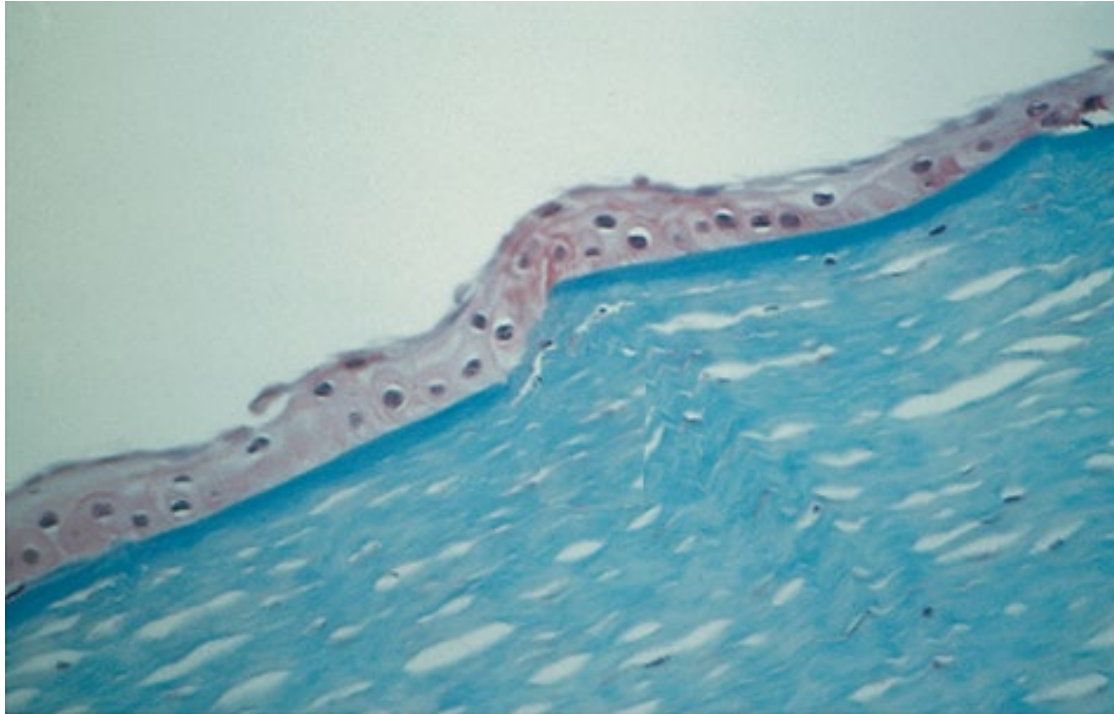
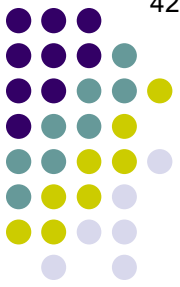
What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Keratoconus is an ectatic disorder characterized by progressive corneal thinning and protrusion

Pathwatching



What's the diagnosis?

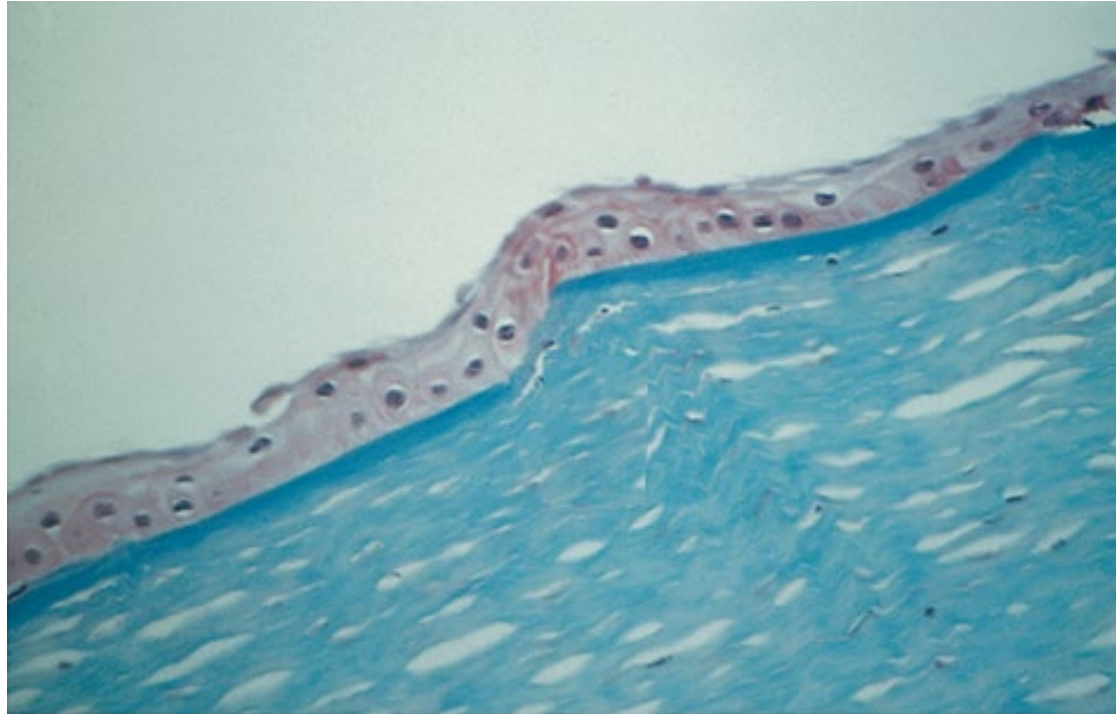
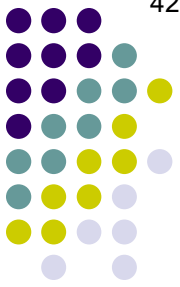
Keratoconus is an ectatic disorder characterized by progressive corneal thinning and protrusion of its area 1 and/or area 2 portions.

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Pathwatching



What's the diagnosis?

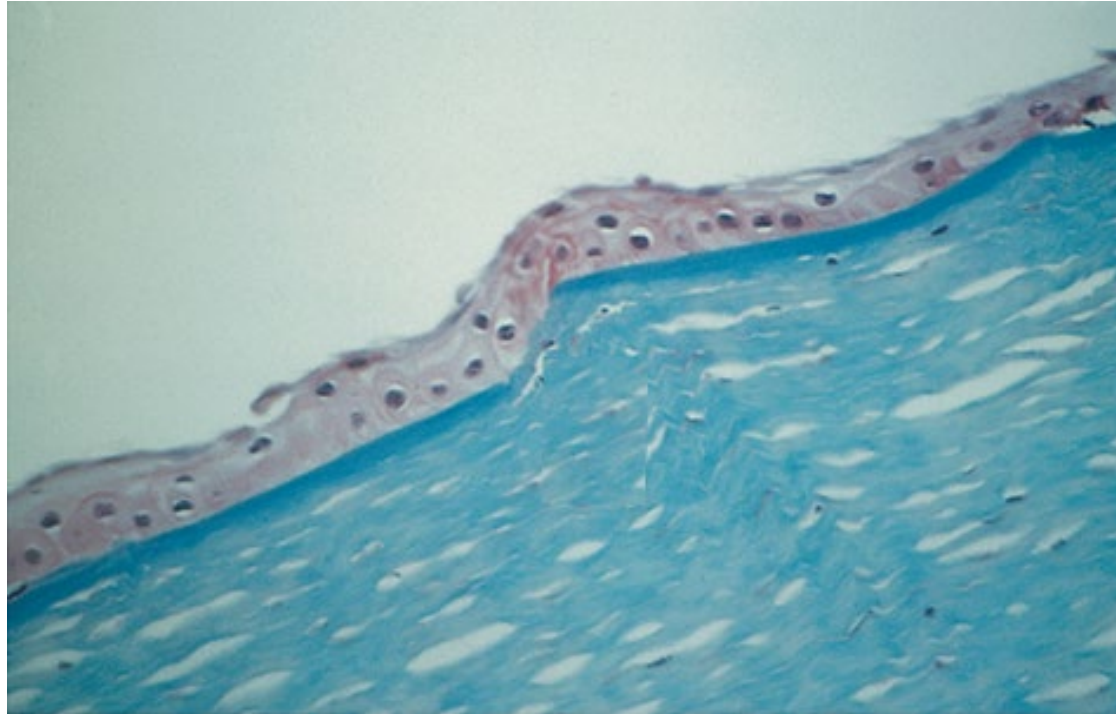
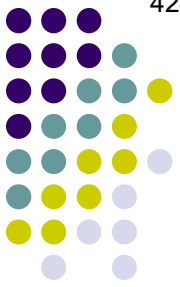
Keratoconus is an ectatic disorder characterized by progressive corneal thinning and protrusion of its central and/or inferior portions.

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Pathwatching



What's the diagnosis?

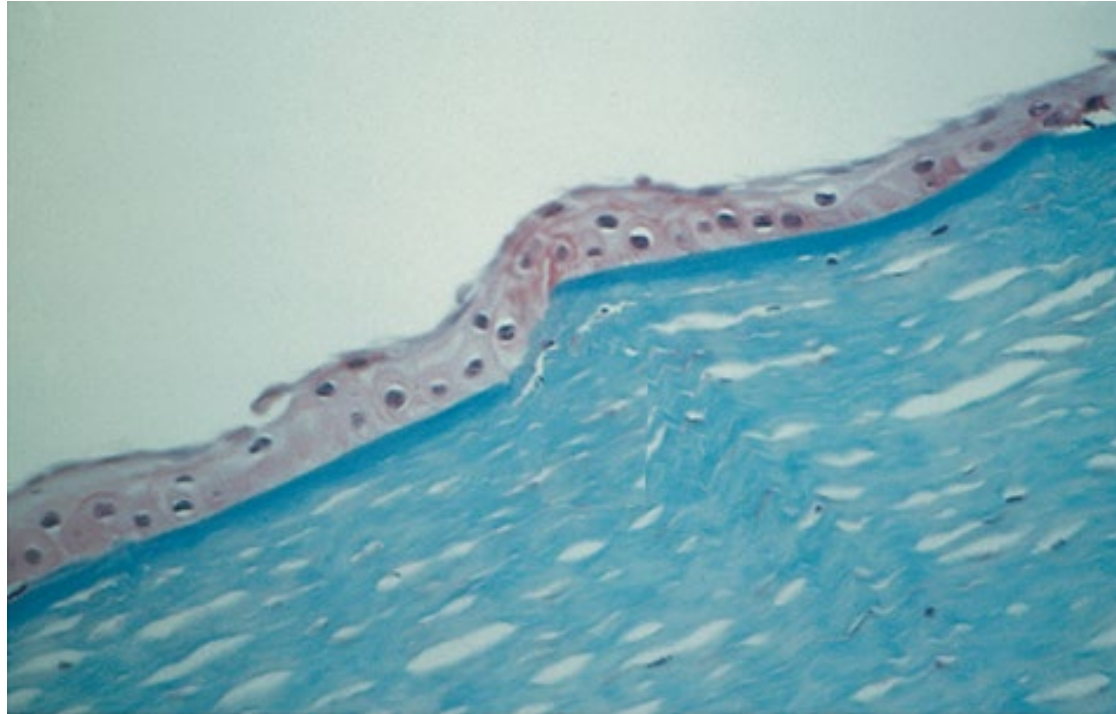
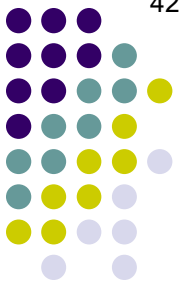
Keratoconus is an ectatic disorder characterized by progressive corneal thinning and protrusion of its central and/or inferior portions. This leads to the characteristic shape (two-words) cornea.

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Pathwatching



What's the diagnosis?

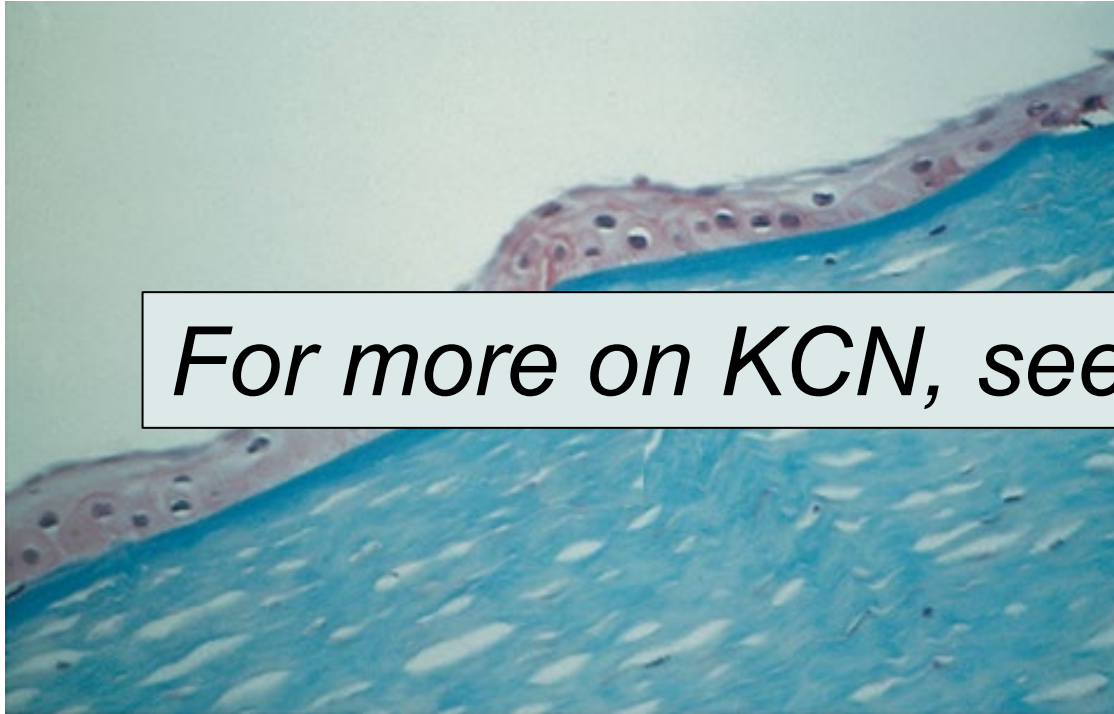
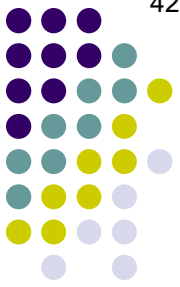
Keratoconus is an ectatic disorder characterized by progressive corneal thinning and protrusion of its central and/or inferior portions. This leads to the characteristic cone-shaped cornea.

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it doesn't contain discernible BM running through it.

Now let's talk about the obvious:
 Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Pathwatching



For more on KCN, see slide-set K38

What's the diagnosis?

What's going on here? Again saving the obvious, let's note what looks OK:
 --The stroma contains the expected artifactual clefts, and isn't picking up stain in a way that suggests it contains some sort of abnormal material.
 --While the epithelium looks wonky, it's thinning

Now let's talk about the obvious: Bowman's layer is completely disrupted right **here**.

Focal disruption of Bowman's layer in the absence of abnormal stromal staining should bring to mind one dx:

Keratoconus is an ectatic disorder characterized by progressive corneal thinning and protrusion of its central and/or inferior portions. This leads to the characteristic cone-shaped cornea.

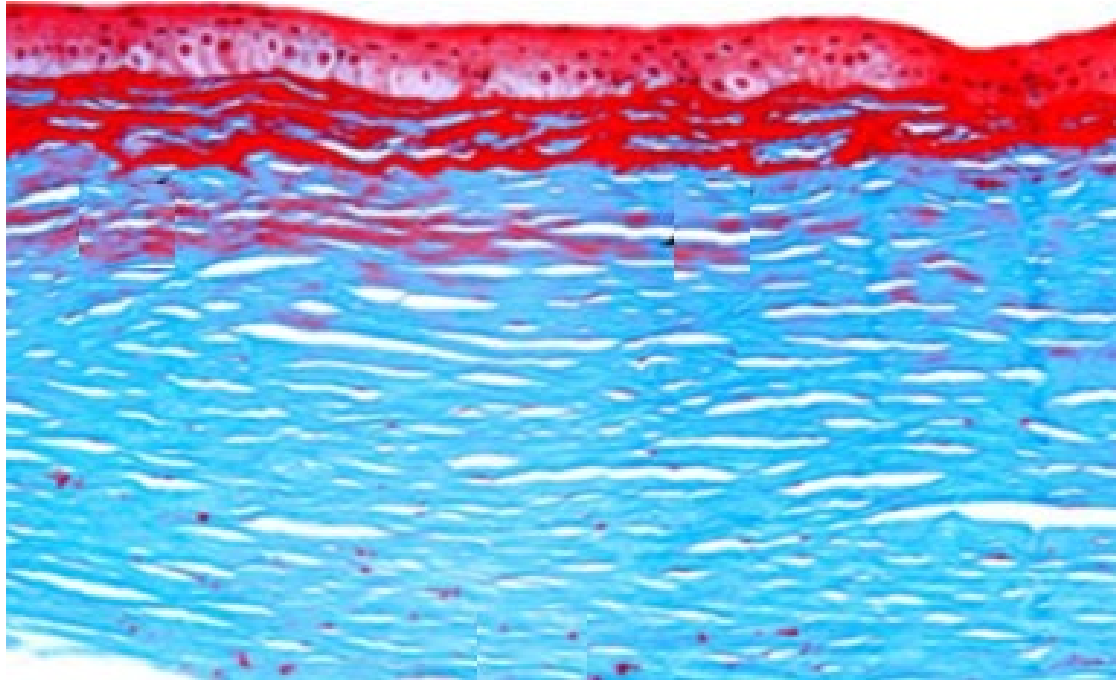


Pathwatching

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artificial clefts, so the pathology doesn't involve significant corneal

or .

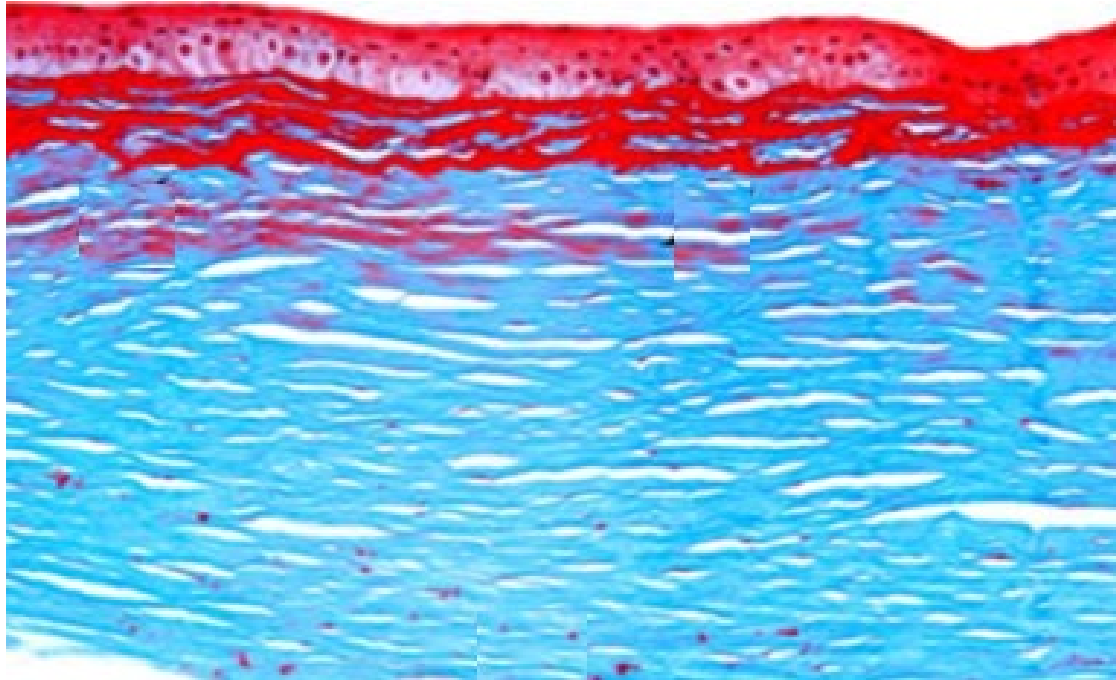




Pathwatching

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .





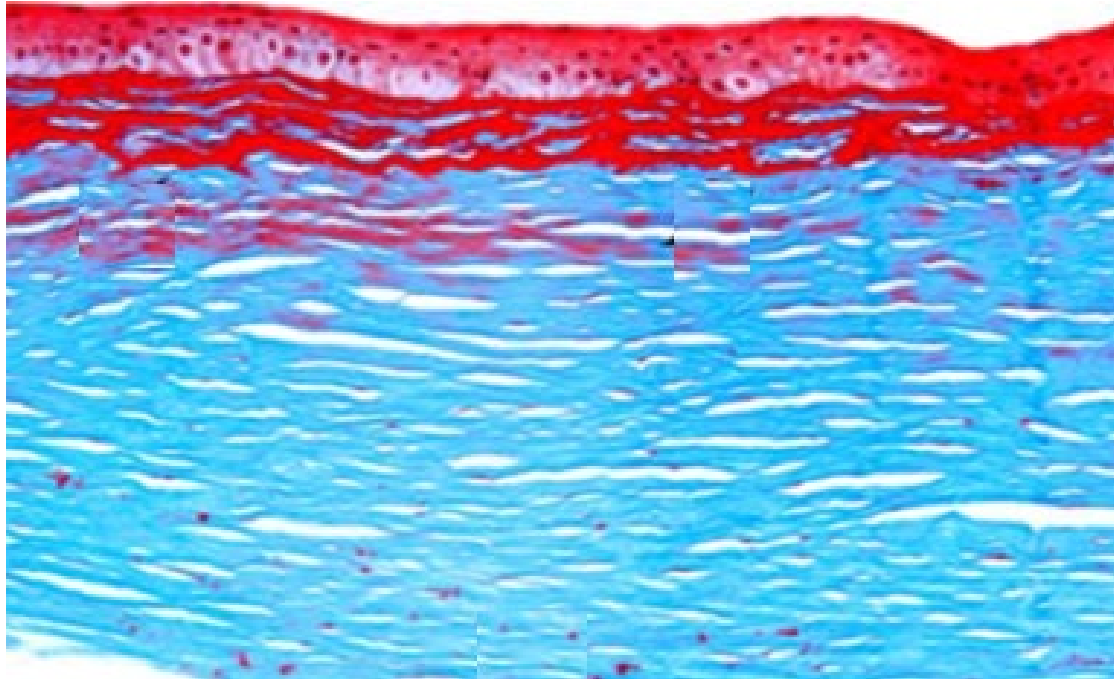
Pathwatching

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain **abb.** running through it.





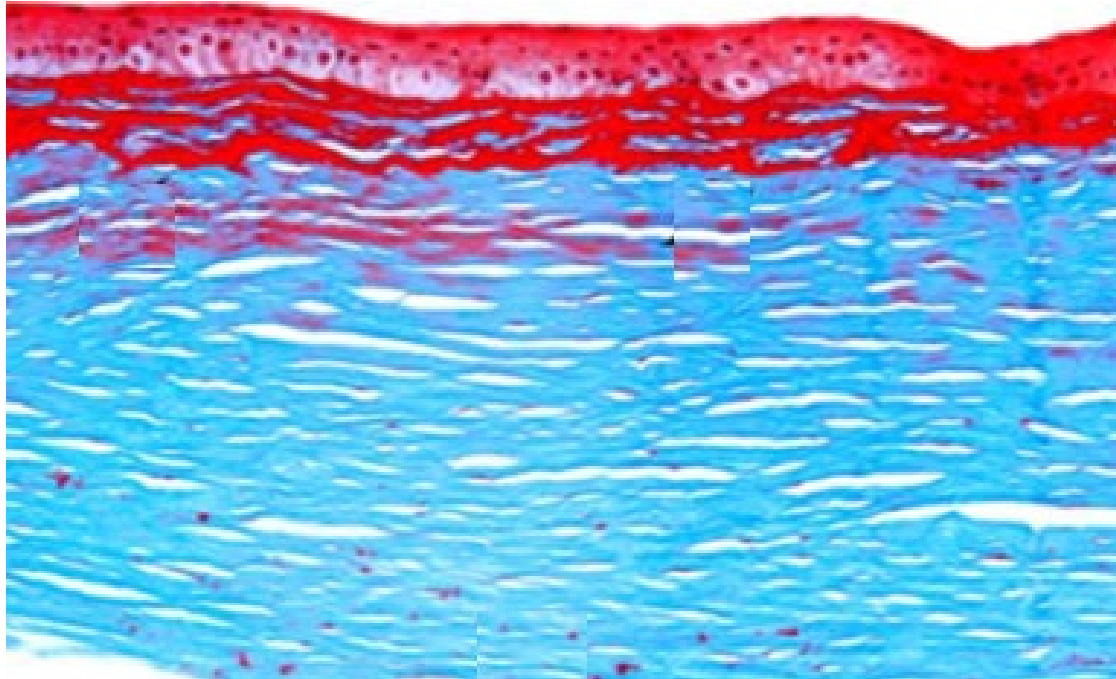
Pathwatching

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring.

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.





Pathwatching

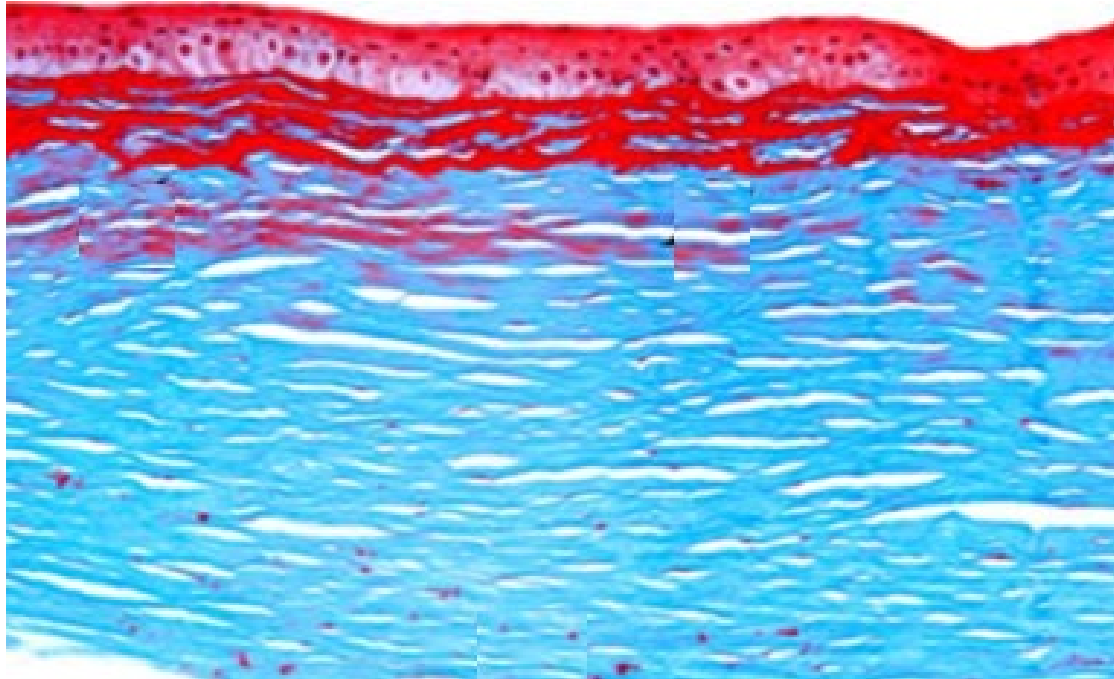
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--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

-- **two words** is either gone or severely disrupted





Pathwatching

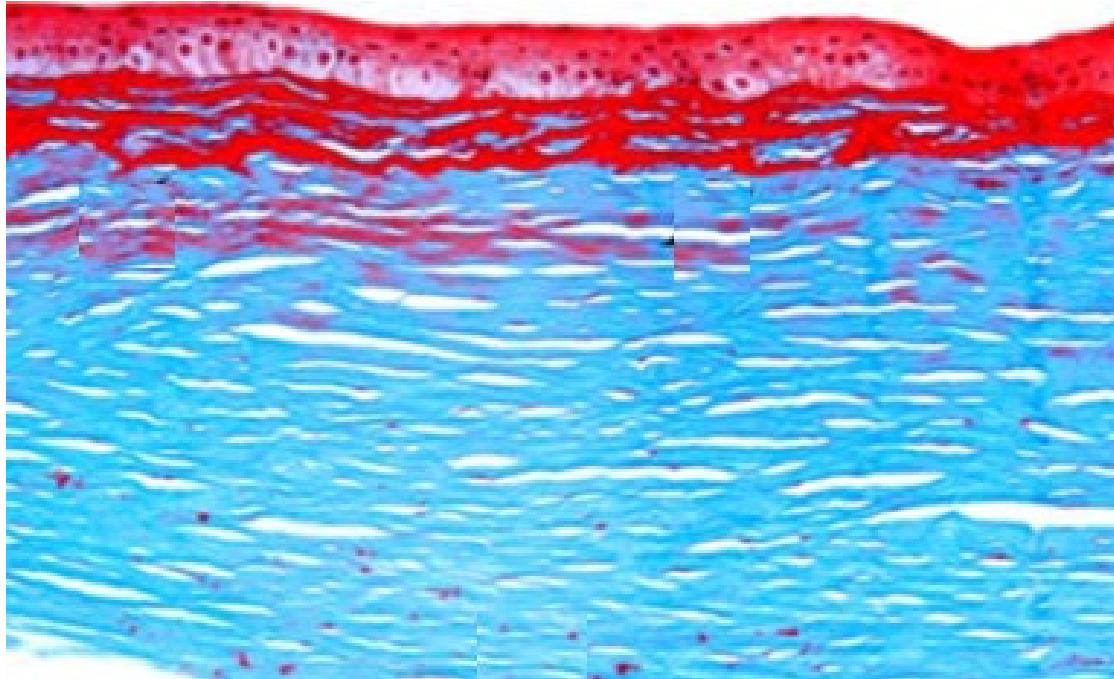
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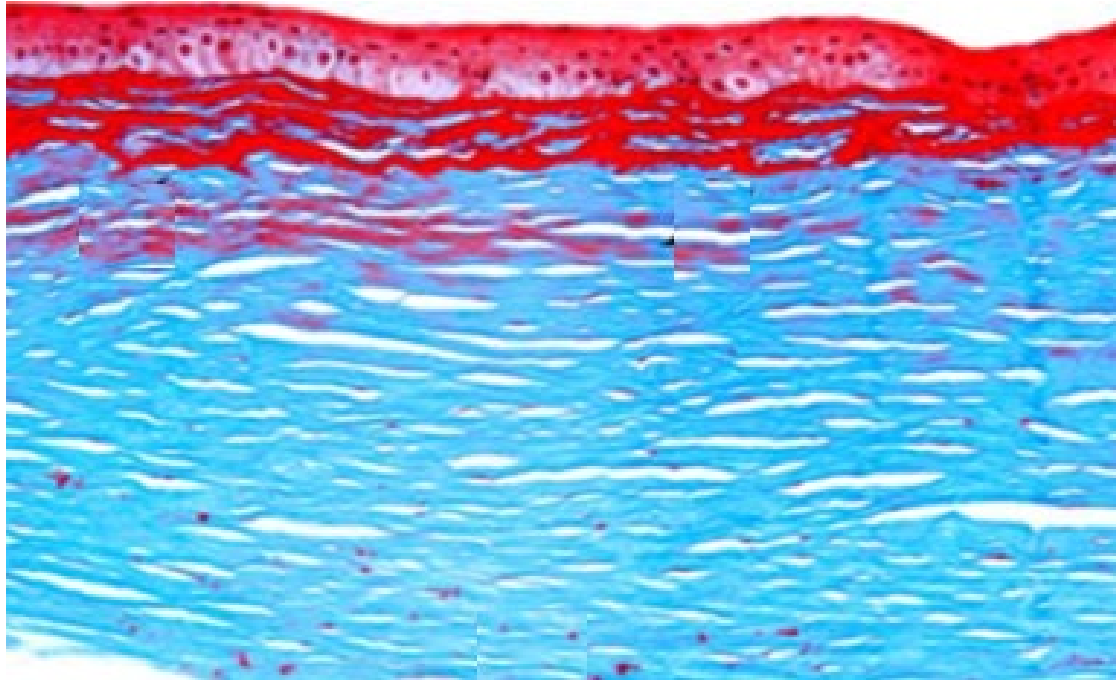
--The epithelium looks wonky, but it doesn't contain BM running through it.

--Bowman's layer is either gone or severely disrupted.





Pathwatching



What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

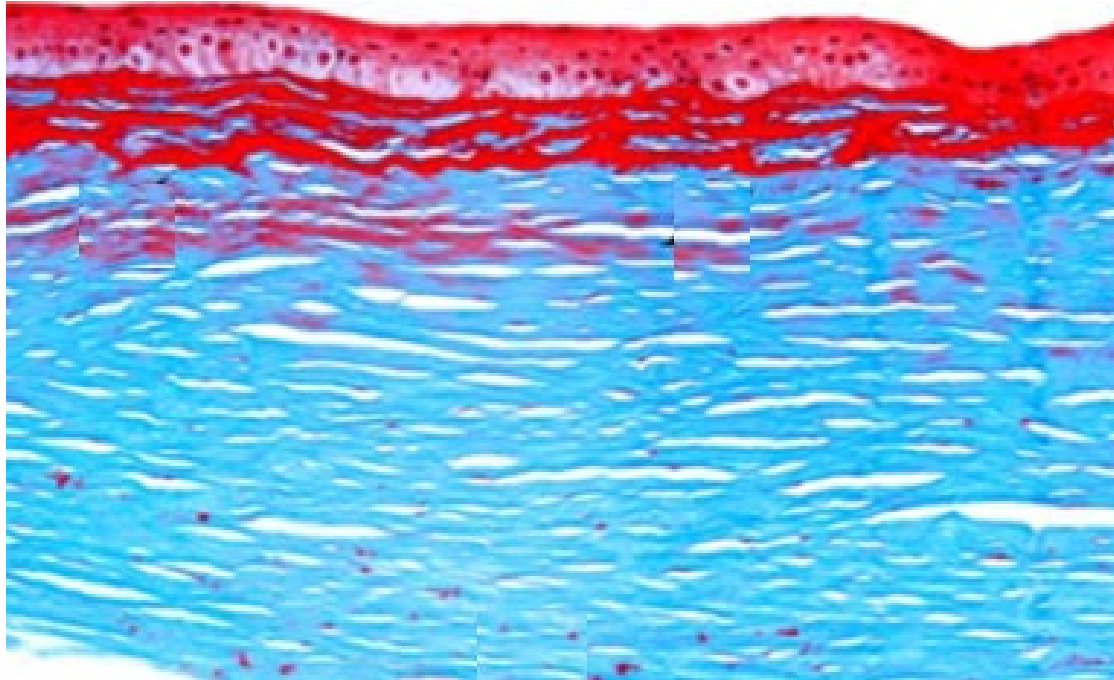
--The epithelium looks wonky, but it doesn't contain BM running through it.

--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly.



Pathwatching



What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

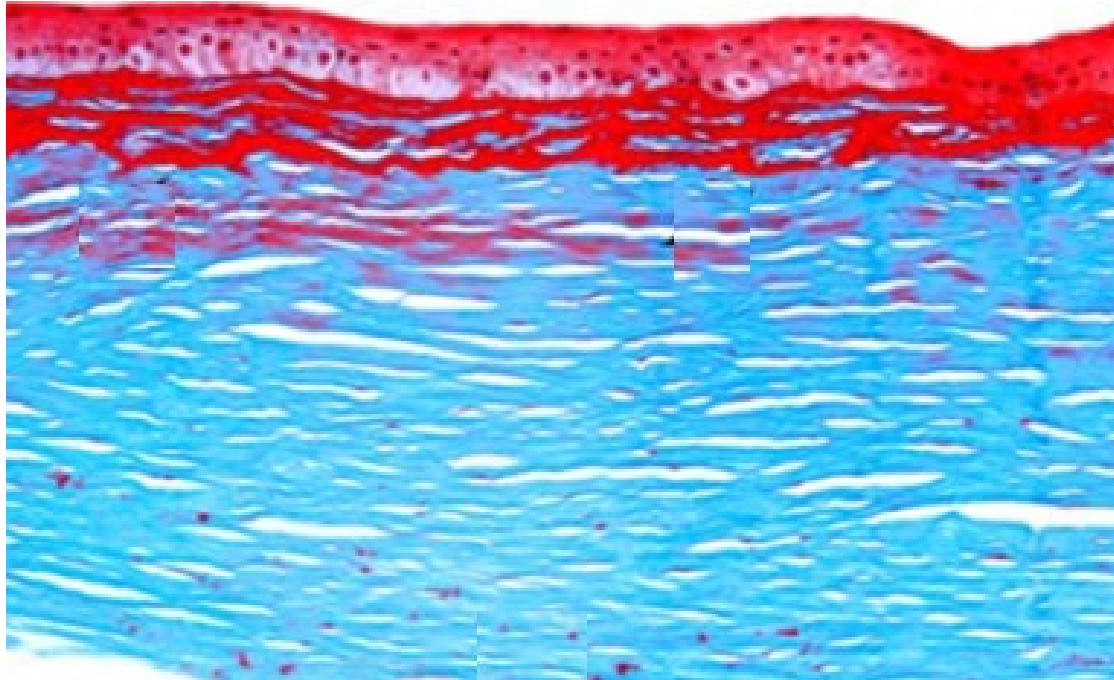
--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is

two-words



Pathwatching



What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

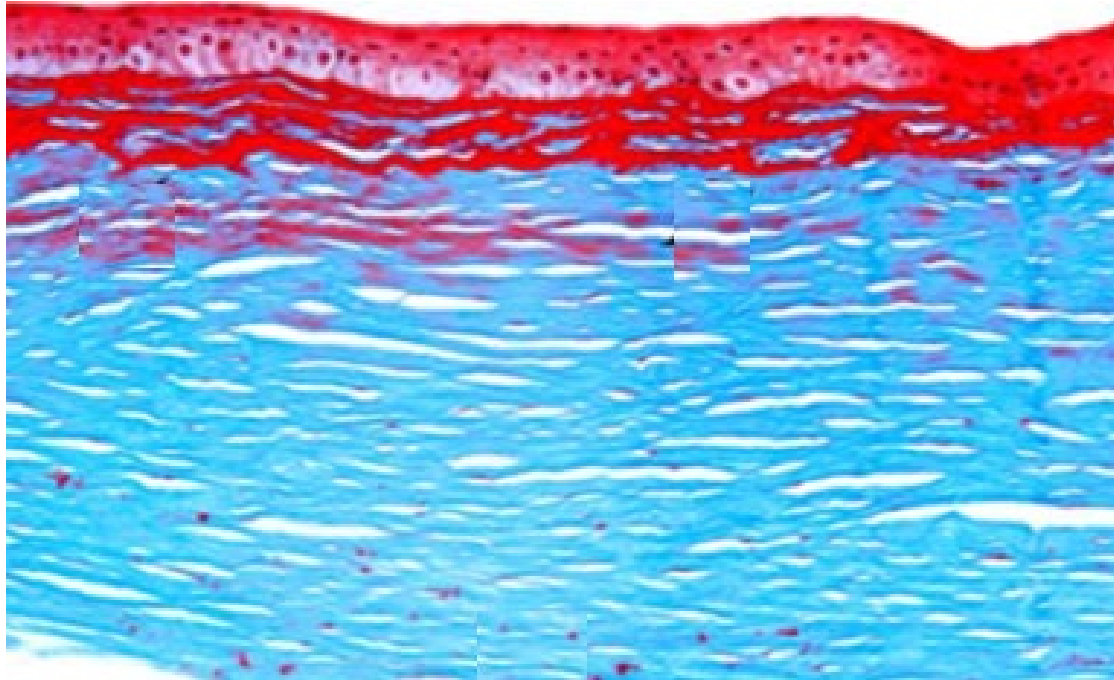
--The epithelium looks wonky, but it doesn't contain BM running through it.

--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'



Pathwatching



What's the diagnosis?

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

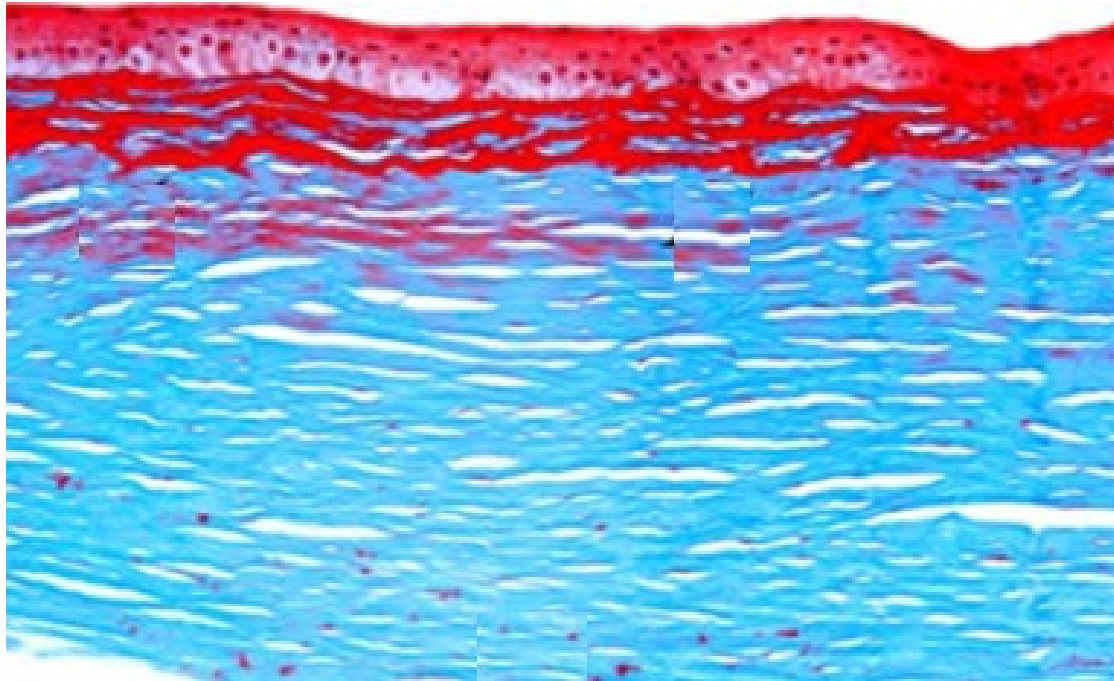
--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the two-words + a long abb. corneal dystrophies.

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

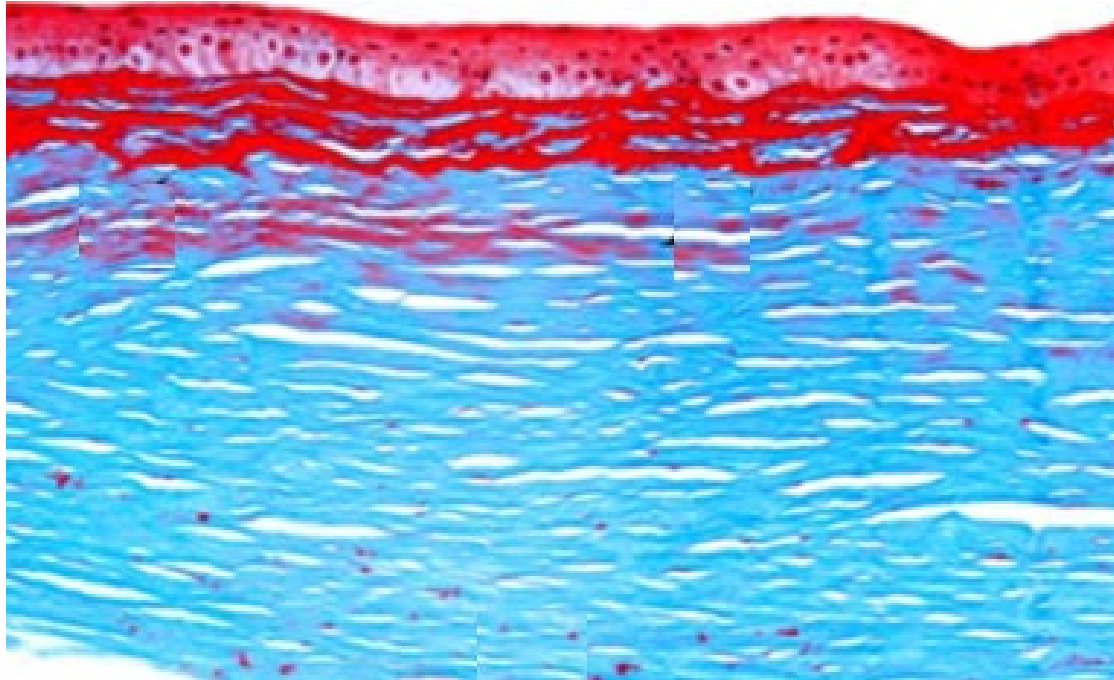
--Bowman's layer is either gone or severely disrupted.

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Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies.

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

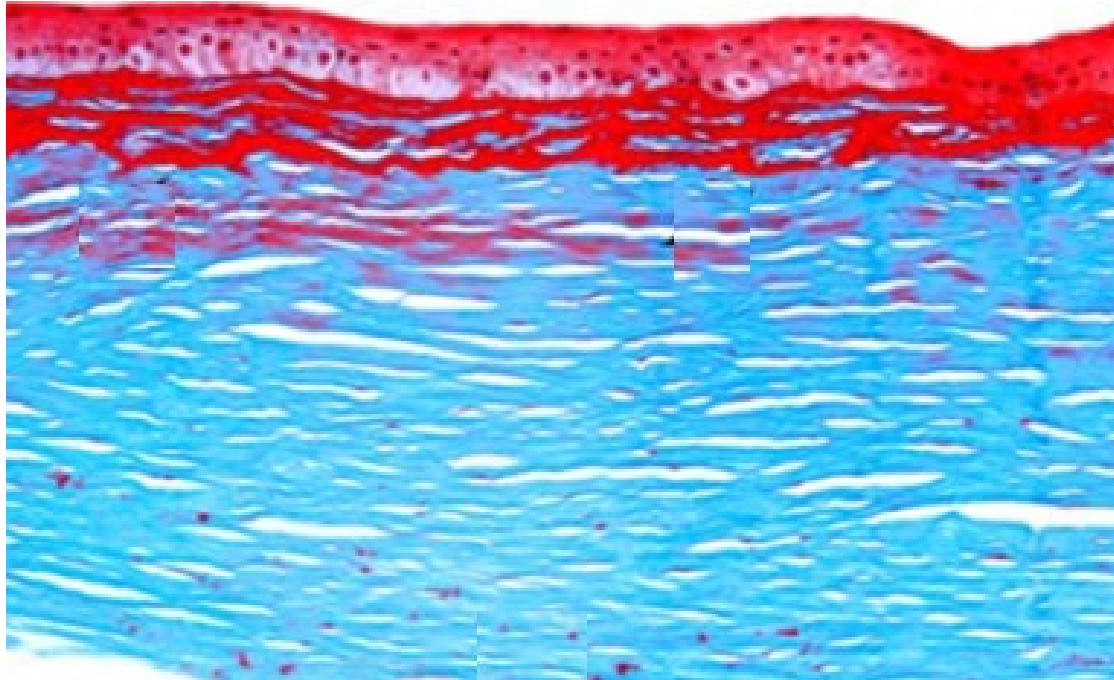
--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. It mainly affects two words.

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring.

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

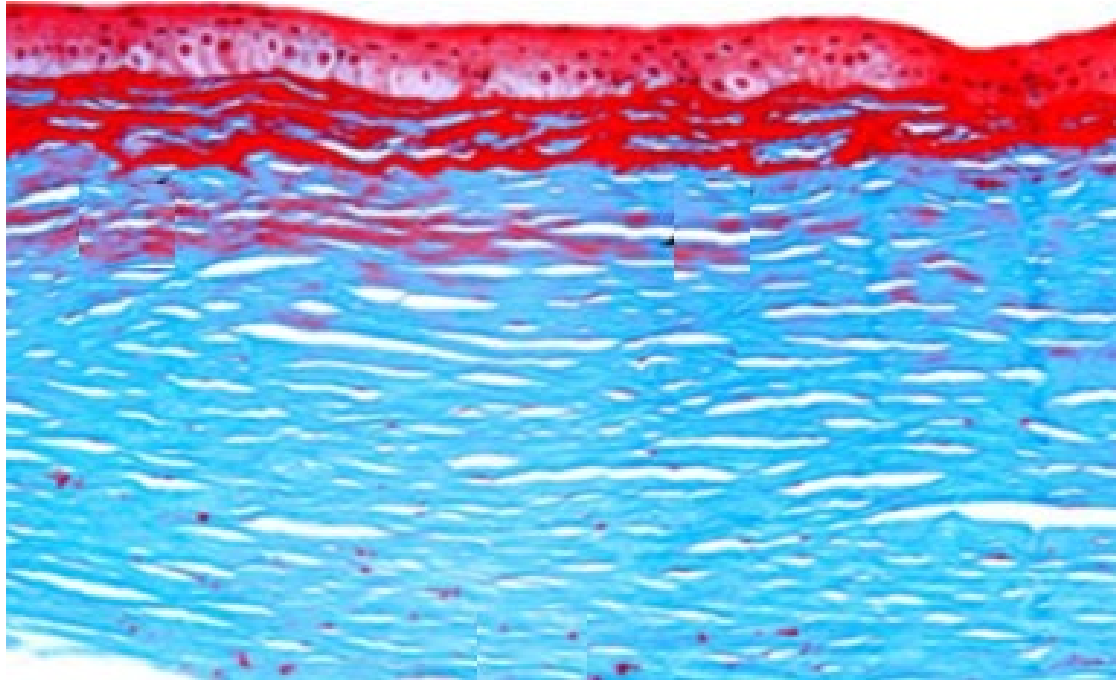
--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. It mainly affects Bowman's layer* .

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

--Bowman's layer is either gone or severely disrupted.

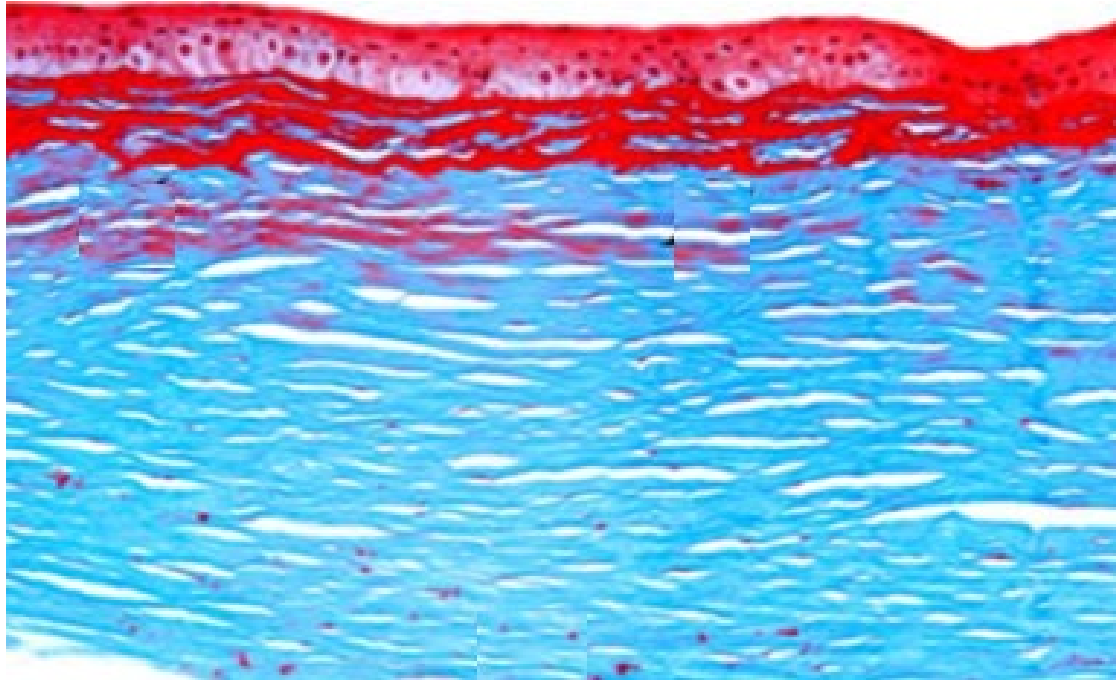
--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:

*Under the classification system used in previous volumes of the *Cornea* book, RBCD was classified as a word word of word



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. It mainly affects Bowman's layer* .

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring .

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

--Bowman's layer is either gone or severely disrupted.

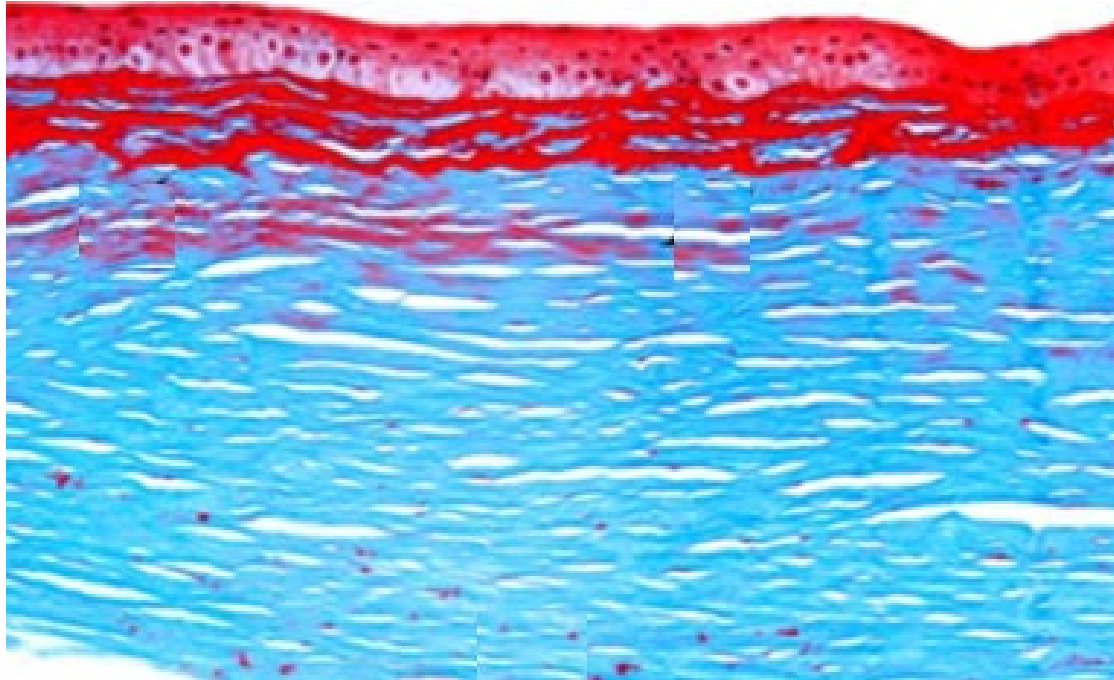
--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:

*Under the classification system used in previous volumes of the *Cornea* book, RBCD was classified as a *Corneal Dystrophy of Bowman's* (CDB).



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. It mainly affects **Bowman's layer***. Primary complaints are related to three words.

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring.

That's where the 'normal' ends. Note:

--The epithelium looks wonky, but it doesn't contain BM running through it.

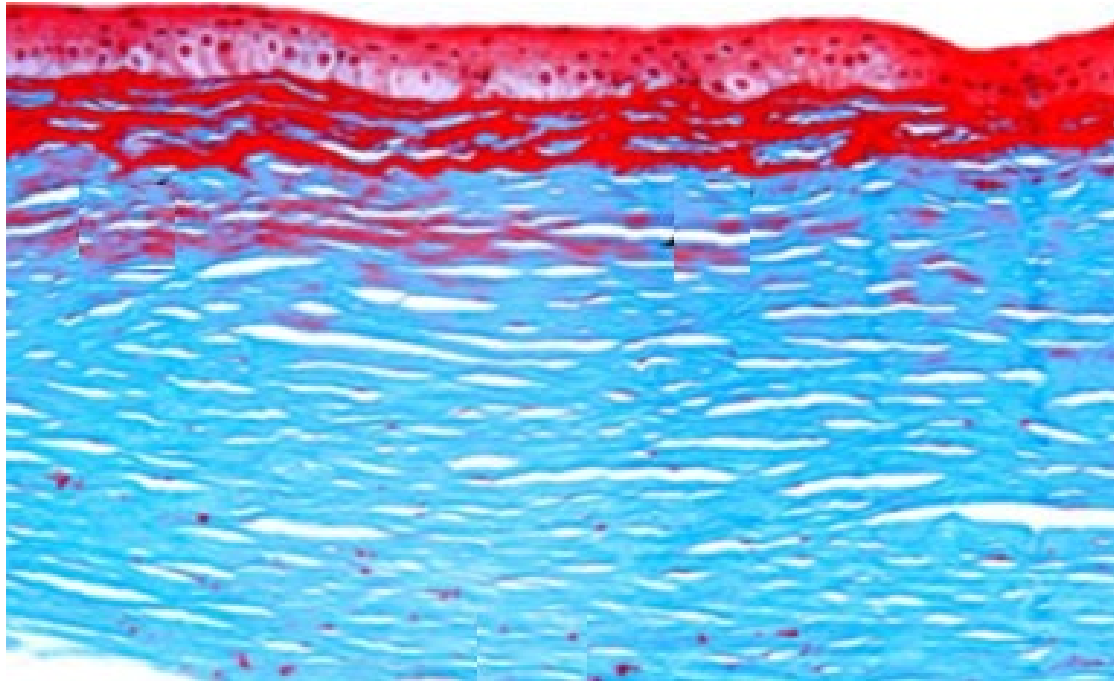
--Bowman's layer is either gone or severely disrupted.

--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:



Pathwatching



What's the diagnosis?

Reis-Bücklers corneal dystrophy (RBCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. It mainly affects **Bowman's layer***. Primary complaints are related to recurrent epithelial erosions.

What's going on here? Again, let's first note what looks OK:

--The stroma contains the expected artifactual clefts, so the pathology doesn't involve significant corneal edema or scarring.

That's where the 'normal' ends. Note:

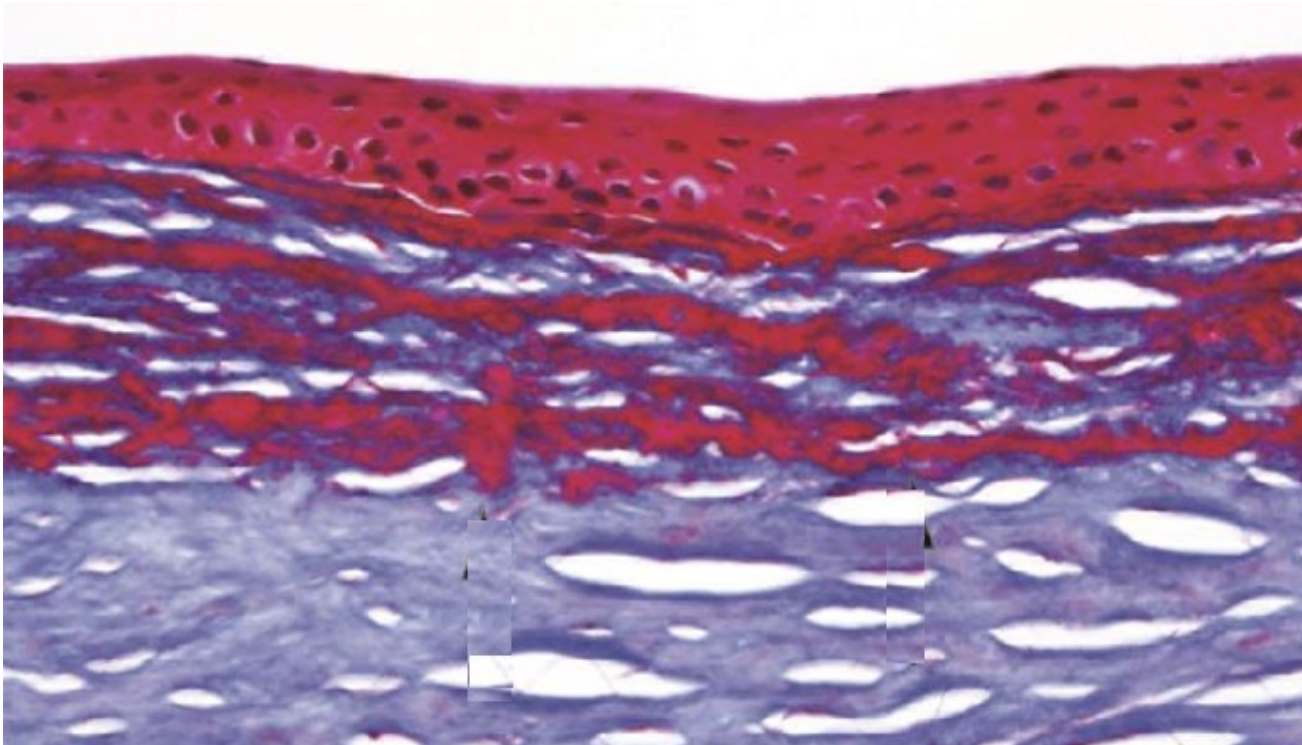
--The epithelium looks wonky, but it doesn't contain BM running through it.

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--The stroma is taking a special stain, with the portion that is Bowman's-adjacent staining most avidly. The anterior staining pattern is 'sheet-like.'

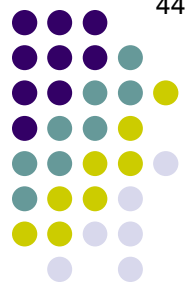
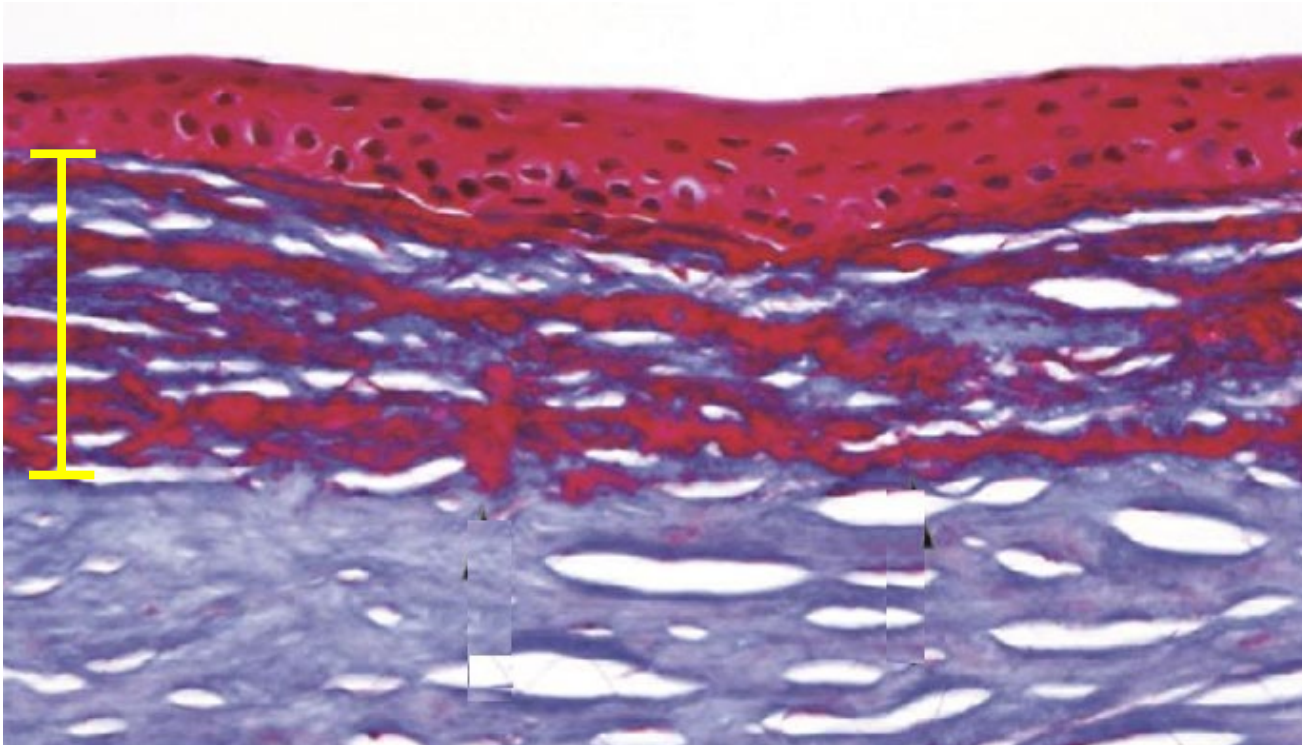
Extensive disruption/replacement of Bowman's layer associated with subjacent sheets of avidly-stained material points to one diagnosis:

Pathwatching



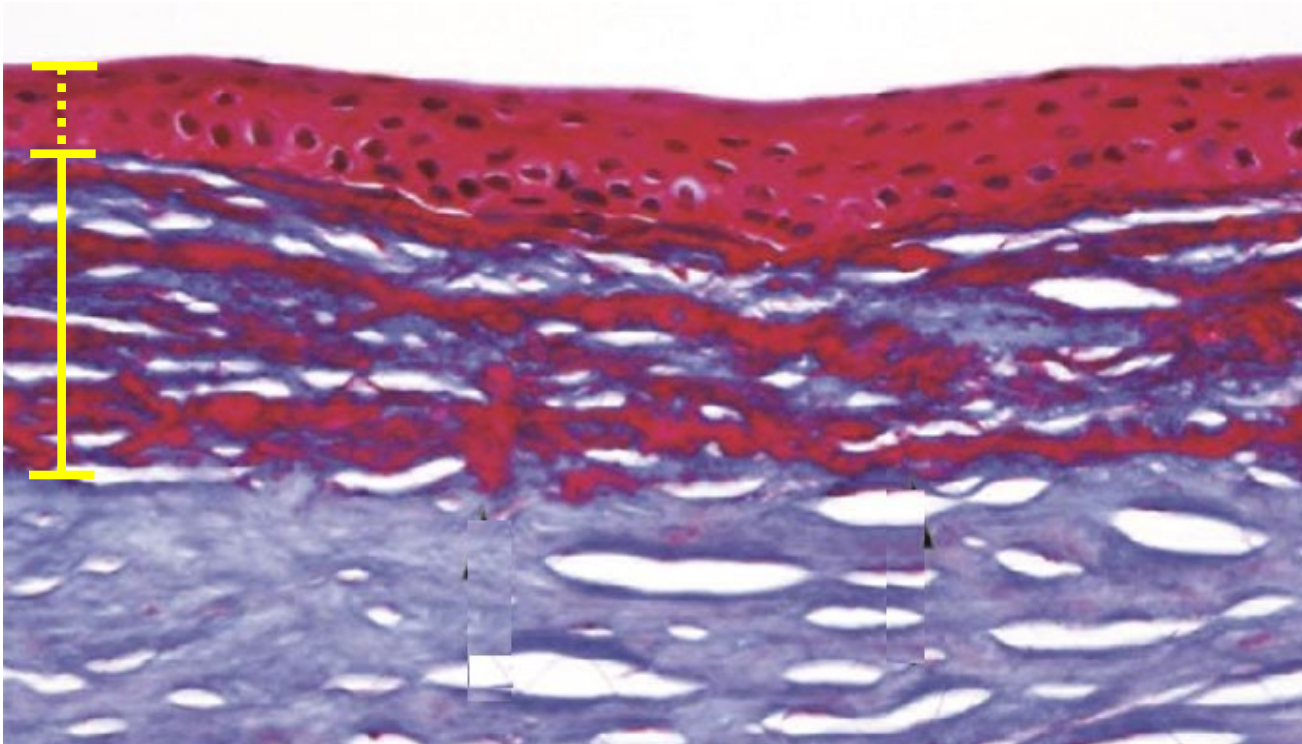
Another characteristic of RBCD: The inverse relationship between stromal involvement and the robustness of the overlying epithelium.

Pathwatching



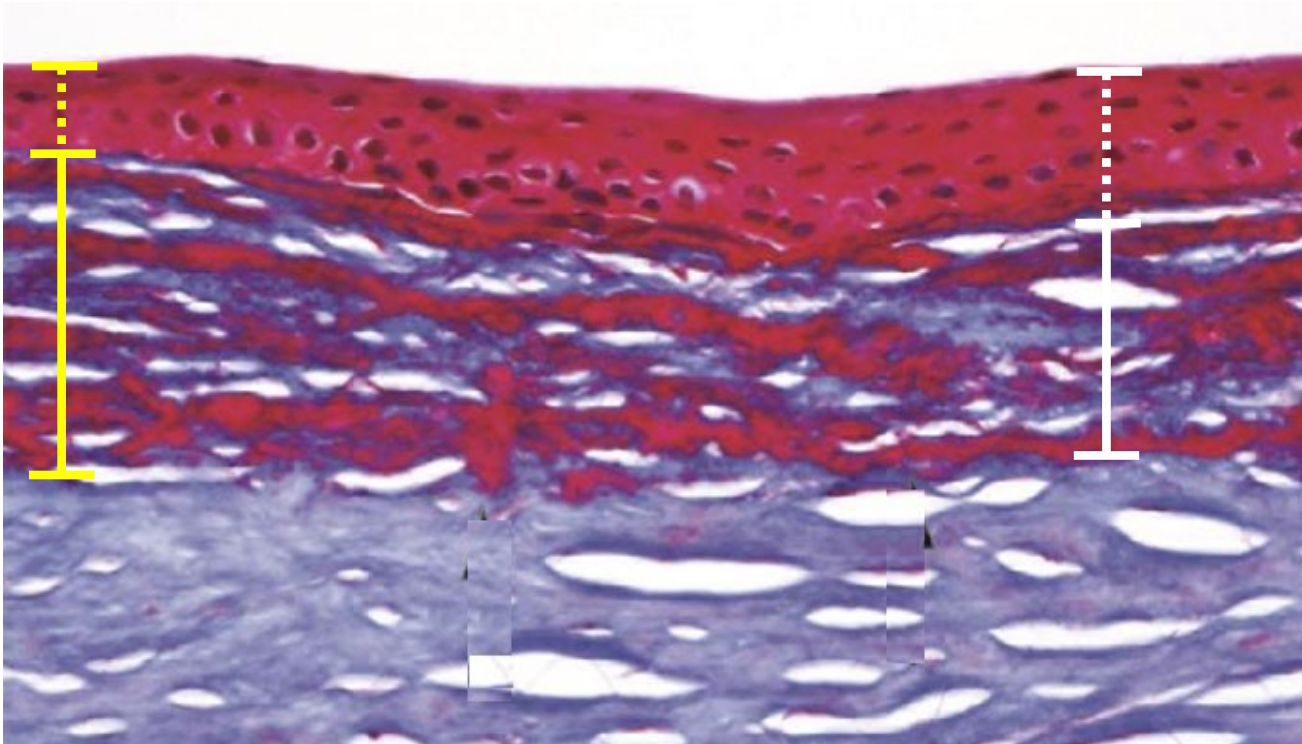
Another characteristic of RBCD: The inverse relationship between stromal involvement and the robustness of the overlying epithelium. **That is, note that where the stromal involvement is greater...**

Pathwatching



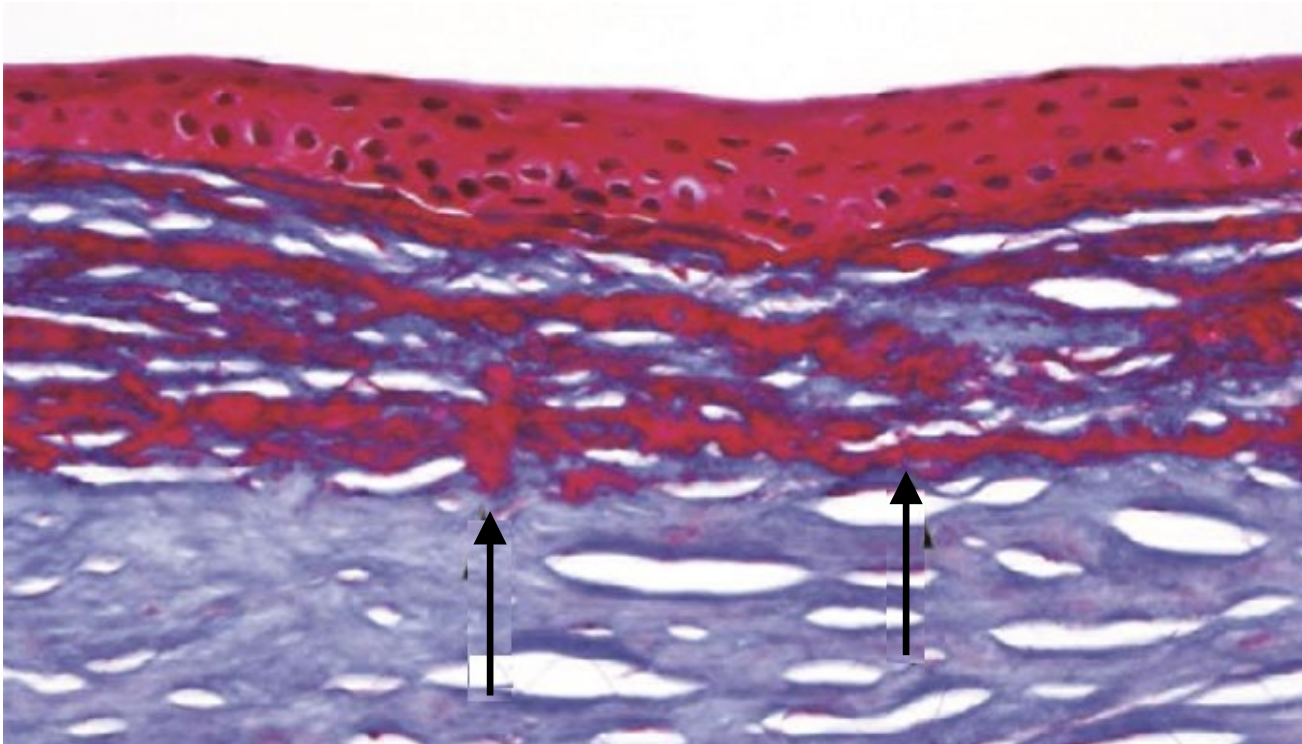
Another characteristic of RBCD: The inverse relationship between stromal involvement and the robustness of the overlying epithelium. That is, note that where the stromal involvement is greater...the overlying epithelium is *thinner*.

Pathwatching



Another characteristic of RBCD: The inverse relationship between stromal involvement and the robustness of the overlying epithelium. That is, note that where the stromal involvement is greater...the overlying epithelium is *thinner*. The reverse is also true.

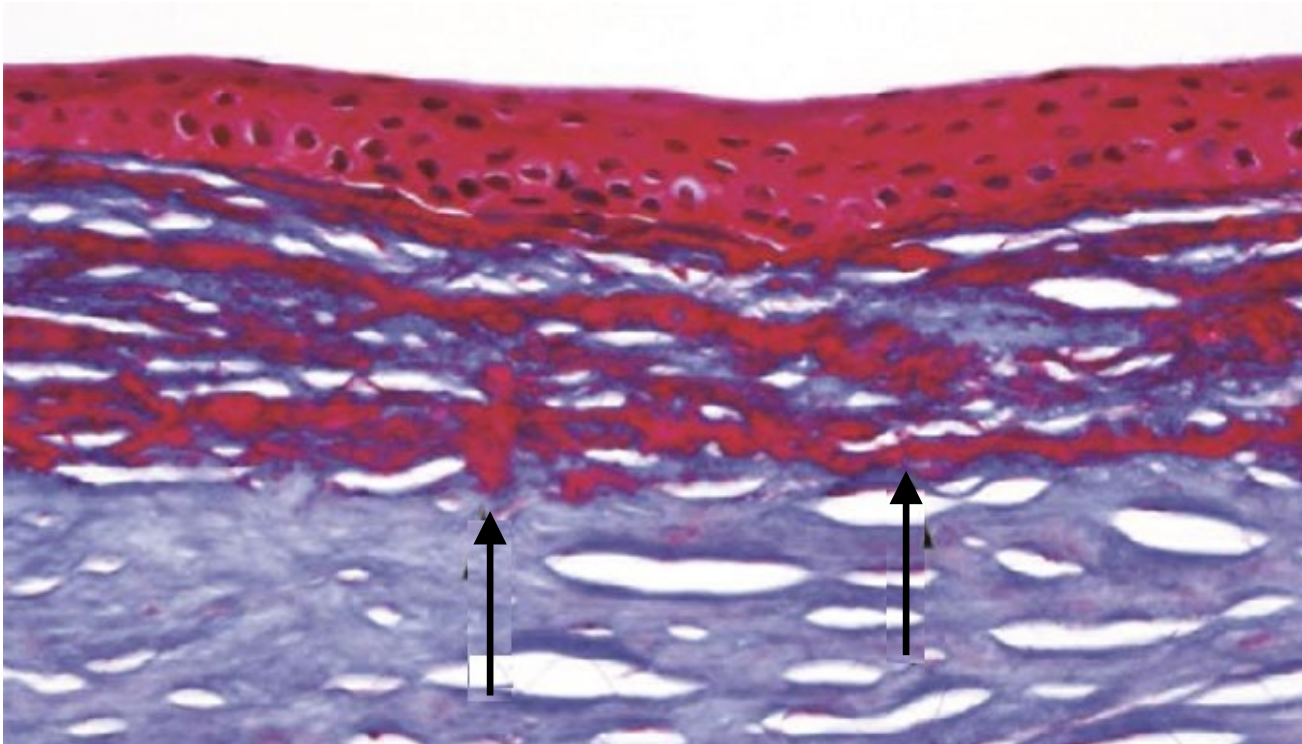
Pathwatching



Note: This image appears in both the *Cornea* and *Path* books. Here is how it is captioned in each:



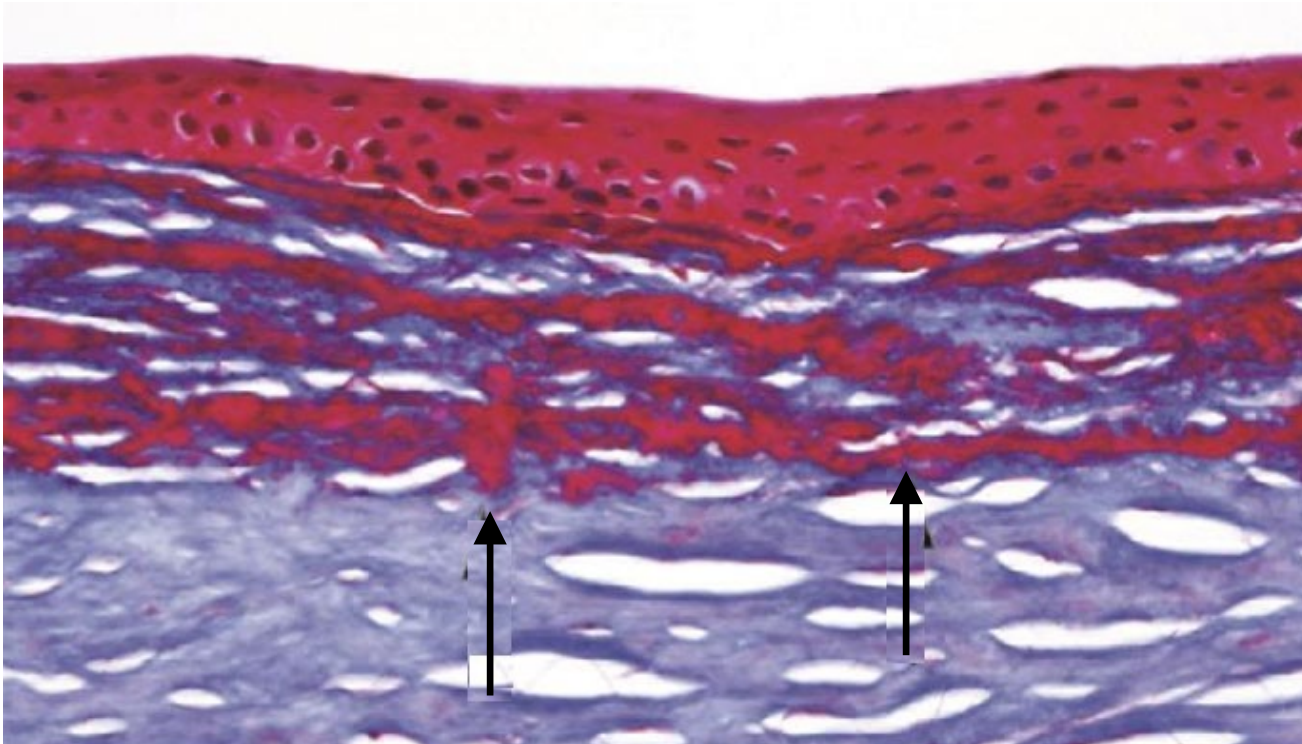
Pathwatching



Note: This image appears in both the *Cornea* and *Path* books. Here is how it is captioned in each:

In the *Cornea* book: Light microscopy with Masson trichrome stain reveals replacement of Bowman's layer (arrows) with hyaline. Note thinner epithelium overlying areas of increased stromal involvement and vice-versa

Pathwatching



Note: This image appears in both the *Cornea* and *Path* books. Here is how it is captioned in each:

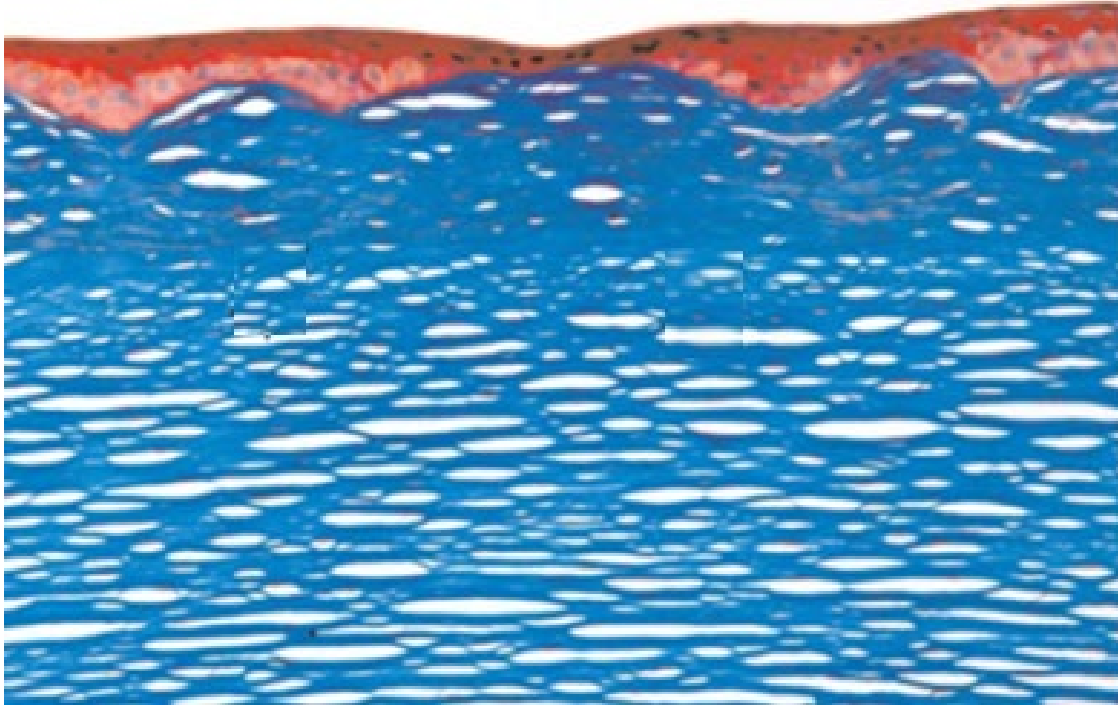
In the *Cornea* book: Light microscopy with Masson trichrome stain reveals replacement of Bowman's layer (arrows) with hyaline. Note thinner epithelium overlying areas of increased stromal involvement and vice-versa

In the *Path* book: Masson trichrome stain demonstrates diffuse loss of Bowman layer, superficial stromal fibrosis, and numerous red deposits (*arrows*).

Pathwatching

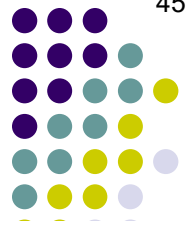


There is one more epithelial-stromal TGFBI dystrophy that primarily effects Bowman's (pictured)—what is it?



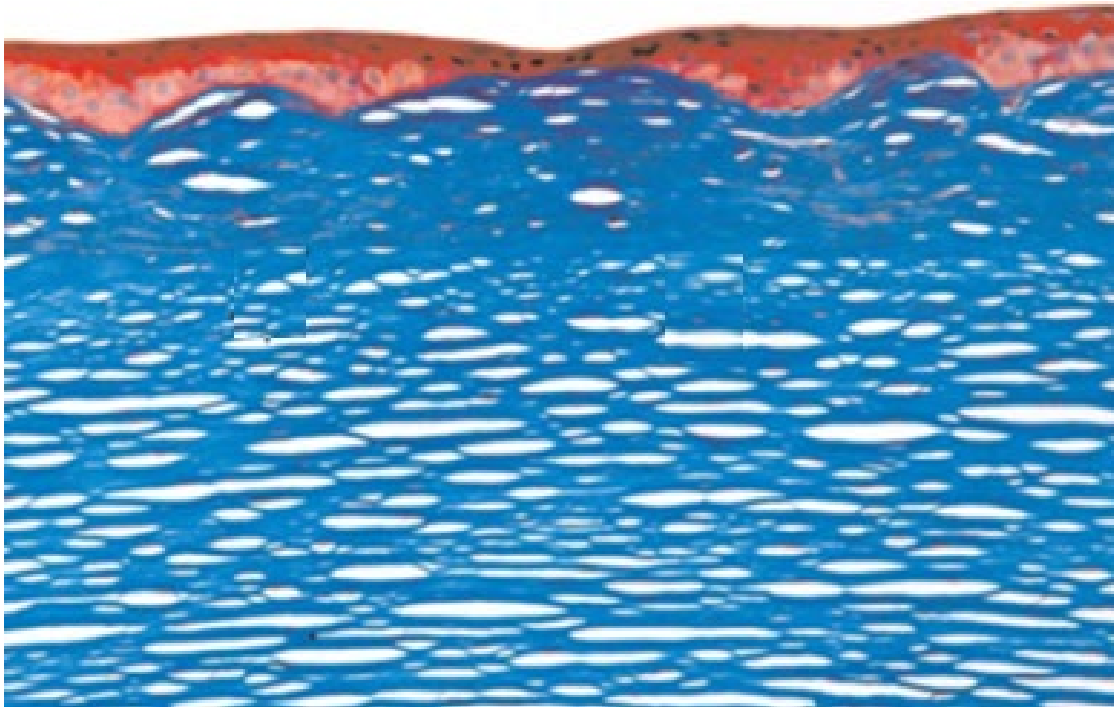
?

Pathwatching



There is one more epithelial-stromal TGFBI dystrophy that primarily effects Bowman's (pictured)—what is it?

Thiel-Behnke corneal dystrophy (TBCD)



Thiel-Behnke corneal dystrophy (TBCD)

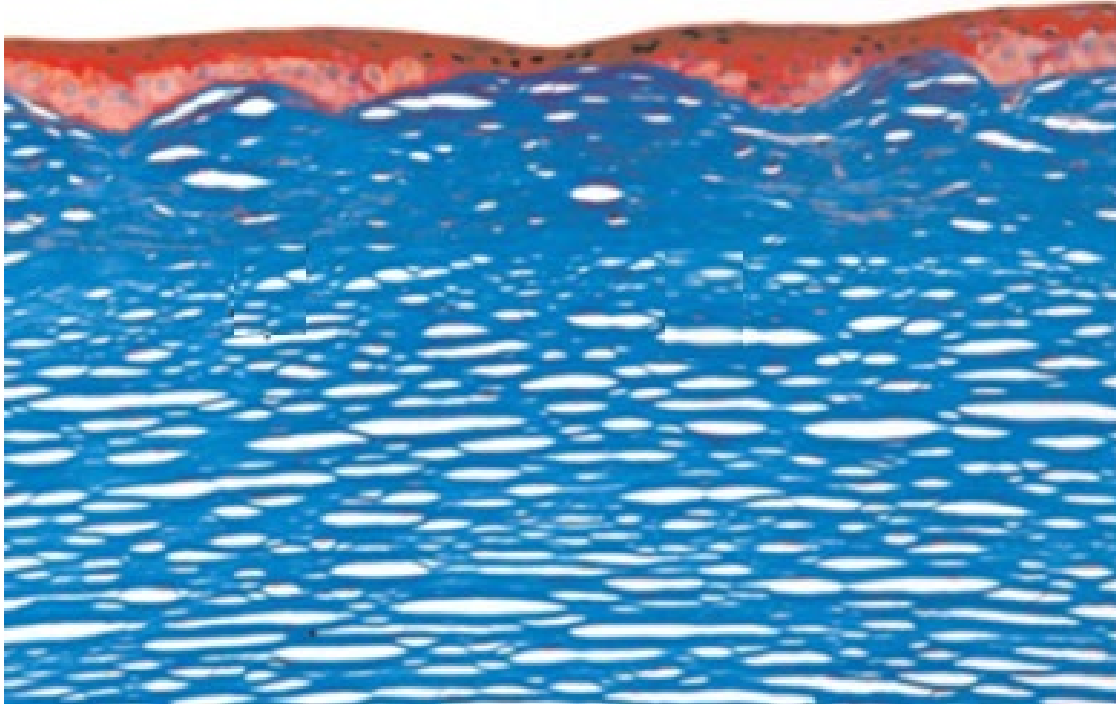
Pathwatching



There is one more epithelial-stromal TGFBI dystrophy that primarily effects Bowman's (pictured)—what is it?

Thiel-Behnke corneal dystrophy (TBCD)

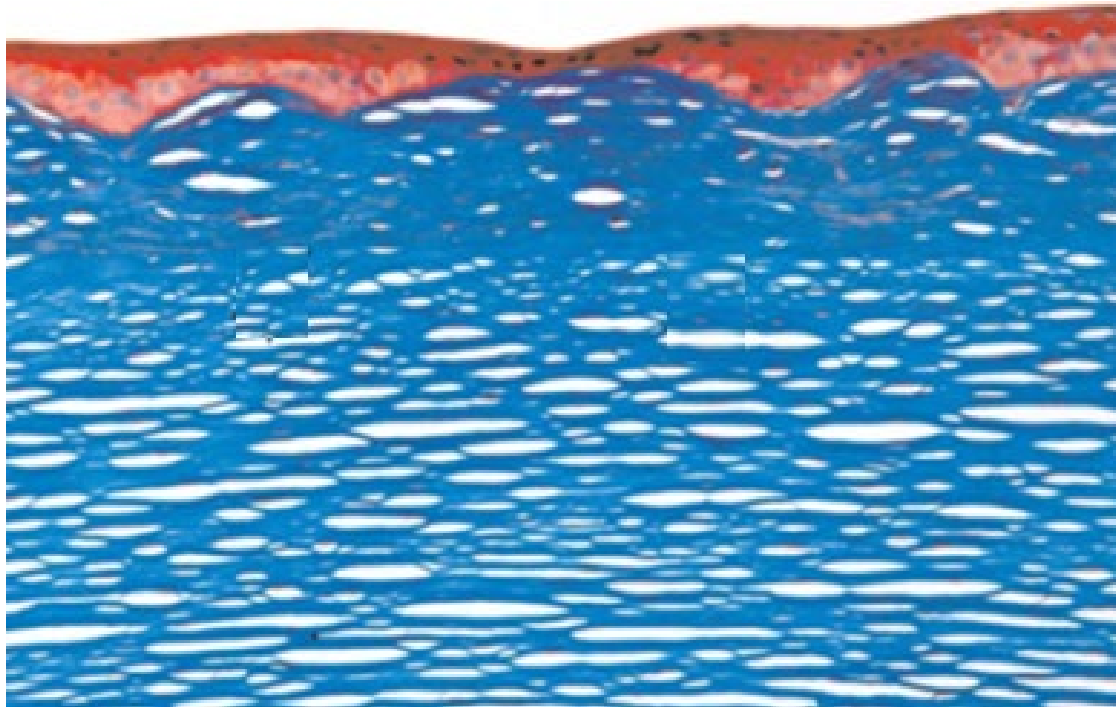
Was TBCD previously a CDB a la RBCD?



Thiel-Behnke corneal dystrophy (TBCD)



Pathwatching



Thiel-Behnke corneal dystrophy (TBCD)

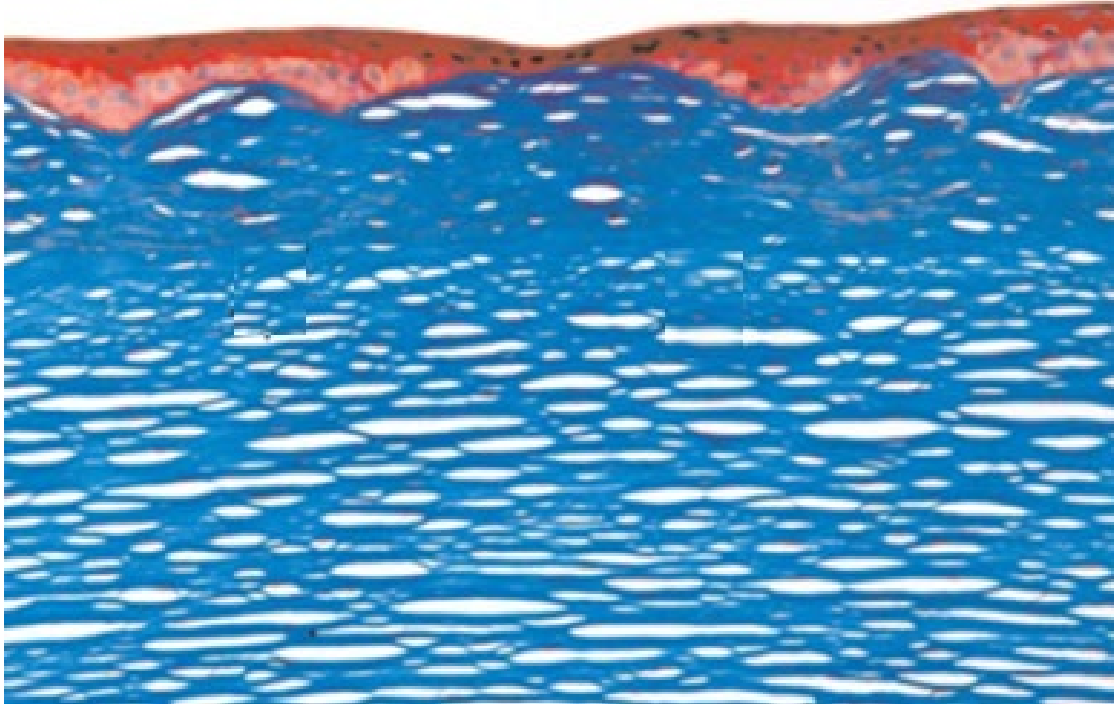
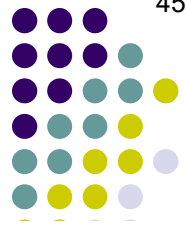
There is one more epithelial-stromal TGFBI dystrophy that primarily effects Bowman's (pictured)—what is it?

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Was TBCD previously a CDB a la RBCD?

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Pathwatching



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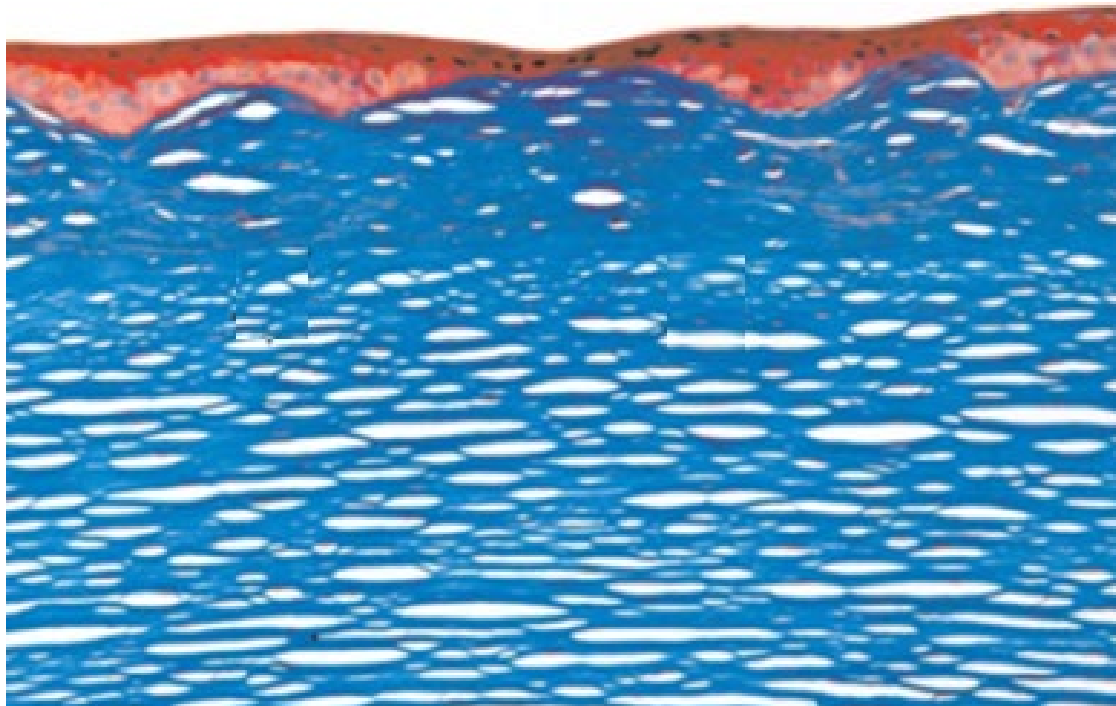
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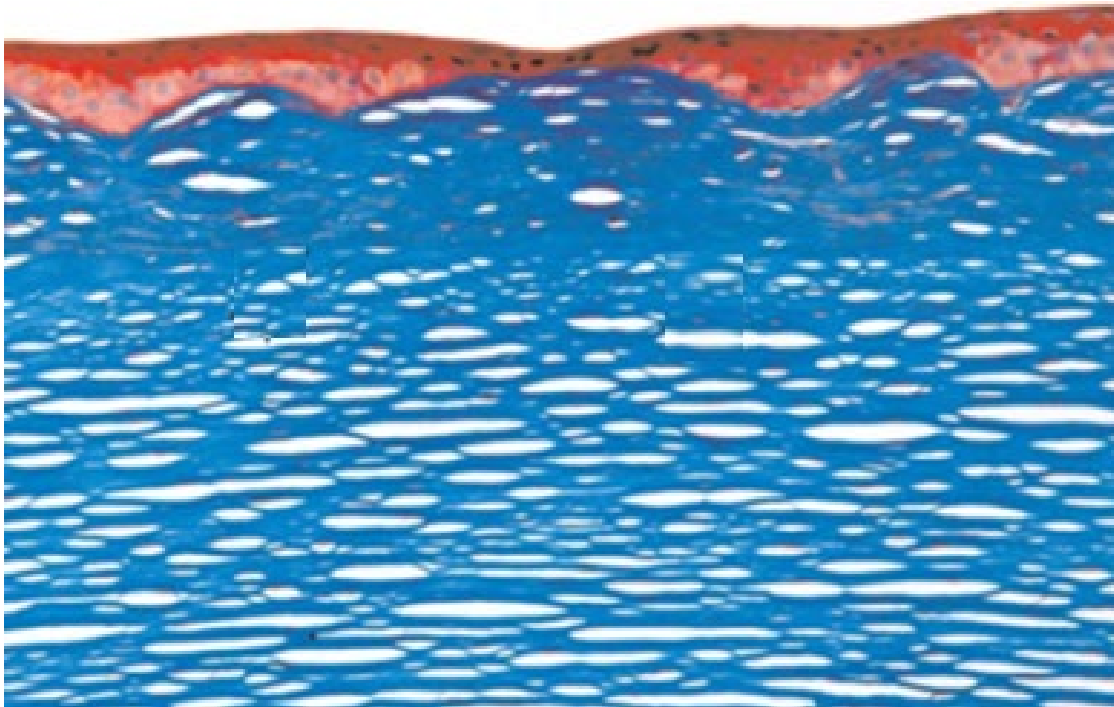
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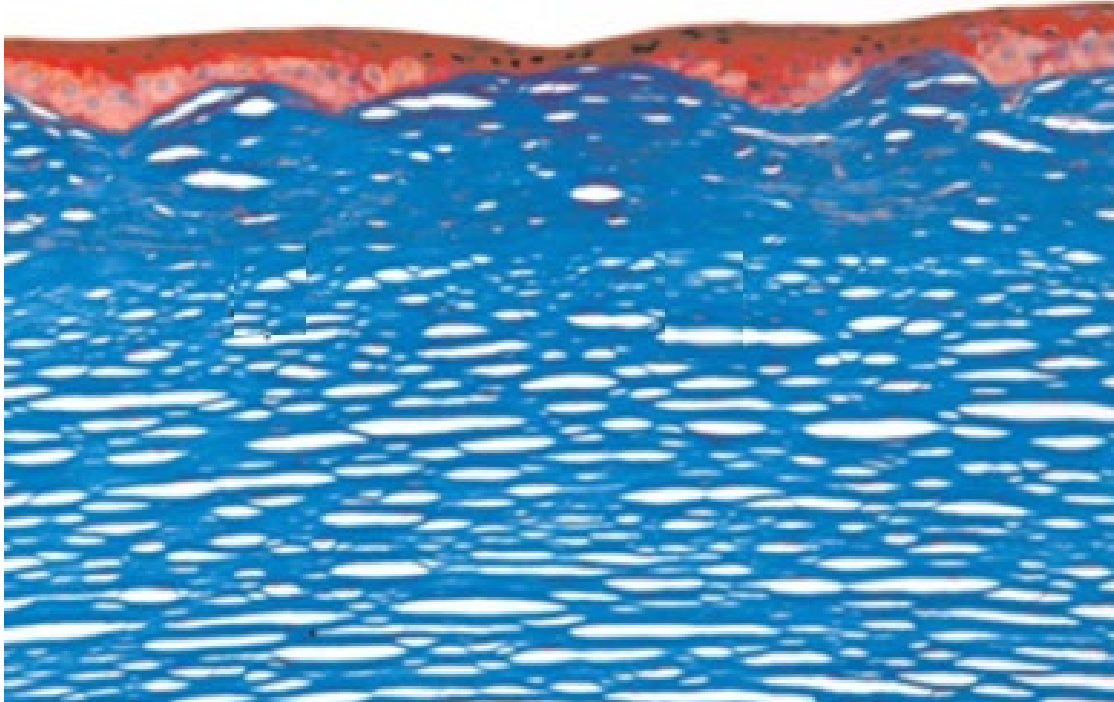
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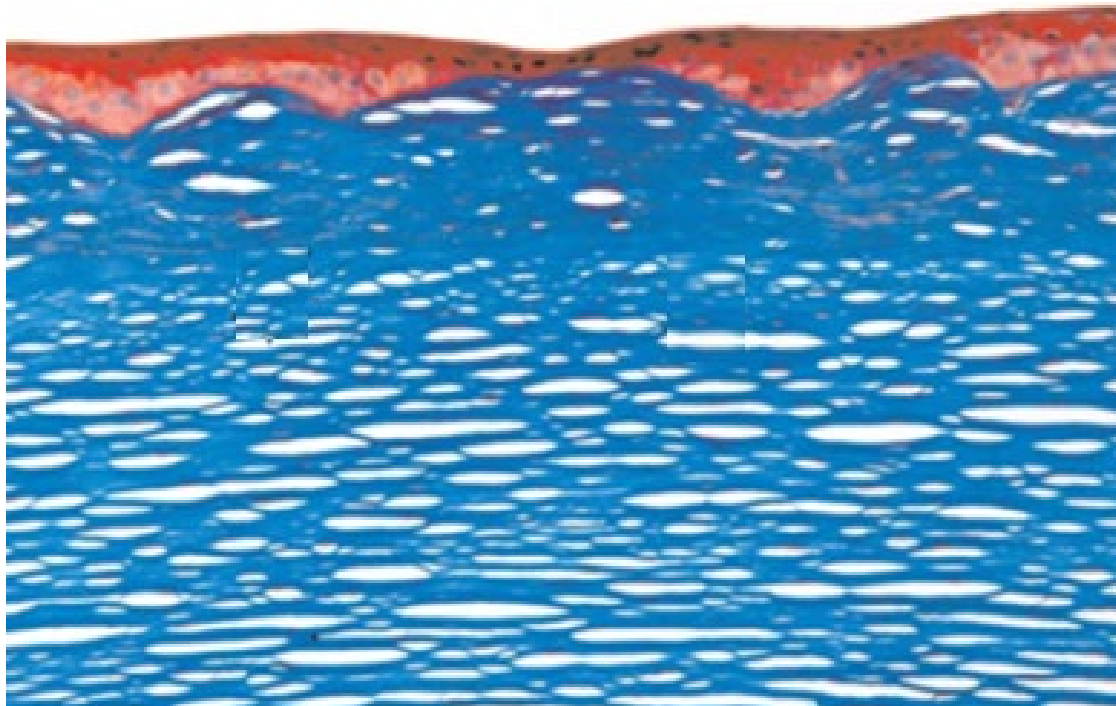
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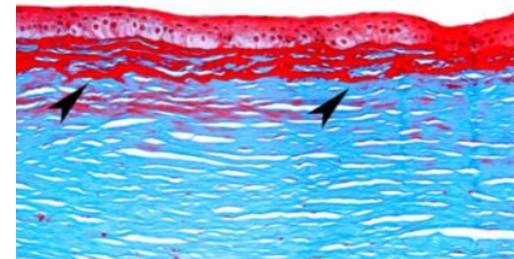
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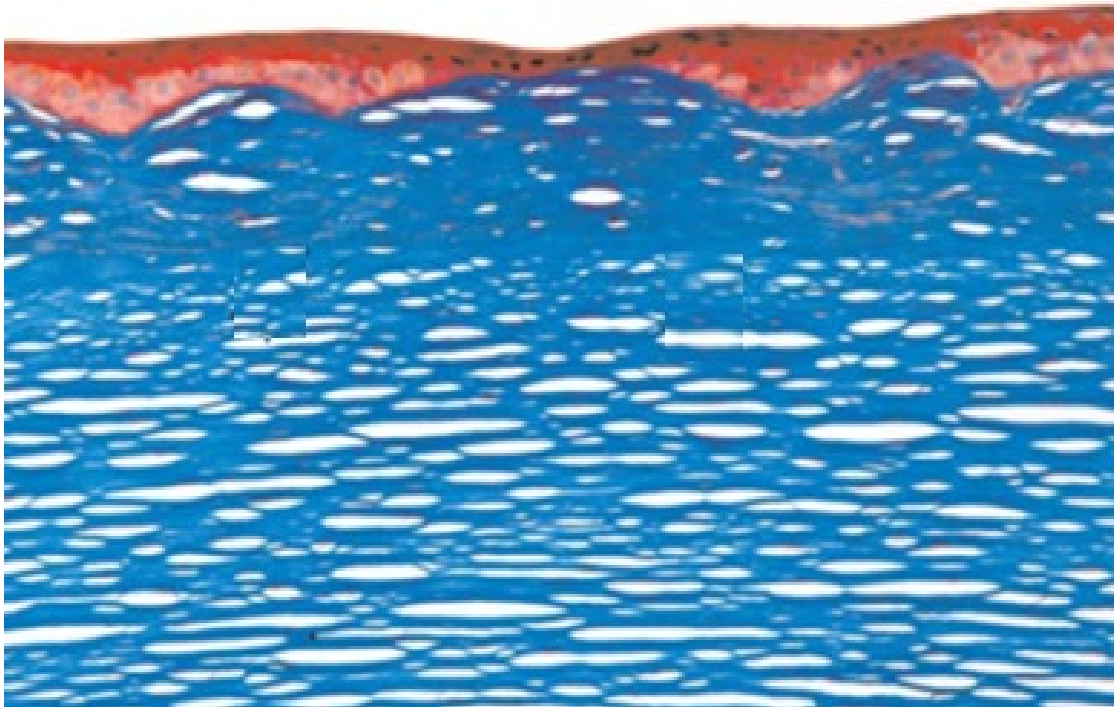
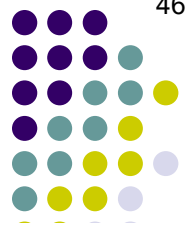
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RBCD

Pathwatching



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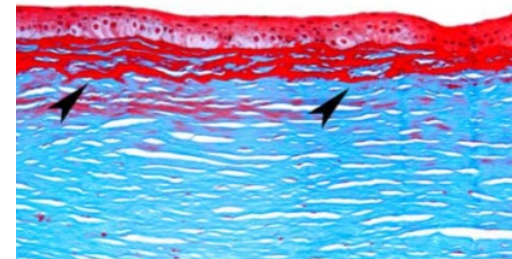
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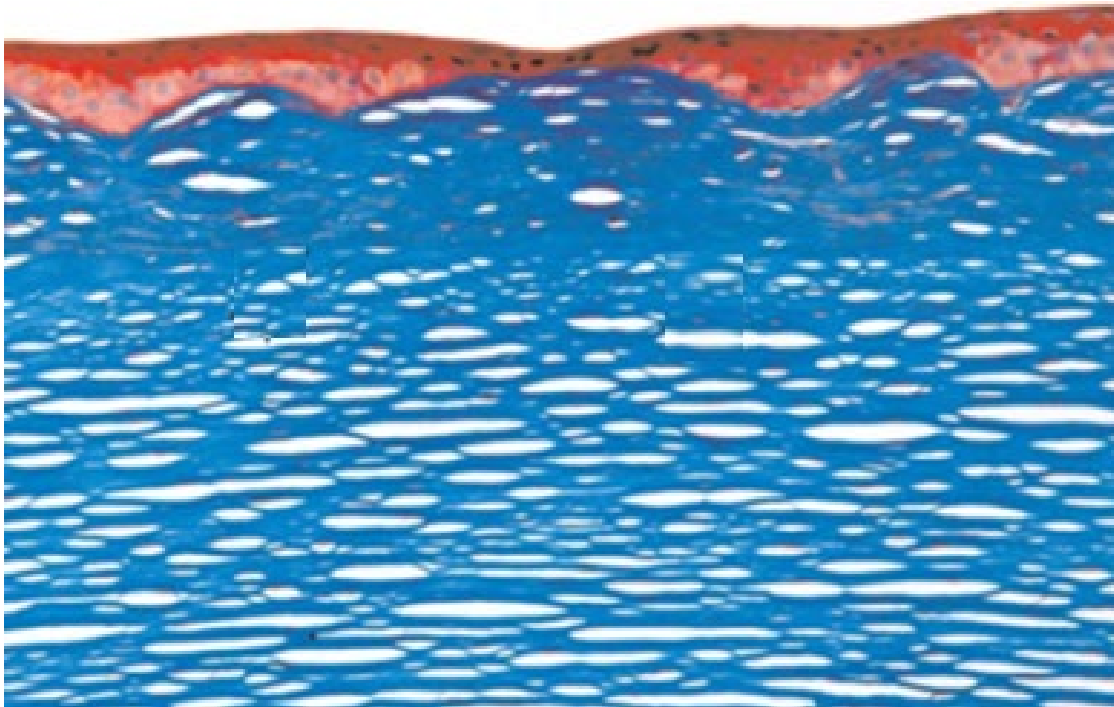
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RBCD

Pathwatching



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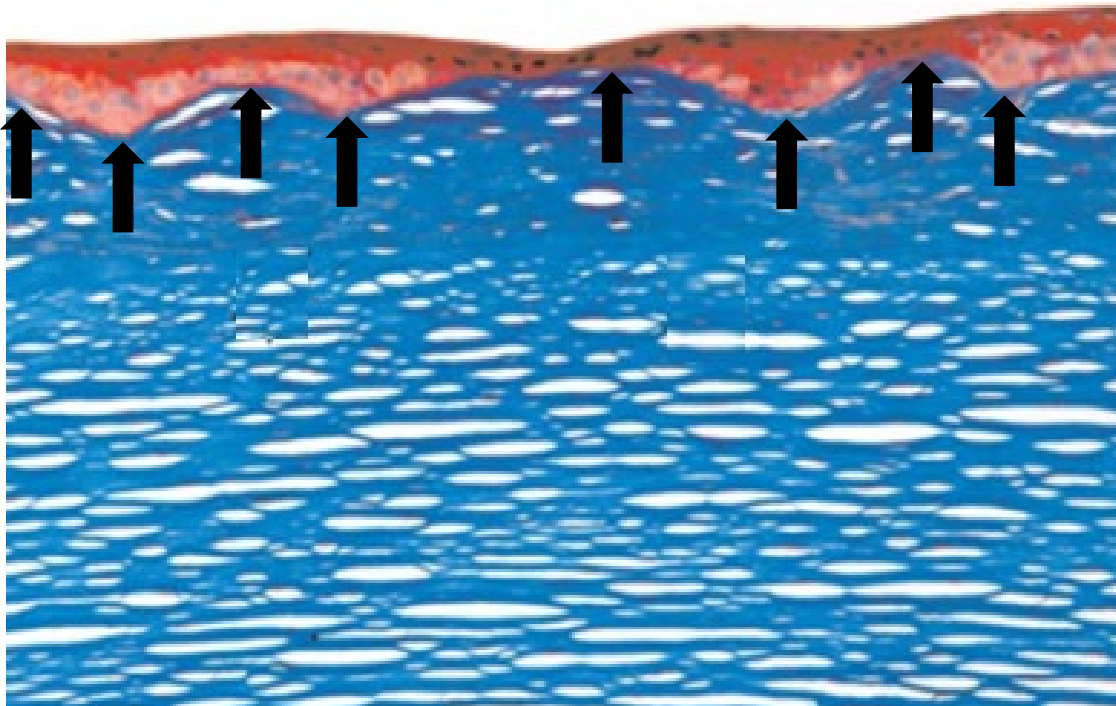
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Pathwatching



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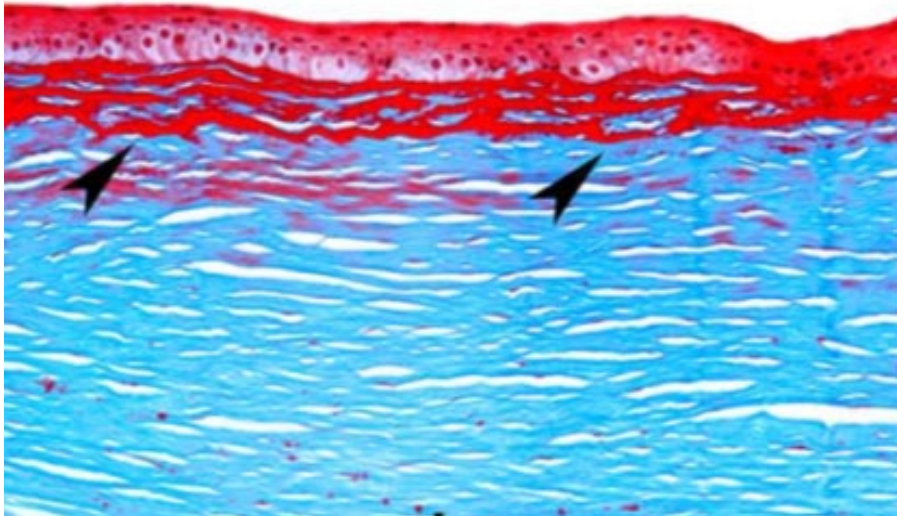
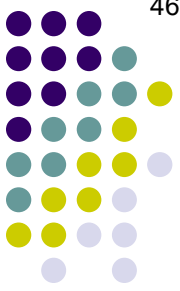
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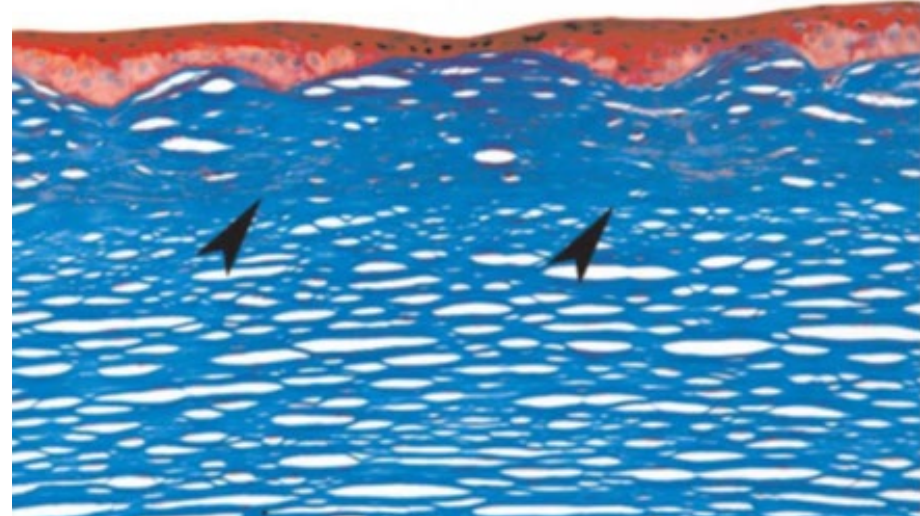
In photomicrographs: By the form taken by the abnormal material. Recall that in RBCD the material was described as 'layered'.

Contrast that with TBCD in which the form is described as 'sawtooth'.

Pathwatching



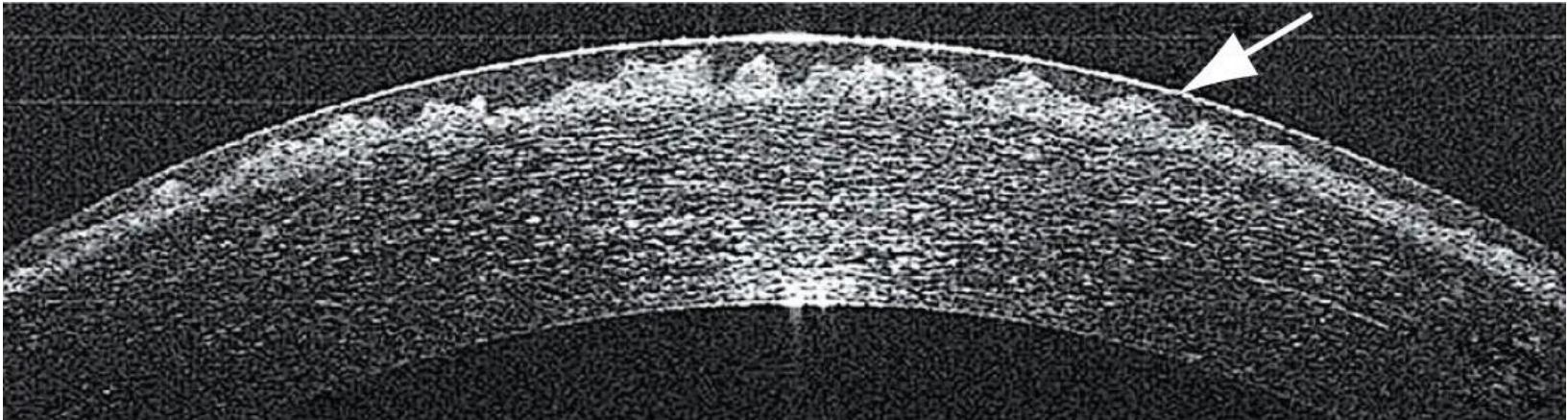
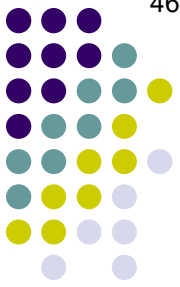
RBCD: sheet-like layers



TBCD: Sawtooth pattern

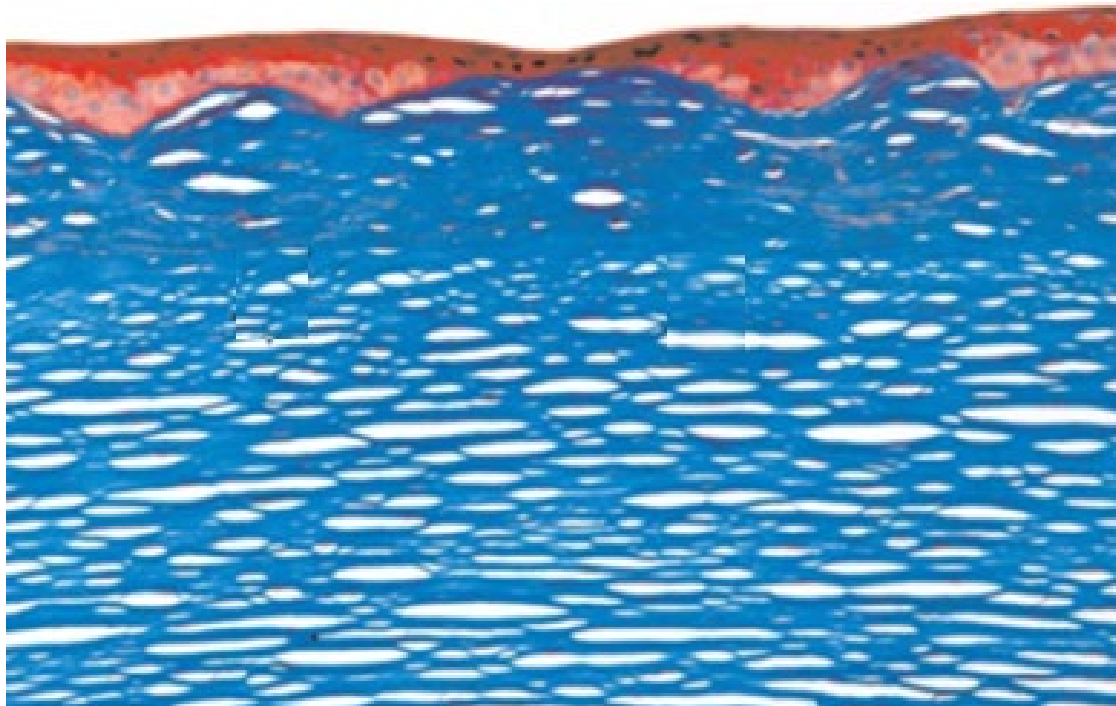
RBCD and TBCD: Photomicrographs demonstrating their characteristic forms

Pathwatching



TBCD. The sawtooth pattern is readily apparent on anterior-segment OCT.

Pathwatching



Thiel-Behnke corneal dystrophy (TBCD)

Next Q

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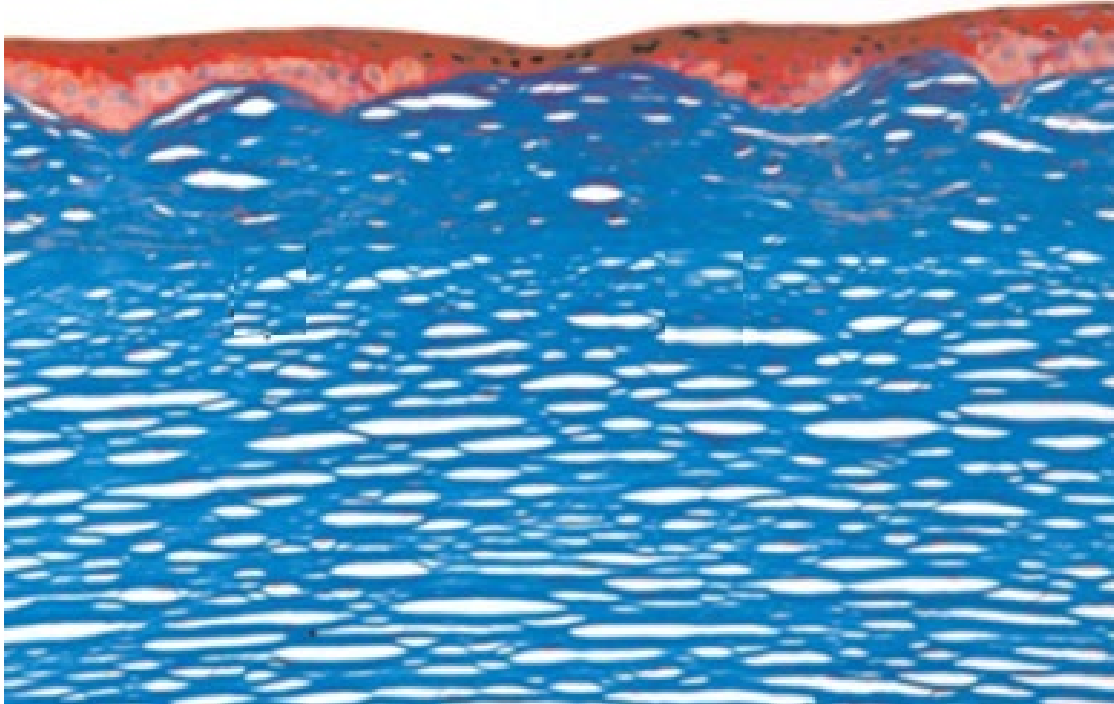
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In electron microscopy: By the property of the fibers comprising the abnormal material

Pathwatching



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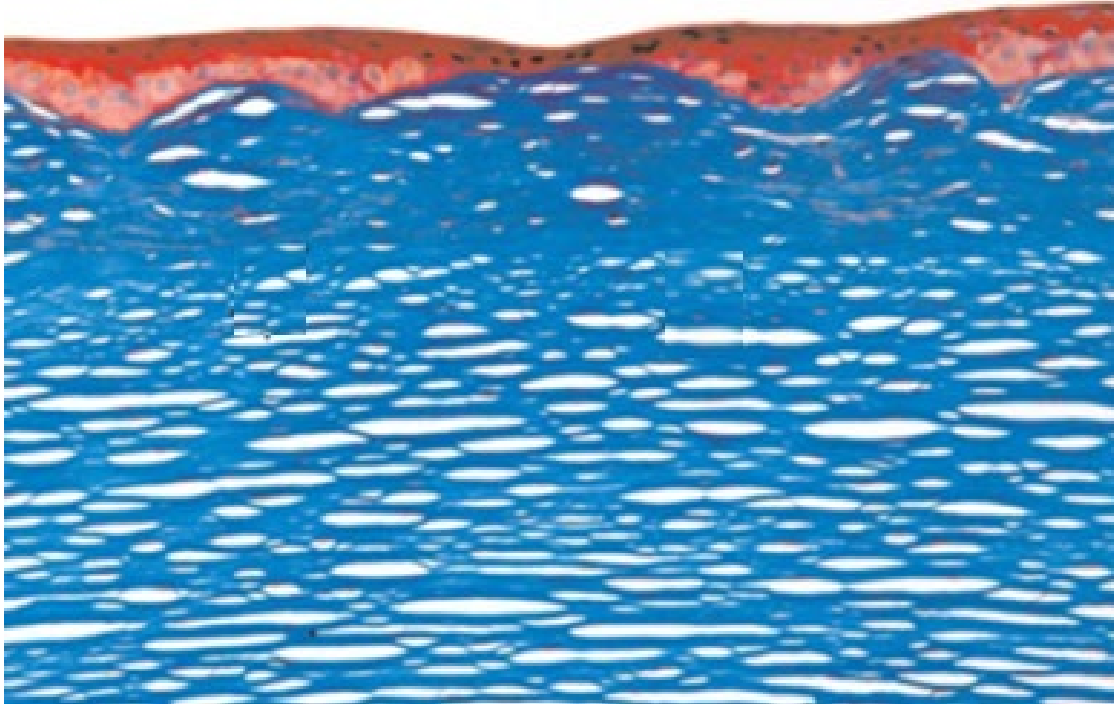
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Pathwatching



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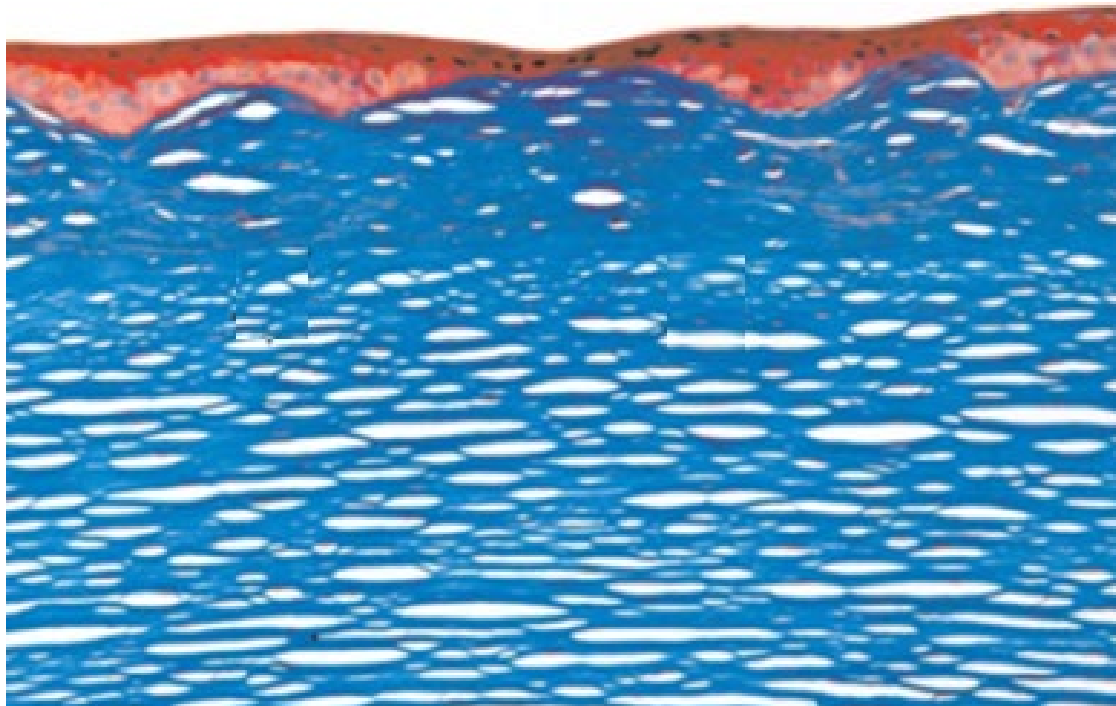
In electron microscopy: By the shape of the fibers comprising the abnormal material:

--In RBCD, fibers are

two-words

--In TBCD fibers are

Pathwatching



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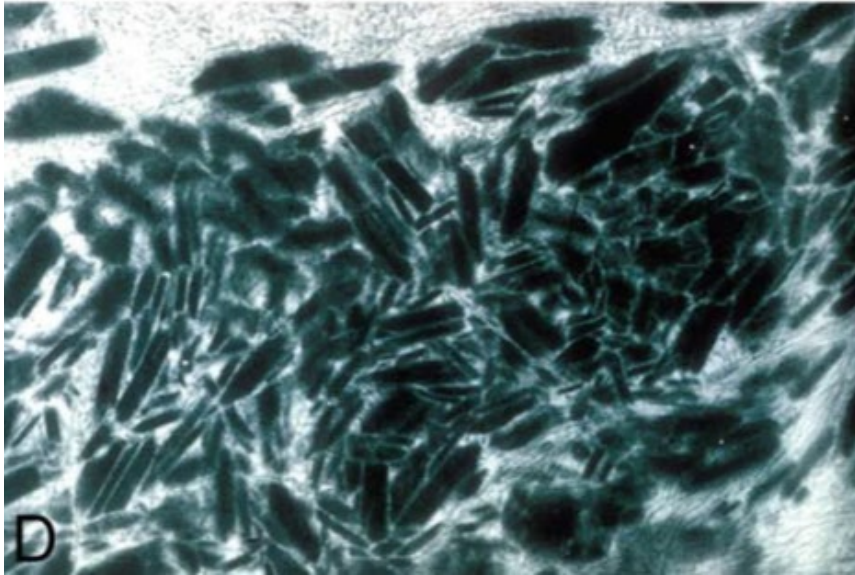
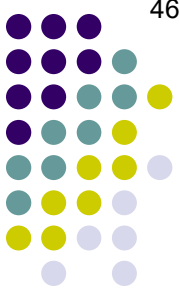
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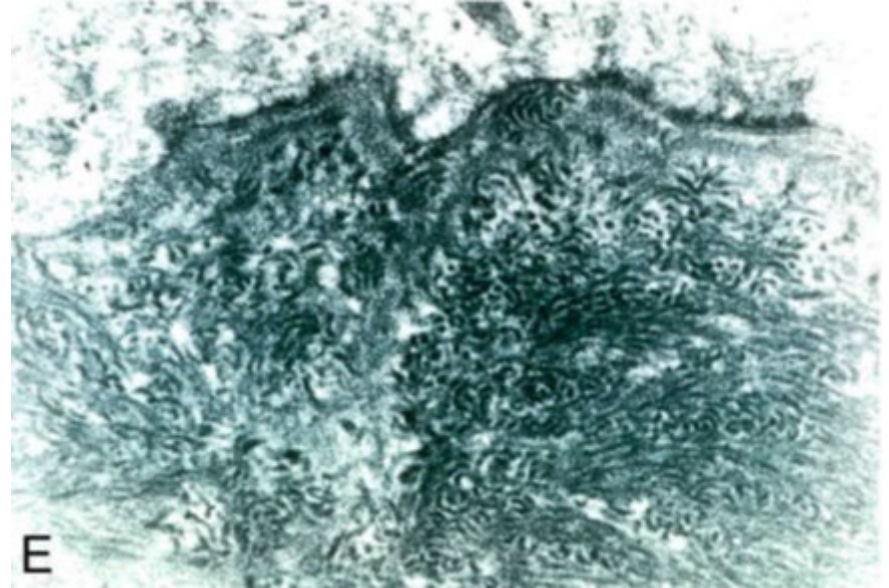
--In RBCD, fibers are rod-shaped

--In TBCD fibers are curly

Pathwatching



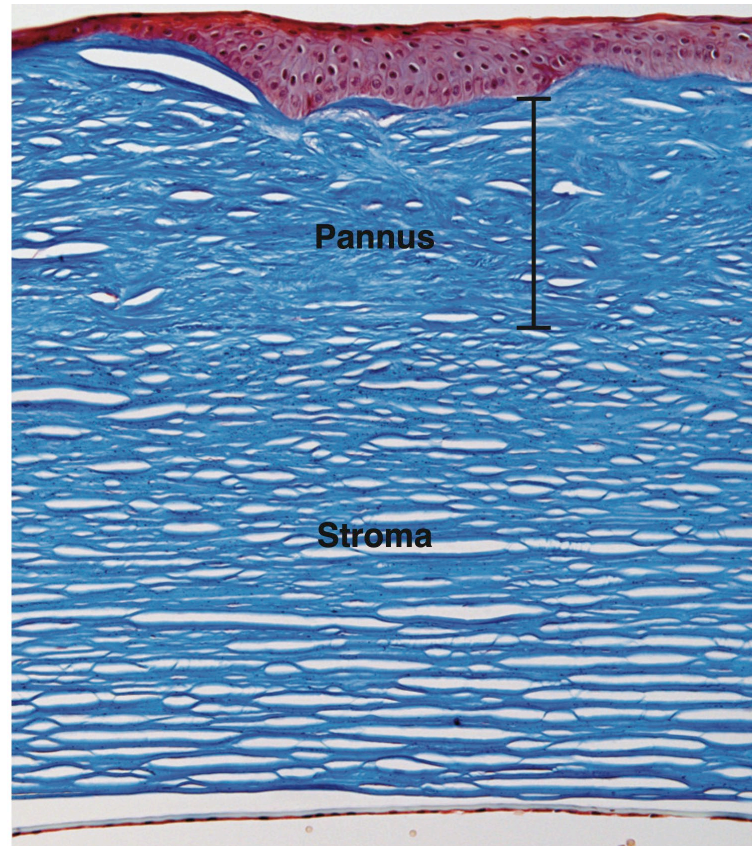
D RBCD: Rod-shaped fibers



E TBCD: Curly fibers

RBCD and TBCD: Electron microscopy

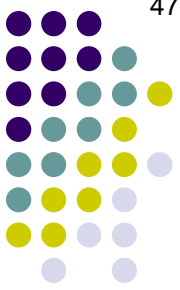
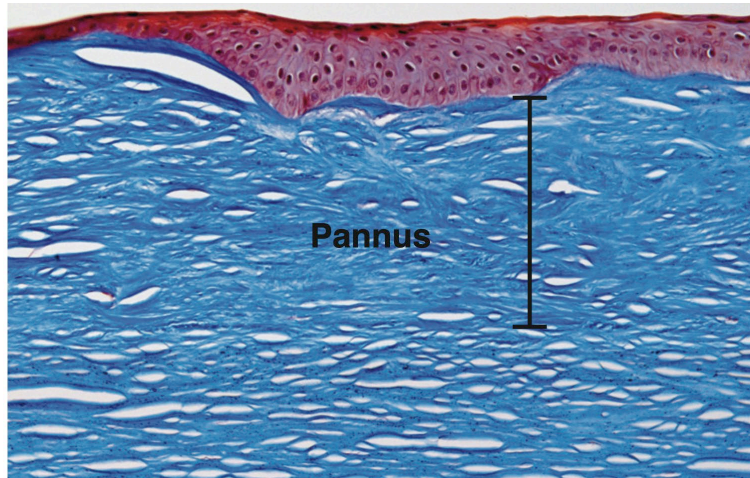
Pathwatching



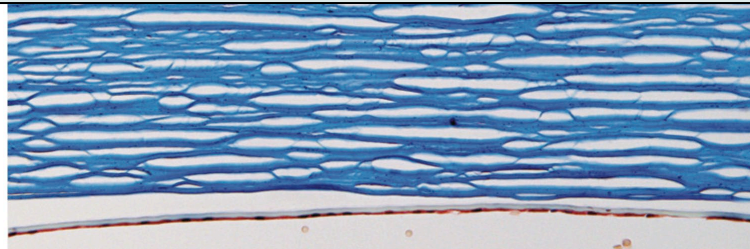
From the Path* book: Thiel-Behnke corneal dystrophy. Masson trichrome stain demonstrates diffuse replacement of Bowman layer by a thick fibrous pannus (*bracket*). The overlying epithelium exhibits a sawtooth configuration. The underlying stroma appears to be uninvolved.

*The most recent version of the *Cornea* book does not contain a TBCD photomicrograph

Pathwatching

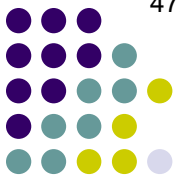


For more on RBCD and TBCD, see slide-set K42



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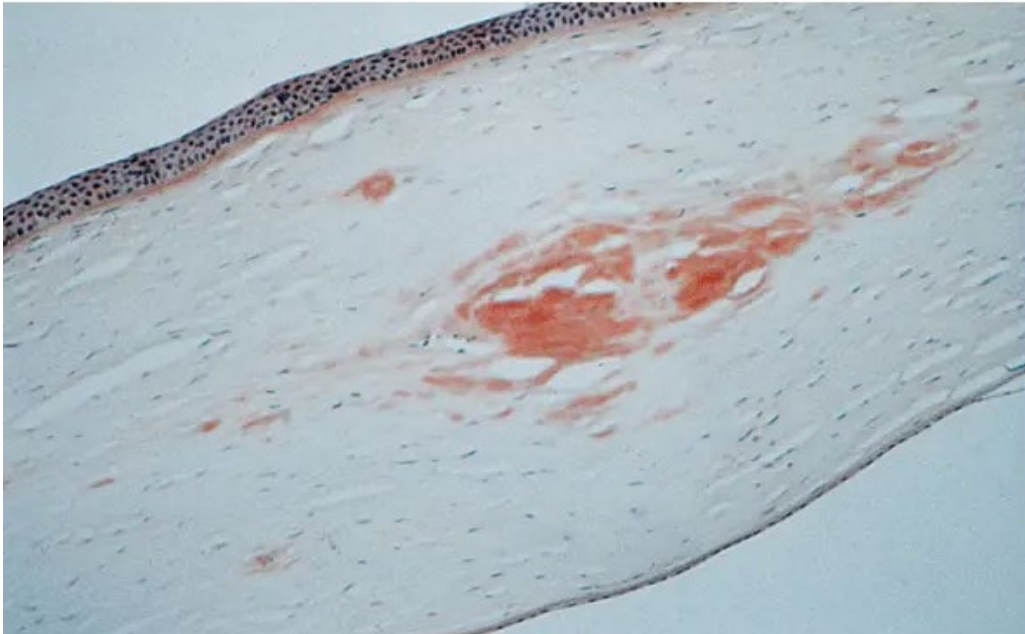
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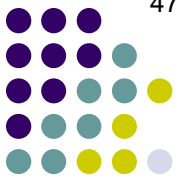


Pathwatching

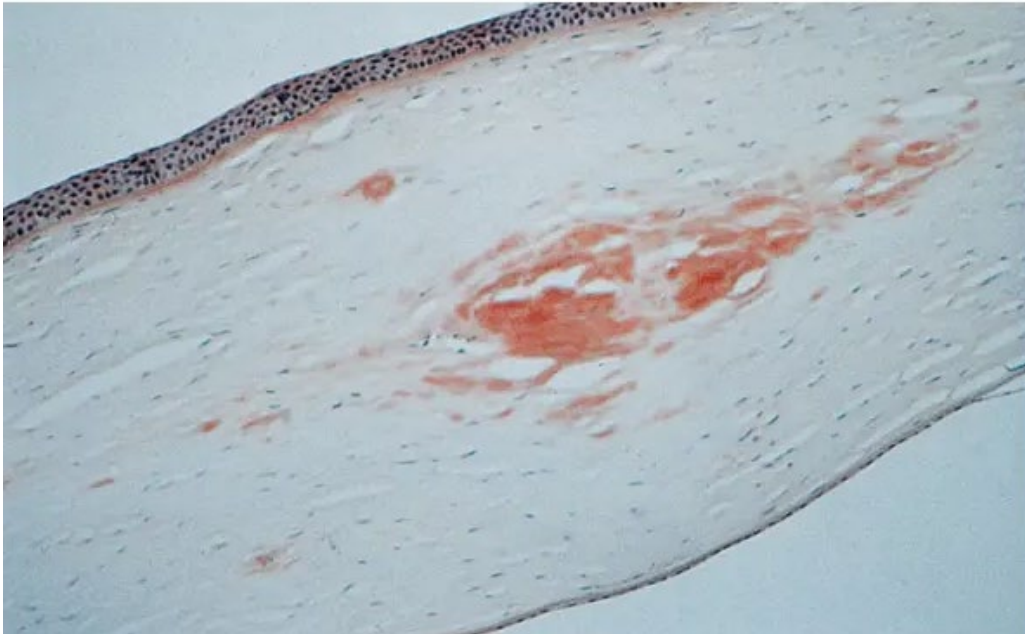
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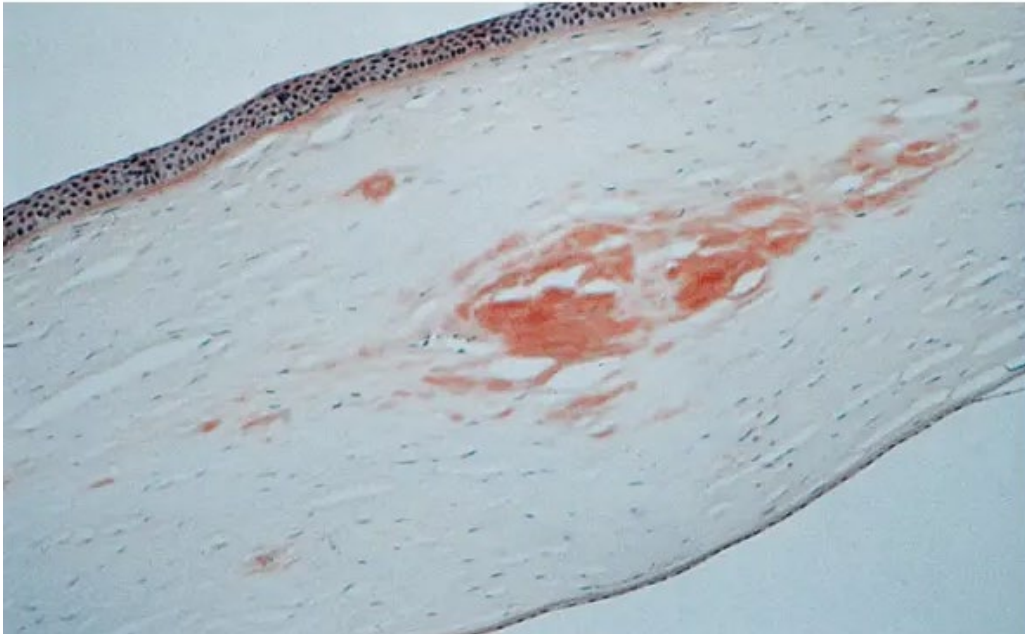
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Pathwatching

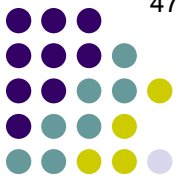


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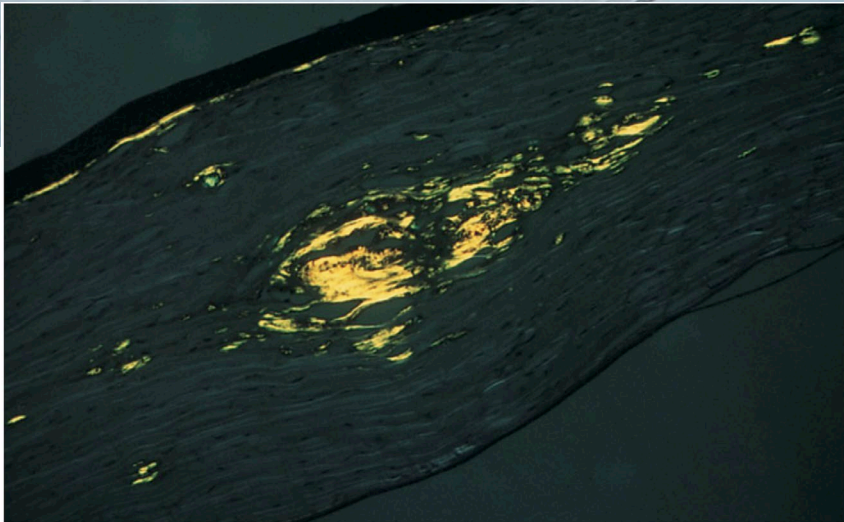
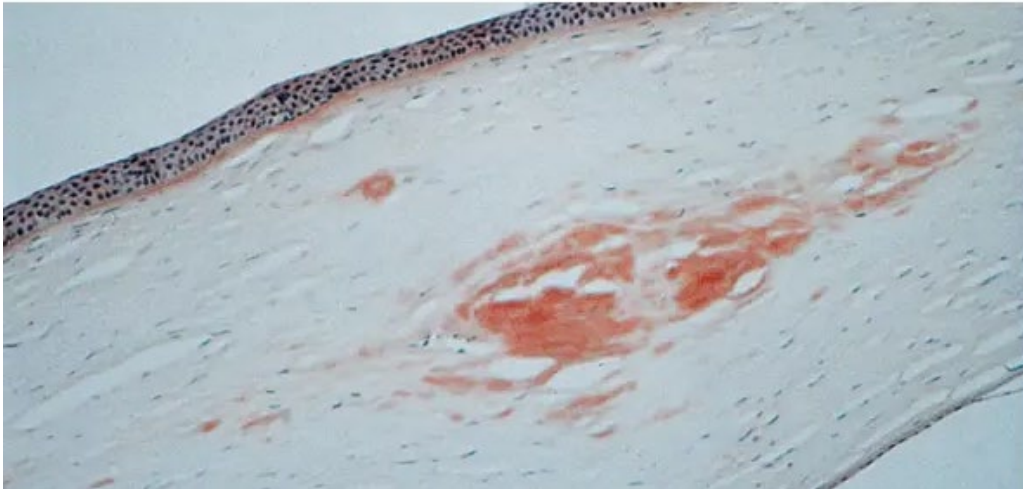
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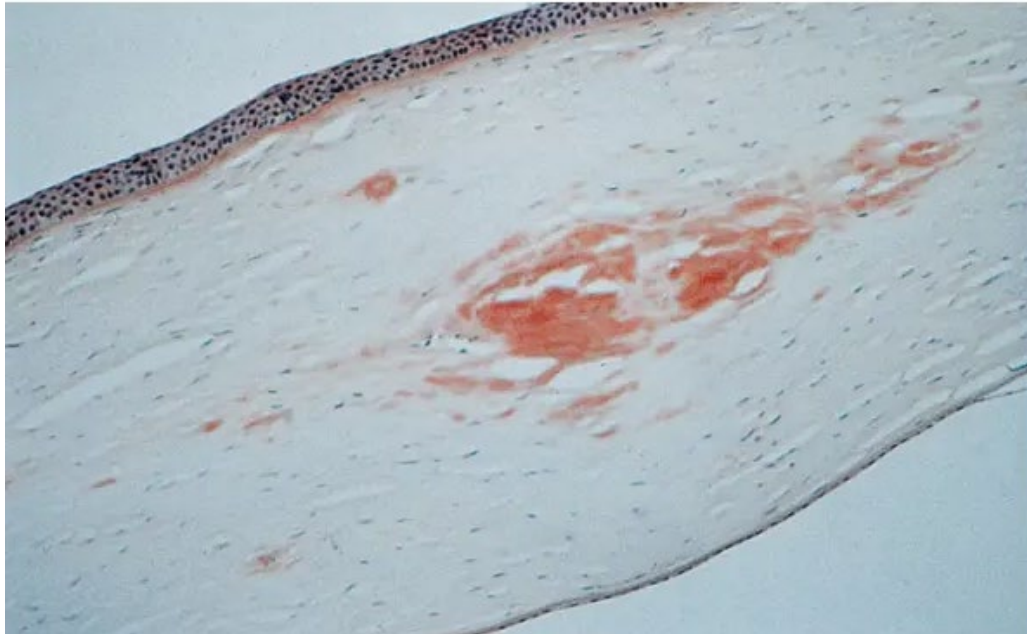
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Pathwatching



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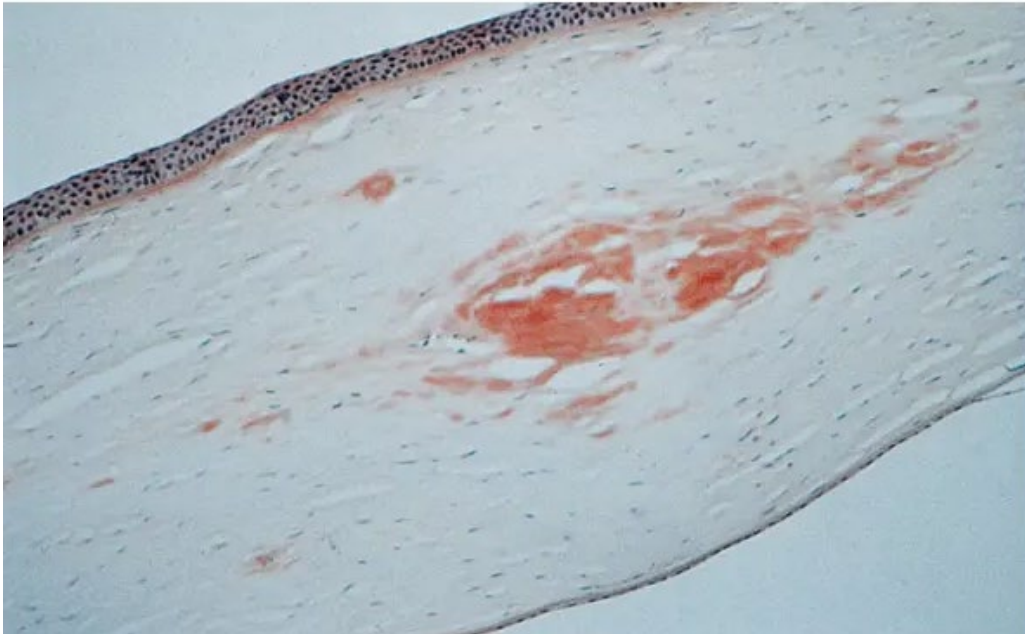
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The presence of anterior/mid-stromal material that stains red but glows green can be only one thing:



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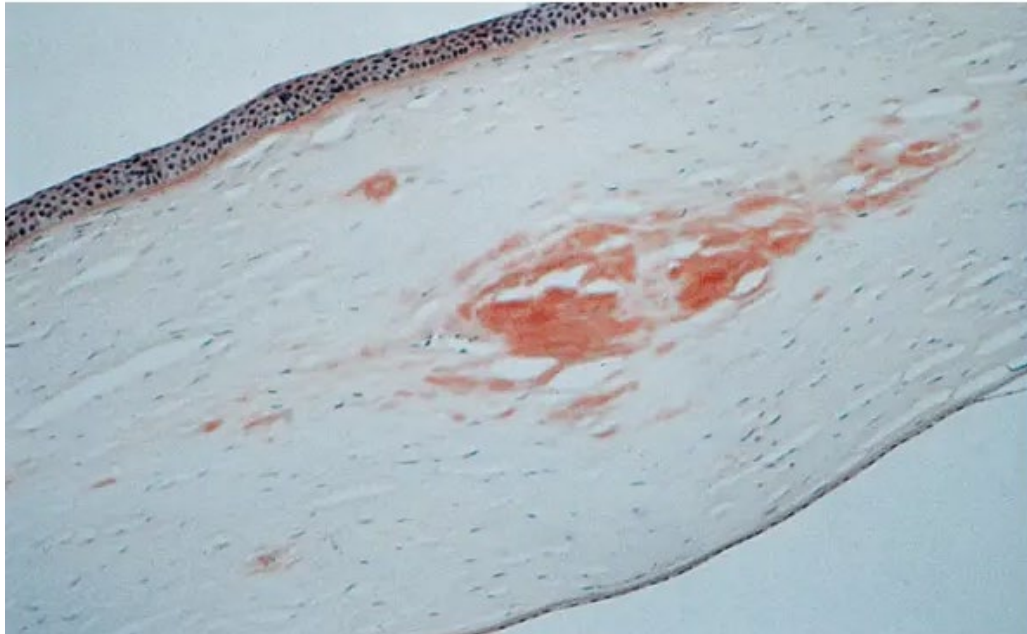
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Pathwatching



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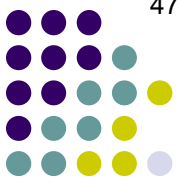
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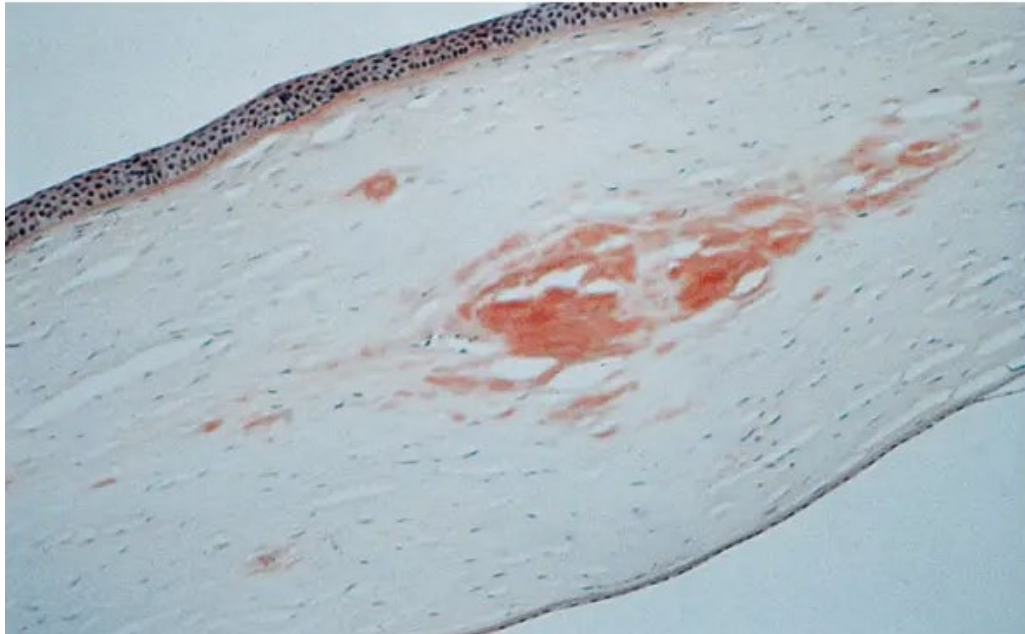
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Pathwatching



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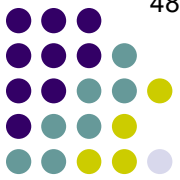
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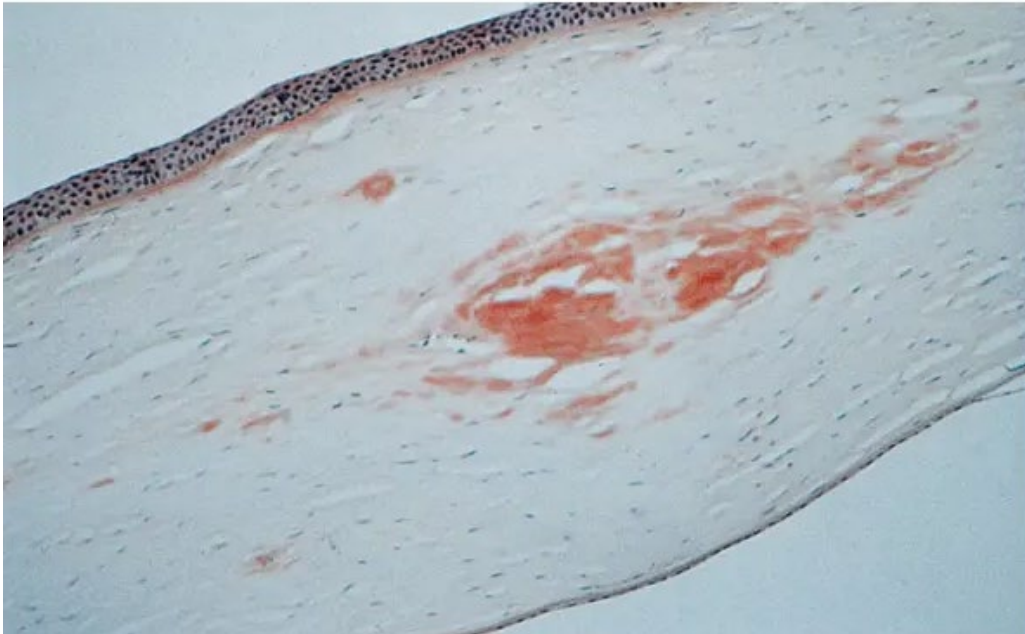
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Pathwatching



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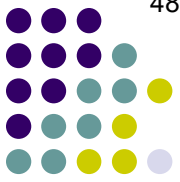
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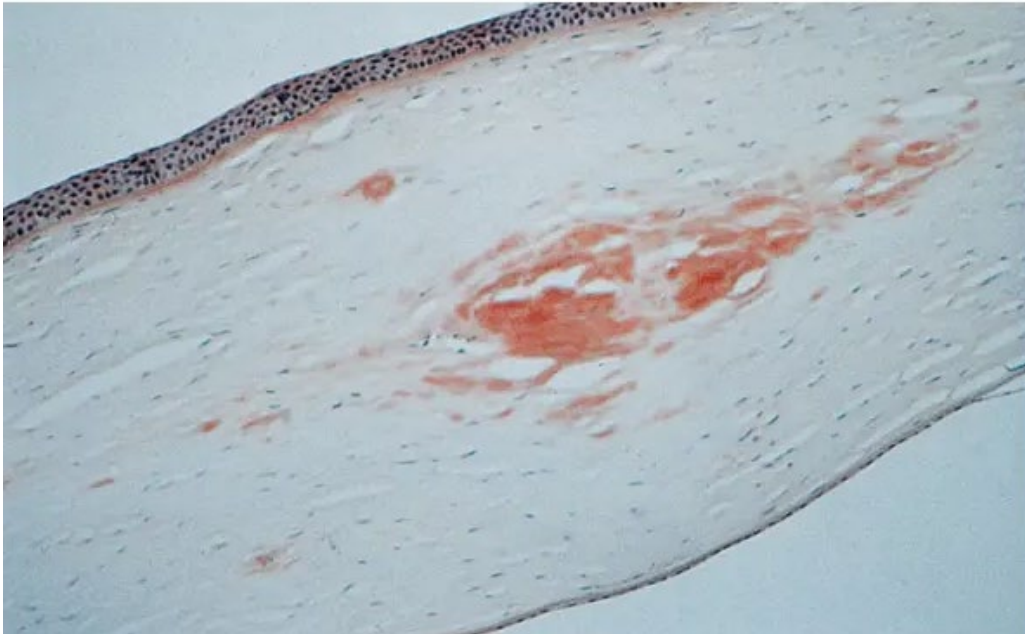
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Pathwatching



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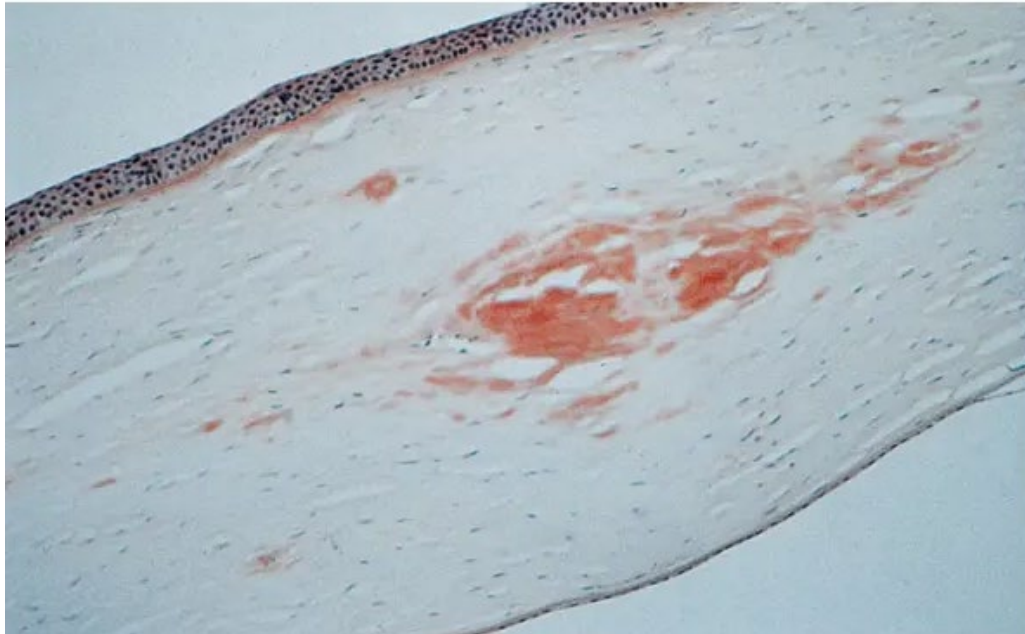
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Pathwatching



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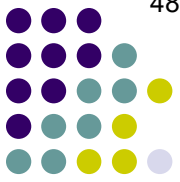
--The epithelium seems to be unaffected
 --It's hard to see Bowman's the whole way across, and small sections may be hinky. But for the most part it appears intact—certainly lacking evidence of the extensive disruption we'd expect from a CDB or keratoconus.

Now the wonky:

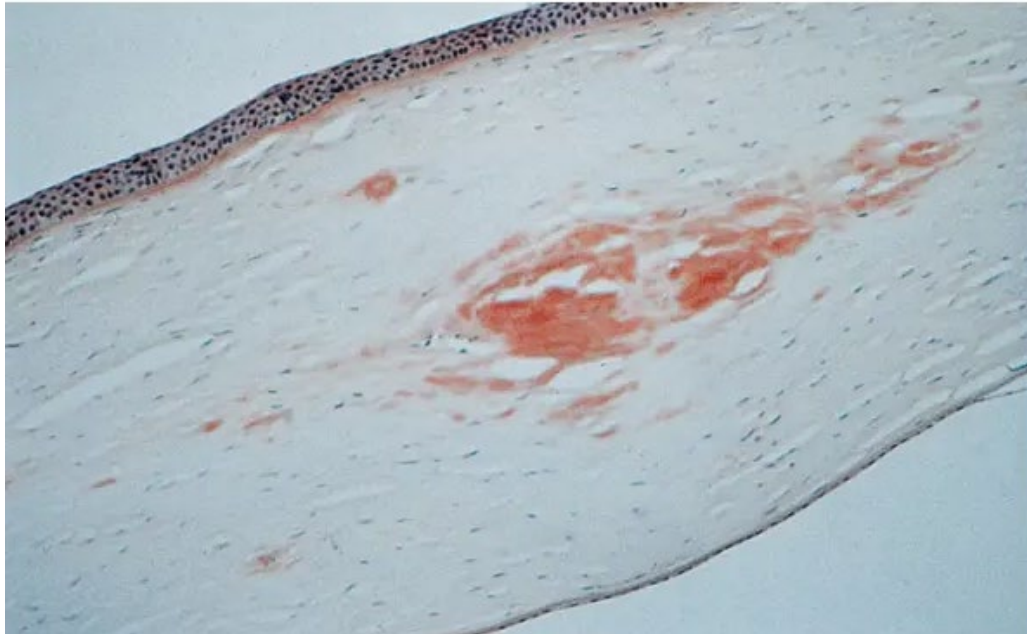
--Stromal deposits, mainly in the central and anterior regions, are taking a stain.
 --The expected stromal clefts are missing around a glom of material, indicating distortion of the adjacent cornea's lamellar structure.

This may be presented concurrently—the same slice of cornea under a different illumination in which the material glows green. The presence of anterior/mid-stromal material that stains red but glows green can be only one thing:

Lattice corneal dystrophy (LCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. The **BCSC** recognizes **five variants**, but spends essentially all of its attention on LCD1 (aka 'classic' lattice).



Pathwatching



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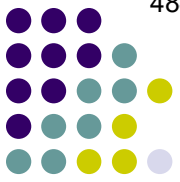
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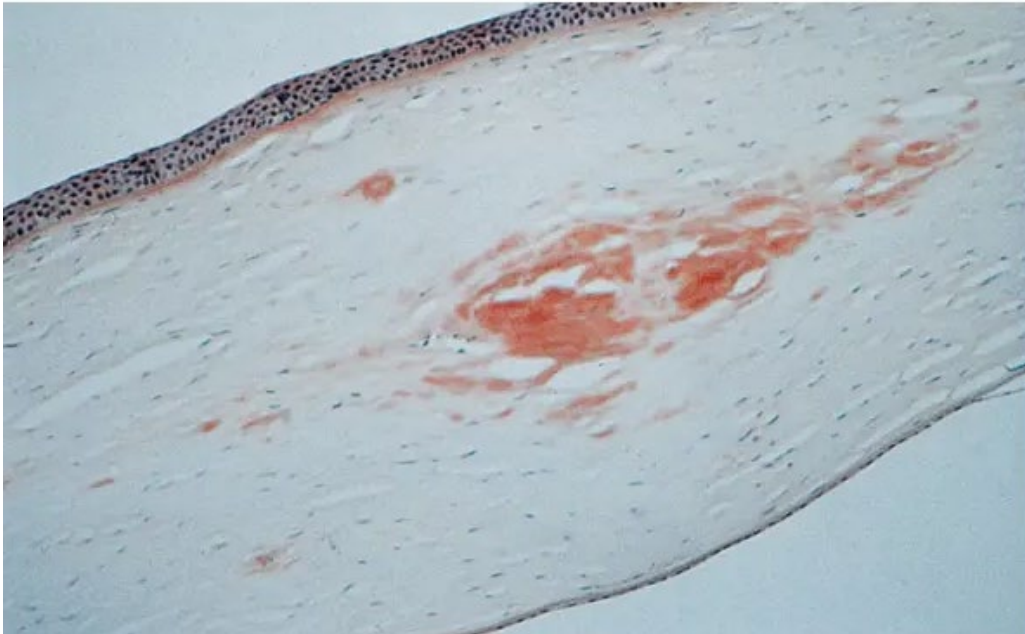
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Pathwatching



What's the diagnosis?

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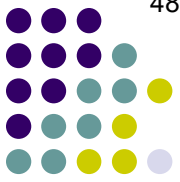
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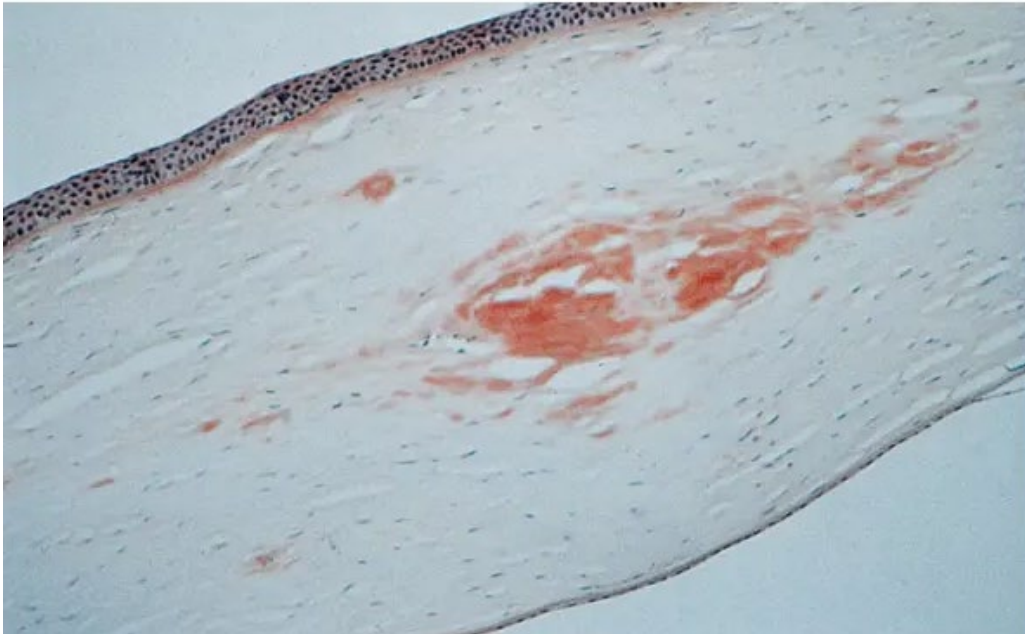
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Pathwatching



What's the diagnosis?

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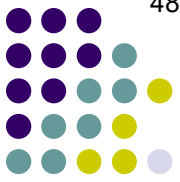
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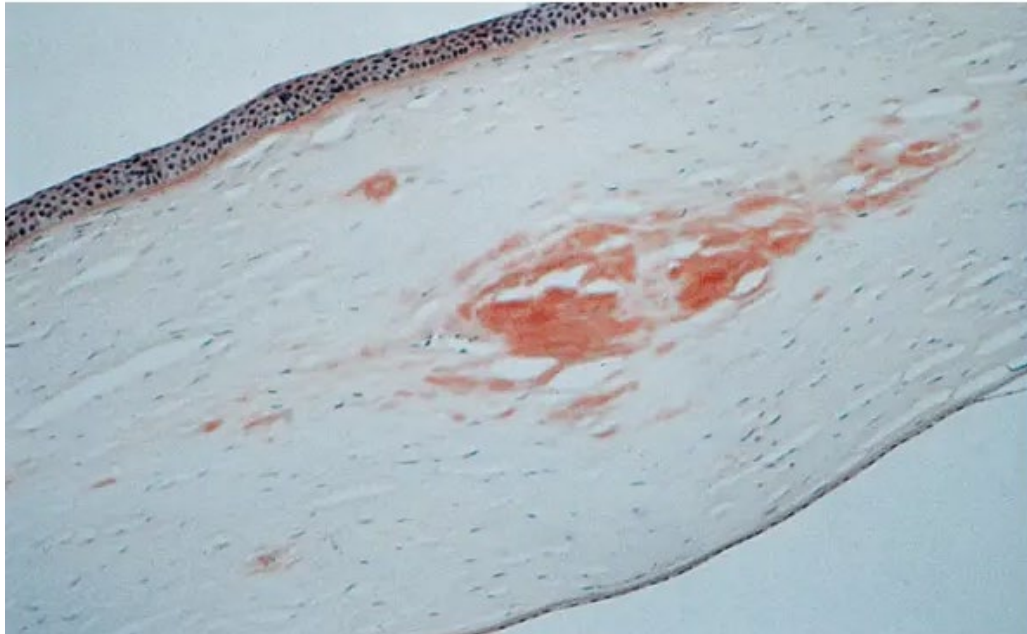
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Lattice corneal dystrophy (LCD) is one of the *epithelial-stromal TGFBI* corneal dystrophies. The **BCSC** recognizes **five variants**, but spends essentially all of its attention on LCD1 (aka 'classic' lattice). The LCD pathologic process involves the deposition of **amyloid** in the cornea, mainly in the mid- and anterior stroma. The subepithelial/Bowman's portion may v
won't be involved.



Pathwatching



What's the diagnosis?

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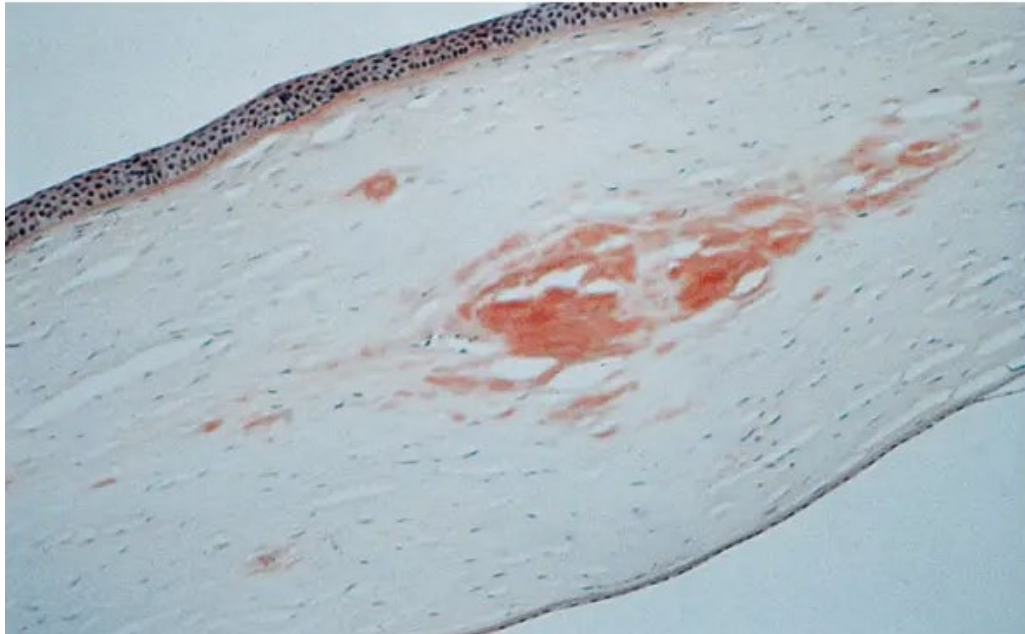
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Pathwatching



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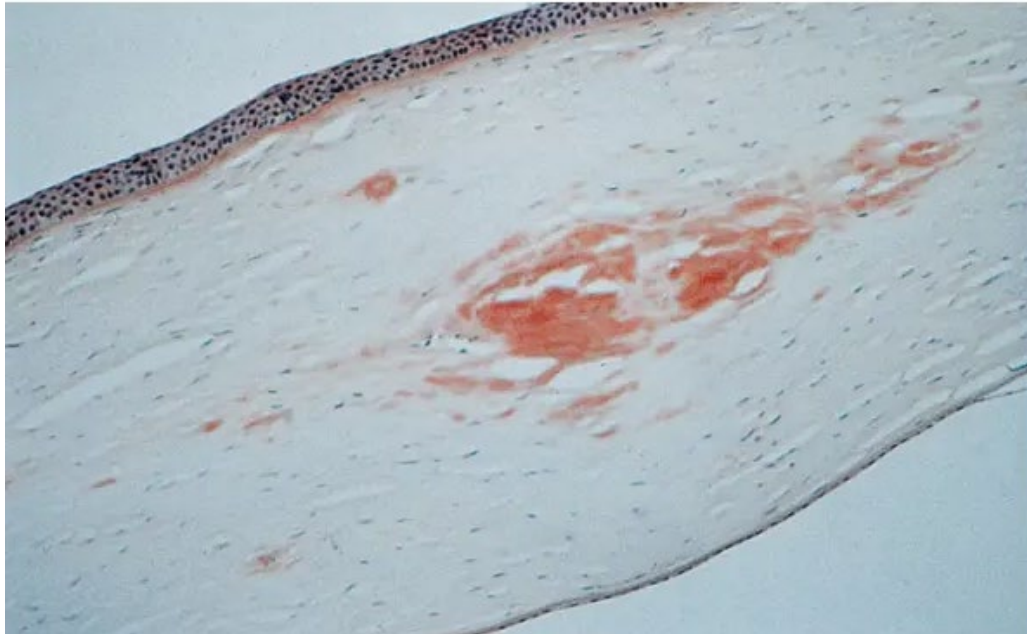
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two words



Pathwatching



What's the diagnosis?

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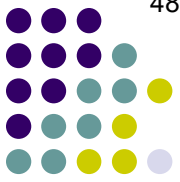
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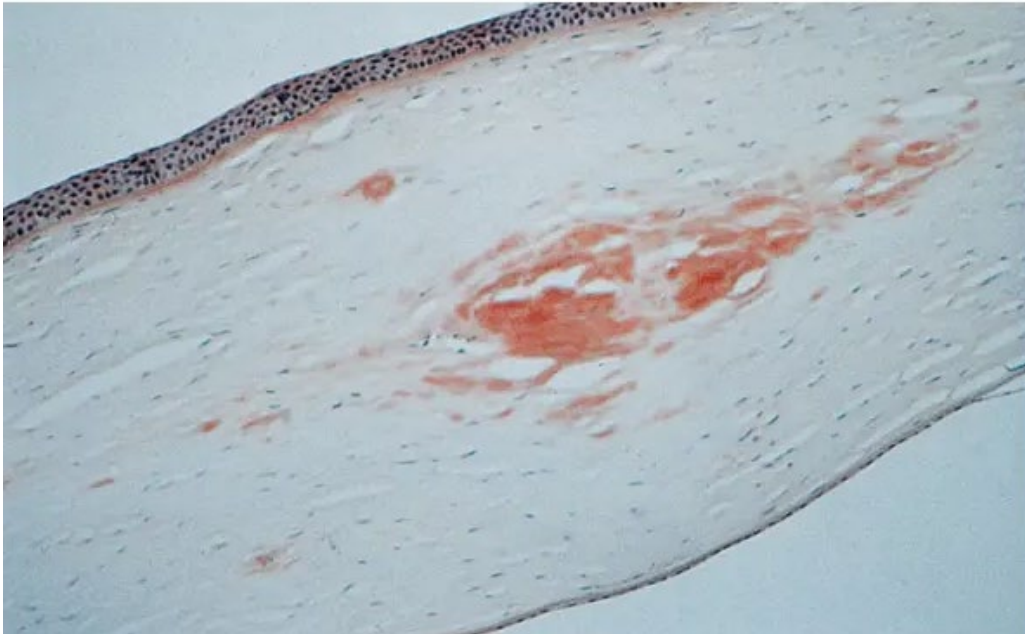
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Pathwatching



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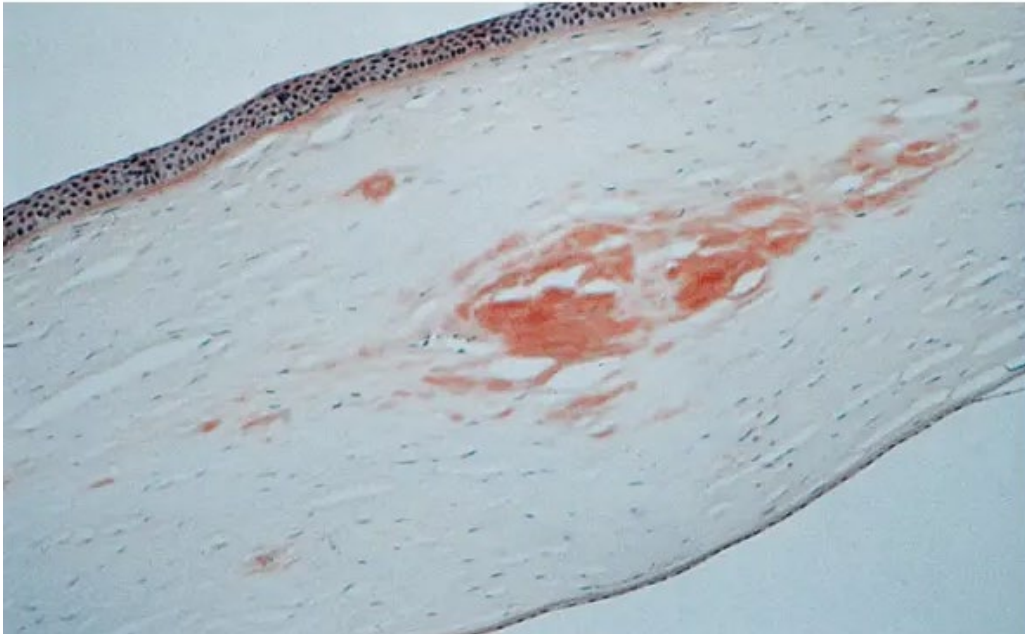
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Pathwatching



What's the diagnosis?

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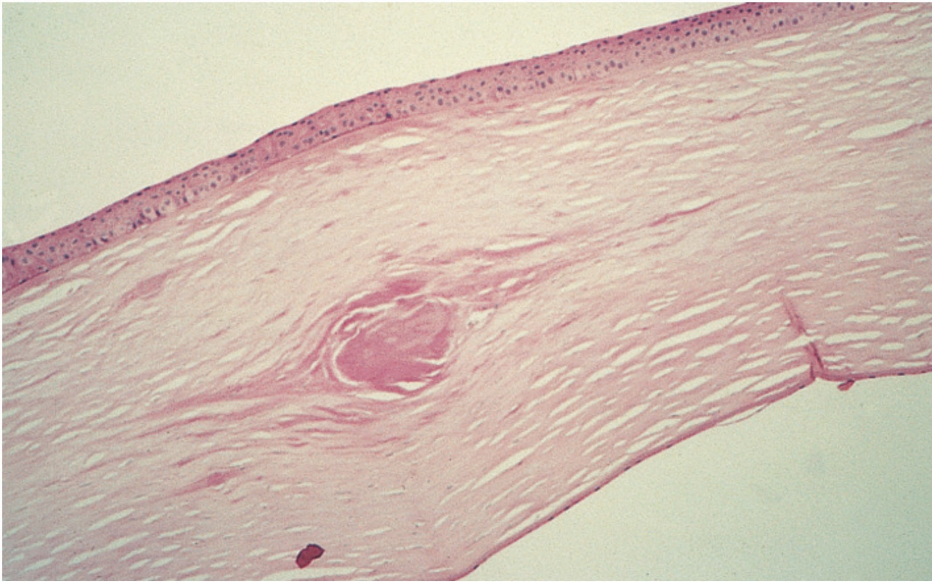
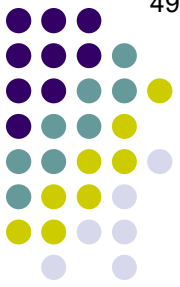
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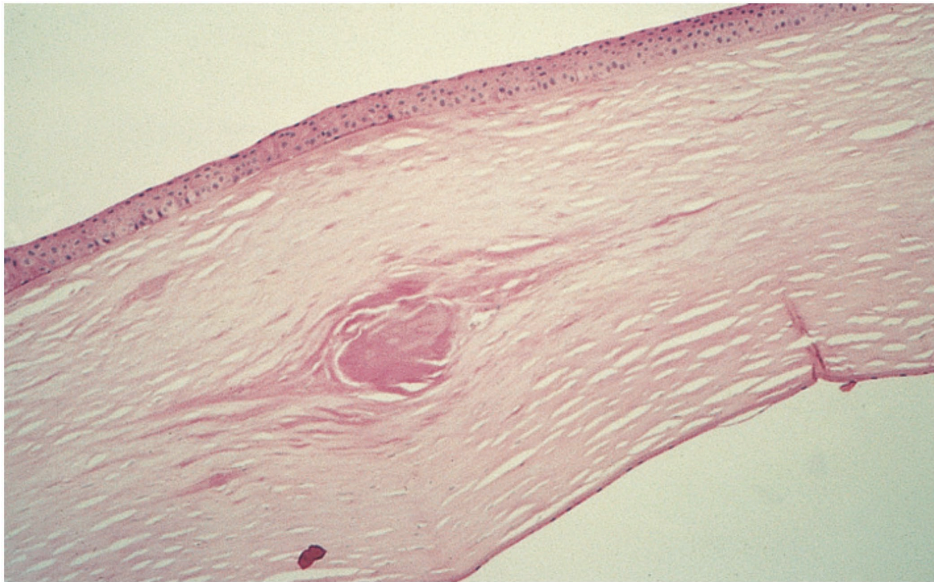
Pathwatching



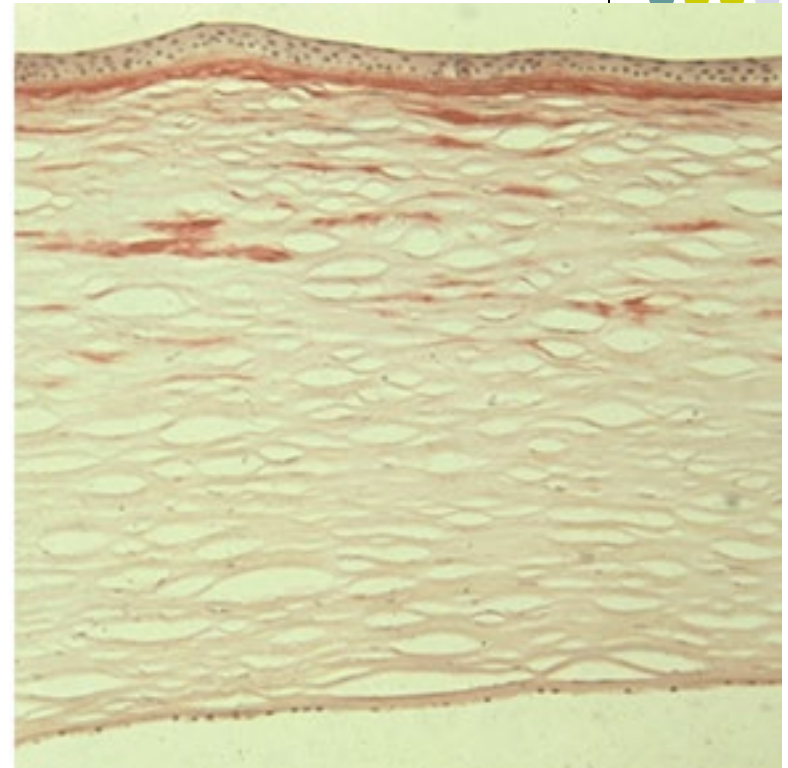
LCD photomicrograph used in the *Path* book

Note: The *Path* book asserts that the amyloid deposits are “fusiform” in distribution, a claim supported by the photomicrograph used in that volume (above).

Pathwatching



LCD photomicrograph used in the *Path* book



LCD photomicrograph used in the *Cornea* book

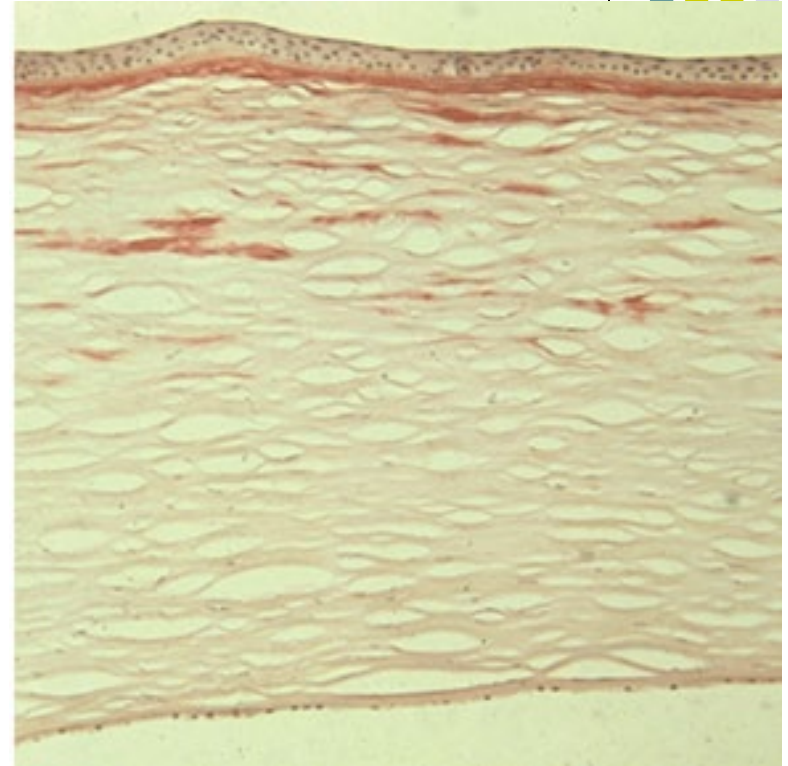
Note: The *Path* book asserts that the amyloid deposits are “fusiform” in distribution, a claim supported by the photomicrograph used in that volume (above). **In contrast, the *Cornea* book does not use ‘fusiform’ in its description of LCD, and the amyloid deposits in the photomicrograph it uses do not demonstrate this quality (above, *right*).**



Pathwatching



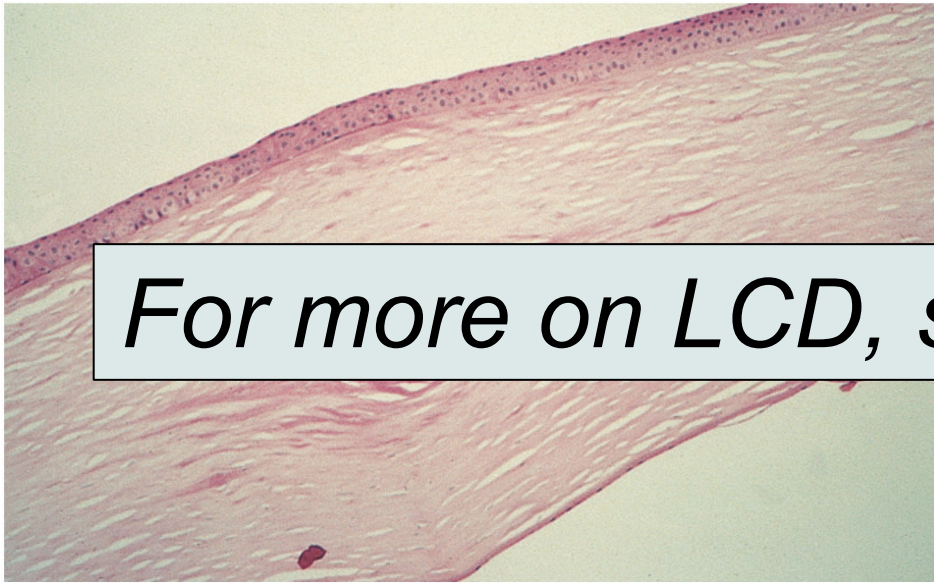
LCD photomicrograph used in the *Path* book



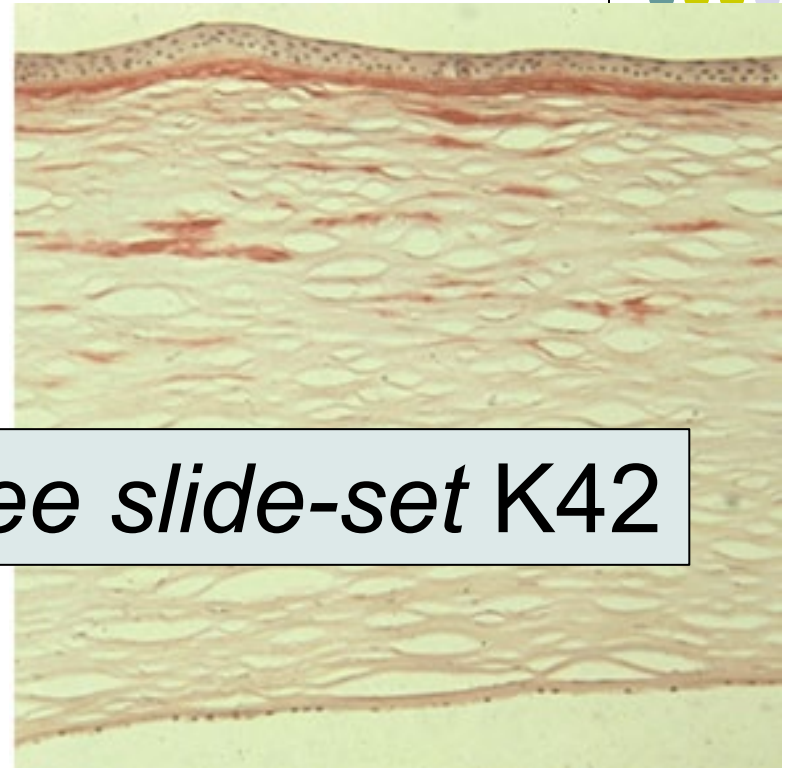
LCD photomicrograph used in the *Cornea* book

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Pathwatching



For more on LCD, see slide-set K42

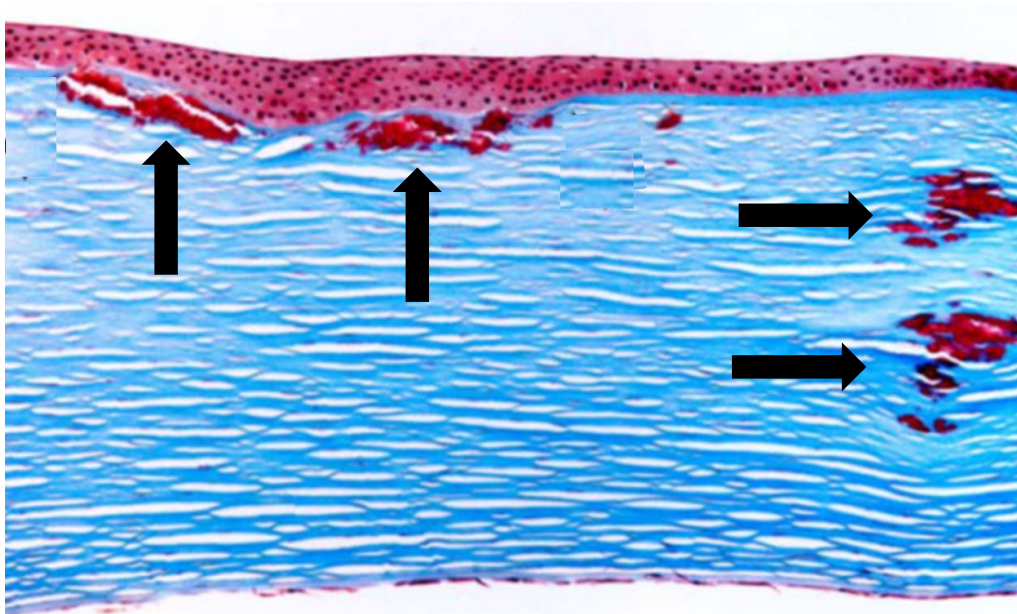
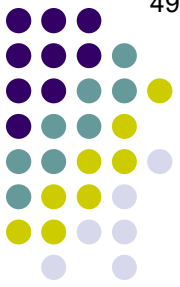


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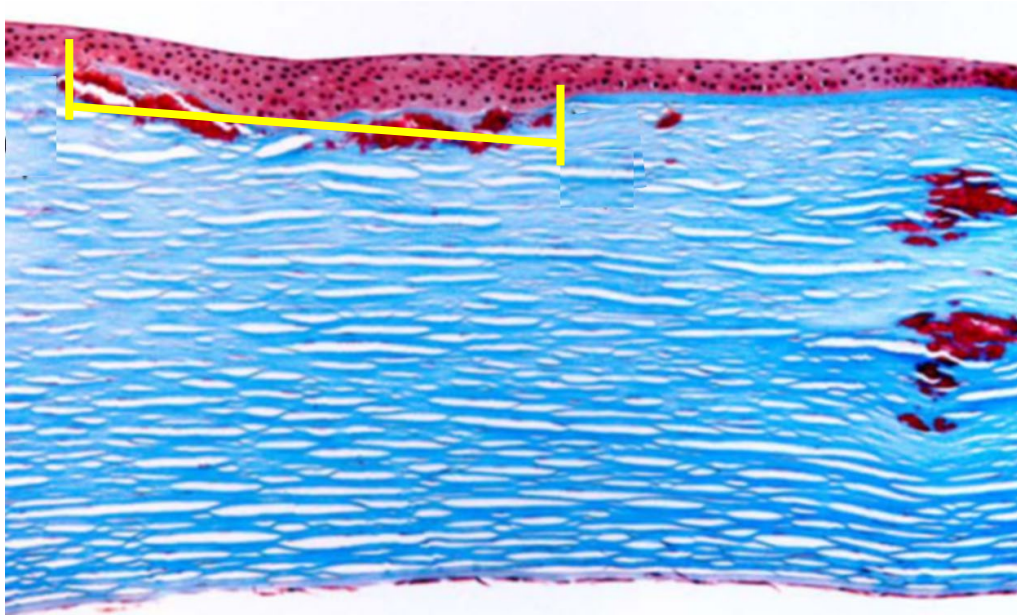
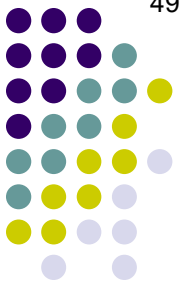
Pathwatching



What's going on here?

--Stain-avid stromal deposits are present in the mid- and anterior stroma. Nearby clefts are compressed/distorted.

Pathwatching

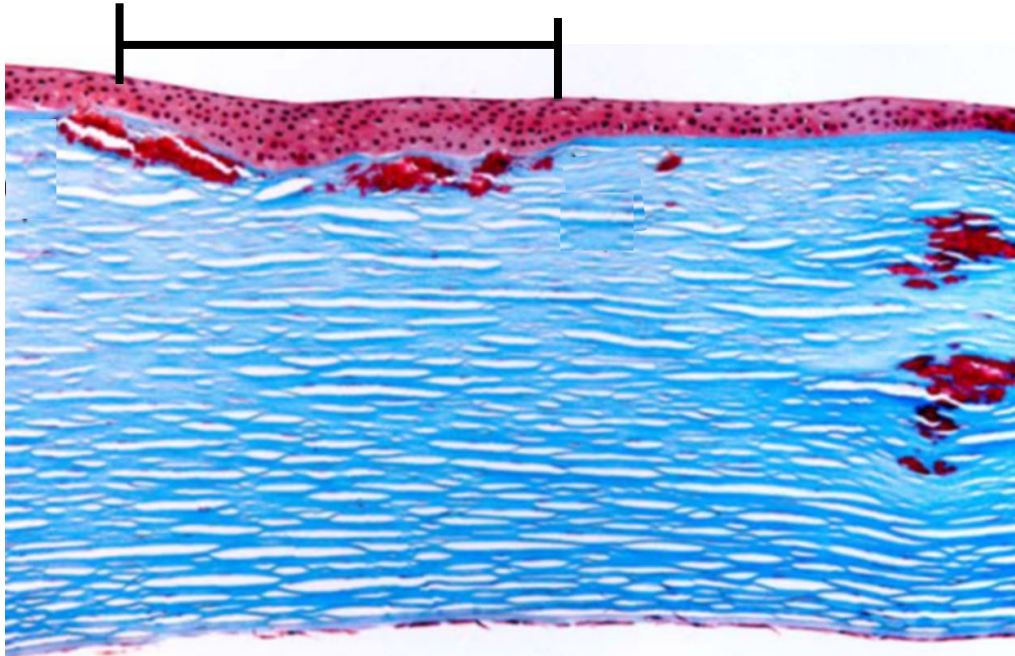


What's going on here?

--Stain-avid stromal deposits are present in the mid- and anterior stroma. Nearby clefts are compressed/distorted.

--A section of Bowman's is disrupted in association with subjacent deposits.

Pathwatching



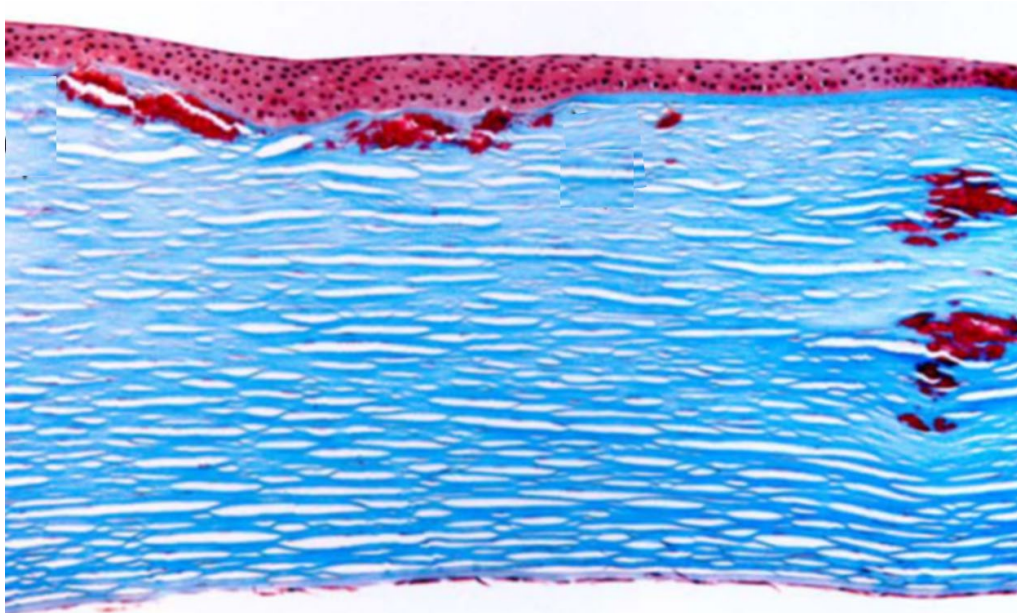
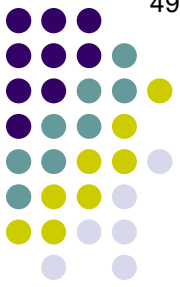
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--The epithelium is largely unaffected, with the notable exception of the portion associated with Bowman's disruption.

Pathwatching



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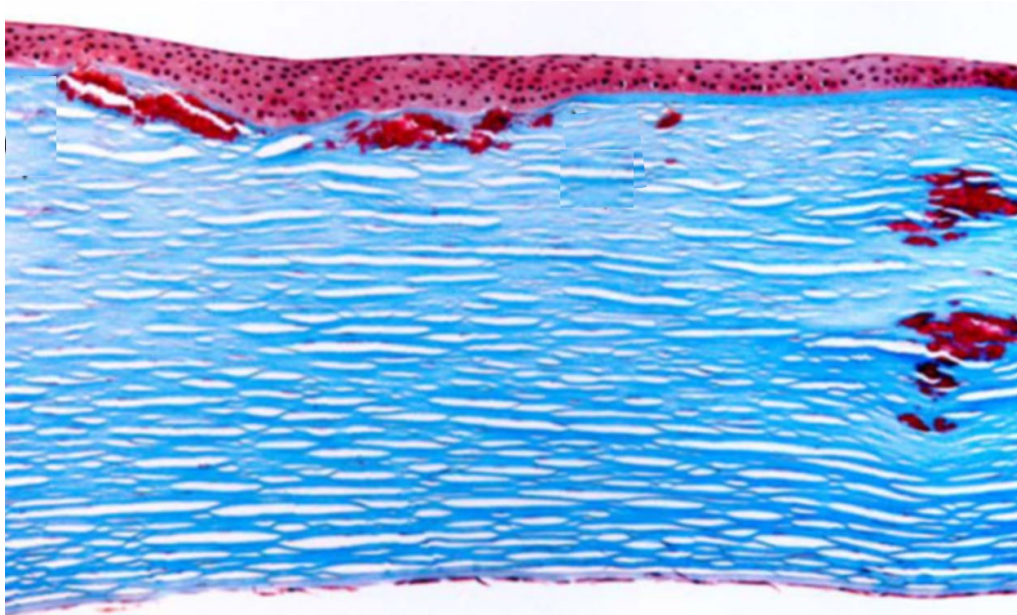
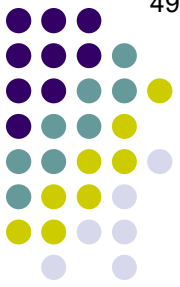
--A section of Bowman's is disrupted in association with subjacent deposits.

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This would be a tough one to get unless you're told the stain—

two words

Pathwatching



What's going on here?

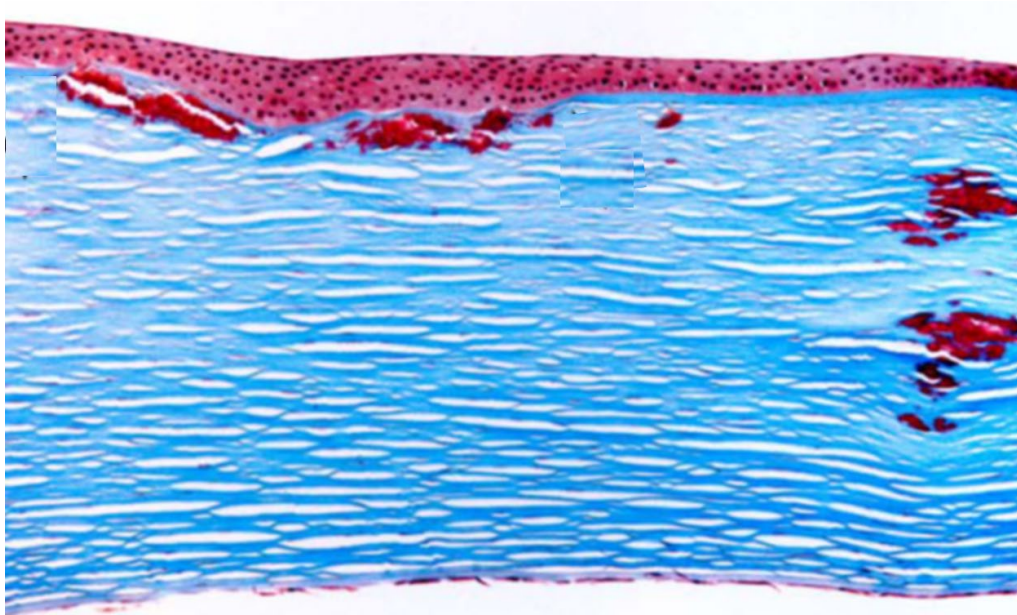
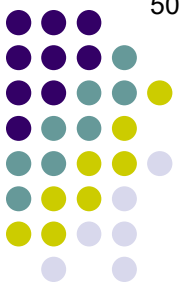
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This would be a tough one to get unless you're told the stain—Masson trichrome .

Pathwatching



What's the diagnosis?

What's going on here?

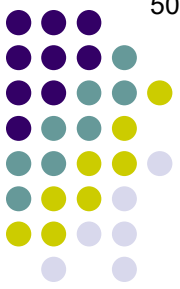
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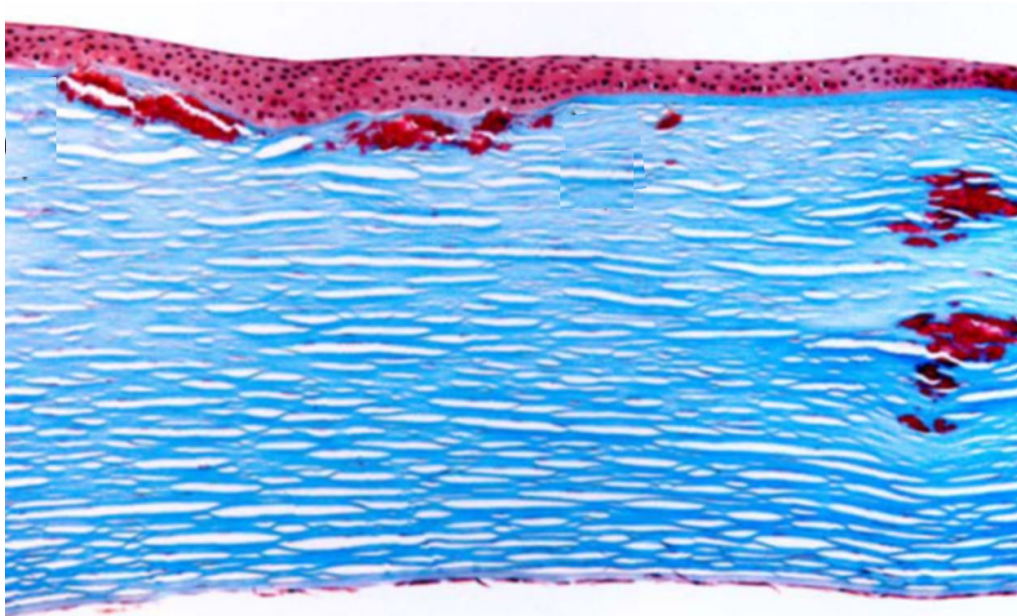
--The epithelium is largely unaffected, with the notable exception of the portion associated with Bowman's disruption.

This would be a tough one to get unless you're told the stain—Masson trichrome .

The presence of anterior/mid-stromal deposits that stains avidly with Masson trichrome can be only one thing:



Pathwatching



What's the diagnosis?

Granular corneal dystrophy type 1 (GCD1) is v isn't one of the *epithelial-stromal TGFB1* corneal dystrophies.

What's going on here?

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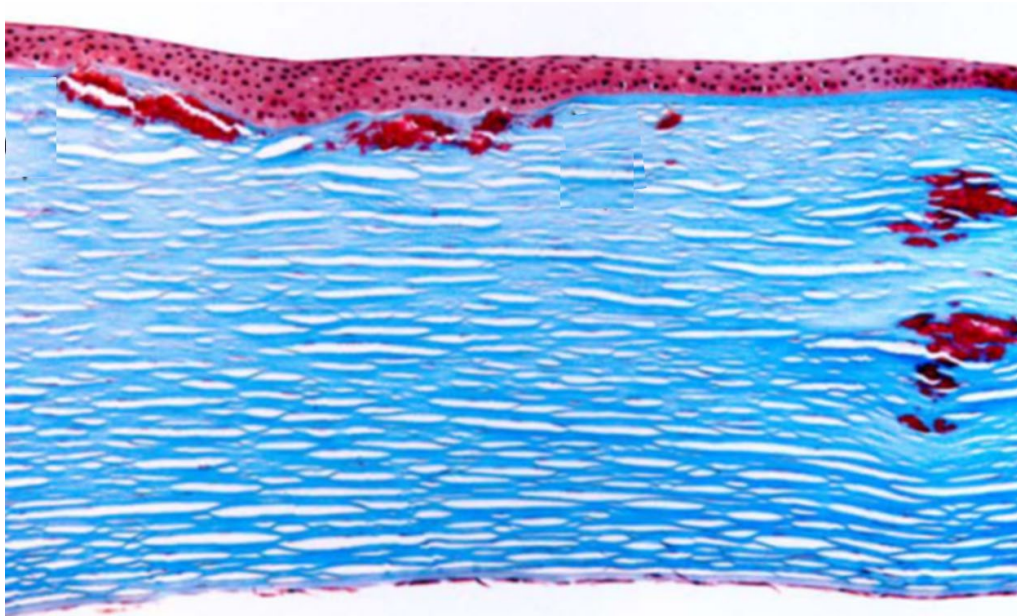
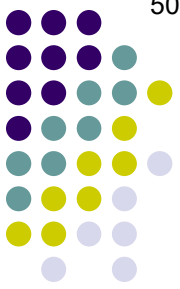
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Pathwatching



What's the diagnosis?

Granular corneal dystrophy type 1 (GCD1) is one of the *epithelial-stromal TGFBI* corneal dystrophies.

What's going on here?

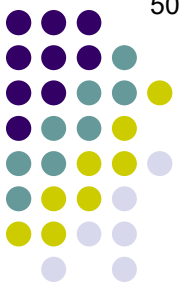
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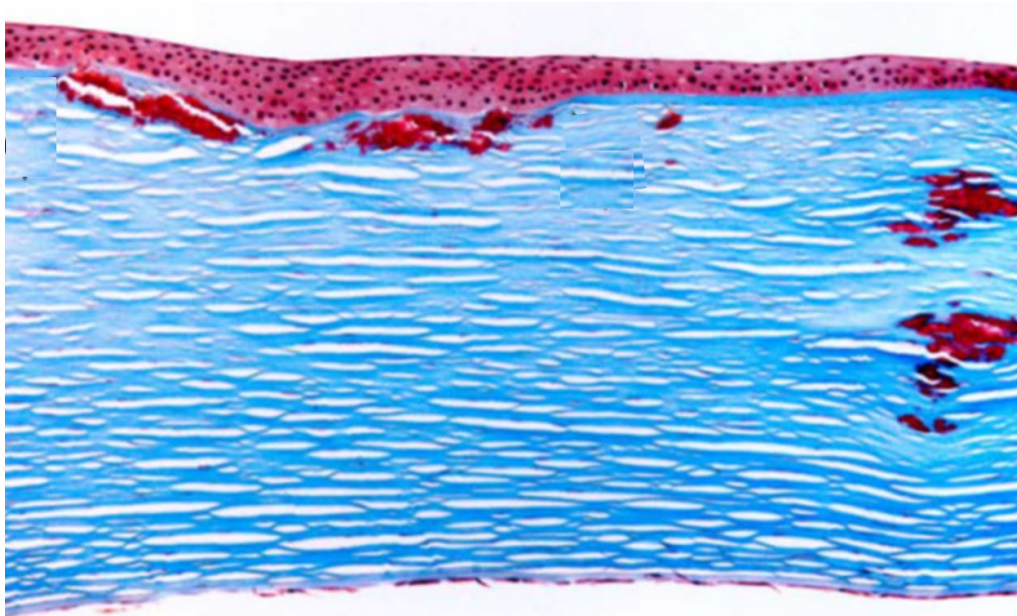
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Pathwatching



What's the diagnosis?

Granular corneal dystrophy type 1 (GCD1) is one of the *epithelial-stromal TGFBI* corneal dystrophies. The GCD1 pathologic process involves the deposition of [redacted] in the mid- and anterior stroma.

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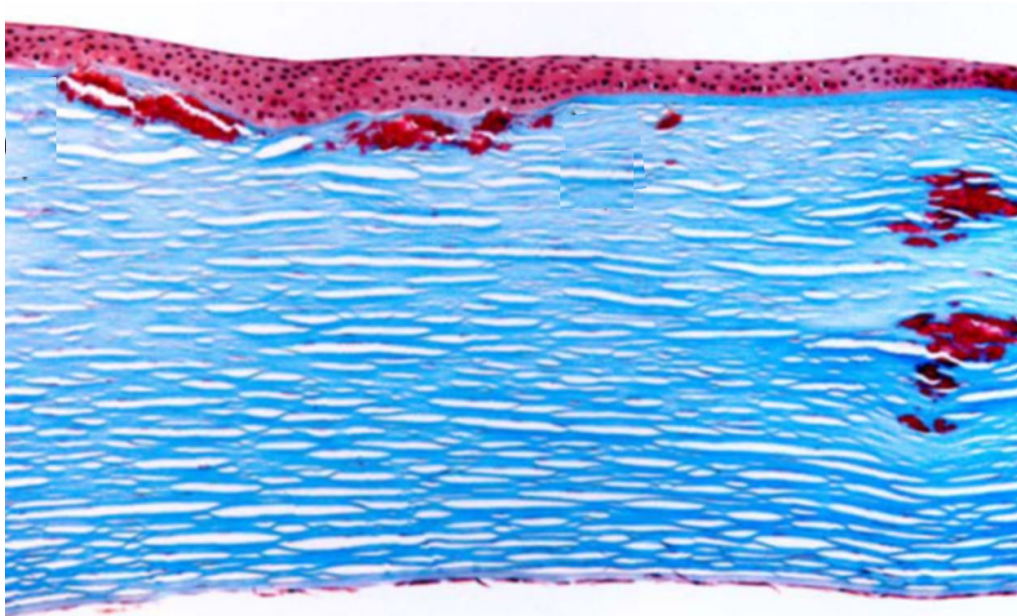
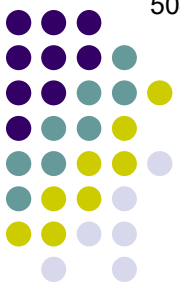
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Pathwatching



What's the diagnosis?

Granular corneal dystrophy type 1 (GCD1) is one of the *epithelial-stromal TGFBI* corneal dystrophies. The GCD1 pathologic process involves the deposition of **hyaline** in the mid- and anterior stroma.

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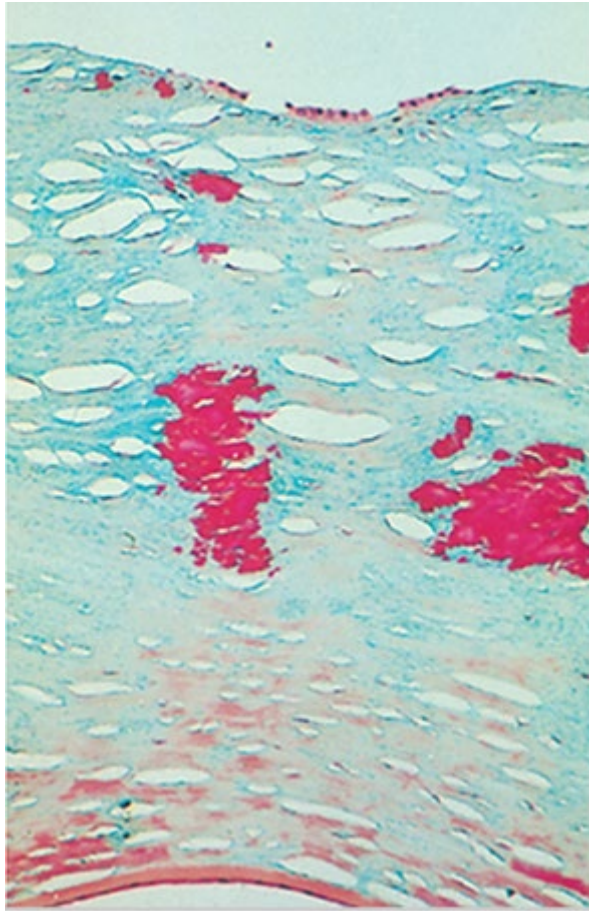
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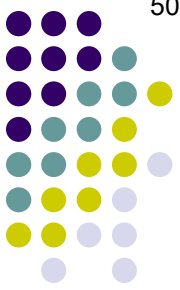
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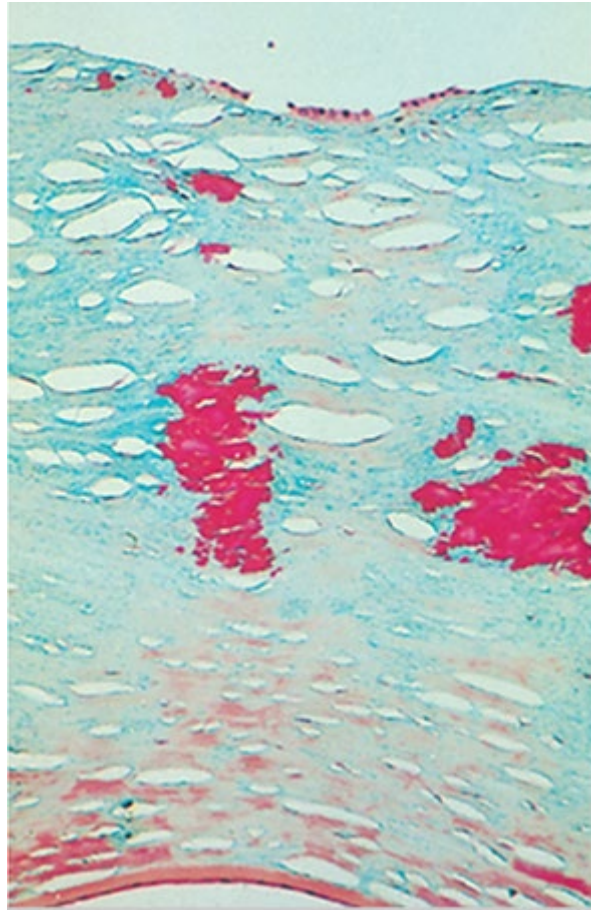
Pathwatching



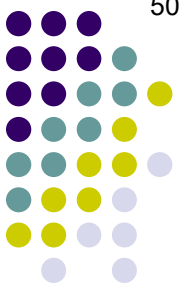
FYI: This is the GCD1 Masson trichrome photomicrograph used in the *Path* book.



Pathwatching

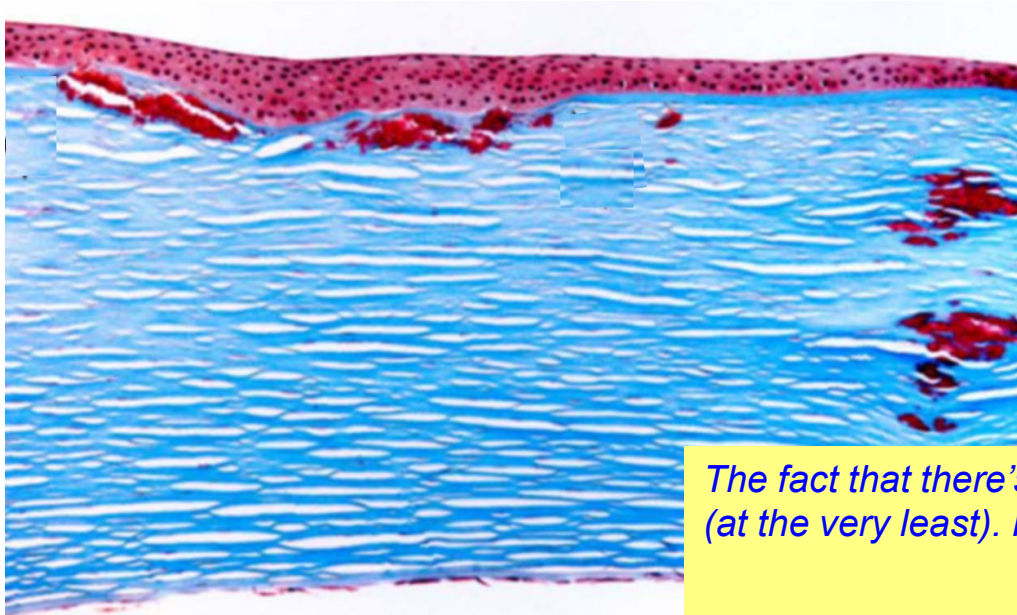


FYI: This is the GCD1 Masson trichrome photomicrograph used in the *Path* book. Its caption: “Masson trichrome. The stromal collagen stains **blue**, and the granular hyaline deposits stains **brilliant red**.”





Pathwatching



What's going on here?

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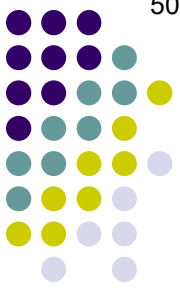
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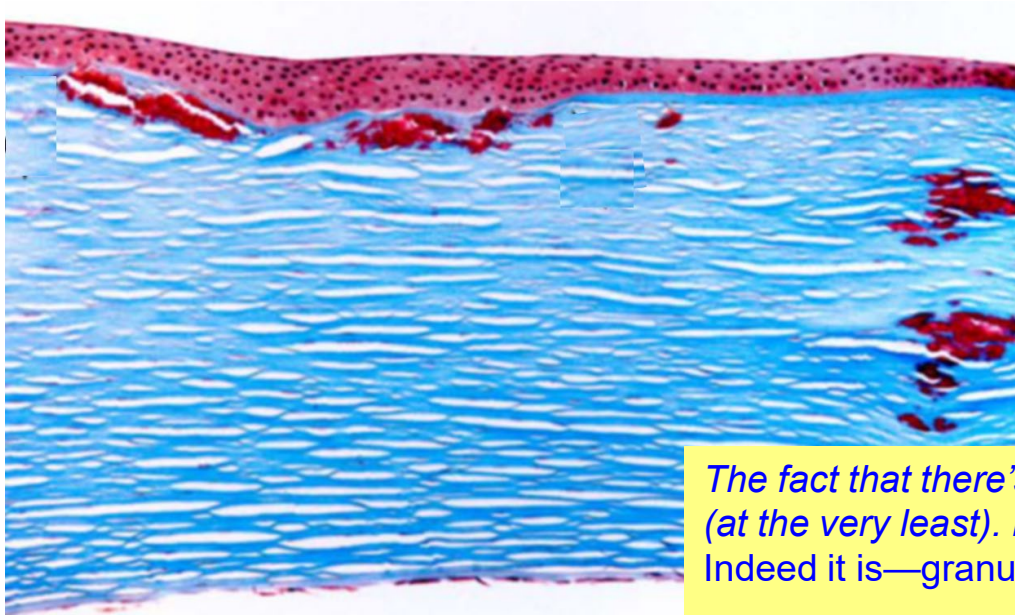
The fact that there's a 'type 1' GCD implies the existence of a type 2 (at the very least). Is this the case?

Granular corneal dystrophy type 1

The GCD1 pathologic process involves



Pathwatching



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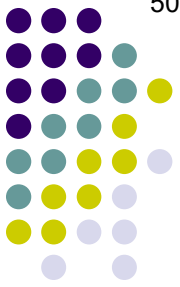
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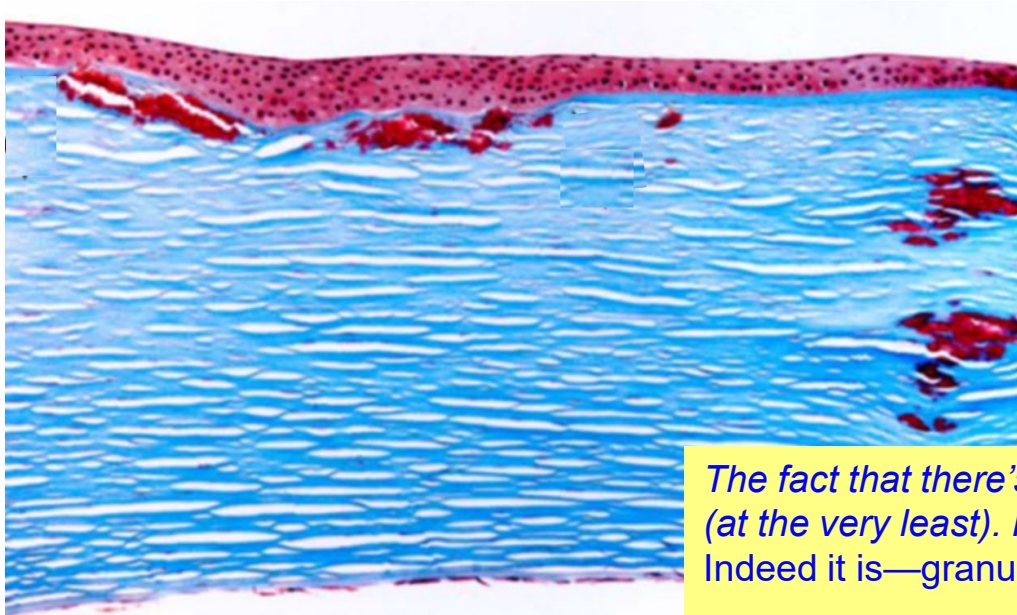
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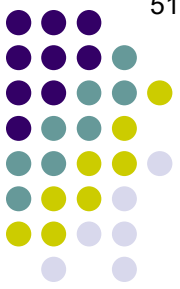
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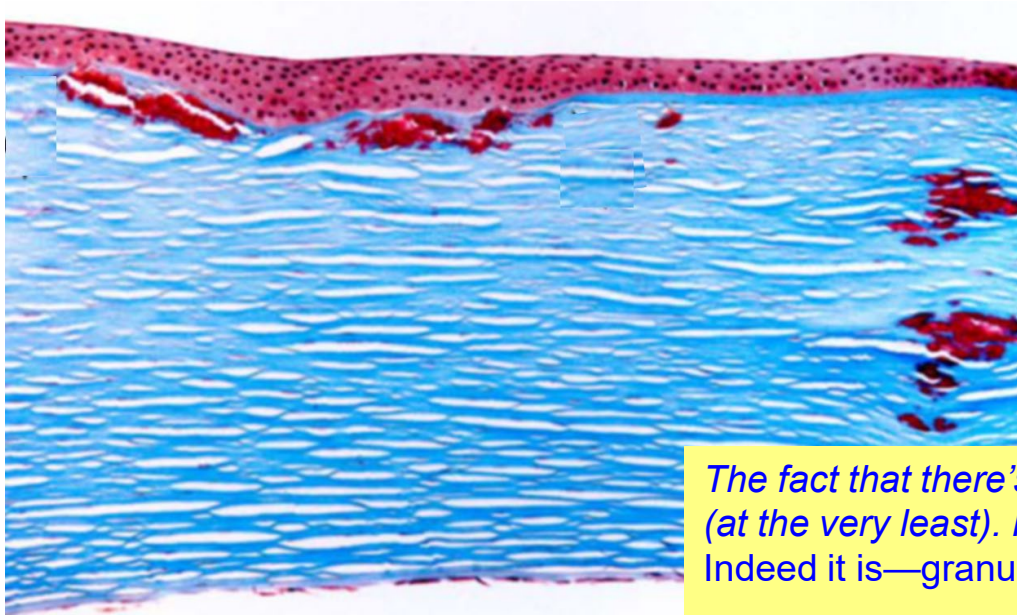
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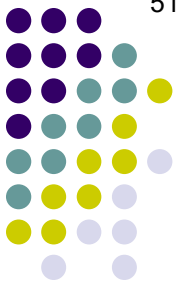
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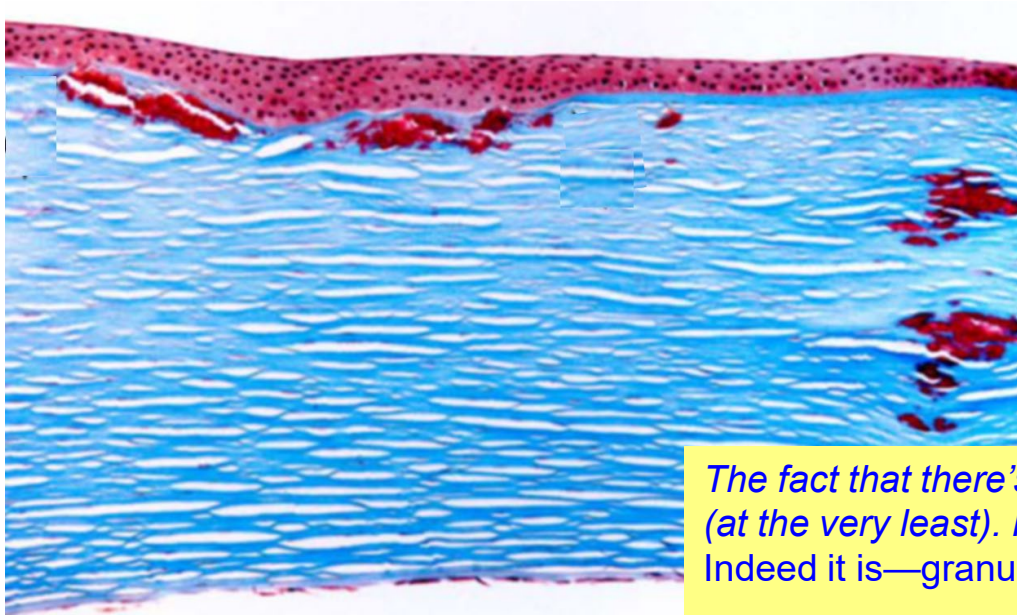
Avellino corneal dystrophy

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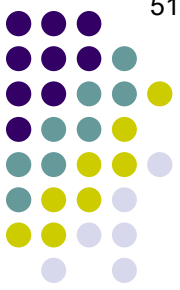
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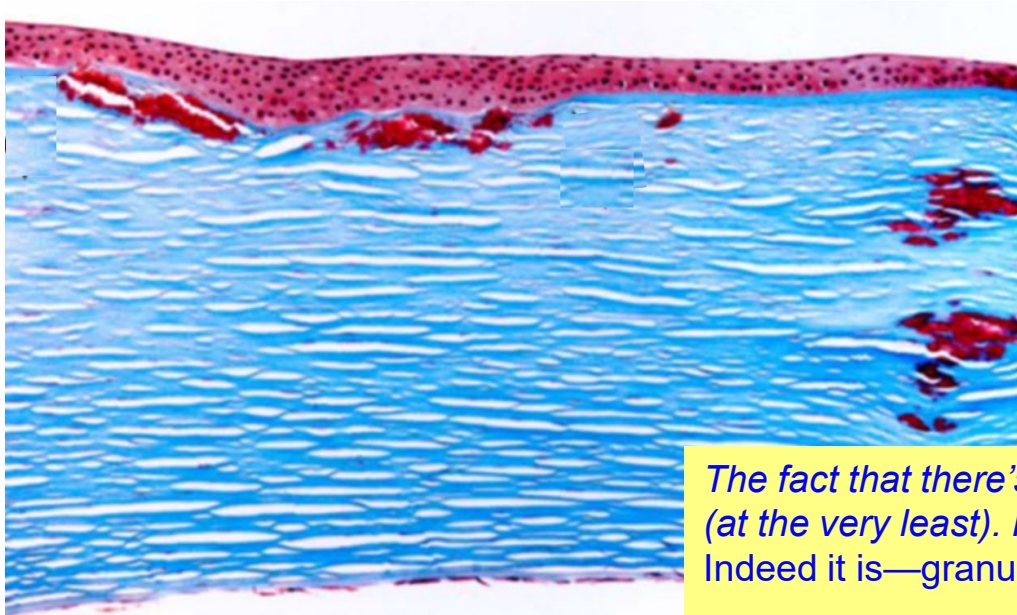
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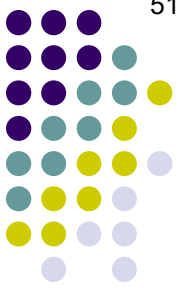
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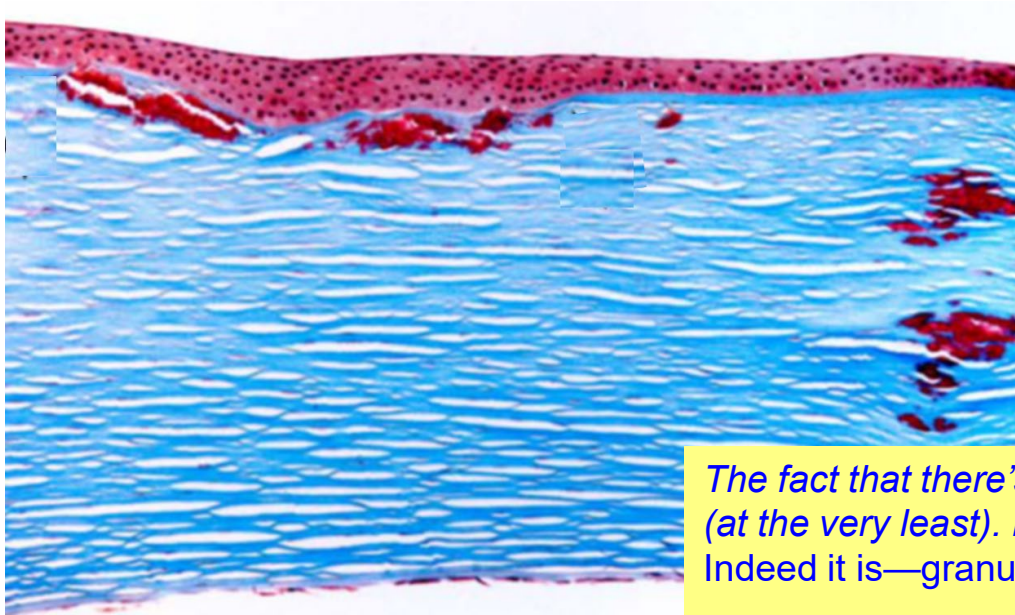
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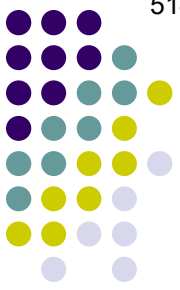
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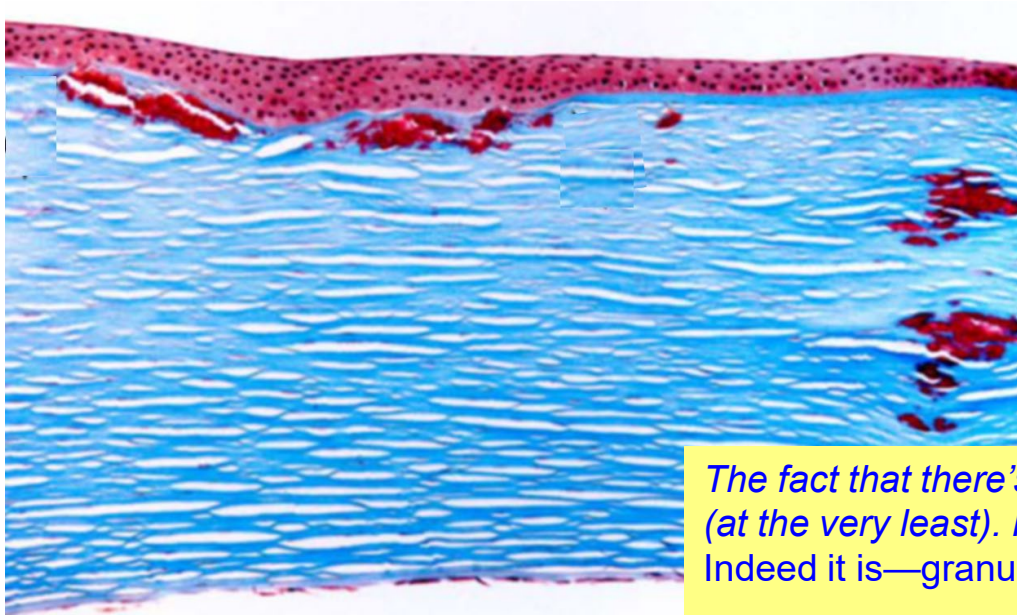
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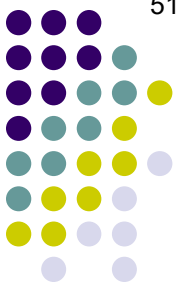
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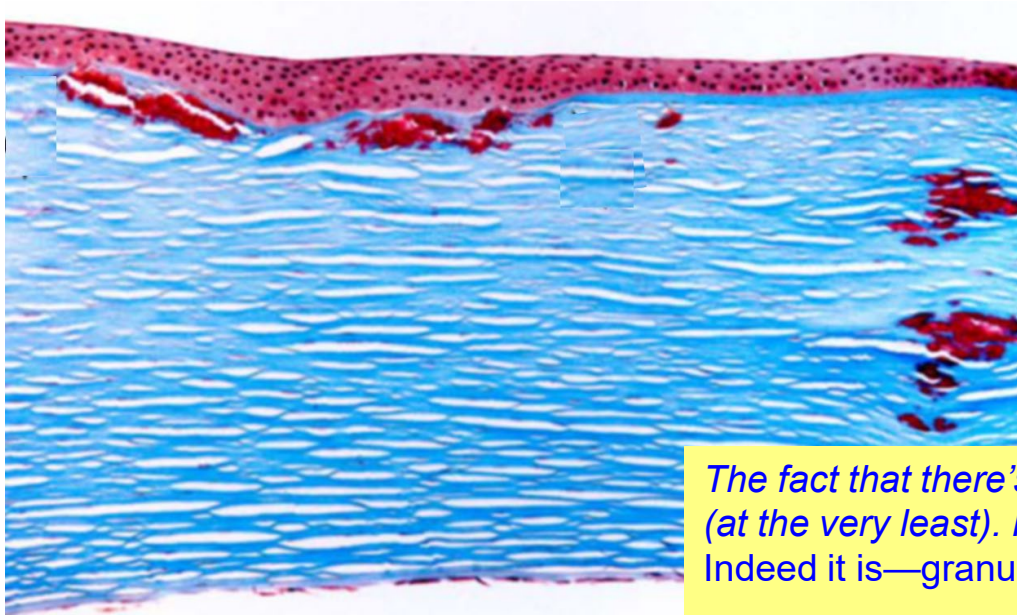
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Pathwatching



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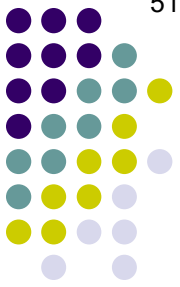
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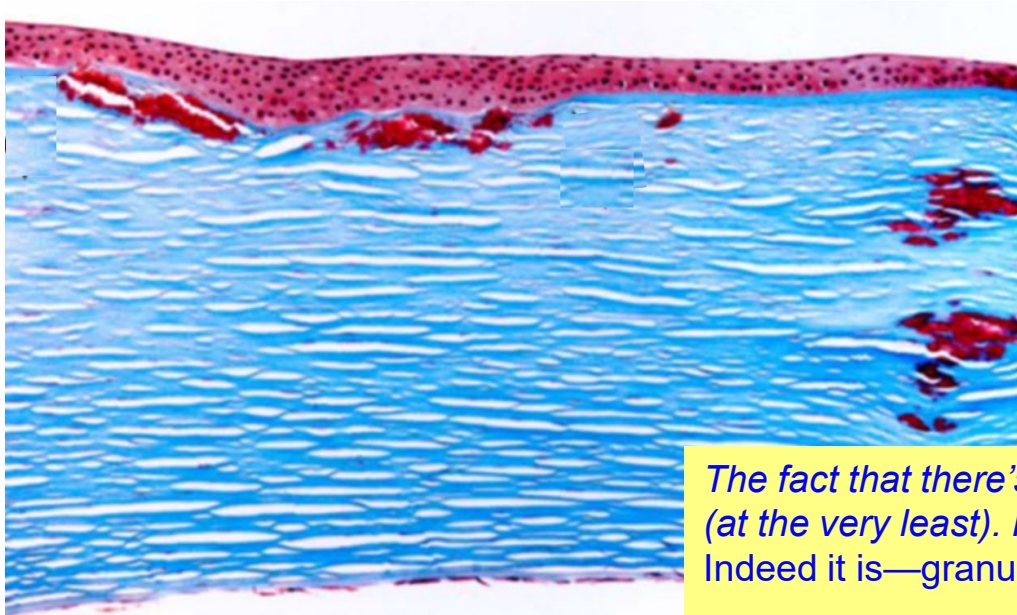
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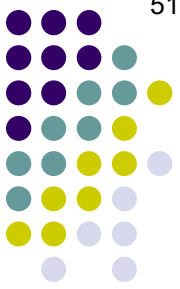
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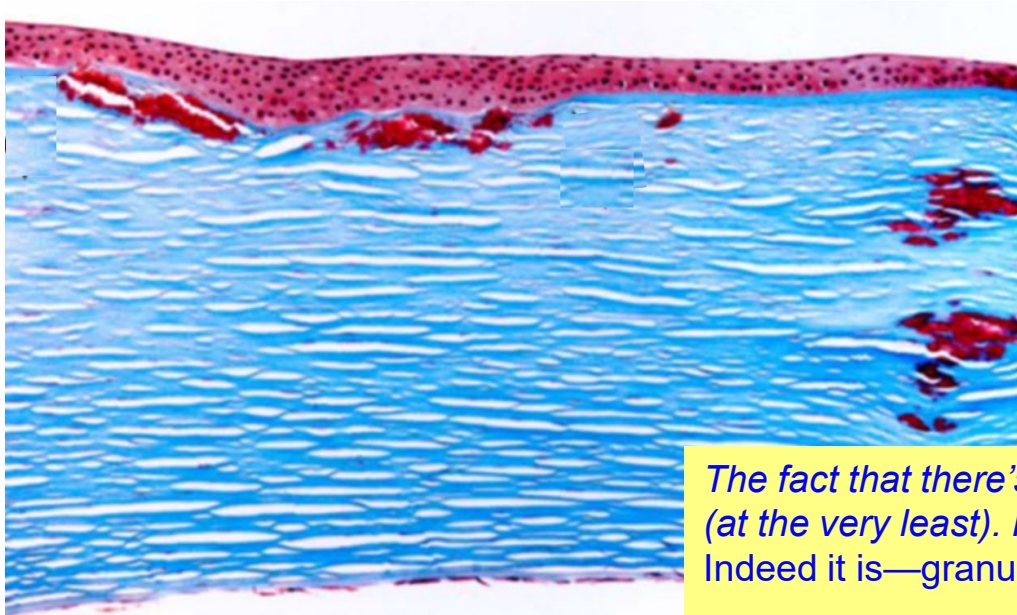
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Pathwatching



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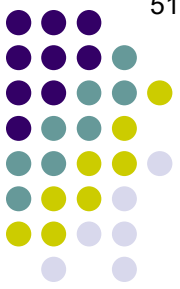
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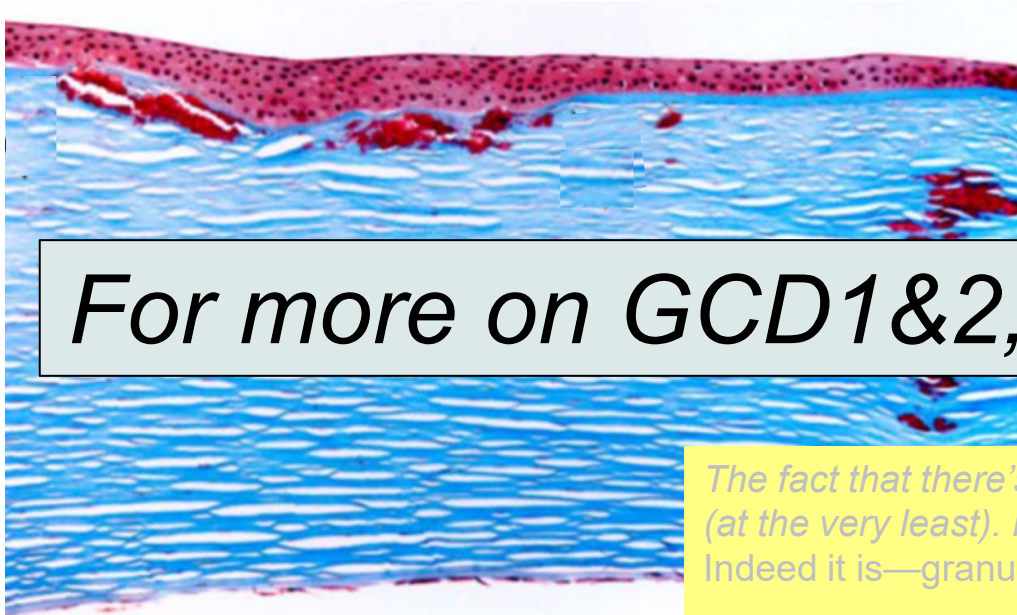
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For more on GCD1&2, see slide-set K42

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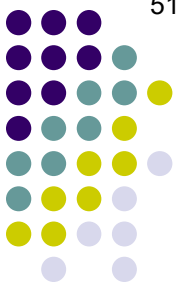
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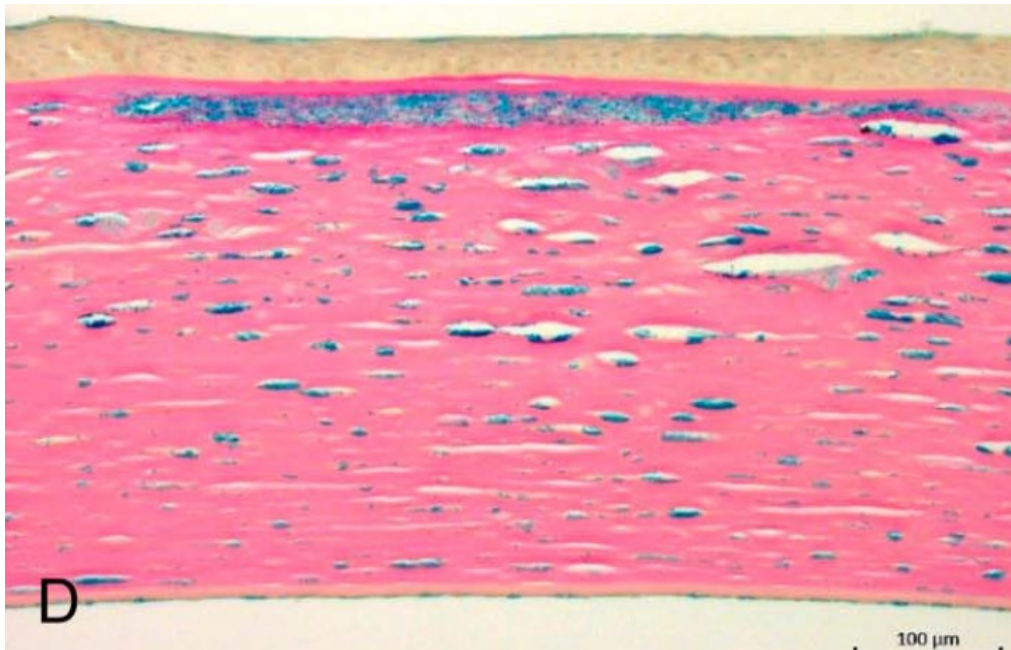
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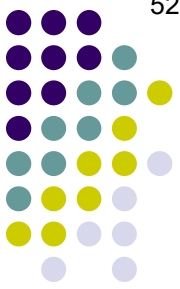


What's going on here?

- The epi looks
- Bowman's seems
- Stromal clefting is



Pathwatching

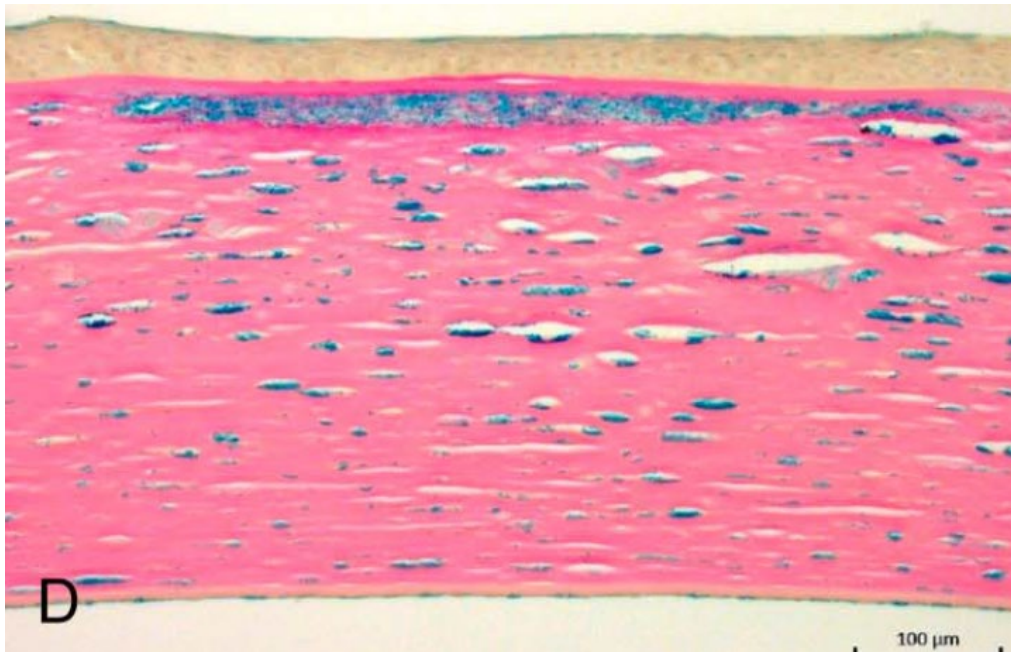


What's going on here?

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Pathwatching



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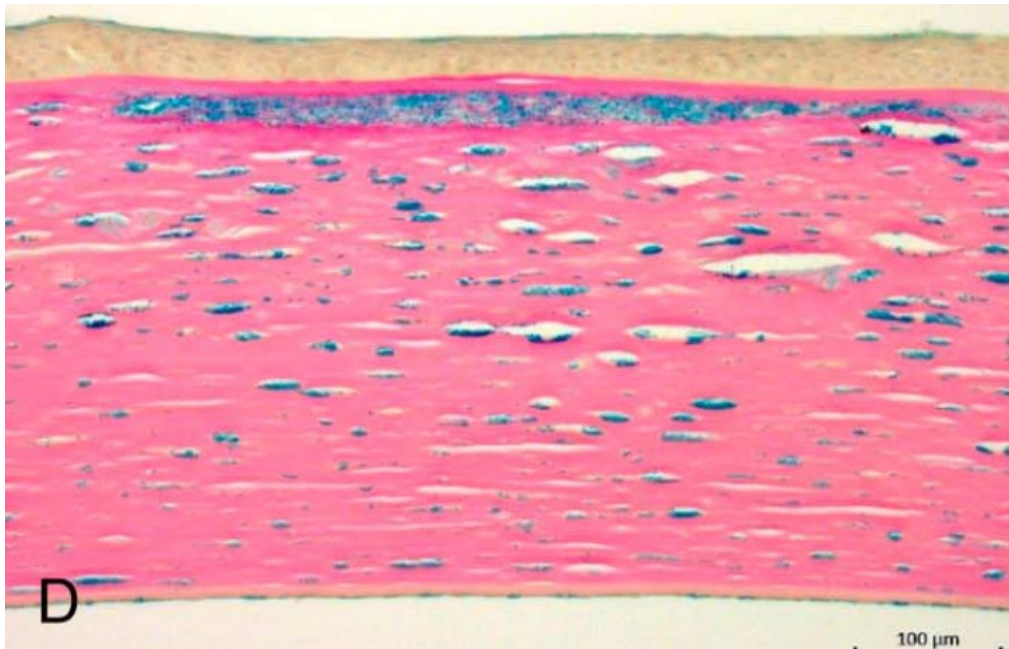
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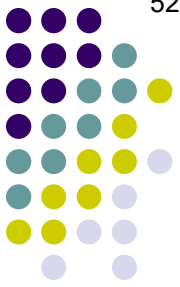
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Pathwatching



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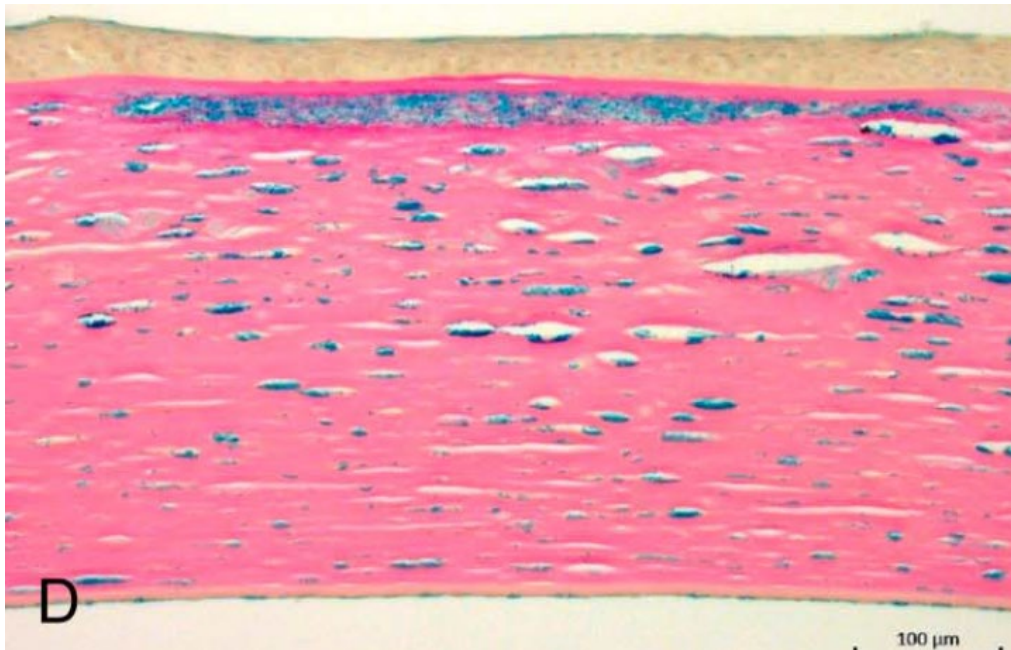
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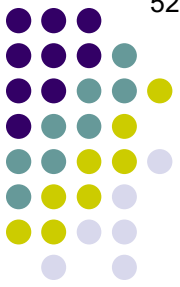
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Pathwatching



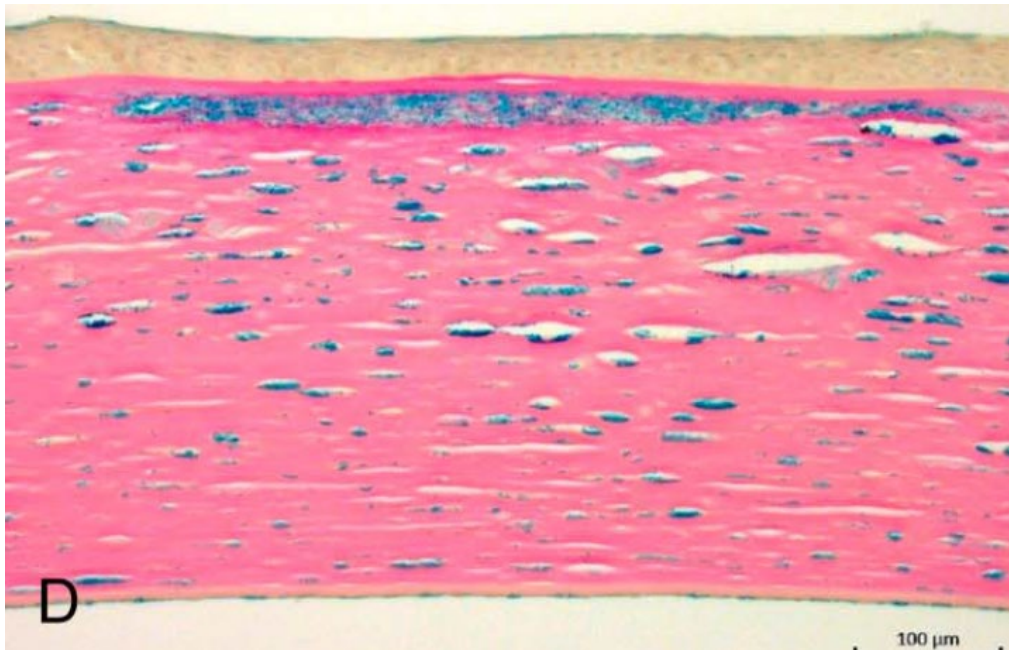
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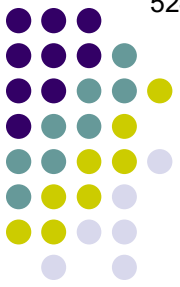
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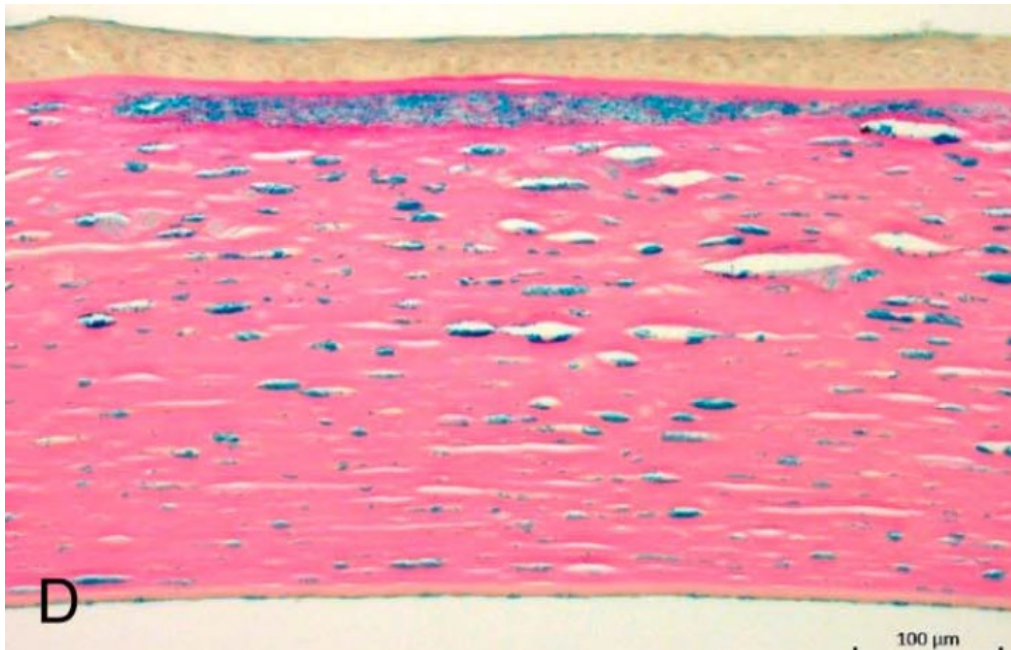
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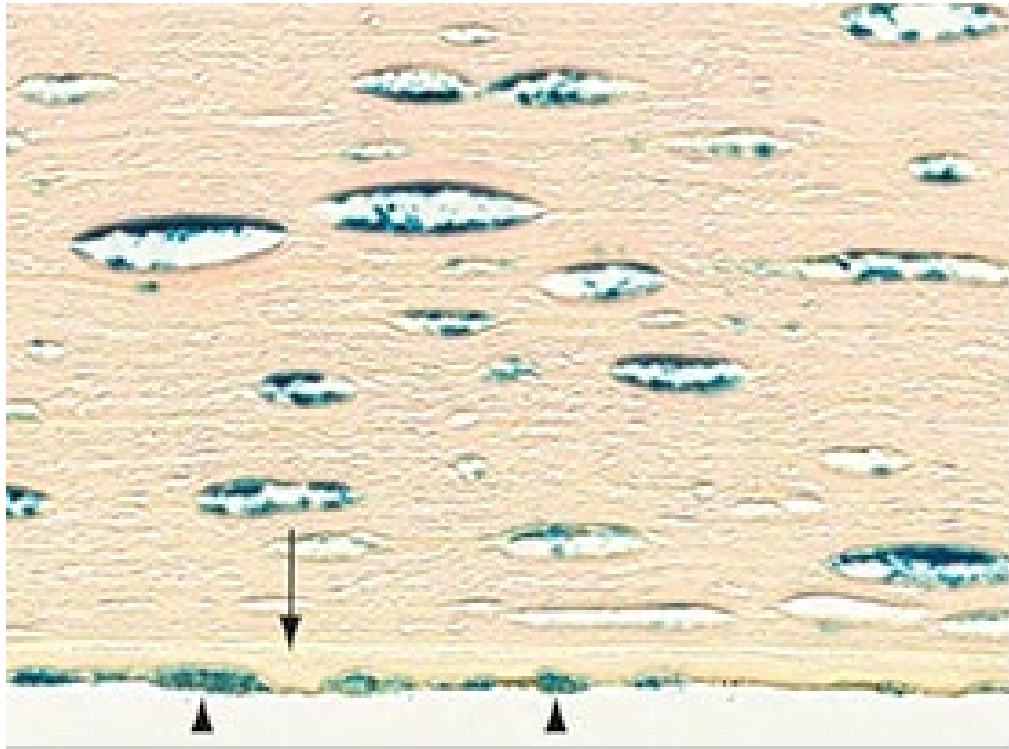
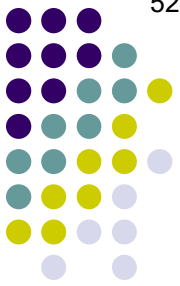
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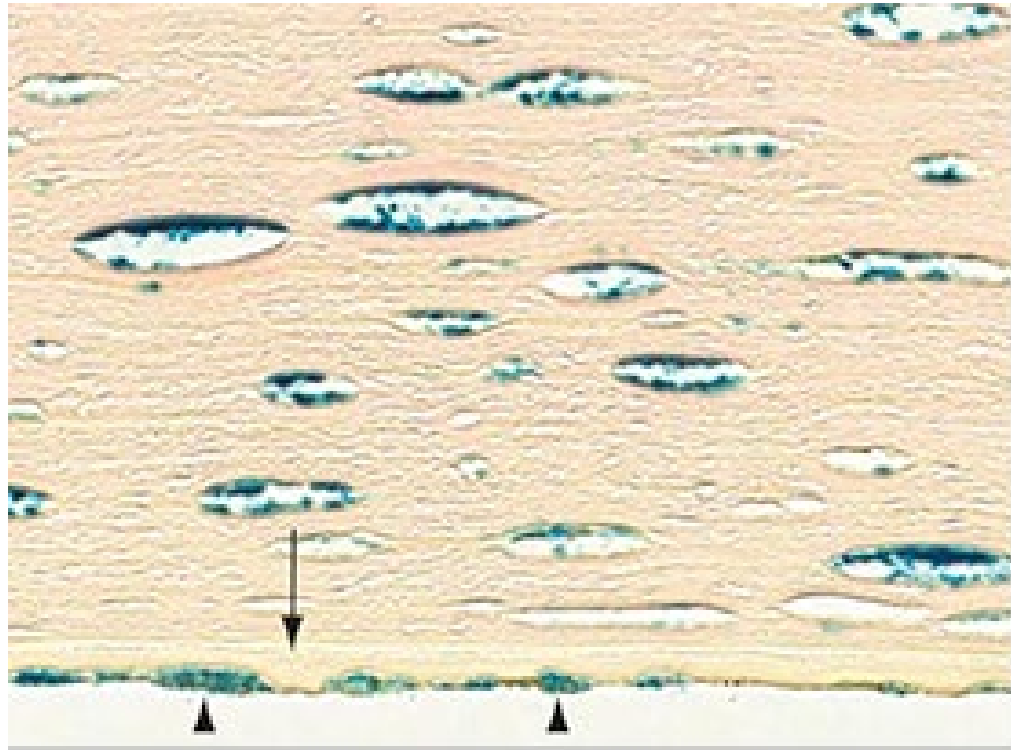
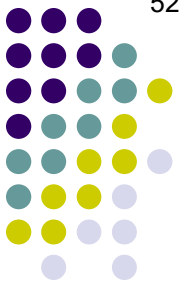
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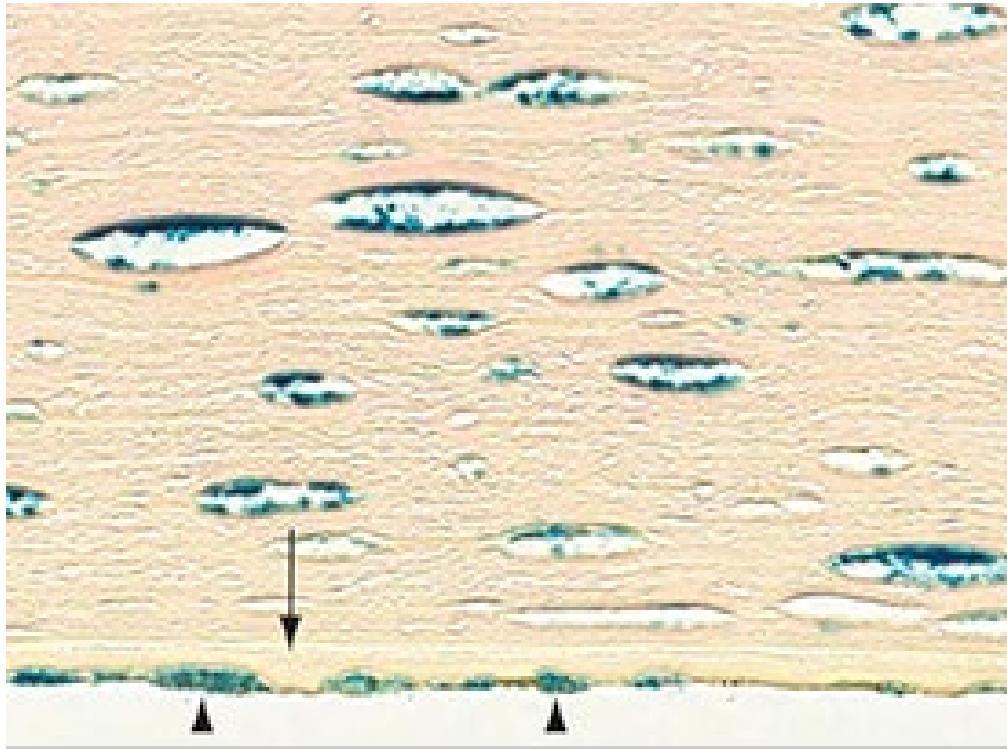
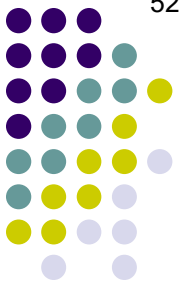
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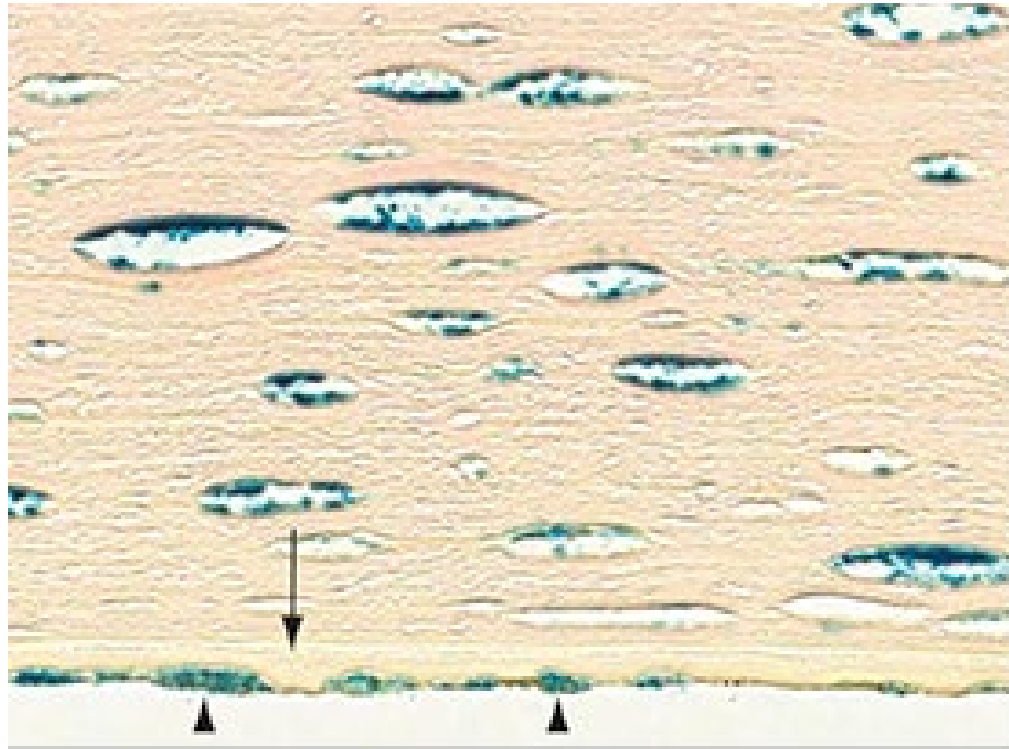
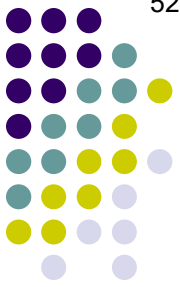
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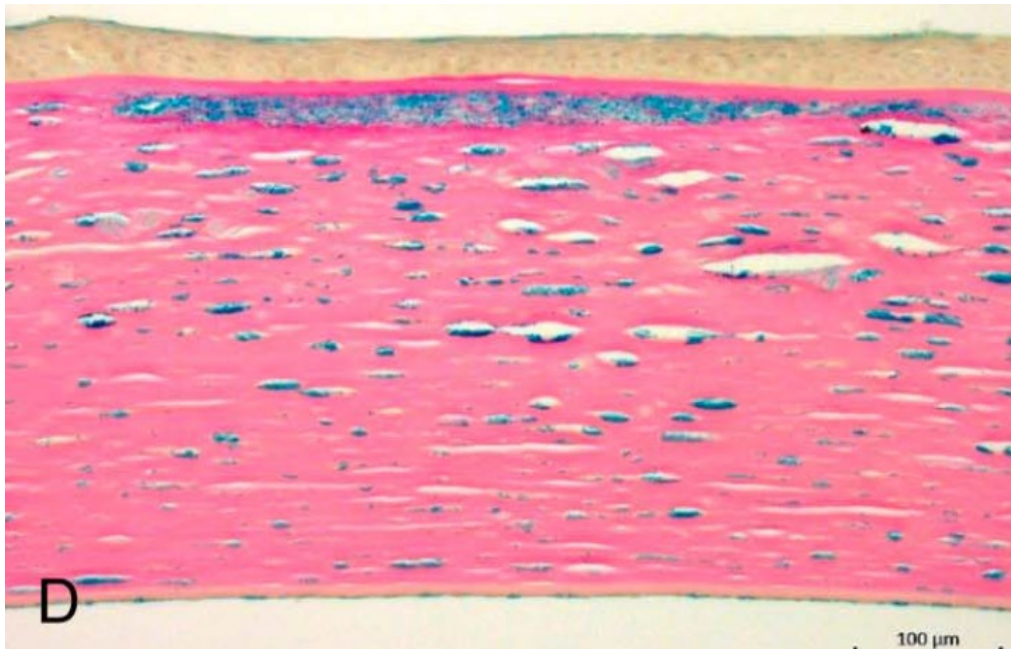
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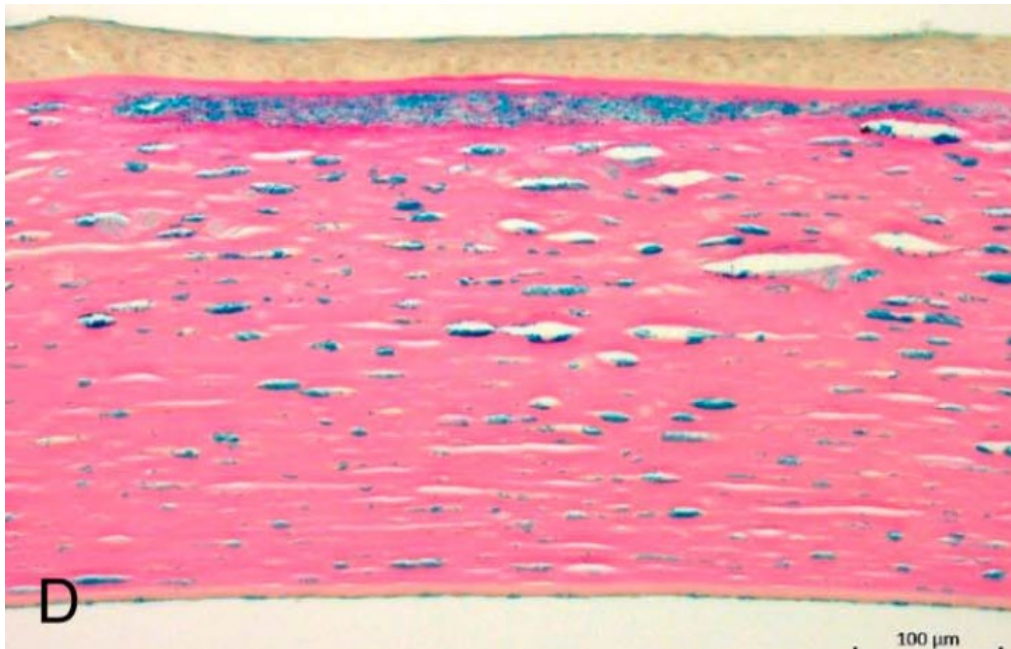
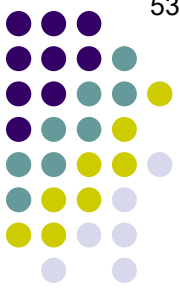
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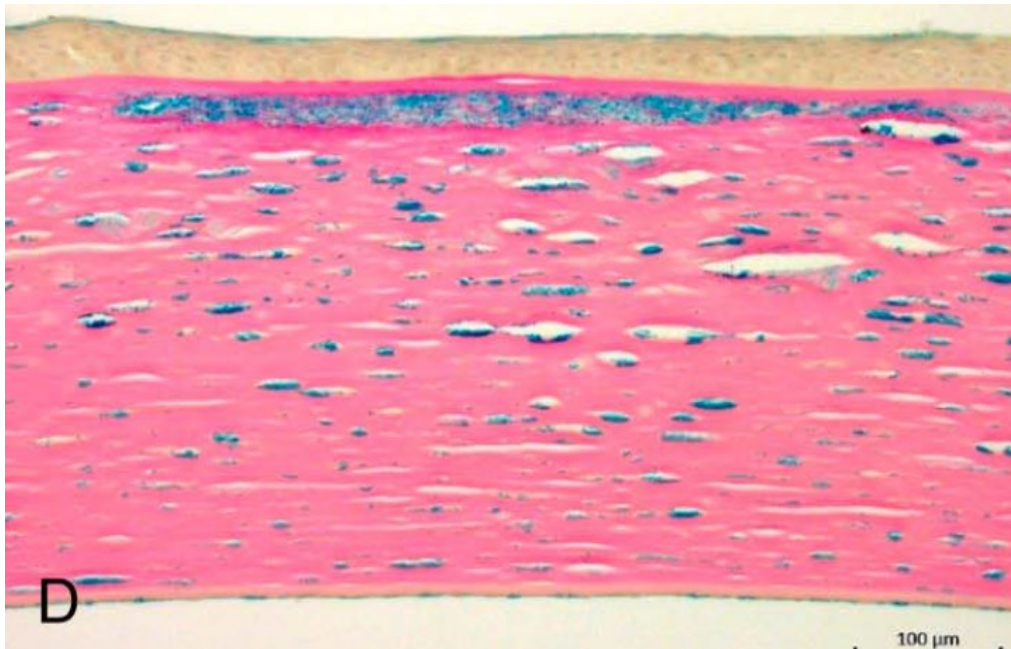
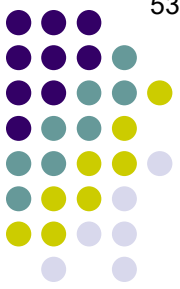
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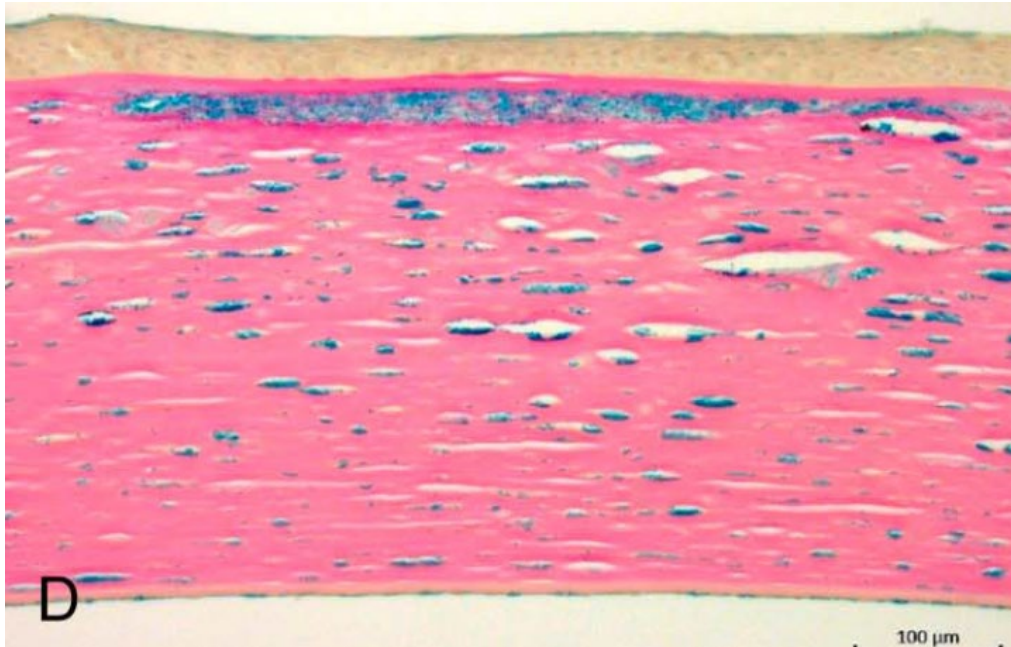
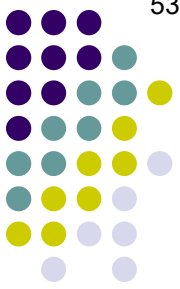
--Descemet's and the endothelium are involved. This can be seen more easily **here**, where the *arrowheads* indicate stain in the endothelium, and the *arrow* is pointing to an excrescence in Descemet's membrane, ie, a *guttæ*. (Note: This specimen used a different stain than the first.)

The presence of deposits through the entire stroma and into Descemet's/endothelium can be only one thing:

What's the diagnosis?

Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies.

Pathwatching



What's going on here?

- The epi looks OK
- Bowman's seems intact
- Stromal clefting is unremarkable

But also:

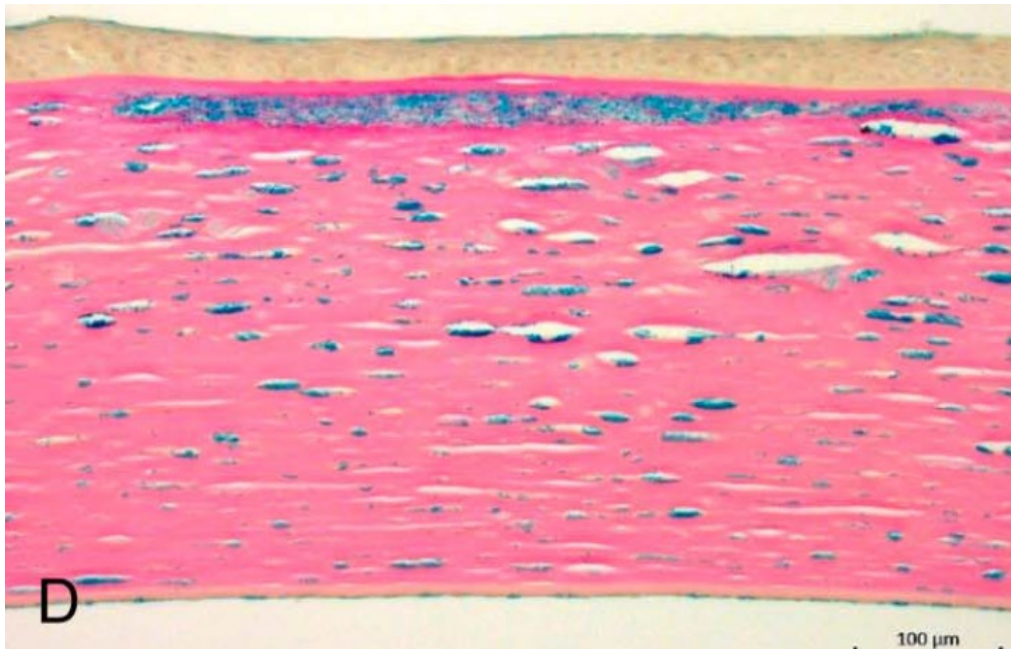
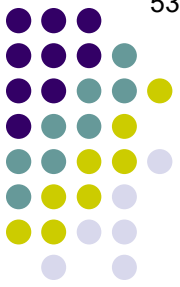
- Stain-avid deposits are present through the entire breadth of the stroma.
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The presence of deposits through the entire stroma and into Descemet's/endothelium can be only one thing:

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Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies.
The abnormal material deposited in the cornea is

Pathwatching



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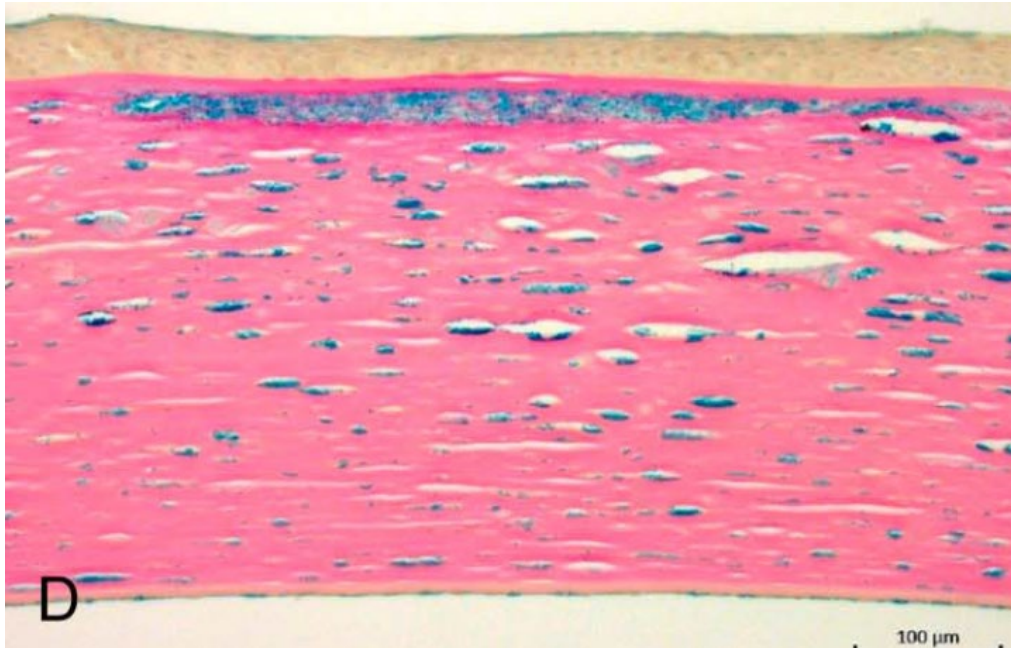
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The presence of deposits through the entire stroma and into Descemet's/endothelium can be only one thing:

What's the diagnosis?

Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is **glycosaminoglycans (GAGs)**.

Pathwatching



What's going on here?

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But also:

- Stain-avid deposits are present through the entire breadth of the stroma.
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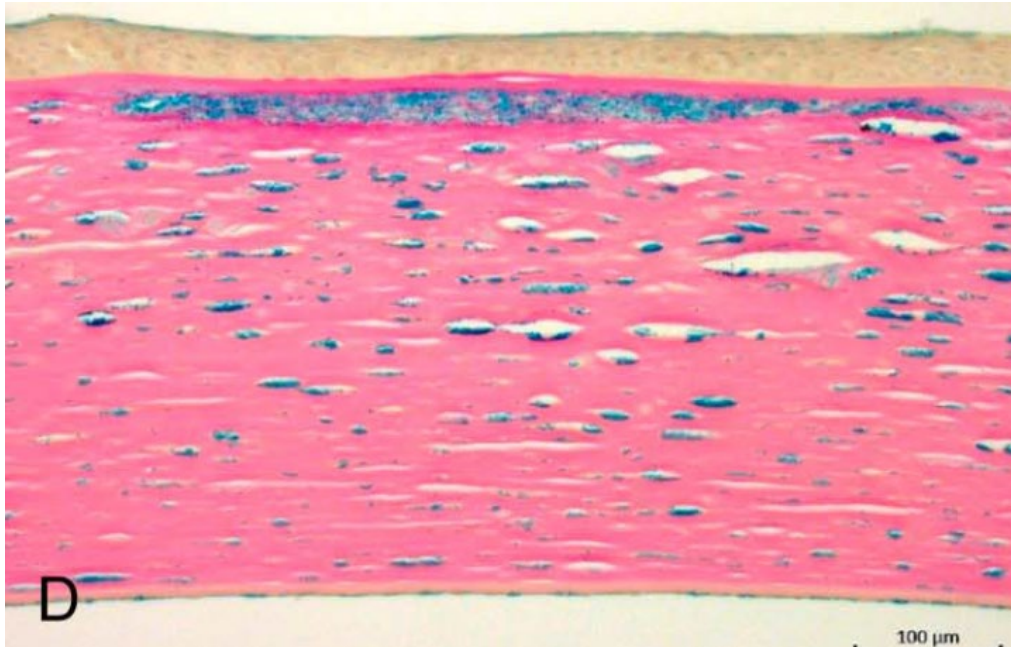
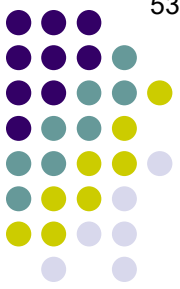
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*Were you expecting here?

Pathwatching



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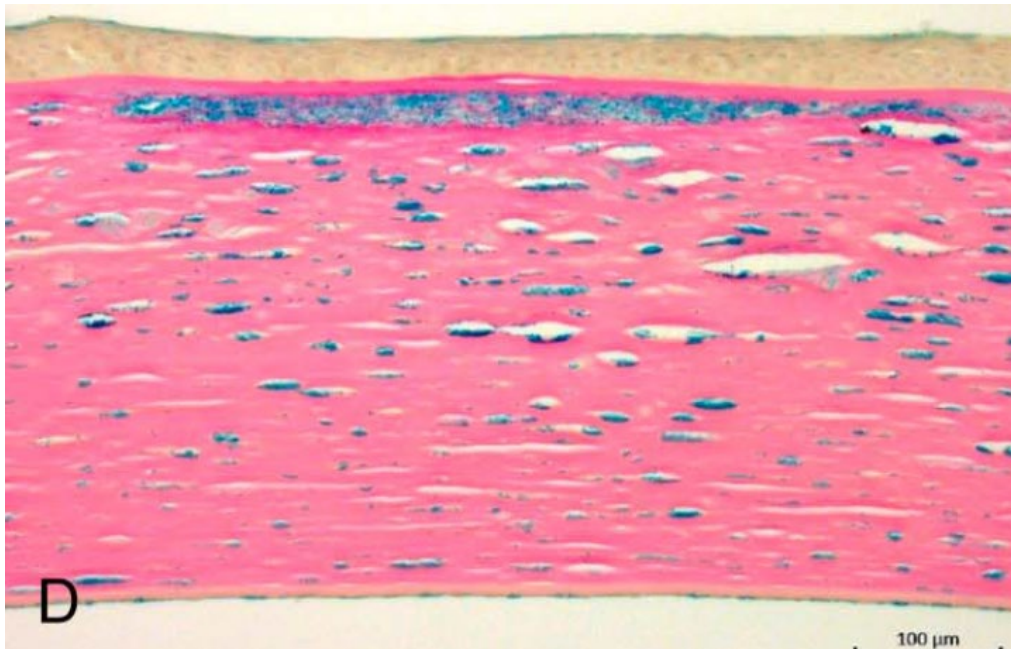
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*Were you expecting *mucopolysaccharides* here?

Pathwatching



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But also:

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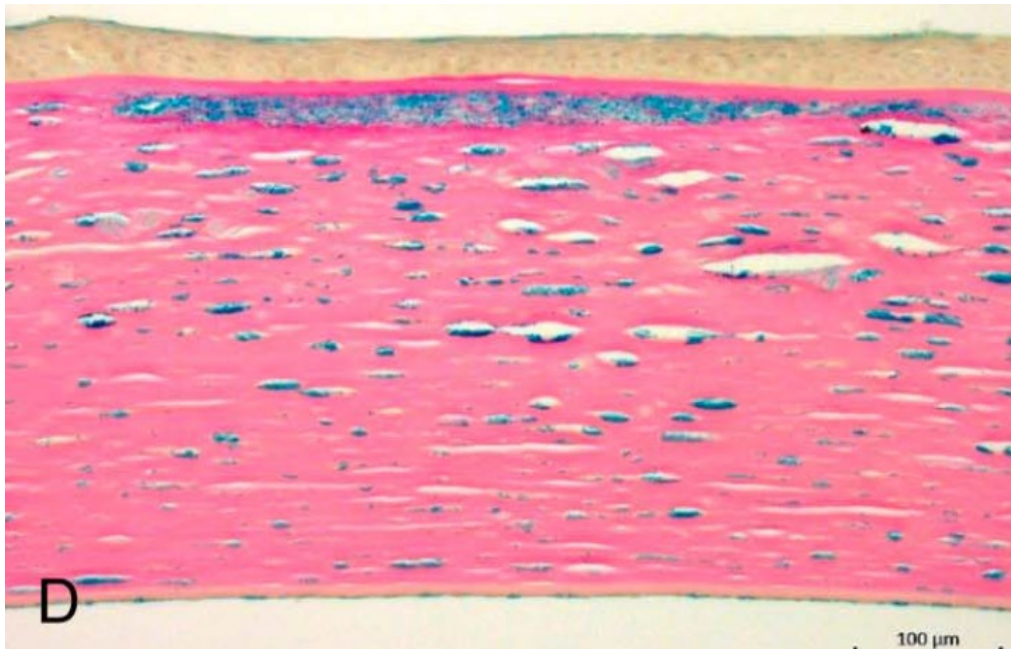
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What's the diagnosis?

Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is **glycosaminoglycans (GAGs)**.*

*Were you expecting *mucopolysaccharides* here? While not wrong, this term has been largely supplanted by **GAG** in the *BCSC*, so don't be confused if you see **GAG** on a test (and adjust your mnemonic accordingly, Marilyn).

Pathwatching



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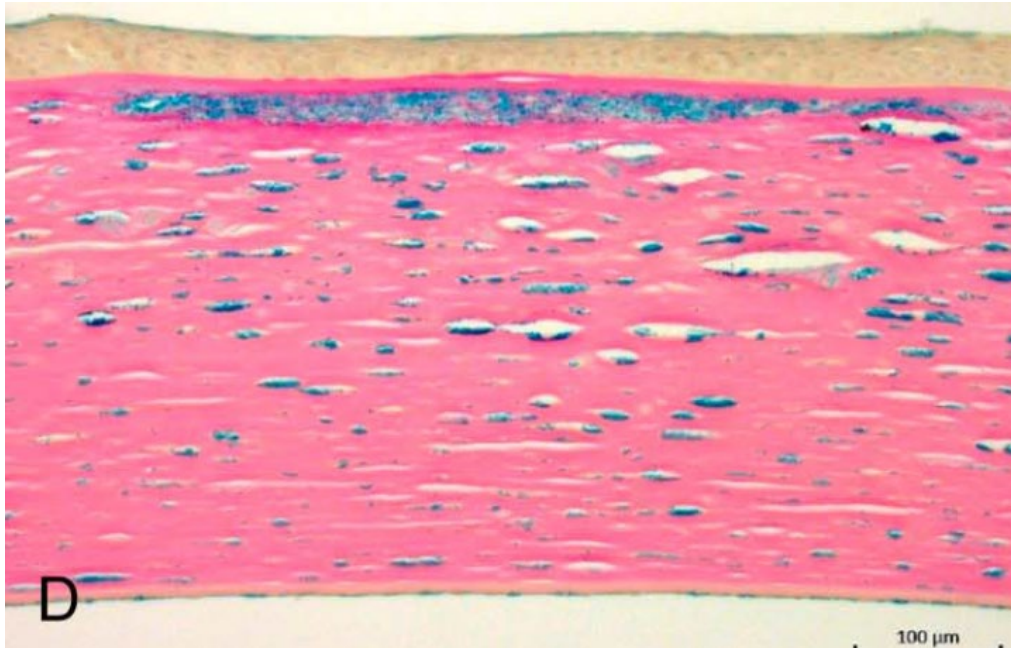
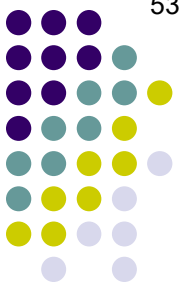
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The presence of deposits through the entire stroma and into Descemet's/endothelium can be only one thing:

What's the diagnosis?

Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is **glycosaminoglycans (GAGs)**. * The stain most closely associated with MCD is two words.

Pathwatching



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But also:

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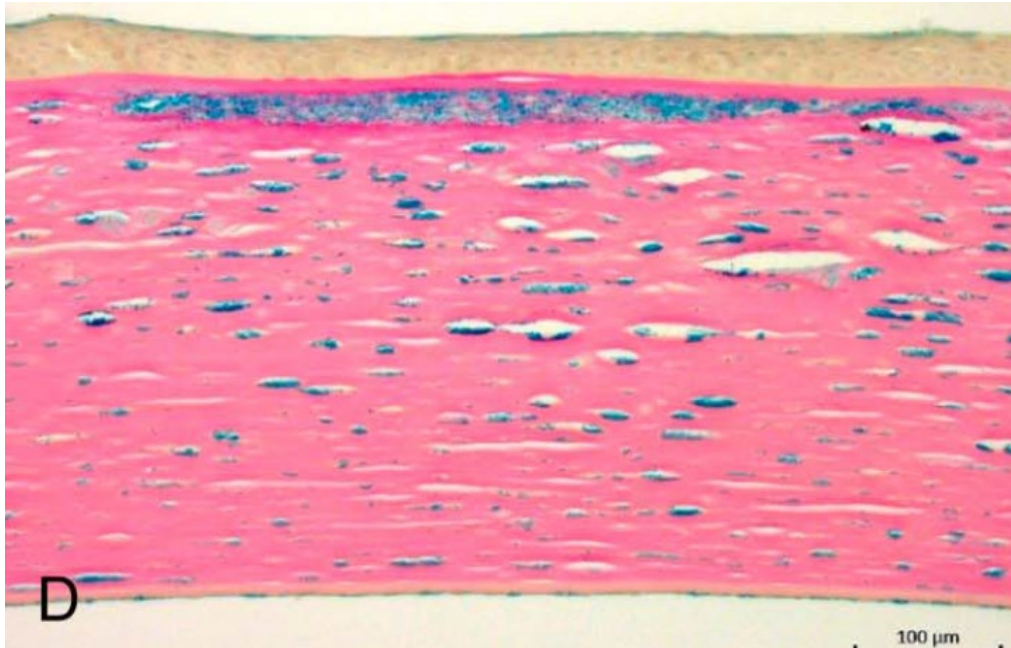
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What's the diagnosis?

Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is **glycosaminoglycans (GAGs)**. * The stain most closely associated with MCD is Alcian blue .

Pathwatching



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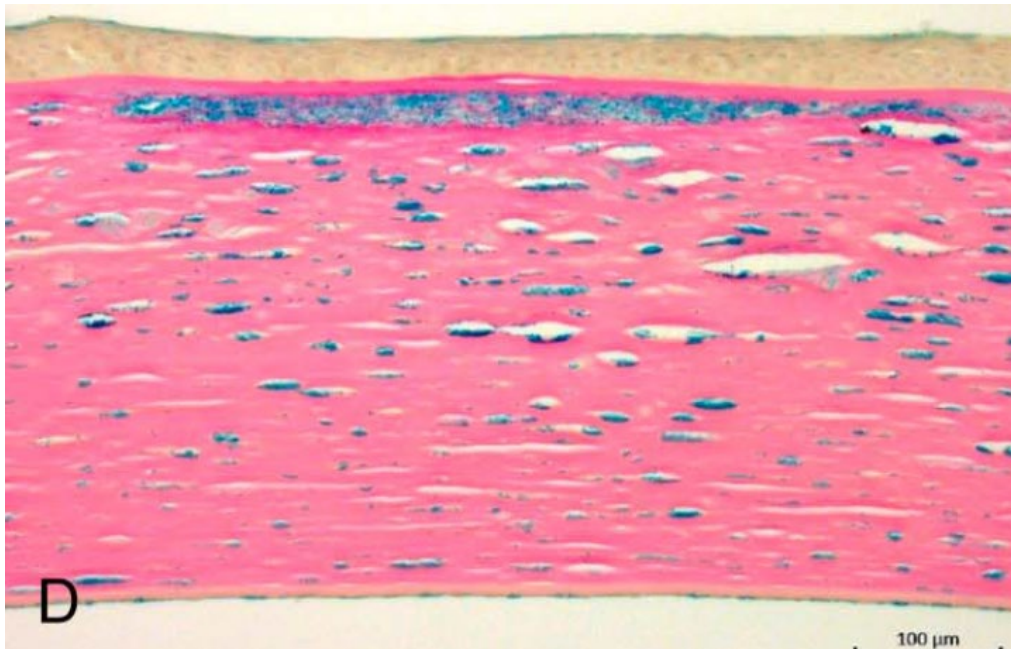
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What's the diagnosis?

Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is **glycosaminoglycans (GAGs)**. * The stain most closely associated with MCD is Alcian blue. Unlike vs
As with the **TGFBI** dystrophies discussed previously, MCD pts are not v
quite at risk for REE.

Pathwatching



What's going on here?

- The epi looks OK
- Bowman's seems intact
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But also:

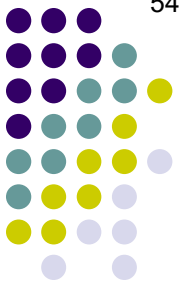
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Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is **glycosaminoglycans (GAGs)**. * The stain most closely associated with MCD is **Alcian blue**. Unlike the *TGFBI* dystrophies discussed previously, MCD pts are **not** at risk for REE.

Pathwatching



What's going on here?

--The epi looks OK

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But also:

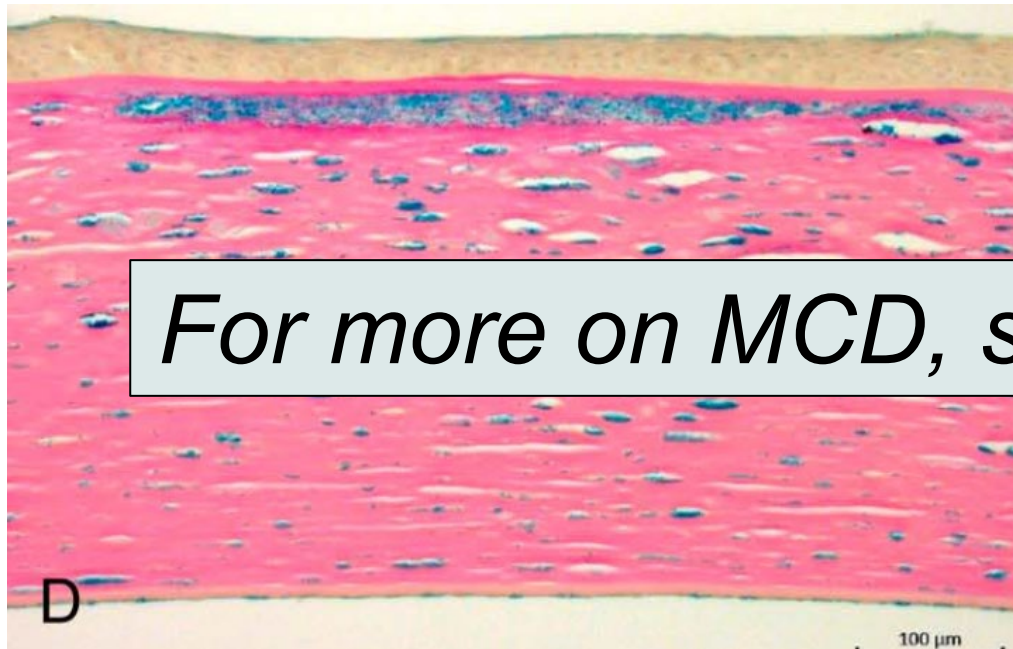
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For more on MCD, see slide-set K43

What's the diagnosis?

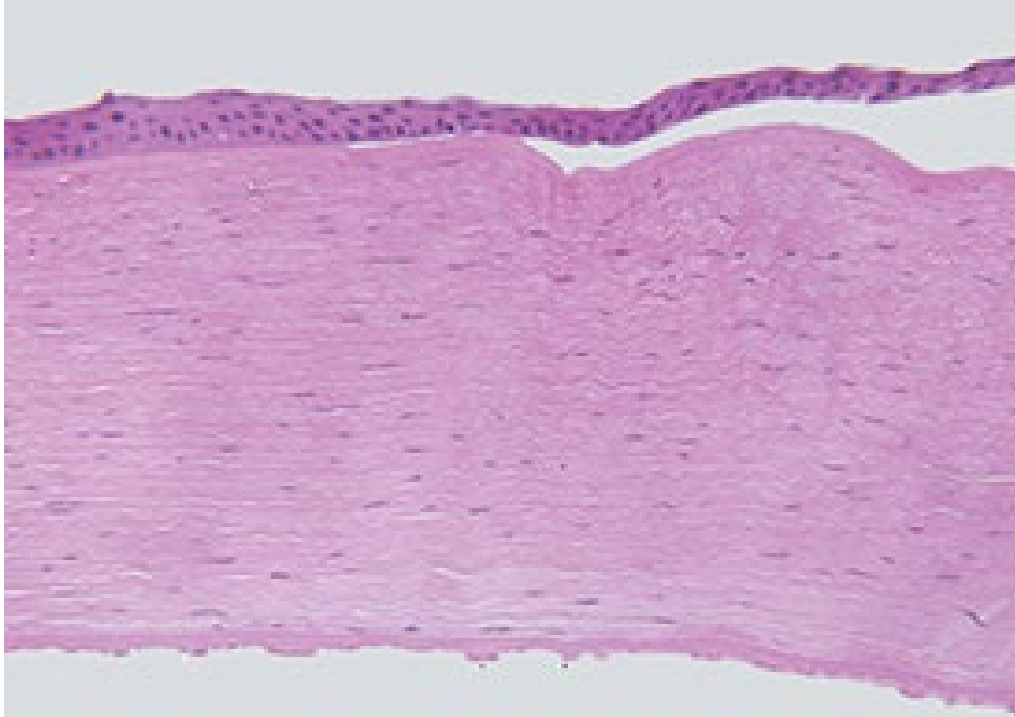
Macular corneal dystrophy (MCD) *isn't* one of the *epithelial-stromal TGFBI* corneal dystrophies. The abnormal material deposited in the cornea is *glycosaminoglycans (GAGs)*. * The stain most closely associated with MCD is *Alcian blue*. Unlike the *TGFBI* dystrophies discussed previously, MCD pts are *not* at risk for REE.

Pathwatching

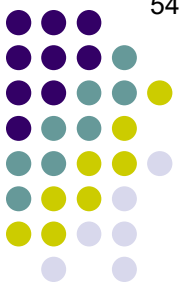


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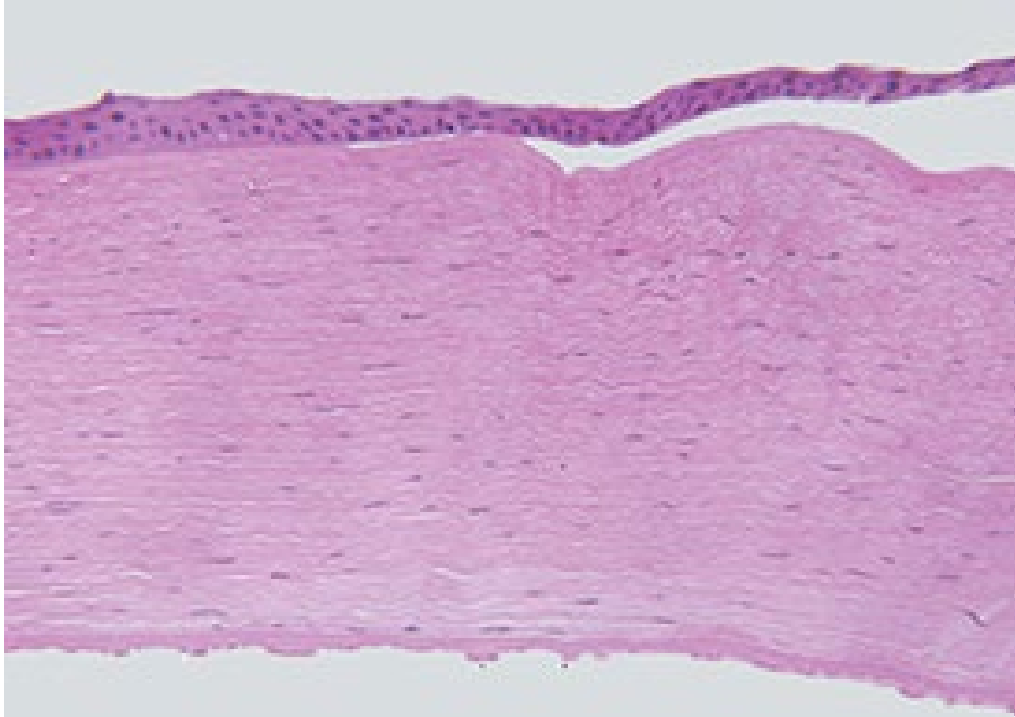
--The epi looks involved v
uninvolved



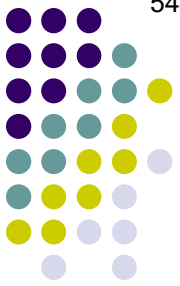
Pathwatching



What's going on here?
--The epi looks bad .

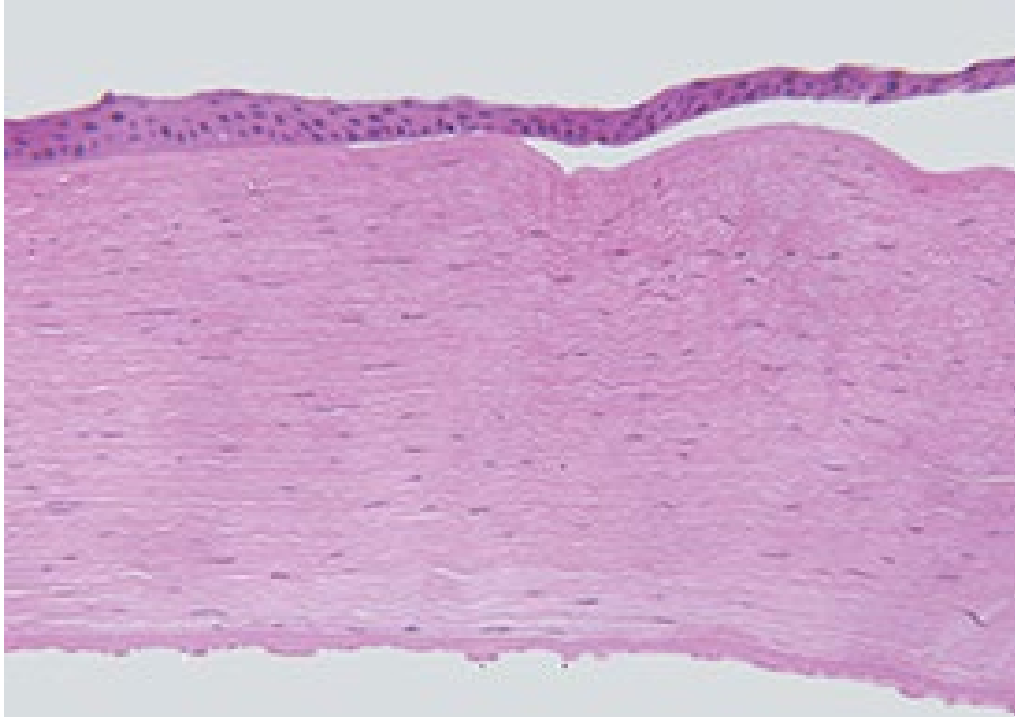


Pathwatching

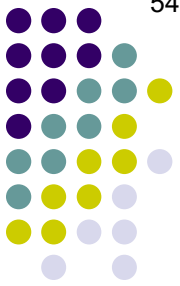


What's going on here?

--The epi looks bad—it's thin in places, and over half has separated from Bowman's.



Pathwatching

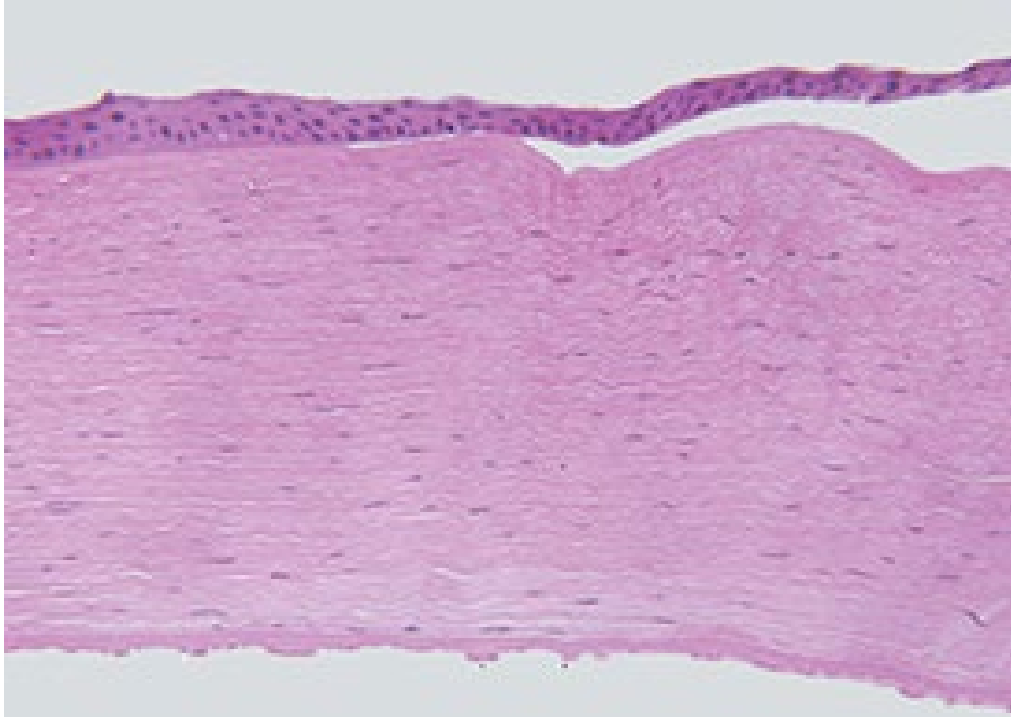


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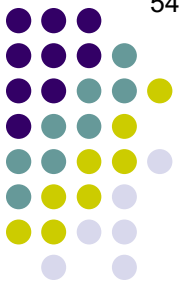
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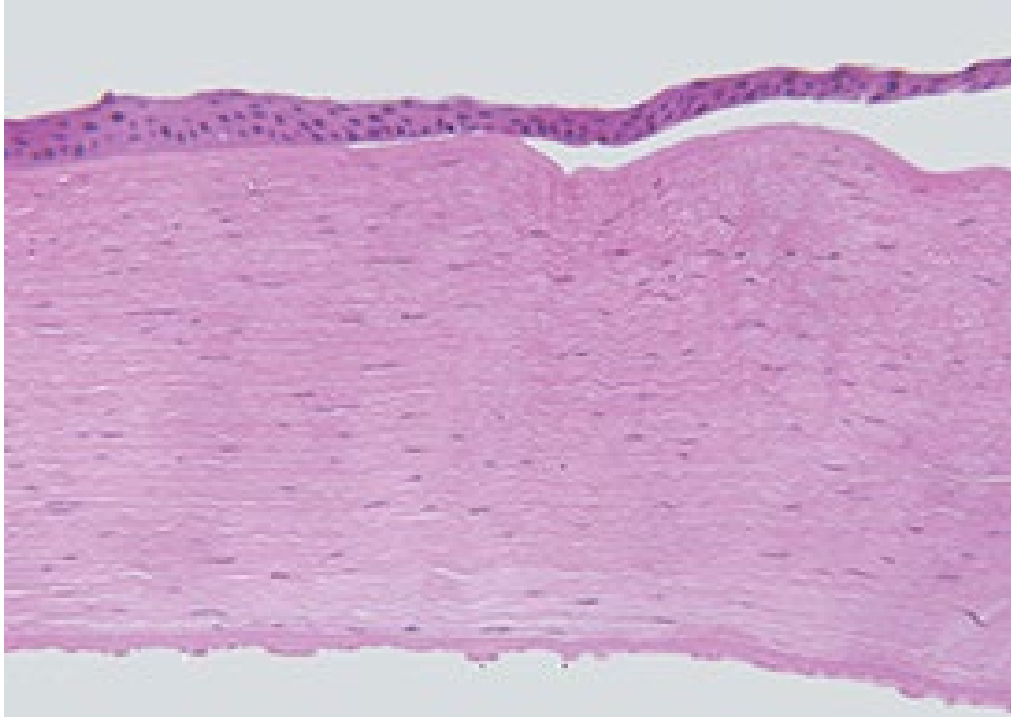
Pathwatching



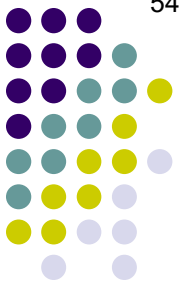
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Pathwatching

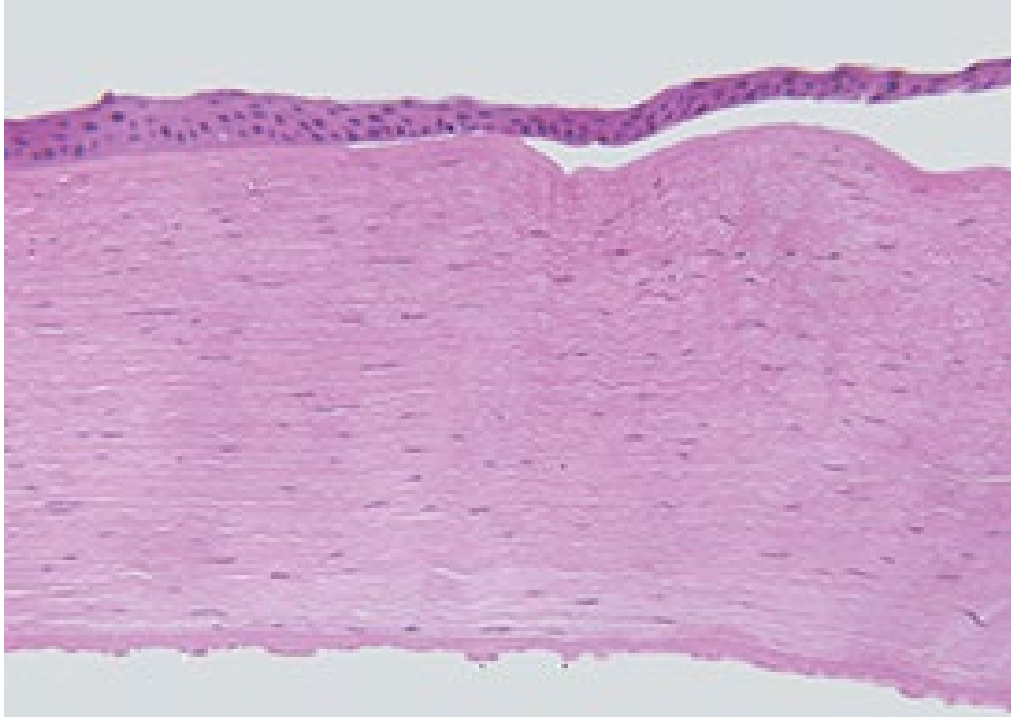


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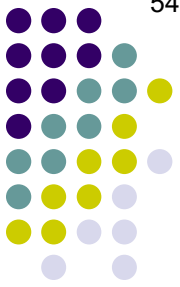
--The epi looks bad—it's thin in places, and over half has separated from Bowman's.

--Speaking of: Bowman's seems intact

--The stroma is v
 isn't taking a special stain,
suggesting this is v
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Pathwatching

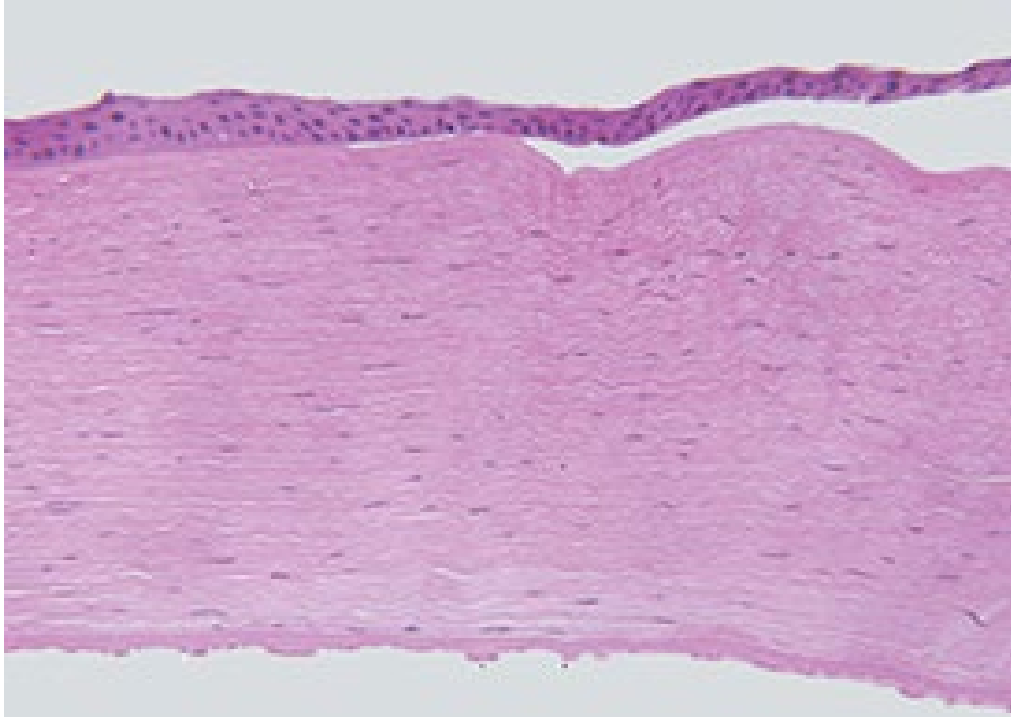


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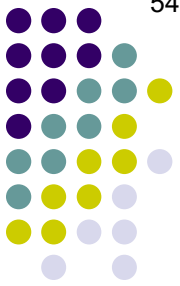
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Pathwatching



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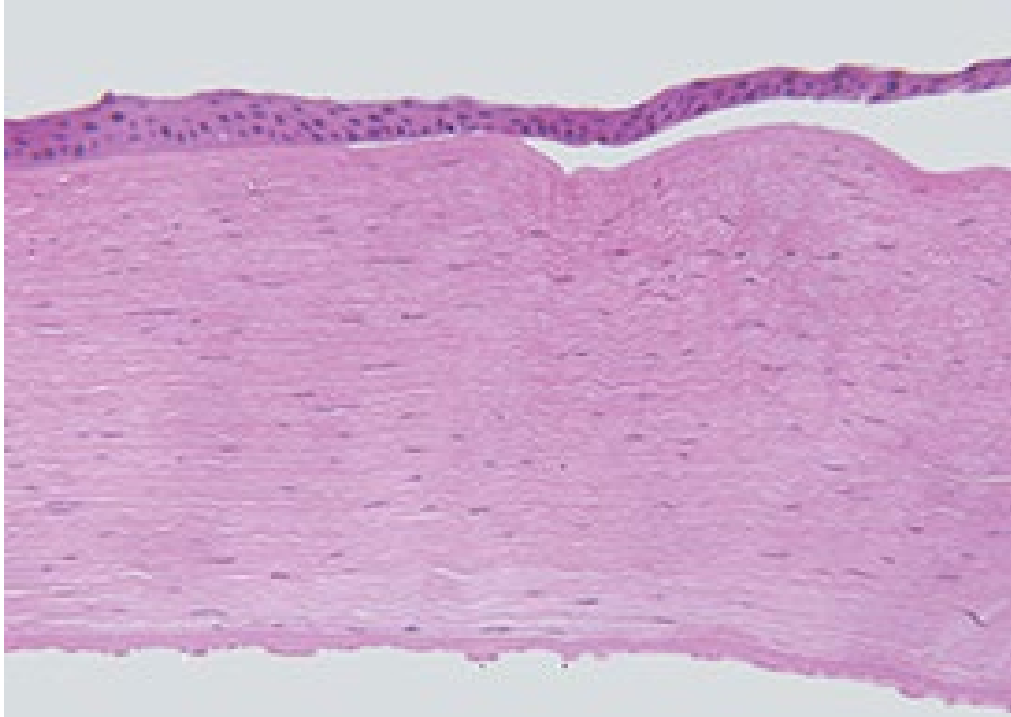
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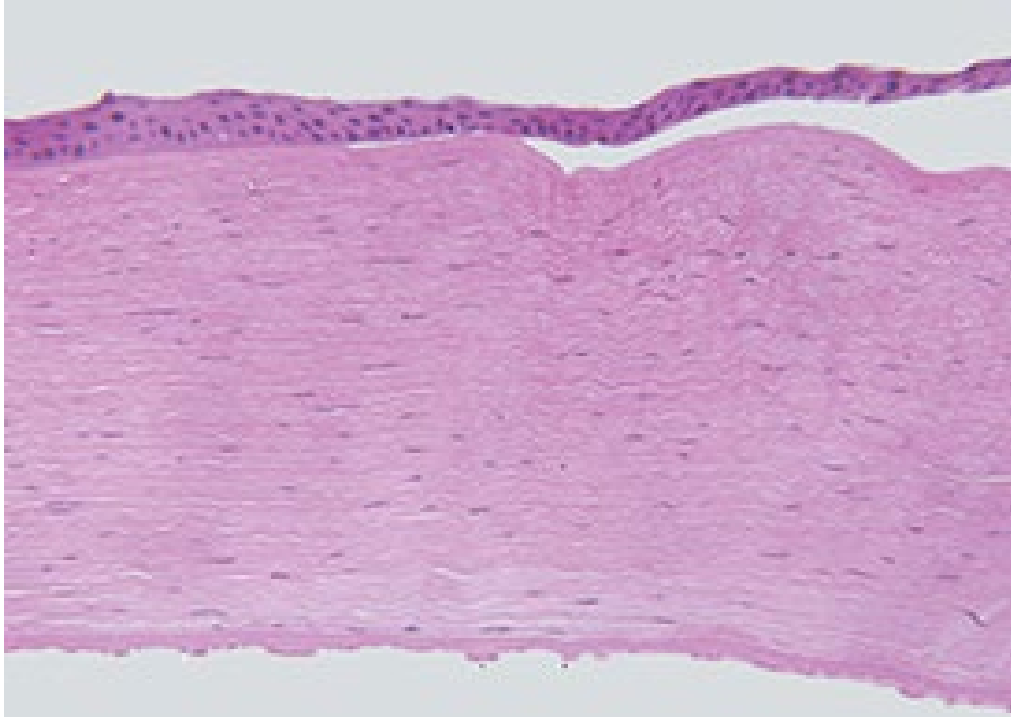
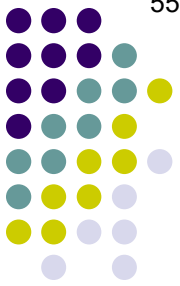
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--Speaking of: Stromal clefting is

affected vs unaffected



Pathwatching



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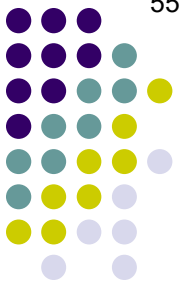
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--The stroma isn't taking a special stain, suggesting this isn't a stromal dystrophy.

--Speaking of: Stromal clefting is almost absent

Pathwatching



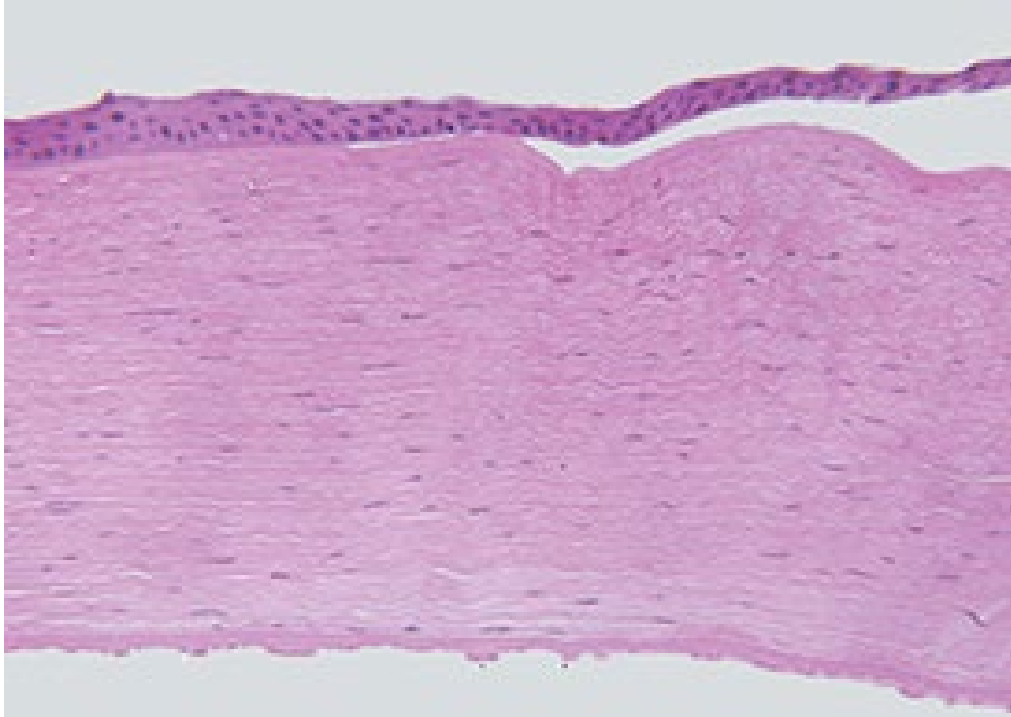
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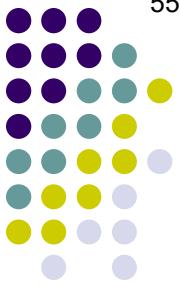
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Pathwatching



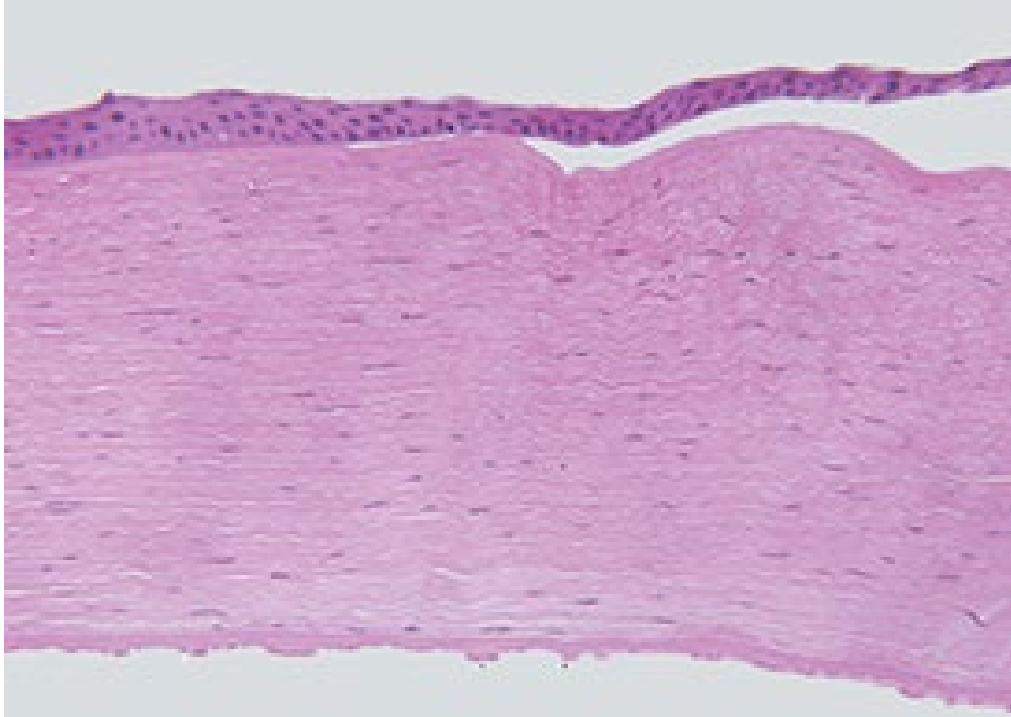
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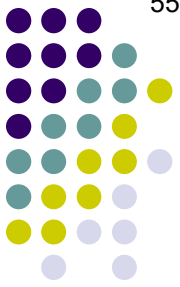
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Pathwatching



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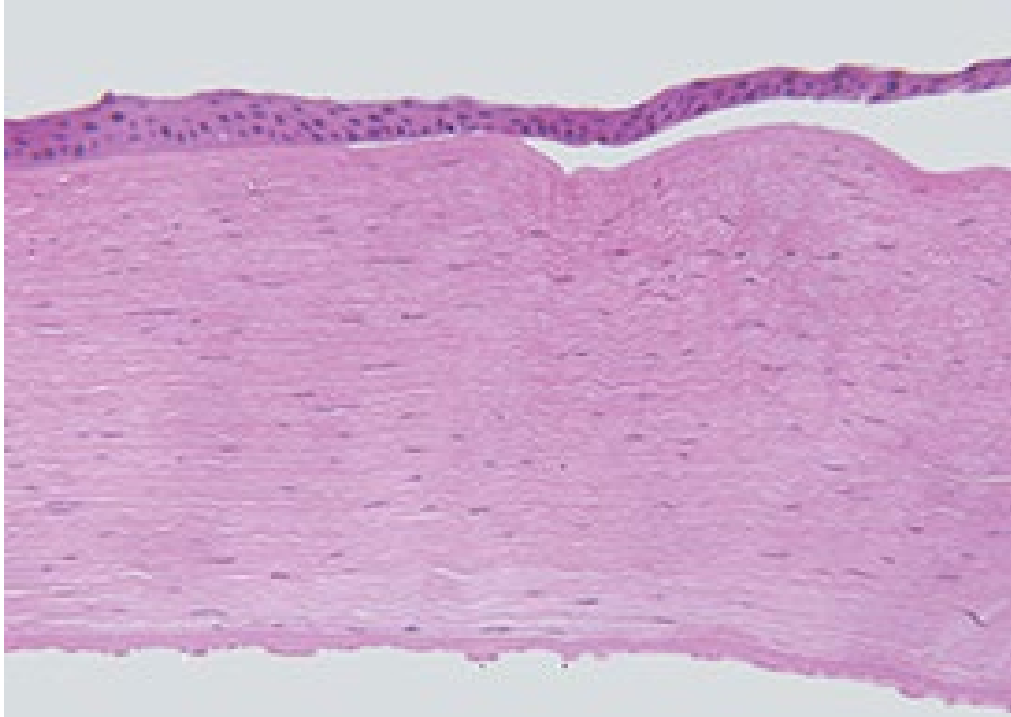
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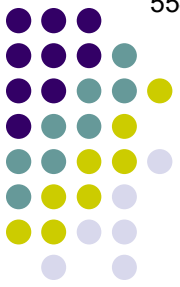
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Turning our attention to the posterior cornea:



Pathwatching



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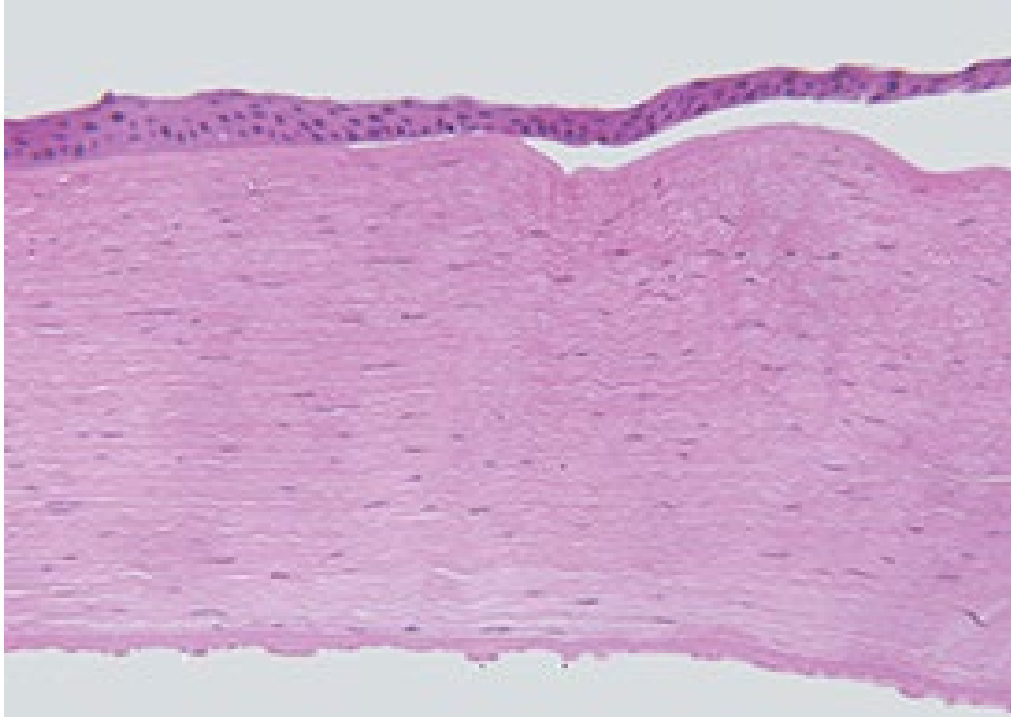
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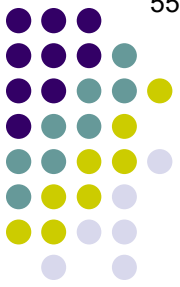
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Turning our attention to the posterior cornea:

--Descemet's appears a bit thinned vs thickened
(admittedly this is a tough call to make)



Pathwatching



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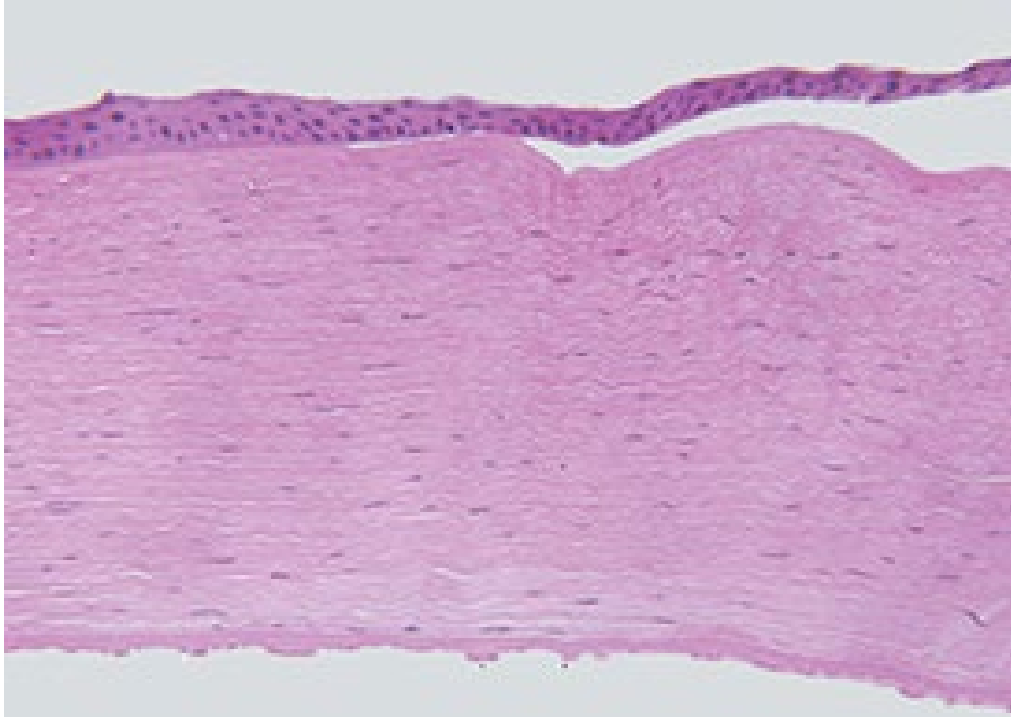
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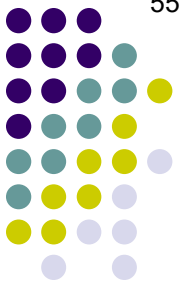
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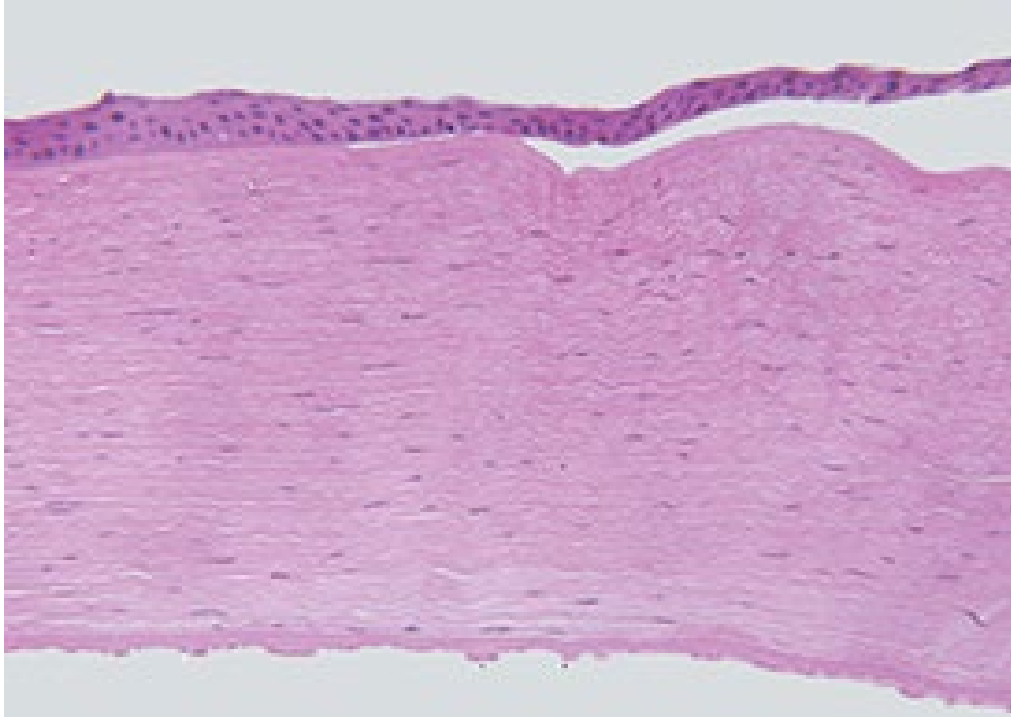
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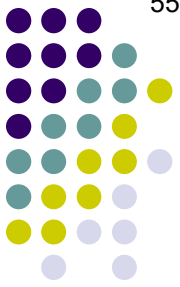
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Pathwatching



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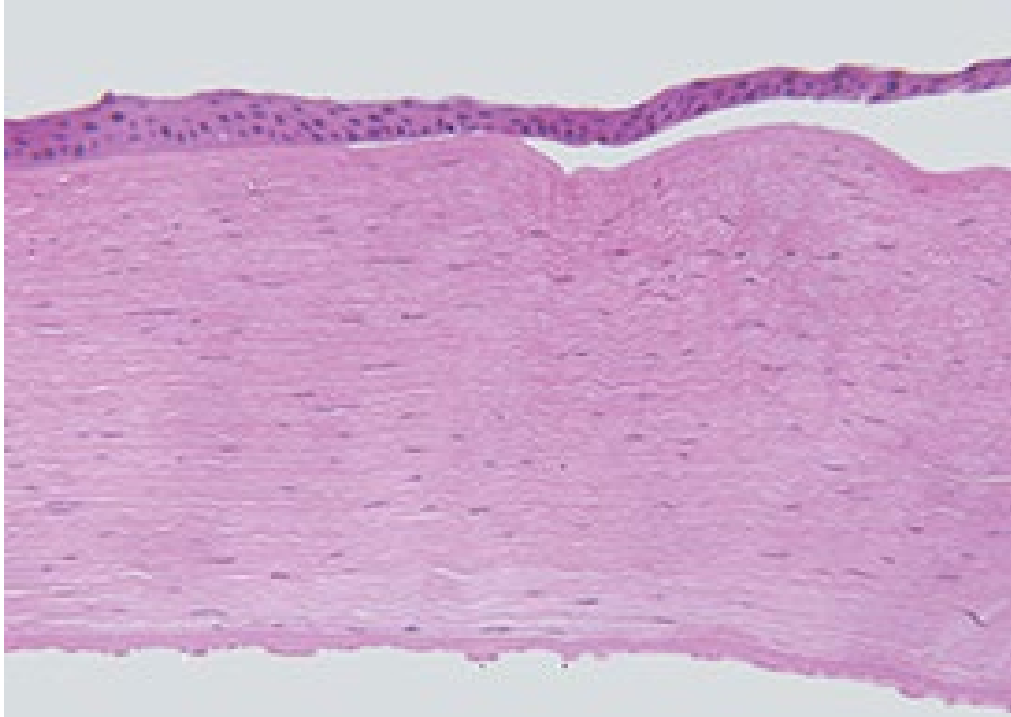
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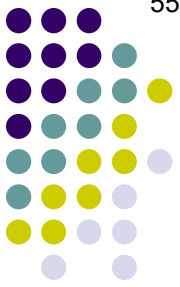
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Pathwatching



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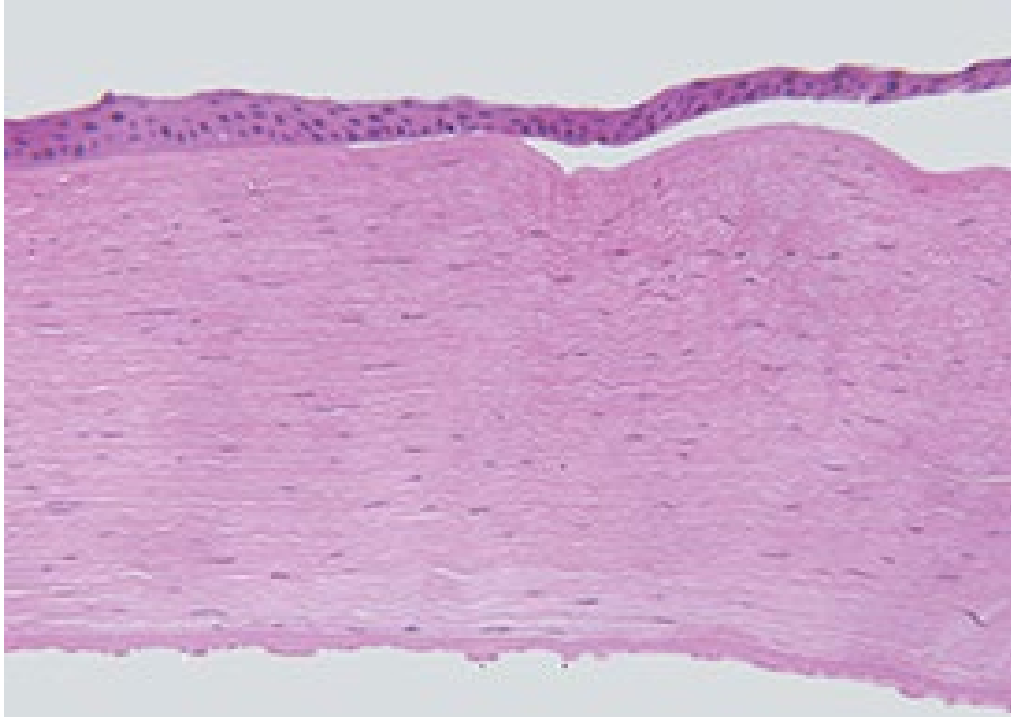
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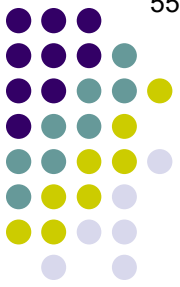
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Pathwatching



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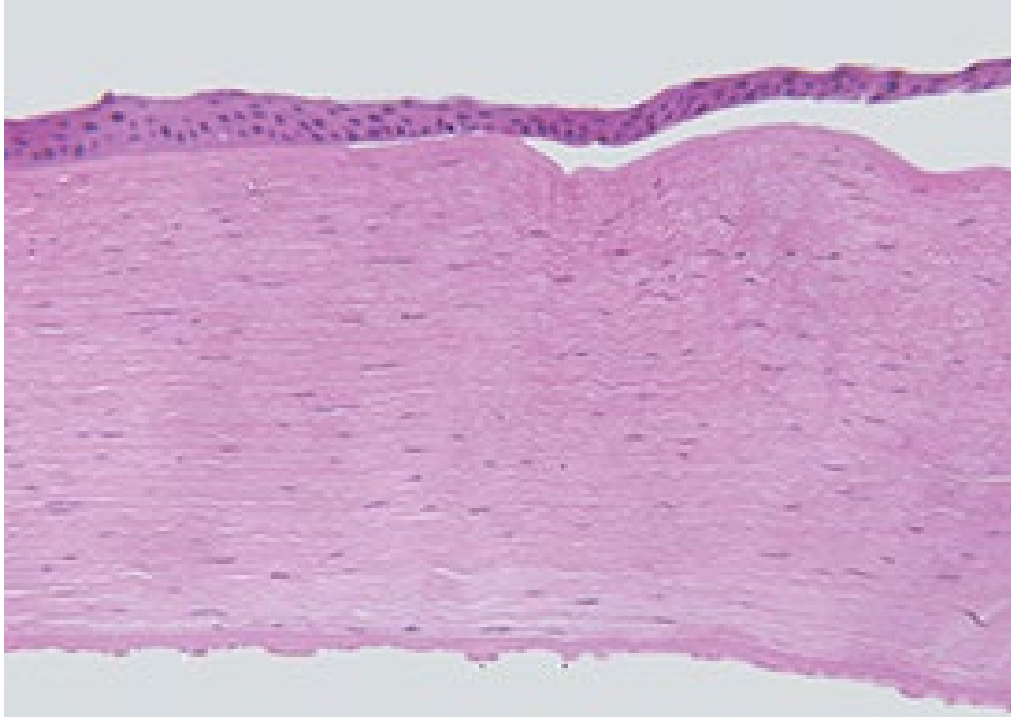
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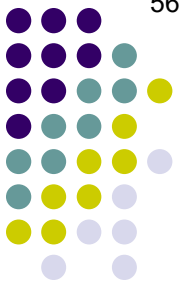
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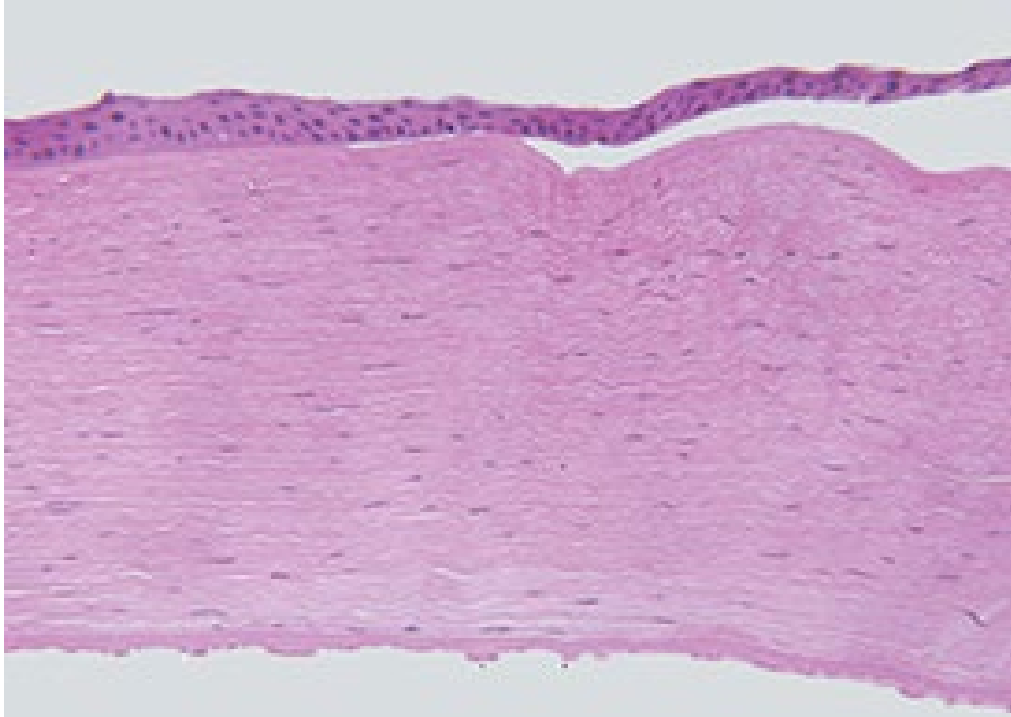
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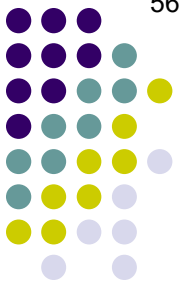
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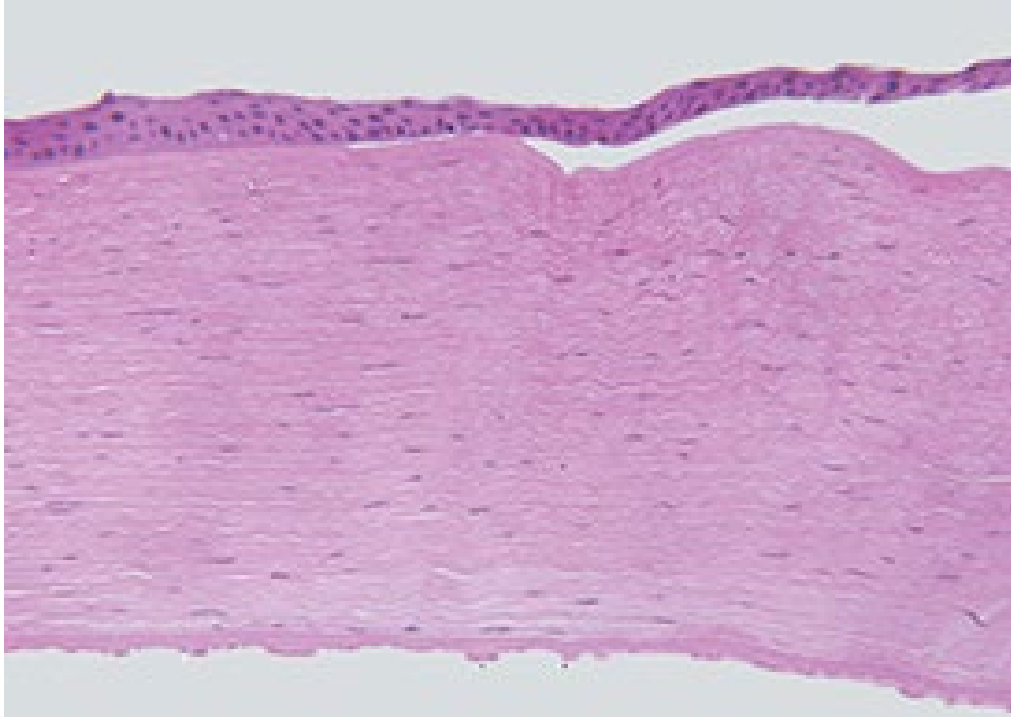
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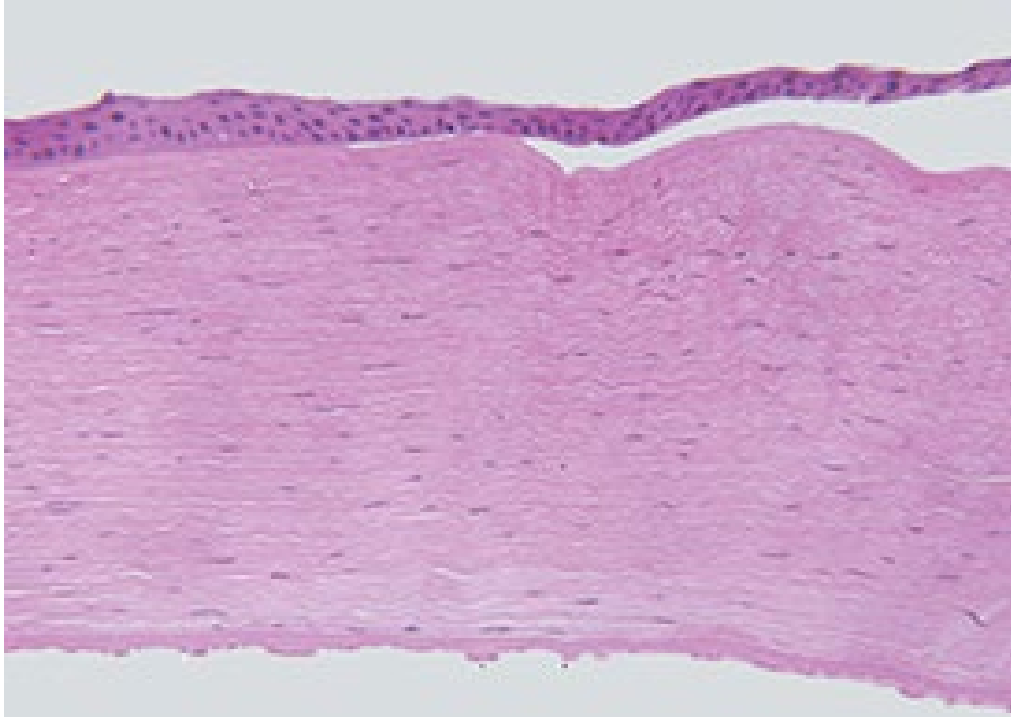
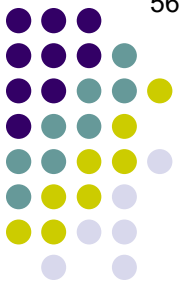
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Pathwatching



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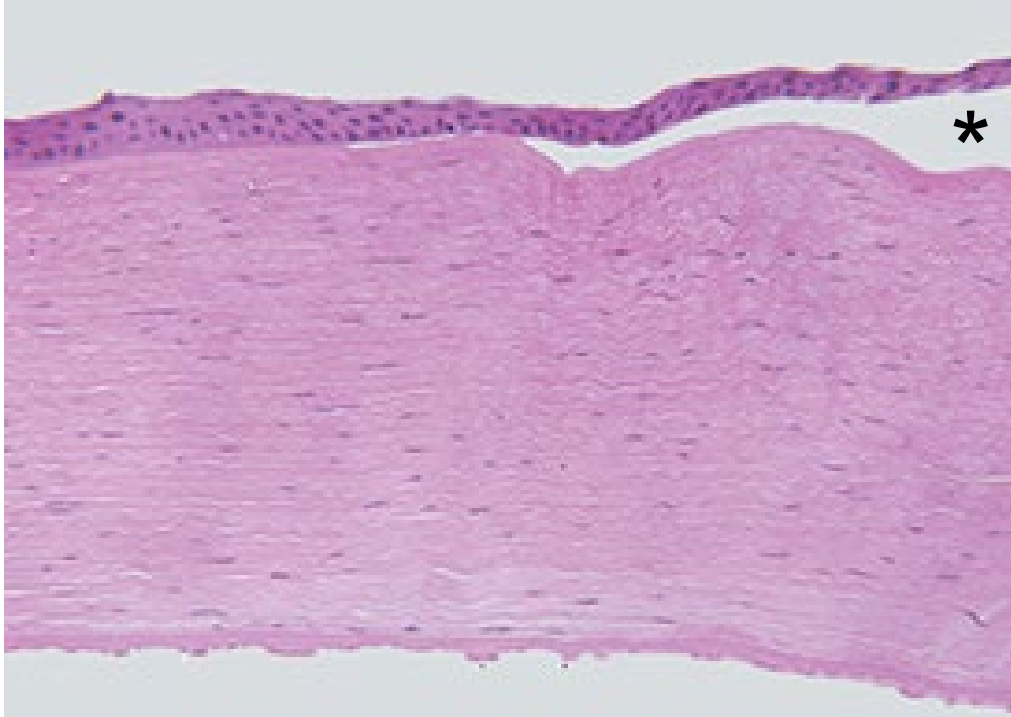
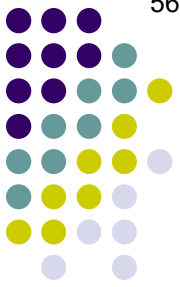
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Guttata + absent endo cells + stromal changes c/w edema + epi changes c/w edema points toward one dx:

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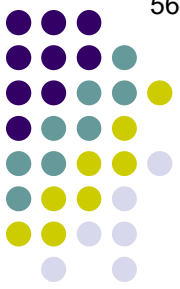
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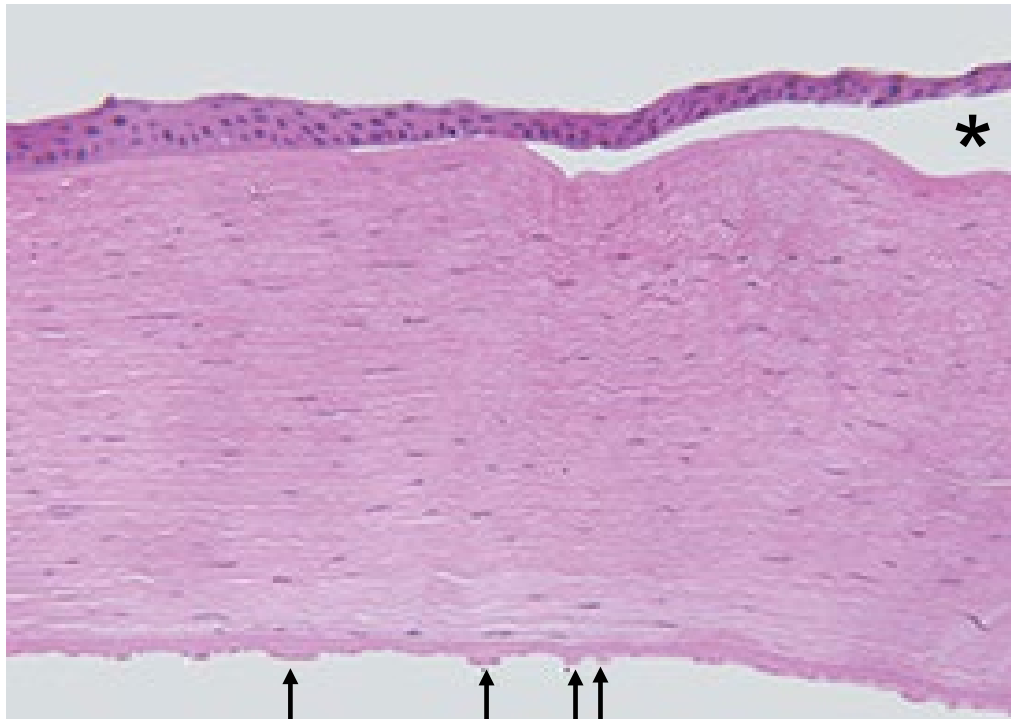
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Fuchs endothelial corneal dystrophy (FECD) is characterized by corneal edema, which can be severe enough to produce epithelial bullae (as in this example, *asterisk*).



Pathwatching



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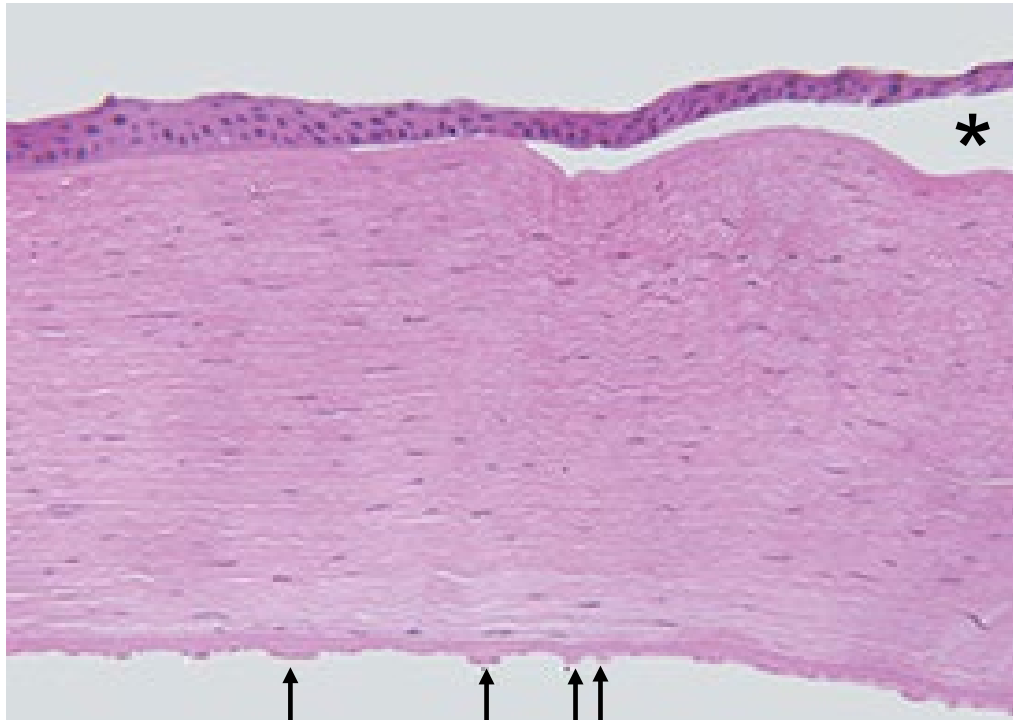
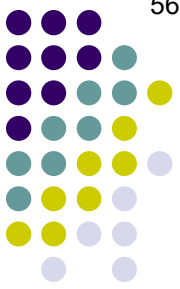
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Fuchs endothelial corneal dystrophy (FECD) is characterized by corneal edema, which can be severe enough to produce epithelial bullae (as in this example, *asterisk*). **Descemet's becomes irregularly thickened, and guttae develop on it (arrows).**

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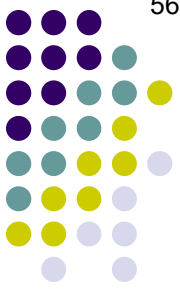
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Fuchs endothelial corneal dystrophy (FECD) is characterized by corneal edema, which can be severe enough to produce epithelial bullae (as in this example, *asterisk*). **Descemet's becomes irregularly thickened, and guttae develop on it (arrows)**. The underlying pathology is loss of endothelial cell function and viability.



Pathwatching

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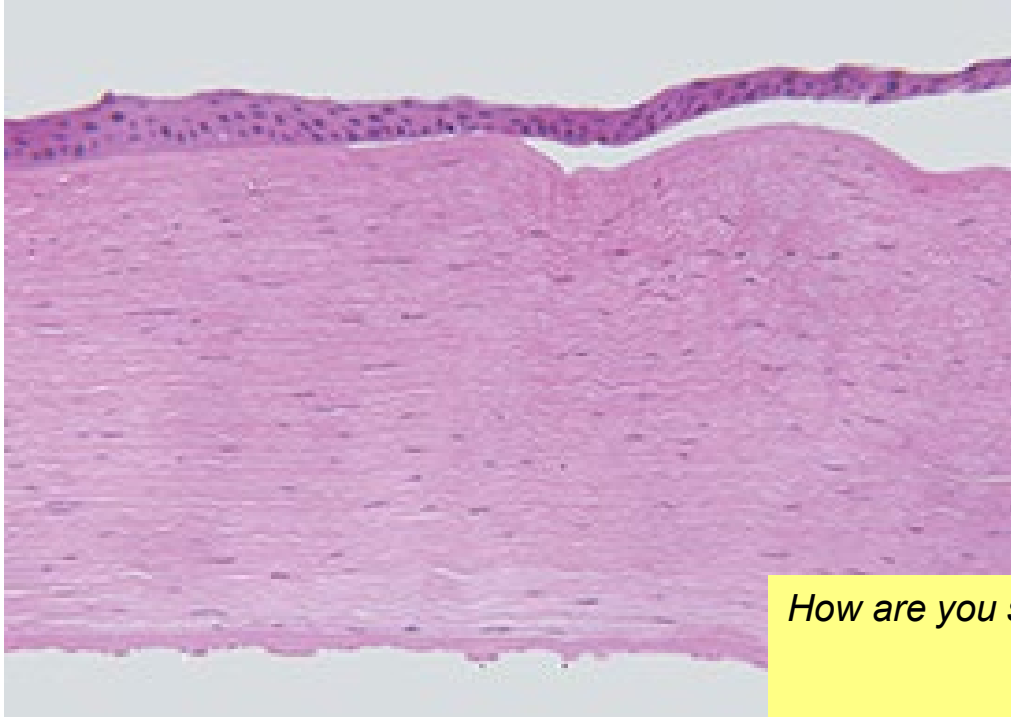
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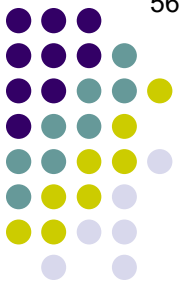
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How are you supposed to know the endothelial cell count is low?

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Fuchs endothelial corneal dystrophy (Fuchs' dystrophy) is a severe enough to produce epithelial bullae, which are irregularly thickened, and guttae develop on it (*arrows*). The underlying pathology is loss of endothelial cell function and viability.





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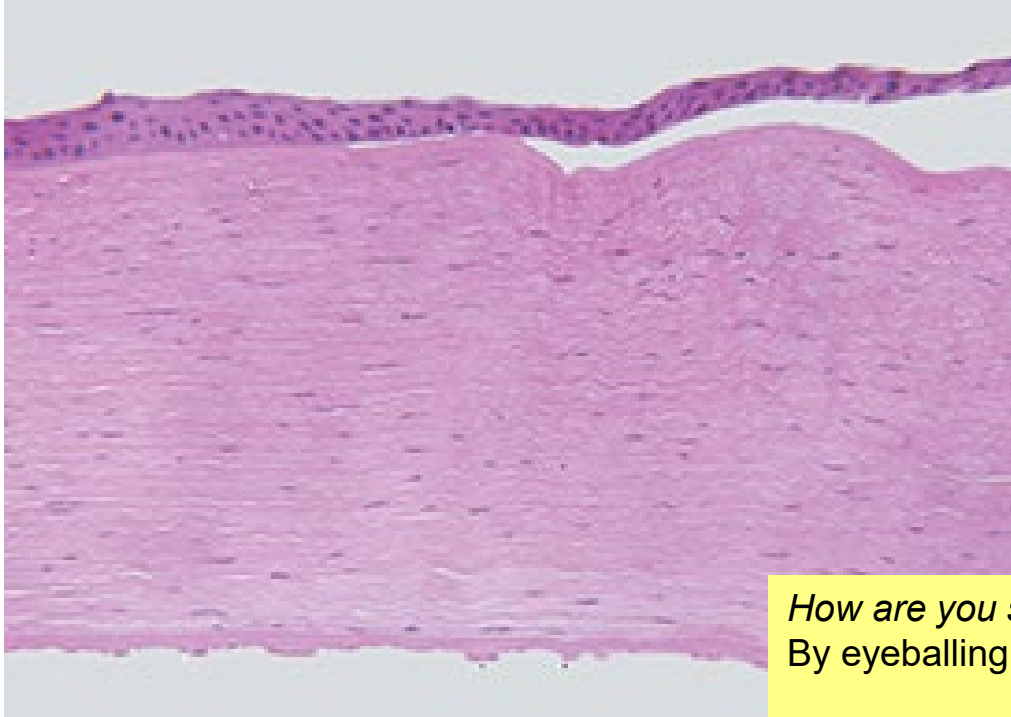
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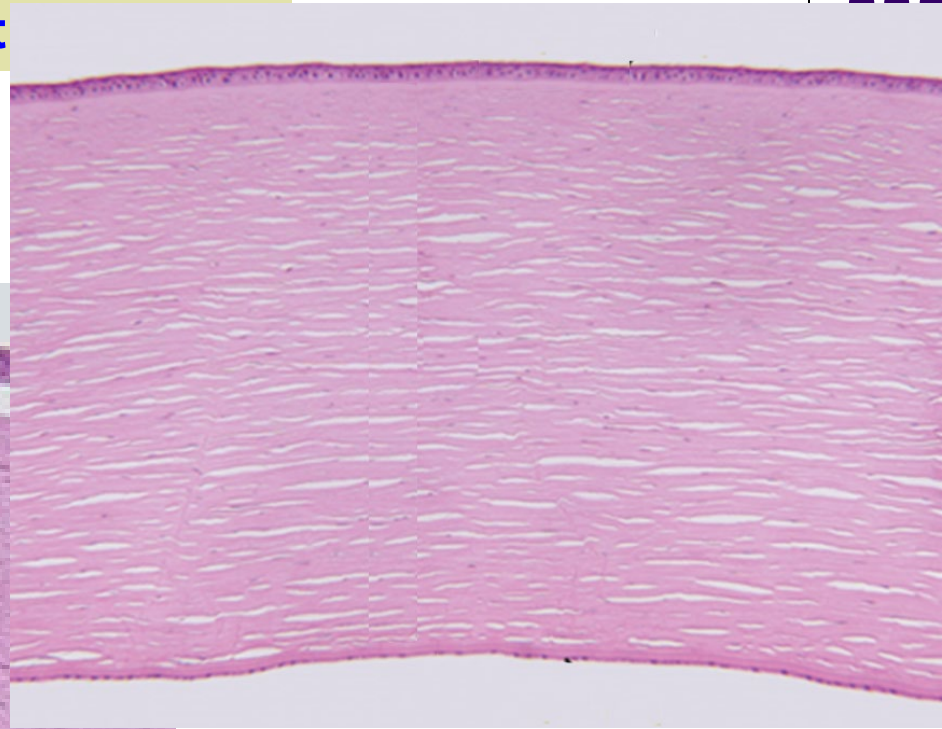
*How are you supposed to know the endothelial cell count is low?
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Pat



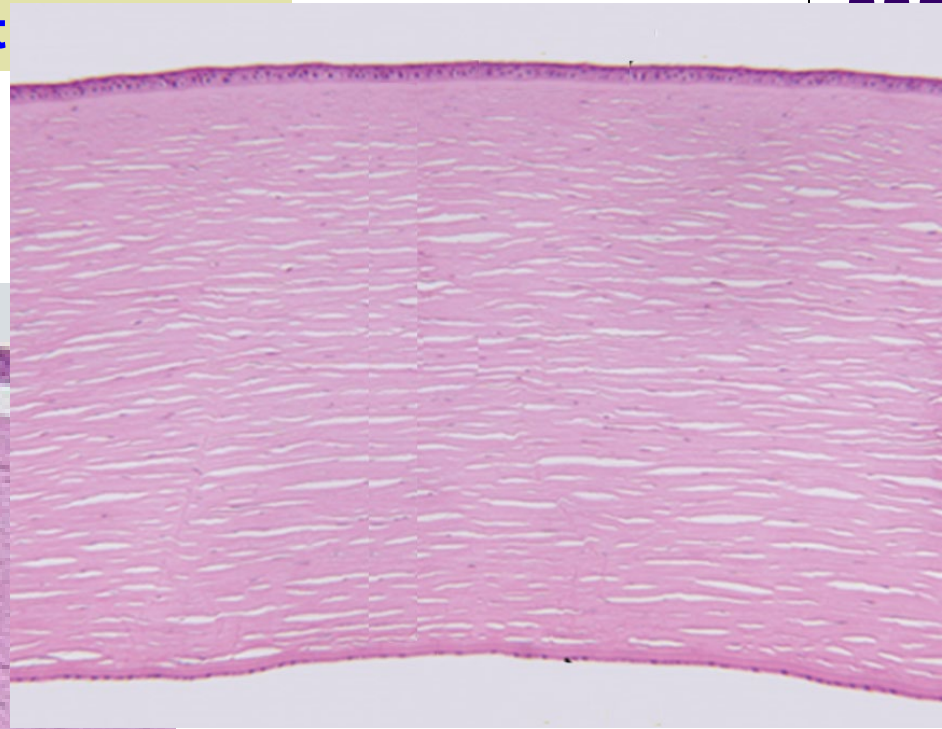
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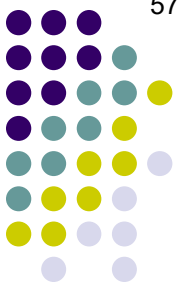


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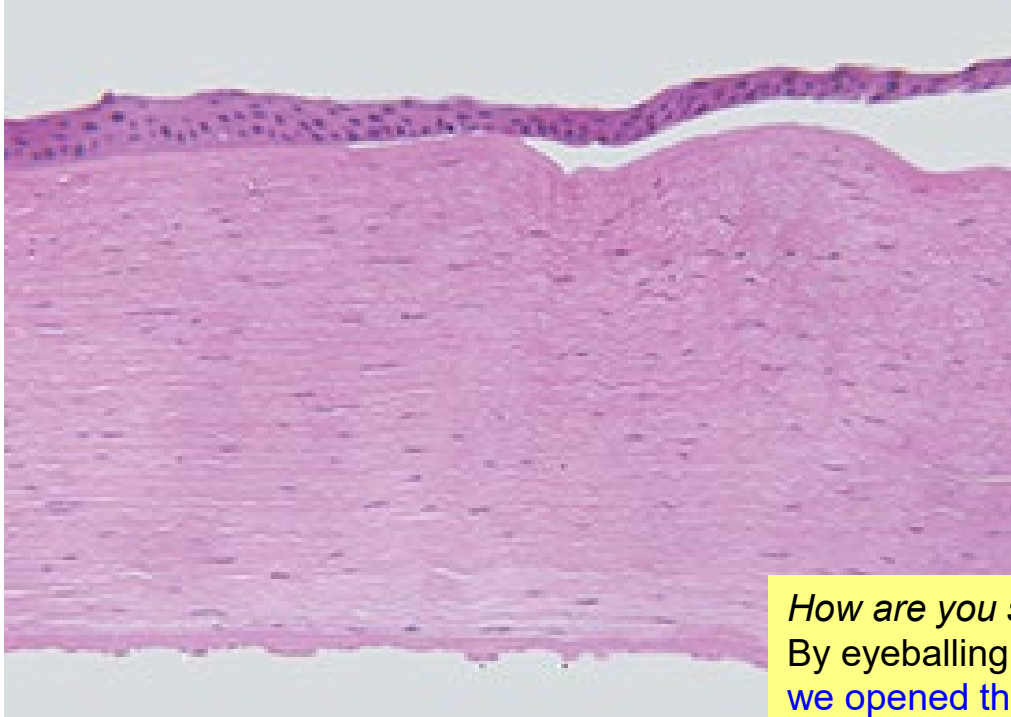
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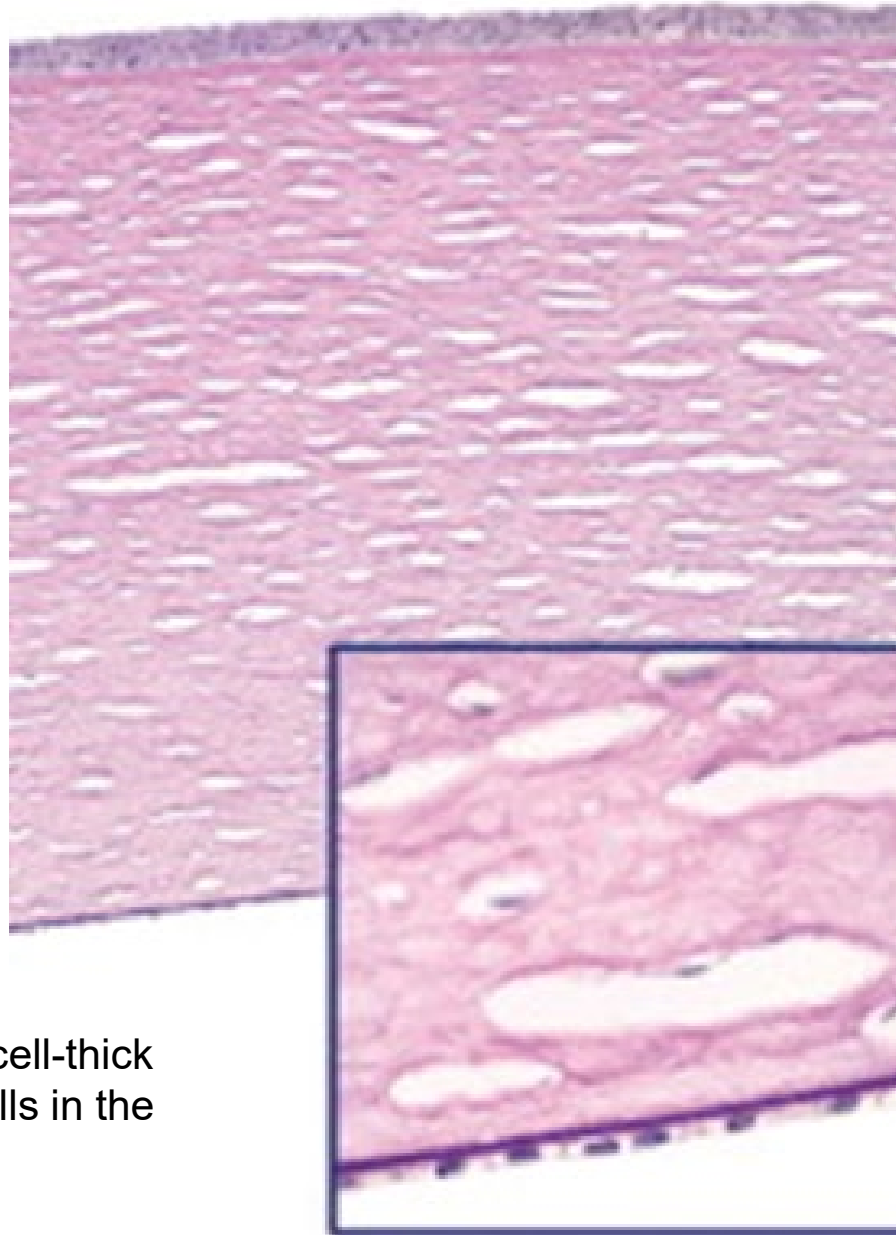


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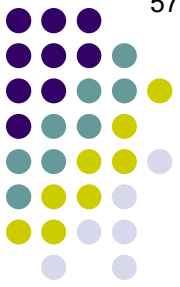
Fuchs endothelial corneal dystrophy (if severe enough to produce epithelial bullae) is characterized by an irregularly thickened, and guttae develop on it (*arrows*). The underlying pathology is loss of endothelial cell function and viability.

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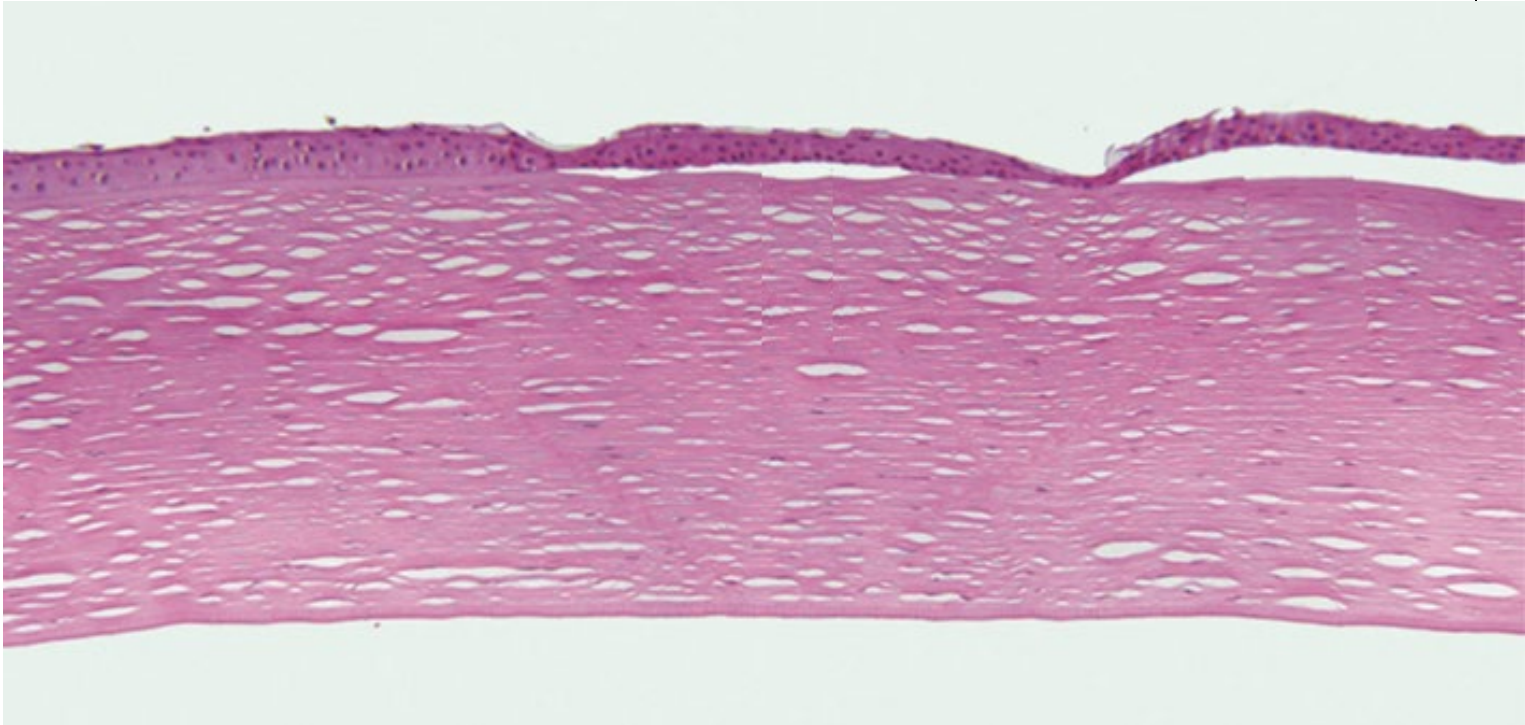
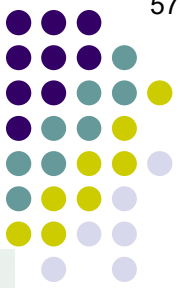
Pathwatching



Another view of the single-cell-thick nature of the endothelial cells in the normal human cornea



Pathwatching



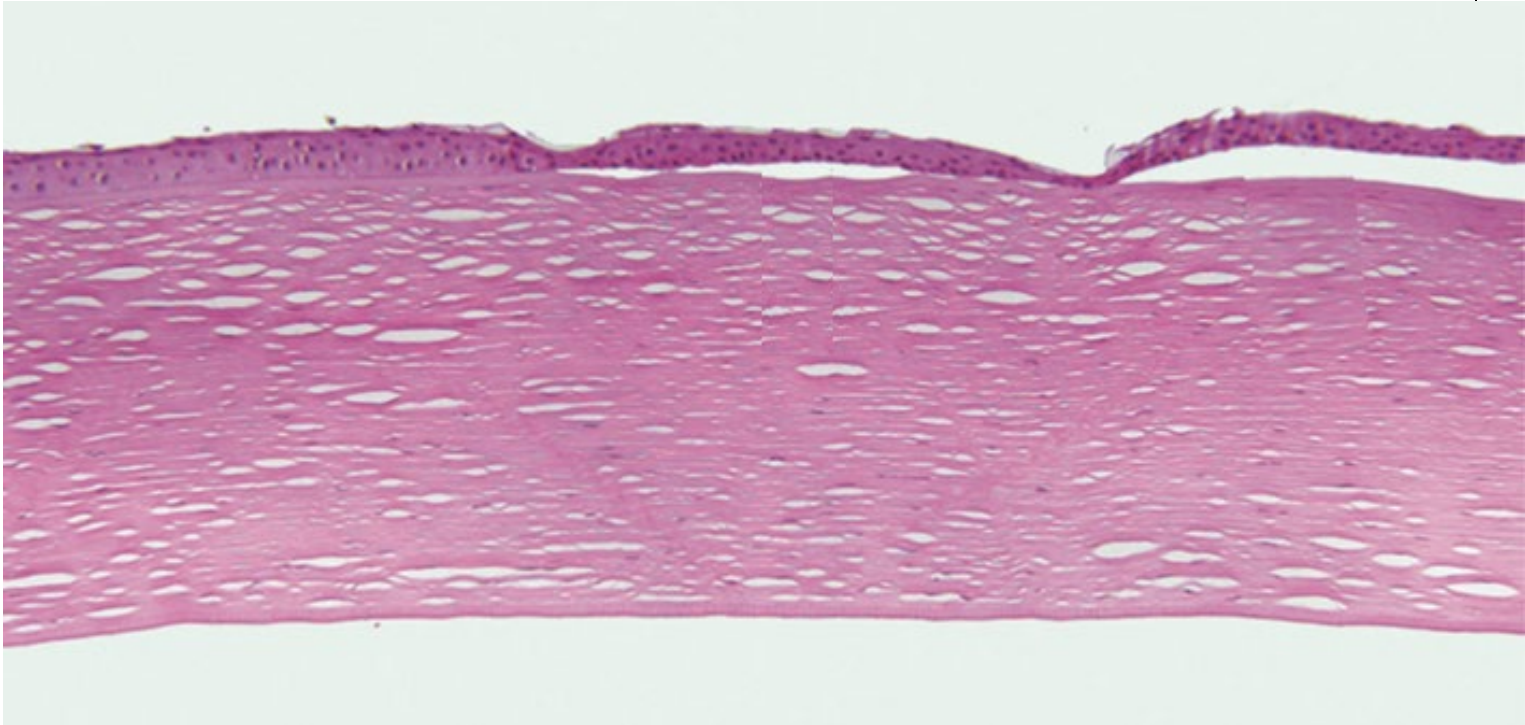
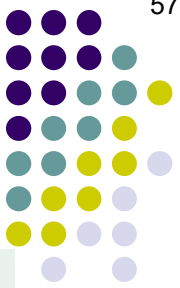
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--?

--?

--?

Pathwatching



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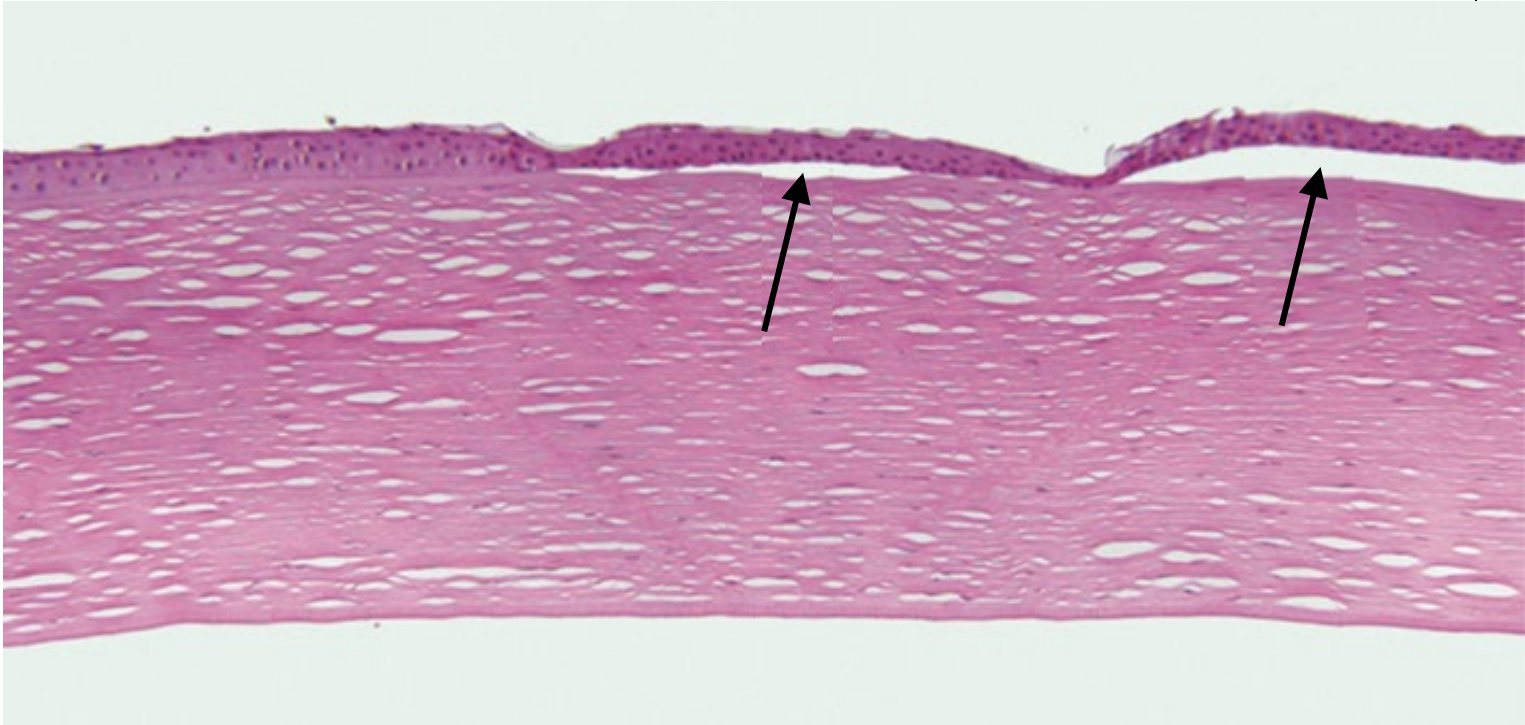
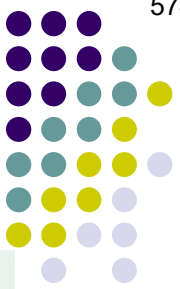
--Epithelial



--?

--?

Pathwatching



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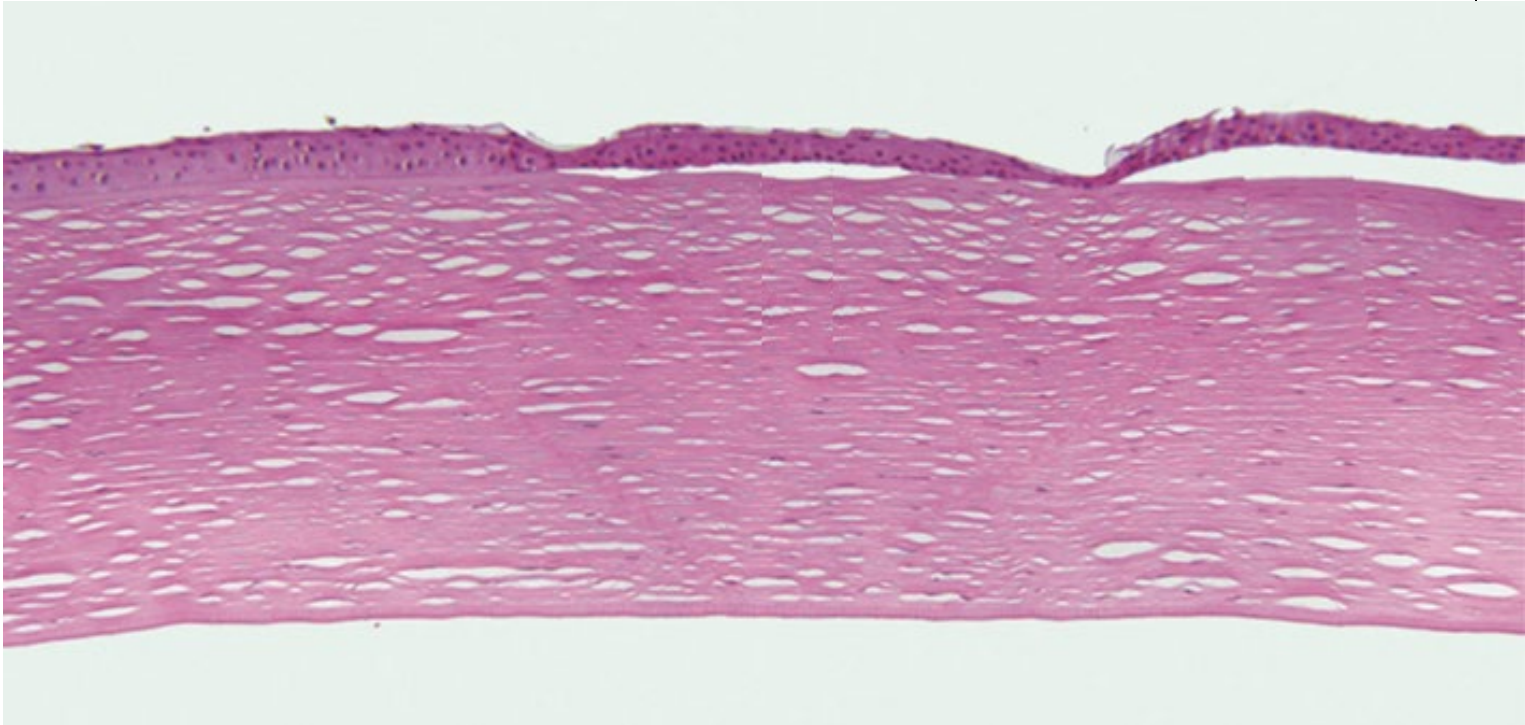
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--?

--?

Pathwatching



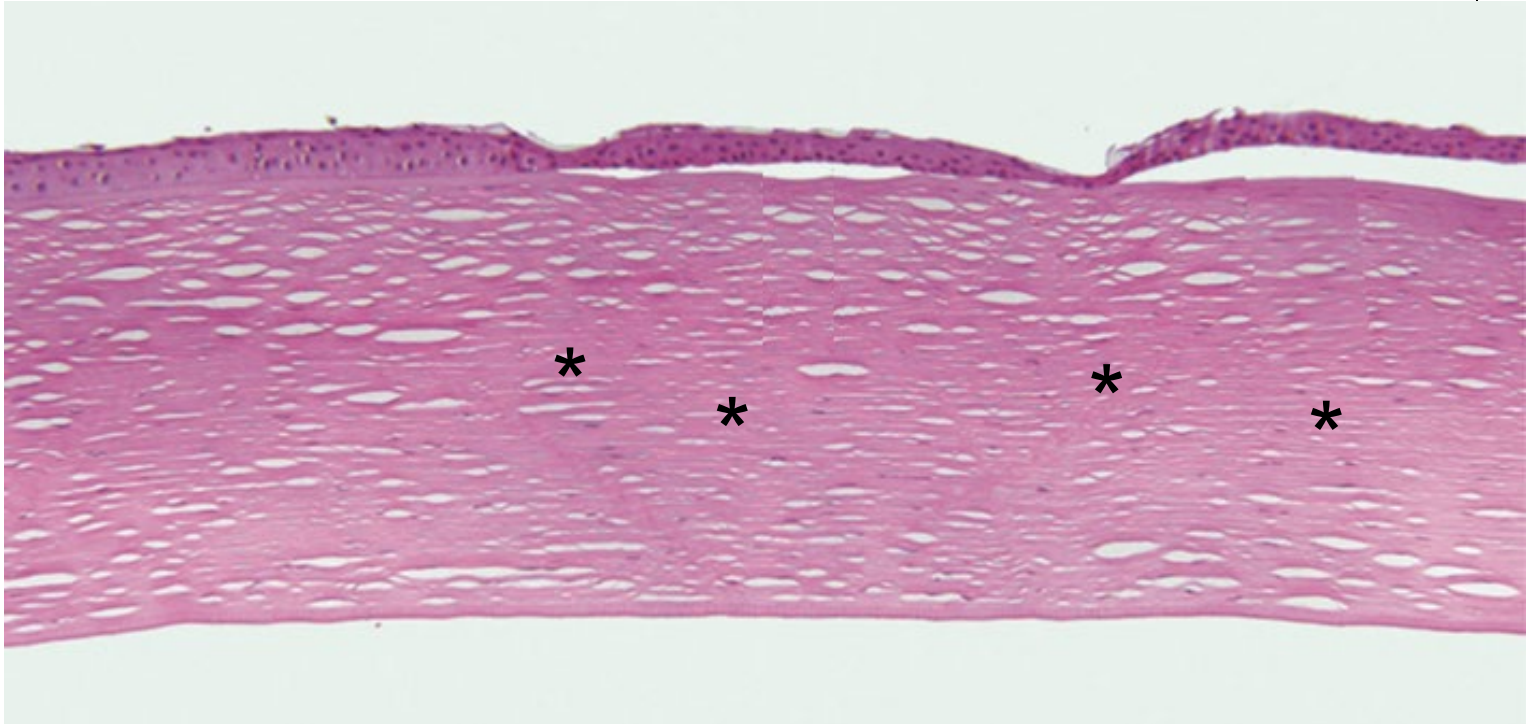
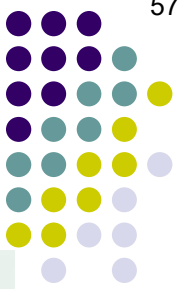
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Pathwatching



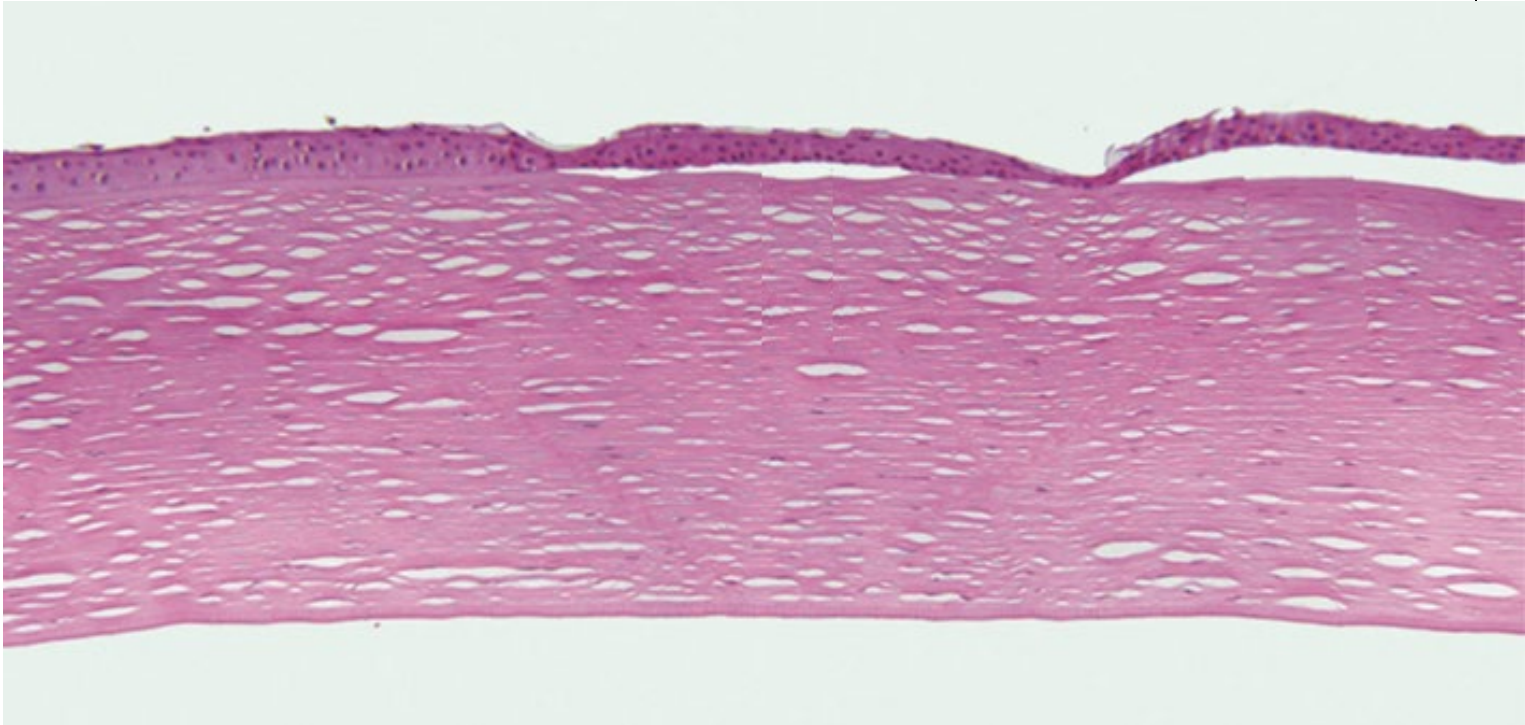
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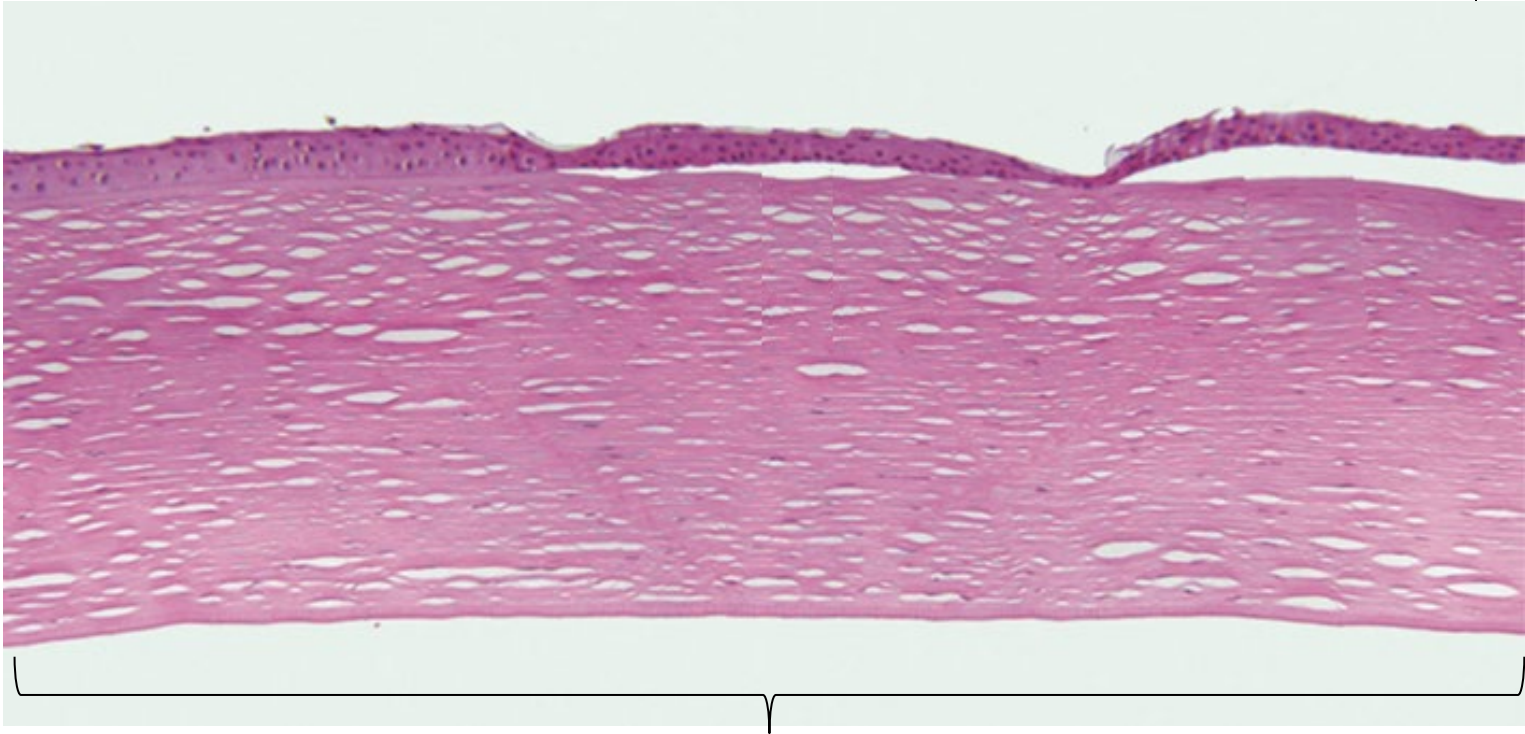
Pathwatching



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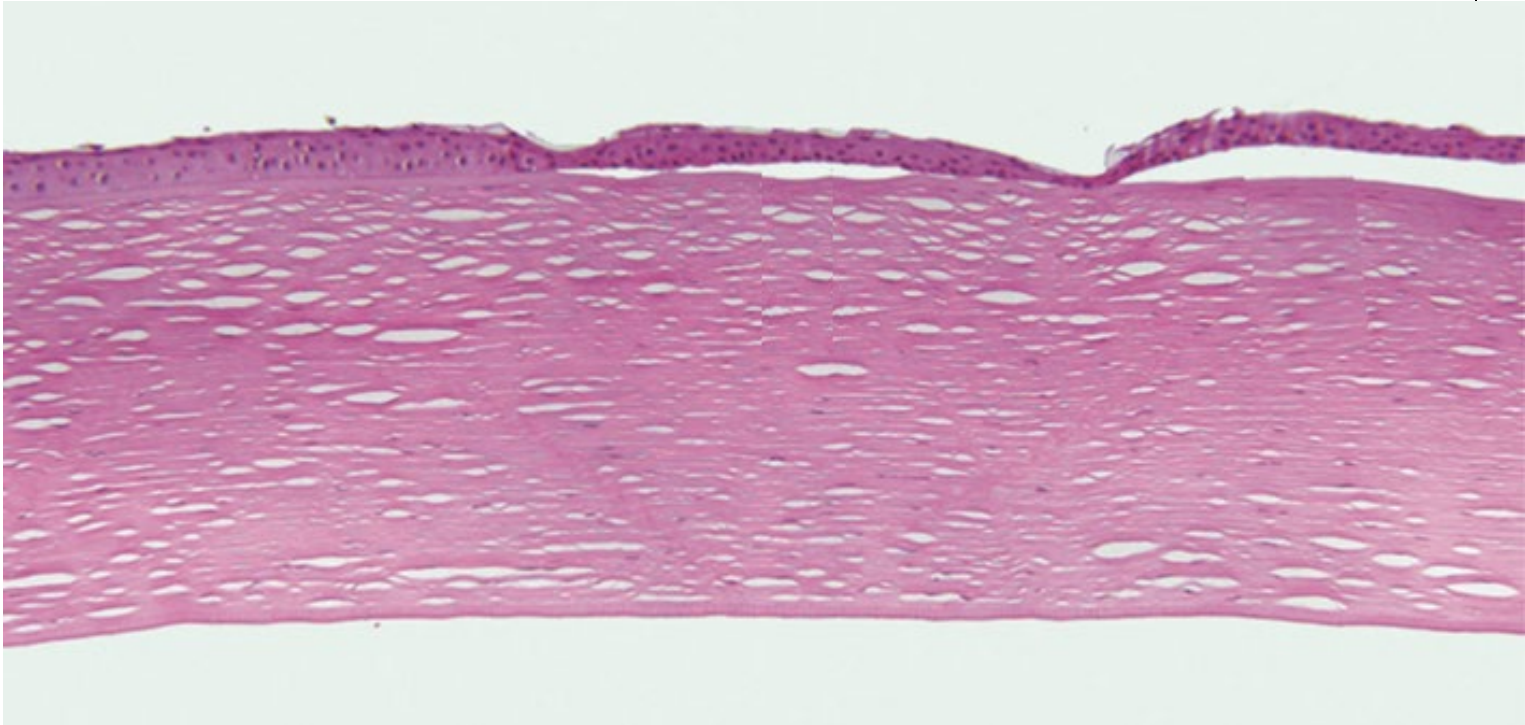
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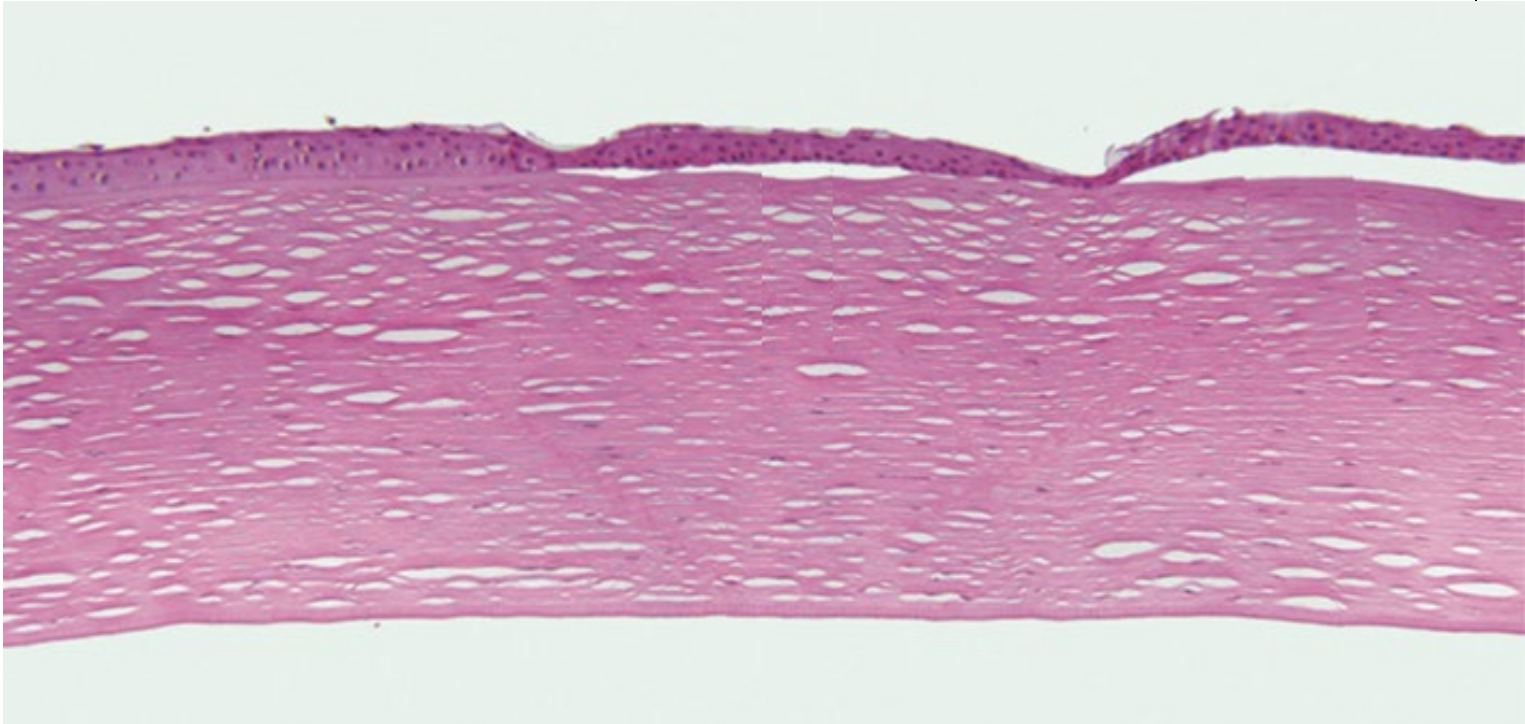
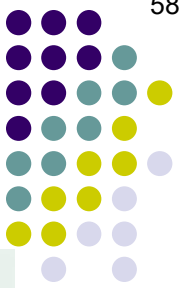
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But it mos def *isn't* FECD. *How can you tell?*

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--?

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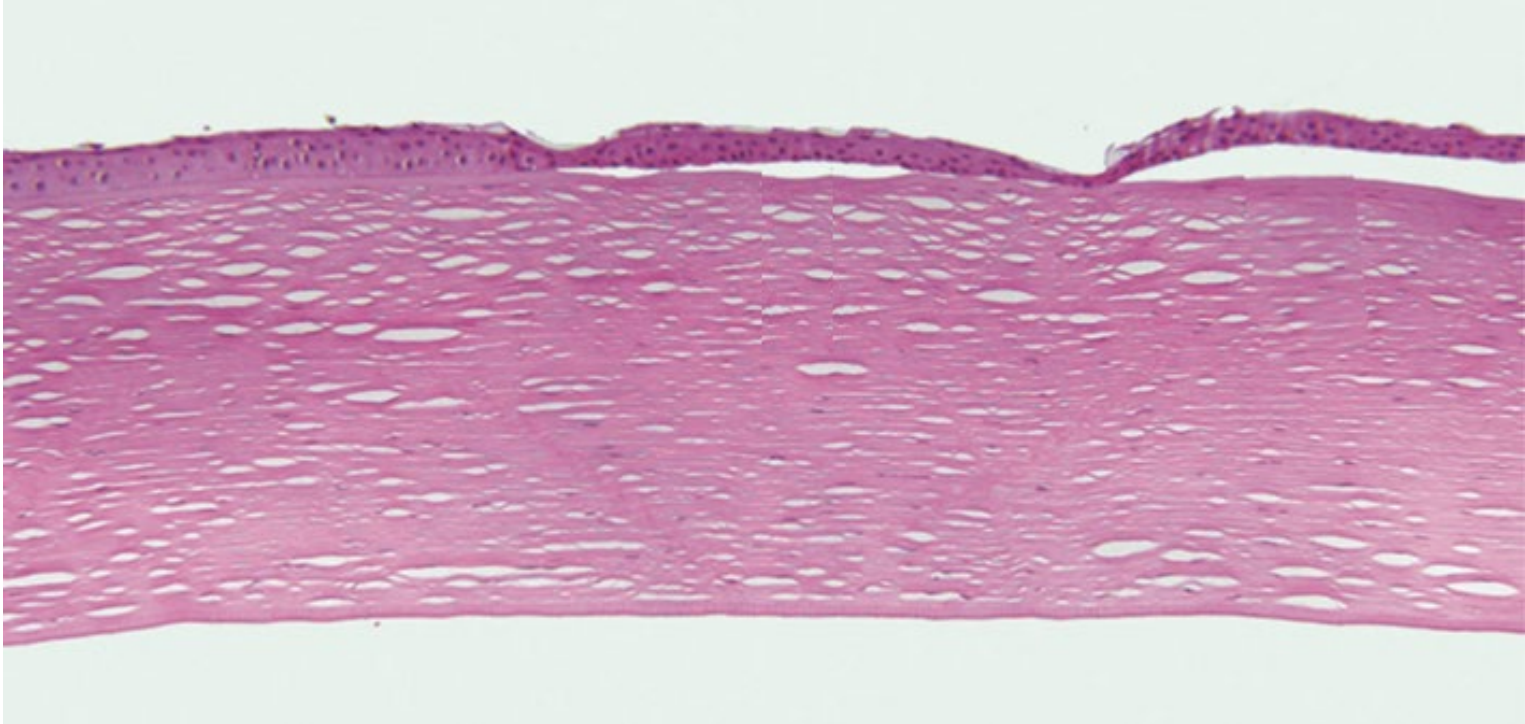
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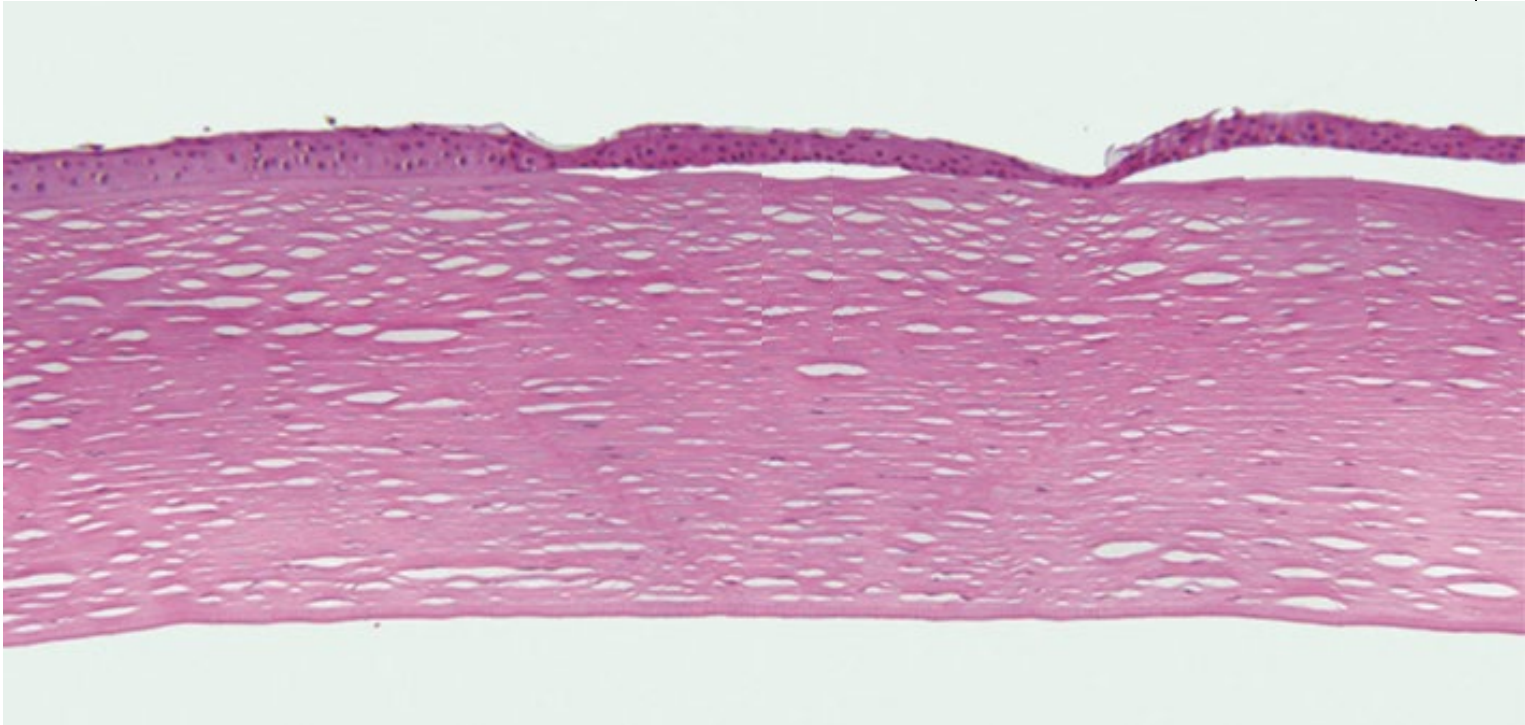
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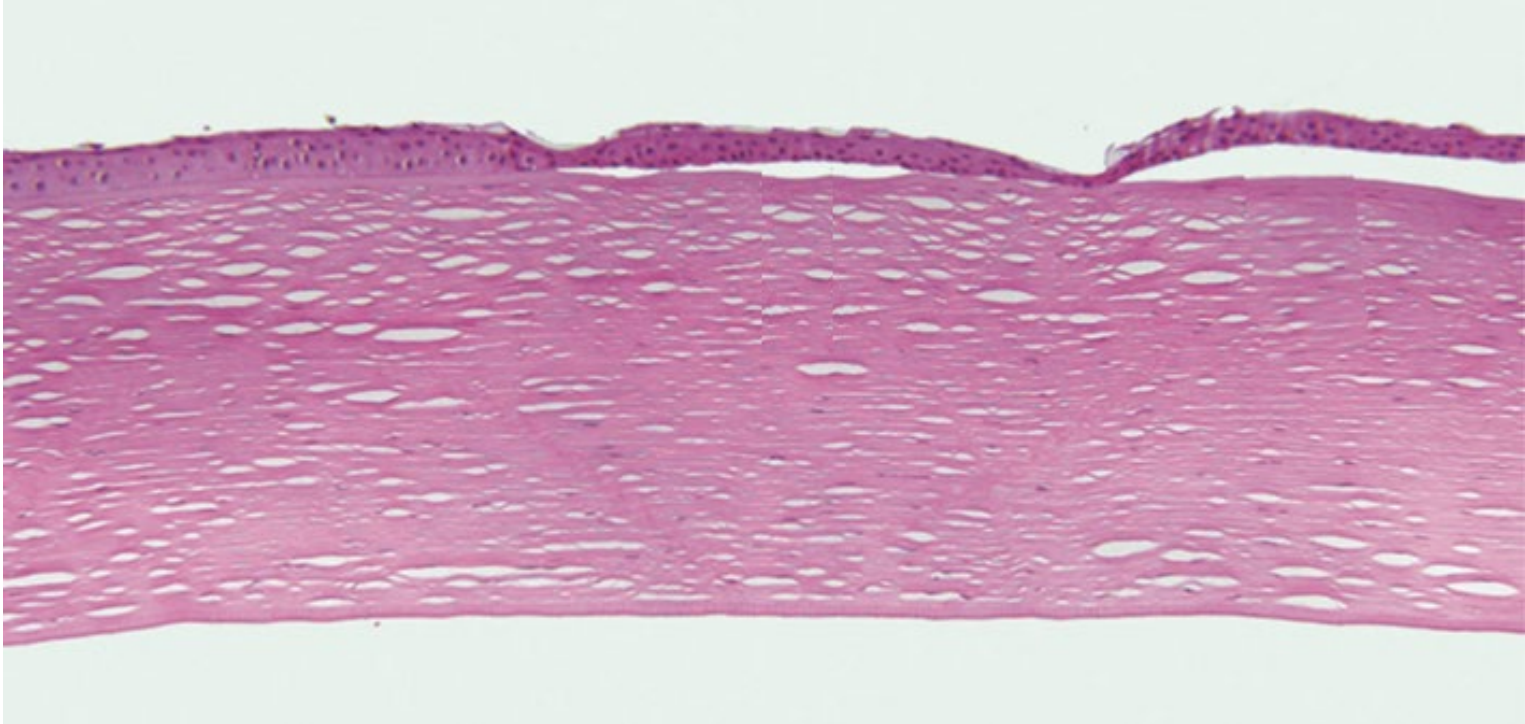
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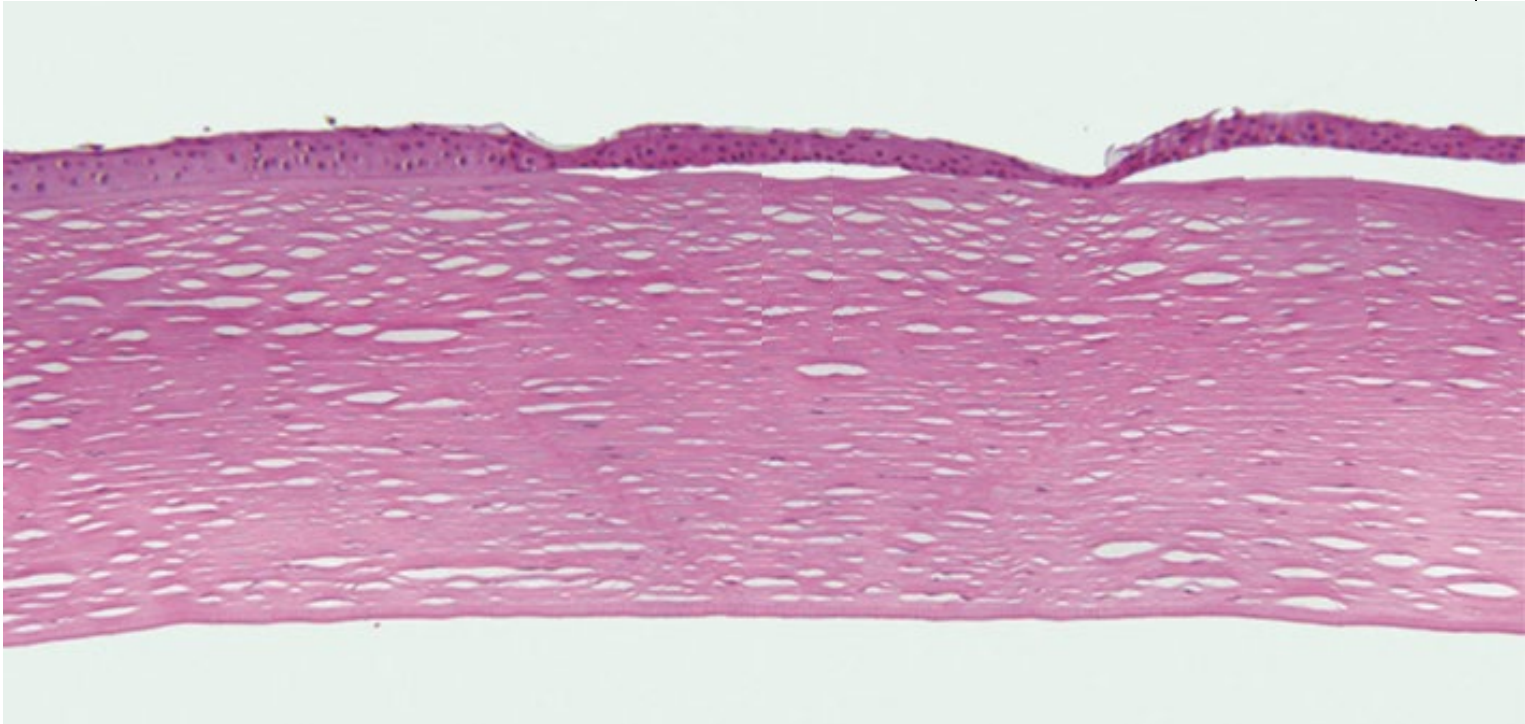
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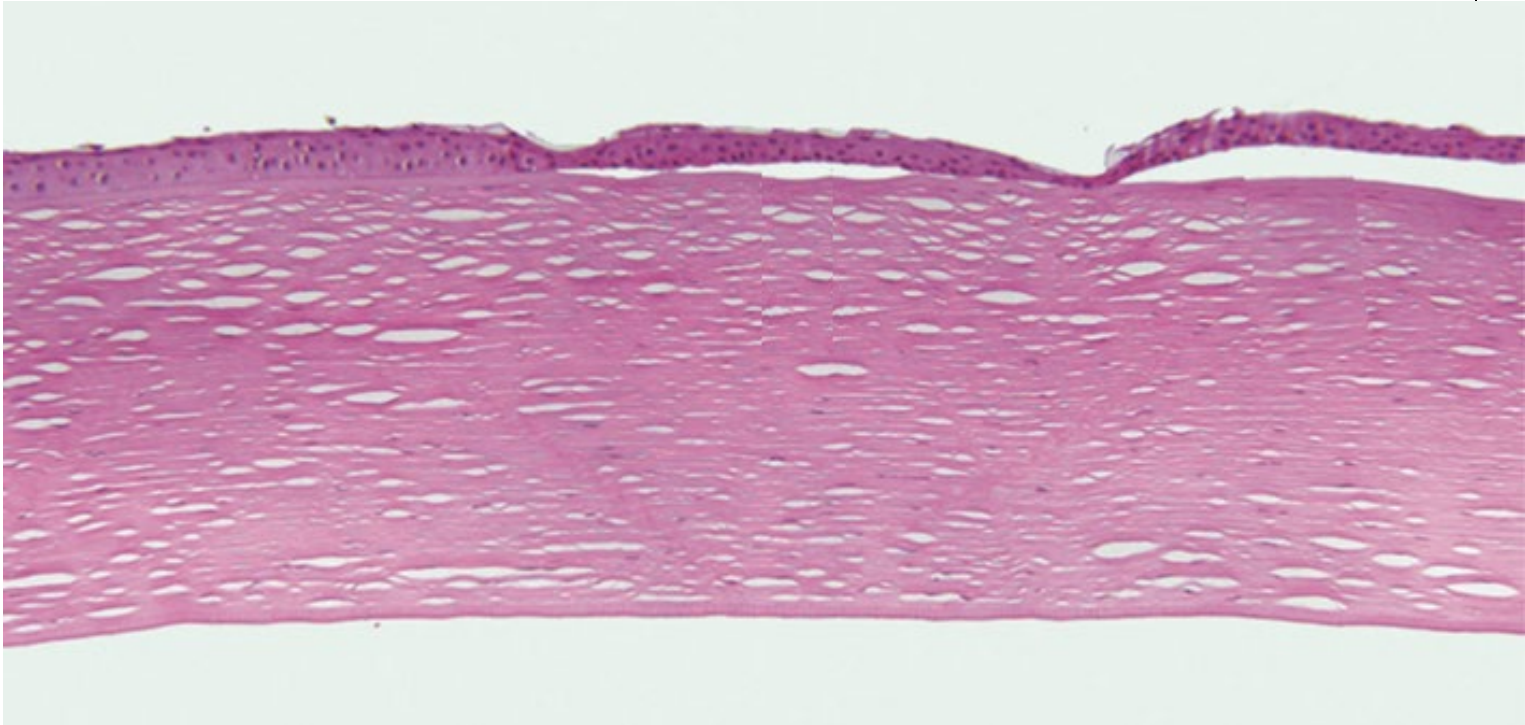
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Pathwatching

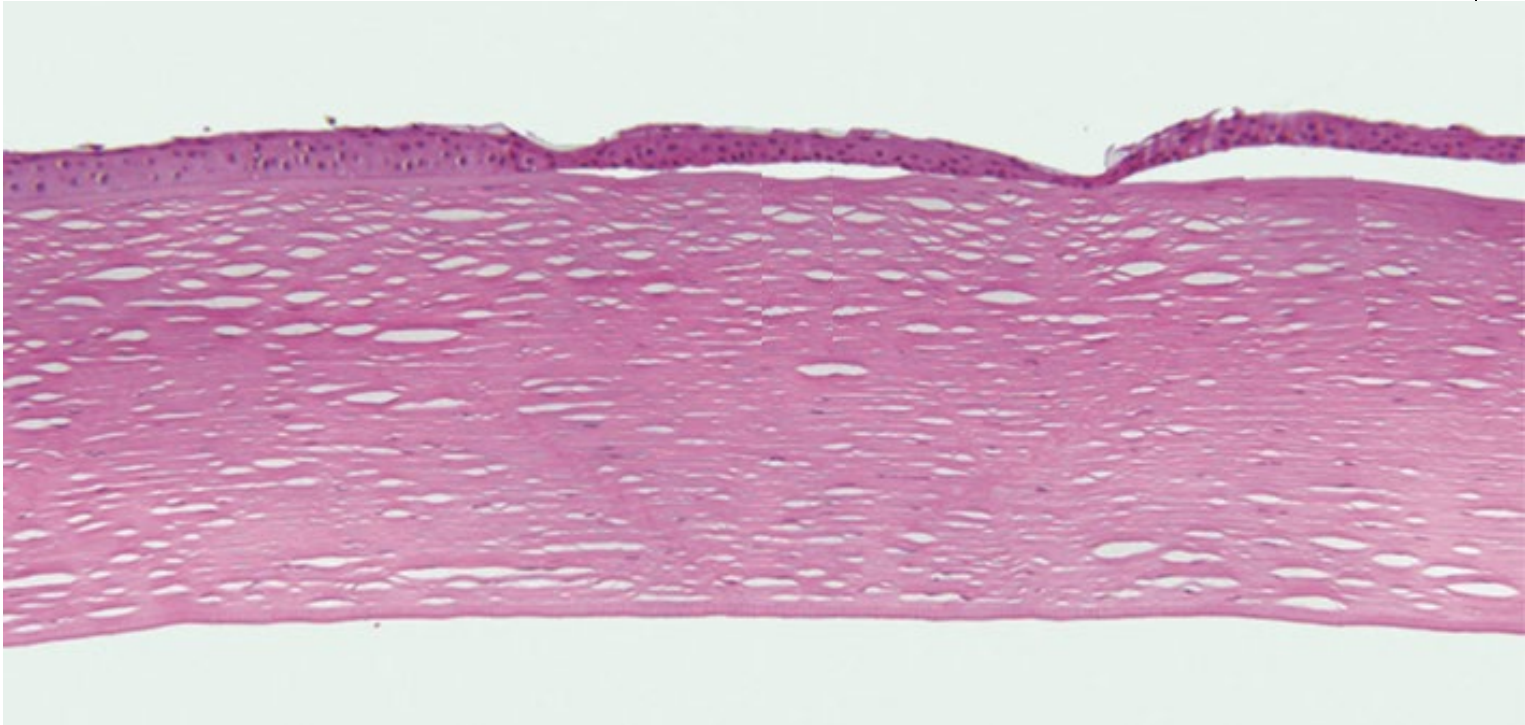


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So, this is a case of bullous keratopathy 2ndry to endothelial-cell loss, but it's not FECD.

Pathwatching



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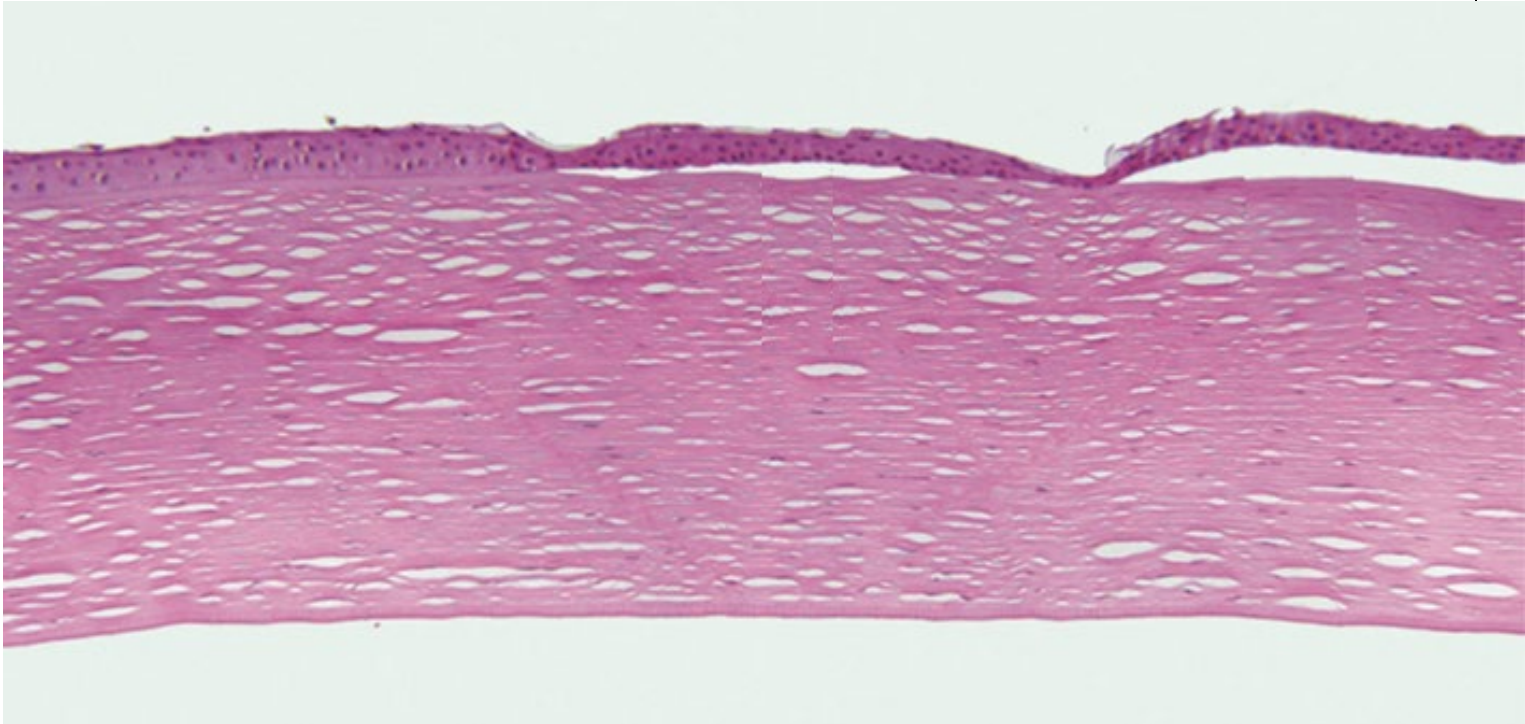
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Pathwatching



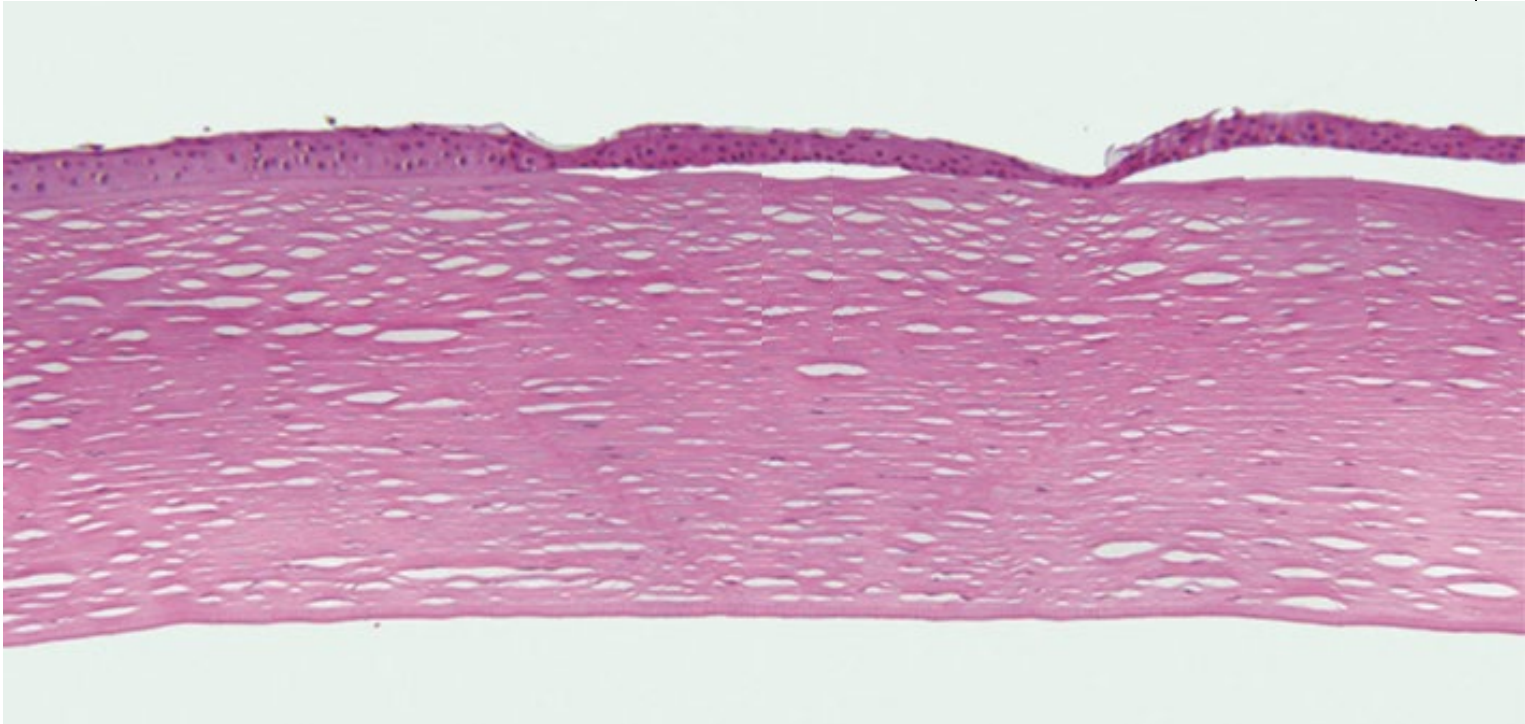
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So, this is a case of bullous keratopathy 2ndry to endothelial-cell loss, but it's not FECD. What then is the most likely cause?

Pseudophakic bullous keratopathy (PBK), which is in fact what's going on here.

Pathwatching

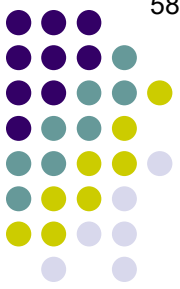


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Pseudophakic bullous keratopathy (PBK), which is in fact what's going on here. [The key to differentiating PBK from FECD is in noting the presence vs absence of guttata.](#)



Pathwatching



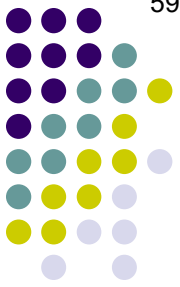
Before we get started, *note*: All this clefting is artifactual (and not the good kind we've been relying on). Just ignore it.

Pathwatching

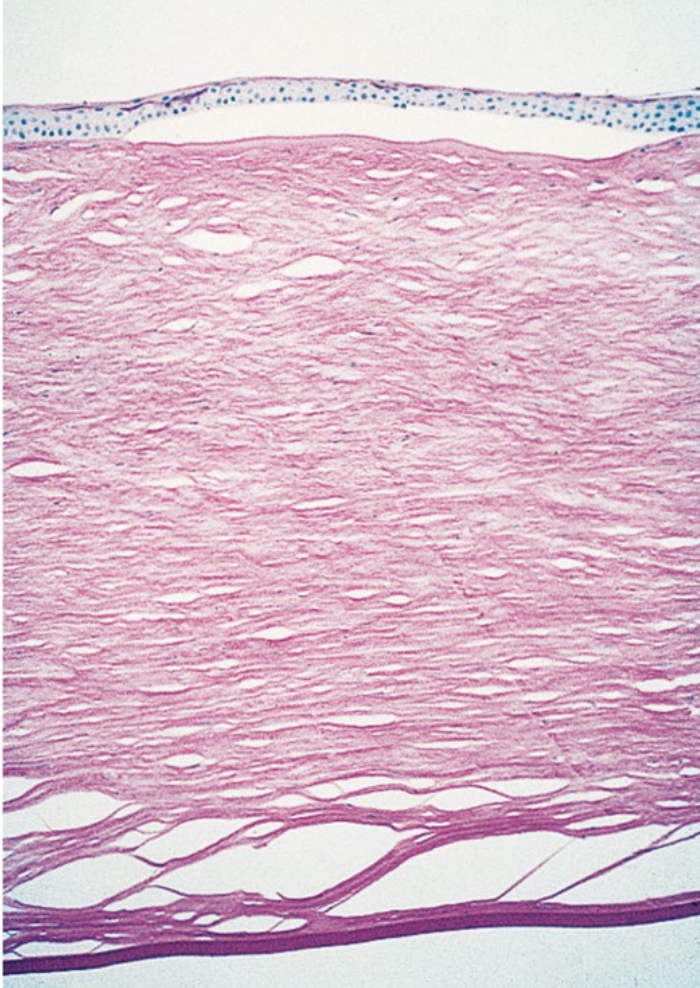


Here we have what seems like another case of PBK, as we have:

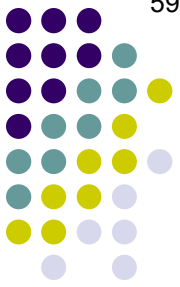
- ?
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- ?

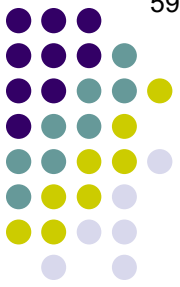


Pathwatching



- Here we have what seems like another case of PBK, as we have:
- Epithelial bullae
 - Loss of stromal clefing c/w edema
 - The absence of endothelial cells
 - No guttata





Pathwatching



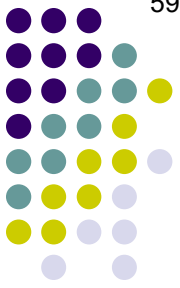
Here we have what seems like another case of PBK, as we have:

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But it *isn't* PBK; rather, it is

words 1-3 of 4

word 4



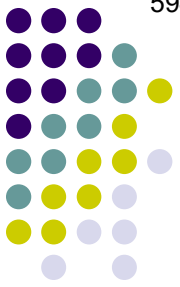
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Here we have what seems like another case of PBK, as we have:

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- Loss of stromal clefting c/w edema
- The absence of endothelial cells
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But it *isn't* PBK; rather, it is **congenital hereditary endothelial dystrophy (CHED)** .



Pathwatching

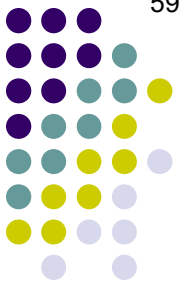


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How can you tell it's CHED and not PBK?



Pathwatching



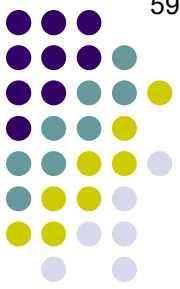
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How can you tell it's CHED and not PBK?

Because unlike in PBK, in CHED is thickened.



Pathwatching



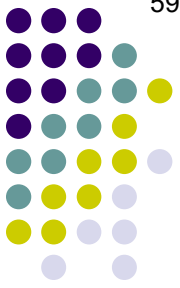
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Because unlike in PBK, in CHED Descemet's is thickened.



Pathwatching



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- Epithelial bullae
- Loss of stromal clefting c/w edema
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But it *isn't* PBK; rather, it is **congenital hereditary endothelial dystrophy (CHED)** .

How can you tell it's CHED and not PBK?

Because unlike in PBK, in CHED Descemet's is thickened.

Again, tough call for those of us who aren't pathologists.

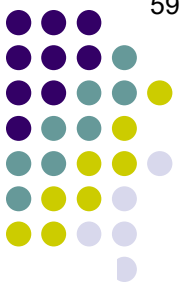
Should you be expected to make this call on a test, I reckon the thickening would be much more obvious than in this pic (eg, see the next slide).

Pathwatching



CHED. Even I can tell Descemet's is thick here.

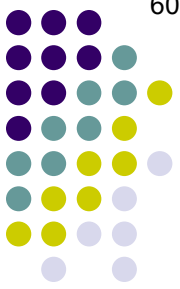
Pathwatching



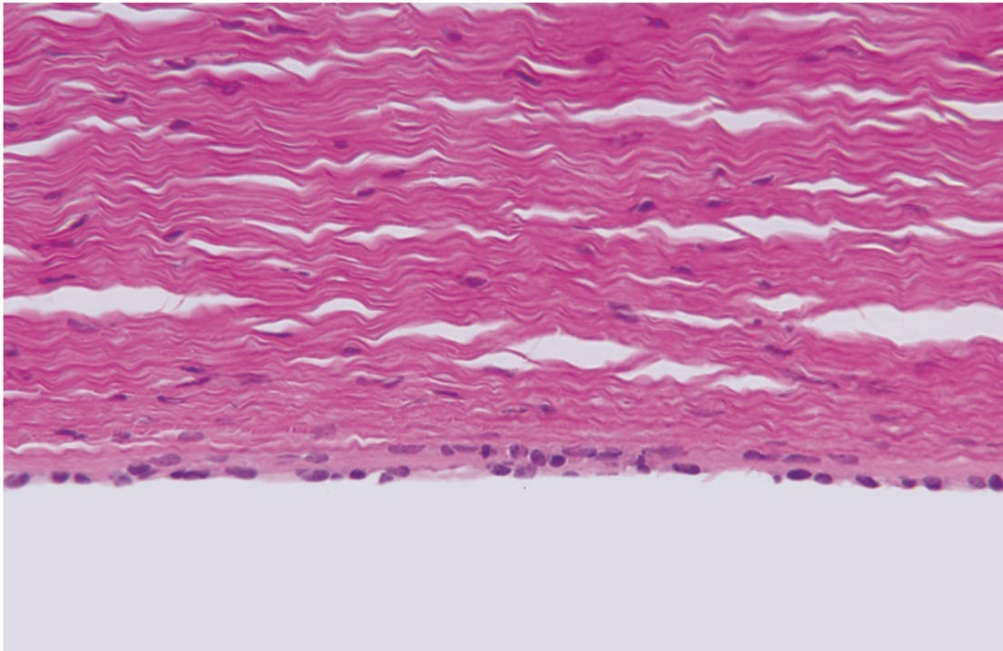
*For more on FECD and CHED,
see slide-set K45*

CHED. Even I can tell Descemet's is thick here.

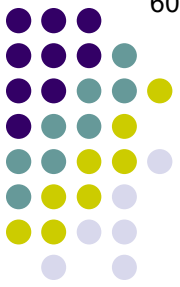
Pathwatching



It should not surprise that the key finding in **this** condition is to be found in the posterior cornea...



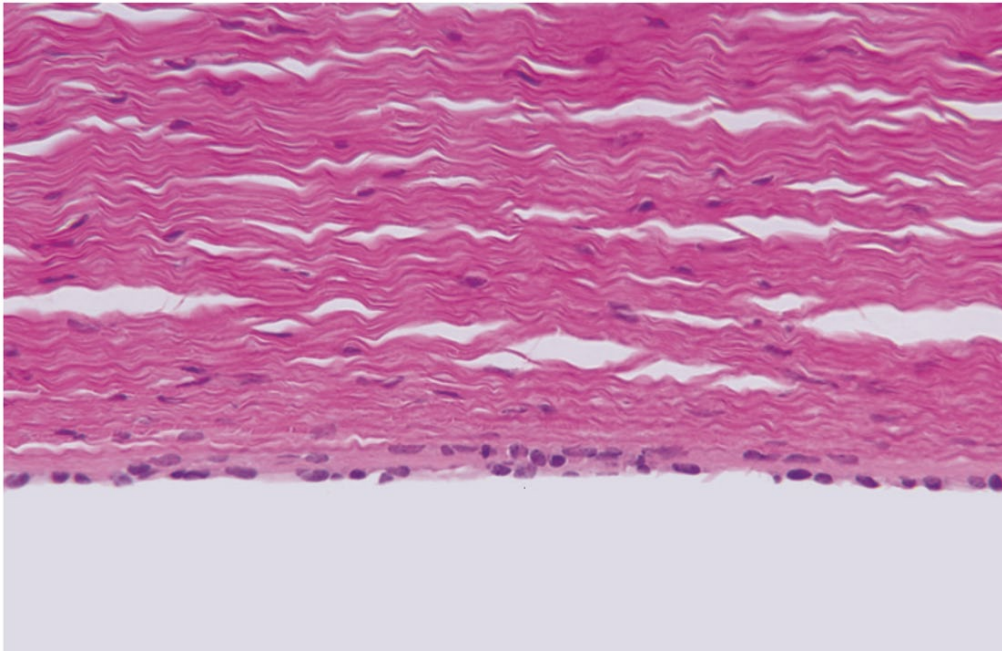
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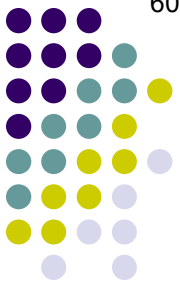
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--The stroma is v
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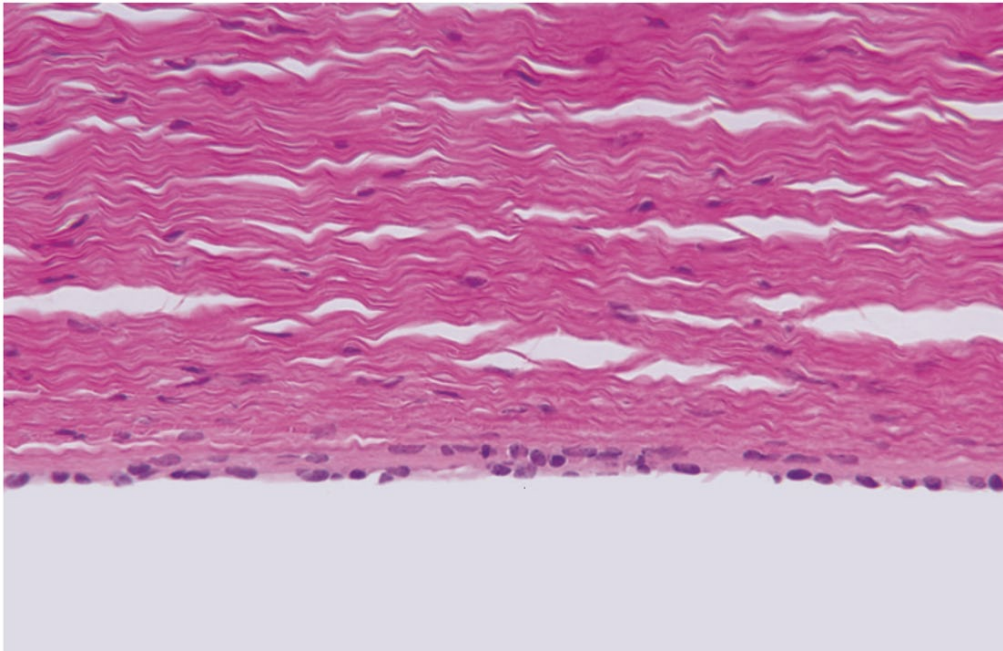
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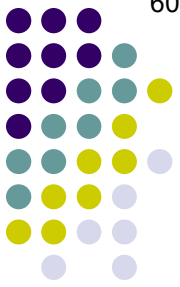
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Pathwatching



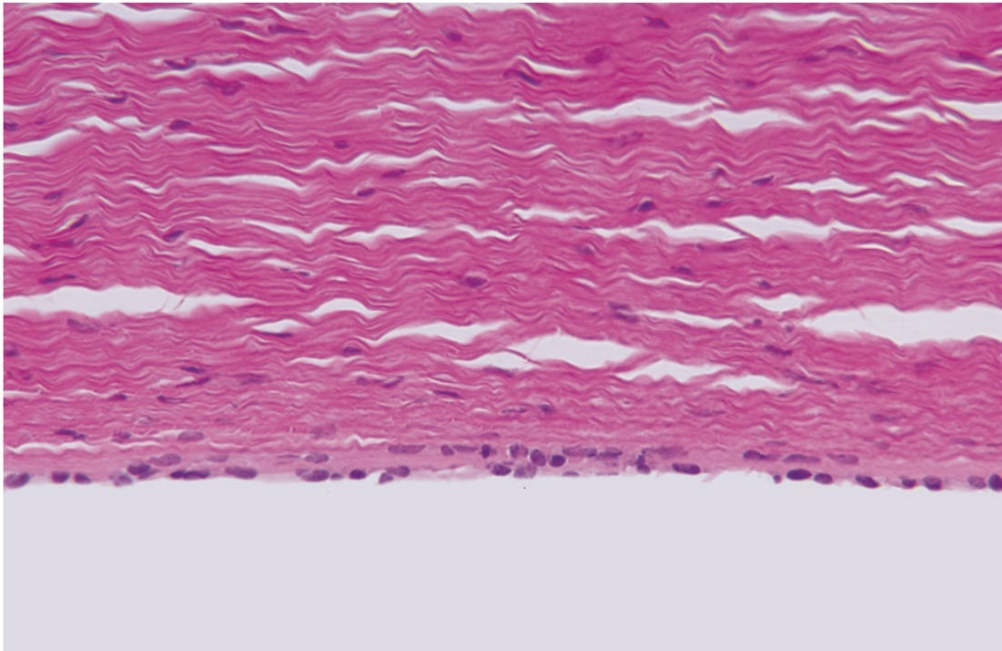
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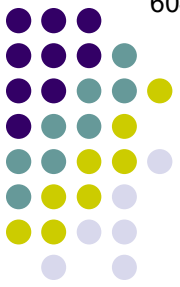
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--Speaking of: Stromal clefting is

affected vs
unaffected



Pathwatching

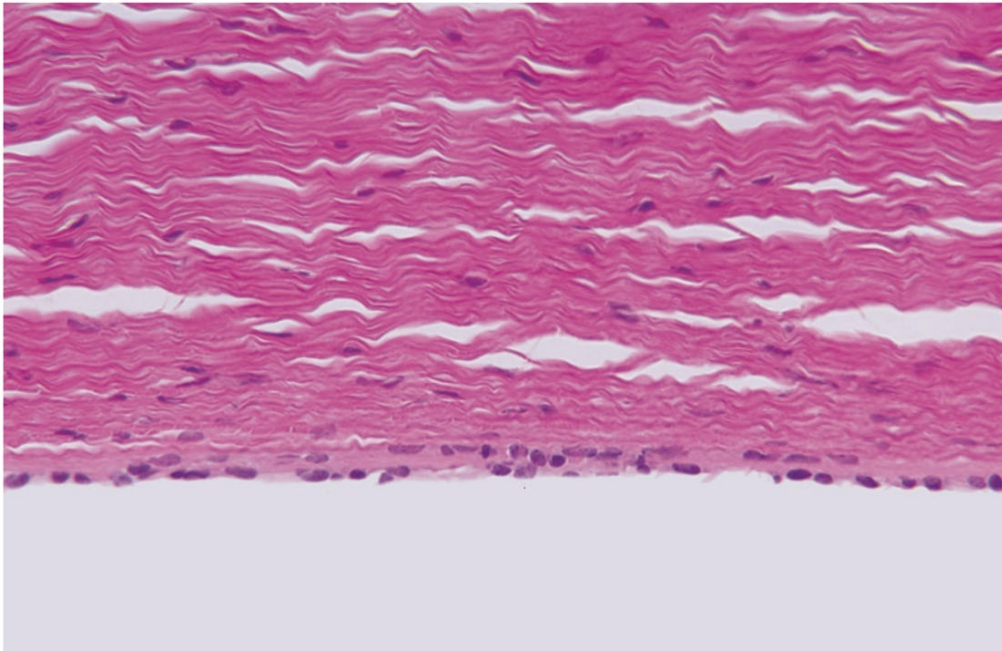


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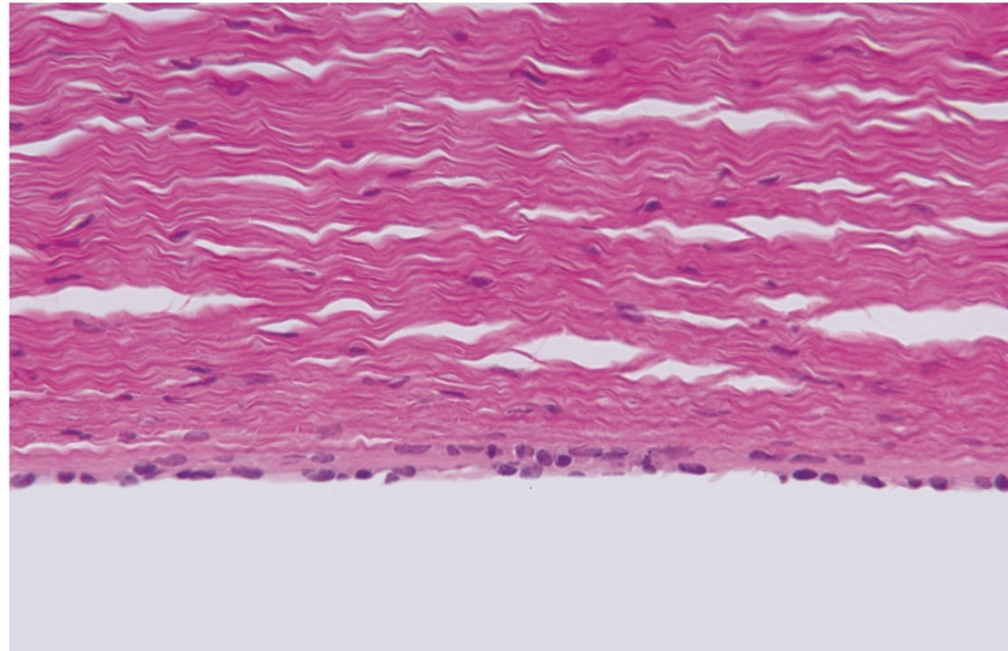
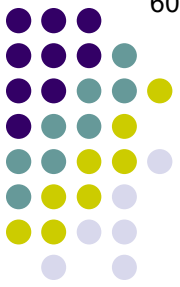
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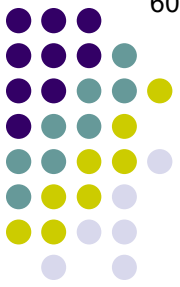
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Pathwatching



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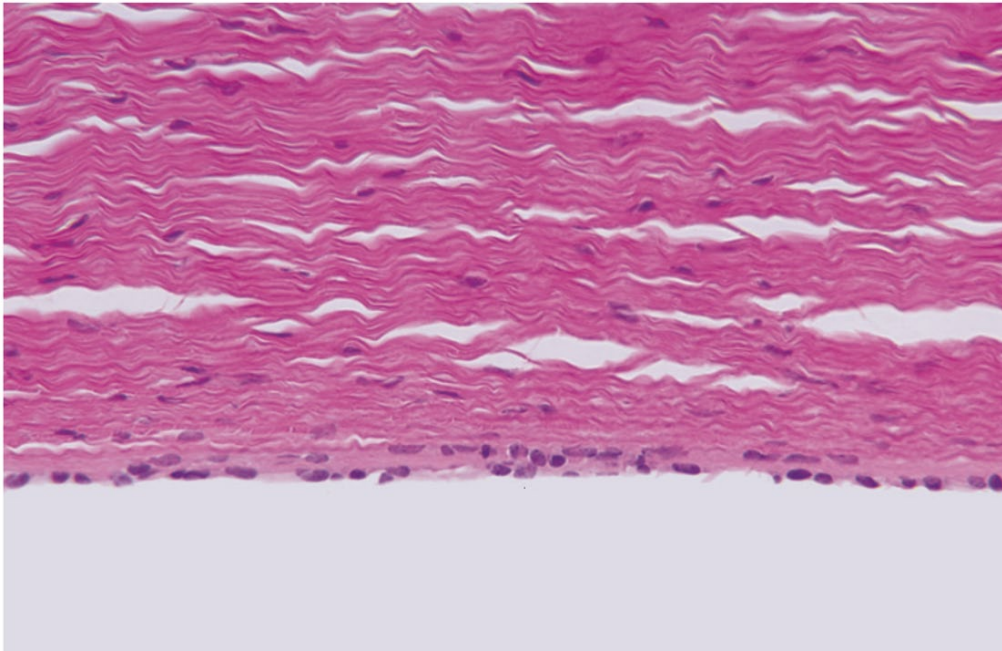
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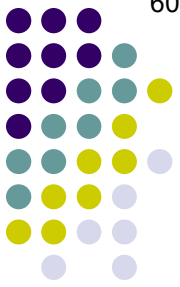
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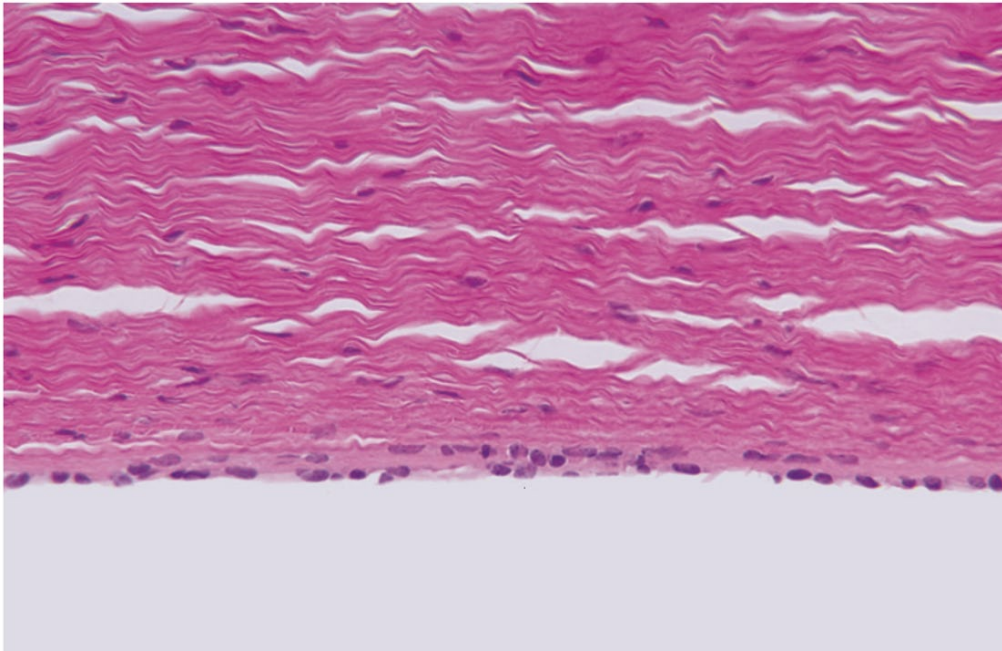
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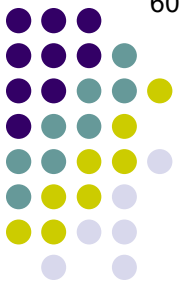
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two words



Pathwatching



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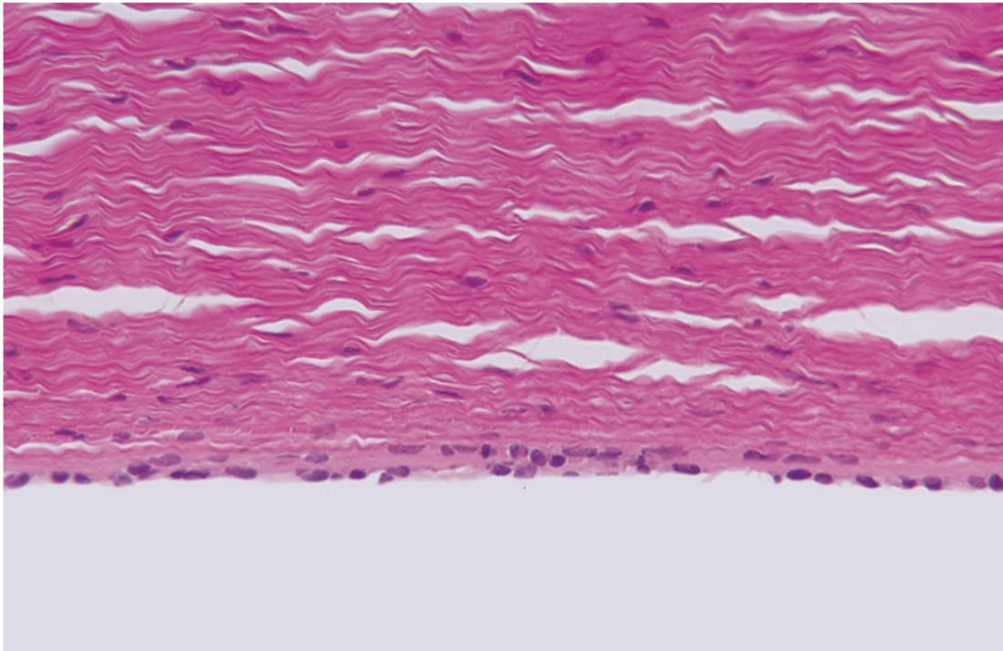
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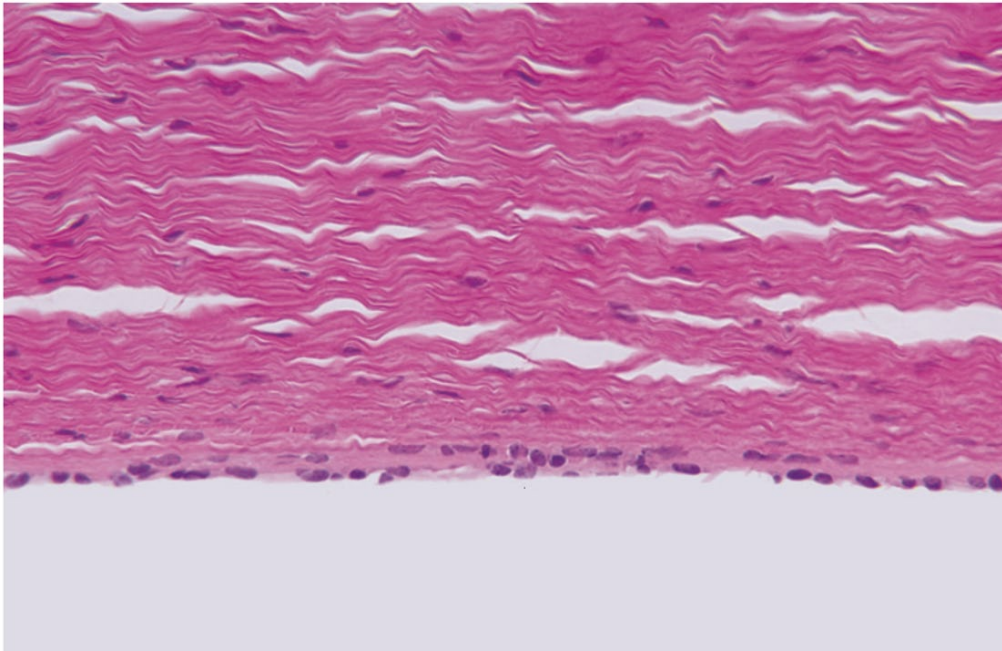
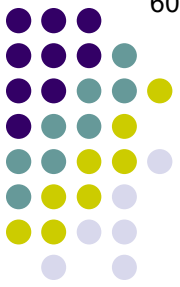
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Pathwatching



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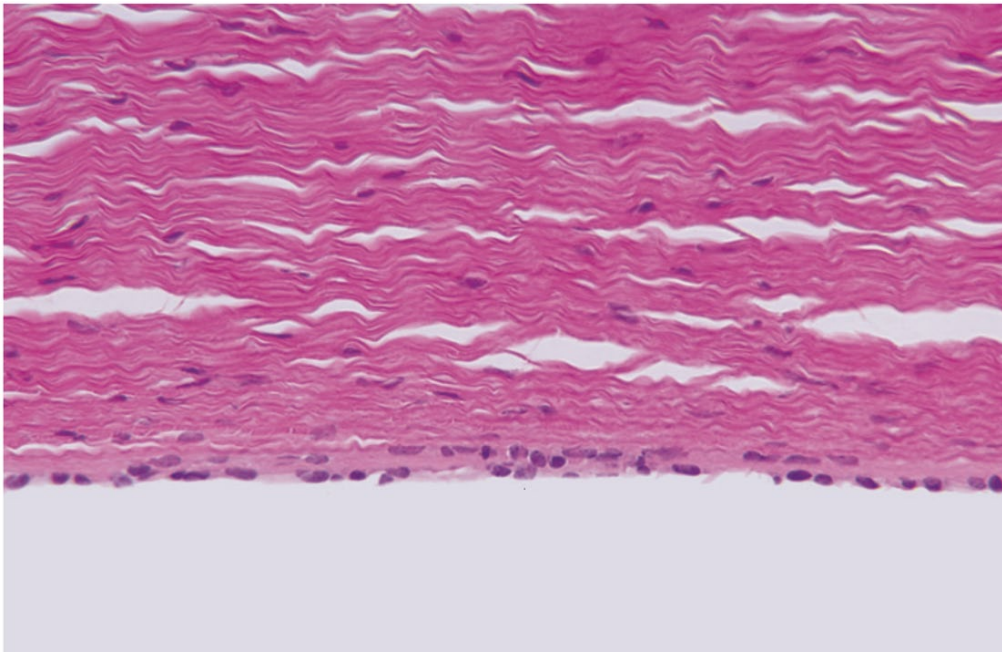
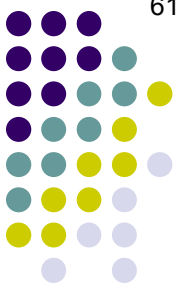
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Wonky Descemet's + multilayered endothelium strongly indicates one dx:

Pathwatching



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Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations.

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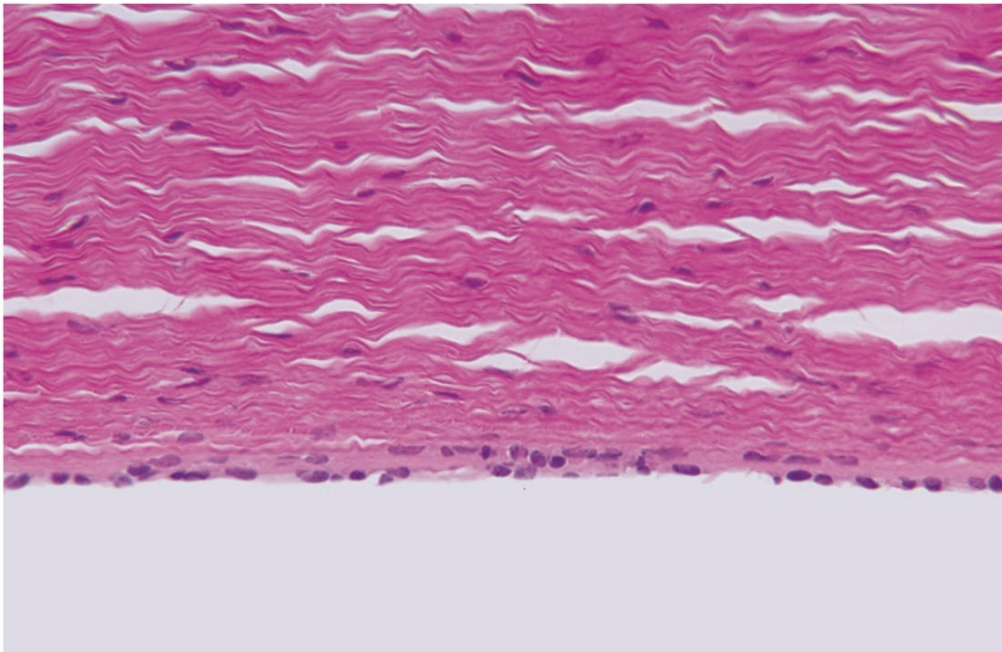
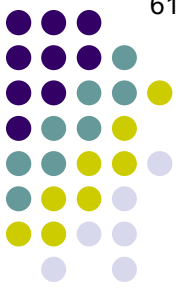
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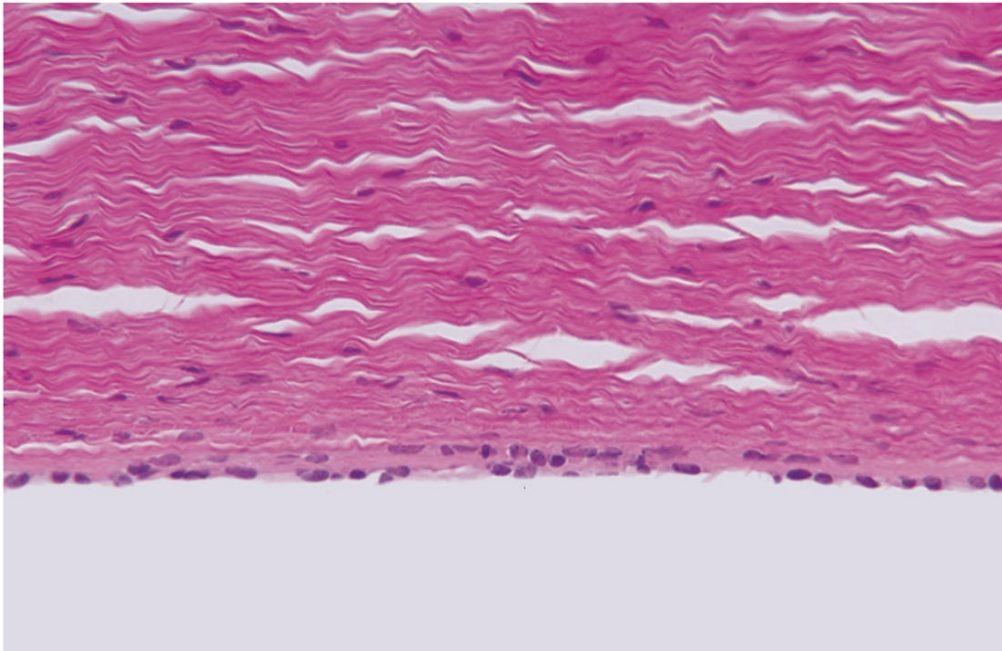
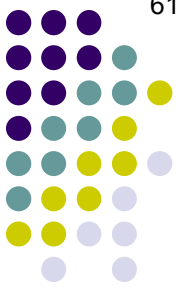
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Pathwatching



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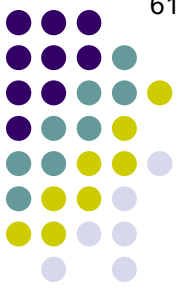
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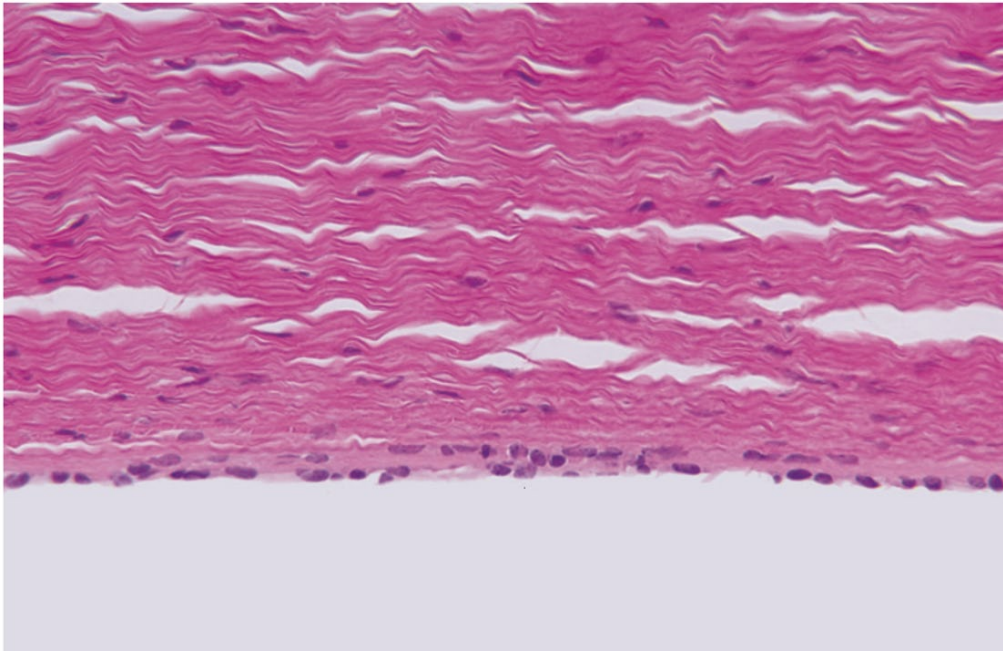
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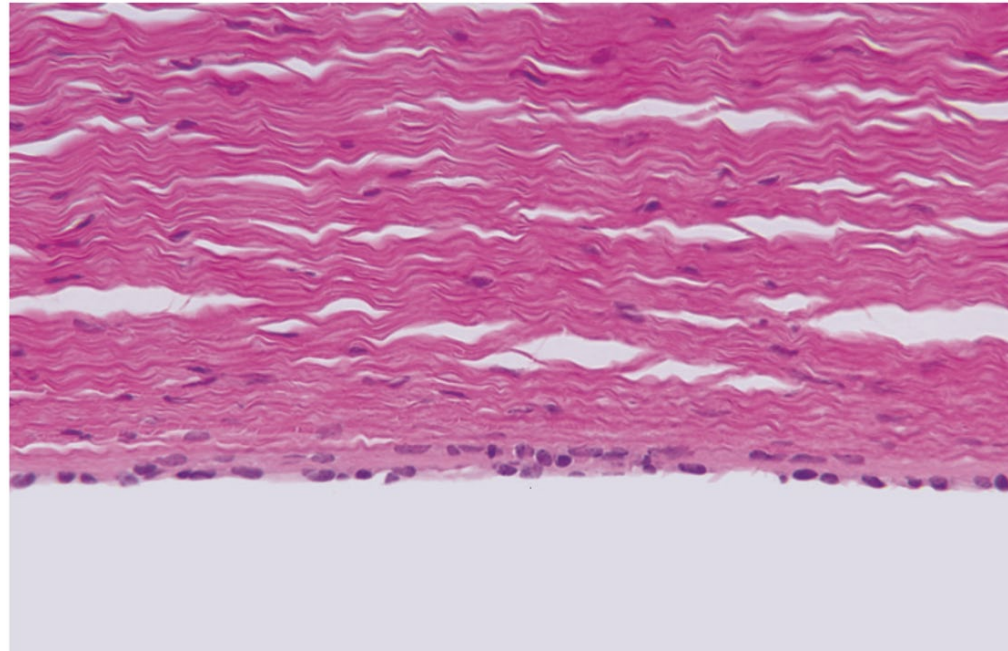
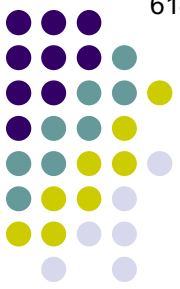
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What's the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations.
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Pathwatching



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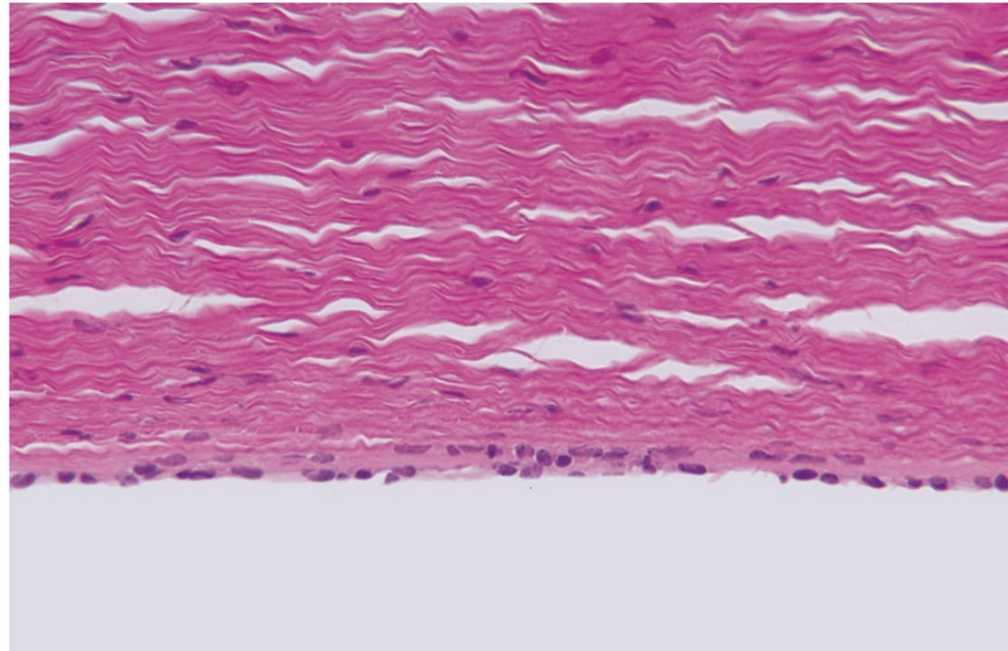
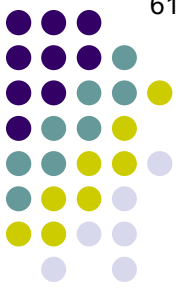
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Pathwatching



What's the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations. Histologically, Descemet's is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell

action

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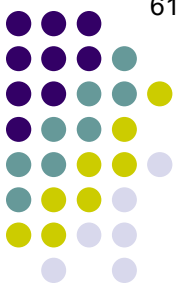
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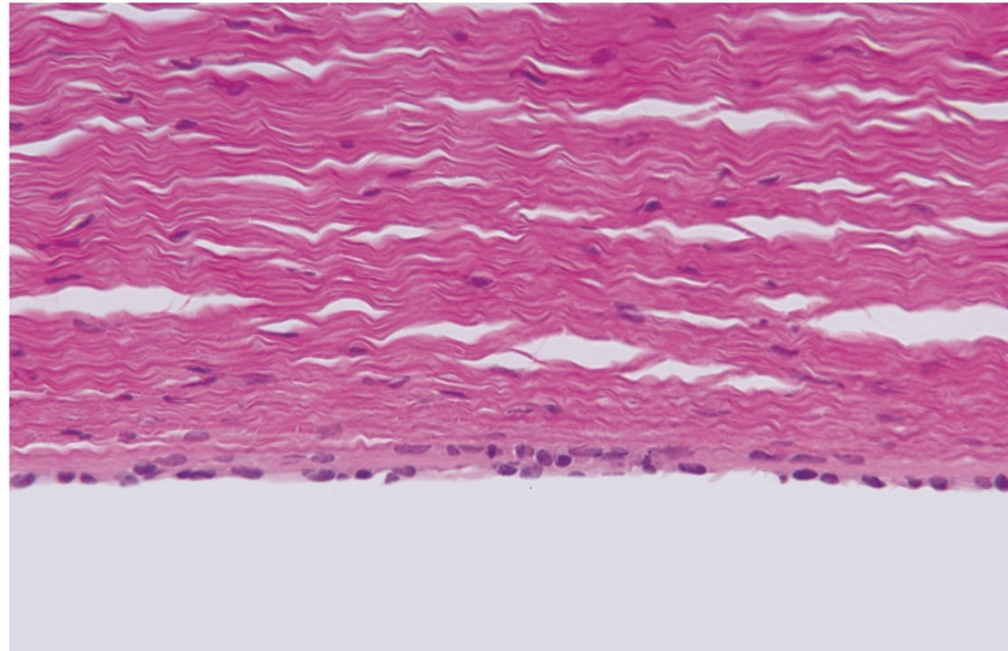
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What's the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations.
Histologically, Descemet's is **thickened and laminated**; excrescences may be present.
The underlying pathology is **endothelial cell transformation**

Pathwatching



What's the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations. Histologically, Descemet's is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation, which leads to them looking and 'behaving' like cells and/or cell type

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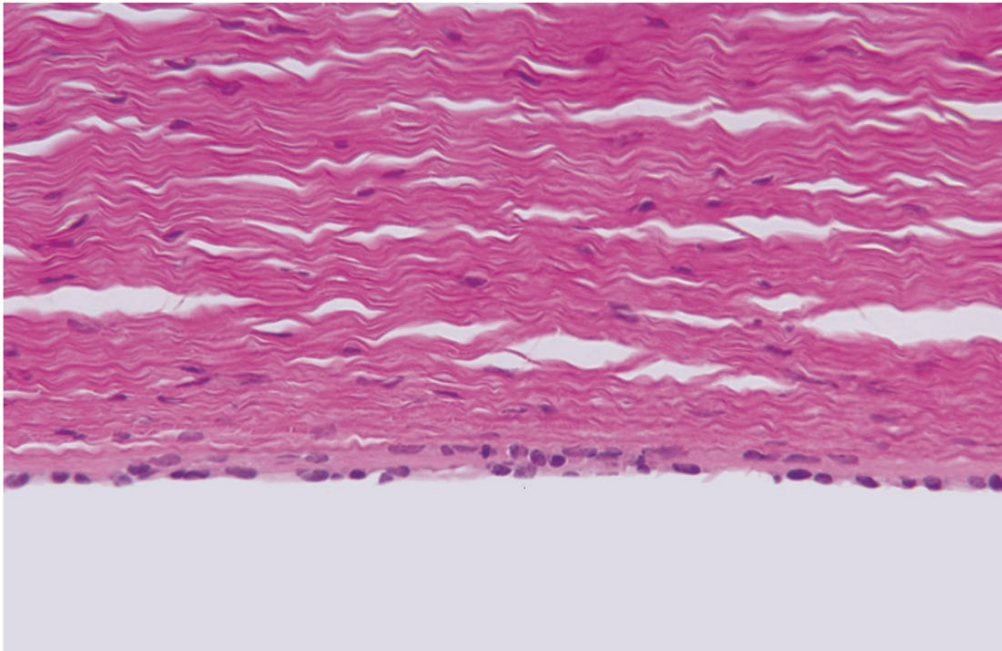
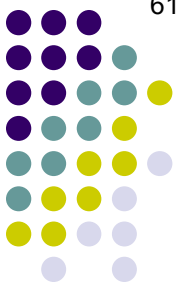
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Pathwatching



What's the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations. Histologically, Descemet's is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation, which leads to them looking and 'behaving' like epithelial cells and/or fibroblasts.

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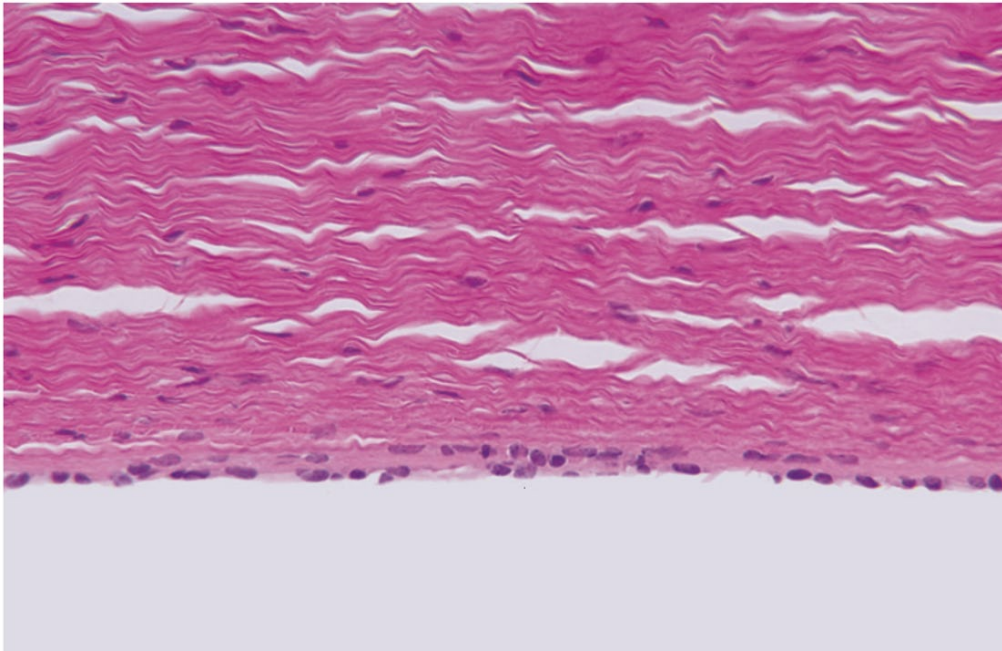
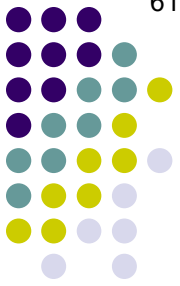
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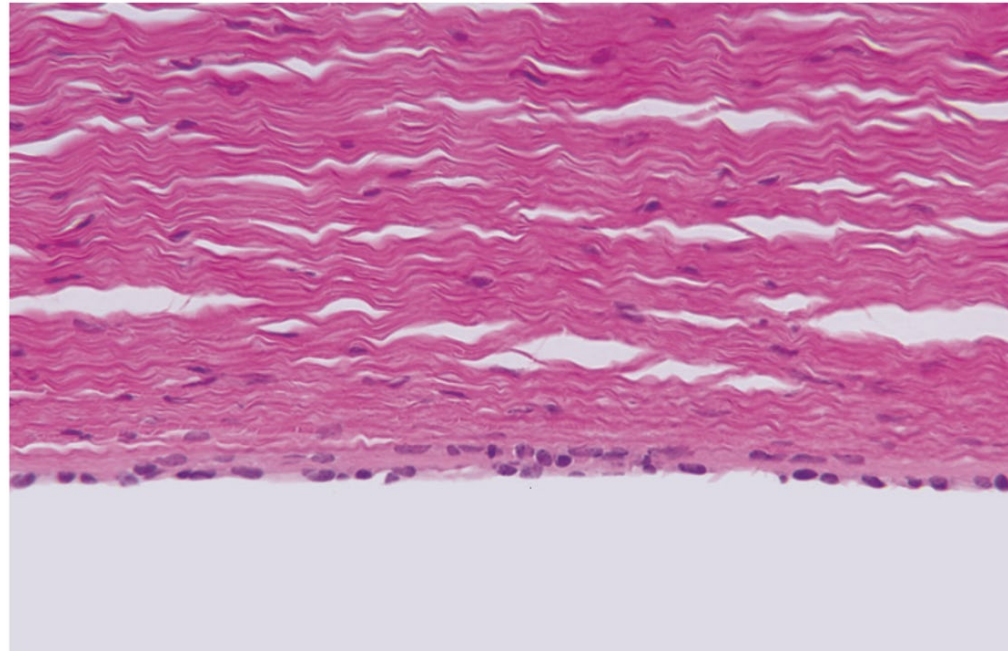
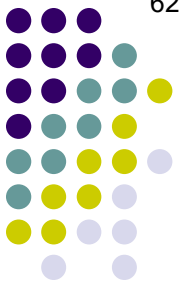
--Speaking of: Stromal clefting is unaffected
Turning our attention to the posterior cornea:

--Descemet's appears wonky, for lack of a better term (I know—tough call again).

--OTOH, what's **not** a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet's + multilayered endothelium strongly indicates one dx:

Pathwatching



What's the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations. Histologically, Descemet's is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation, which leads to them looking and 'behaving' like epithelial cells and/or fibroblasts. (This explains how the endothelium comes to have its characteristic multilayered appearance.)

It should not surprise that the key finding in **this** condition is to be found in the posterior cornea... What's going on here?

--The stroma isn't taking a stain, suggesting this isn't a stromal dystrophy.

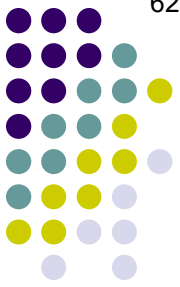
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Pathwatching



It should not surprise that the key finding in **this** condition is to be found in the posterior cornea...
What's going on here?

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--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:

For more on PPMD, see slide-set K45

...ON, what's not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet's + multilayered endothelium strongly indicates one dx:

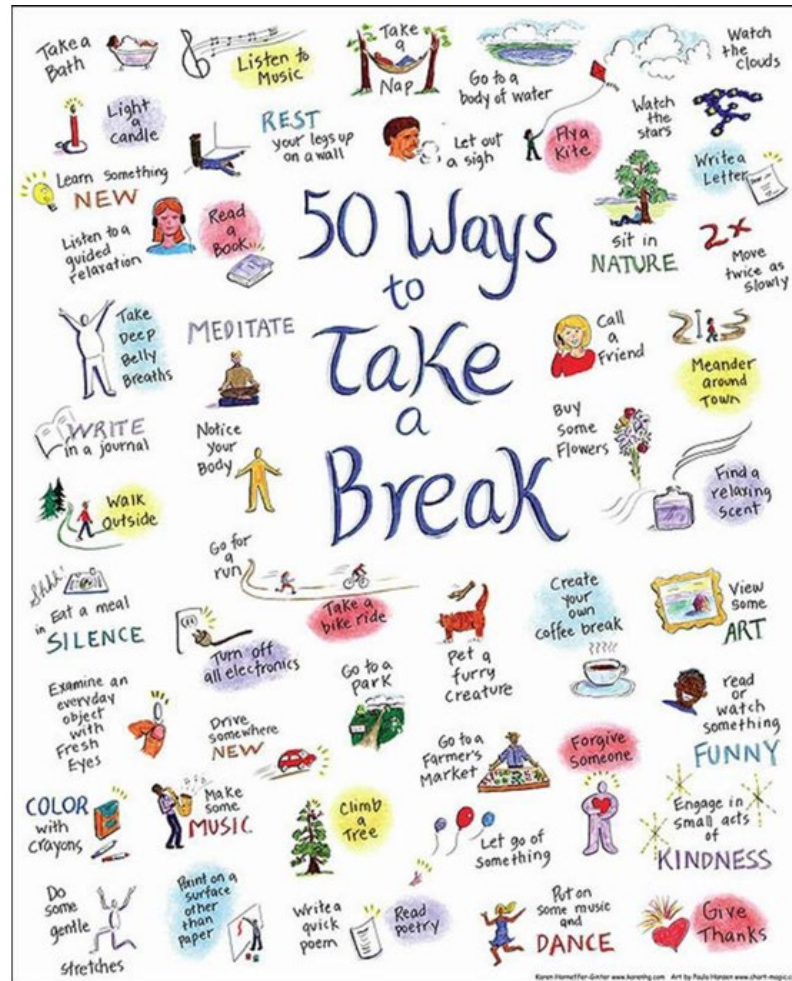
What's the diagnosis?

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Histologically, Descemet's is thickened and laminated; excrescences may be present.

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Pathwatching

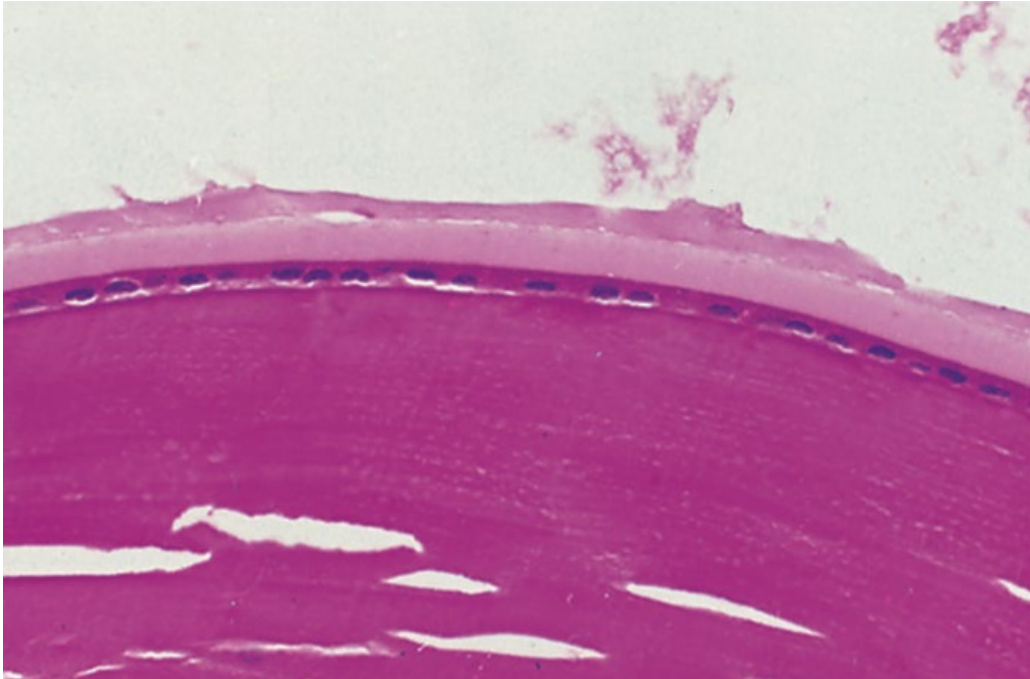


(This is a good point in the set to take a break)



Pathwatching

First: What tissue/structure is this?

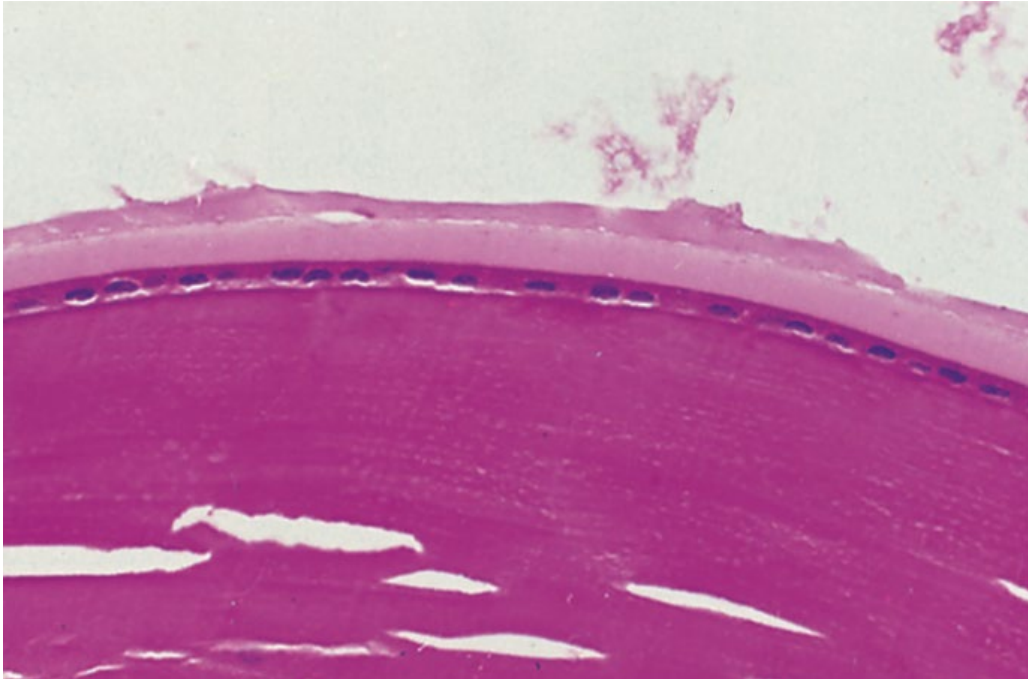


Pathwatching

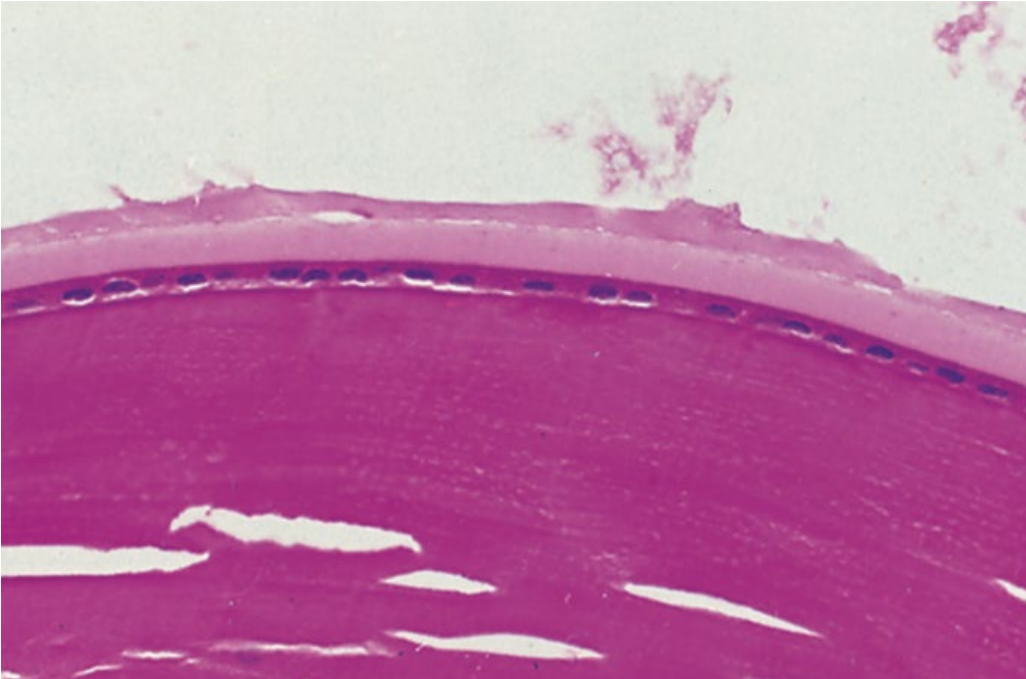


First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's.



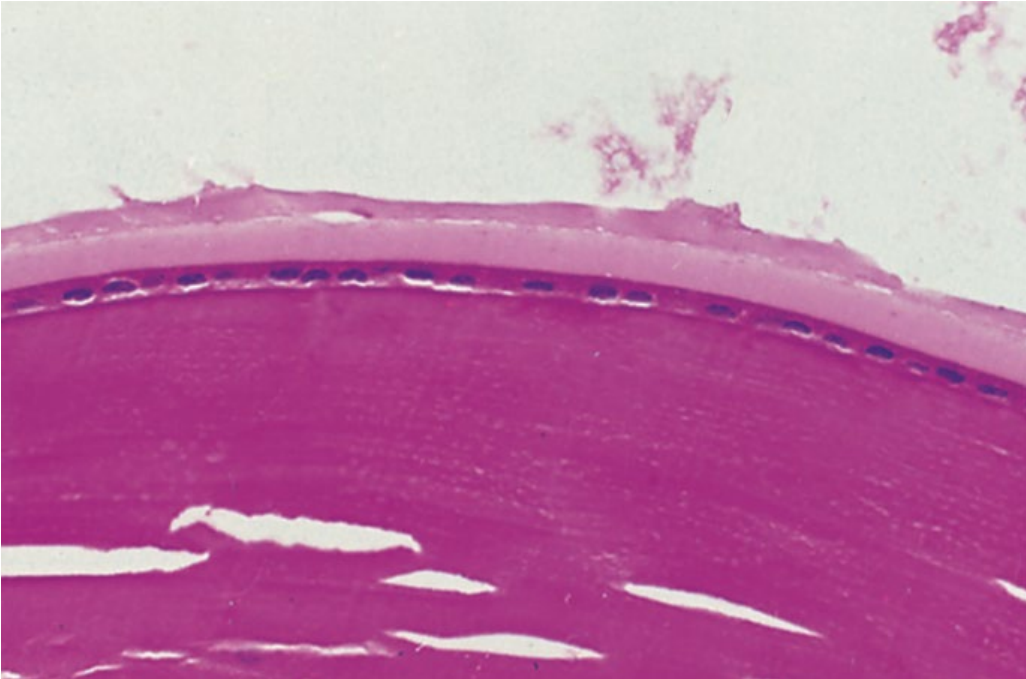
Pathwatching



First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. But this interpretation is problematic in that: --It's a [redacted]-layered epi (K epi is [redacted] layered)

Pathwatching

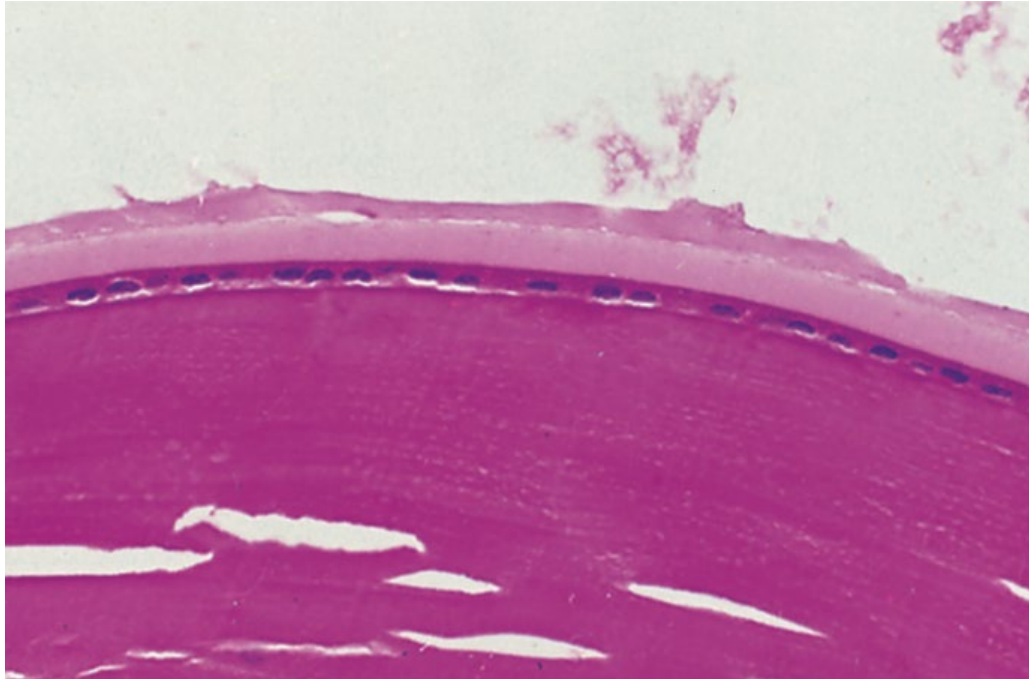


First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. But this interpretation is problematic in that:
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Pathwatching



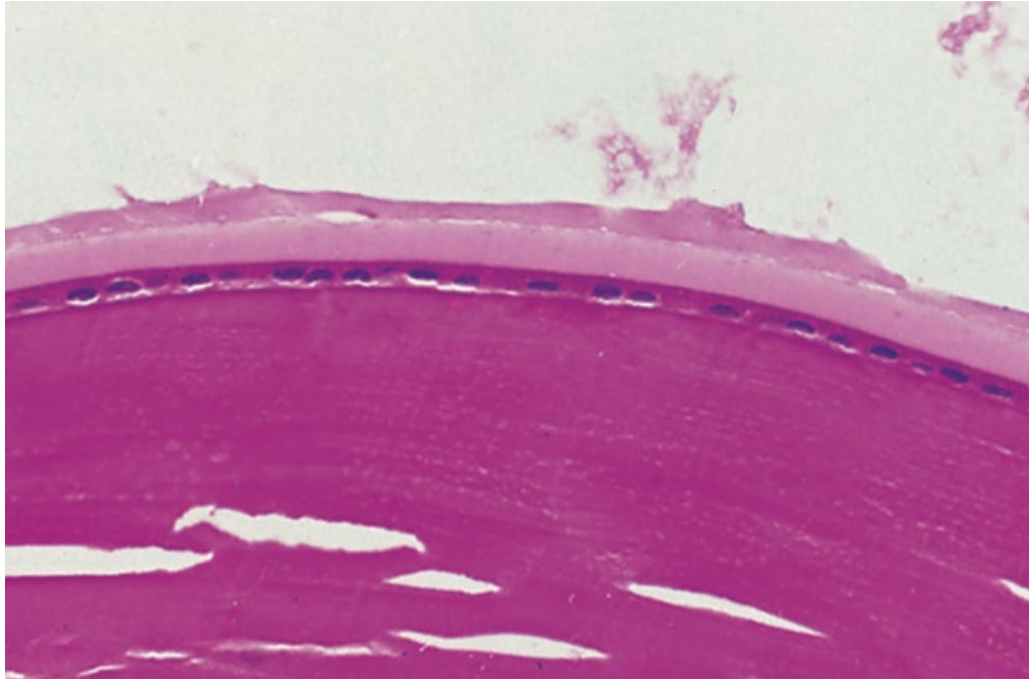
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--It's **locale** to the 'Bowman's' (K epi is **locale** of Bowman's)

Pathwatching



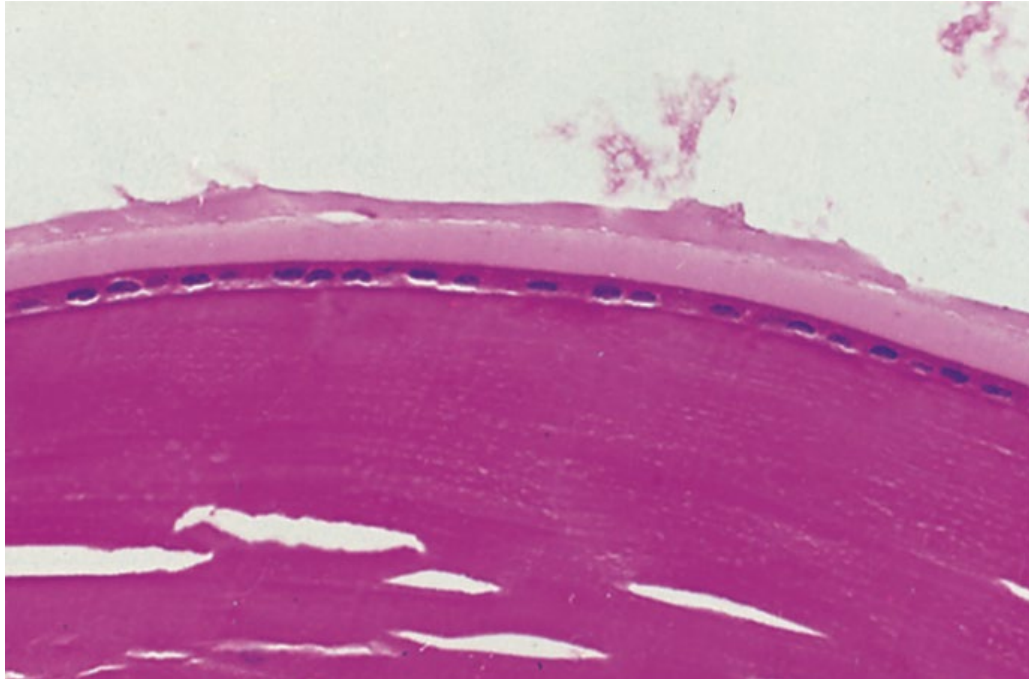
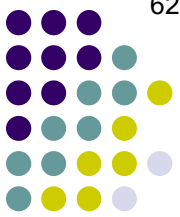
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--It's a single-layered epi (K epi is multi-layered)

--It's deep to the 'Bowman's' (K epi is on top of Bowman's)

Pathwatching



First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. But this interpretation is problematic in that:

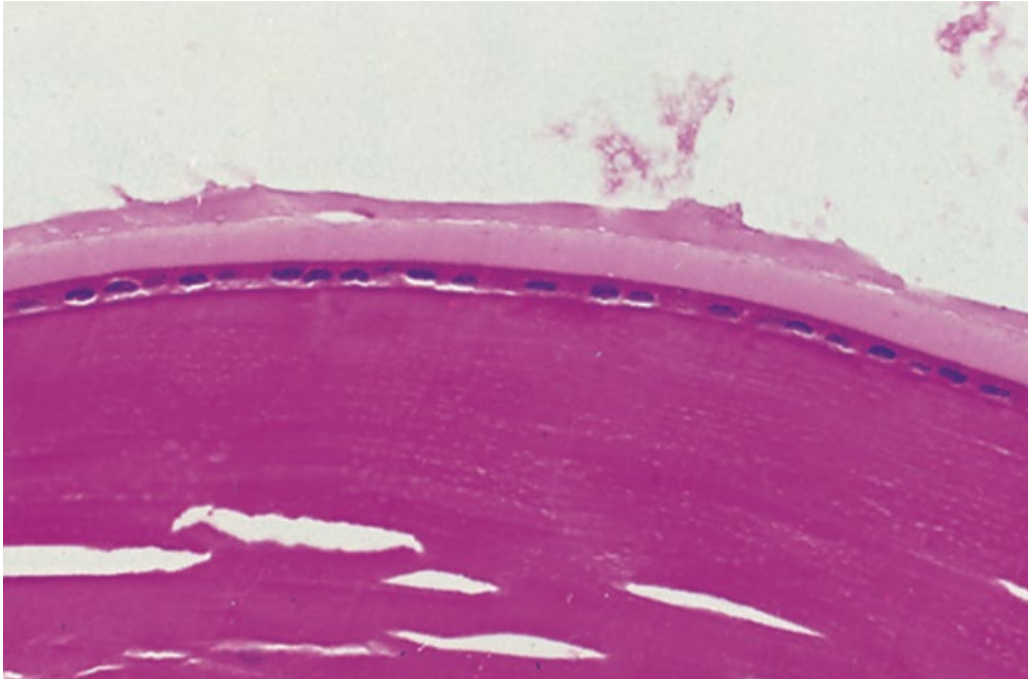
--It's a single-layered epi (K epi is multi-layered)

--It's deep to the 'Bowman's' (K epi is on top of Bowman's)

So it ain't cornea.



Pathwatching



First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. **But this interpretation is problematic in that:**

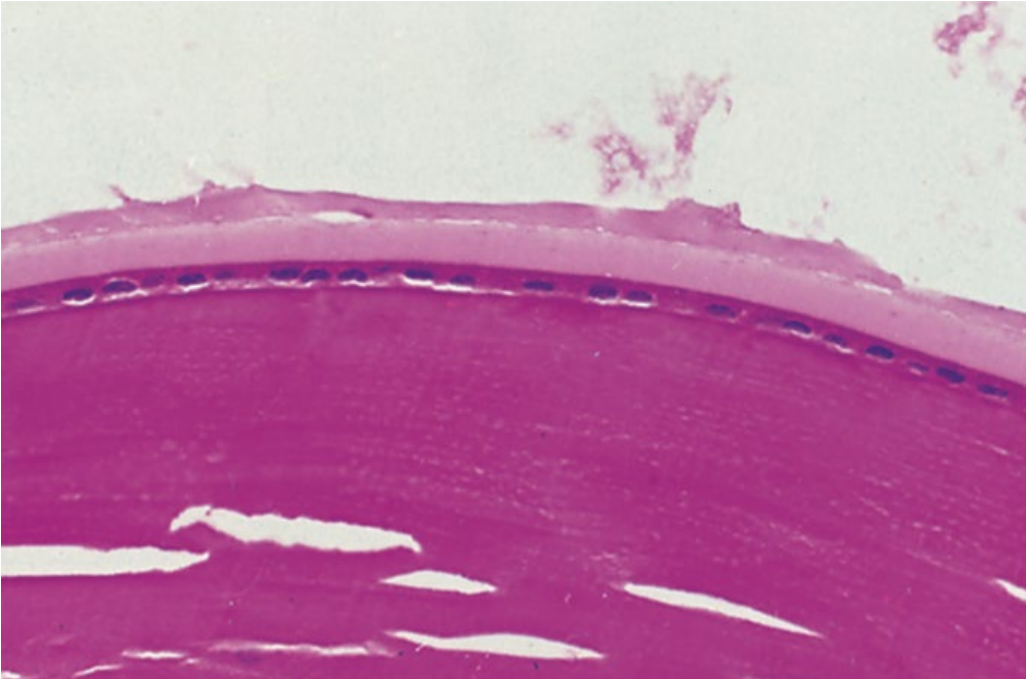
--It's a single-layered epi (K epi is multi-layered)

--It's deep to the 'Bowman's' (K epi is on top of Bowman's)

So it ain't cornea.

There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: ?

Pathwatching



First: What tissue/structure is this?

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--It's a single-layered epi (K epi is multi-layered)

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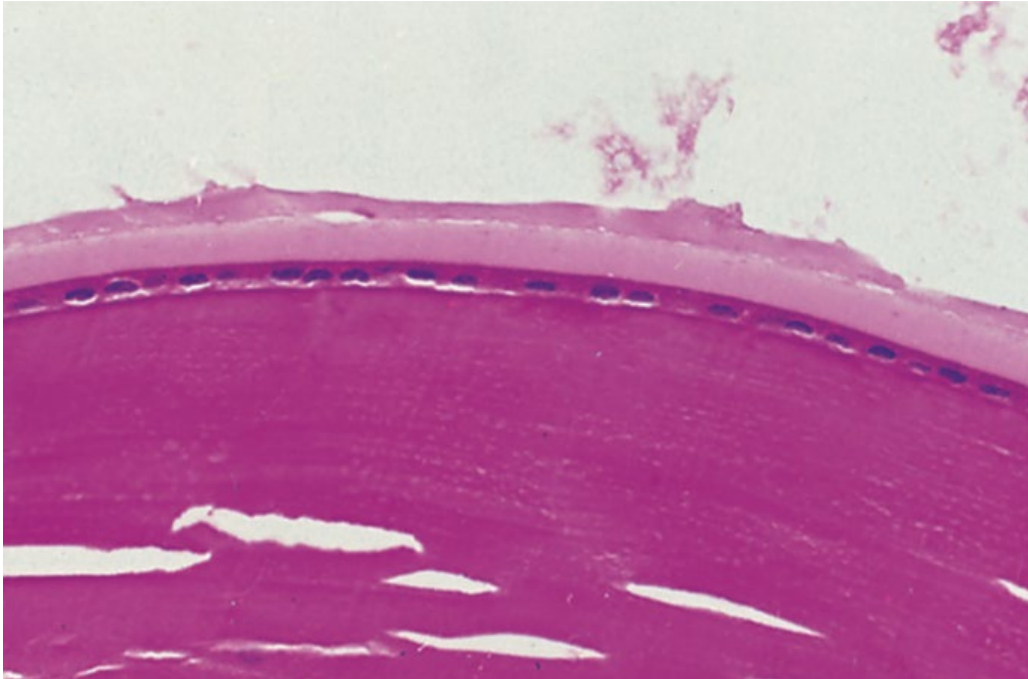
So it ain't cornea.

There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.



Pathwatching

Anterior? Posterior?



First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. **But this interpretation is problematic in that:**

--It's a single-layered epi (K epi is multi-layered)

--It's deep to the 'Bowman's' (K epi is on top of Bowman's)

So it ain't cornea.

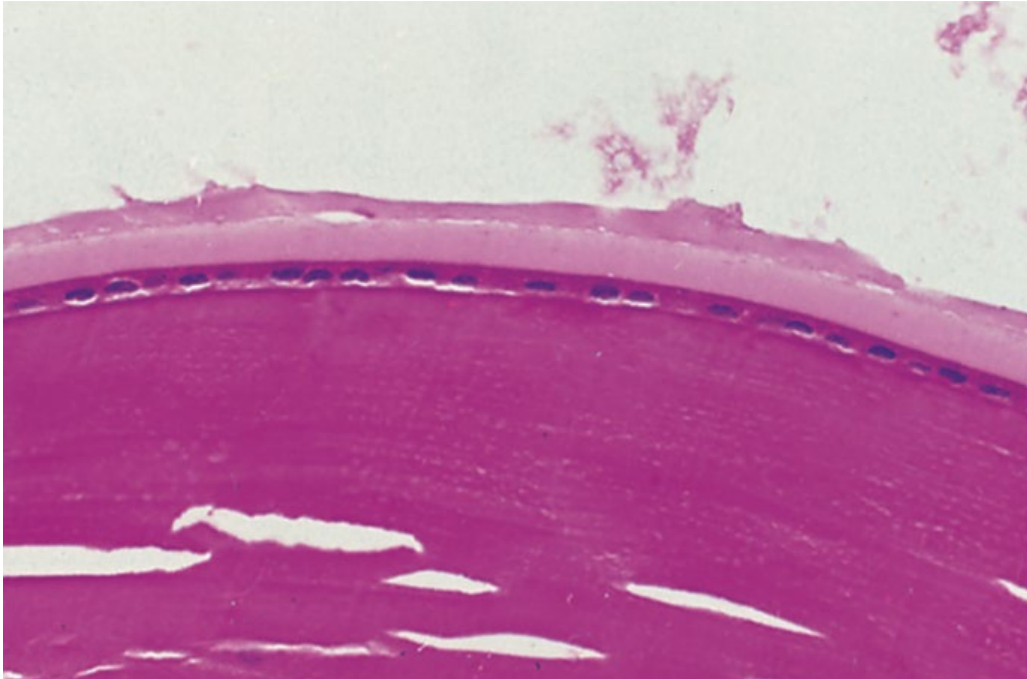
There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens?



Pathwatching

Anterior



First: What tissue/structure is this?

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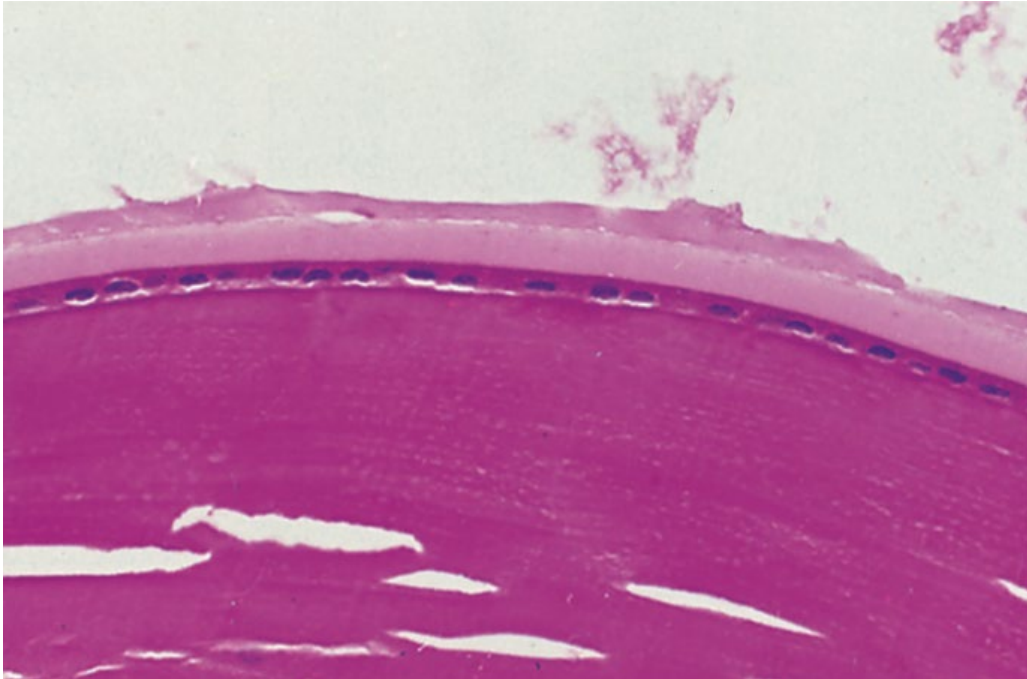
There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior.



Pathwatching

Anterior



First: What tissue/structure is this?

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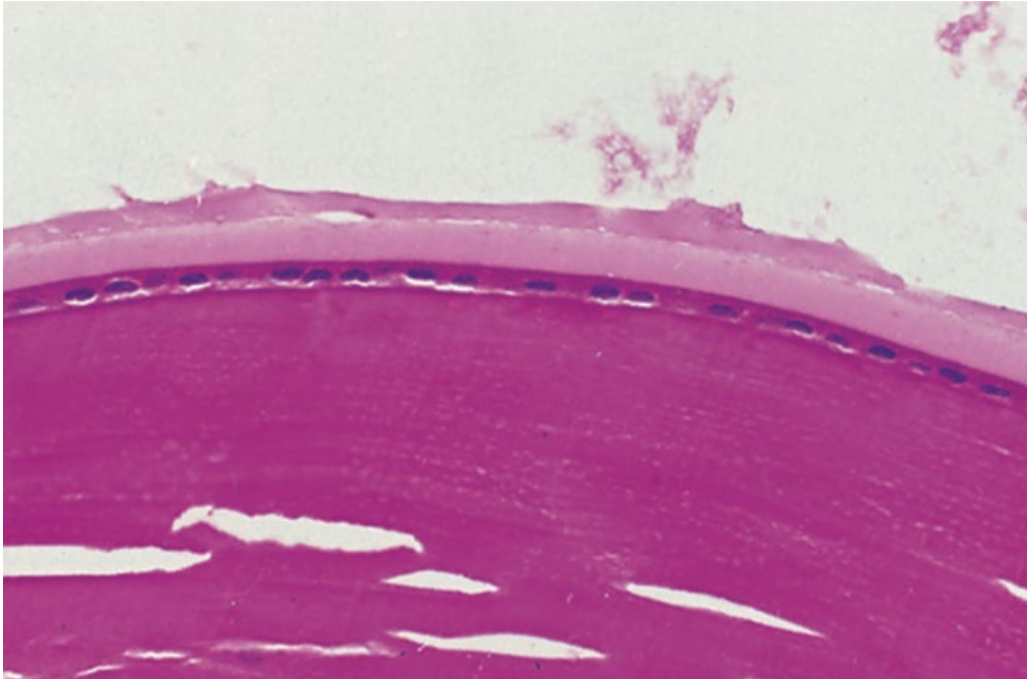
Is this the anterior or posterior lens? Anterior.

How can you tell?



Pathwatching

Anterior



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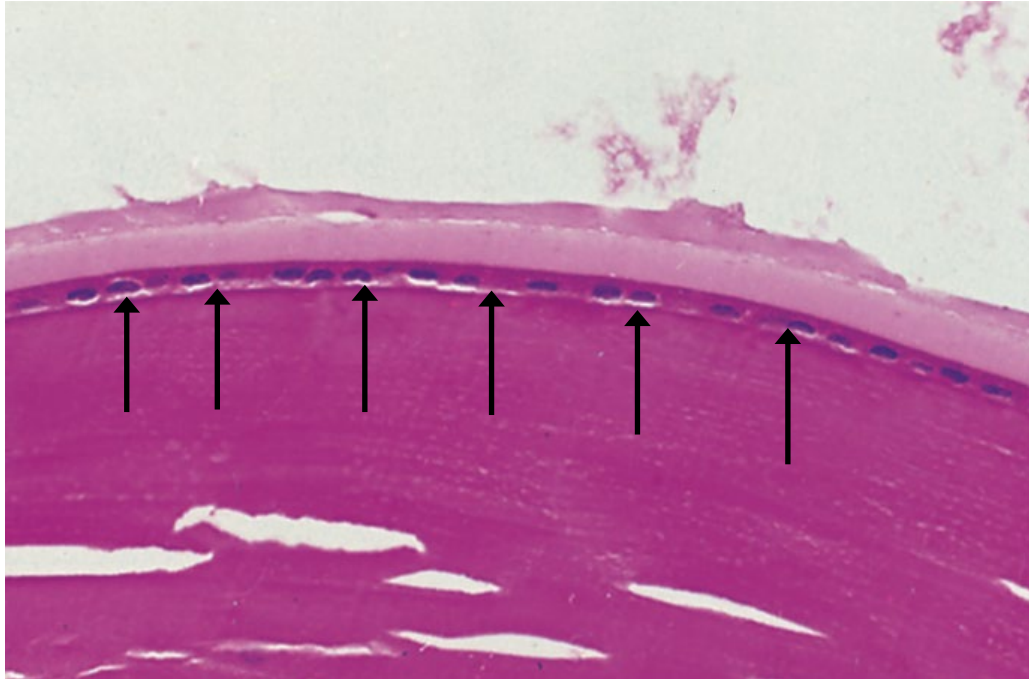
Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of two words (there are none posteriorly)



Pathwatching

Anterior



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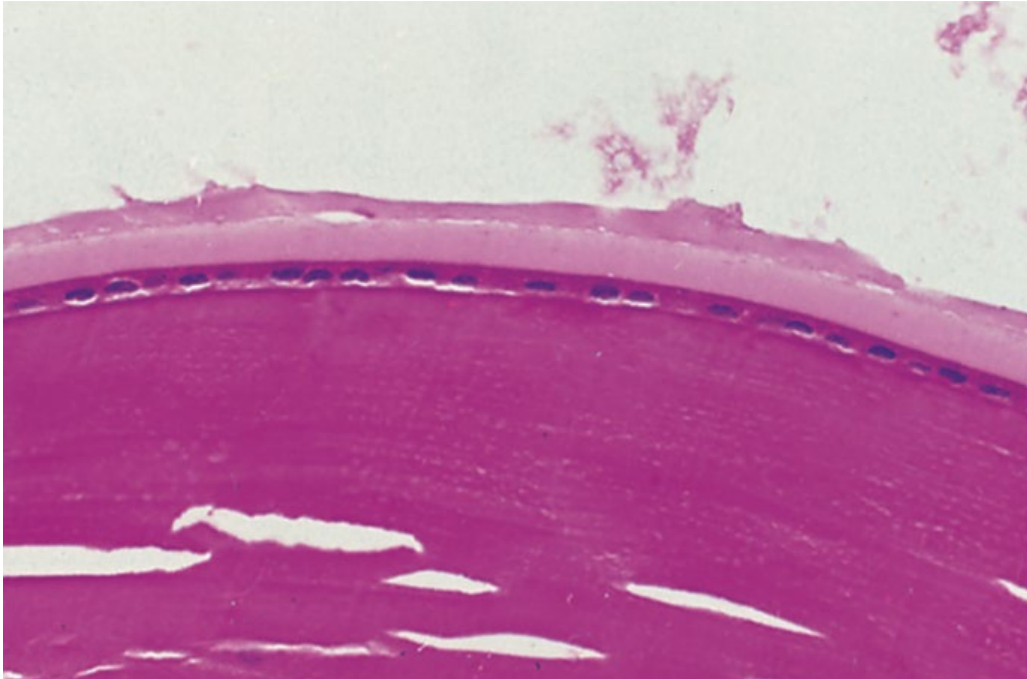
Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)



Pathwatching

Anterior



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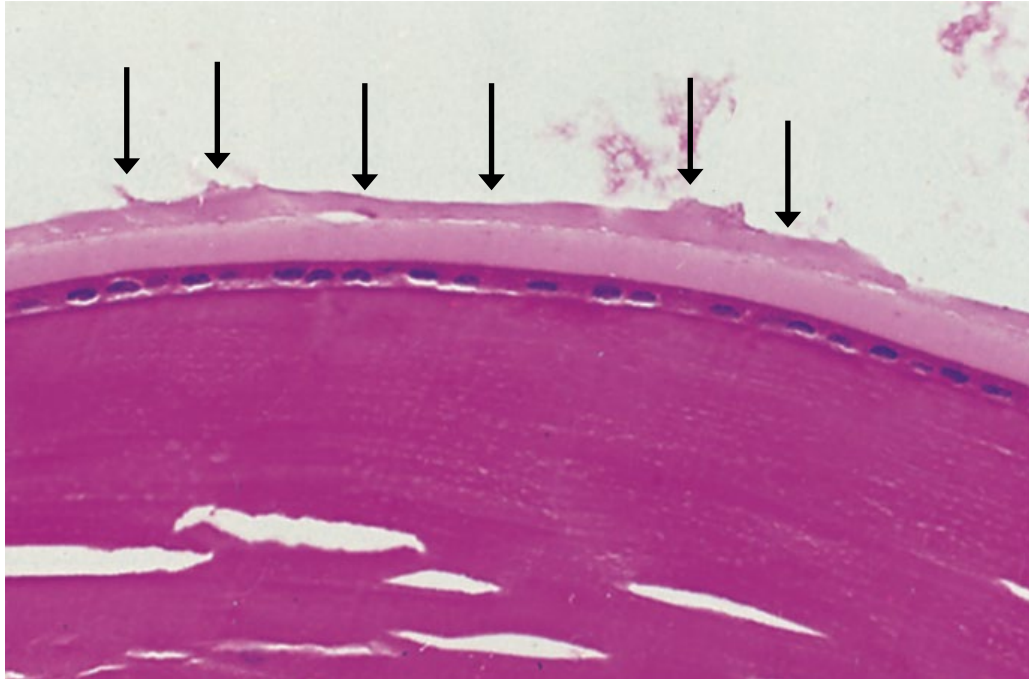
How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?



Pathwatching

Anterior



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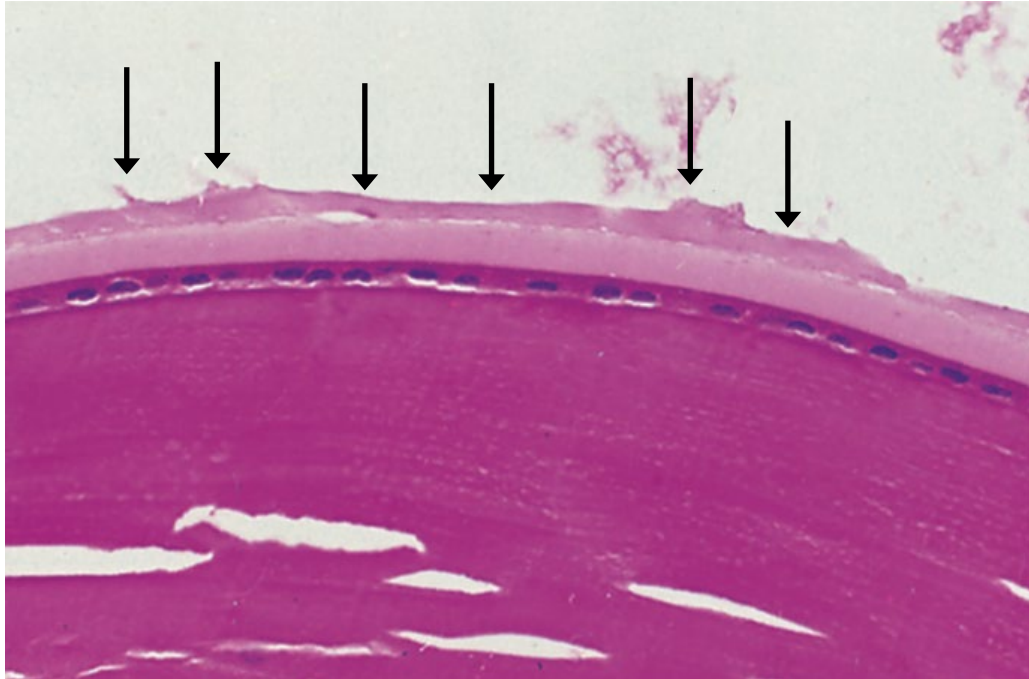
This material on the lens

proper name for this membrane



Pathwatching

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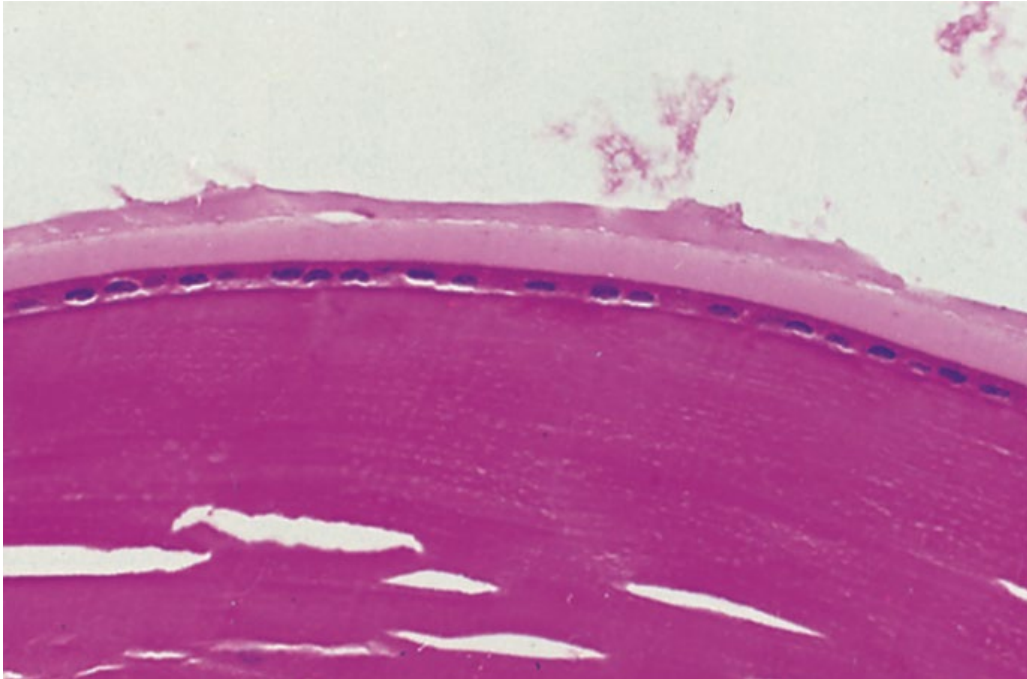
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This material on the lens capsule.



Pathwatching

Anterior



What's the diagnosis?

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Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

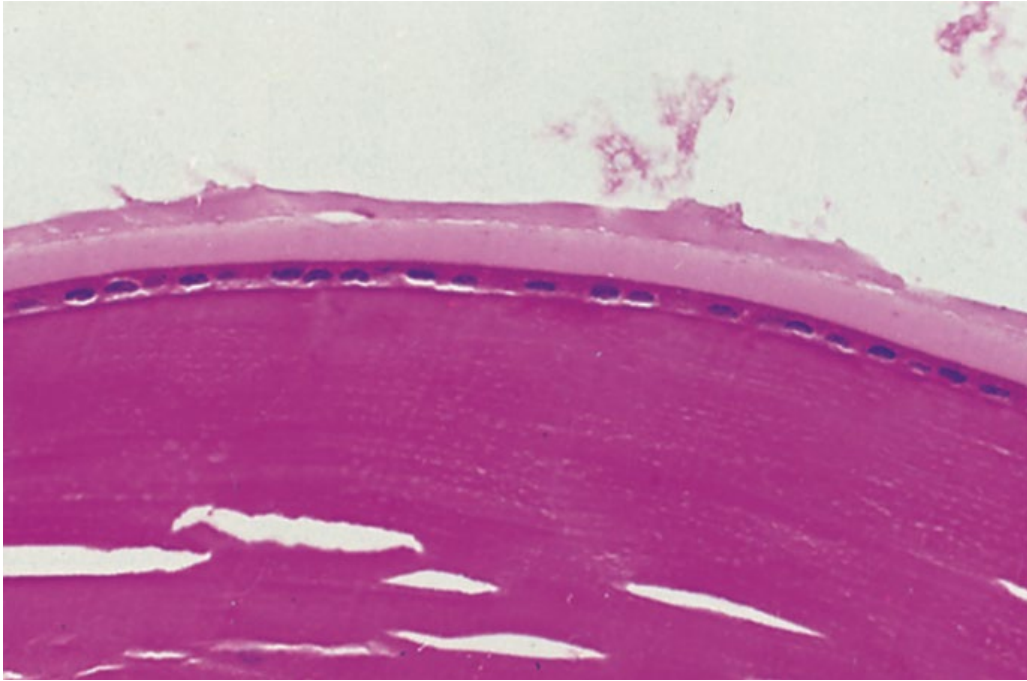
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This material on the lens capsule.



Pathwatching

Anterior



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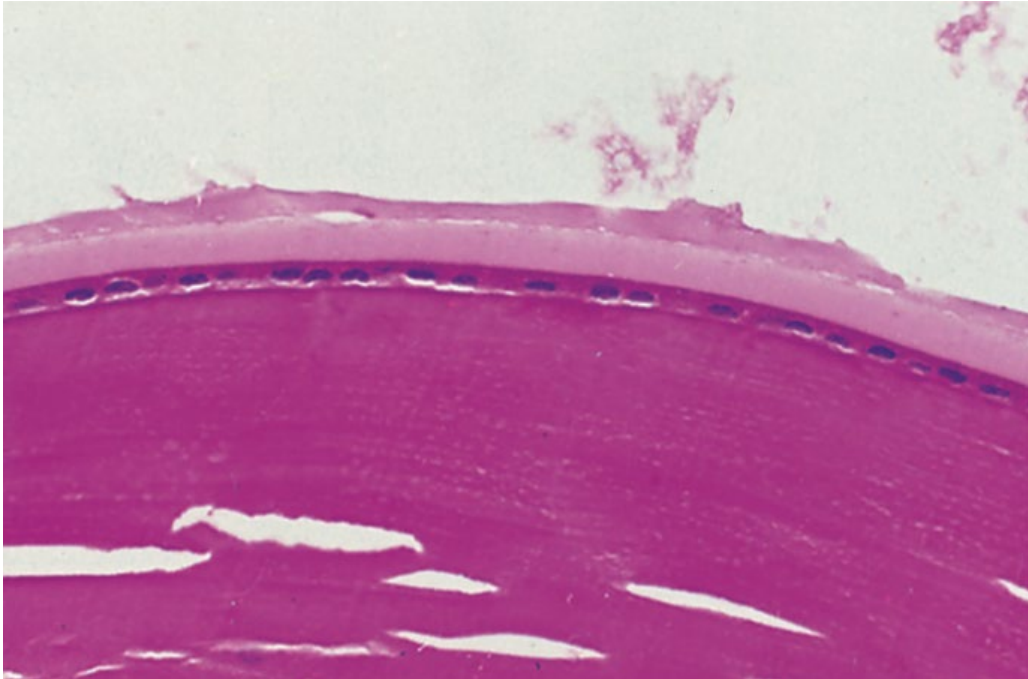
This material on the lens capsule.

Pseudoexfoliation syndrome (PXS) is a systemic vs ophthalmic **condition**



Pathwatching

Anterior



What's the diagnosis?

Pseudoexfoliation syndrome (PXS) is a systemic condition

First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. But this interpretation is problematic in that:

--It's a single-layered epi (K epi is multi-layered)

--It's deep to the 'Bowman's' (K epi is on top of Bowman's)

So it ain't cornea.

There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

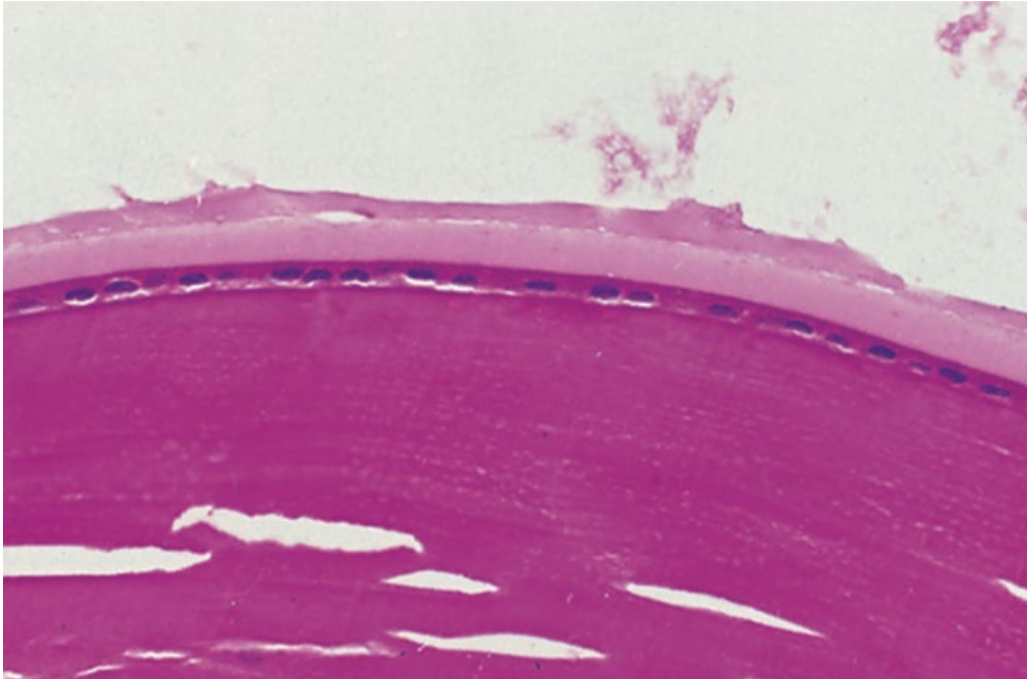
Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?

This material on the lens capsule.



Pathwatching

Anterior



What's the diagnosis?

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So it ain't cornea.

There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?

This material on the lens capsule.

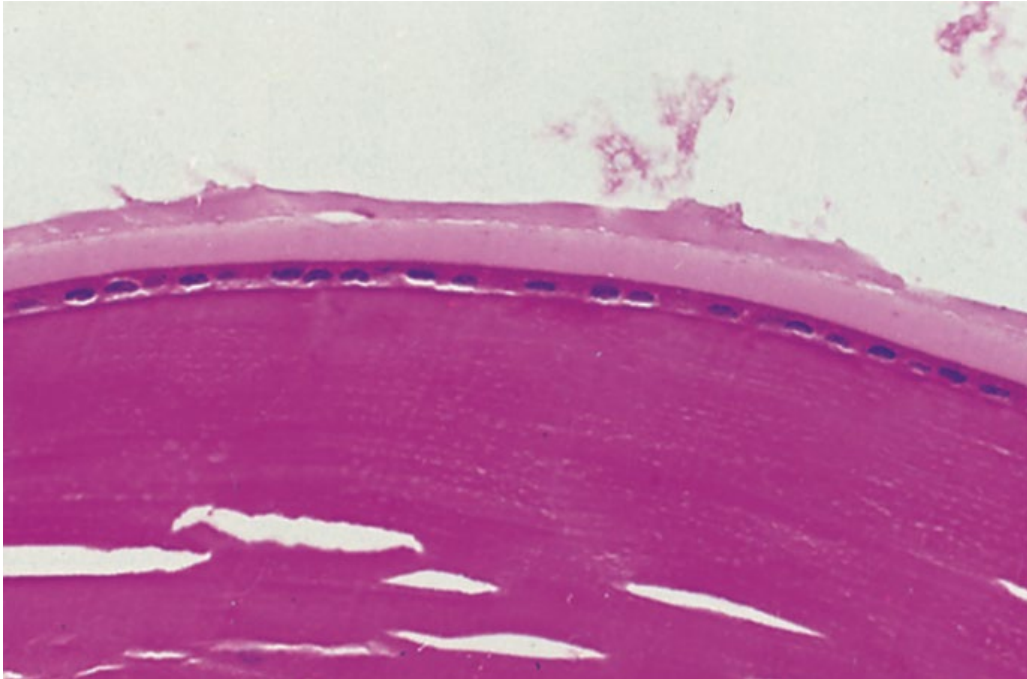
Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of **buzzword** material throughout the anterior segment*, including upon the lens capsule.

*And distant organs, but we're not concerned about that.



Pathwatching

Anterior



What's the diagnosis?

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Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?

This material on the lens capsule.

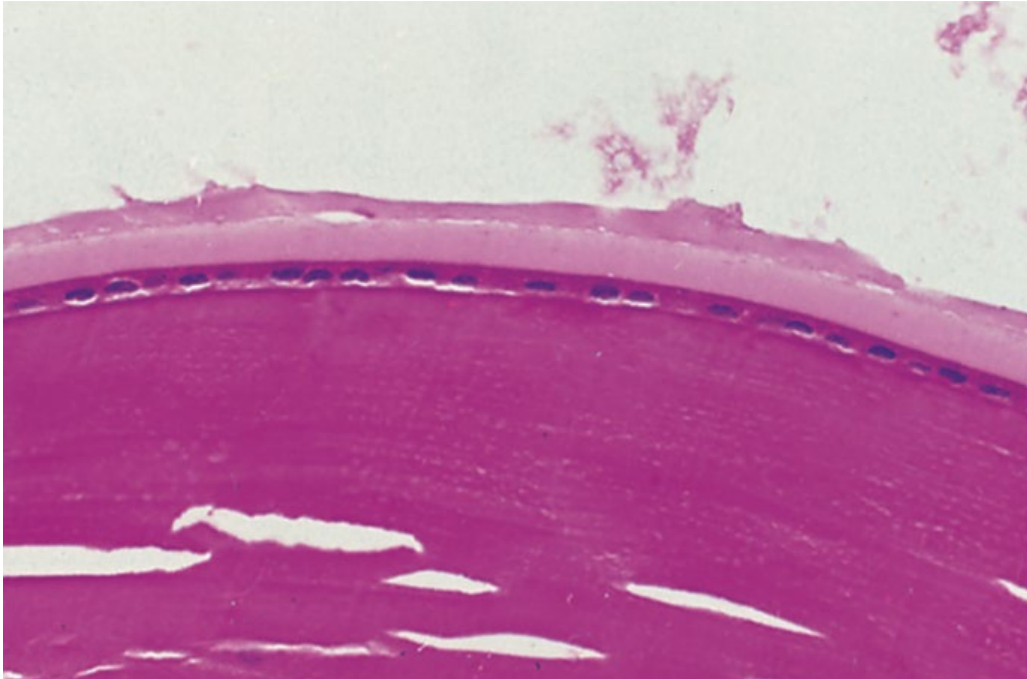
Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule.

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Pathwatching

Anterior



What's the diagnosis?

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Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?

This material on the lens capsule.

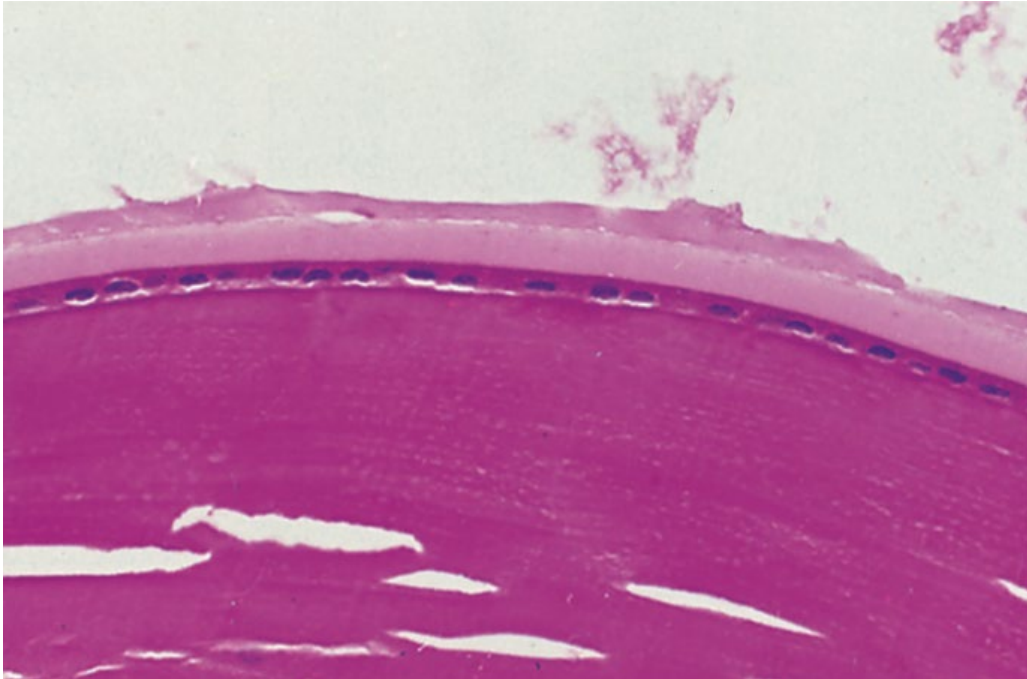
Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with

ophthalmic
condition



Pathwatching

Anterior



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How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?

This material on the lens capsule.

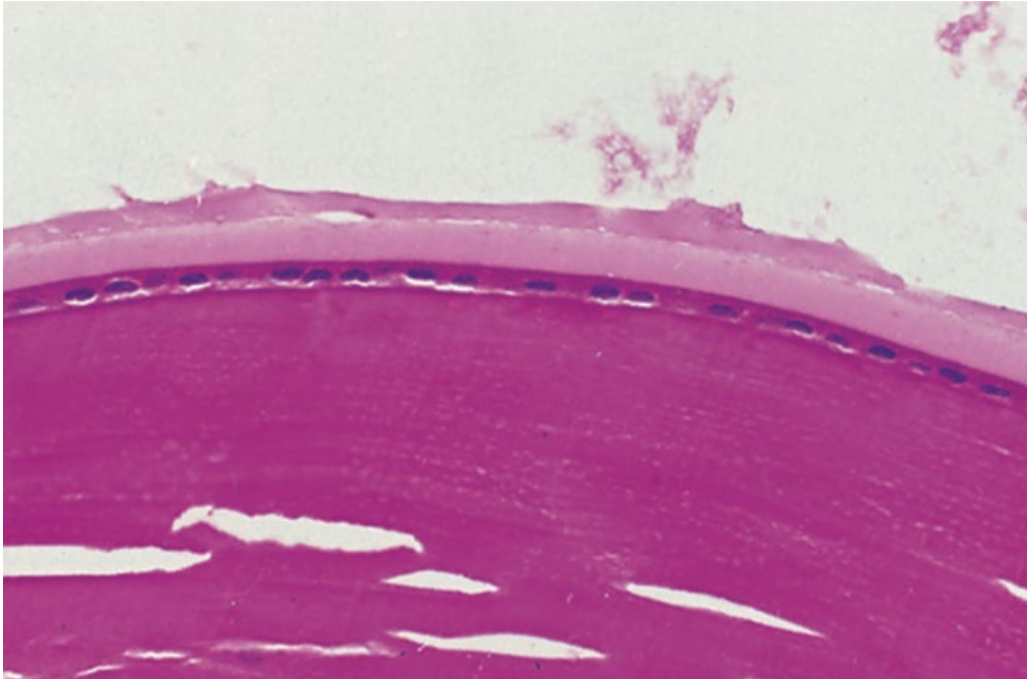
Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically -angle glaucoma



Pathwatching

Anterior



What's the diagnosis?

Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma

First: What tissue/structure is this?

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There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

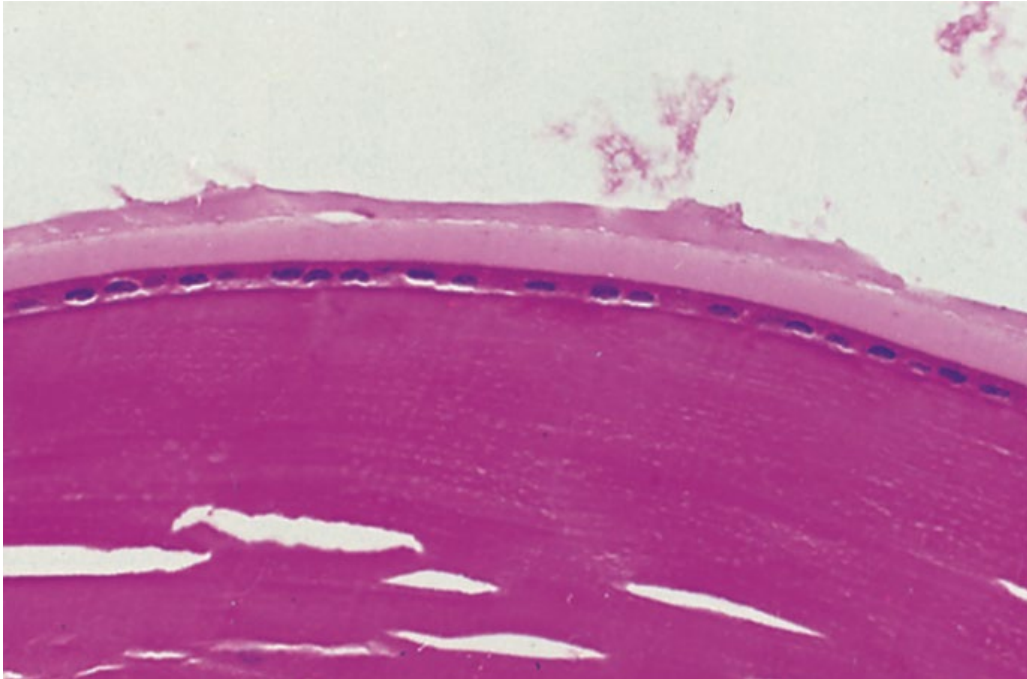
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This material on the lens capsule.



Pathwatching

Anterior



What's the diagnosis?

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This material on the lens capsule.

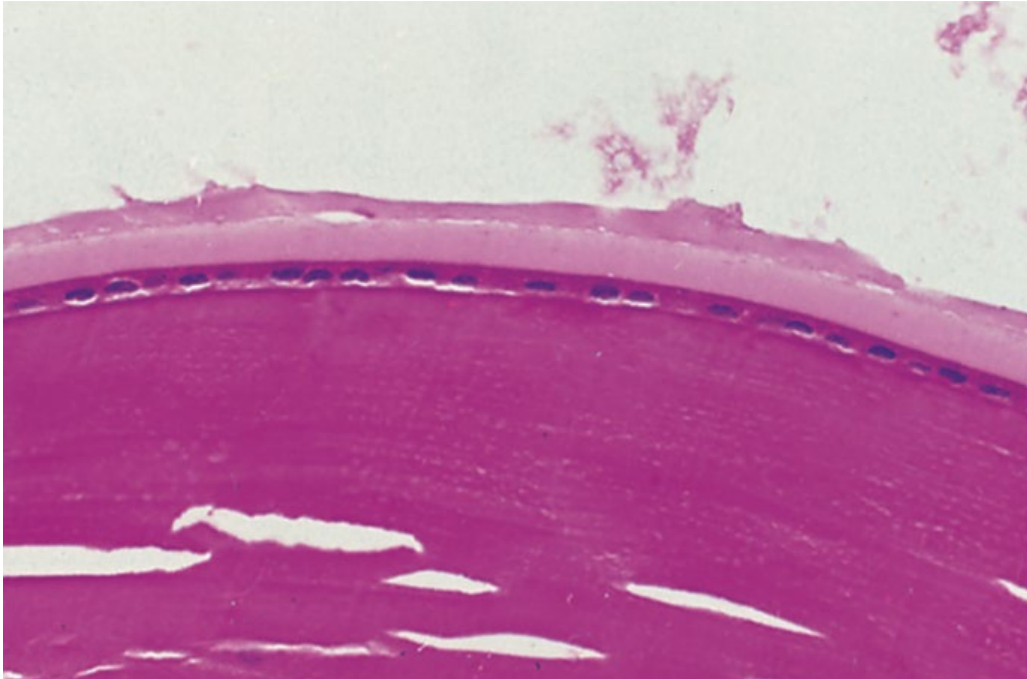
Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma, specifically primary vs secondary open-angle glaucoma.



Pathwatching

Anterior



What's the diagnosis?

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This material on the lens capsule.

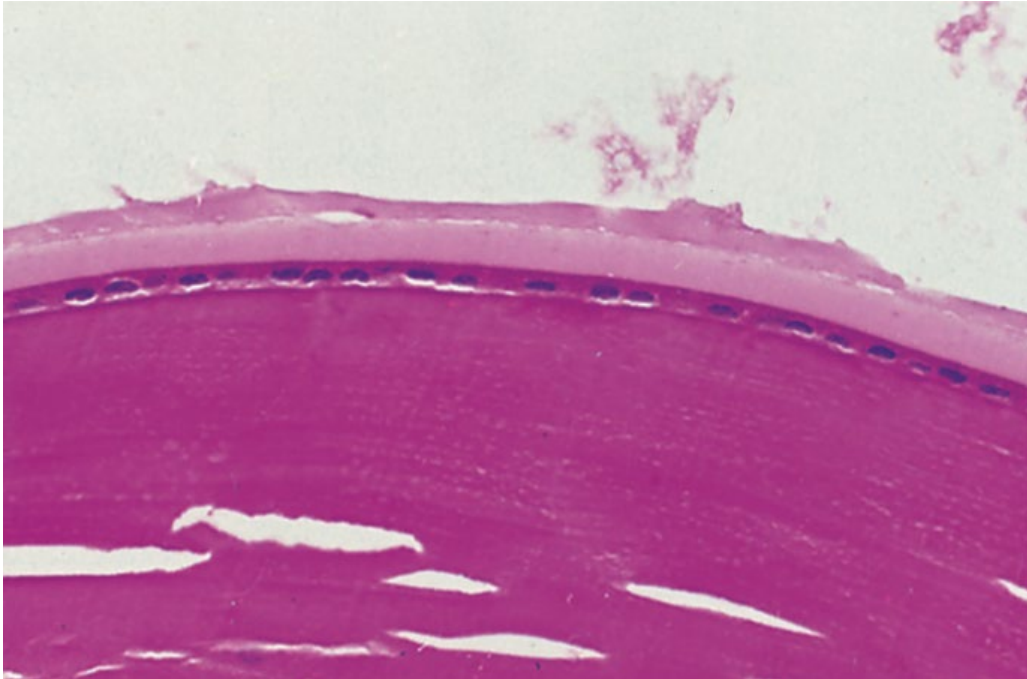
Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma, specifically secondary open-angle glaucoma.



Pathwatching

Anterior



What's the diagnosis?

First: What tissue/structure is this?

It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman's. But this interpretation is problematic in that:

--It's a single-layered epi (K epi is multi-layered)

--It's deep to the 'Bowman's' (K epi is on top of Bowman's)

So it ain't cornea.

There's only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we're looking at, why are we looking at it, ie, what's abnormal?

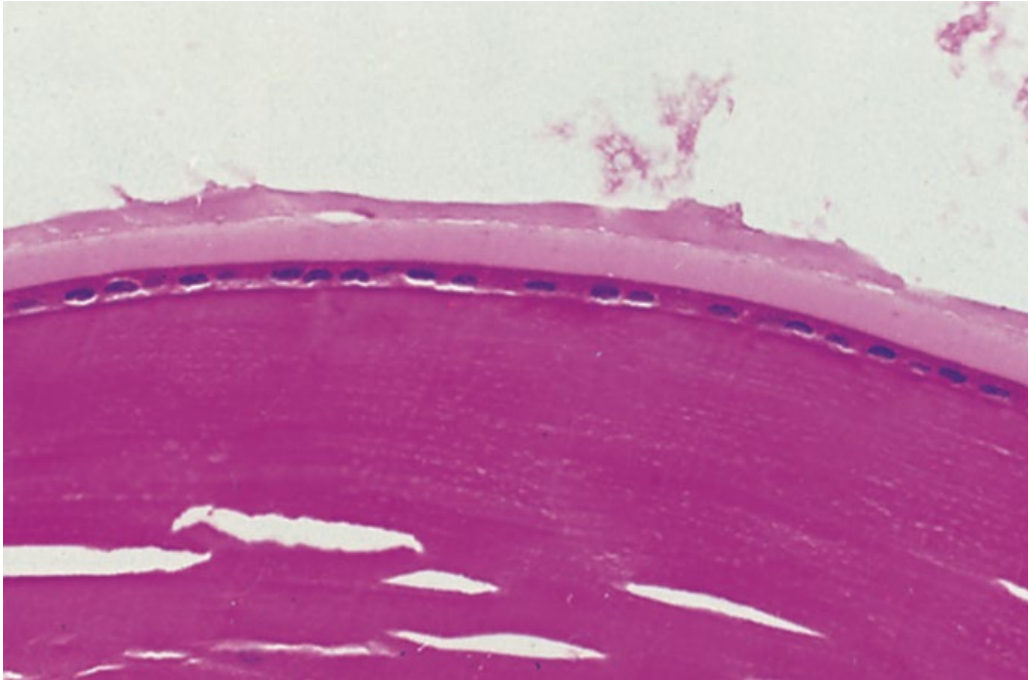
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Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma* and an increased risk of intra-op complications during surgery.



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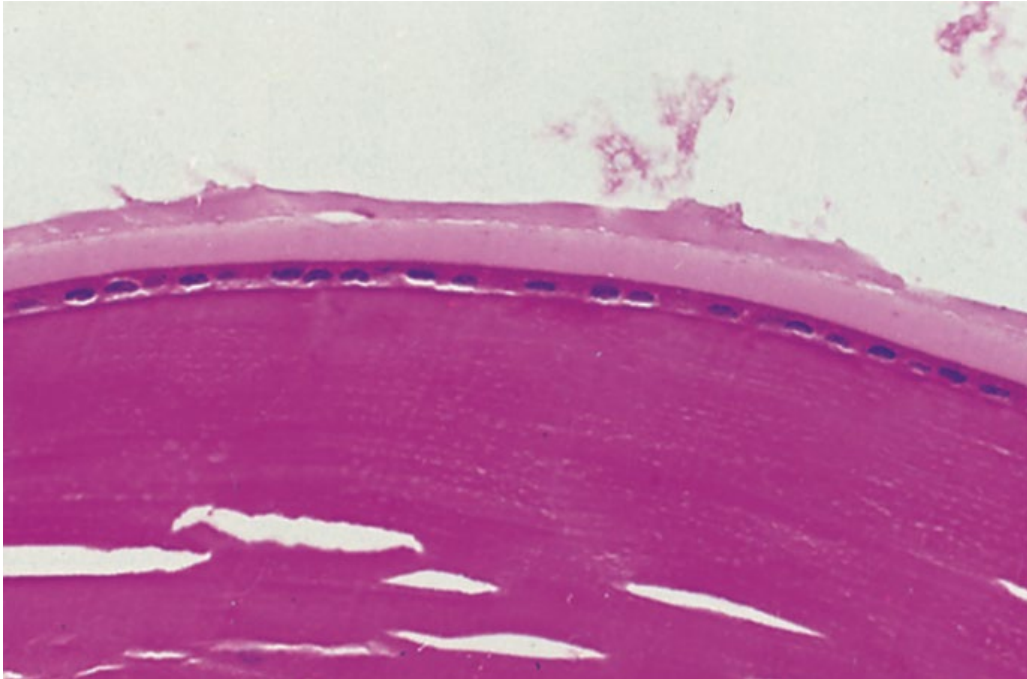
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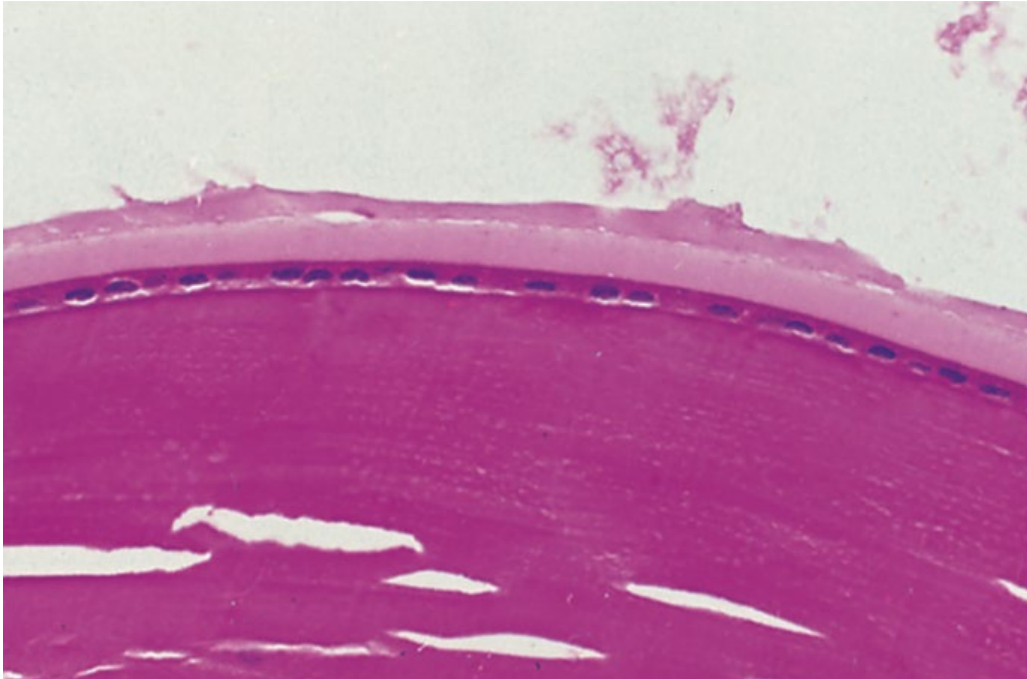
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The appearance of the accumulated material has been likened to a **buzzword** pattern and ' **buzz-term (two words)** '.



Pathwatching

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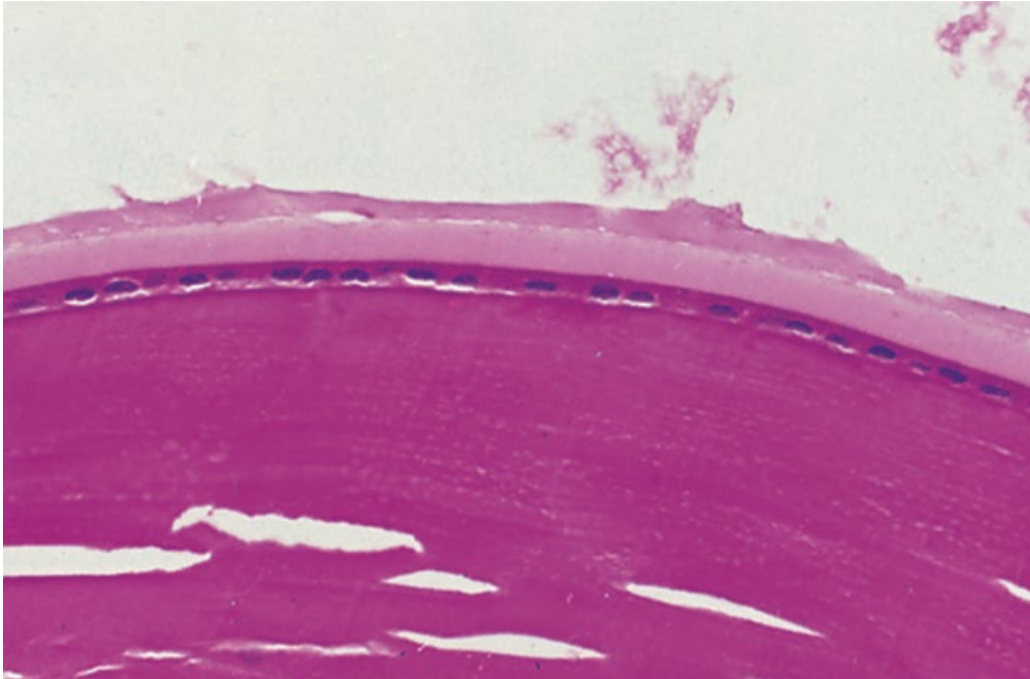
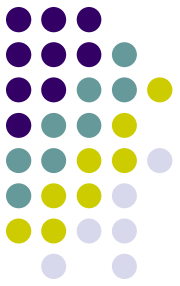
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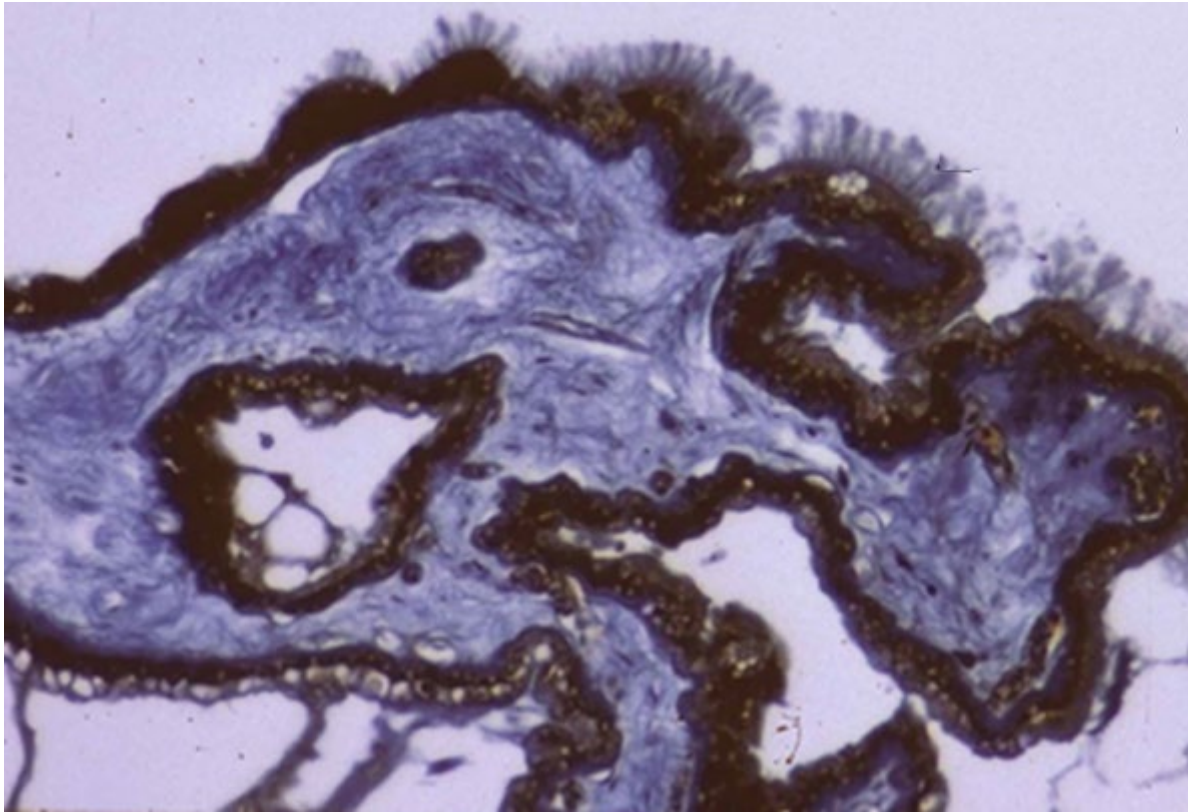
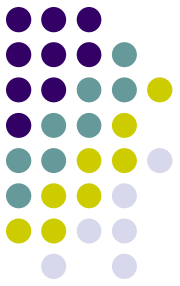
The appearance of the accumulated material has been likened to a sawtooth pattern and 'iron filings'.

Pathwatching



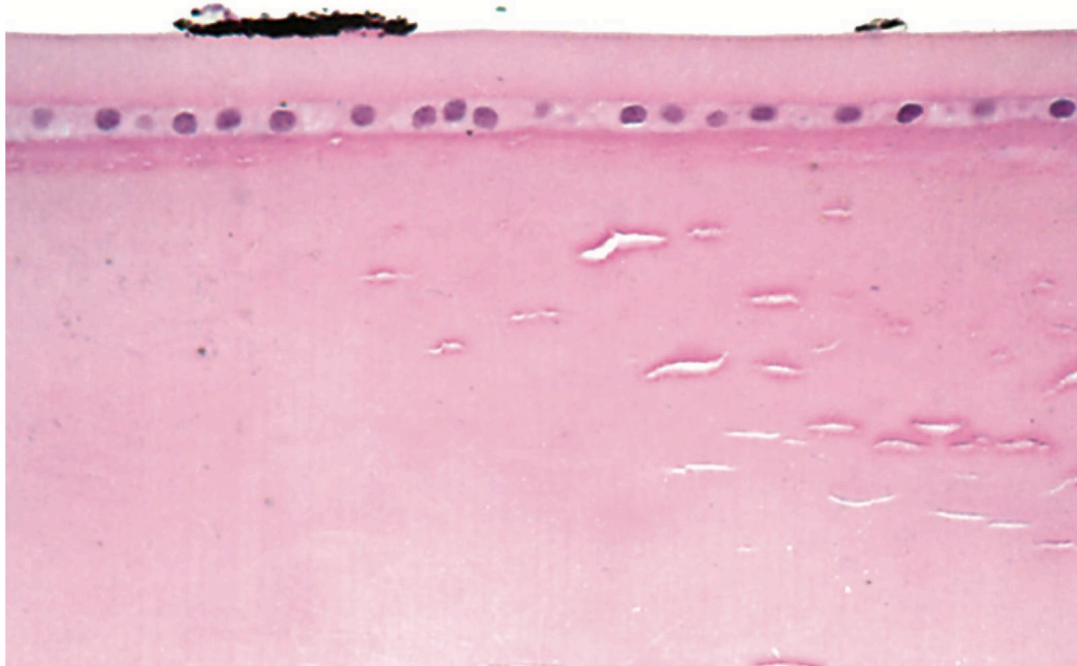
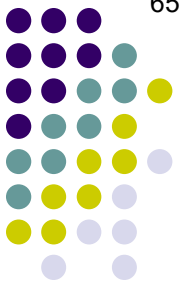
Keeping it 100: This is a *terrible* pic to use when asserting that PXS fibrillar material adopts what could be called an 'iron filings' configuration.

Pathwatching



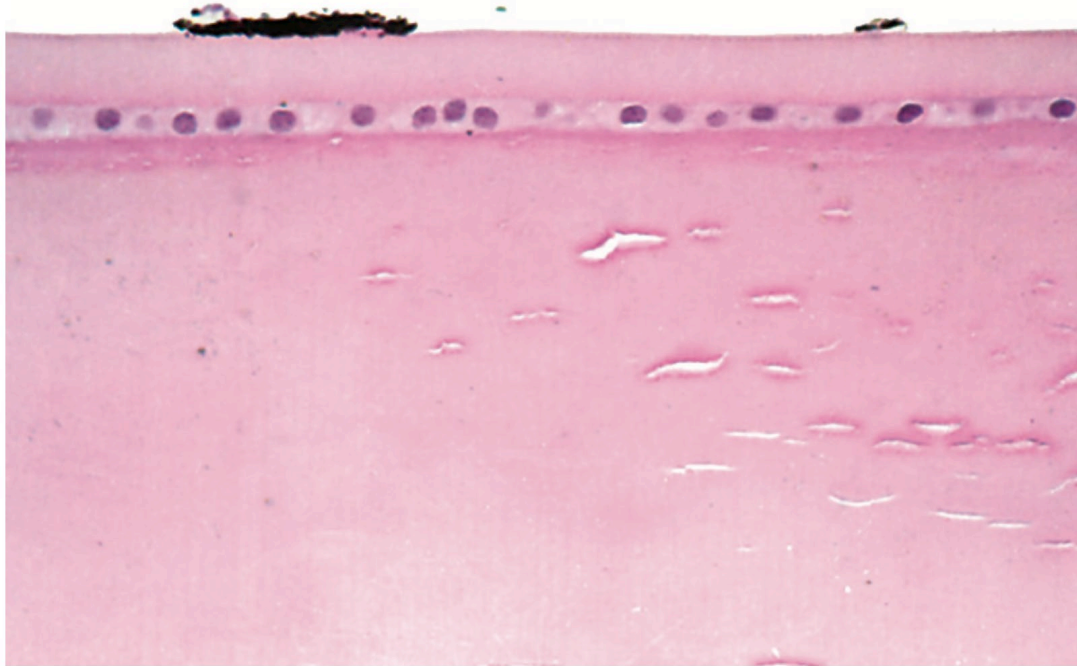
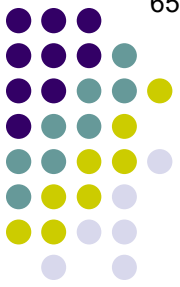
Keeping it 100: This is a *terrible* pic to use when asserting that PXS fibrillar material adopts what could be called an 'iron filings' configuration. **This pic of fibrillar material on the ciliary body does justice to the assertion. Just FYI.**

Pathwatching



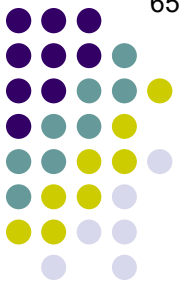
Once again, we're faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it's black and flat.

Pathwatching

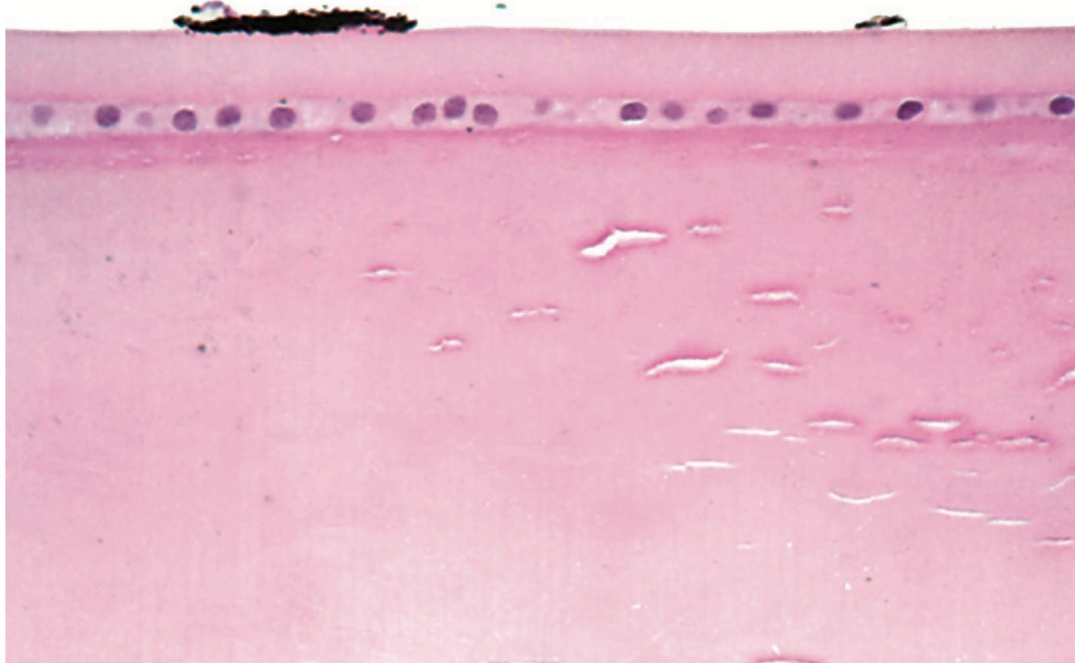


Once again, we're faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it's black and flat. *What's going on here?*

What's the diagnosis?



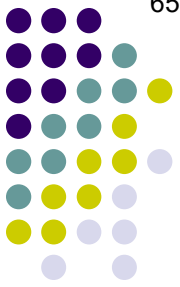
Pathwatching



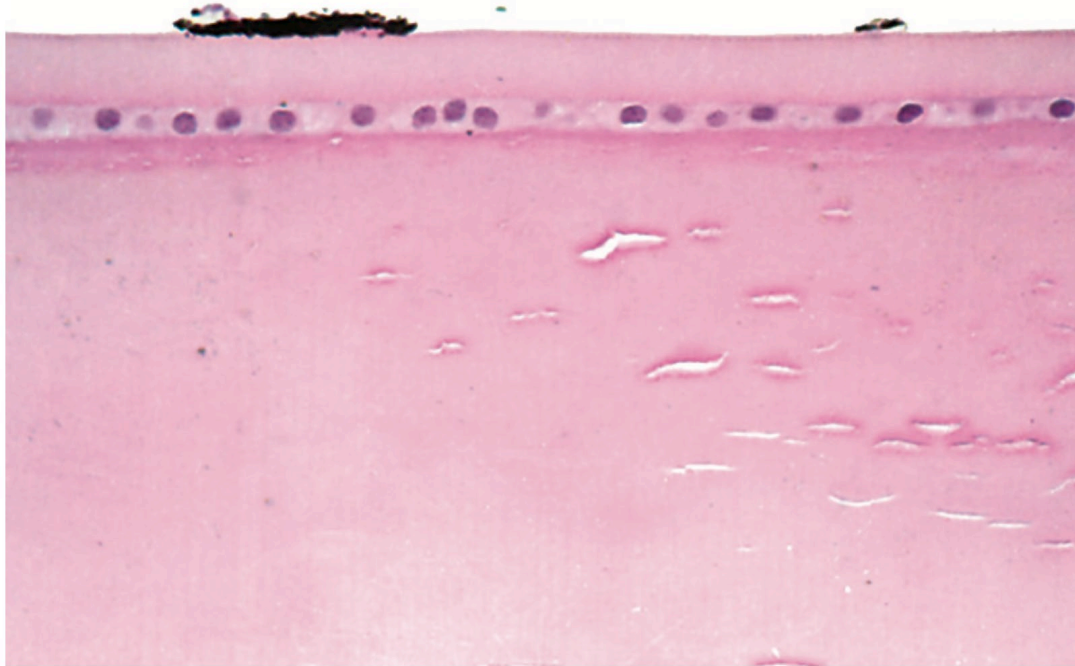
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What's the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the anterior vs posterior iris surface and the [redacted]



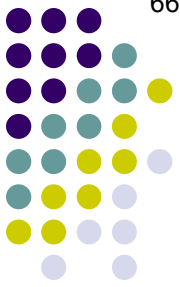
Pathwatching



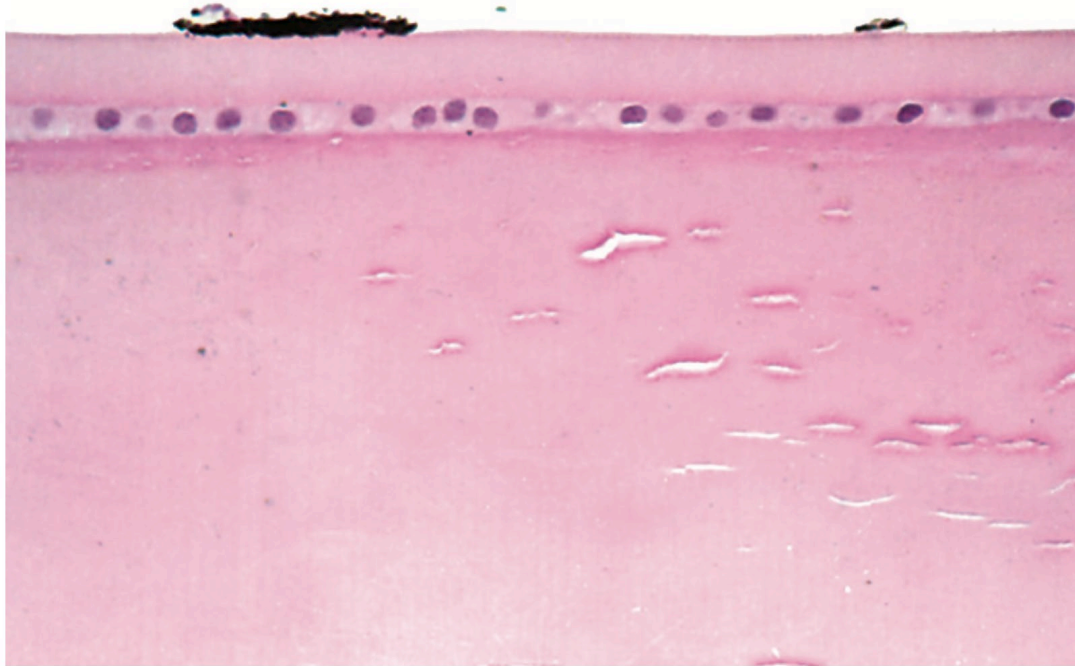
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What's the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules.



Pathwatching

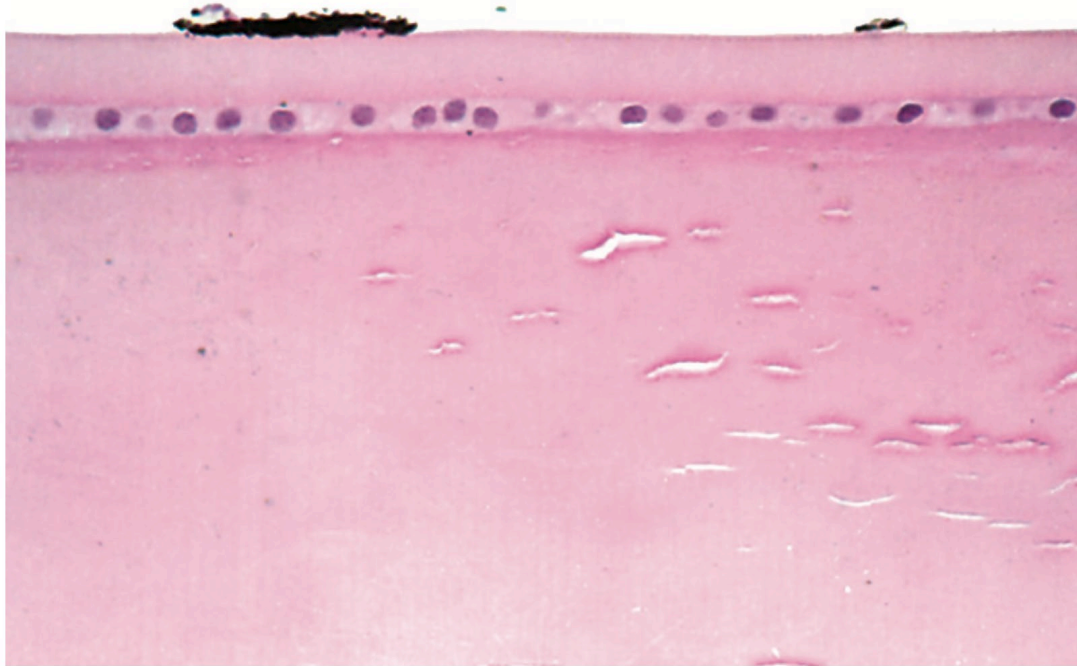


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What's the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates two words from the iris

Pathwatching

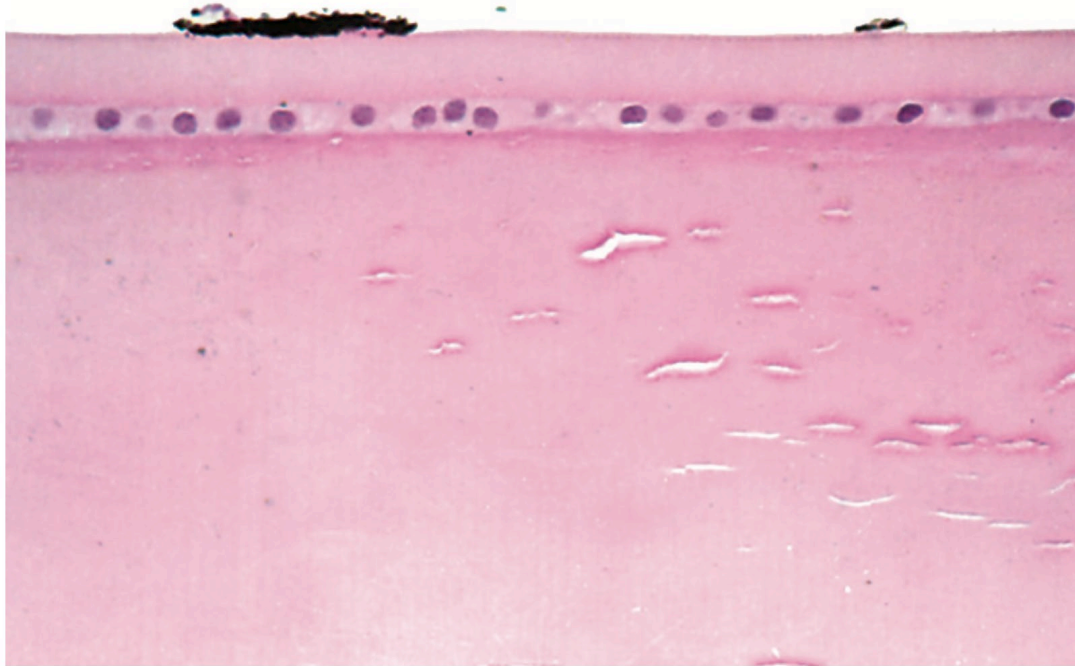


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Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris

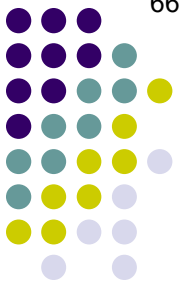
Pathwatching



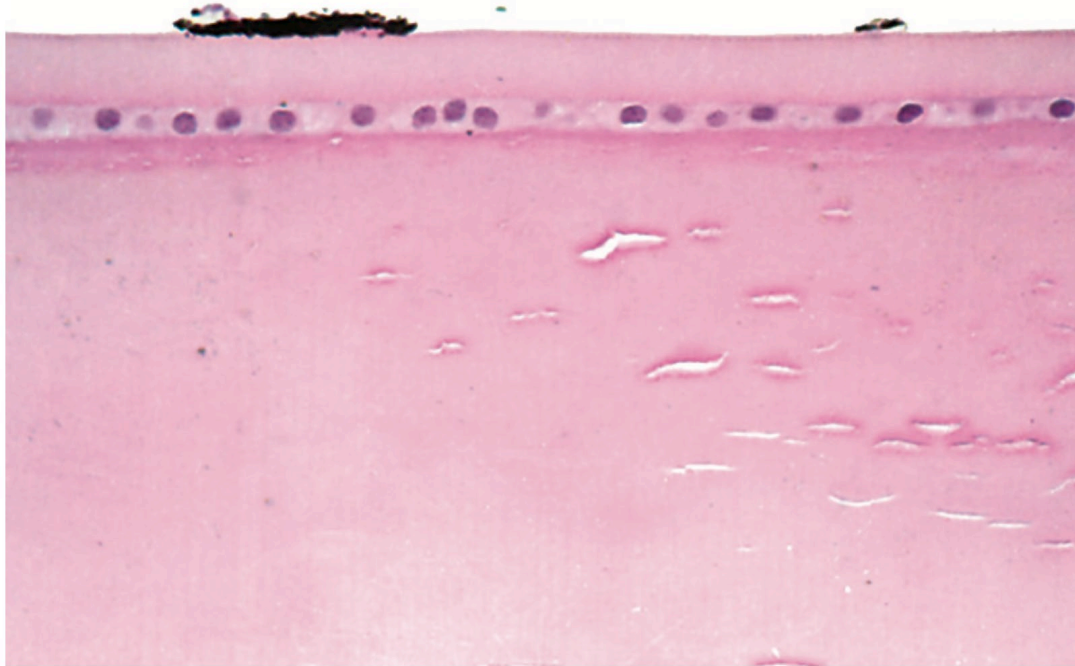
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What's the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris, which subsequently deposit on intraocular structures including the lens capsule.



Pathwatching



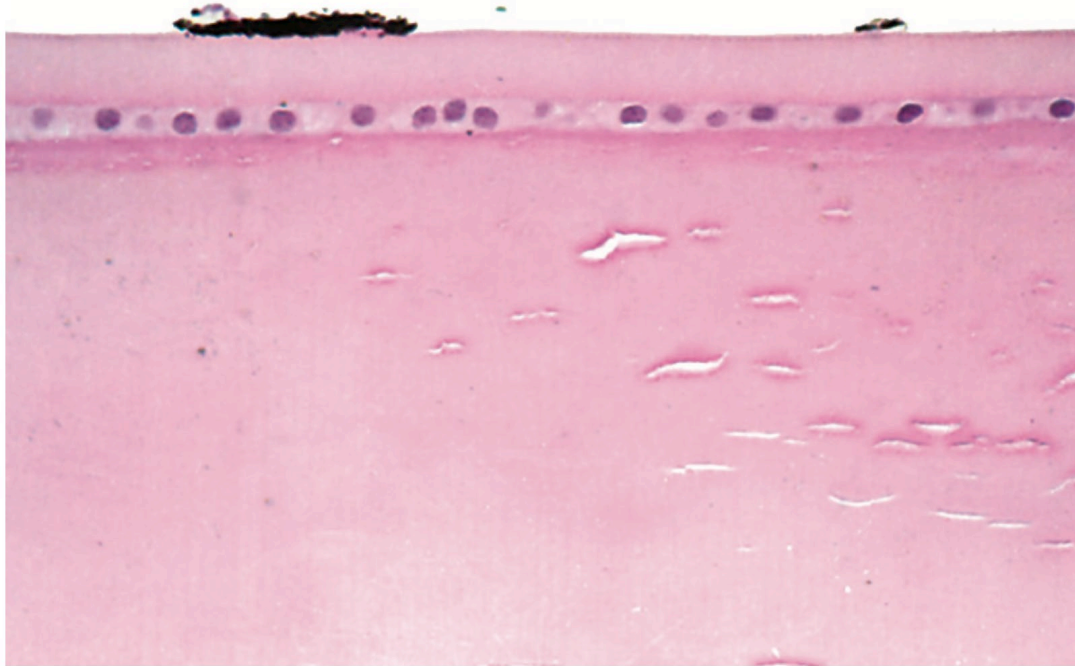
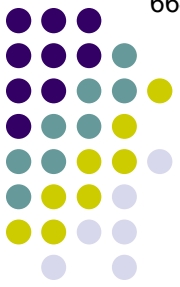
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What's the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris, which subsequently deposit on intraocular structures including the lens capsule. Pts with PDS are at risk of developing

two words

Pathwatching

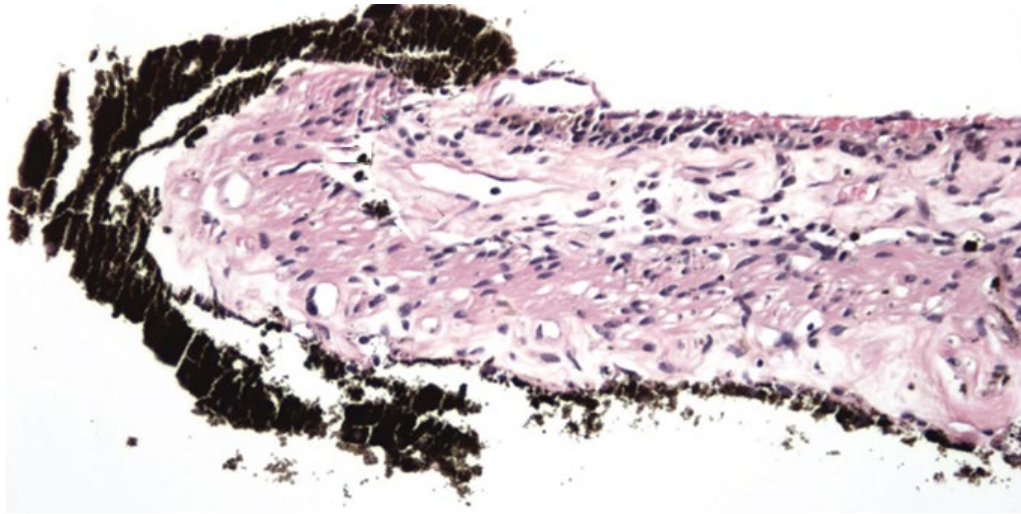


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Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris, which subsequently deposit on intraocular structures including the lens capsule. Pts with PDS are at risk of developing pigmentary glaucoma .

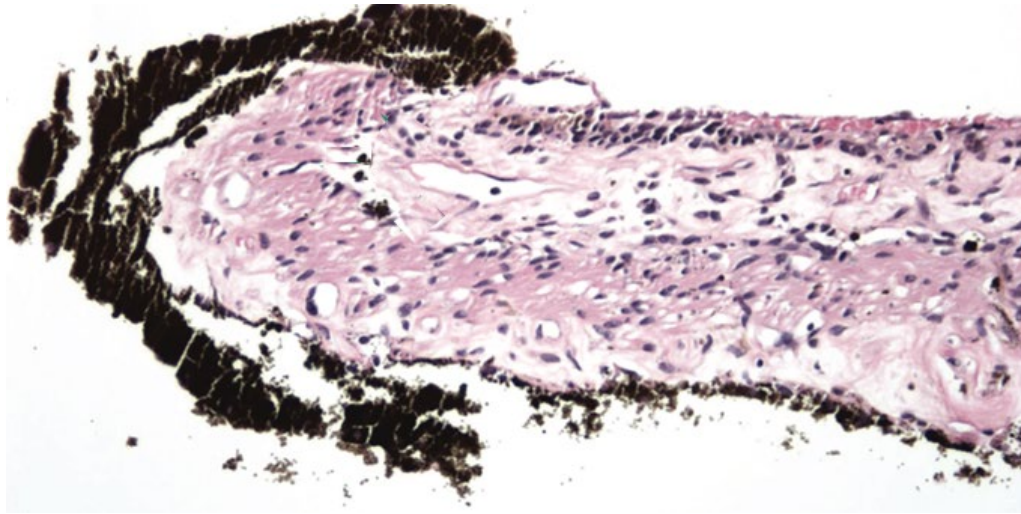
Pathwatching



First things first: What tissue is this?

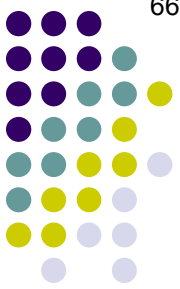


Pathwatching

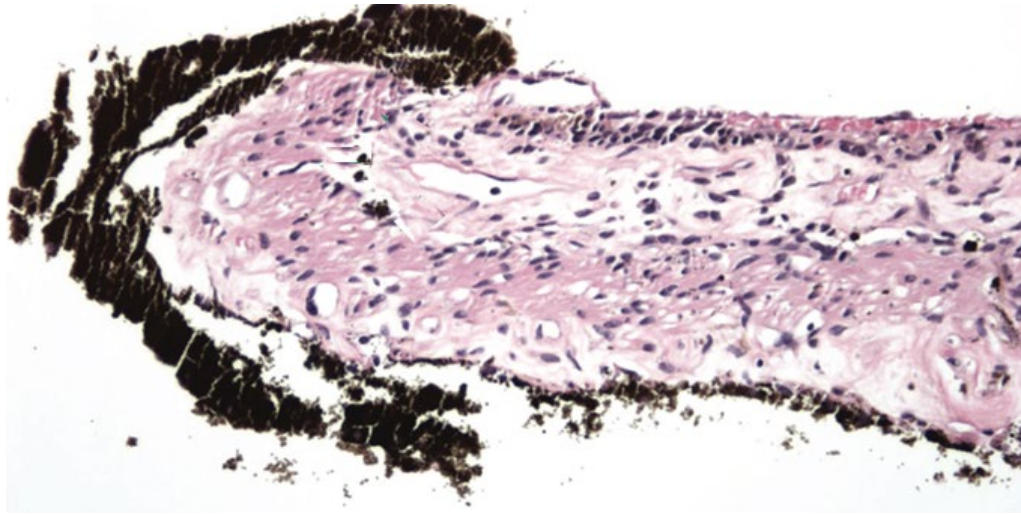


First things first: What tissue is this?

It's long and skinny, and has a natural end—*is it a section of eyelid at the margin?*



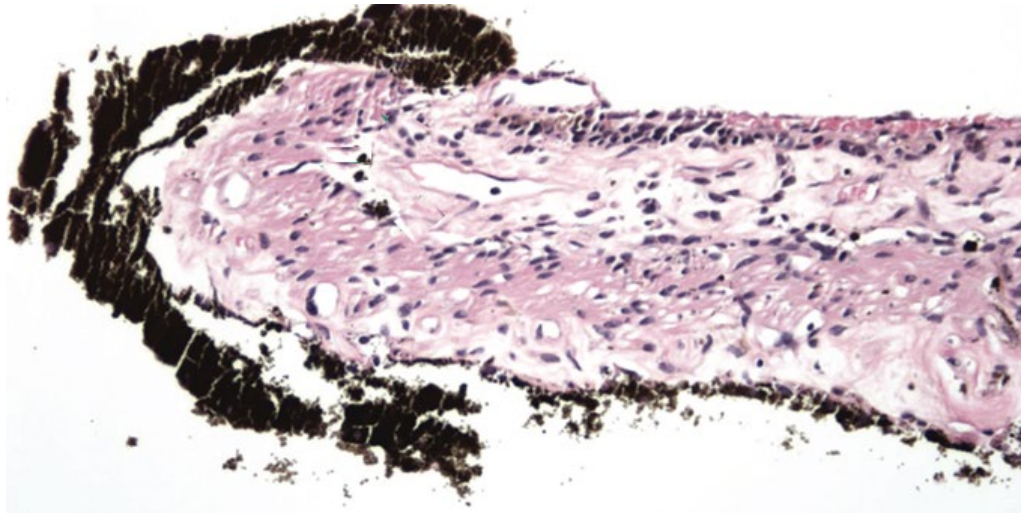
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It's long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks **nothing** like a lid margin.

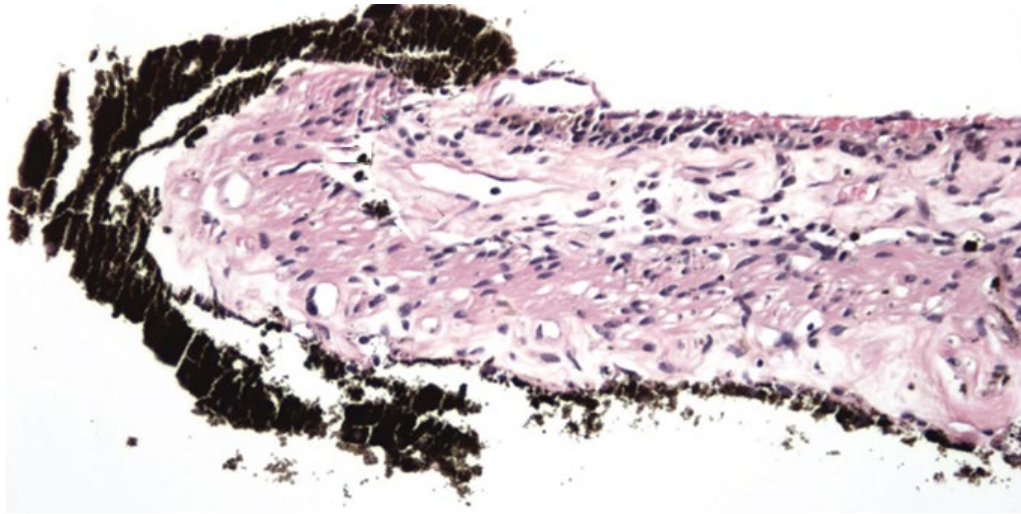
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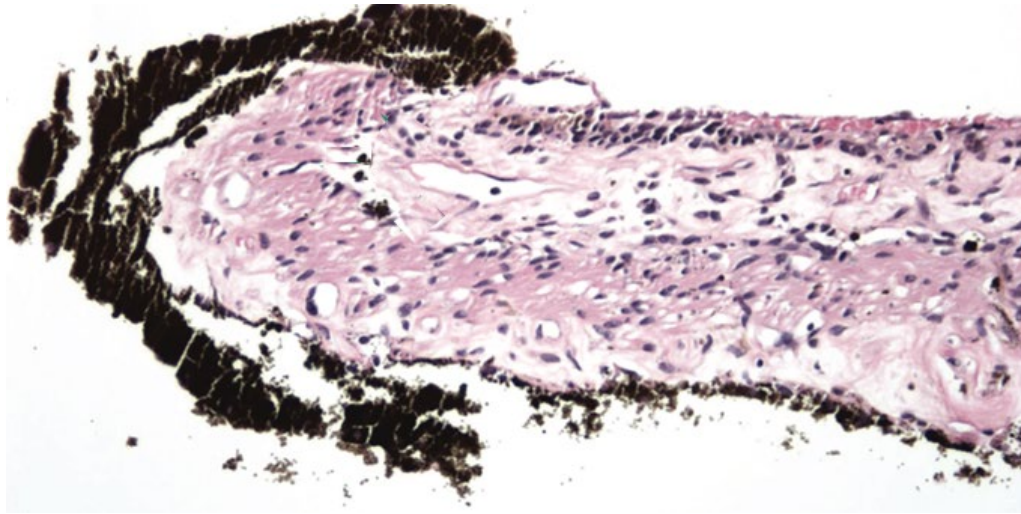
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Pathwatching



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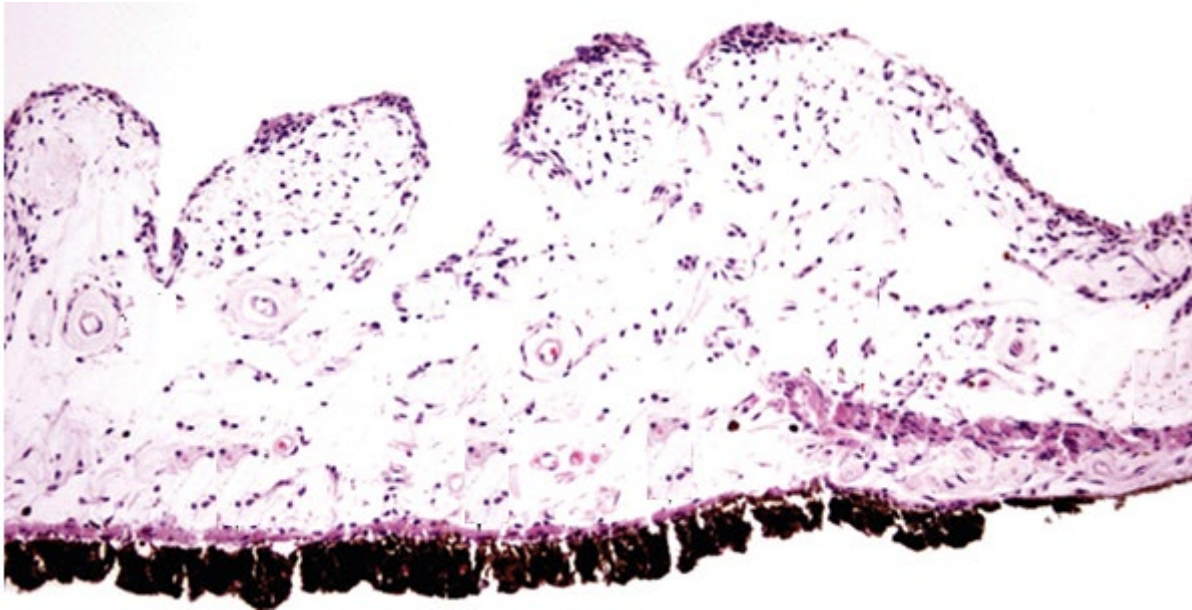
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Before getting into the pathology here, let's review normal iris anatomy...

Pathwatching



Anterior? Posterior?



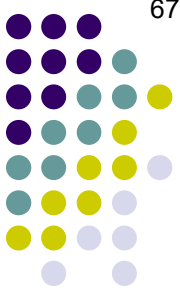
*Iris root is
this way*

*Pupil is
this way*

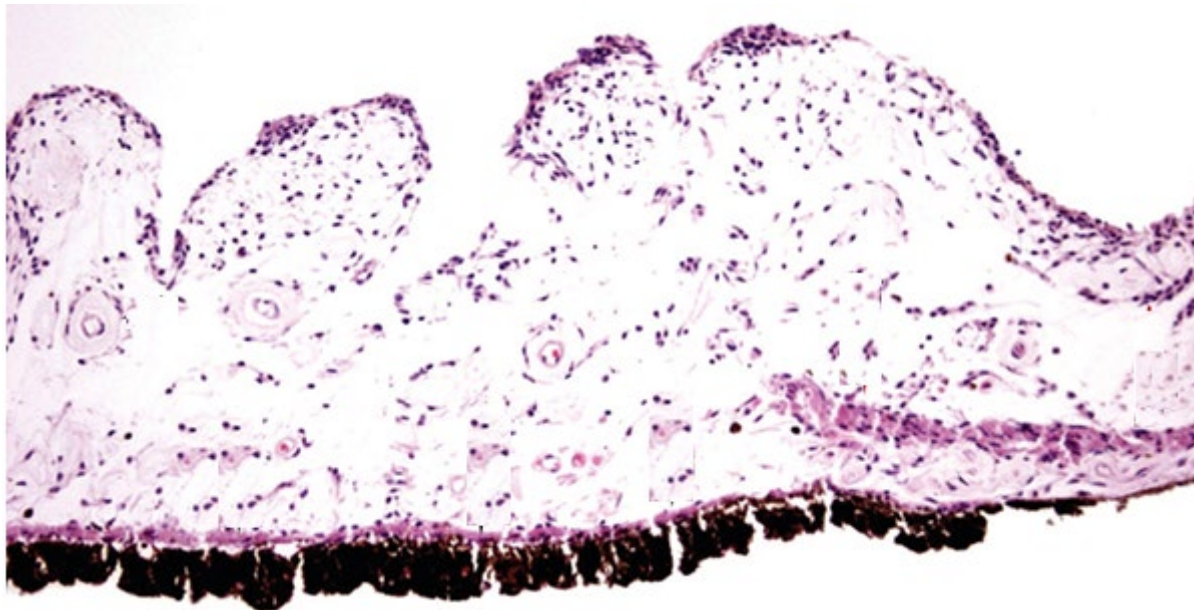
Anterior? Posterior?

Normal iris. *Which surface is anterior, and which is posterior?*

Pathwatching



Anterior



Iris root is
this way

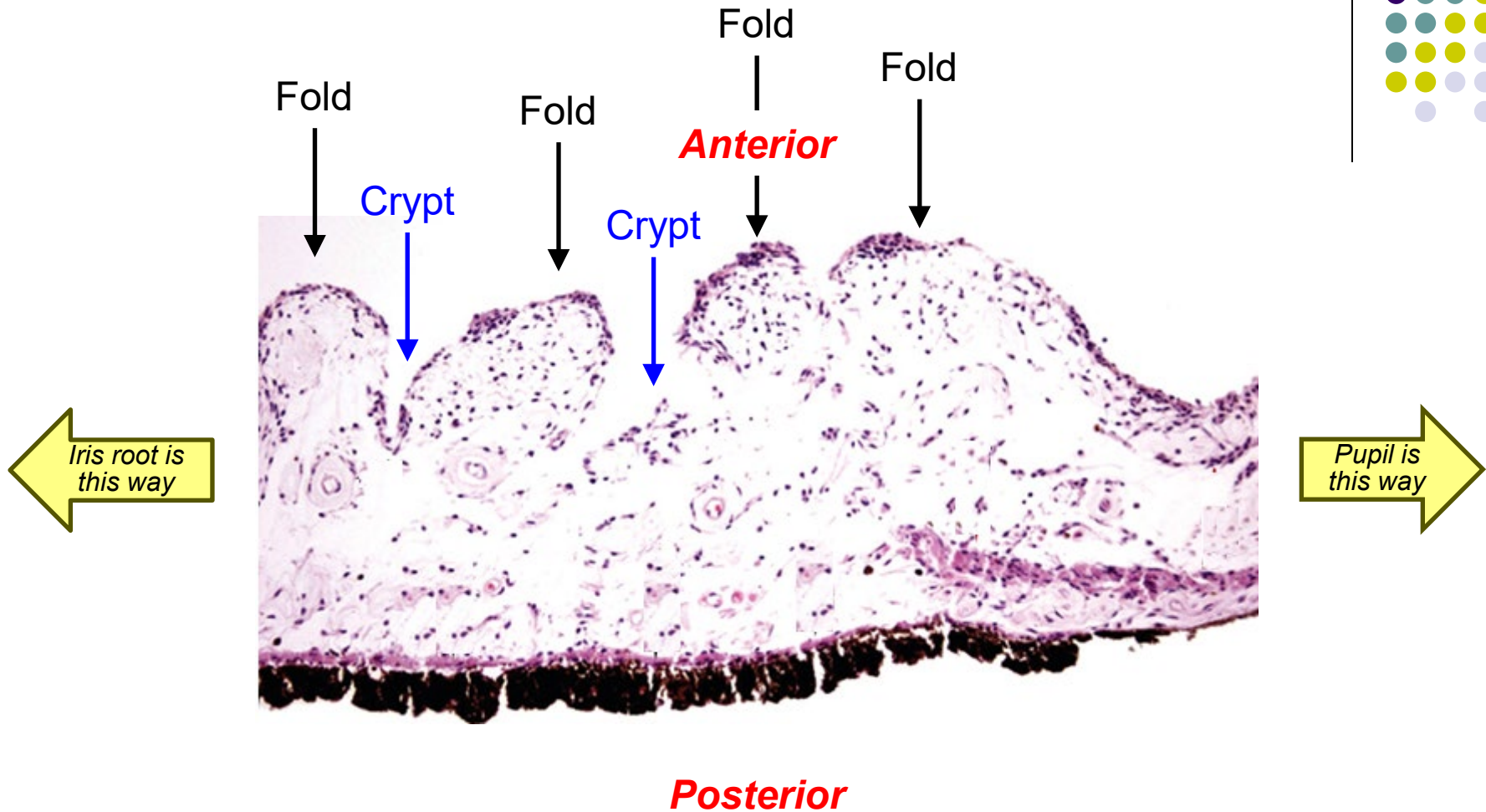
Pupil is
this way

Posterior

Normal iris. Which surface is anterior, and which is posterior?

The anterior surface is corrugated, with large separated by deep .

Pathwatching

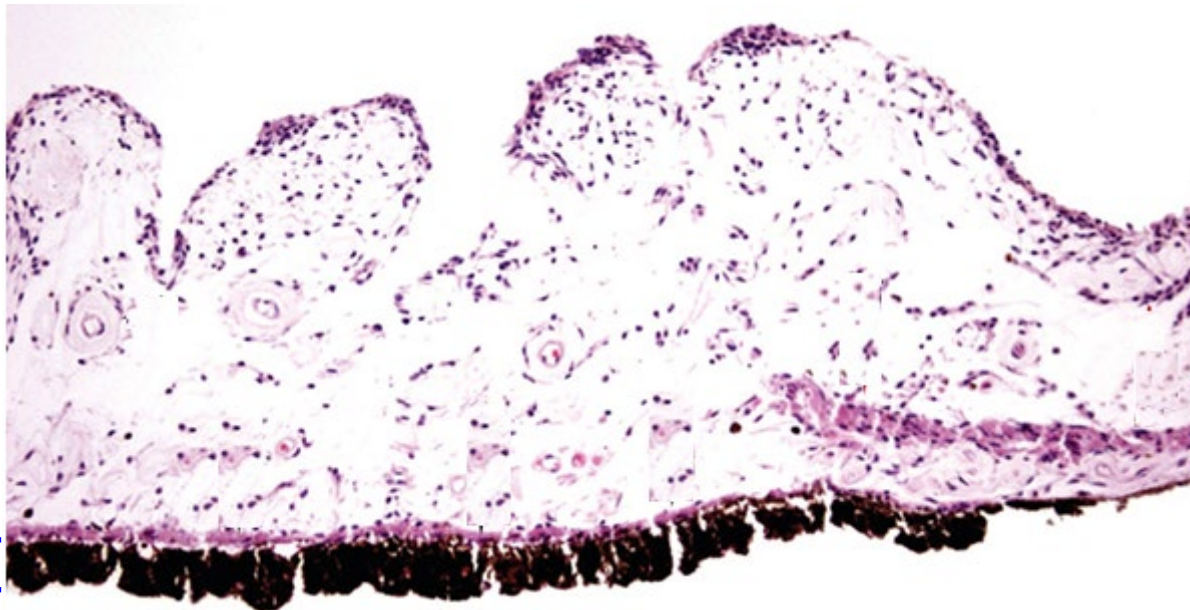


Normal iris. Which surface is anterior, and which is posterior?
 The anterior surface is corrugated, with large folds separated by deep crypts .

Pathwatching



Anterior



Iris root is
this way

Pupil is
this way

? {

Posterior

Normal iris. Which surface is anterior, and which is posterior?

The anterior surface is corrugated, with large folds separated by deep crypts. The posterior surface is lined by a densely-pigmented layer of cells oriented

single v
double
v triple,
etc

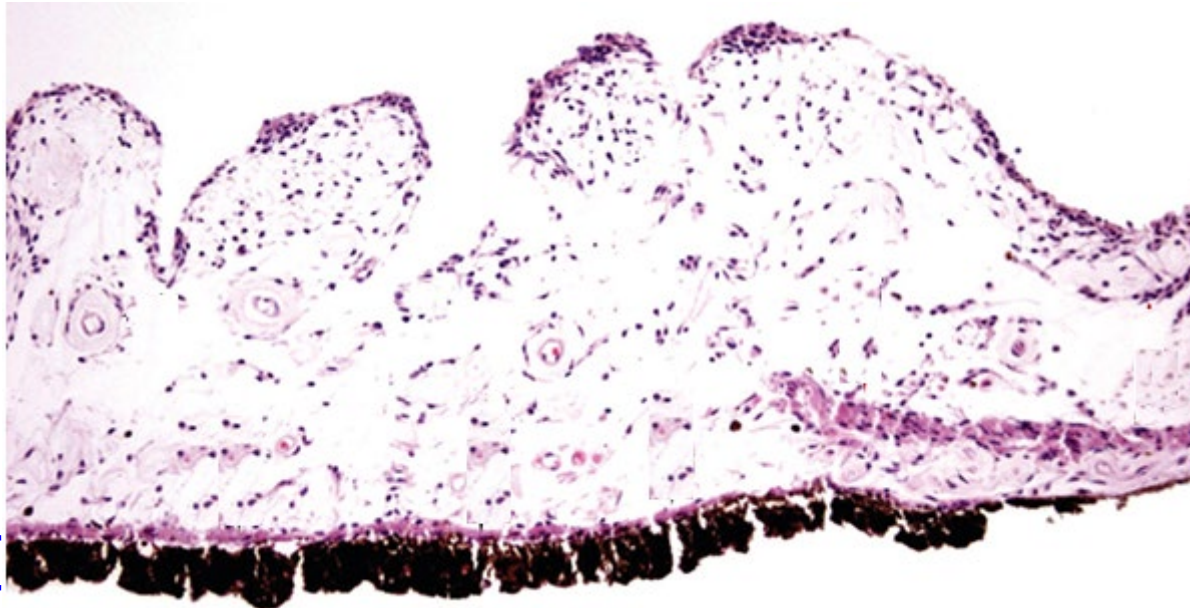
cell type

base-to-base?
base-to-apex?
apex-to-apex?

Pathwatching



Anterior



Iris root is
this way

Pupil is
this way

Double layered
epi cells

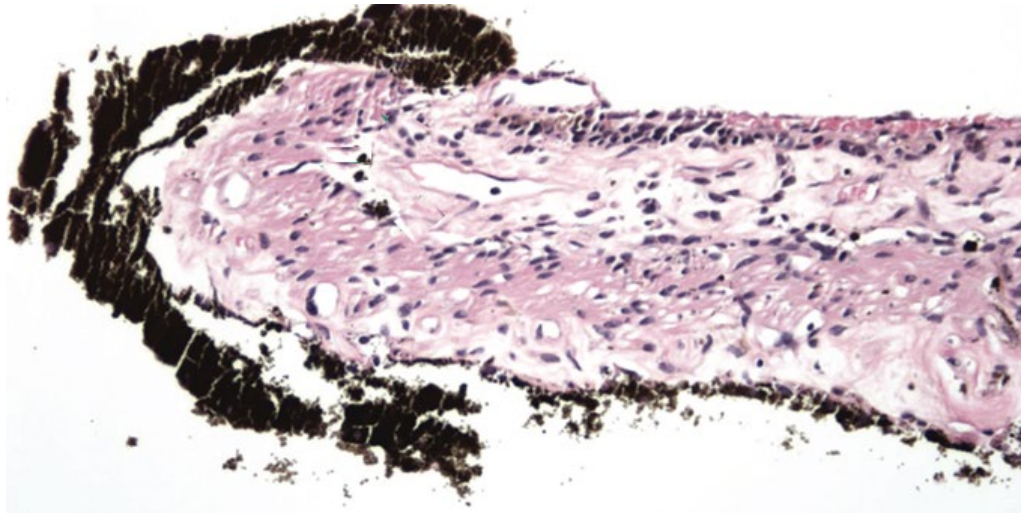
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Normal iris. Which surface is anterior, and which is posterior?

The anterior surface is corrugated, with large folds separated by deep crypts. The posterior surface is lined by a densely-pigmented double layer of epithelial cells oriented apex-to-apex.*

*See slide-set *FELT21* if you don't understand how the apex-to-apex arrangement came to be.

Pathwatching



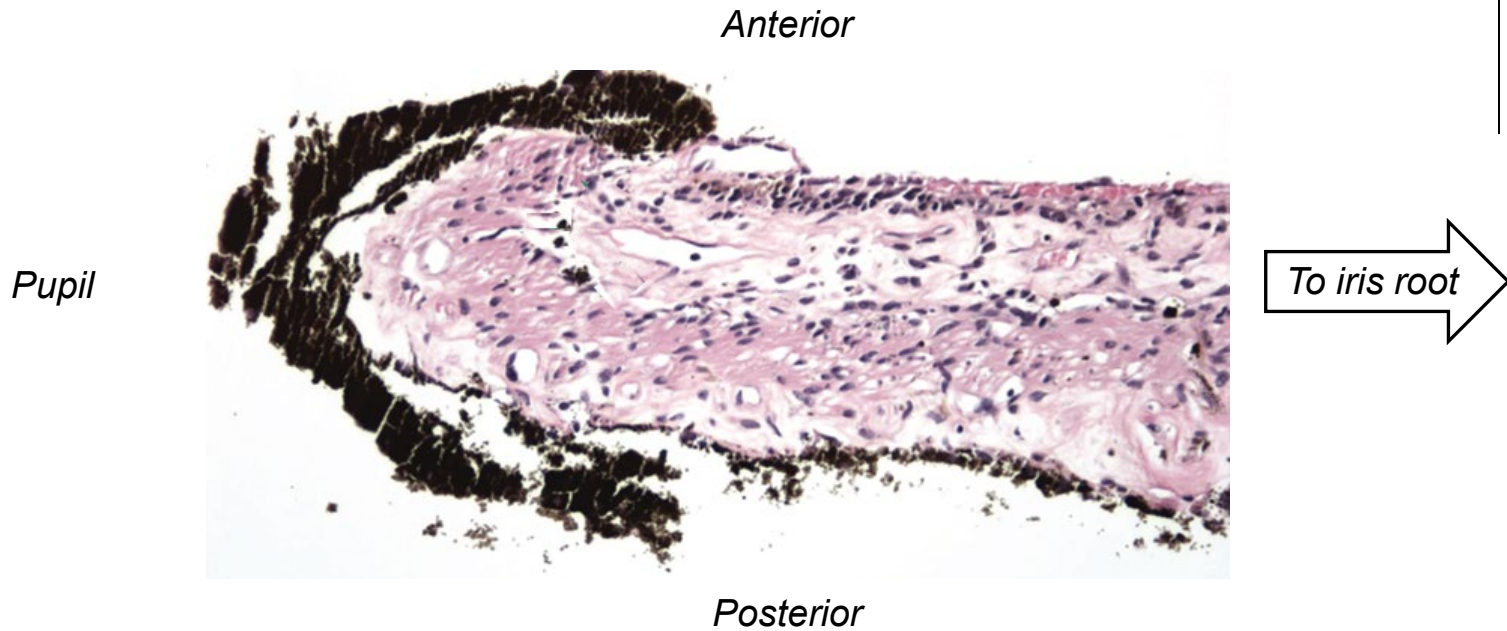
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Now back to our path slide.

Pathwatching



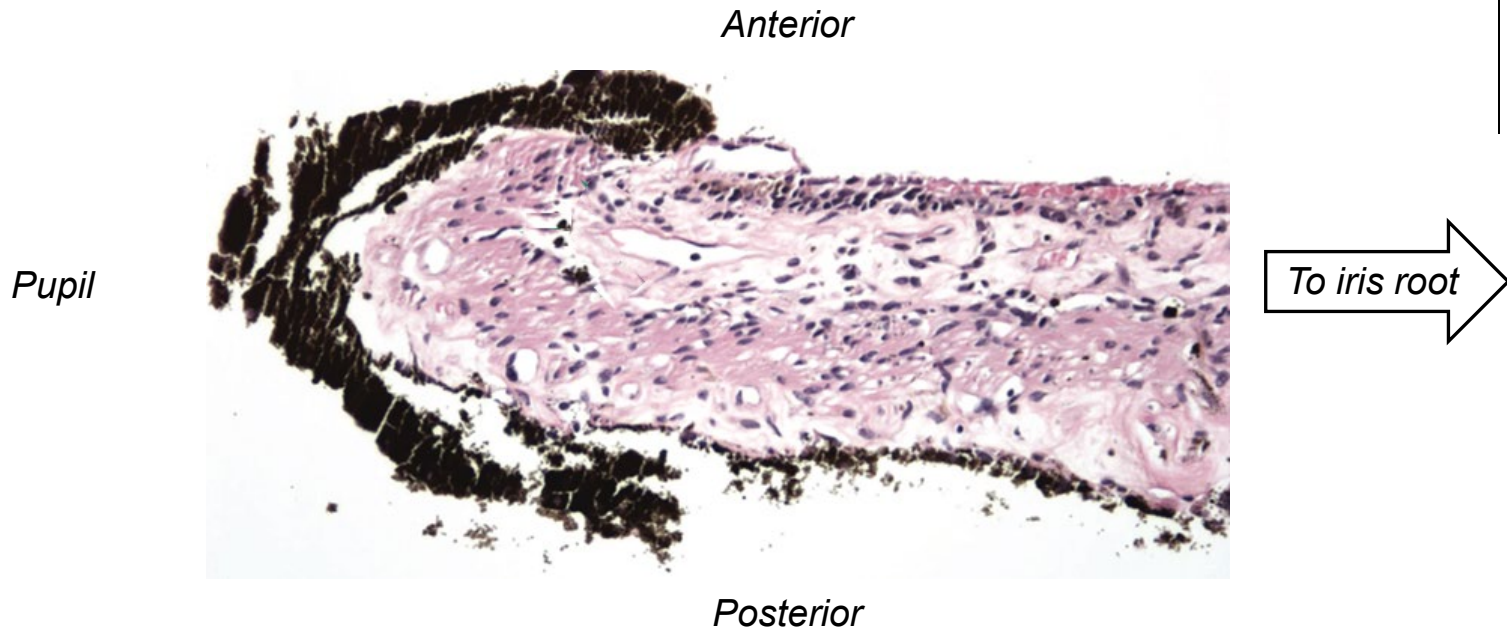
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Pathwatching



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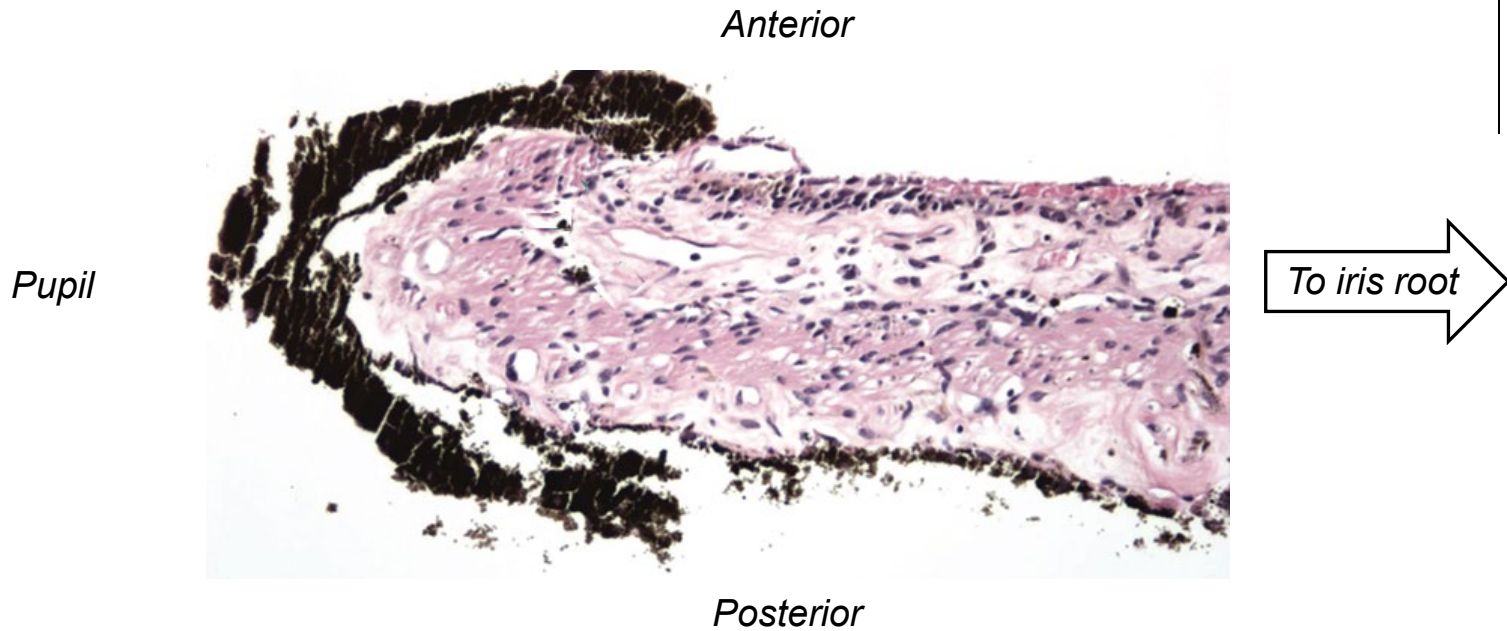
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--?

--?

Pathwatching



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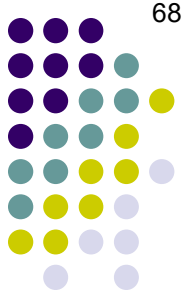
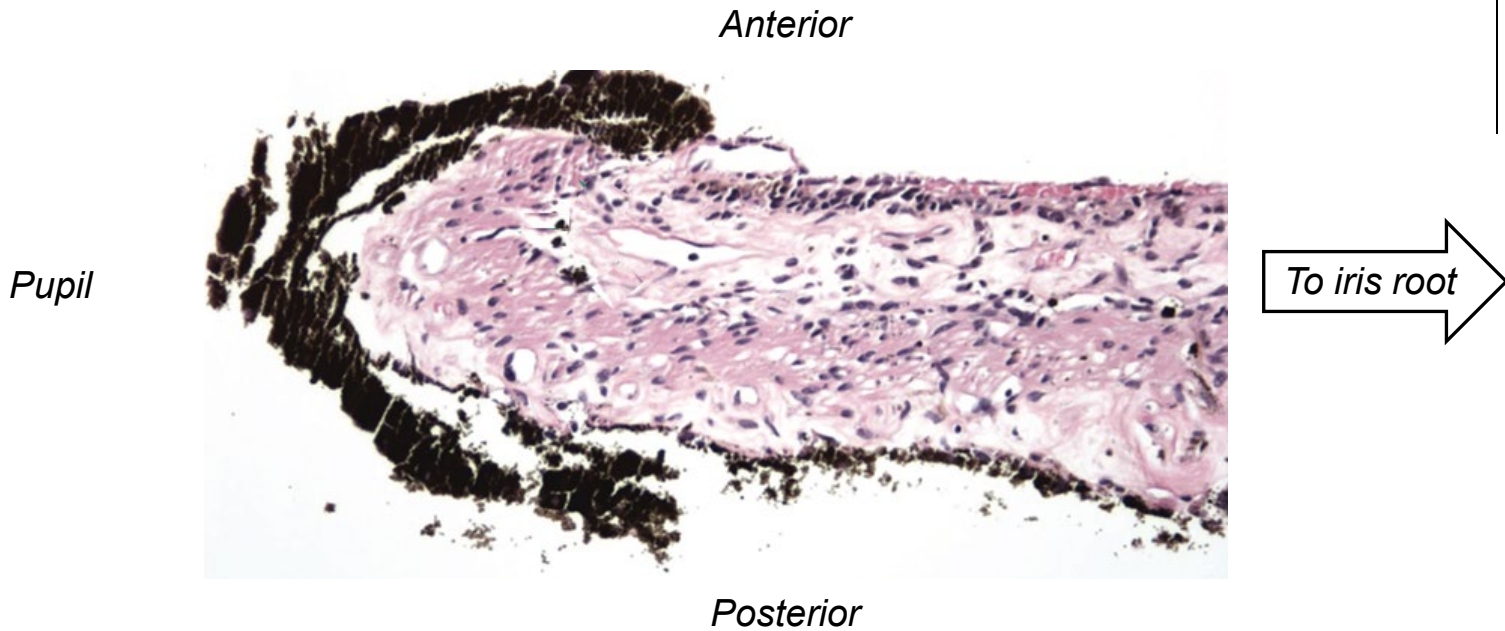
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--The anterior iris is unnaturally

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Pathwatching



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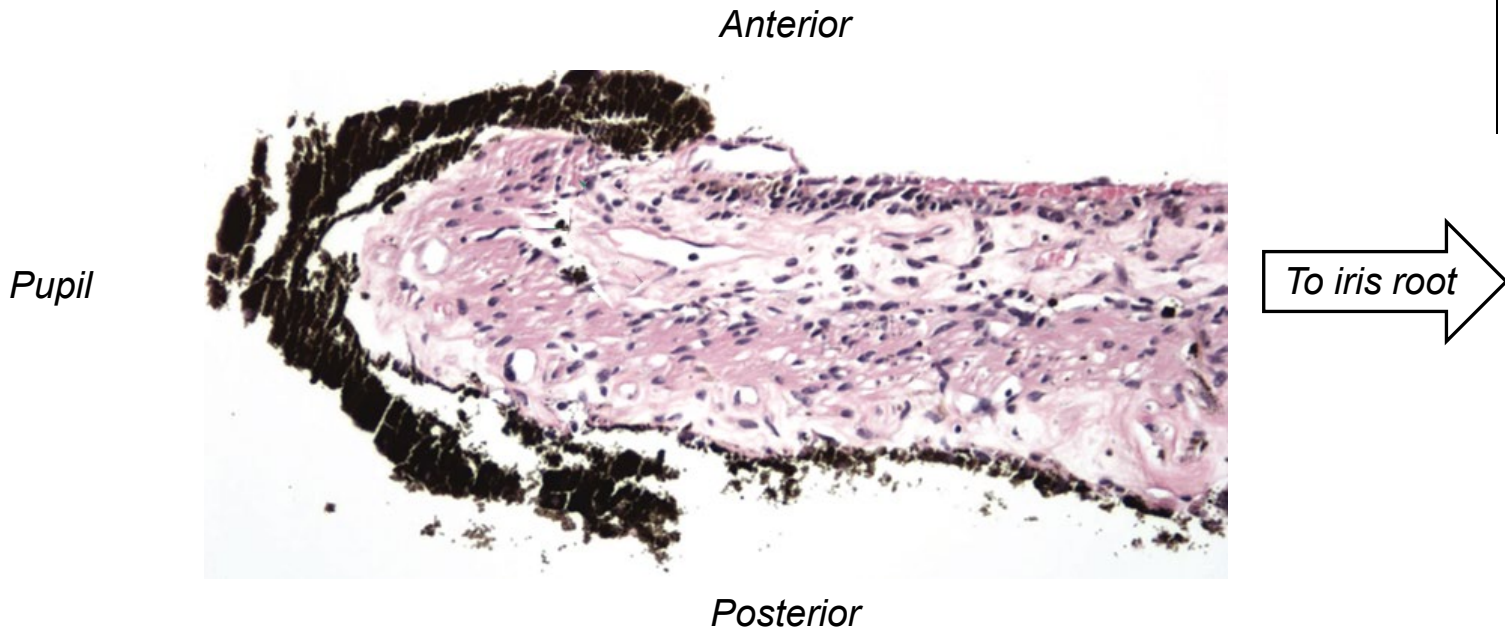
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--The anterior iris is unnaturally flat

--?

Pathwatching



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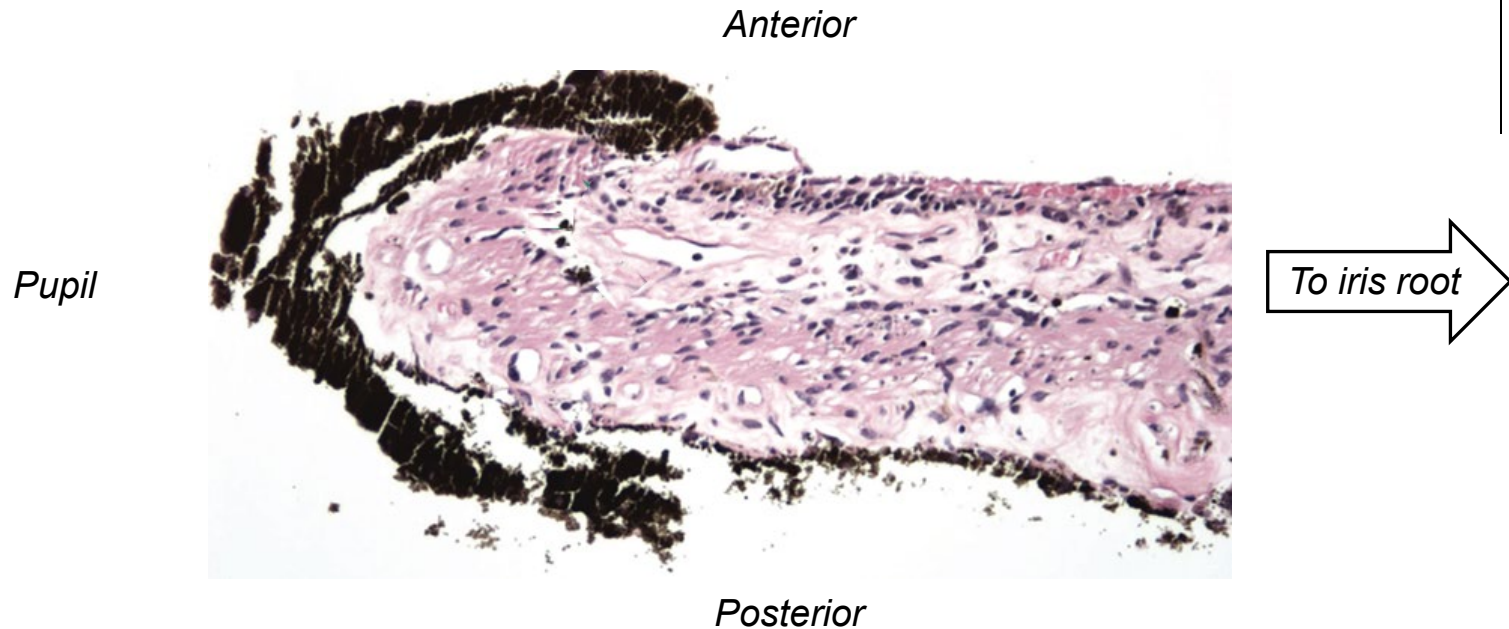
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--The anterior iris is unnaturally flat

--The posterior pigmented epi bilayer has

lotsa words

Pathwatching



First things first: What tissue is this?

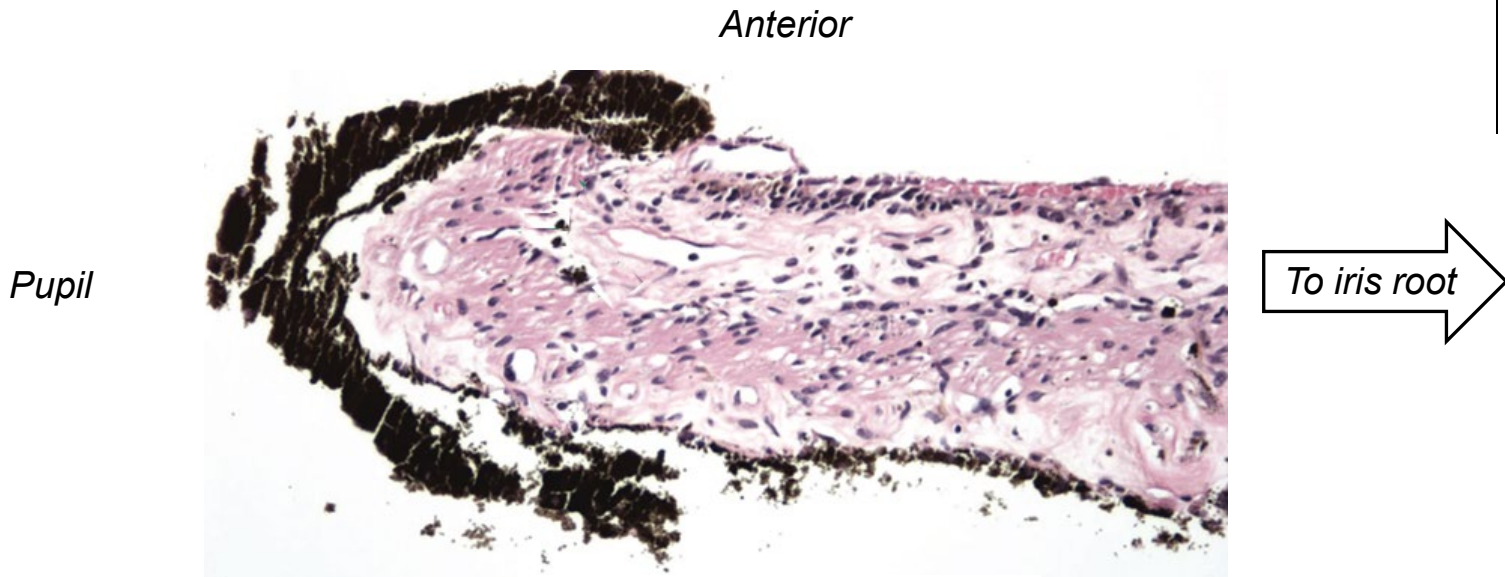
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Now back to our path slide. First, here is the orientation of what we're looking at. **Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:**

- The anterior iris is unnaturally flat
- The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.

Pathwatching



What's the diagnosis?

First things first: What tissue is this?

It's long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks **nothing** like a lid margin. *There's only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let's review normal iris anatomy...

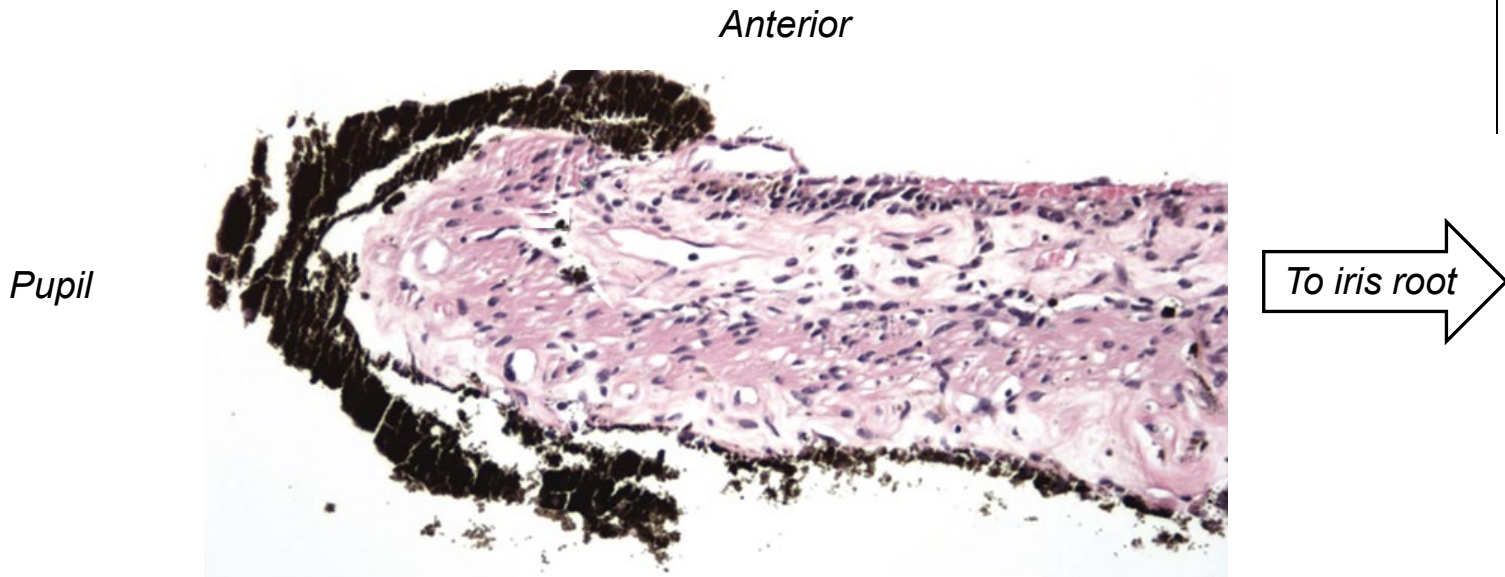
Now back to our path slide. First, here is the orientation of what we're looking at. **Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:**

--The anterior iris is unnaturally flat

--The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

Pathwatching



What's the diagnosis?

First things first: **Rubeosis iridis** (iris neovascularization) is associated with a number of conditions.

It's long and
resembles

structure shaped like this—what is it? The iris.

Before getting into the pathology here, let's review normal iris anatomy...

Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

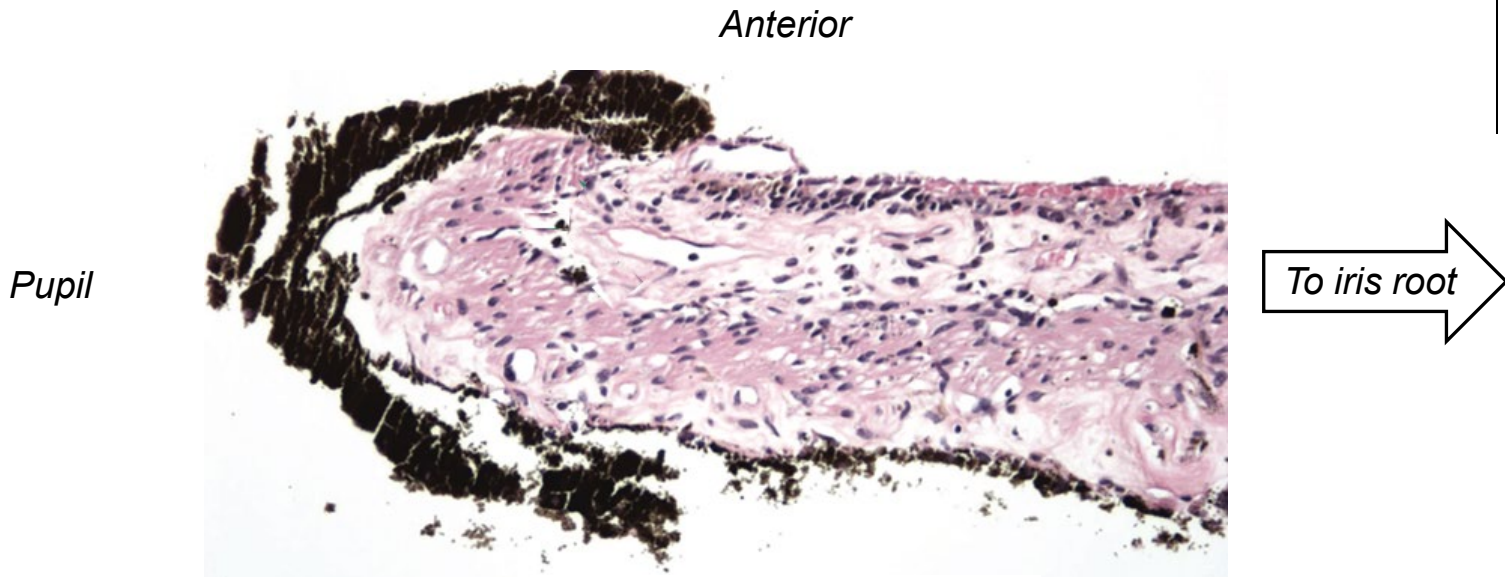
--The anterior iris is unnaturally flat

--The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

lacks any
non-lid

Pathwatching



What's the diagnosis?

First things first... **Rubeosis iridis** (iris neovascularization) is associated with a number of conditions.

It's long and... **The final pathologic pathway involves the exuberant (over)production of** abb.

semblance... lacks any

structure shaped like this—what is it? The iris.

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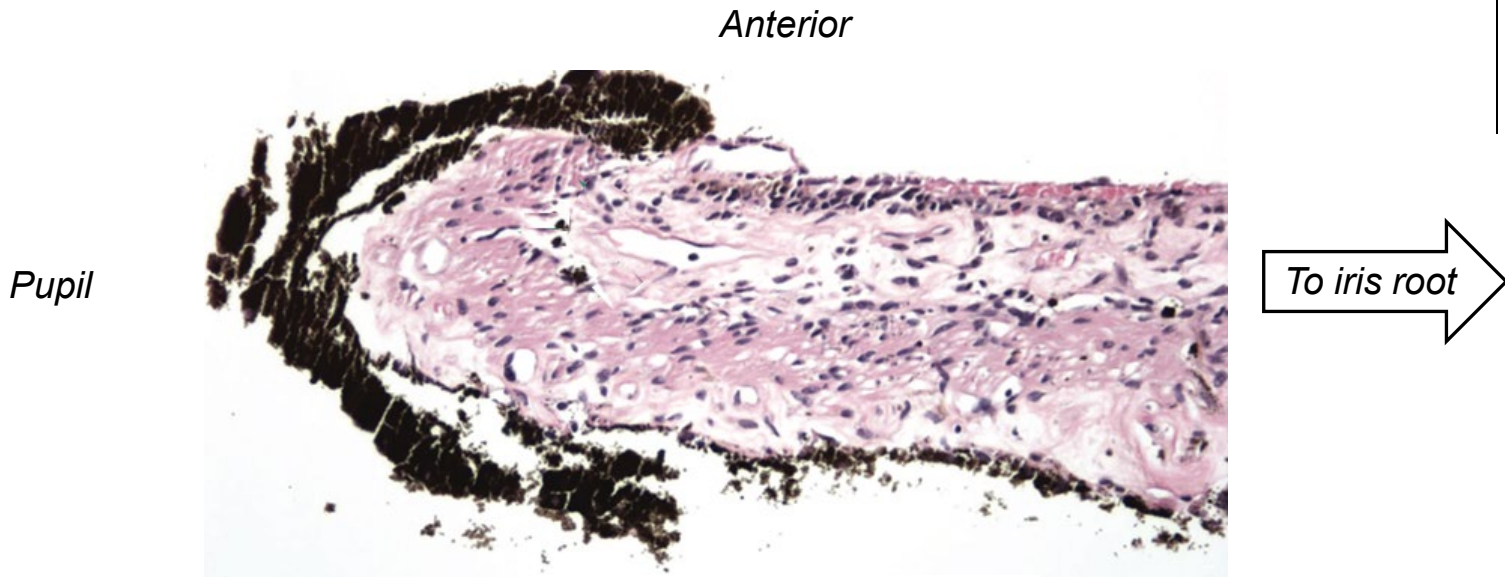
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Pathwatching



What's the diagnosis?

First things first... **Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. It's long and thin, lacks any semblance of normal iris structure.

The final pathologic pathway involves the exuberant (over)production of VEGF

lacks any non-lid

structure shaped like this—what is it? The iris.

Before getting into the pathology here, let's review normal iris anatomy...

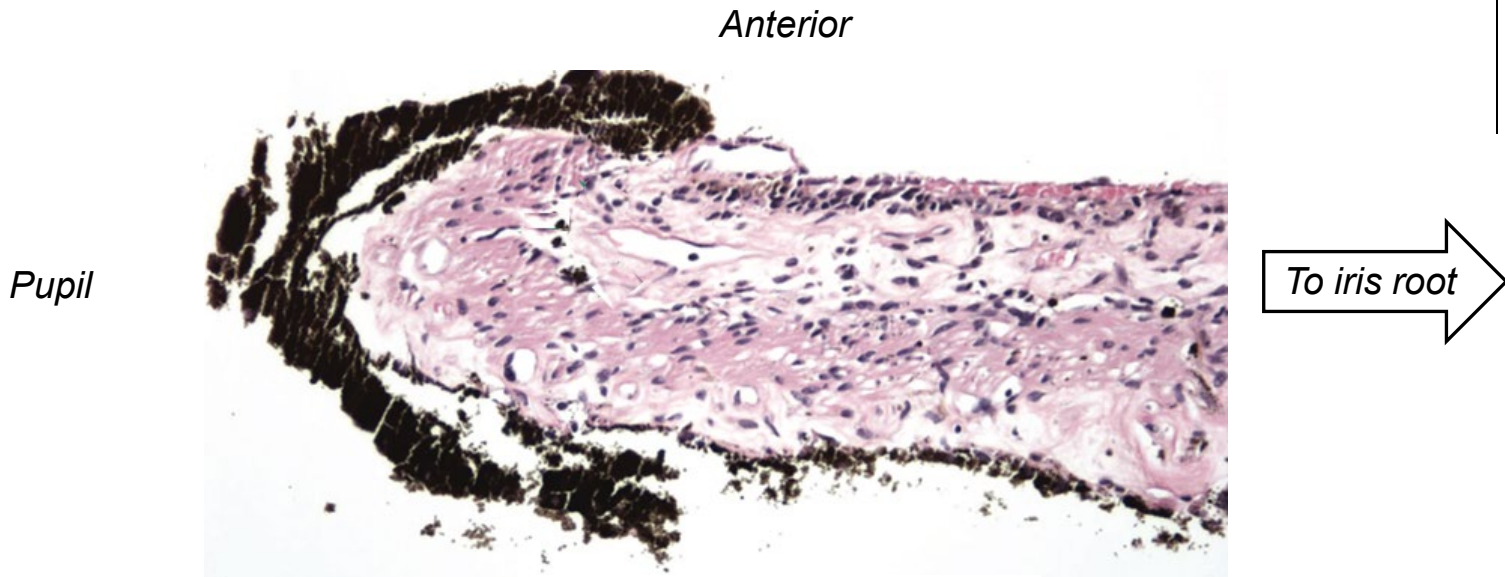
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When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

Pathwatching



What's the diagnosis?

First things first, **Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. It's long and thin, lacks any resemblance to the normal iris structure shaped like this—what is it? The iris. Before getting into the pathology here, let's review normal iris anatomy... Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

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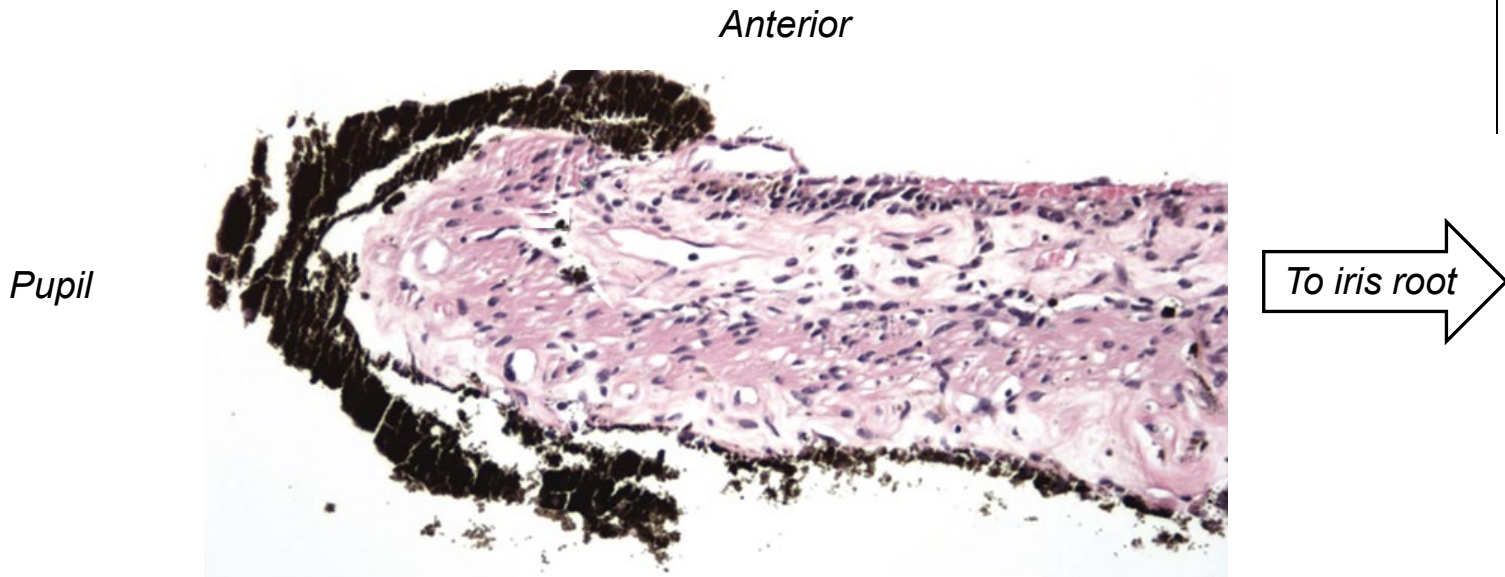
When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

lacks any
non-lid

two words



Pathwatching



What's the diagnosis?

First things first, **Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. It's long and thin, lacks any non-lid structure shaped like this—what is it? The iris. Before getting into the pathology here, let's review normal iris anatomy... Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

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Before getting into the pathology here, let's review normal iris anatomy...

Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

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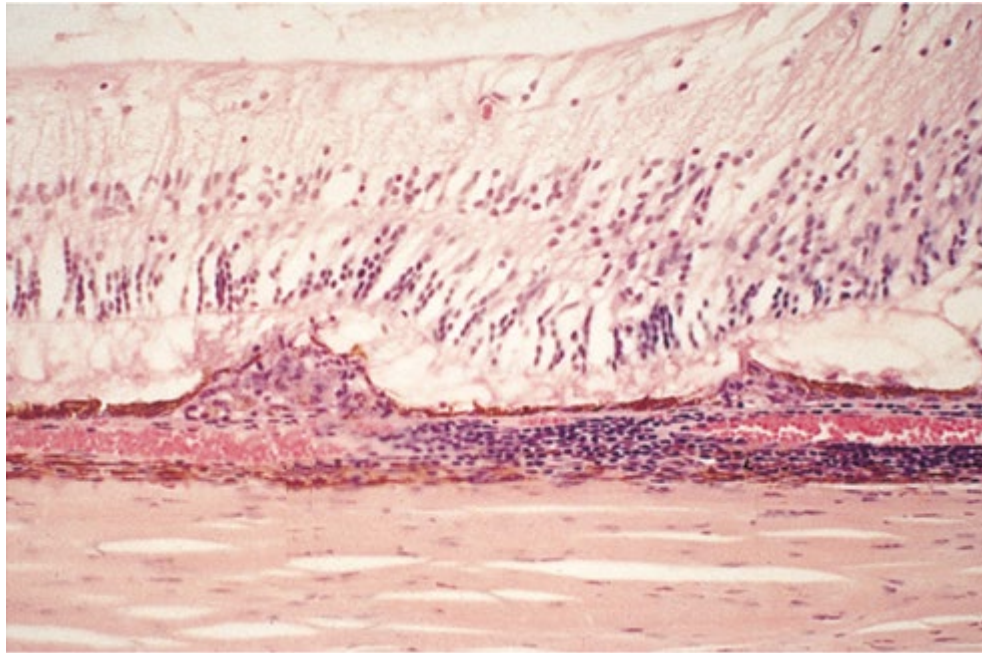
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lacks any
non-lid



Pathwatching

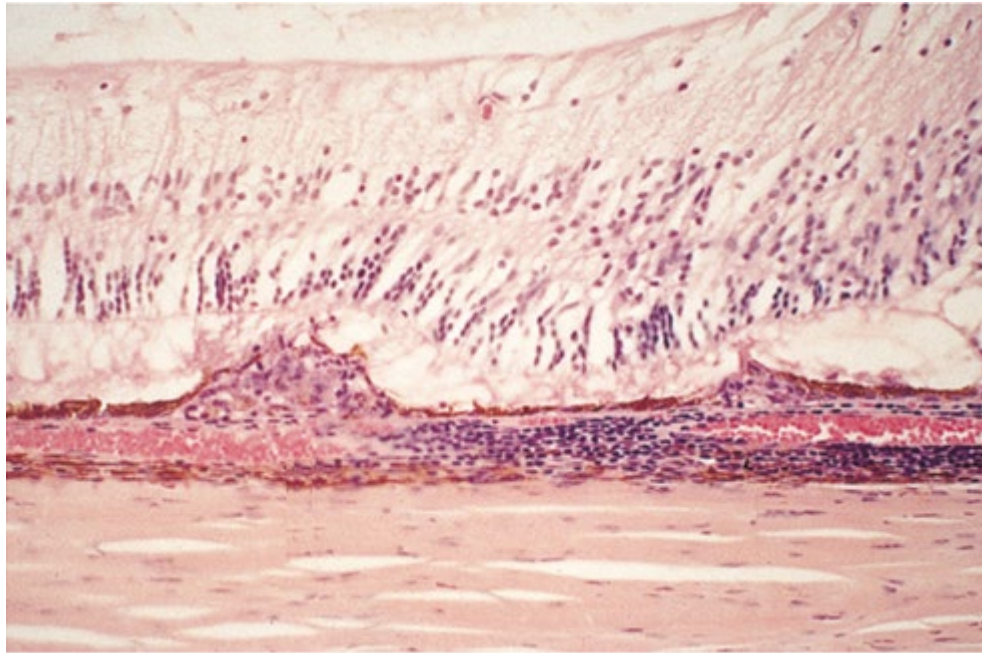
Hopefully you recognize what we're looking at here—it's the **one structure** along with the **next structure** and underlying **last structure**





Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

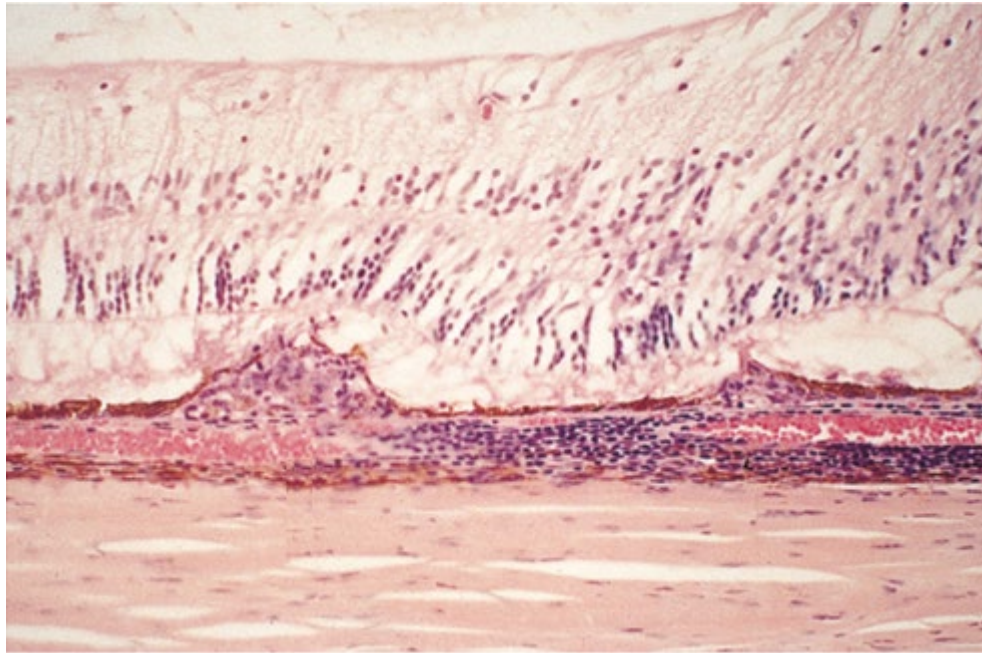




Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?



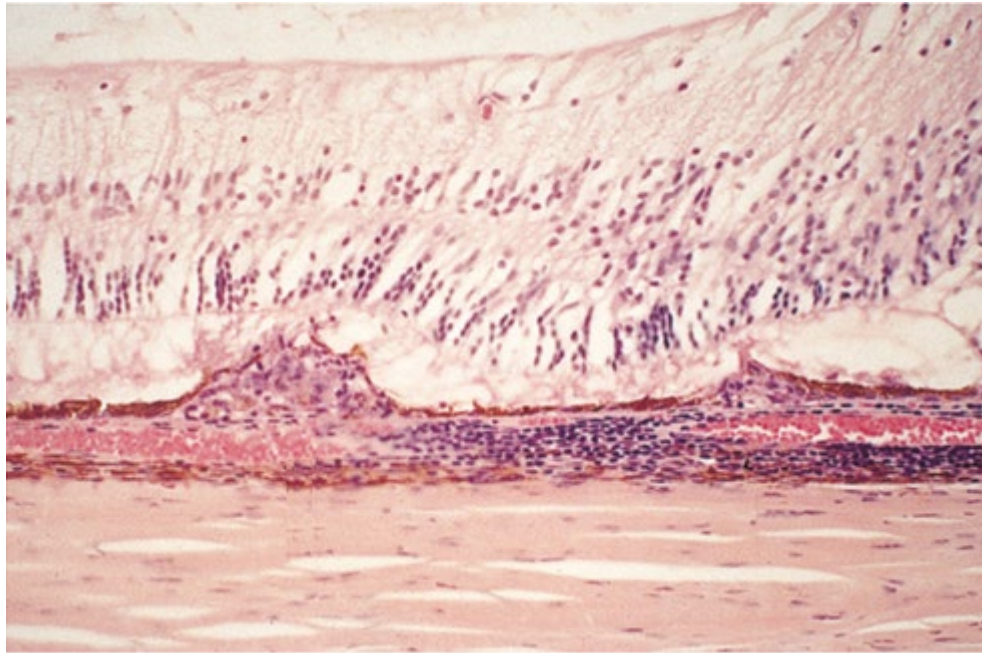


Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that's not the point of the slide.





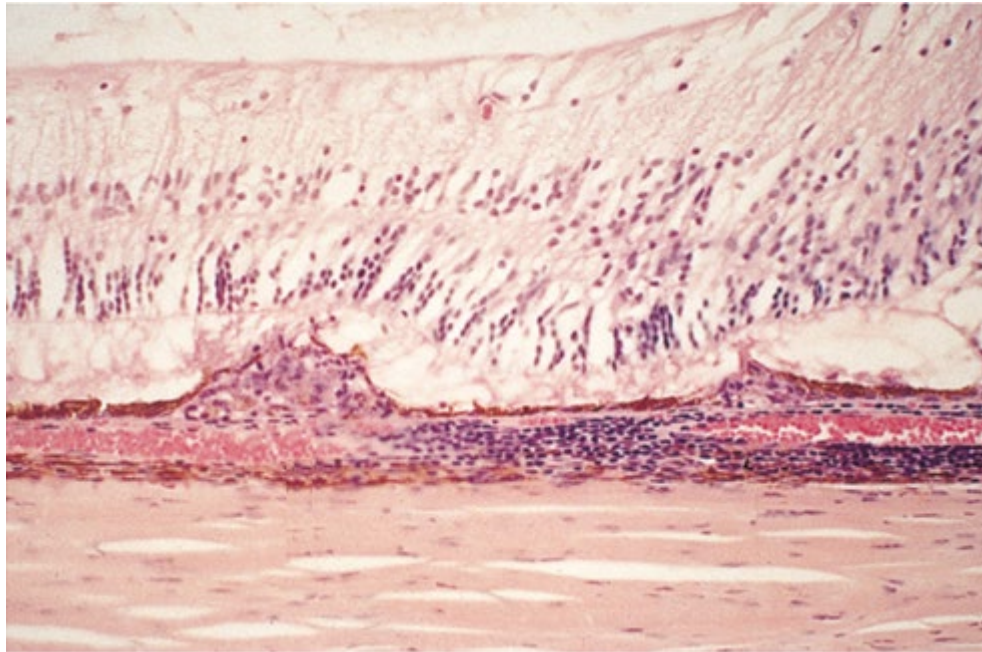
Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that's not the point of the slide.

--The choroid is filled with innumerable cells.





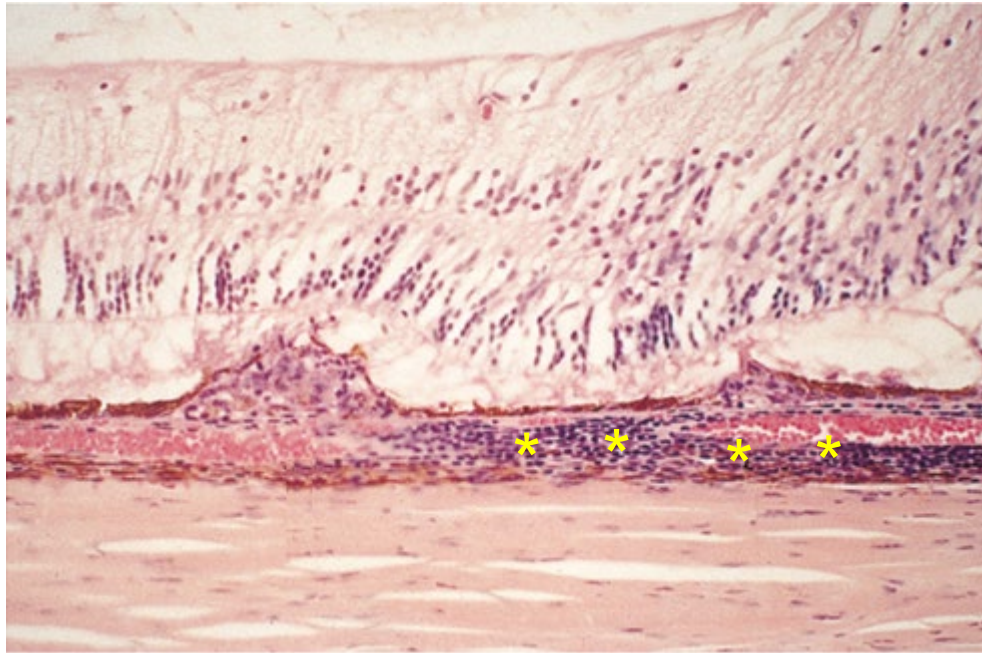
Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that's not the point of the slide.

--The choroid is filled with innumerable inflammatory cells. (*asterisks*)





Pathwatching

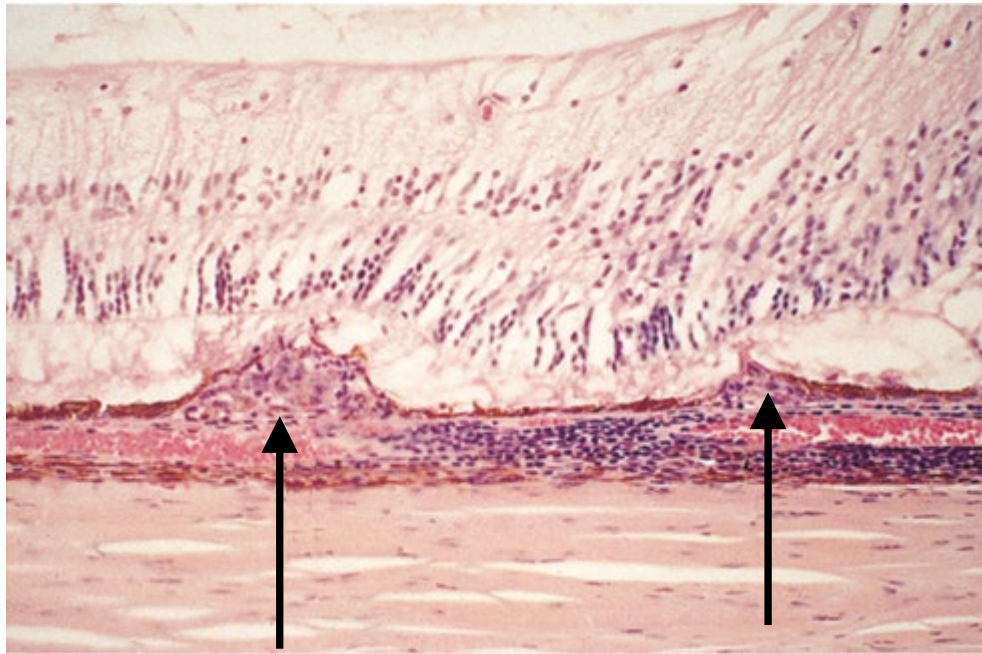
Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that's not the point of the slide.

--The choroid is filled with innumerable inflammatory cells.

--Two focal aggregates of inflammatory cells can be seen **here** and **here**. Drill down on these aggregates—exactly where are they located?





Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

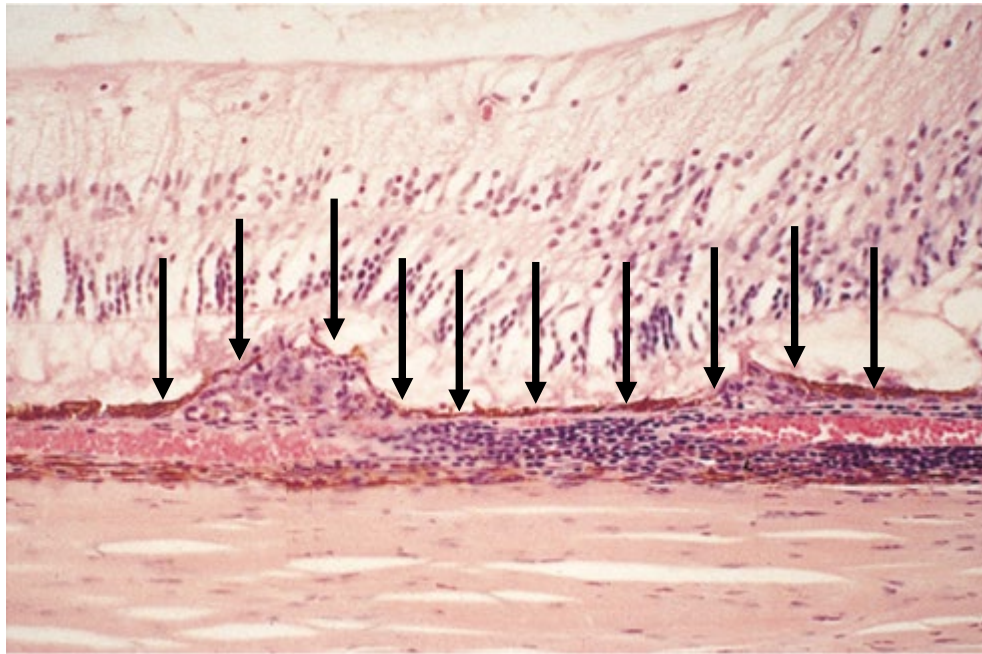
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--The choroid is filled with innumerable inflammatory cells.

--Two focal aggregates of inflammatory cells can be seen **here** and **here**. Drill down on these aggregates—exactly where are they located?

Note what's running across their tops—a thin, densely pigmented line. This is the

abb.





Pathwatching

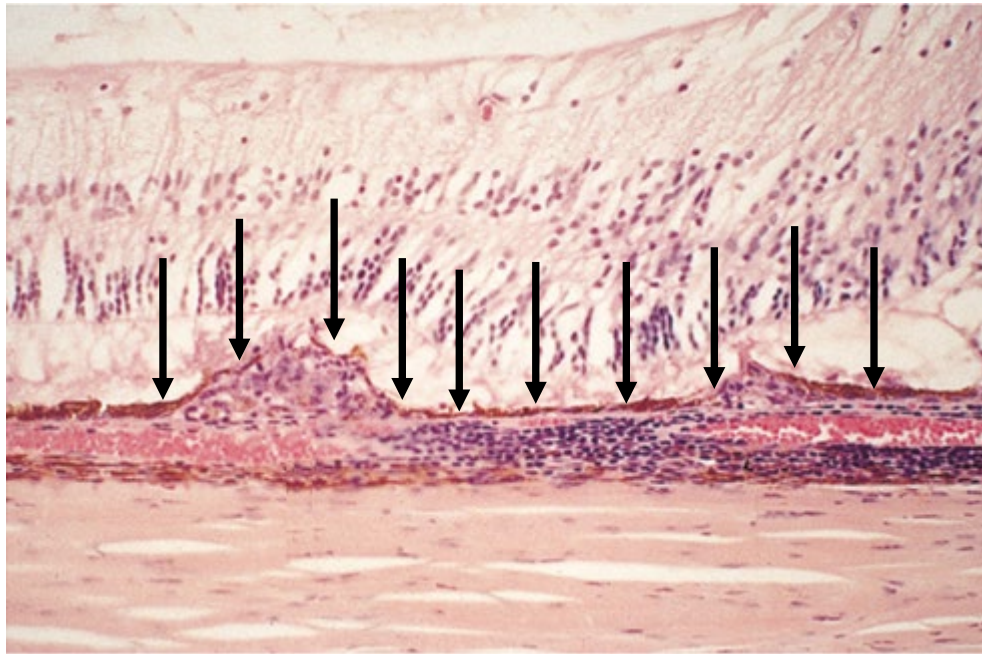
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--Two focal aggregates of inflammatory cells can be seen **here** and **here**. Drill down on these aggregates—exactly where are they located? Note what's running across their tops—a thin, densely pigmented line. This is the RPE.





Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

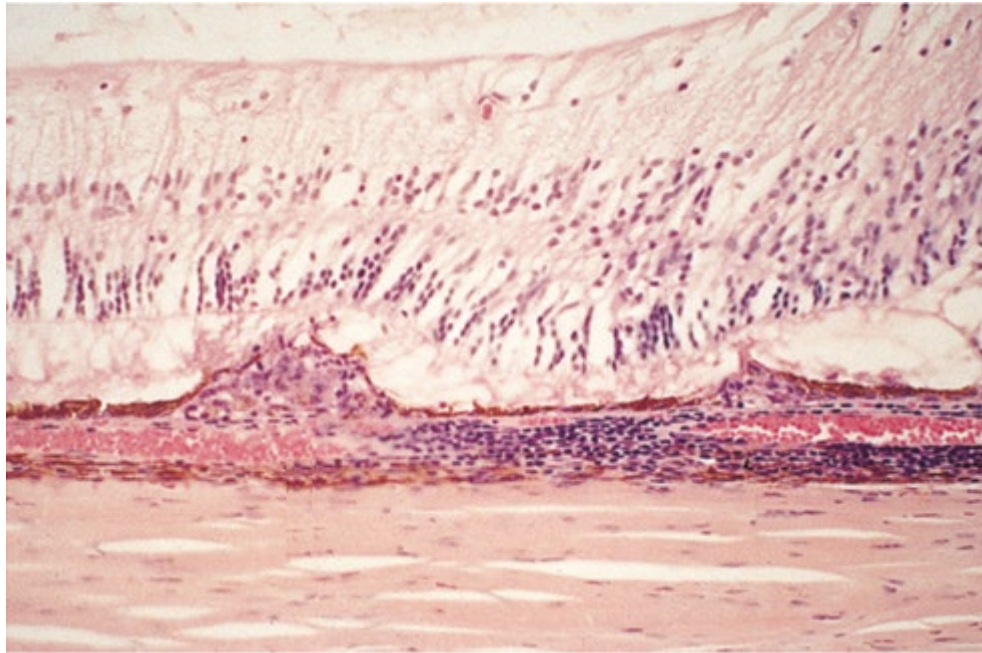
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And because the RPE is separated from the underlying choroid by eponym membrane, we can't be sure if the aggregates are *below* same eponym or just *above* it.





Pathwatching

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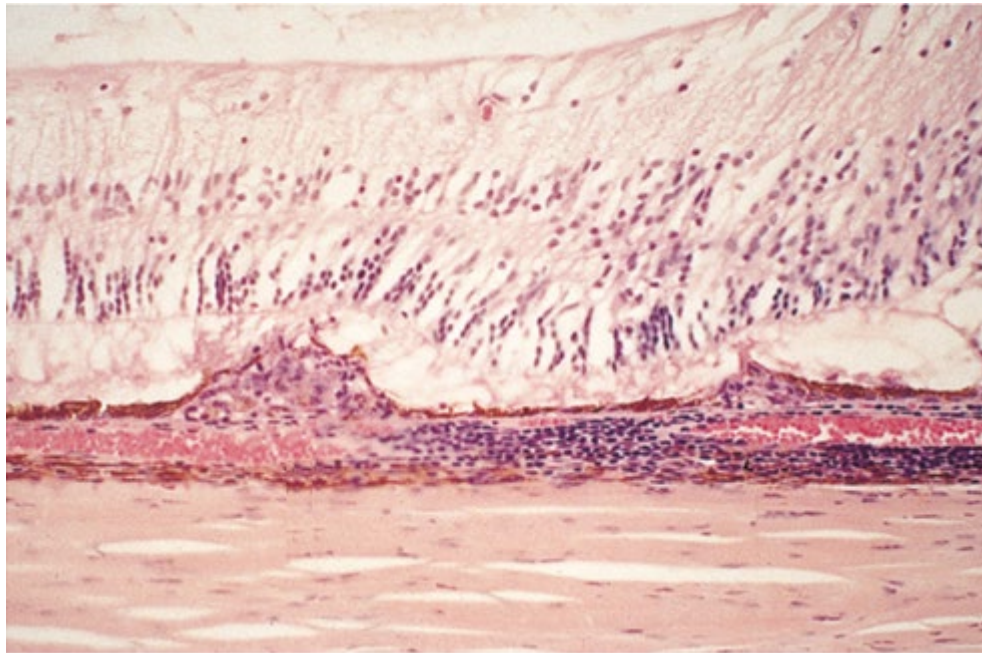
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And because the RPE is separated from the underlying choroid by Bruch's membrane, we can't be sure if the aggregates are *below* Bruch's or just *above* it.





Pathwatching

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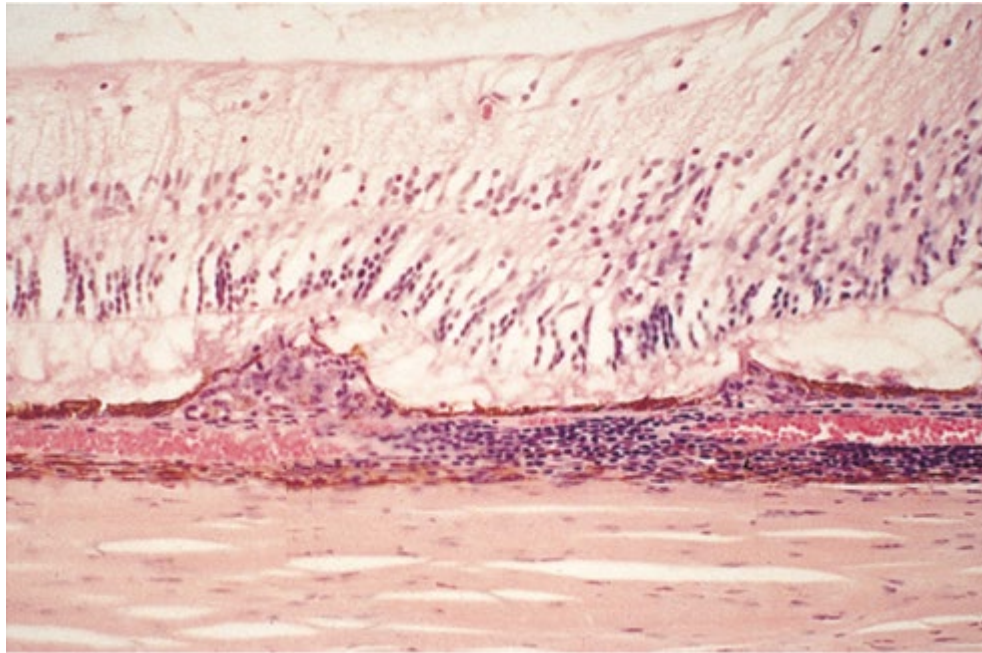
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And because the RPE is separated from the underlying choroid by Bruch's membrane, we can't be sure if the aggregates are *below* Bruch's or just *above* it.

Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:



*What's the finding?**

*Note that we're looking for the name of the aggregates, not the name of the underlying condition causing them.



Pathwatching

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What's going on here—what are we supposed to take note of?

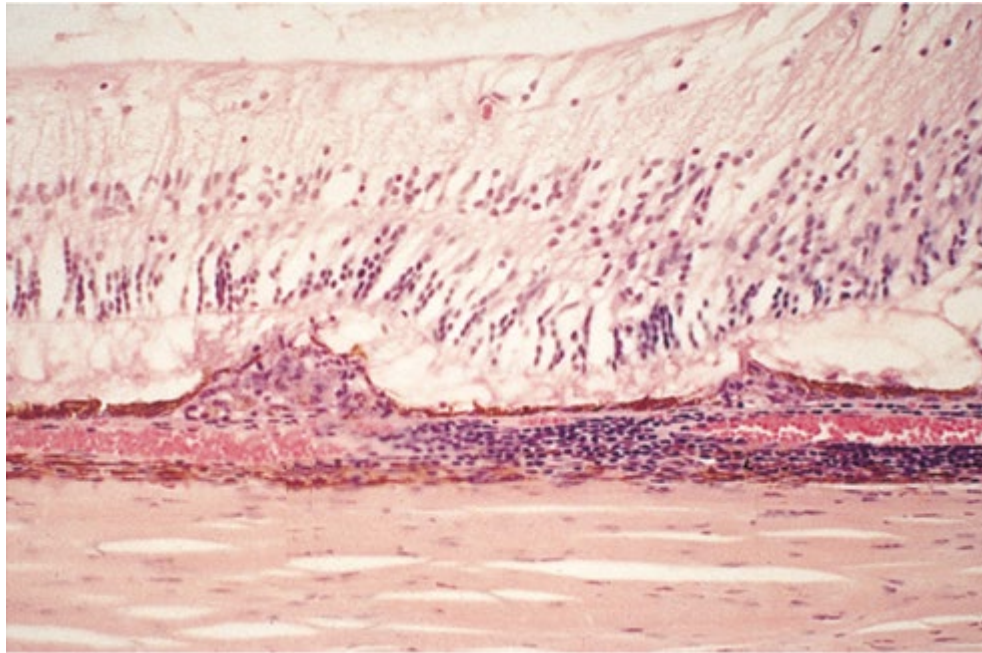
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Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:



What's the finding?

Dalen-Fuchs nodules are inflammatory-cell aggregates between

two structures



Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

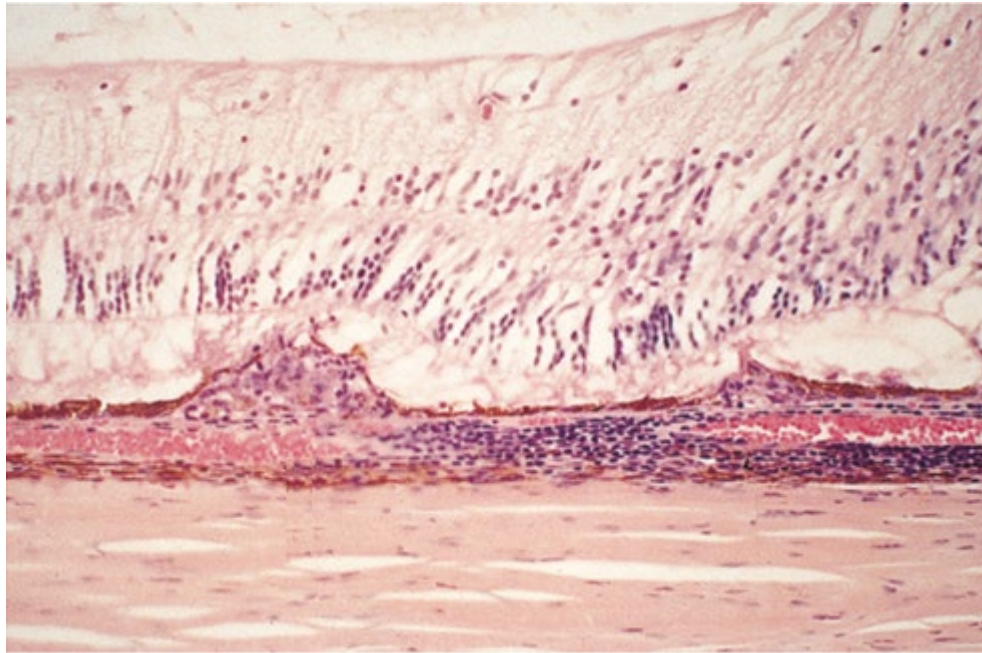
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Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:



What's the finding?

Dalen-Fuchs nodules are inflammatory-cell aggregates between the RPE and Bruch's.



Pathwatching

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What's going on here—what are we supposed to take note of?

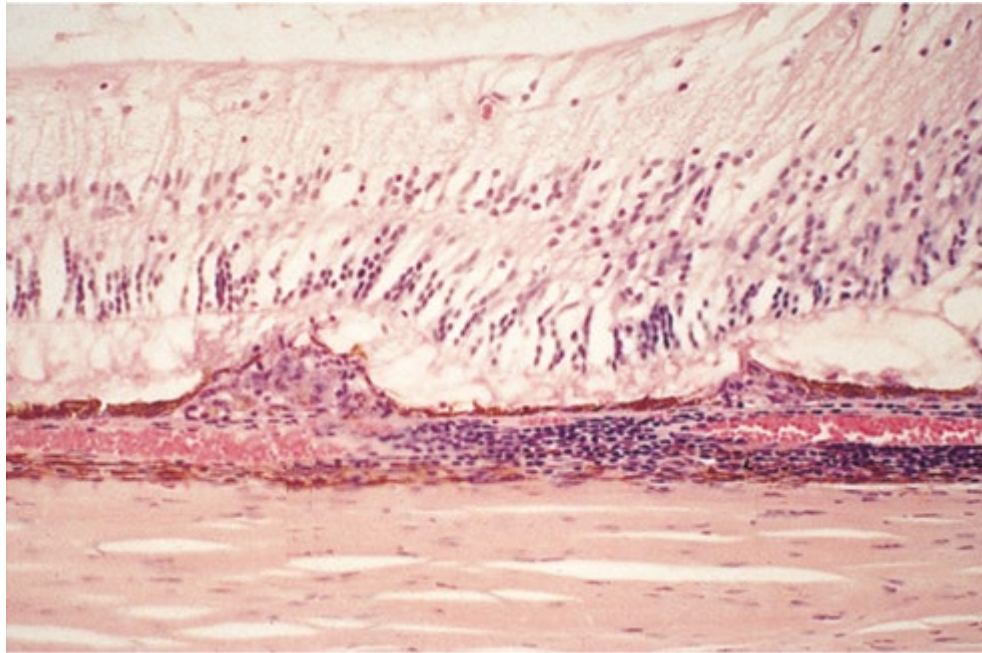
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And because the RPE is separated from the underlying choroid by Bruch's membrane, we can't be sure if the aggregates are *below* Bruch's or just *above* it.

Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:



What's the finding?

Dalen-Fuchs nodules are inflammatory-cell aggregates between the RPE and Bruch's. They are most strongly associated with two conditions: [redacted] and [redacted]



Pathwatching

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What's going on here—what are we supposed to take note of?

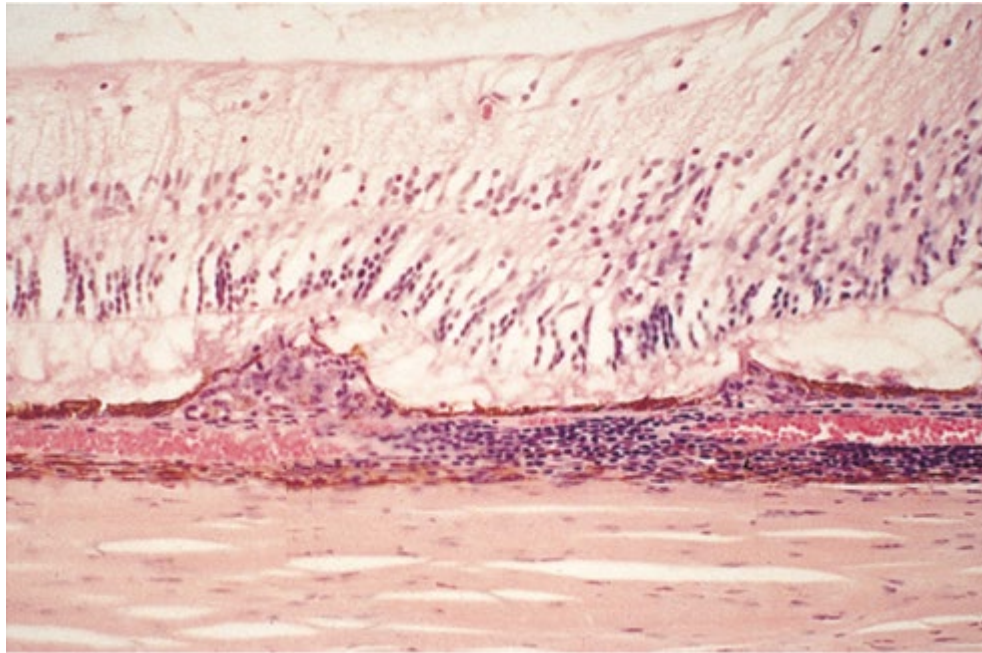
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And because the RPE is separated from the underlying choroid by Bruch's membrane, we can't be sure if the aggregates are *below* Bruch's or just *above* it.

Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:



What's the finding?

Dalen-Fuchs nodules are inflammatory-cell aggregates between the RPE and Bruch's. They are most strongly associated with two conditions: Vogt-Koyanagi-Harada syndrome (VKH) and sympathetic ophthalmia (SO).



Pathwatching

Hopefully you recognize what we're looking at here—it's the retina along with the choroid and underlying sclera.

What's going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that's not the point of the slide.

--The choroid is filled with innumerable inflammatory cells.

--Two focal aggregates of inflammatory cells can be seen **here** and **here**. Drill down on these

For more on Dalen-Fuchs nodules, see slide-set U6

densely pigmented line. This is the RPE.

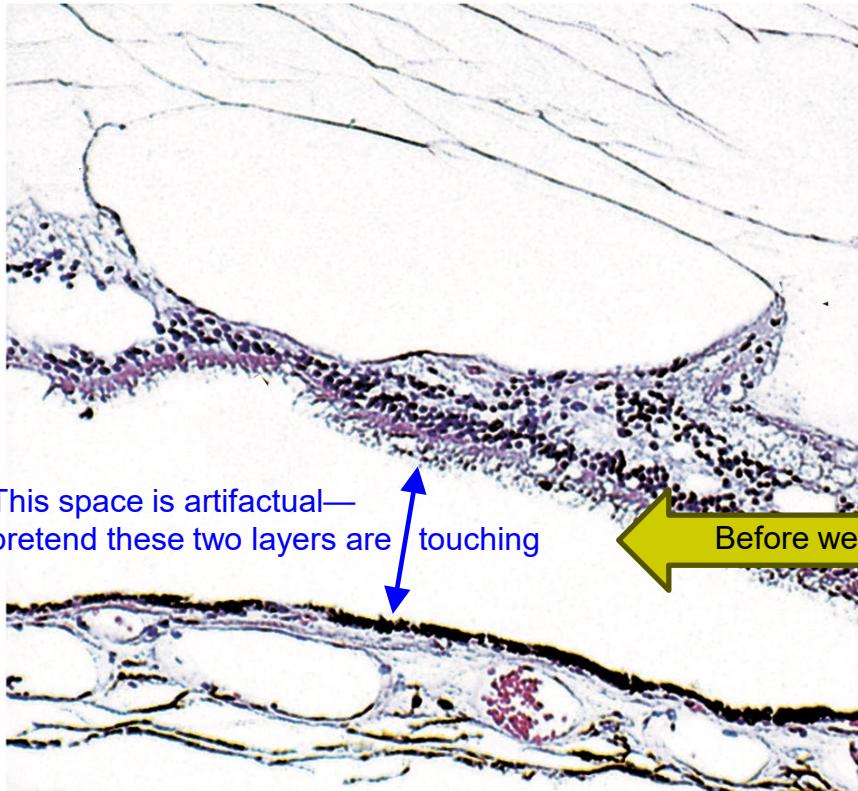
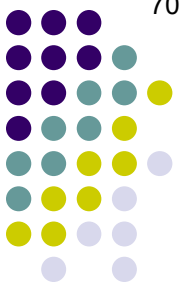
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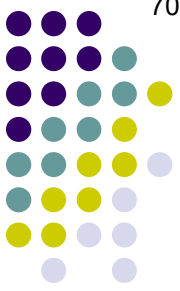
Pathwatching



This space is artificial—
pretend these two layers are touching

Before we begin—take note

Pathwatching



We're looking at four basic structures here:

--*[the one marked by the bracket]*

--?

--?

--?

Pathwatching



We're looking at four basic structures here:

--The neurosensory (NS) retina

--?

--?

--?

Pathwatching



We're looking at four basic structures here:

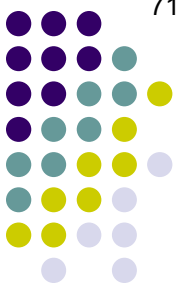
--The neurosensory (NS) retina

--[the asterisks]

--?

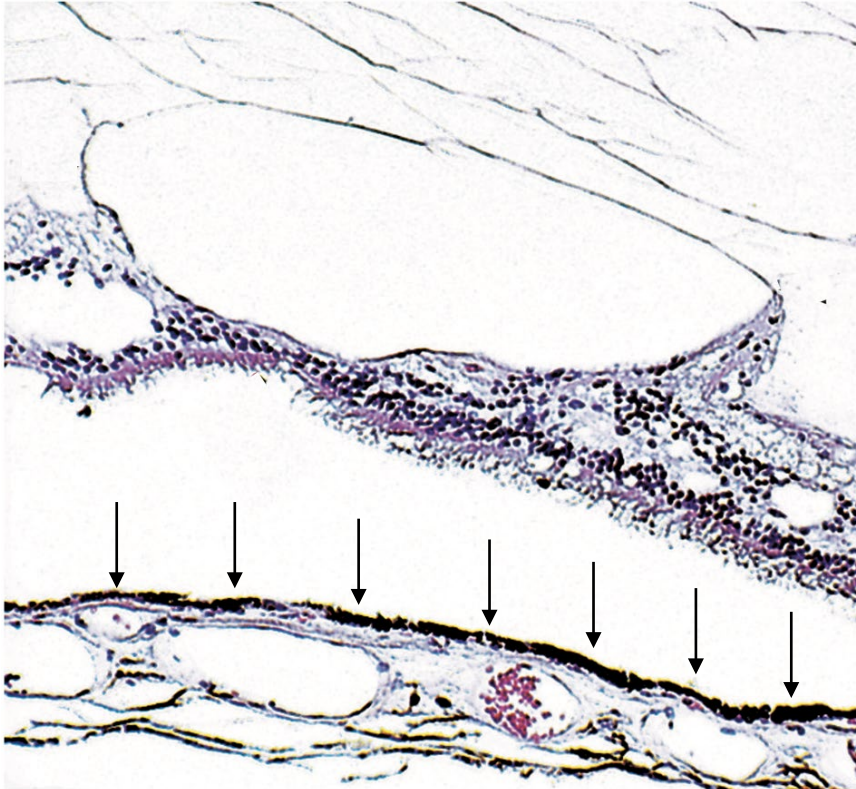
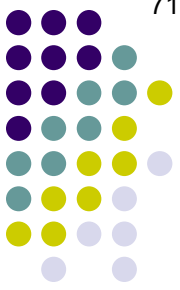
--?

Pathwatching



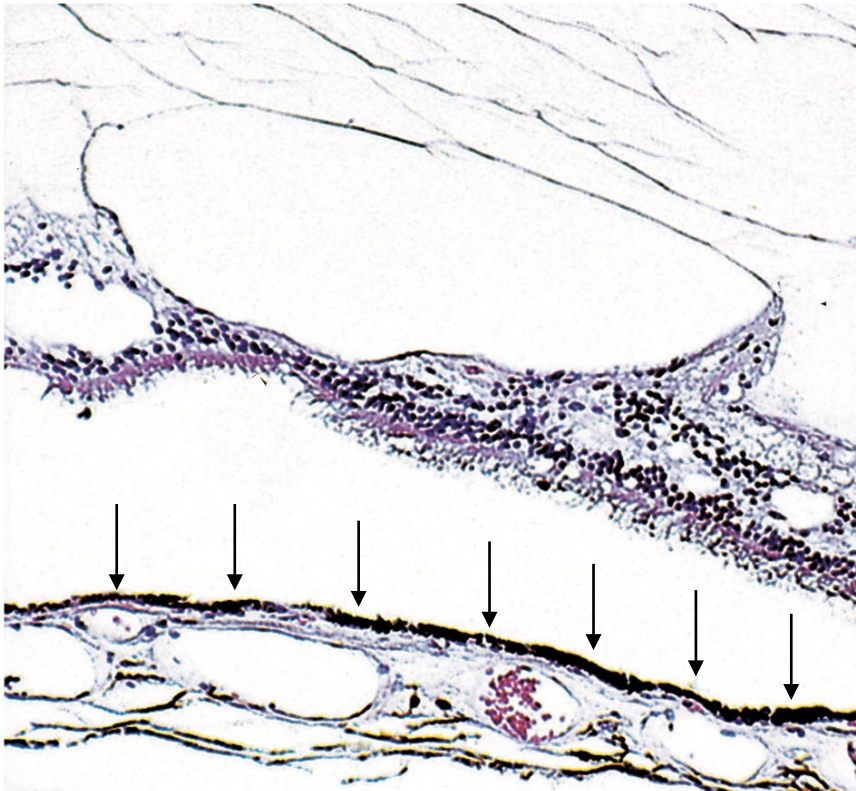
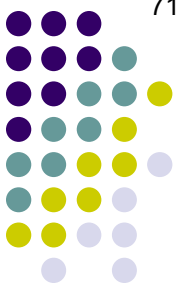
- We're looking at four basic structures here:
- The neurosensory (NS) retina
 - The vitreous
 - ?
 - ?

Pathwatching



We're looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--*[the arrows]*
--?

Pathwatching



We're looking at four basic structures here:

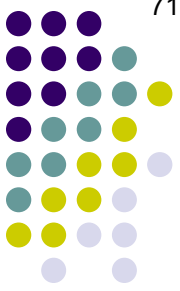
--The neurosensory (NS) retina

--The vitreous

--The RPE

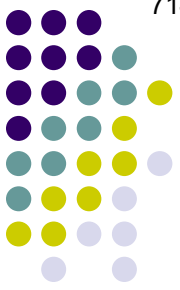
--?

Pathwatching



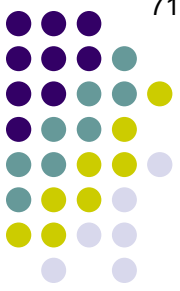
- We're looking at four basic structures here:
- The neurosensory (NS) retina
 - The vitreous
 - The RPE
 - [the bracket]*

Pathwatching



- We're looking at four basic structures here:
- The neurosensory (NS) retina
 - The vitreous
 - The RPE
 - The choroid

Pathwatching



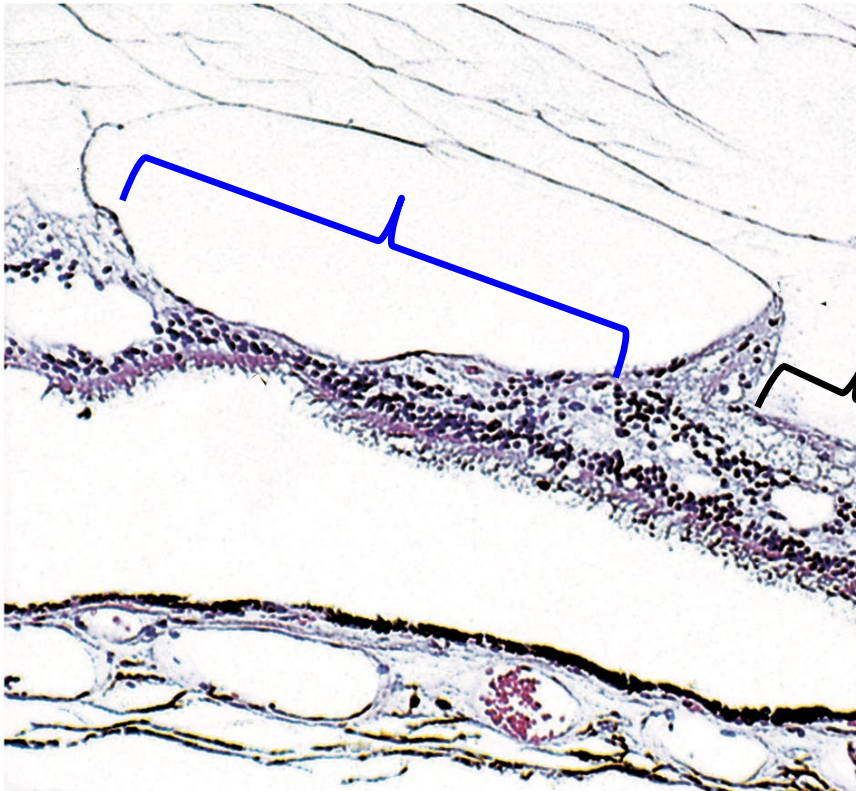
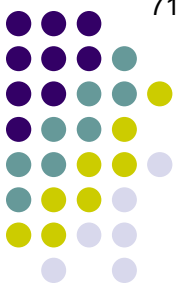
We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

As for what's going on here, let's take note of the following:

- If we take the NS retina from **here** to **here** as being normal-ish...

Pathwatching



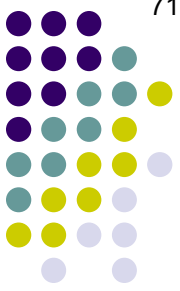
We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

As for what's going on here, let's take note of the following:

- If we take the NS retina from **here** to **here** as being normal-ish...we can see that from here to here it is thin-to-very-thin.

Pathwatching



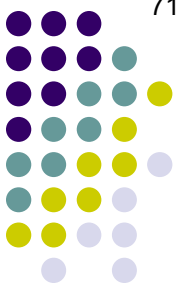
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- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

As for what's going on here, let's take note of the following:

- If we take the NS retina from **here** to **here** as being normal-ish...we can see that from here to here it is thin-to-very-thin.
- The vitreous is attached to the area of thinned retina at its edges (*arrowheads*).

Pathwatching



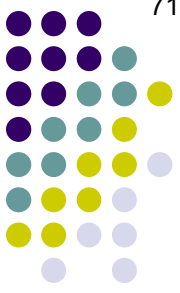
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- The neurosensory (NS) retina
- The vitreous
- The RPE
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As for what's going on here, let's take note of the following:

- If we take the NS retina from **here** to **here** as being normal-ish...we can see that from here to here it is thin-to-very-thin.
- The vitreous is attached to the area of thinned retina at its edges (*arrowheads*).
- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

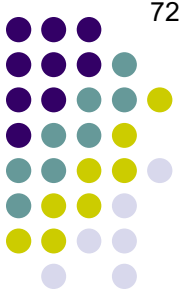
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- The choroid

As for what's going on here, let's take note of the following:

- If we take the NS retina from **here** to **here** as being normal-ish...we can see that from here to here it is thin-to-very-thin.
- The vitreous is attached to the area of thinned retina at its edges (*arrowheads*).
- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

As for what's going on here, let's take note of the following:

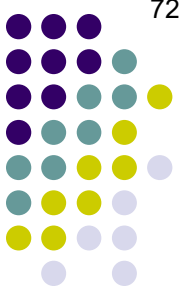
- If we take the NS retina from **here** to **here** as being normal-ish...we can see that from here to here it is thin-to-very-thin.
- The vitreous is attached to the area of thinned retina at its edges (*arrowheads*).
- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with

three words

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

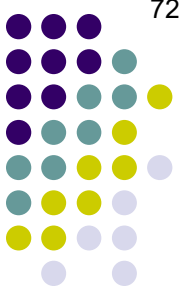
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- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD.

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

As for what's going on here, let's take note of the following:

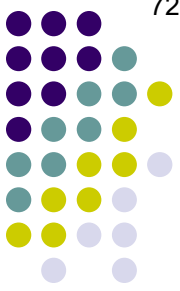
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- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD.

Its chief features are atrophy of the inner v
outer retina

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

As for what's going on here, let's take note of the following:

- If we take the NS retina from **here** to **here** as being normal-ish...we can see that from here to here it is thin-to-very-thin.
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Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

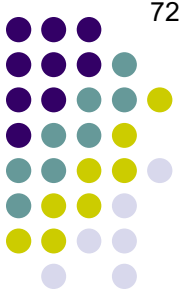
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Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the abb.)

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

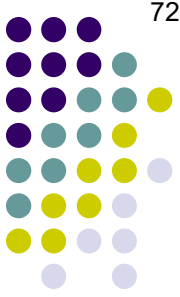
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Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM)

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
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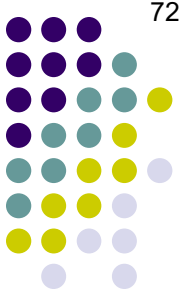
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Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of vitreous

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

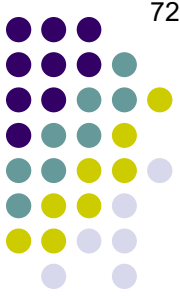
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- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquified vitreous

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

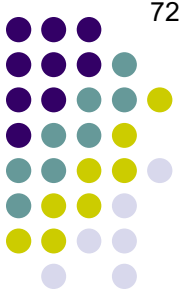
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- The vitreous directly overlying the thinned area is devoid of normal strands (*asterisks*).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquified vitreous; and the firm v
weak adherence of vitreous at the outer boundary of the area.

Pathwatching



What's the diagnosis?

We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
- The RPE
- The choroid

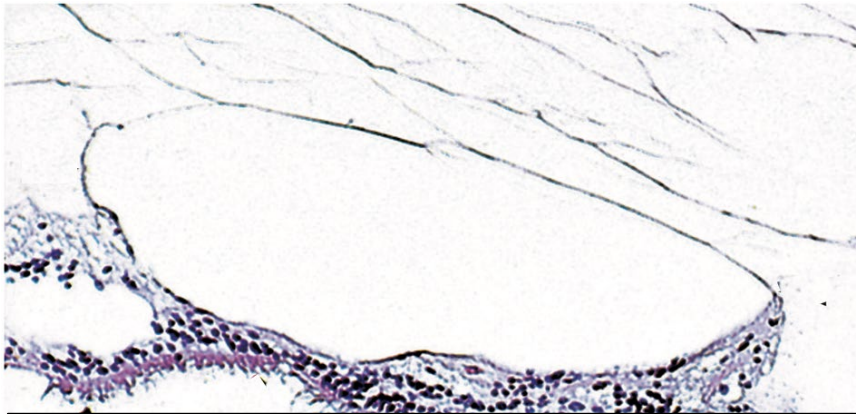
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Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquefied vitreous; and the firm adherence of vitreous at the outer boundary of the area.

Pathwatching



We're looking at four basic structures here:

- The neurosensory (NS) retina
- The vitreous
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As for what's going on here, let's take note of the following:

If we take the NS retina from here to here as

For more on lattice degeneration, see slide-set R36

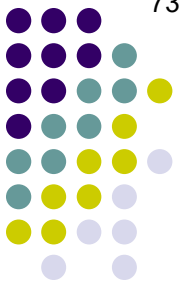


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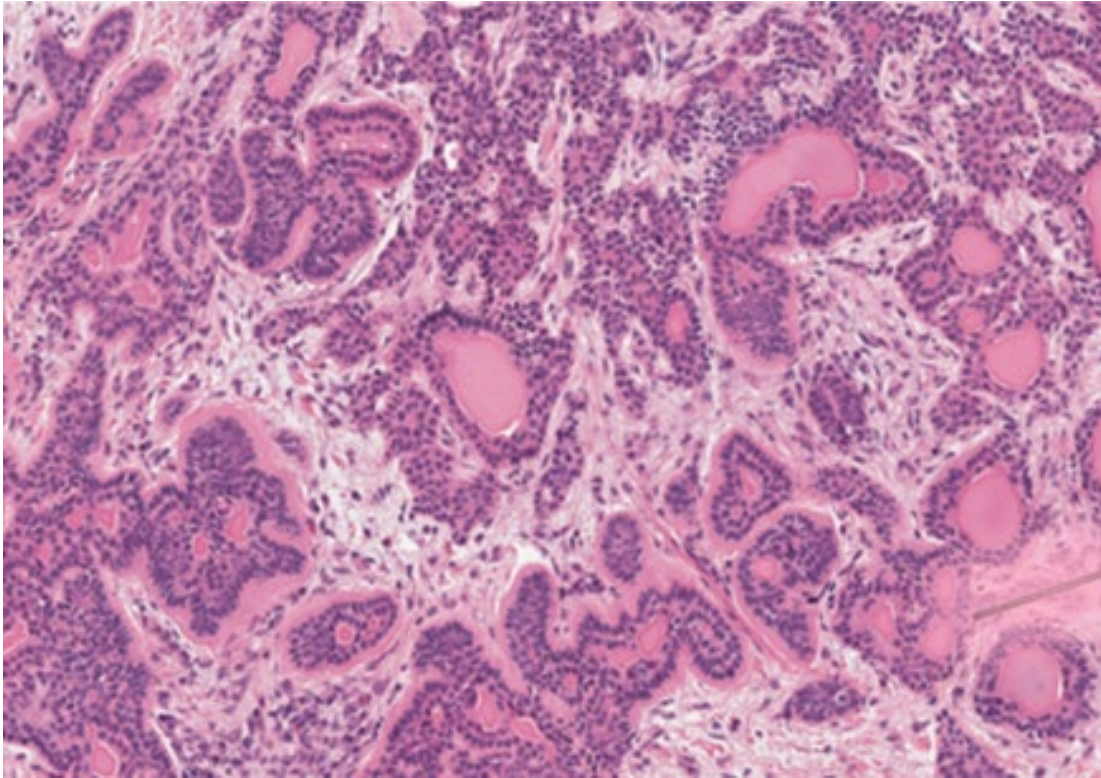
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Images Consisting of Wall-to-Wall Cells

These images are challenging because they lack context—no up or down; no natural edges—thus making it difficult to know what the tissue is. That being said, if you're expected to work with such an image, *it will contain a field mark that gives its identity away*. Know the mark, know the diagnosis!

Pathwatching

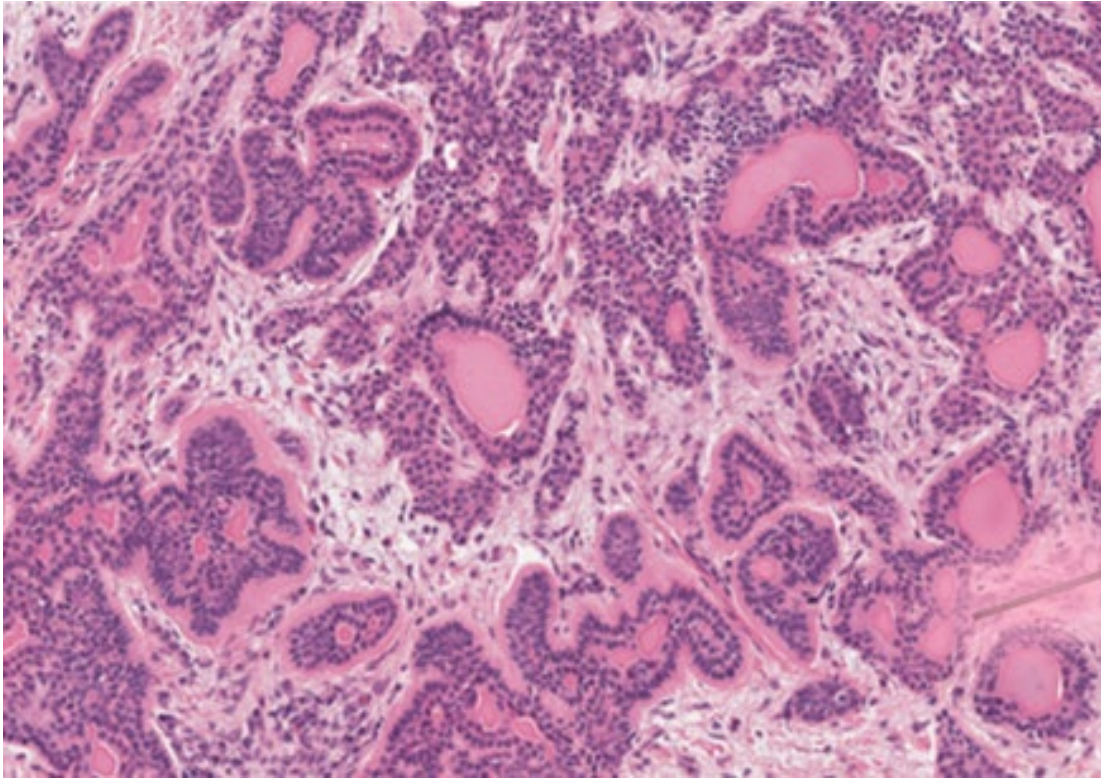
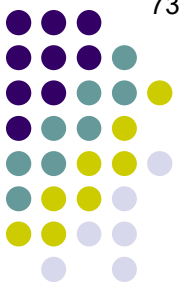


Note:

--The many glandular/tubular structures. For us eyedocs this suggests one tissue: [redacted]

[redacted].

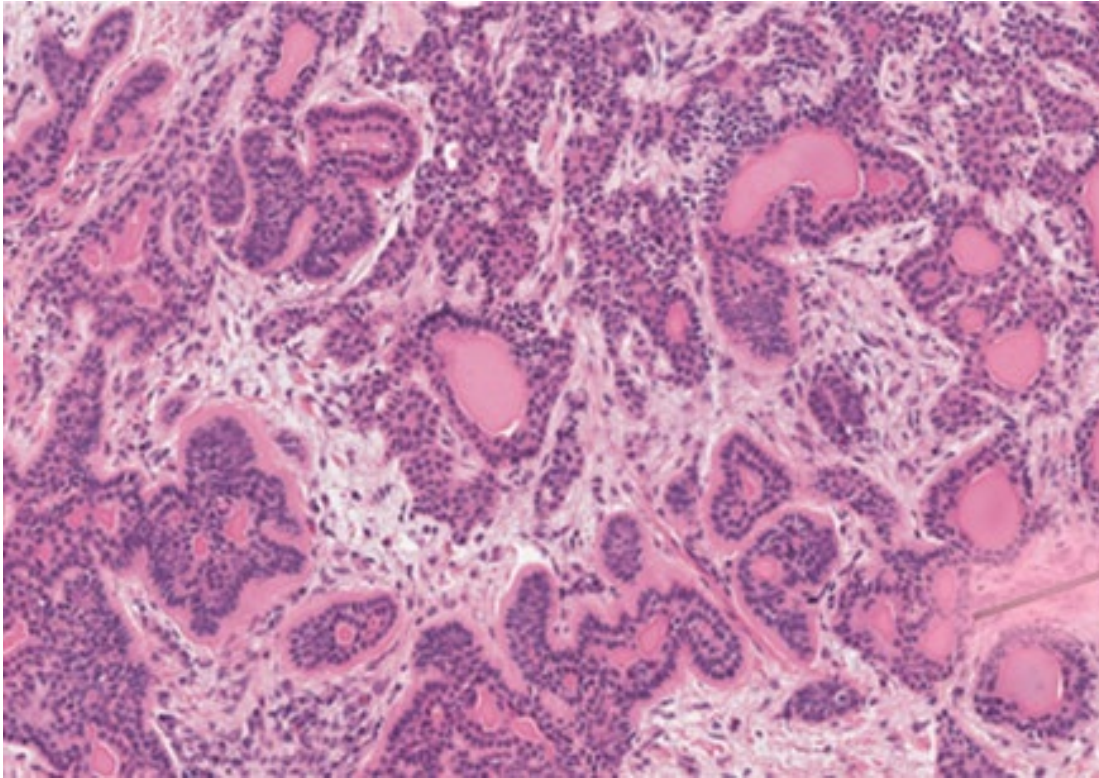
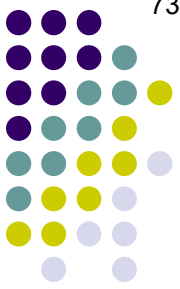
Pathwatching



Note:

--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland .

Pathwatching

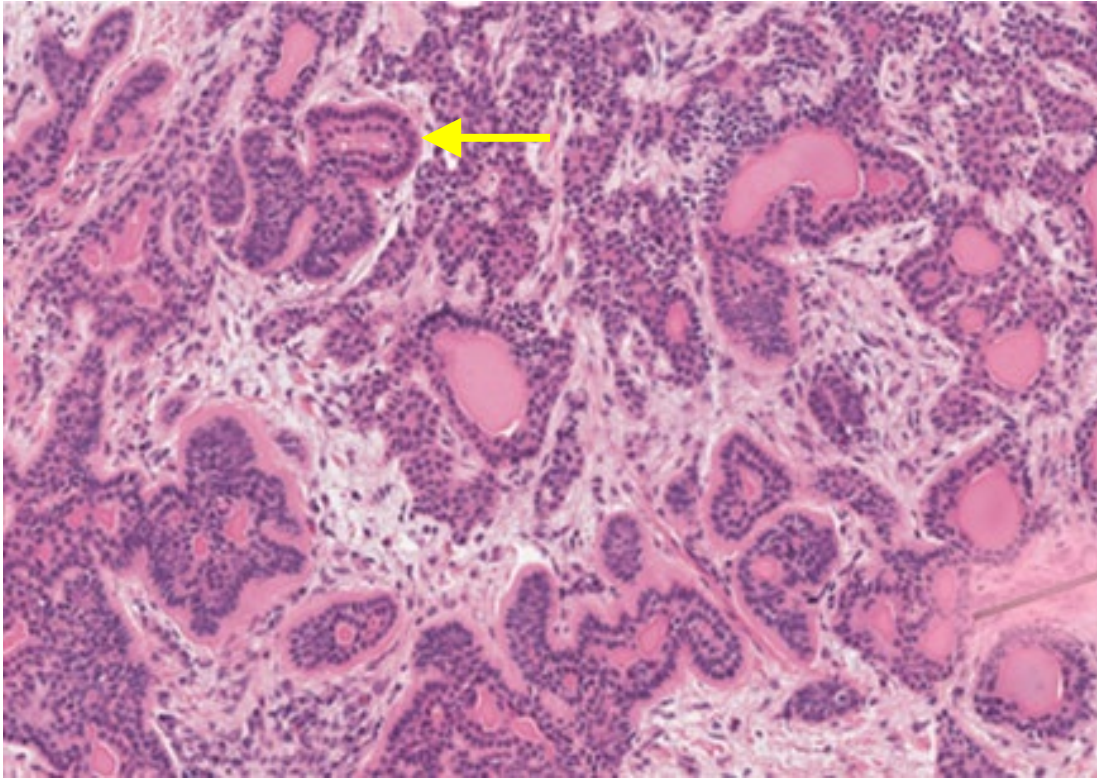


Note:

--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland .

--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout

Pathwatching

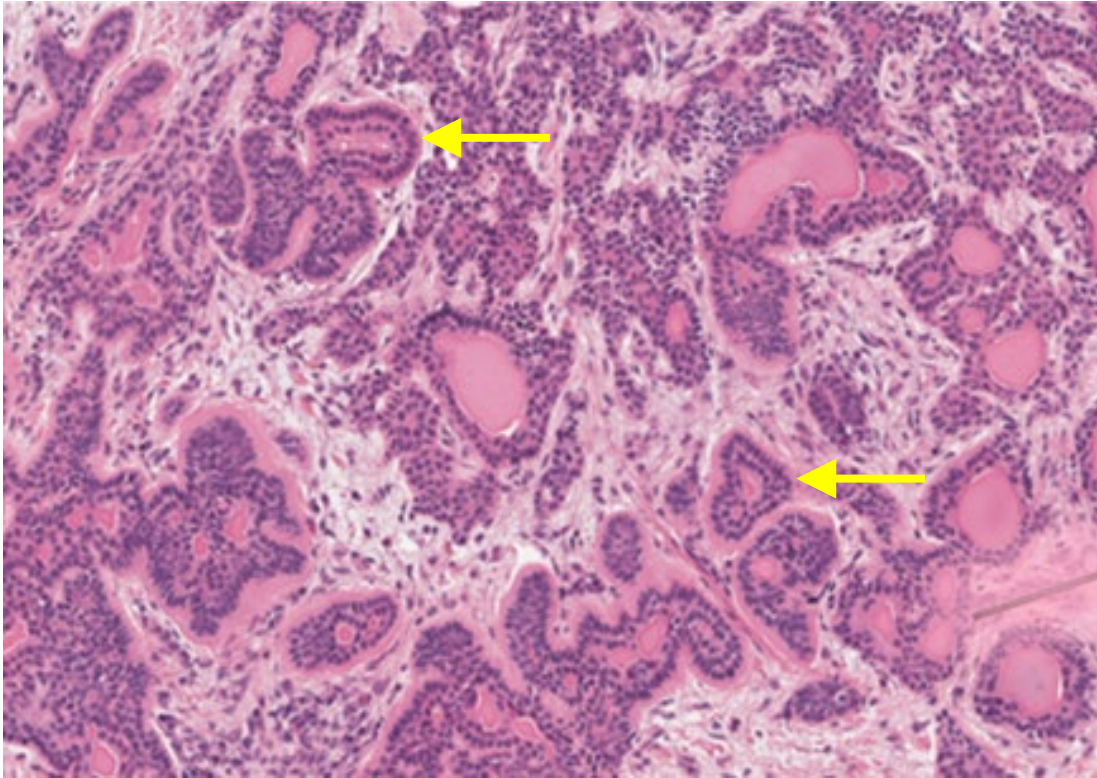
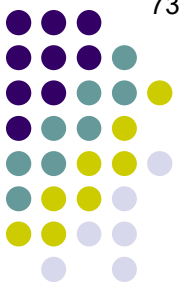


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Pathwatching

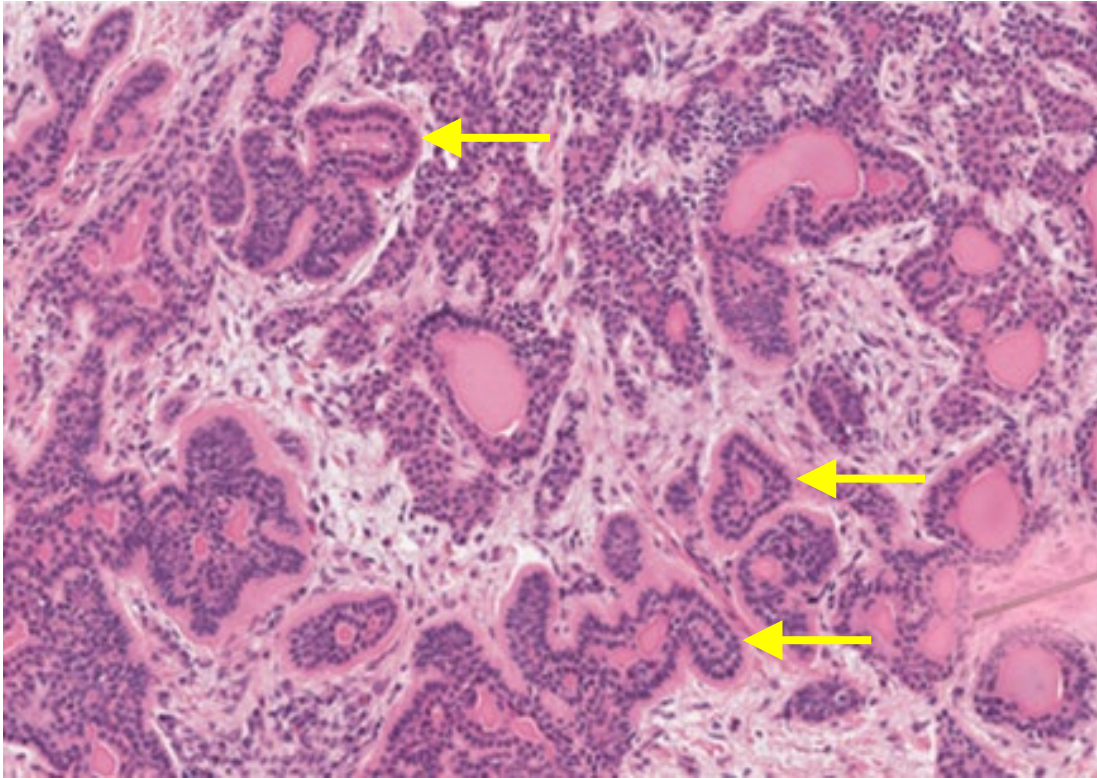
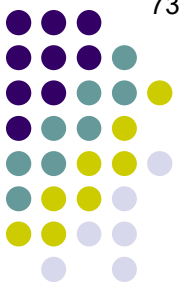


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look here, here

Pathwatching

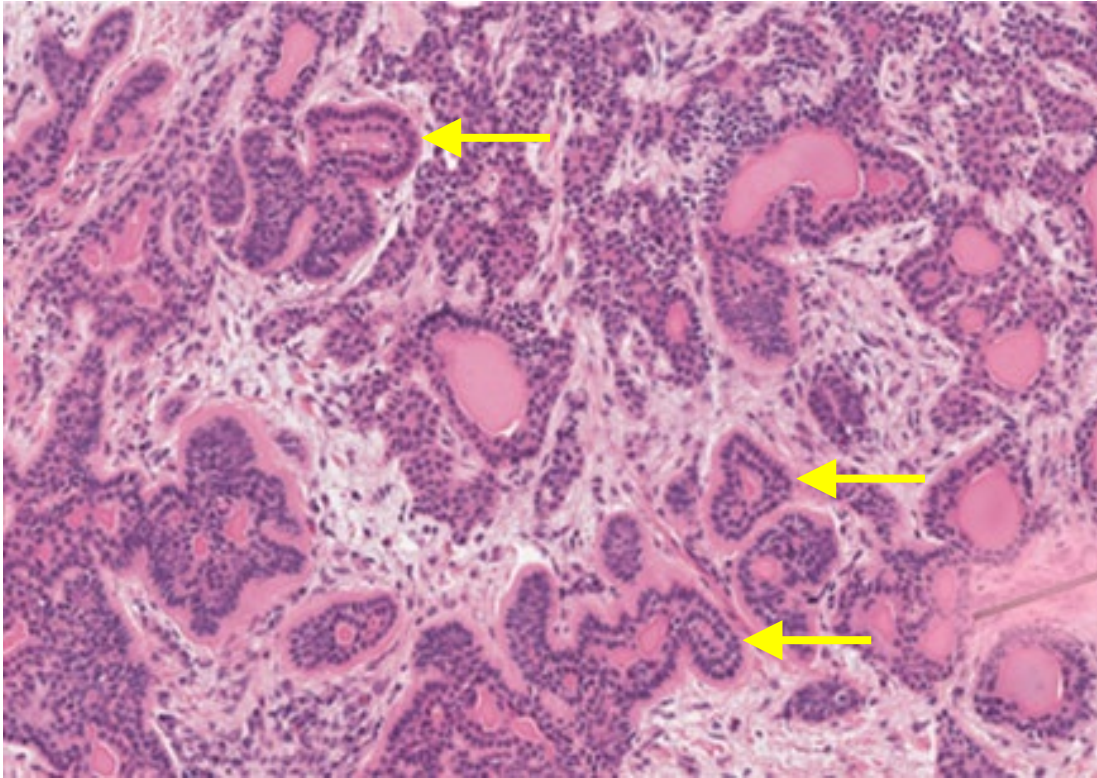
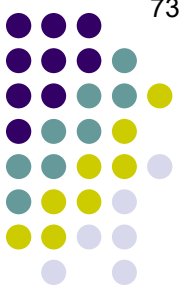


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Pathwatching

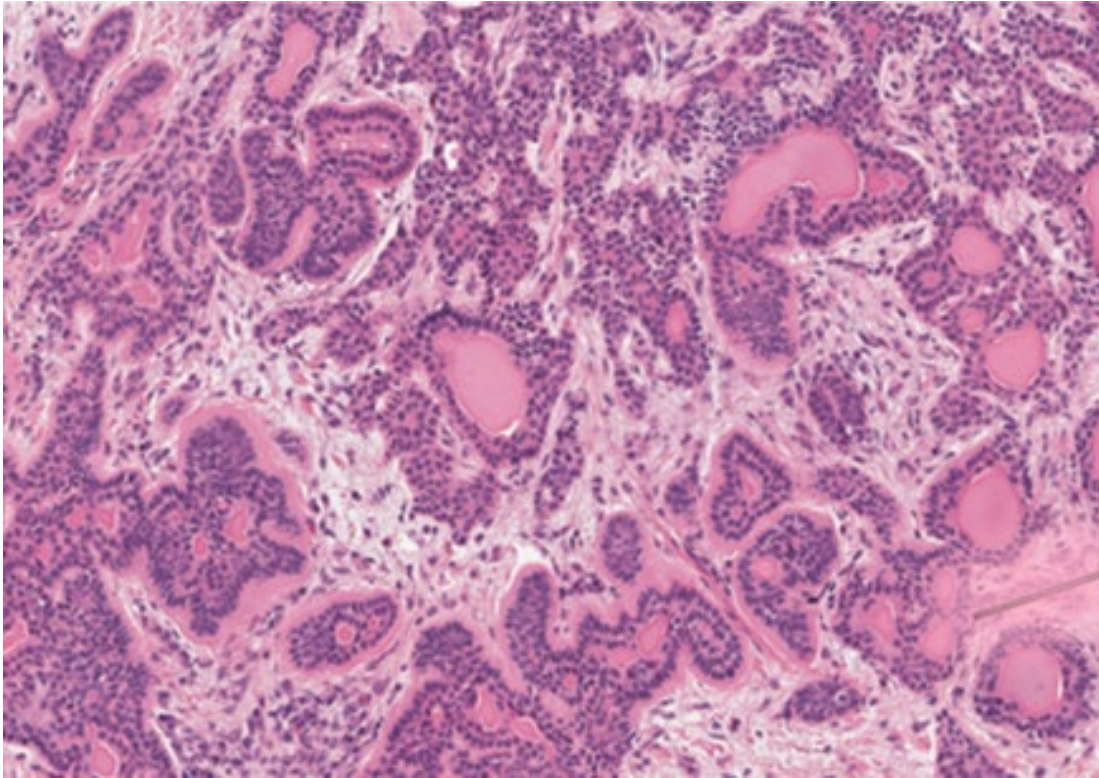
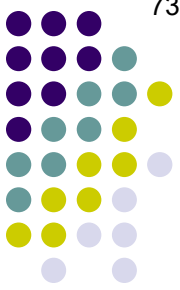


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Pathwatching



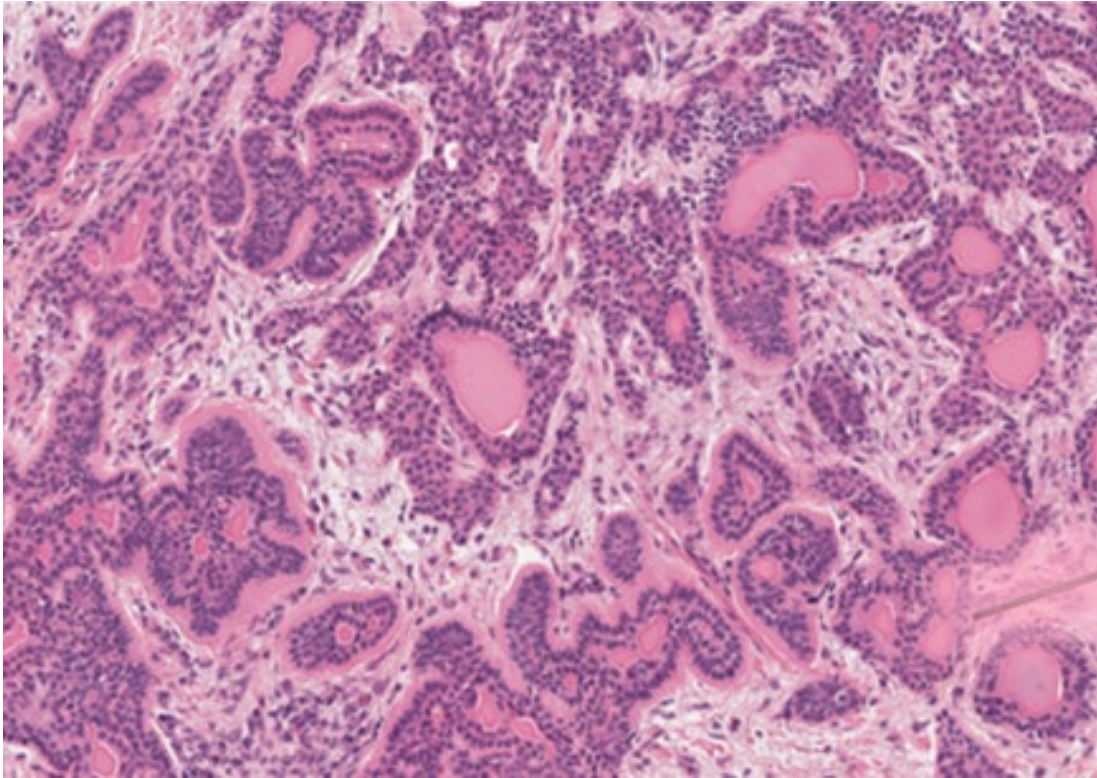
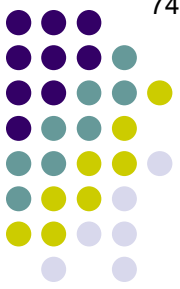
What's the diagnosis?

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Pathwatching



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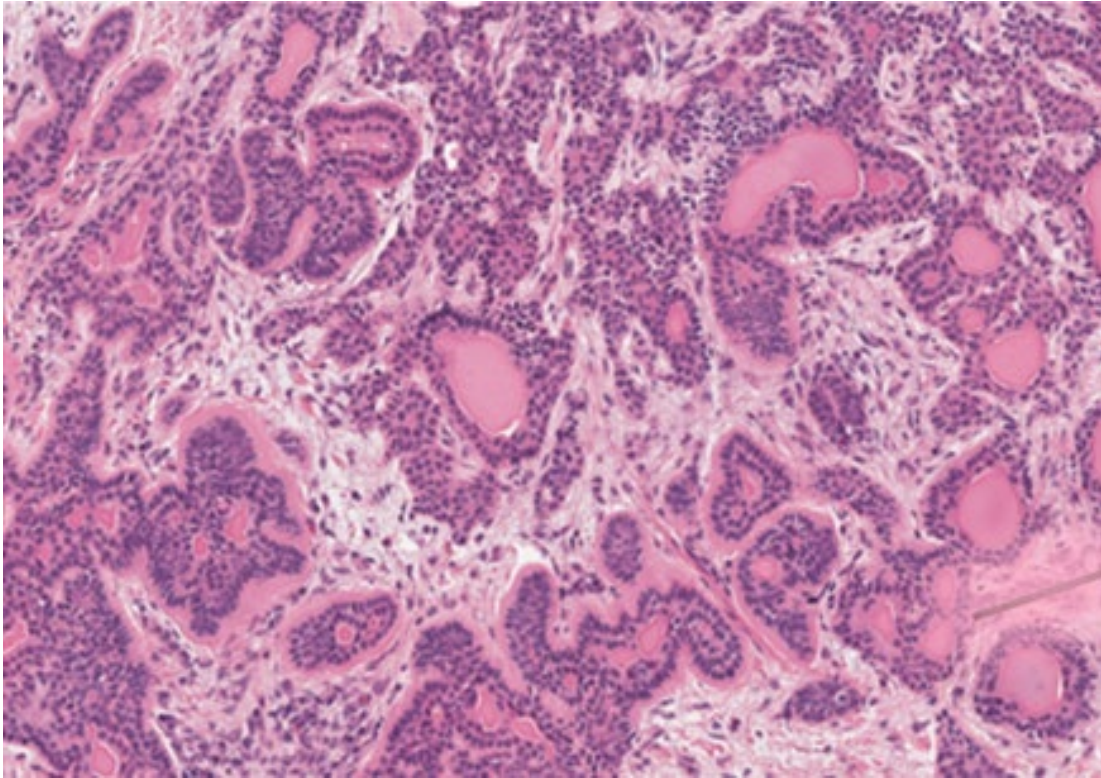
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What's the diagnosis?

Pleomorphic adenoma, the **most v least** common epithelial tumor of the lacrimal gland

Pathwatching



What's the diagnosis?

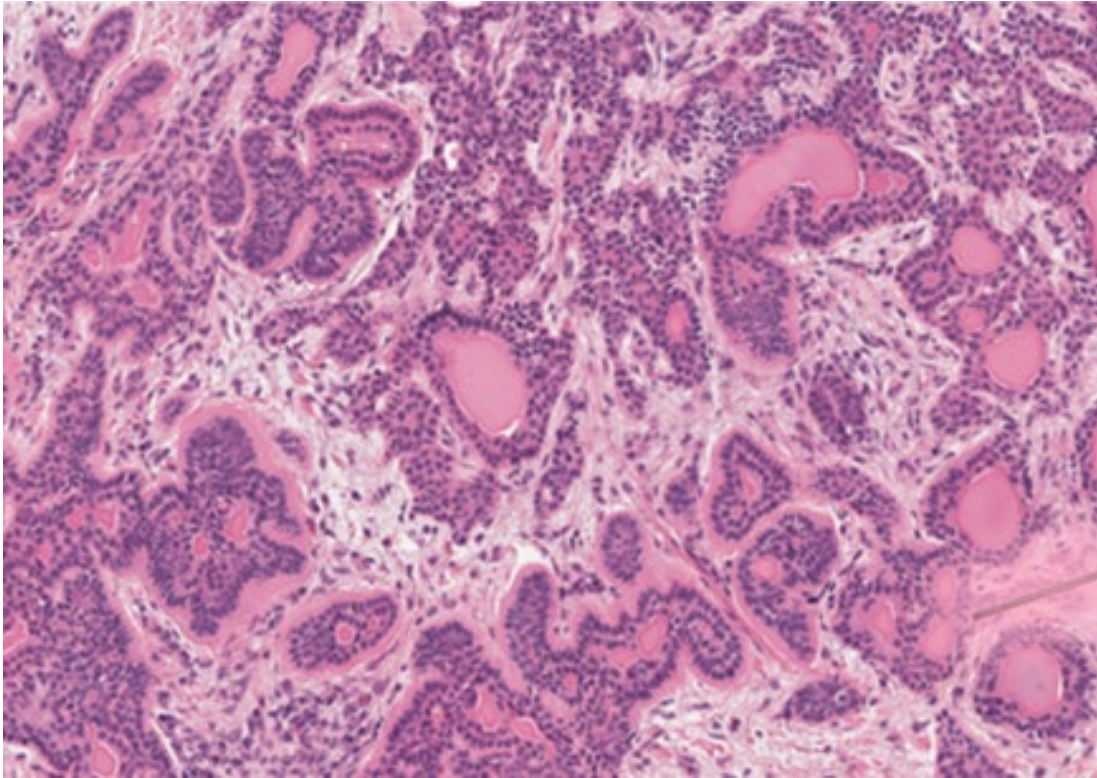
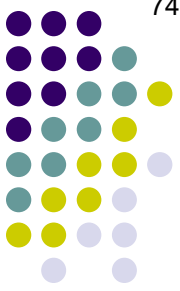
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland

Pathwatching



What's the diagnosis?

Note:

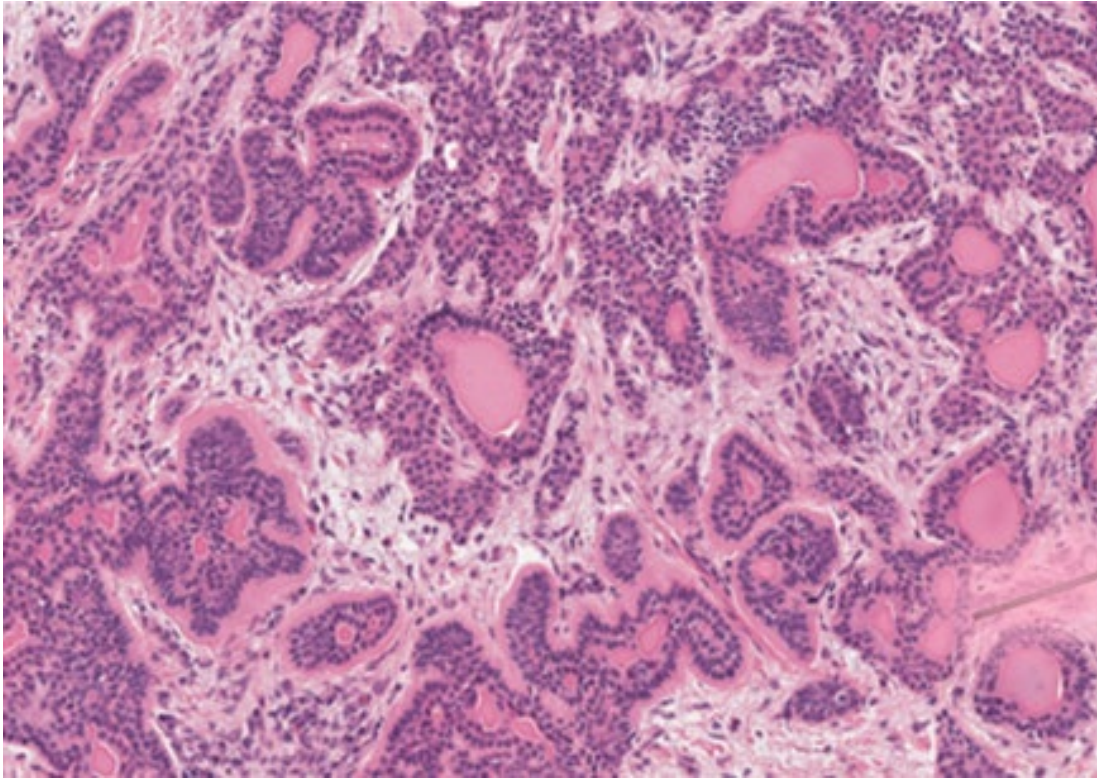
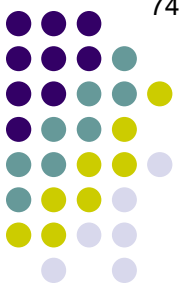
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. [It is](#)

painful v
painless

Pathwatching



What's the diagnosis?

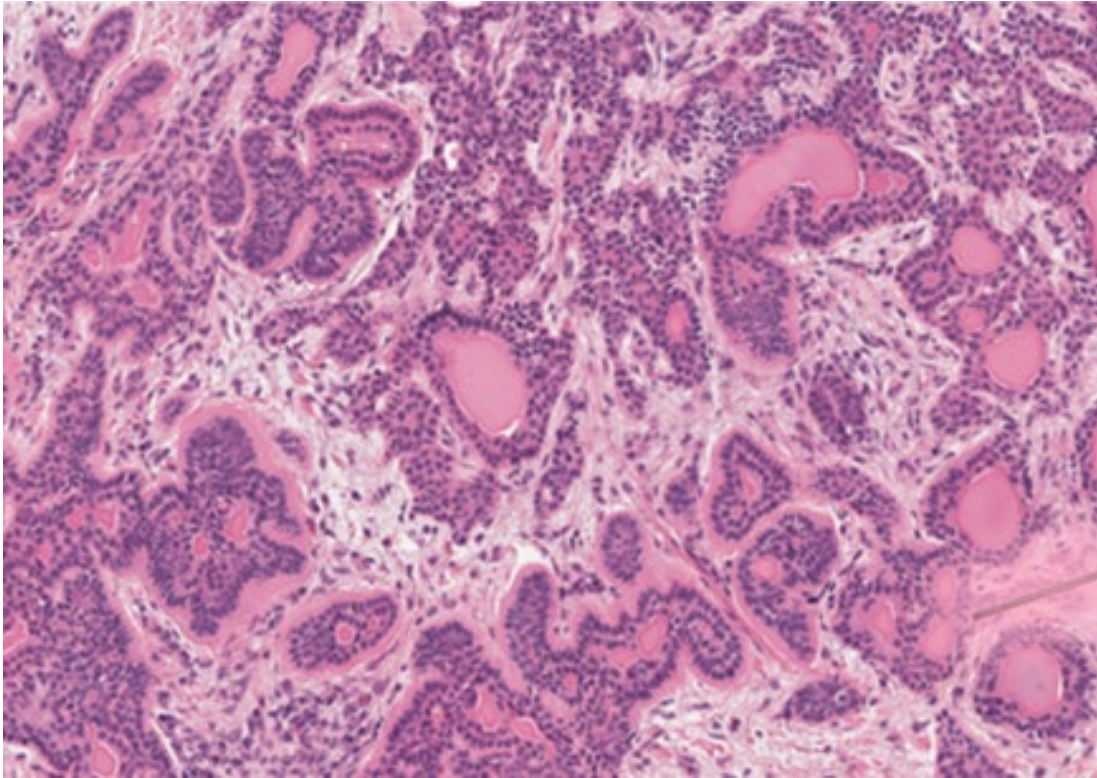
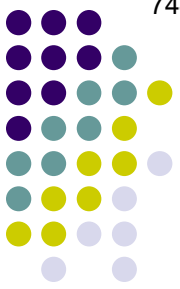
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. [It is painless](#) .

Pathwatching



What's the diagnosis?

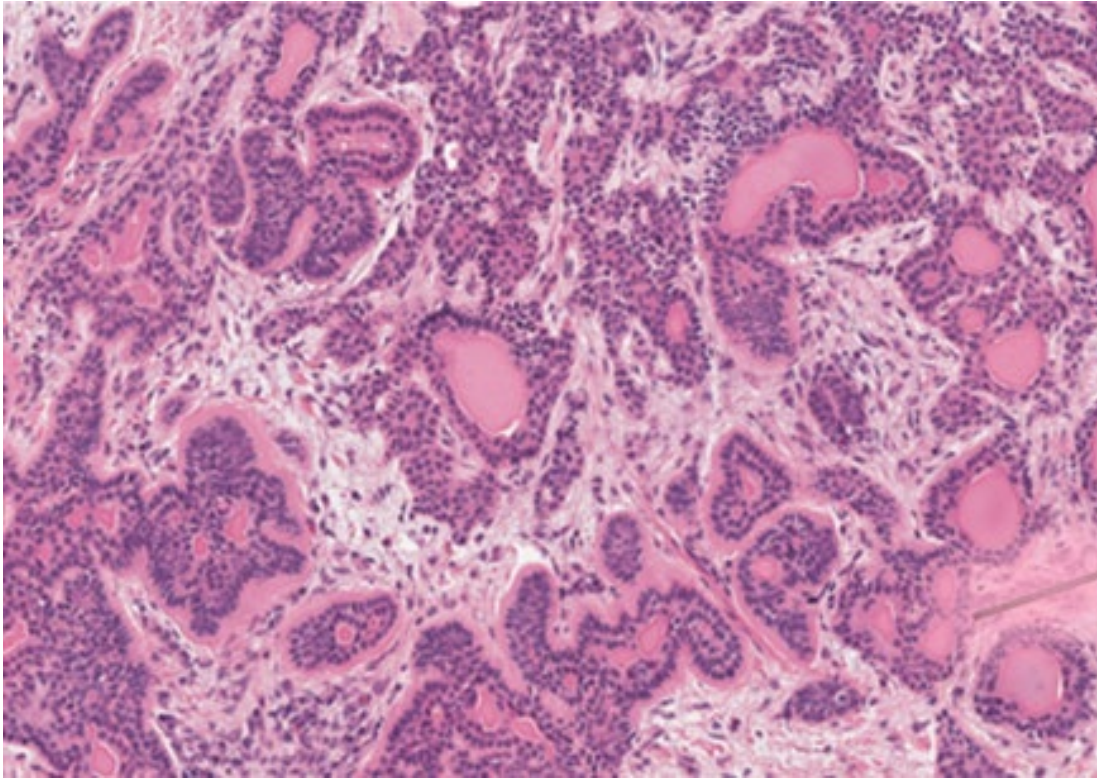
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is **painless** . Slightly more common in M vs F

Pathwatching



What's the diagnosis?

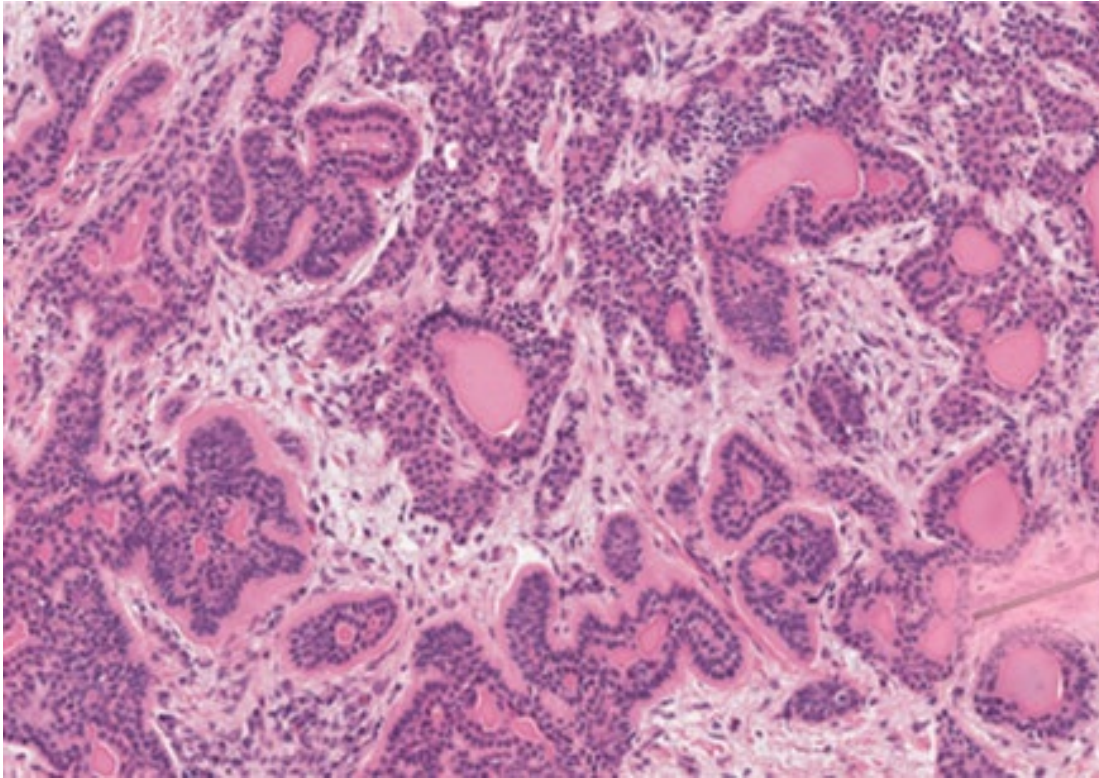
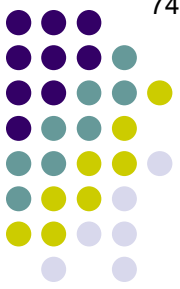
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. [It is painless](#) . Slightly more common in men .

Pathwatching



What's the diagnosis?

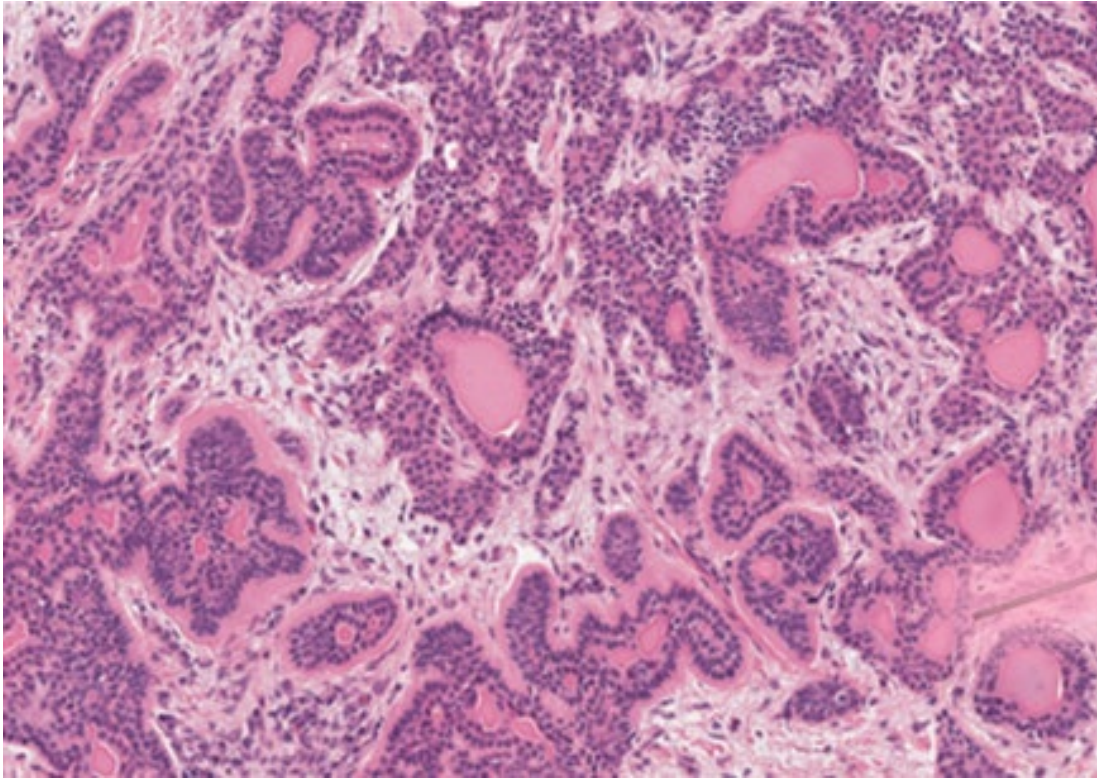
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is [painless](#) . Slightly more common in men . Presents in the [range](#) decade.

Pathwatching



What's the diagnosis?

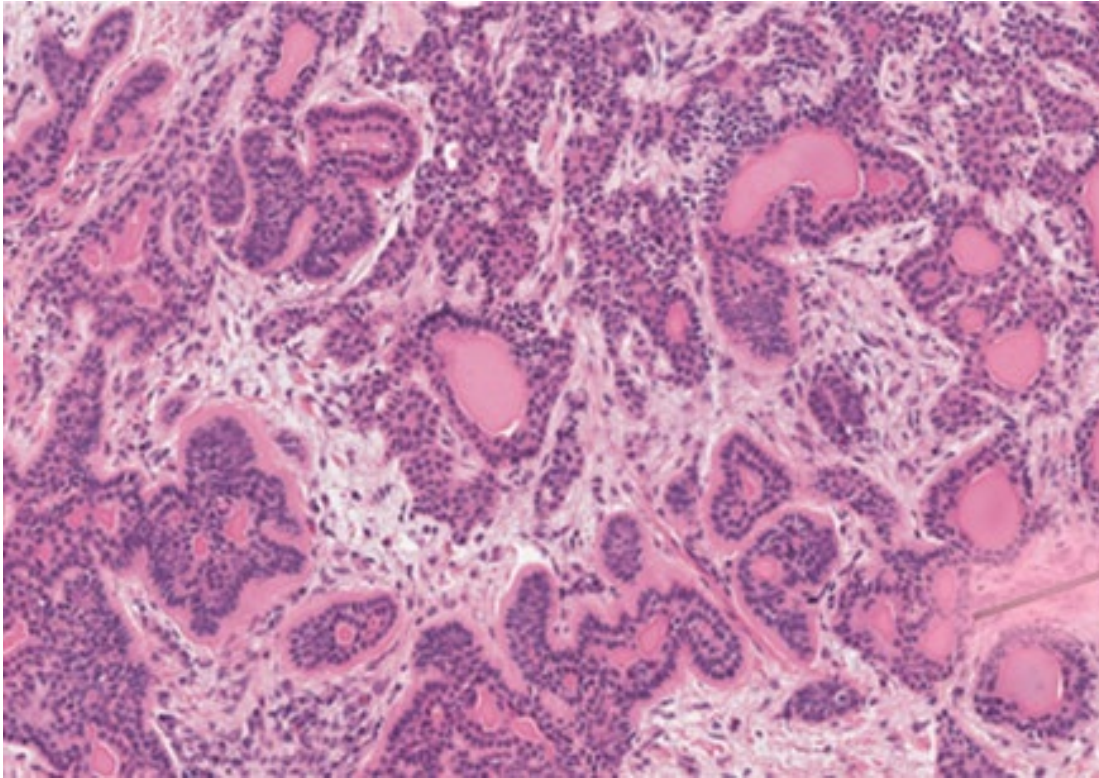
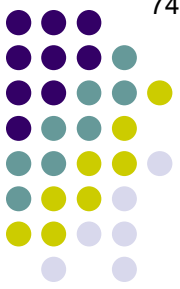
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. [It is painless](#) . Slightly more common in men . Presents in the 4th-5th decade.

Pathwatching



What's the diagnosis?

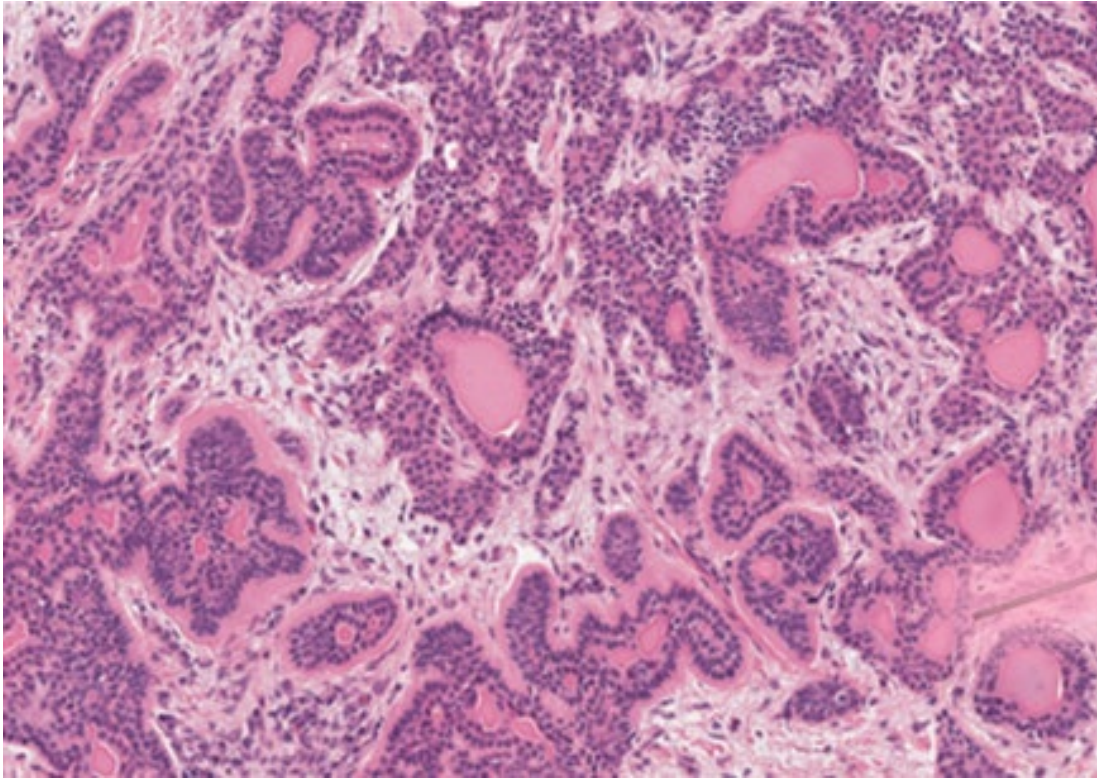
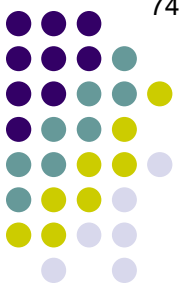
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. [It is painless](#) . Slightly more common in men . Presents in the 4th-5th decade. [The tumor is](#) encapsulated?

Pathwatching



What's the diagnosis?

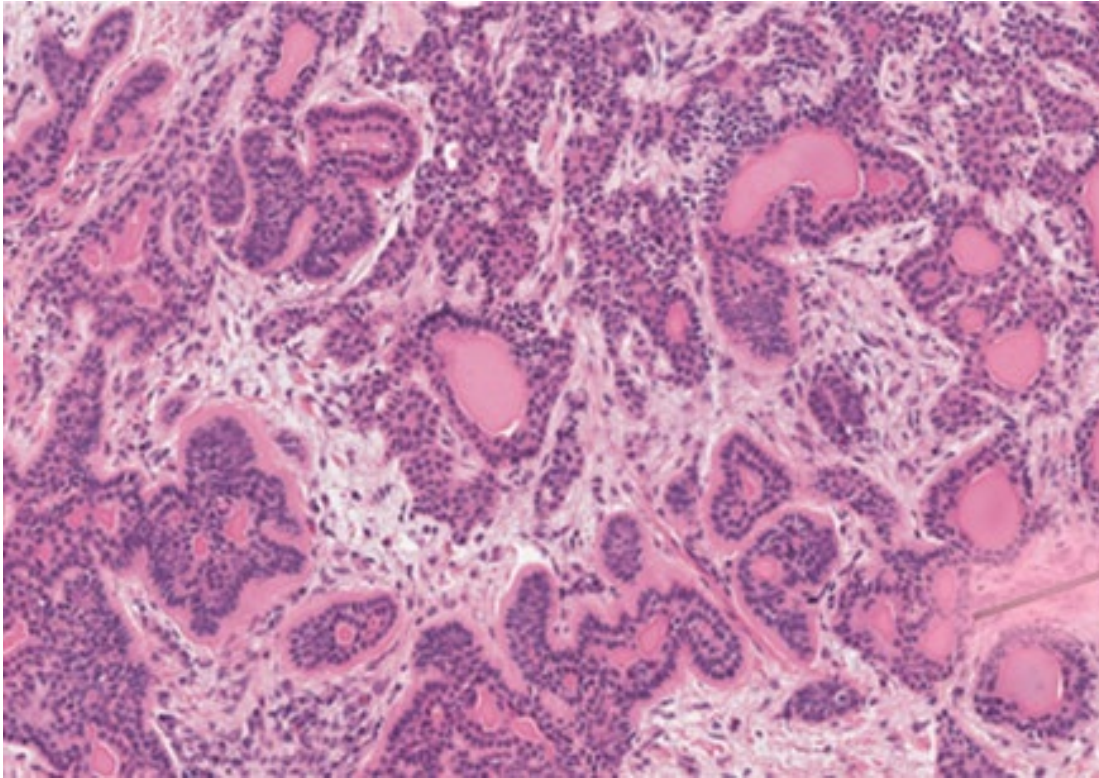
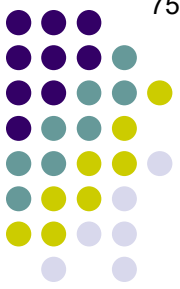
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--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—[look here, here, and here, for example](#). In short, there's nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is [painless](#) . Slightly more common in men . Presents in the 4th-5th decade. [The tumor is pseudoencapsulated](#).

Pathwatching



What's the diagnosis?

Note:

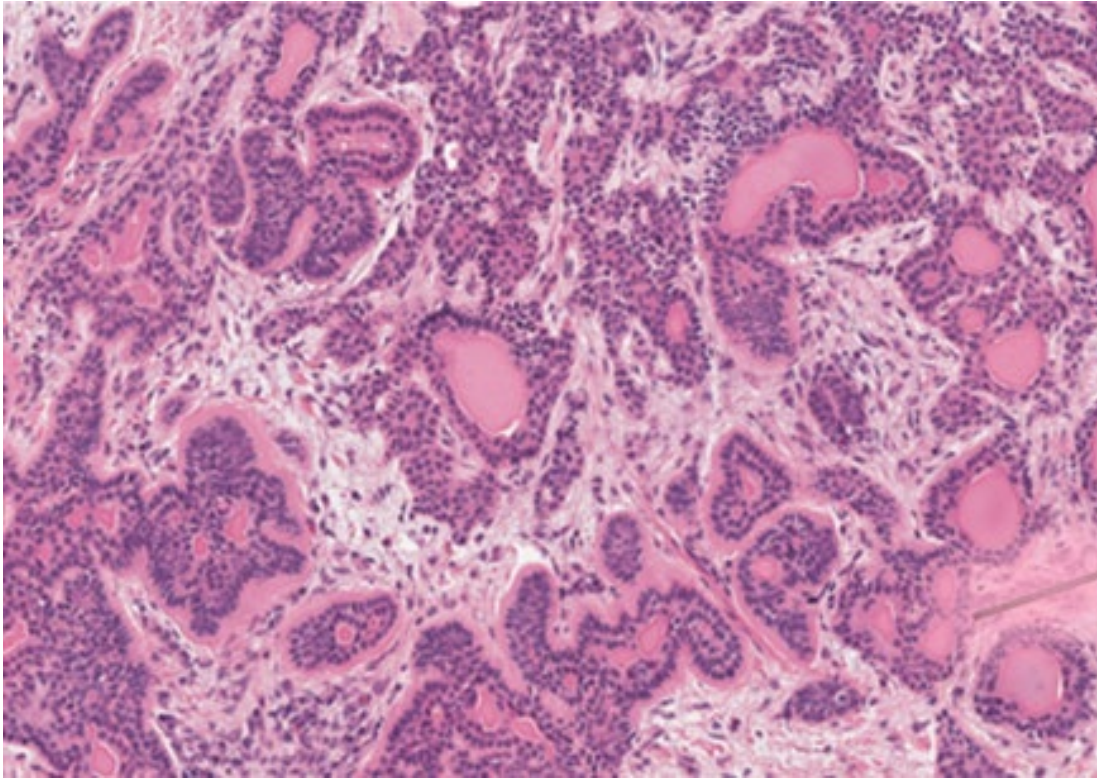
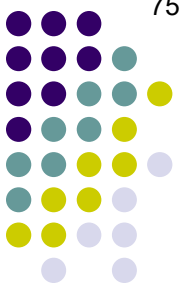
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless . Slightly more common in men . Presents in the 4th-5th decade. The tumor is pseudoencapsulated.

Grows quickly v slowly

Pathwatching



What's the diagnosis?

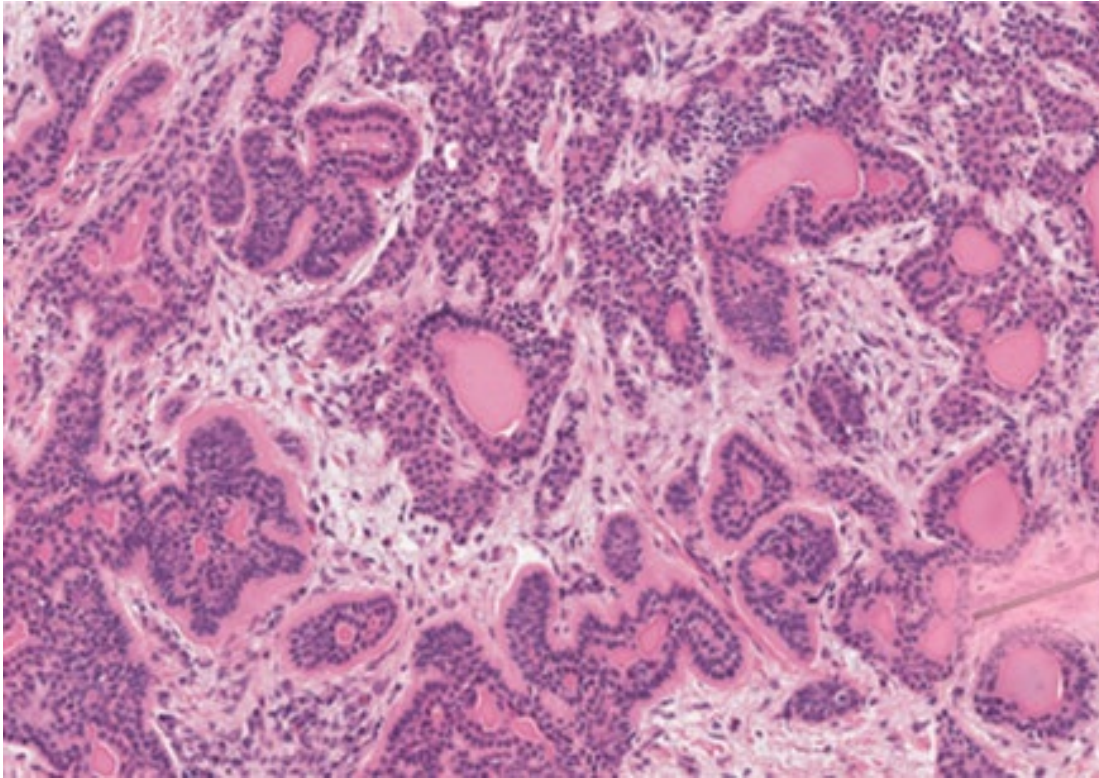
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is [painless](#) . Slightly more common in men . Presents in the 4th-5th decade. [The tumor is pseudoencapsulated](#). Grows slowly .

Pathwatching



What's the diagnosis?

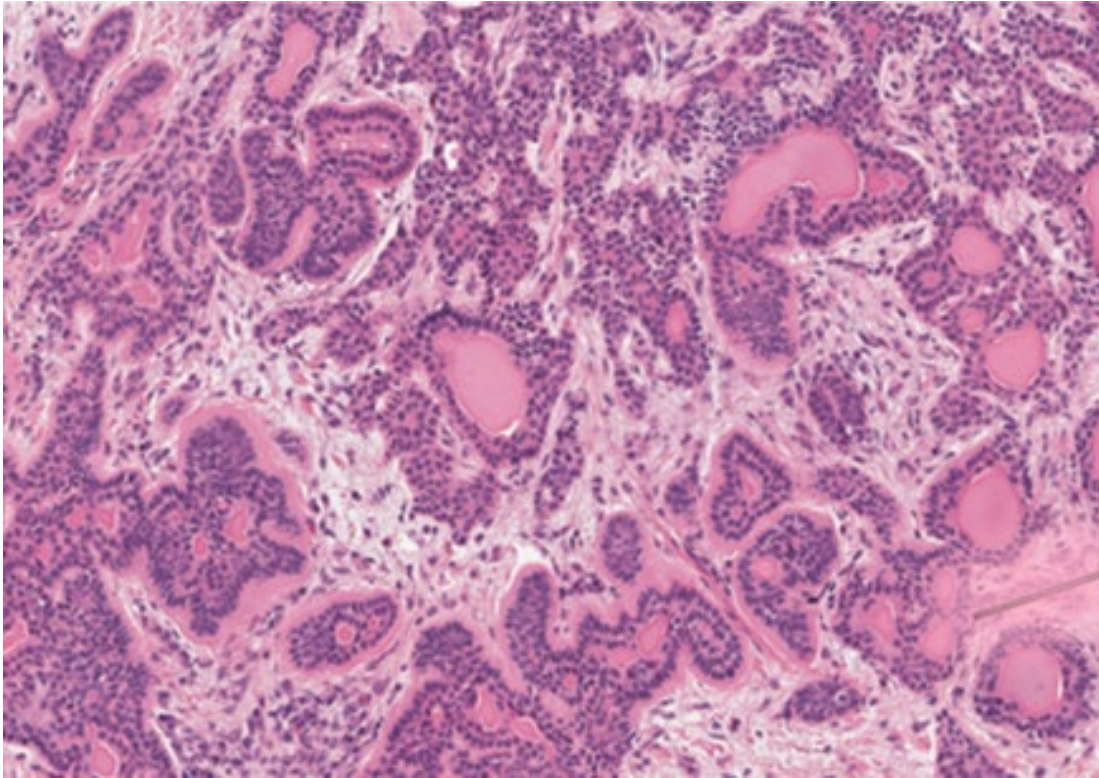
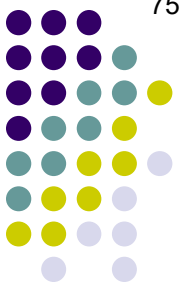
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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless . Slightly more common in men . Presents in the 4th-5th decade. The tumor is pseudoencapsulated. Grows slowly . Progressive growth may [redacted] adjacent bone but does not [redacted] it.

Pathwatching



What's the diagnosis?

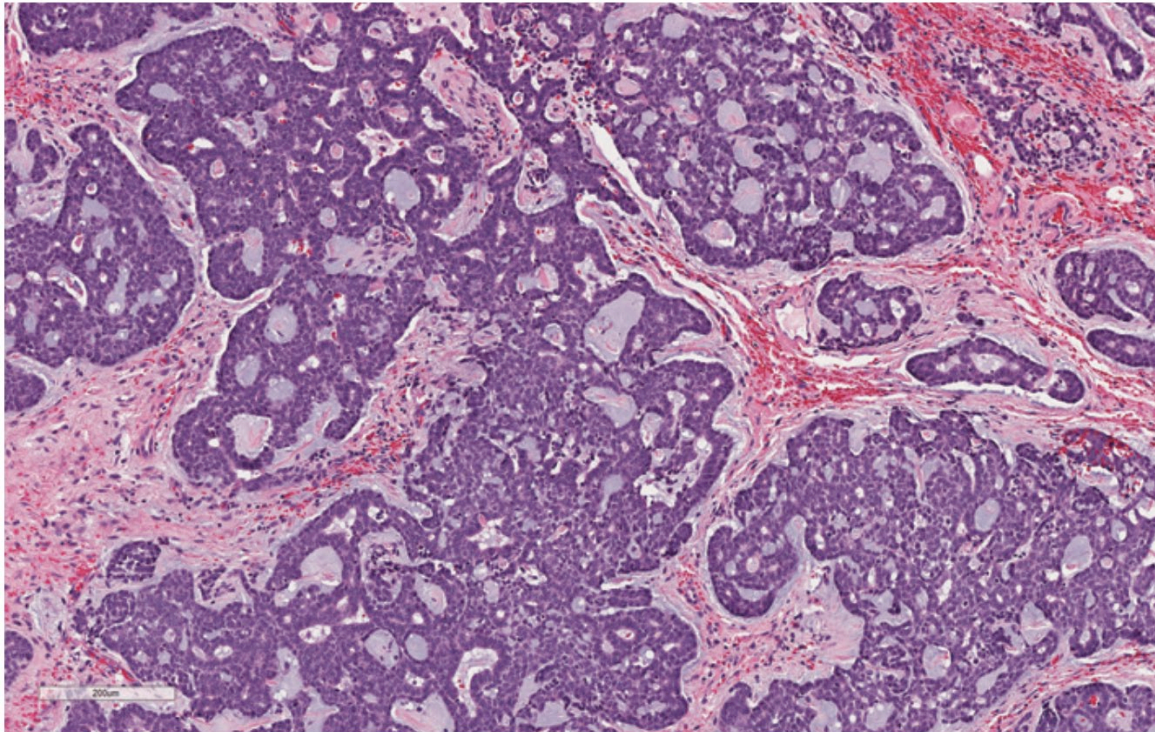
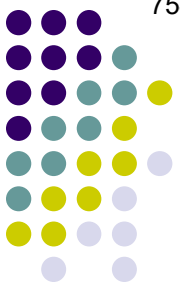
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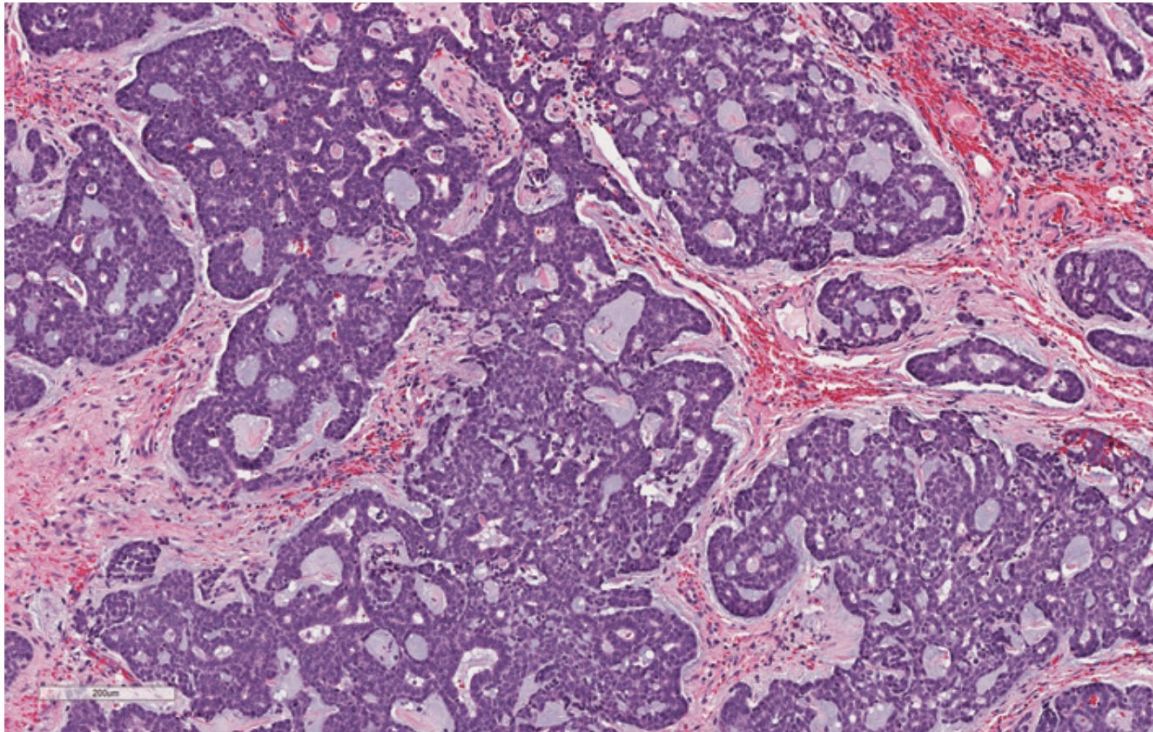
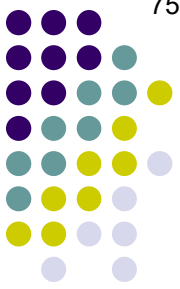
Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is [painless](#) . Slightly more common in men . Presents in the 4th-5th decade. [The tumor is pseudoencapsulated](#). Grows slowly . [Progressive growth may excavate adjacent bone but does not erode it](#).

Pathwatching



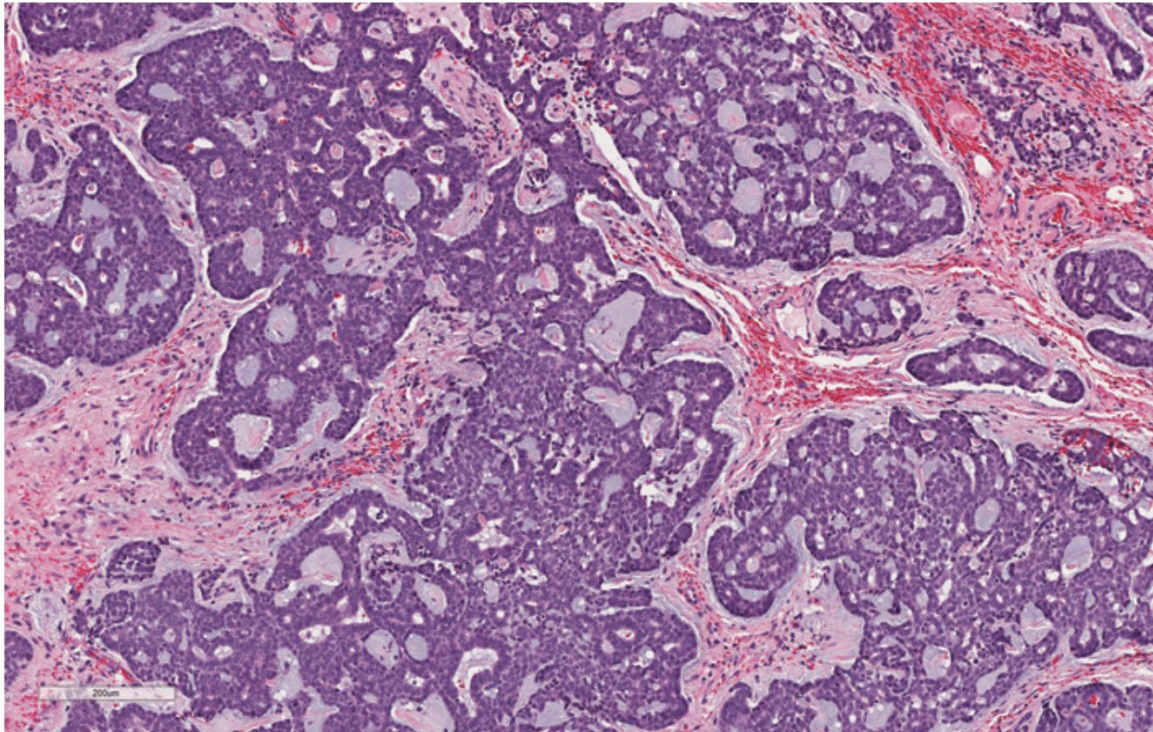
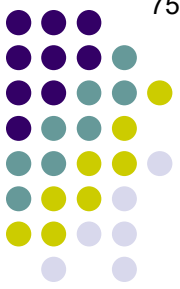
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well.

Pathwatching



This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic.

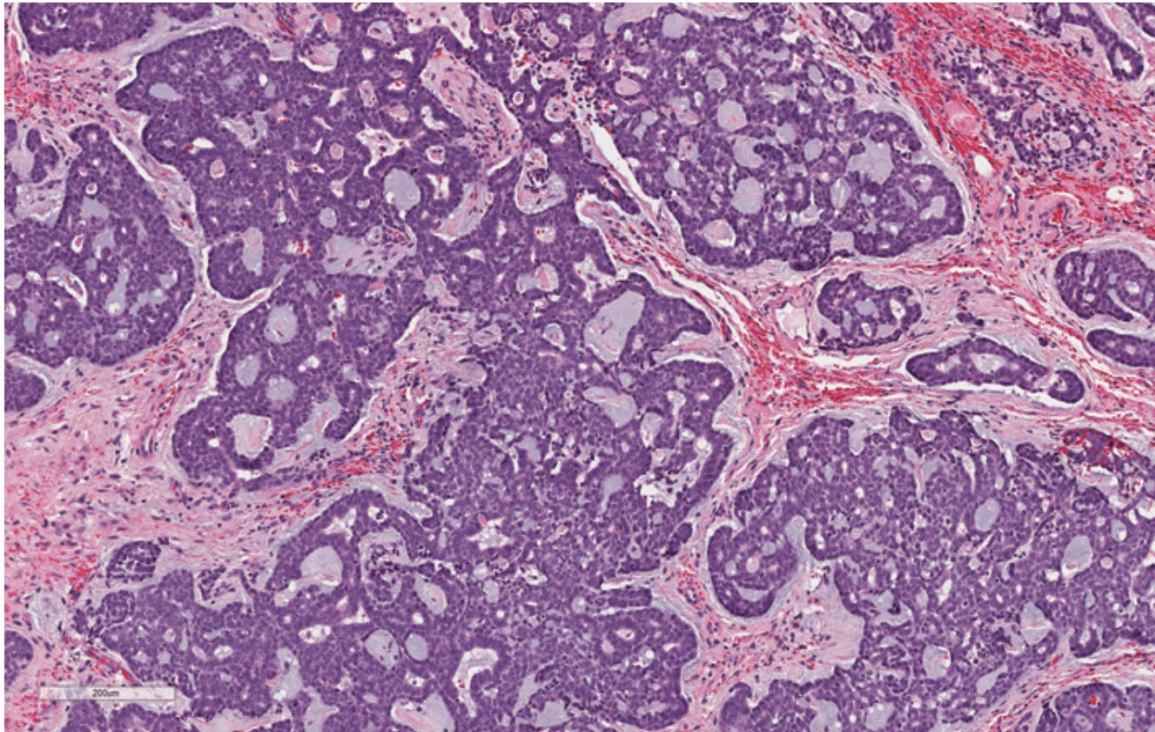
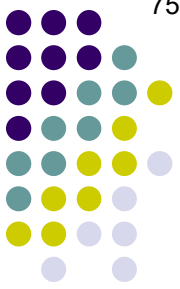
Pathwatching



This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'two-word classic description' appearance.

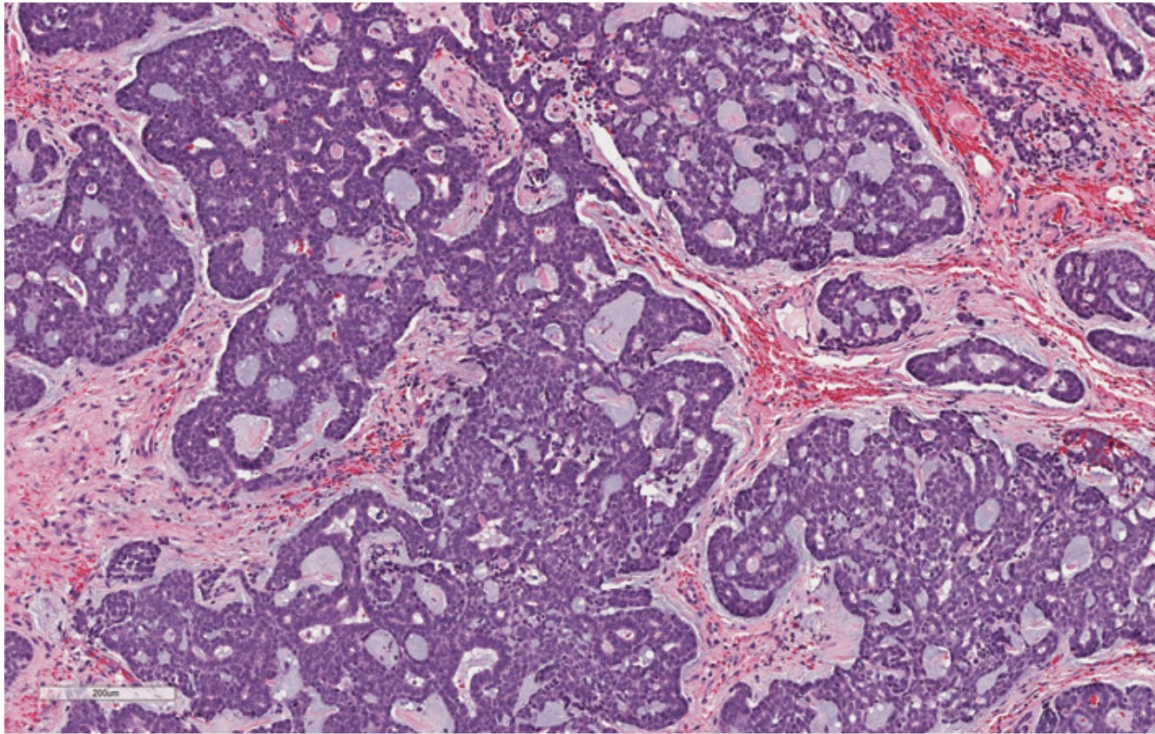
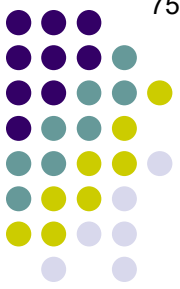
two-word classic
description

Pathwatching



This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'Swiss cheese' appearance.

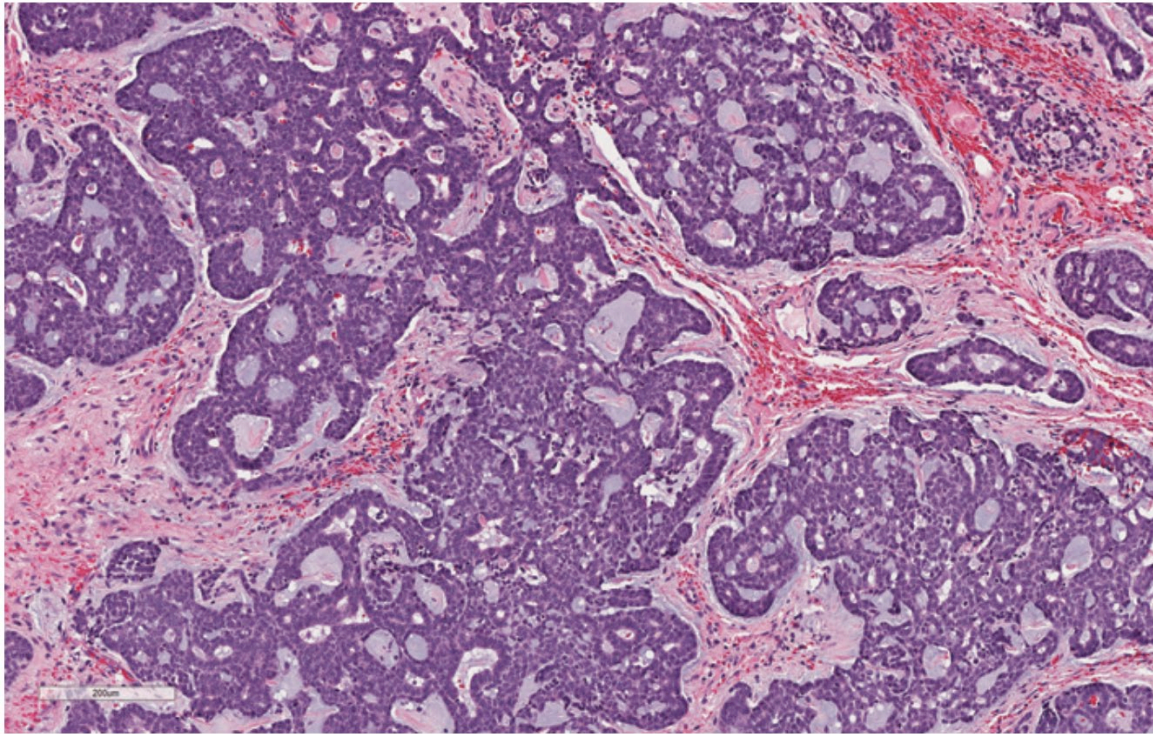
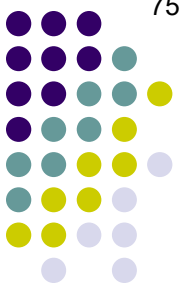
Pathwatching



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What's the diagnosis?

Pathwatching

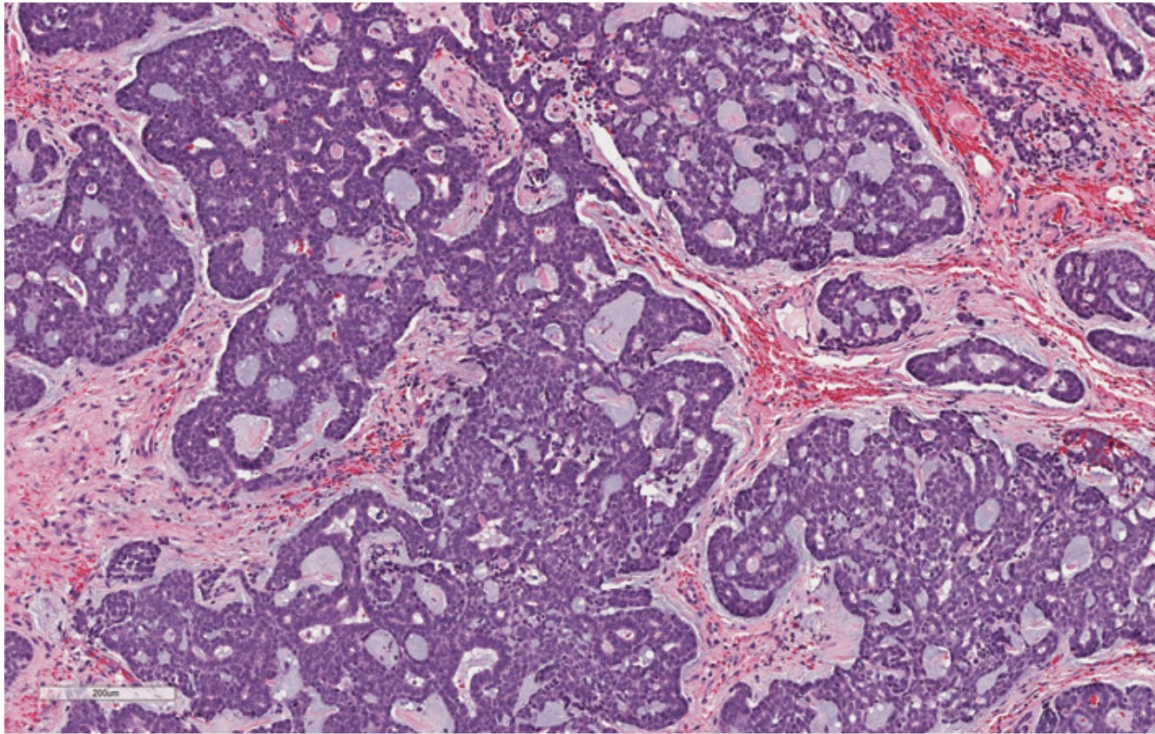
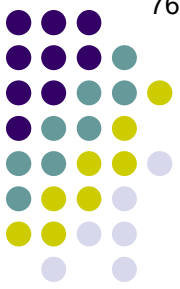


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This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'Swiss cheese' appearance.

Adenoid cystic carcinoma (ACC) is slightly more common in M vs F

Pathwatching

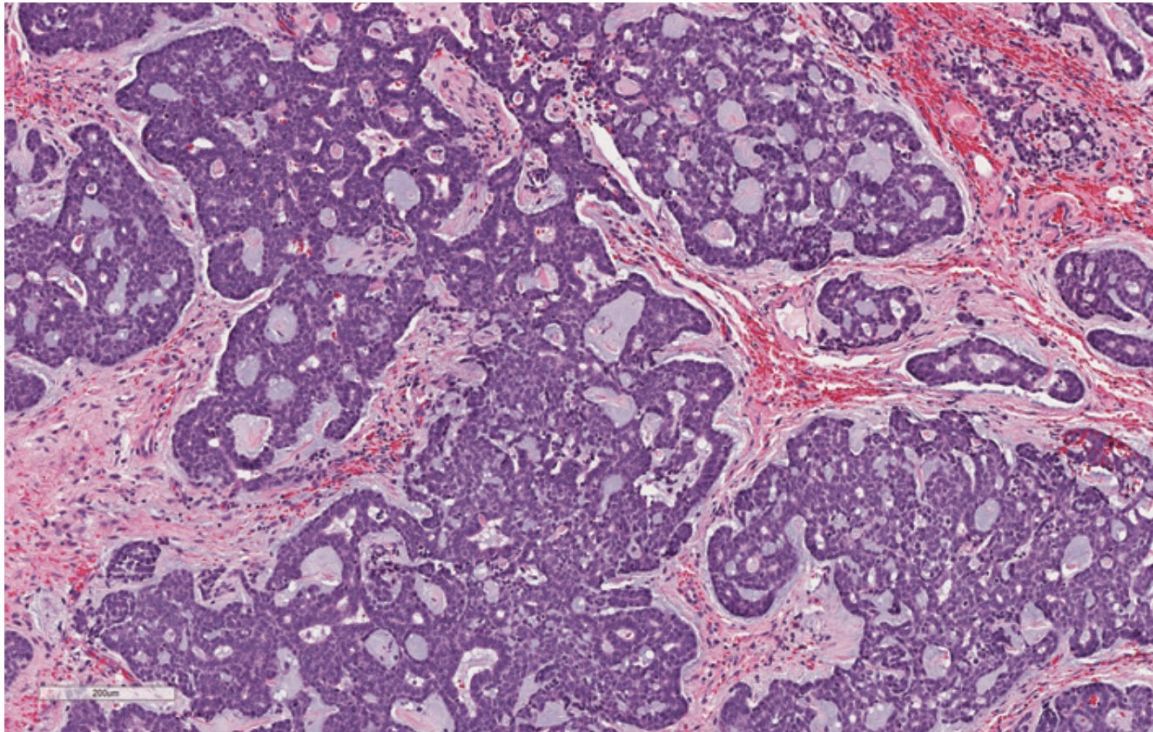
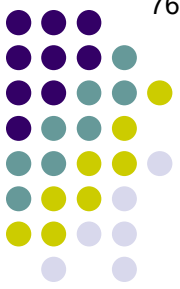


What's the diagnosis?

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'Swiss cheese' appearance.

Adenoid cystic carcinoma (ACC) is slightly more common in women

Pathwatching

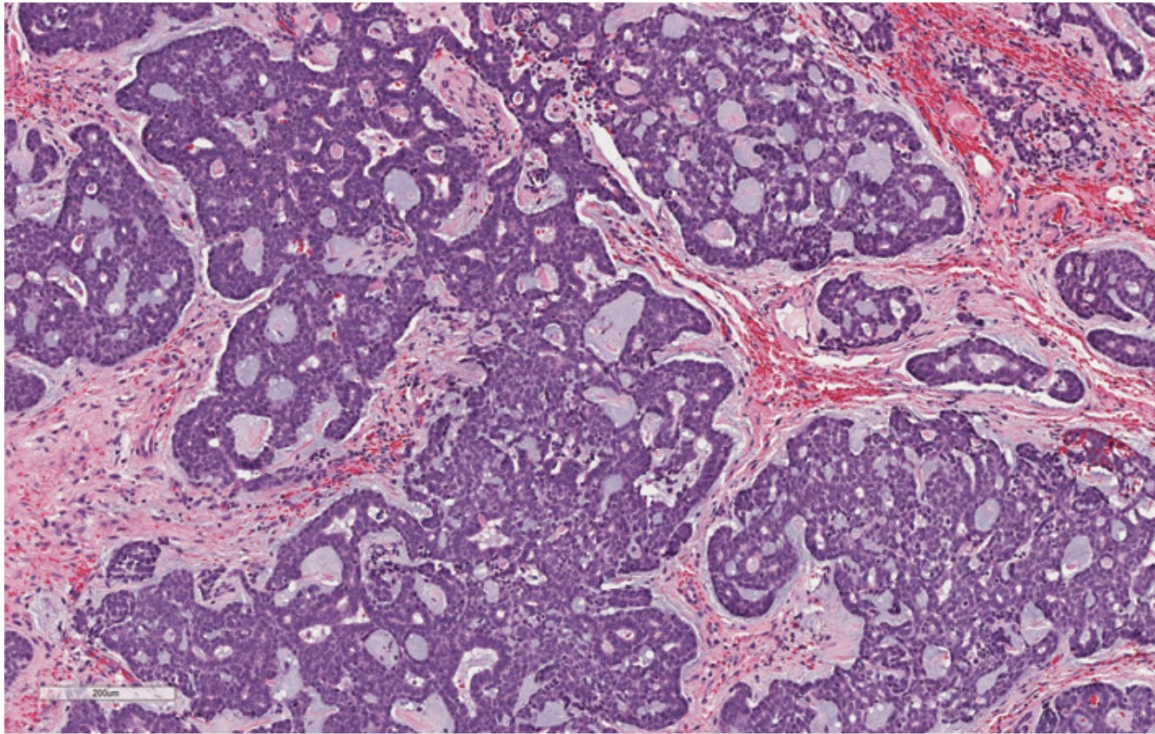
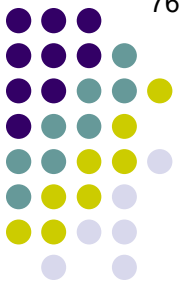


What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about # years

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ' Swiss cheese ' appearance.

Pathwatching

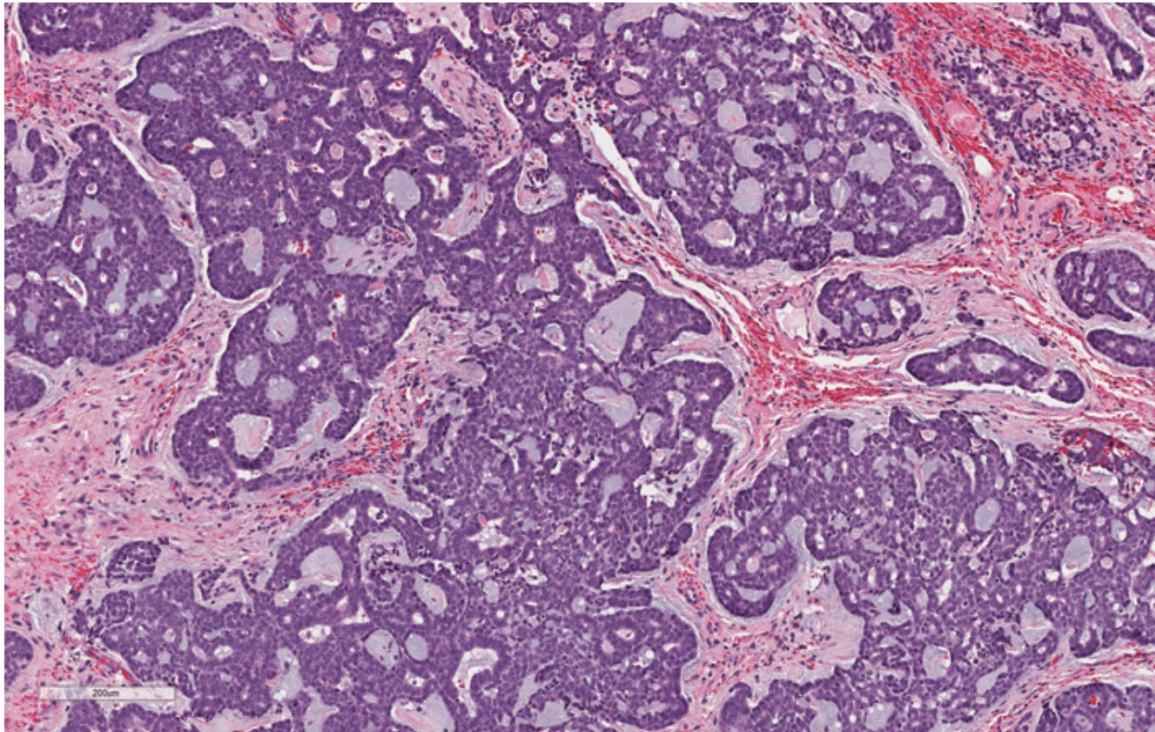
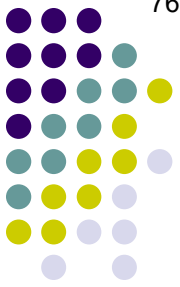


What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . **The median age at presentation is about 40 years.**

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. **The multitude of small tubules is responsible for its 'Swiss cheese' appearance.**

Pathwatching

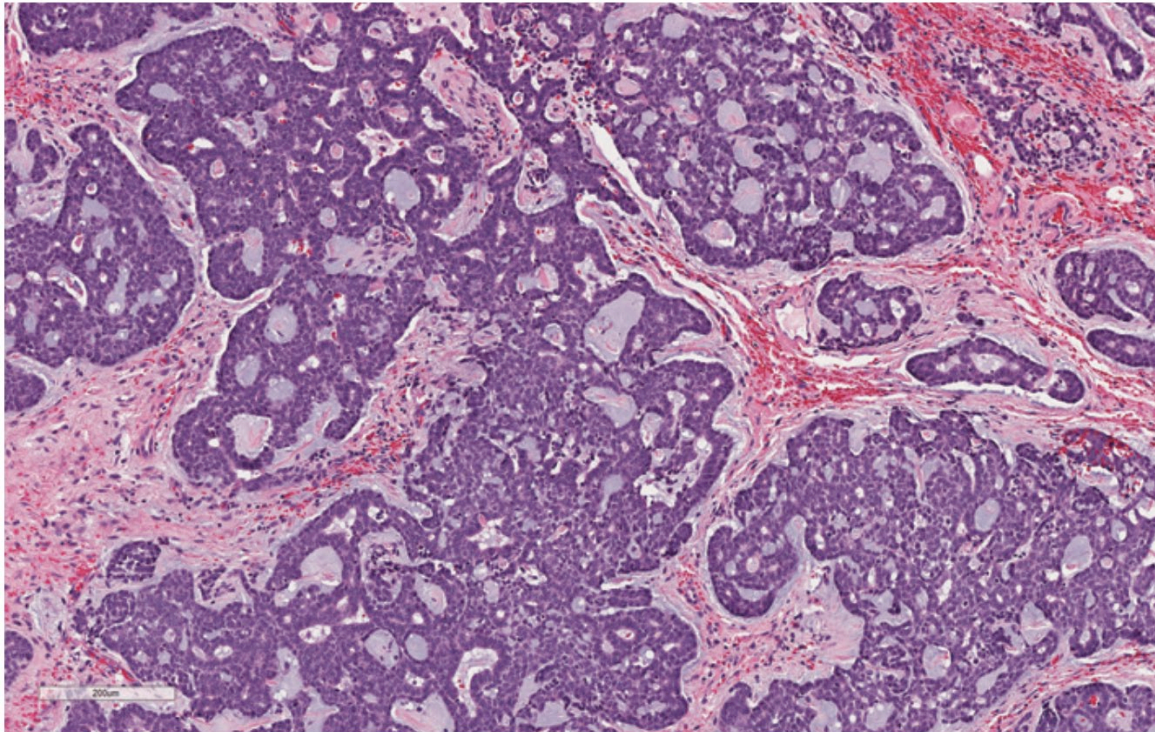
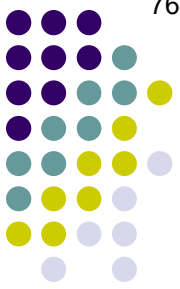


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What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has a vs has no pseudocapsule.

Pathwatching

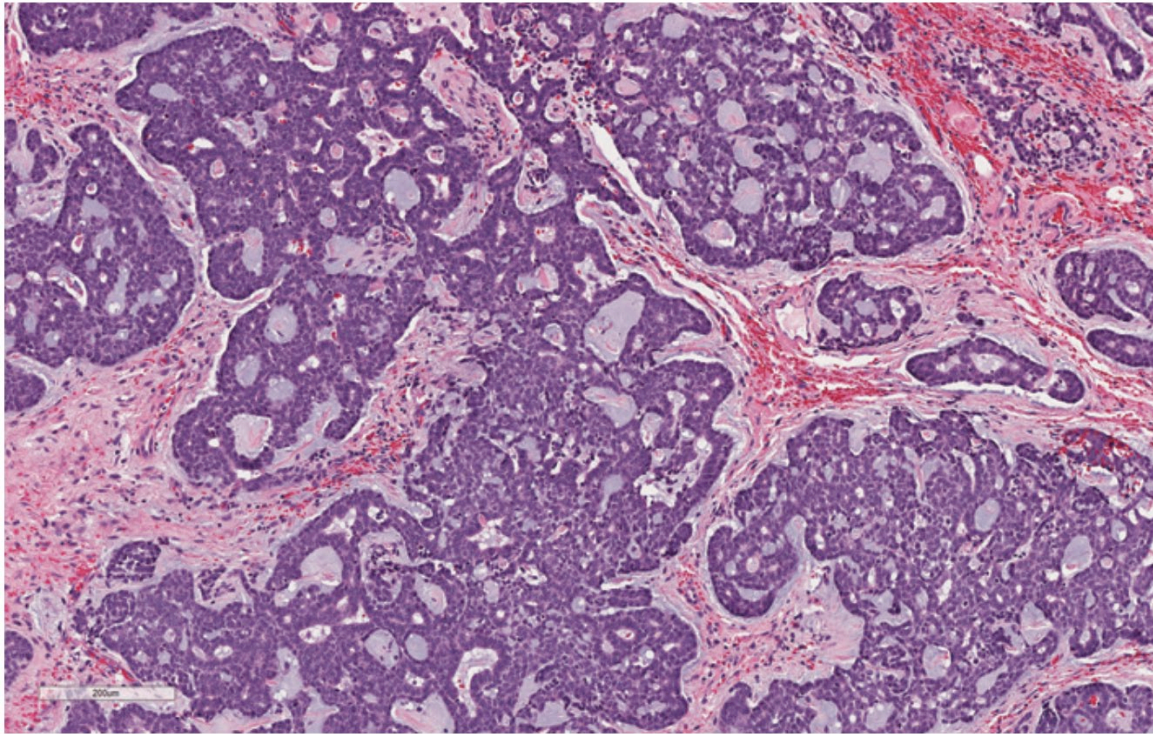
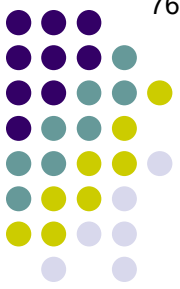


What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . **The median age at presentation is about 40 years.** ACC has no pseudocapsule.

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. **The multitude of small tubules is responsible for its 'Swiss cheese' appearance.**

Pathwatching



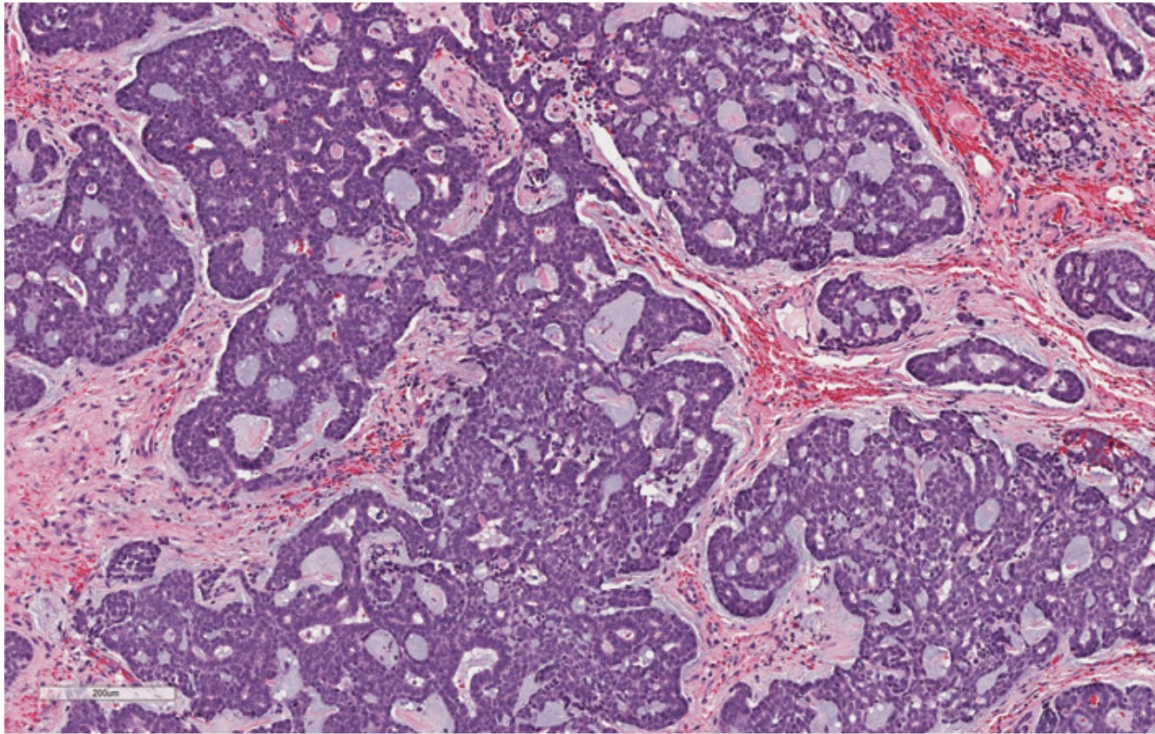
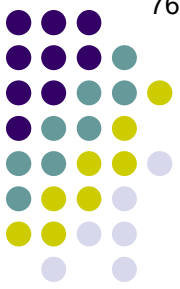
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What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is

typical vs
atypical

Pathwatching

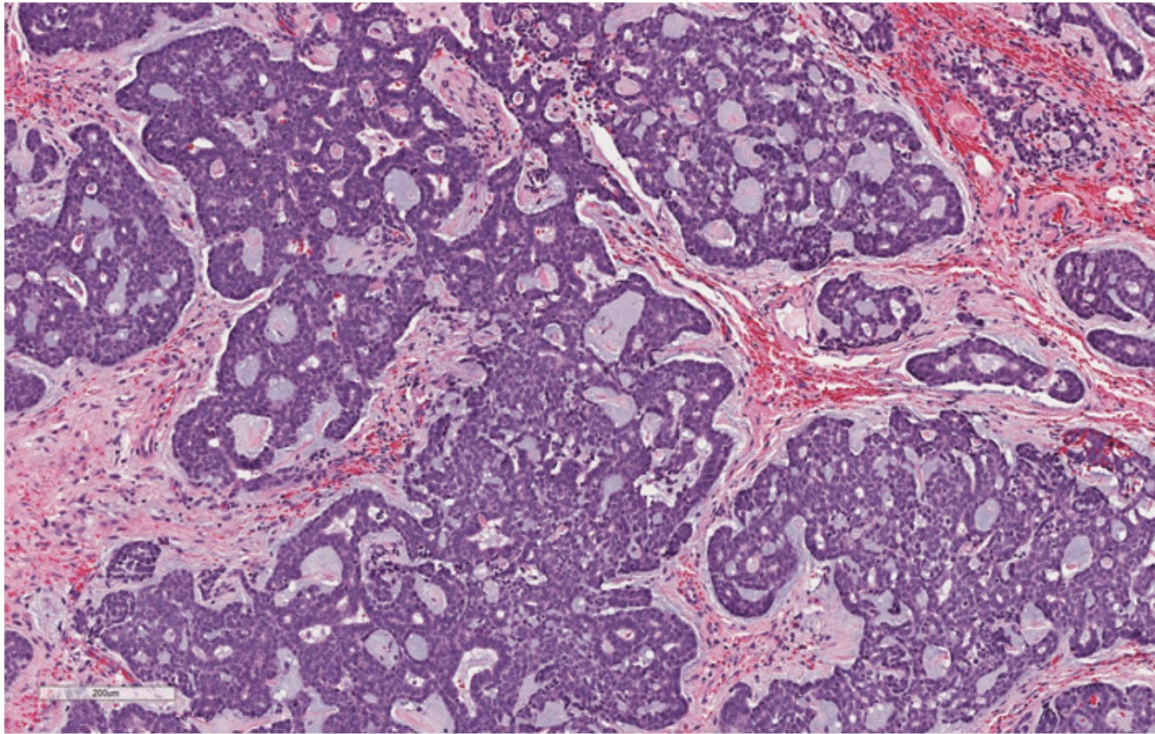
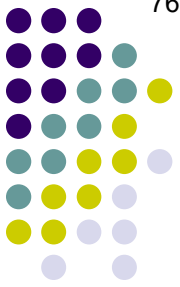


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What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical

Pathwatching



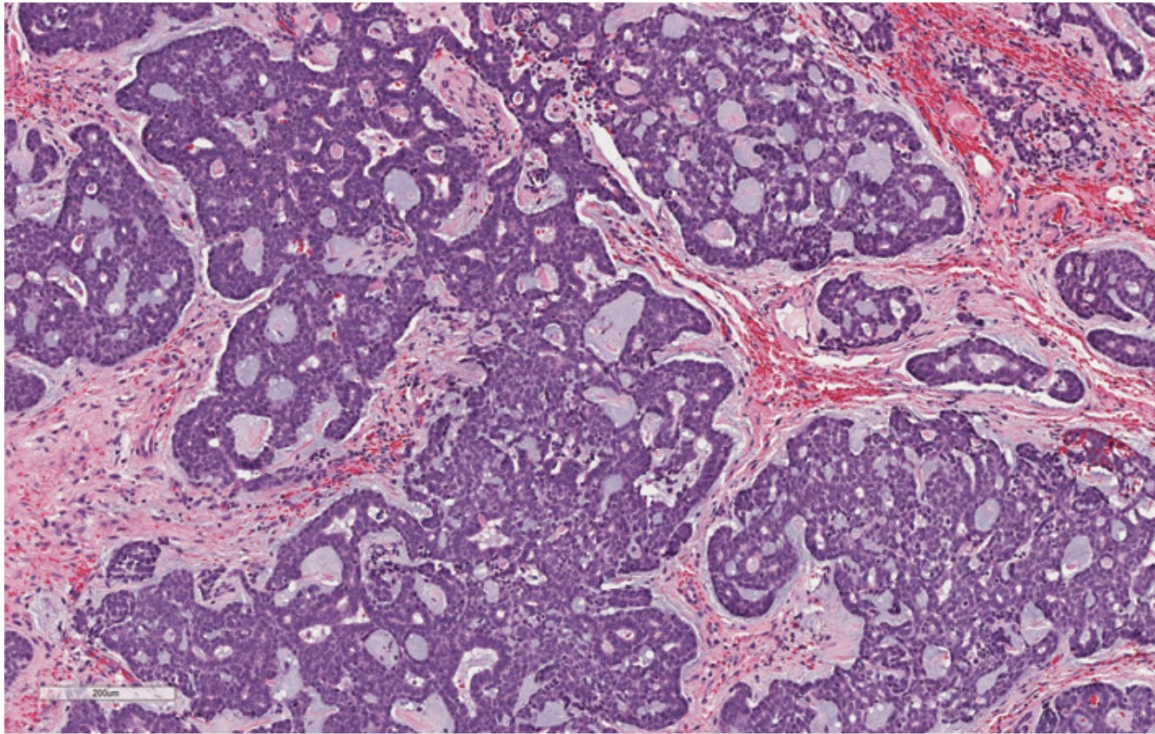
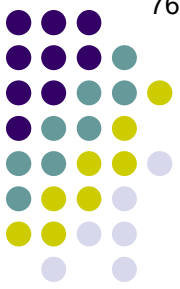
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What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical , and pain at presentation is

common vs
uncommon

Pathwatching

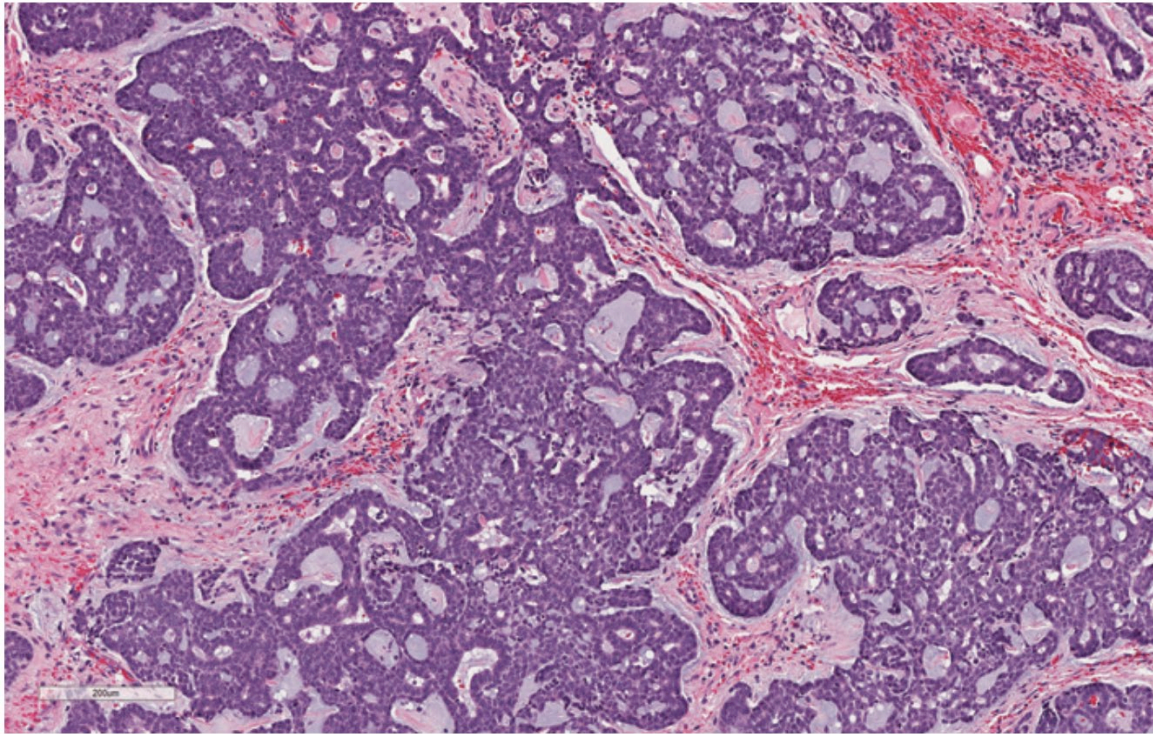
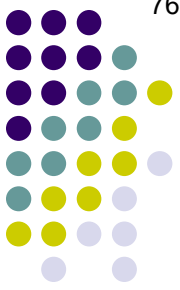


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This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'Swiss cheese' appearance.

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical , and pain at presentation is the rule.

Pathwatching



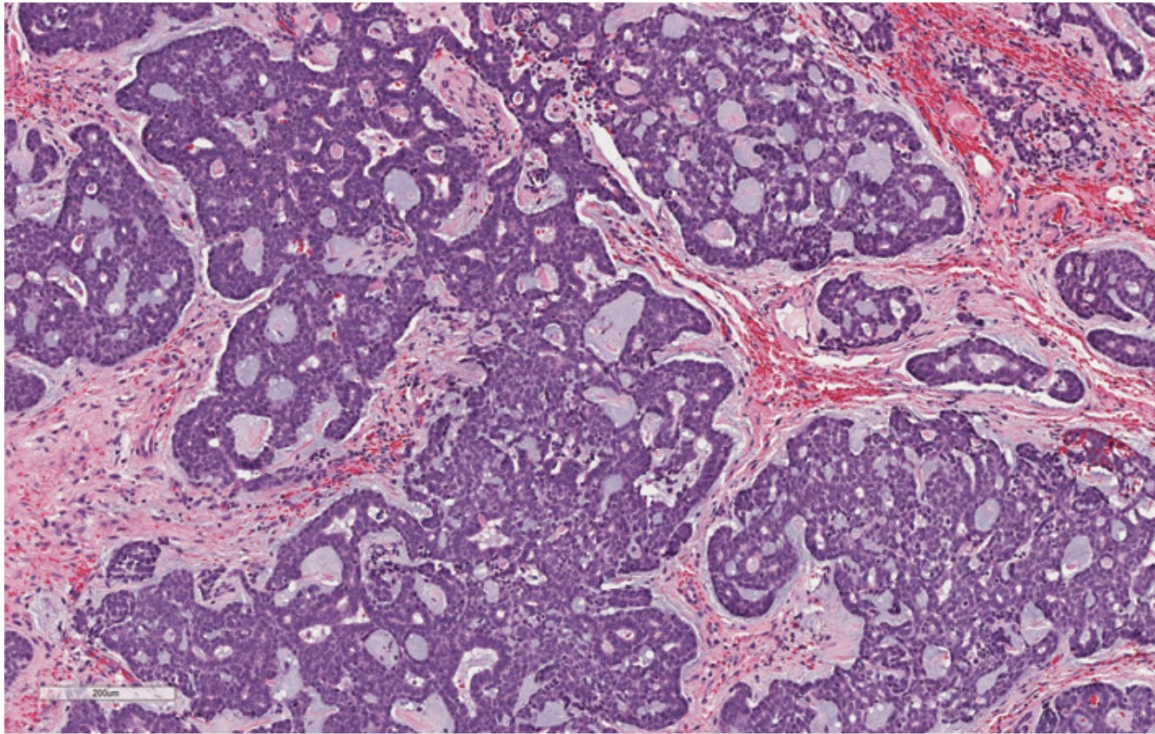
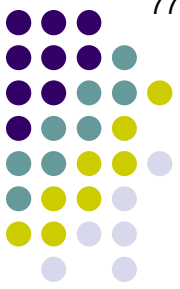
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What's the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical , and pain at presentation is the rule. Grows

quickly vs
slowly

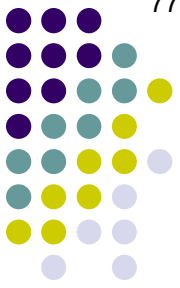
Pathwatching



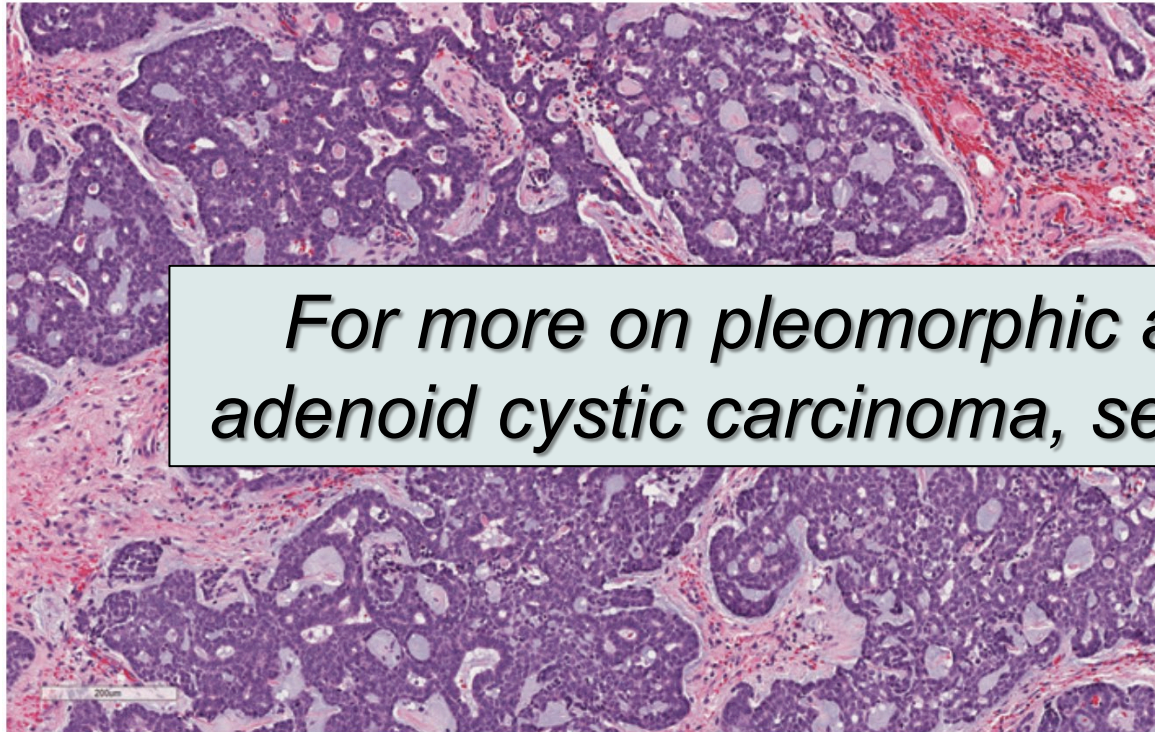
What's the diagnosis?

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'Swiss cheese' appearance.

Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical , and pain at presentation is the rule. Grows rapidly .



Pathwatching



For more on pleomorphic adenoma and adenoid cystic carcinoma, see slide-set O16

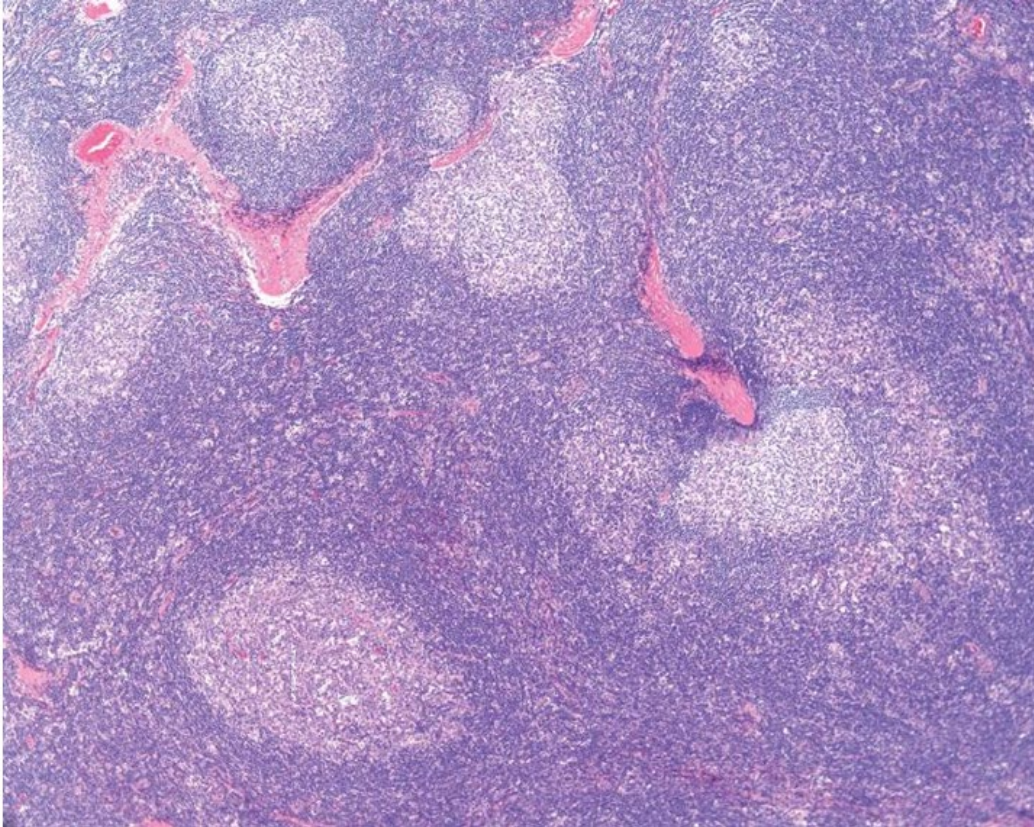
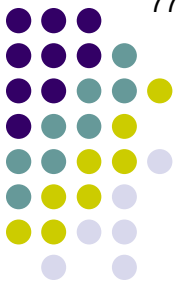
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well

“Swiss cheese” appearance.

What's the diagnosis?

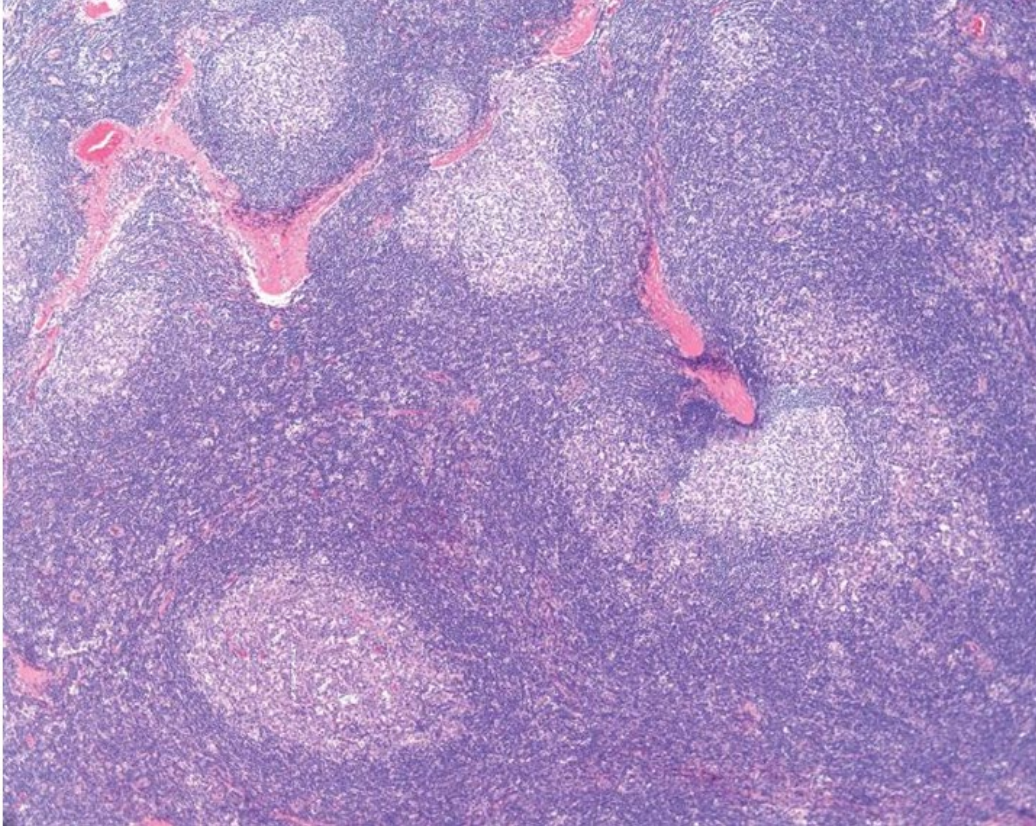
Adenoid cystic carcinoma (ACC) is slightly more common in women . The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical , and pain at presentation is the rule. Grows rapidly .

Pathwatching



Hopefully, the appearance of this image screams very general tissue type to you.

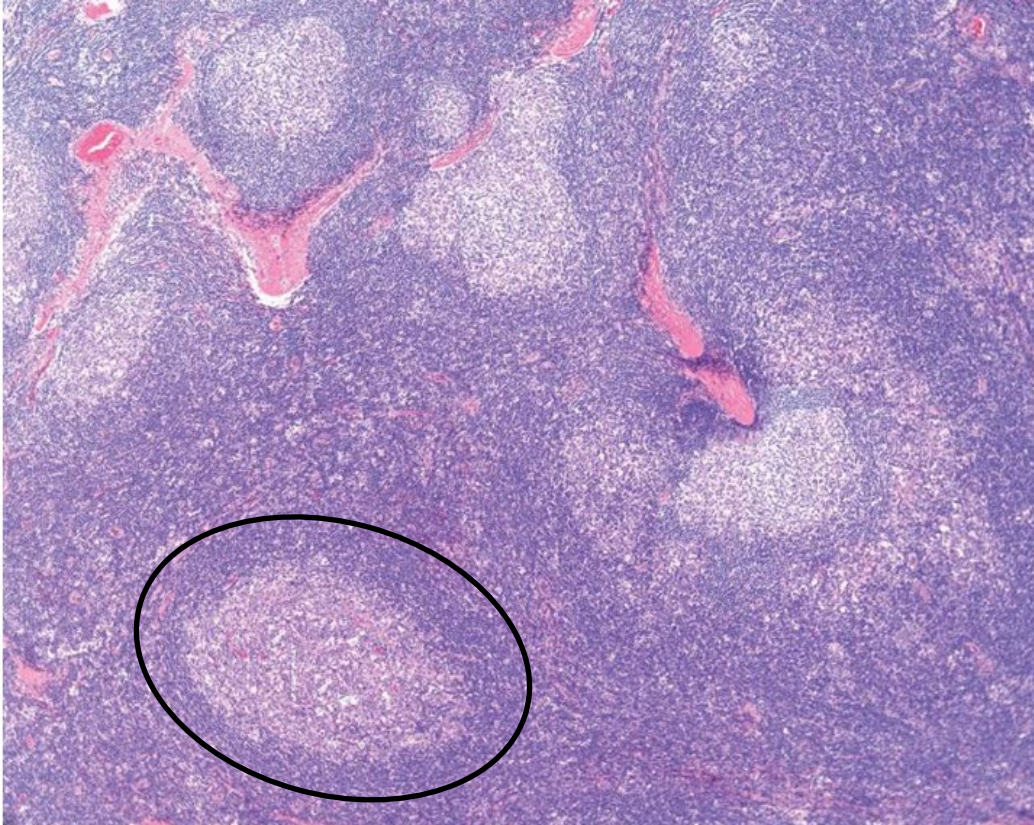
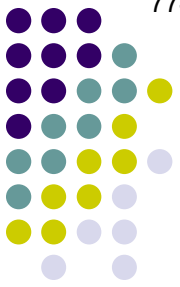
Pathwatching




Hopefully, the appearance of this image screams *lymphoid* to you.

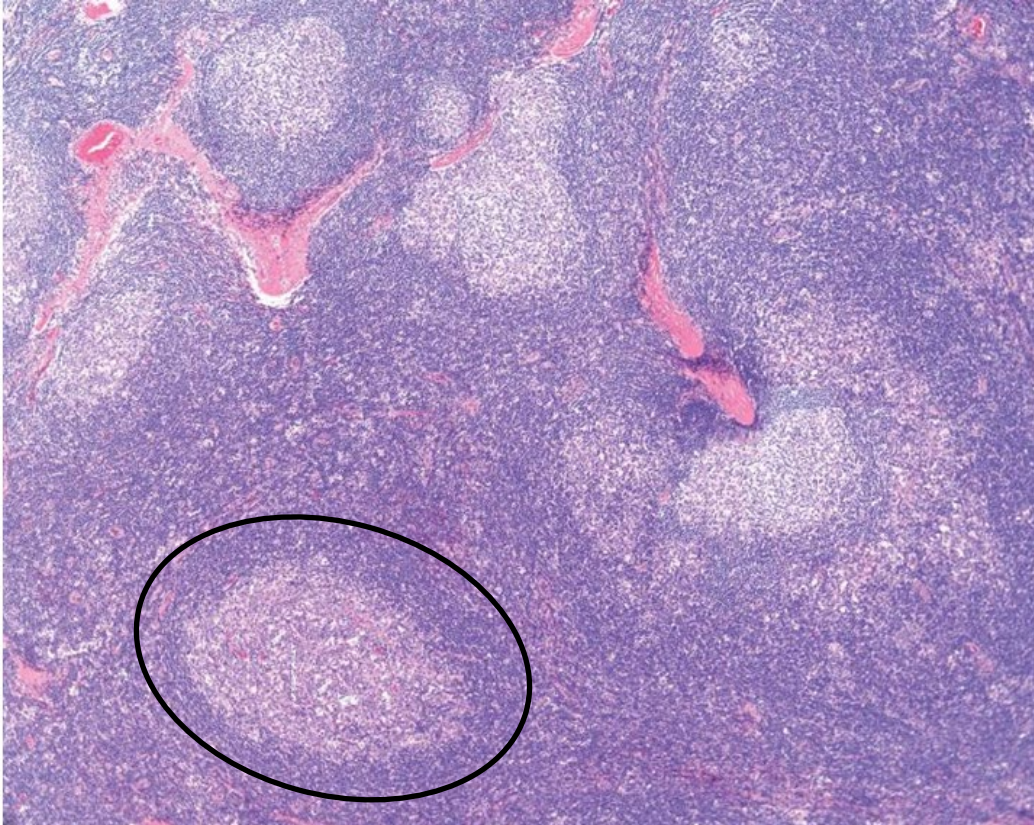


Pathwatching



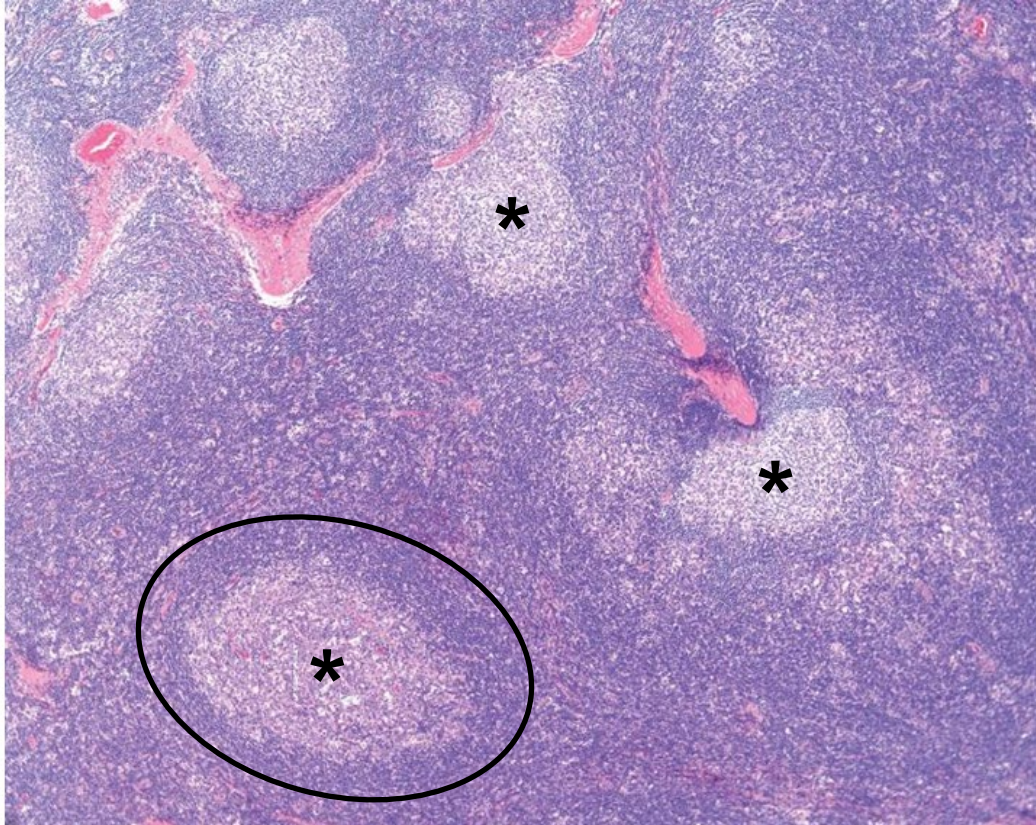
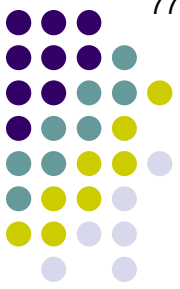
Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of  (here's one)

Pathwatching



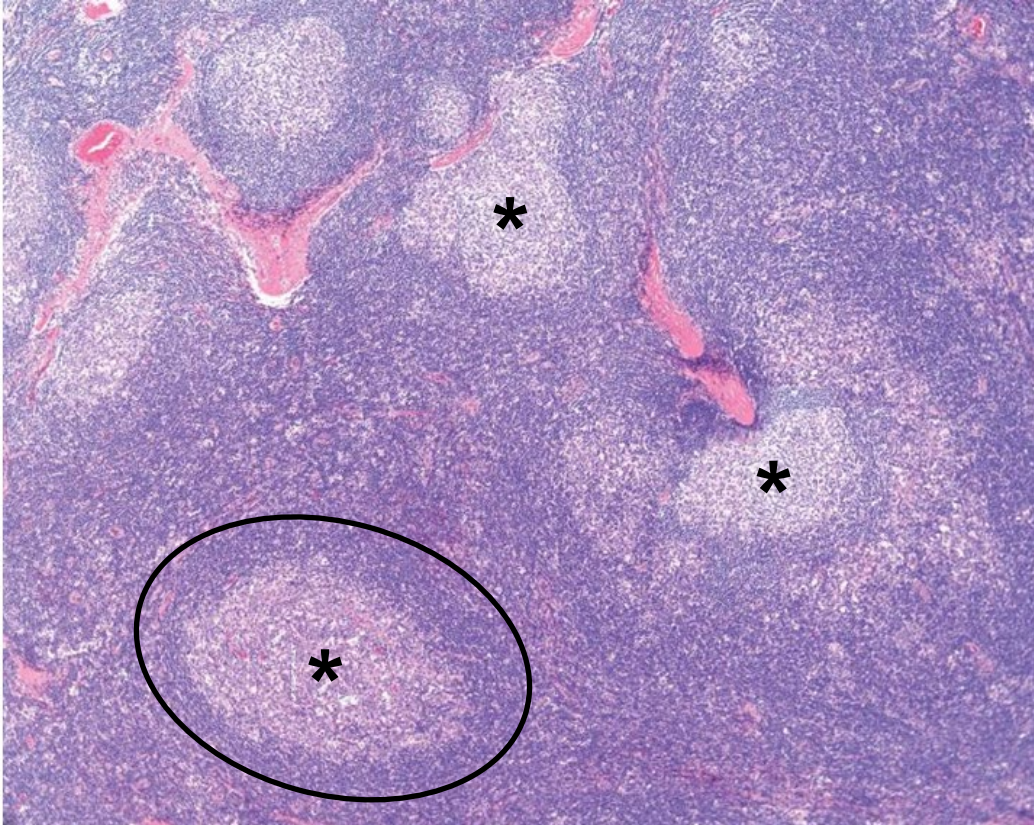
Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here's one*)

Pathwatching



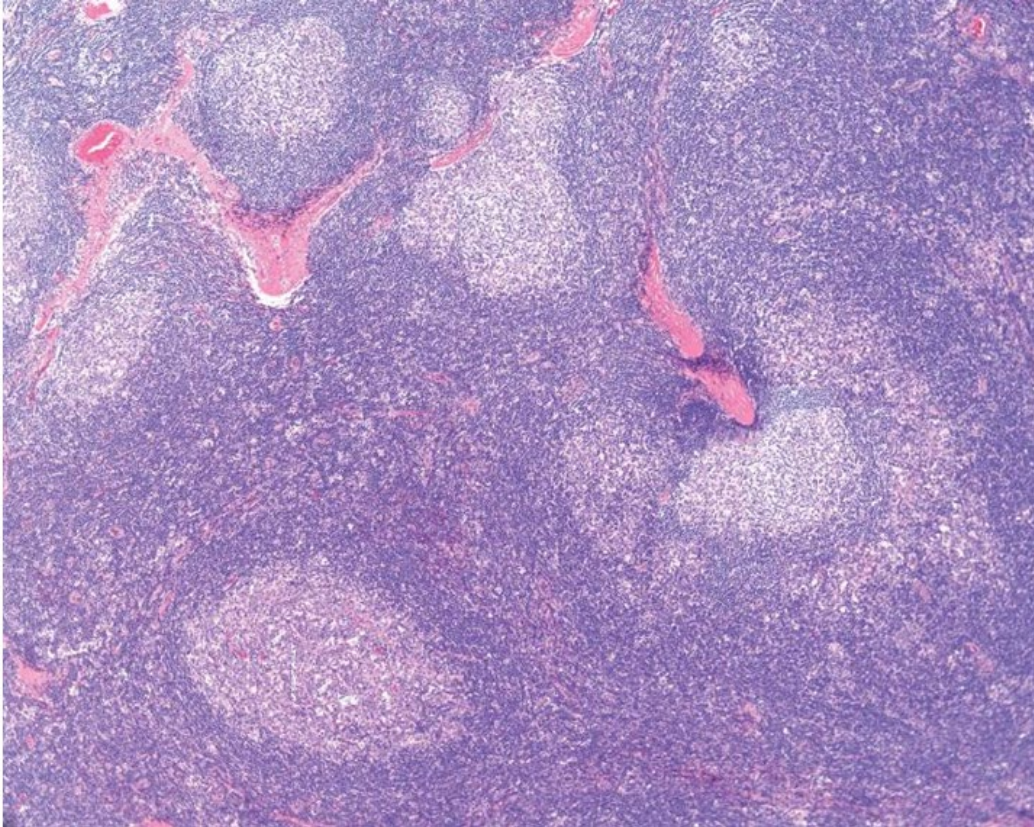
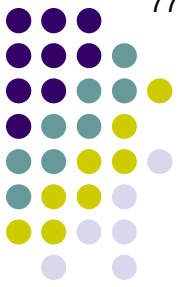
Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here's one*) with well-formed two words (*asterisks*).

Pathwatching



Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here's one*) with well-formed germinal centers (*asterisks*).

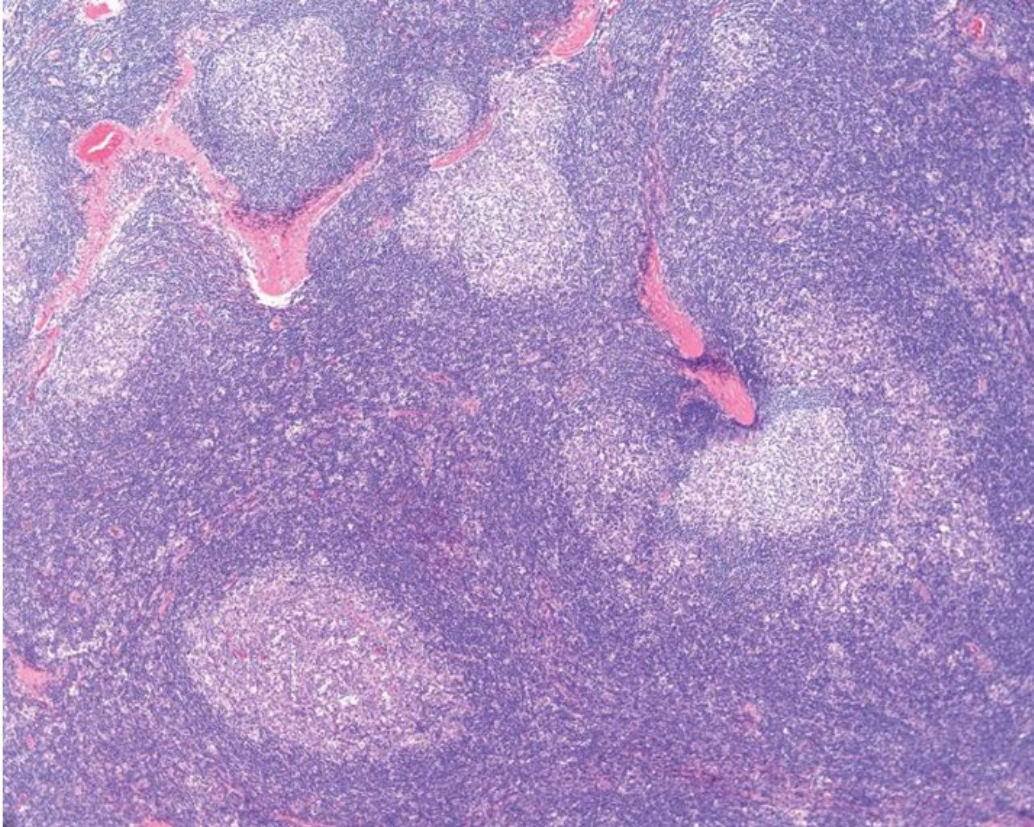
Pathwatching



What's the diagnosis?

Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here's one*) with well-formed germinal centers (*asterisks*).

Pathwatching

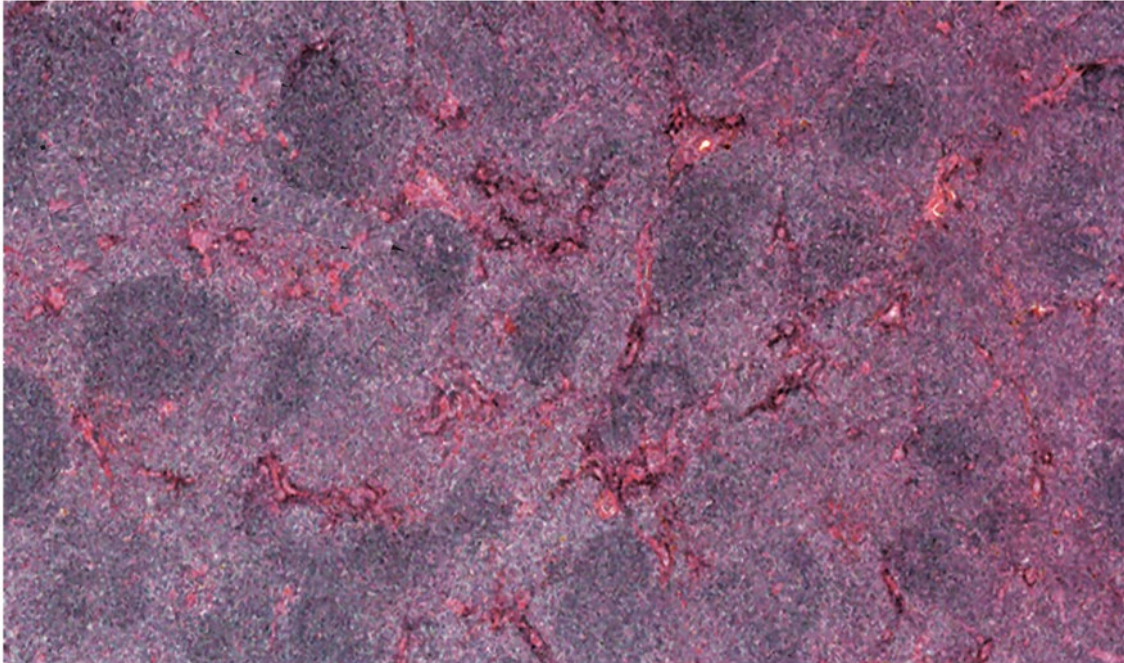
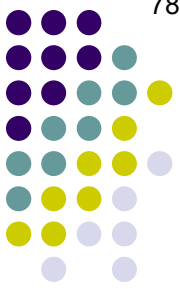


Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here's one*) with well-formed germinal centers (*asterisks*).

What's the diagnosis?

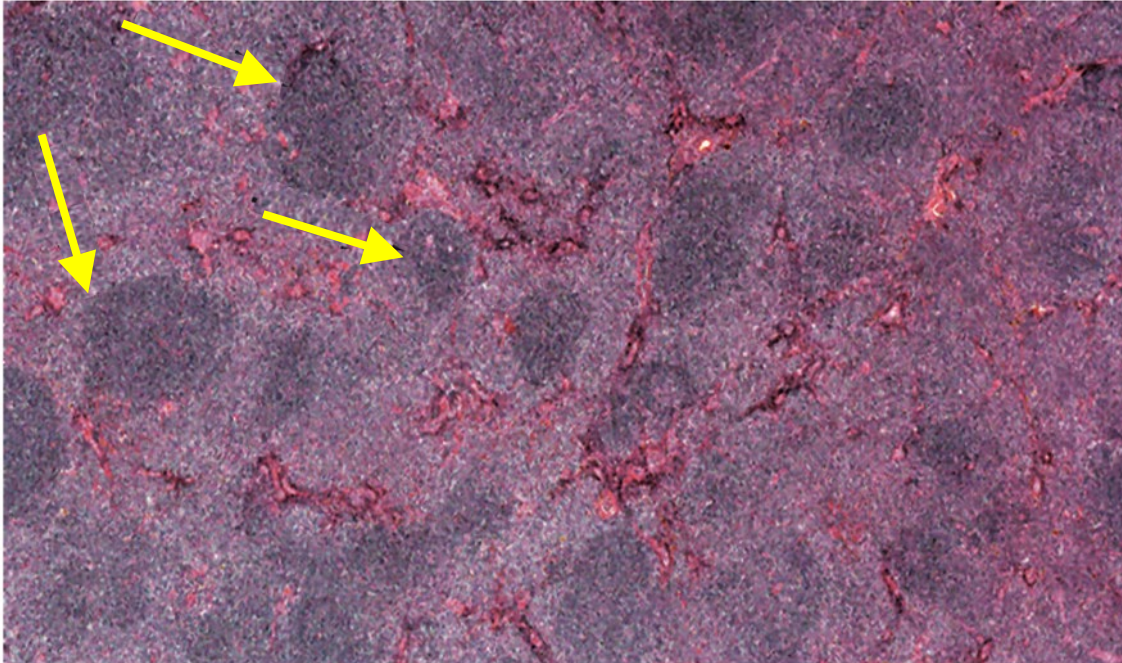
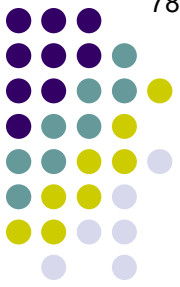
Reactive lymphoid hyperplasia

Pathwatching



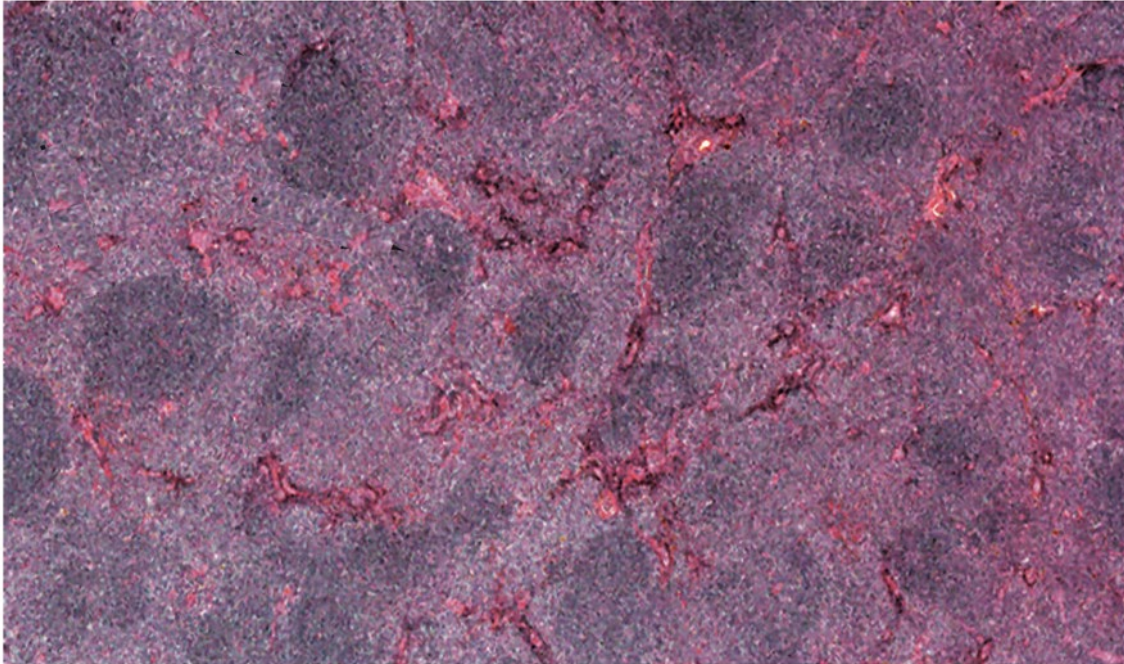
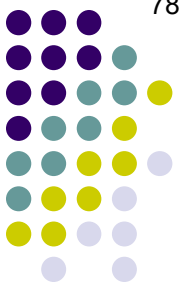
This one should also bring to mind the word *lymphoid*.

Pathwatching



This one should also bring to mind the word *lymphoid*. However, note that its follicles (*arrows*) are much more haphazard-looking, and lack well-formed germinal centers.

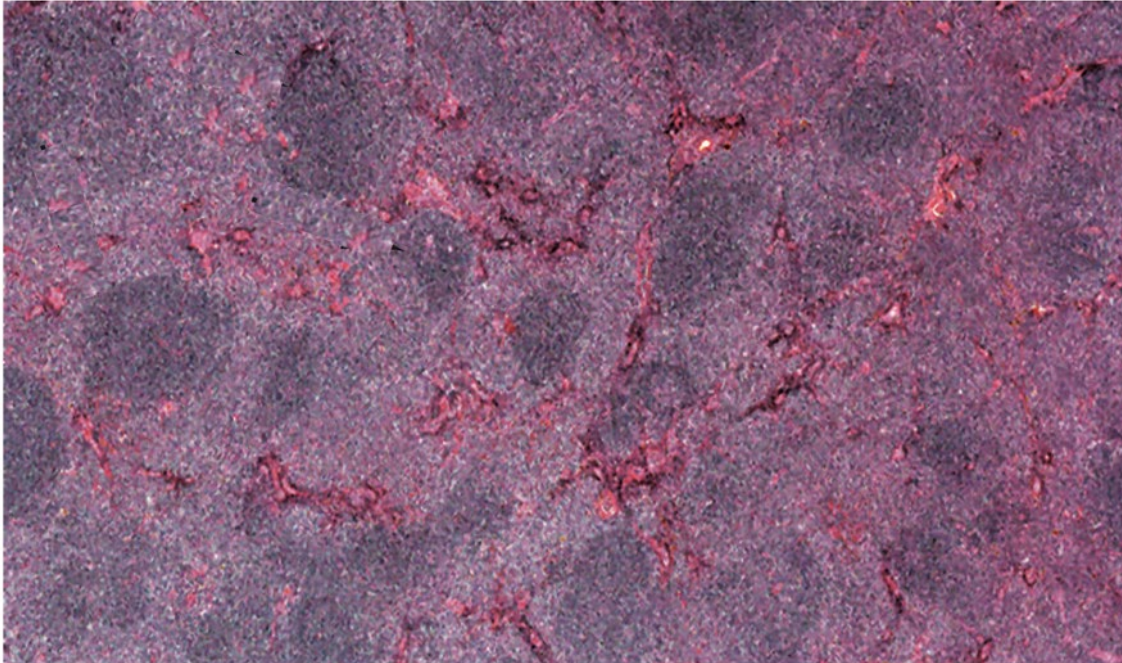
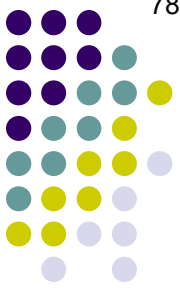
Pathwatching



This one should also bring to mind the word *lymphoid*. However, note that its follicles (arrows) are much more haphazard-looking, and lack well-formed germinal centers.

What's the diagnosis?

Pathwatching



This one should also bring to mind the word *lymphoid*. However, note that its follicles (arrows) are much more haphazard-looking, and lack well-formed germinal centers.

What's the diagnosis?

Lymphoma. Most orbital lymphomas are

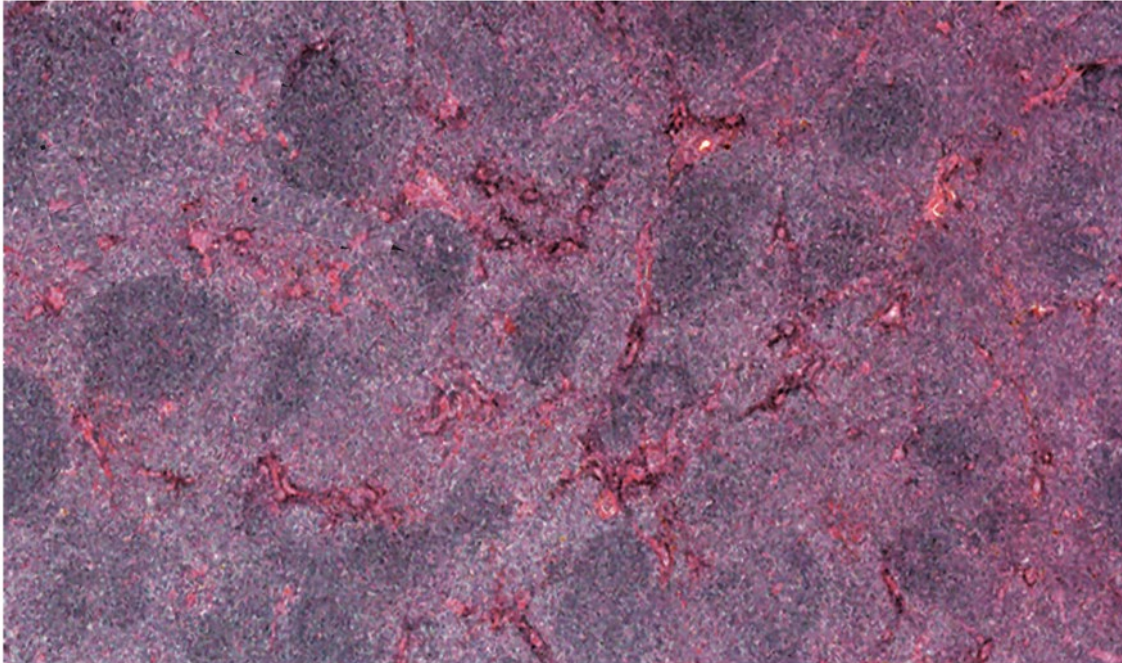
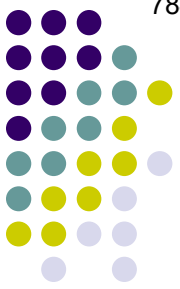
Hodgkins vs non-Hodgkins

low-grade vs high-grade

B cell vs T cell

tumors.

Pathwatching

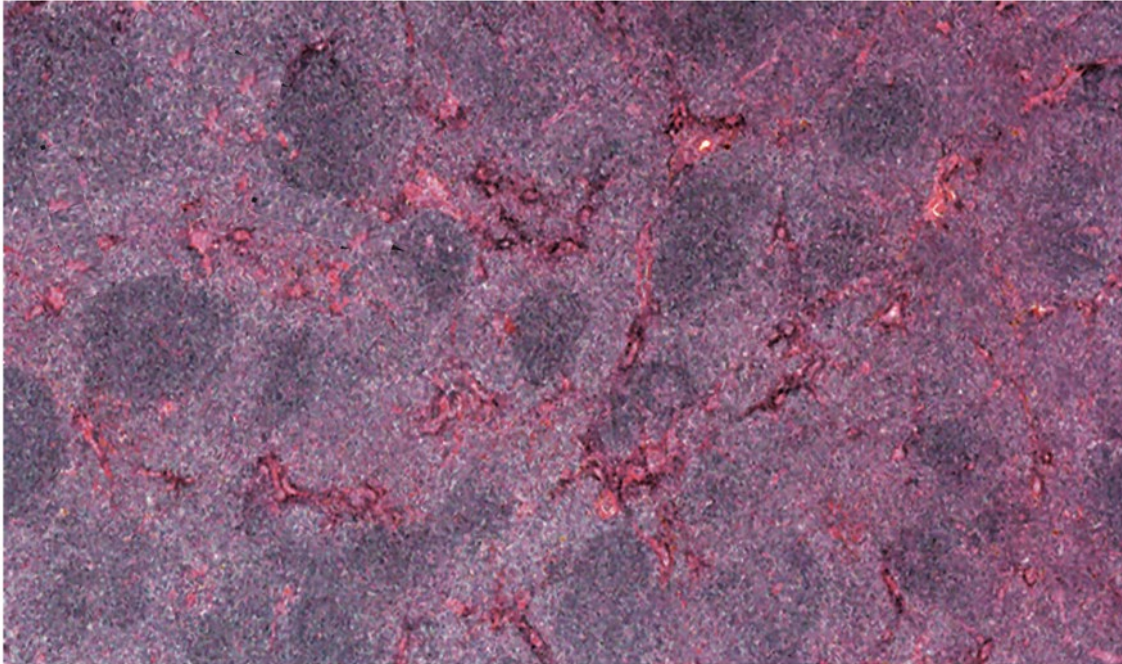
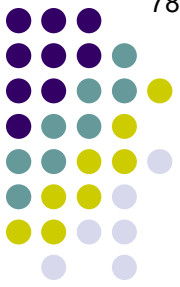


This one should also bring to mind the word *lymphoid*. However, note that its follicles (arrows) are much more haphazard-looking, and lack well-formed germinal centers.

What's the diagnosis?

Lymphoma. Most orbital lymphomas are non-Hogkins low-grade B-cell tumors.

Pathwatching



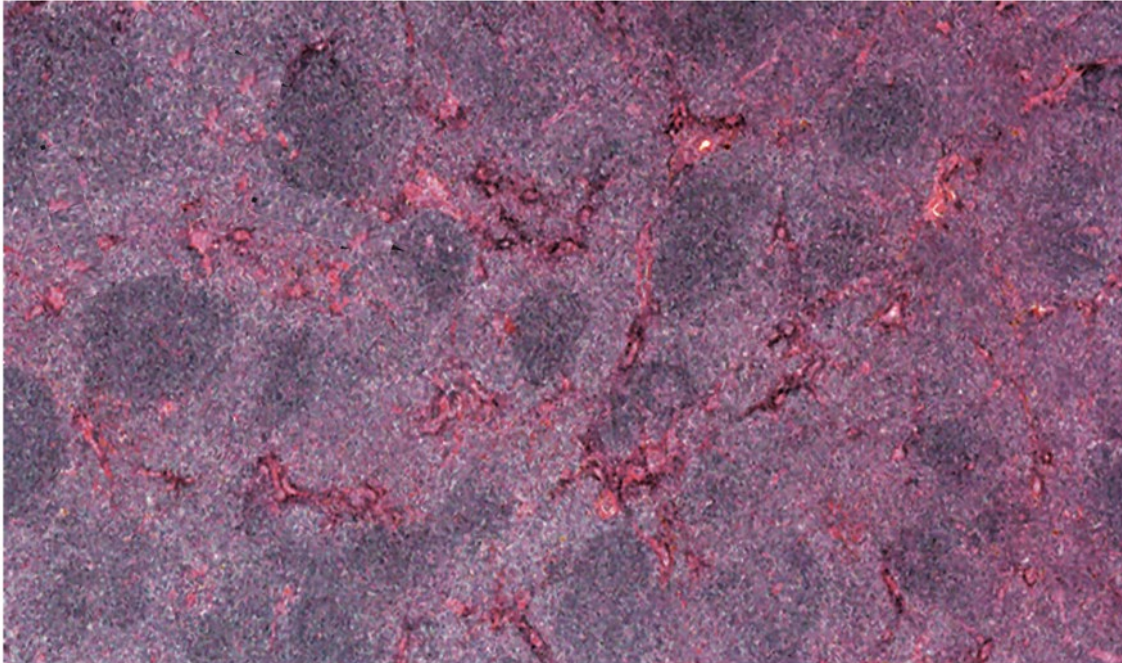
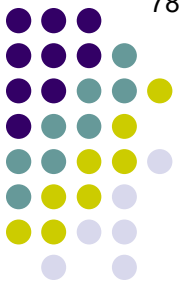
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What's the diagnosis?

Lymphoma. Most orbital lymphomas are non-Hogkins low-grade B-cell tumors. In general, their prognosis is

good vs
dire

Pathwatching

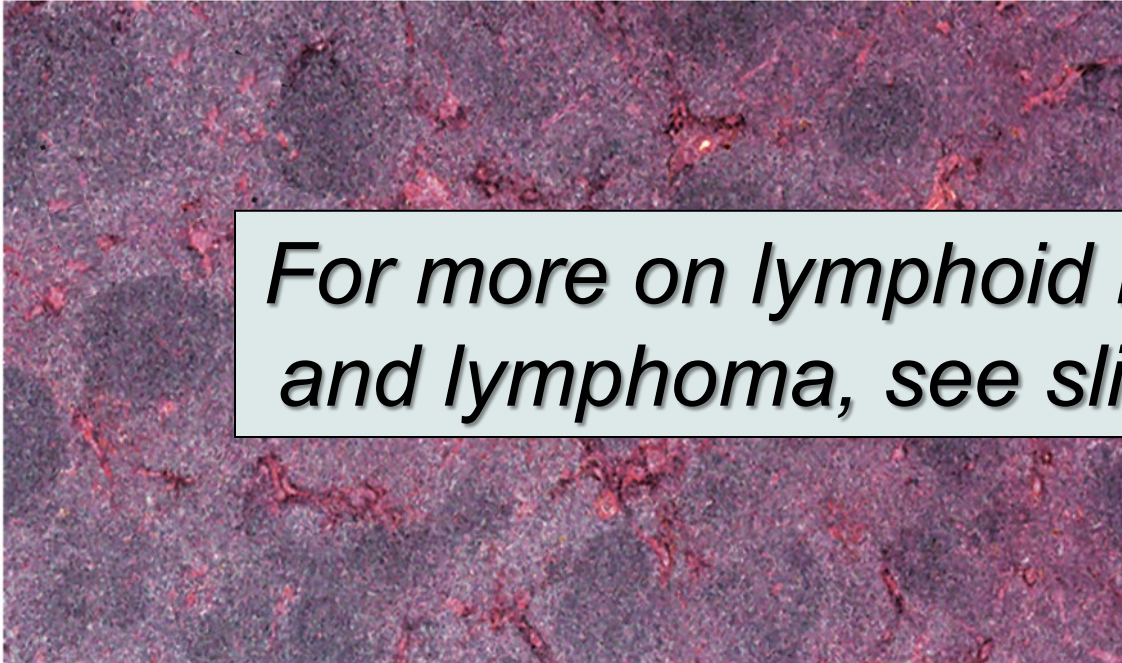
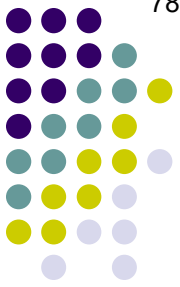


This one should also bring to mind the word *lymphoid*. However, note that its follicles (arrows) are much more haphazard-looking, and lack well-formed germinal centers.

What's the diagnosis?

Lymphoma. Most orbital lymphomas are non-Hogkins low-grade B-cell tumors. In general, their prognosis is good .

Pathwatching



***For more on lymphoid hyperplasia
and lymphoma, see slide-set K25***

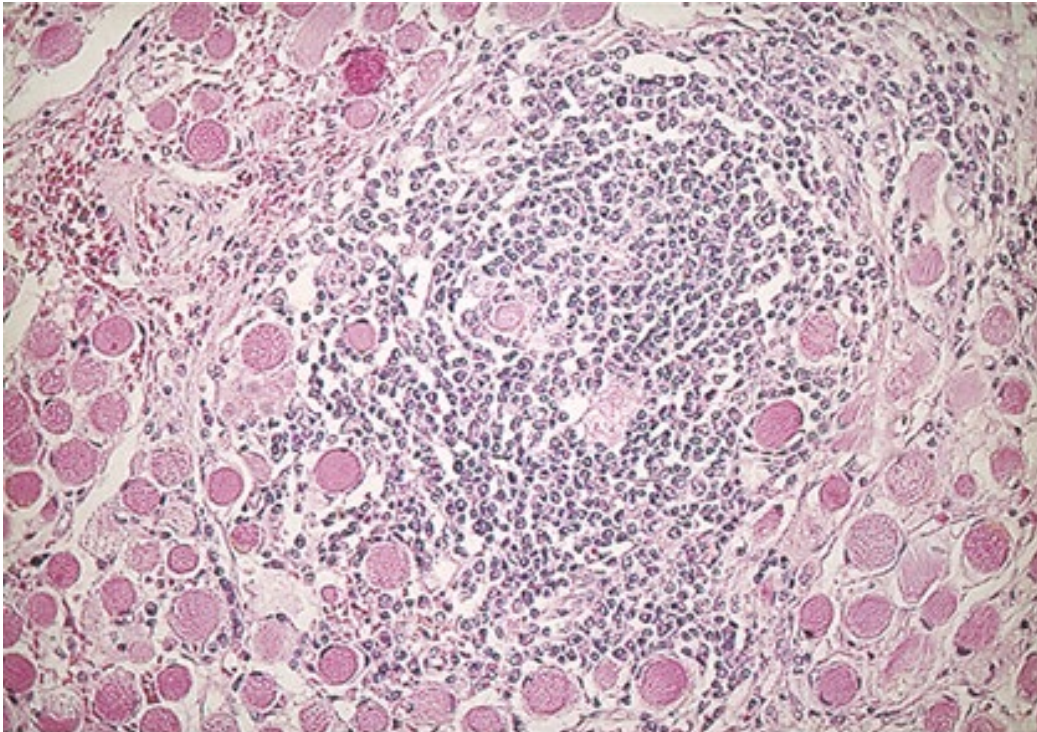
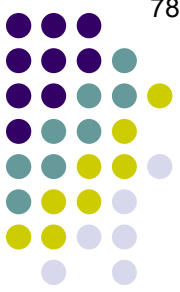
This one should also bring to mind the word *lymphoid*. However, note

are much
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What's the diagnosis?

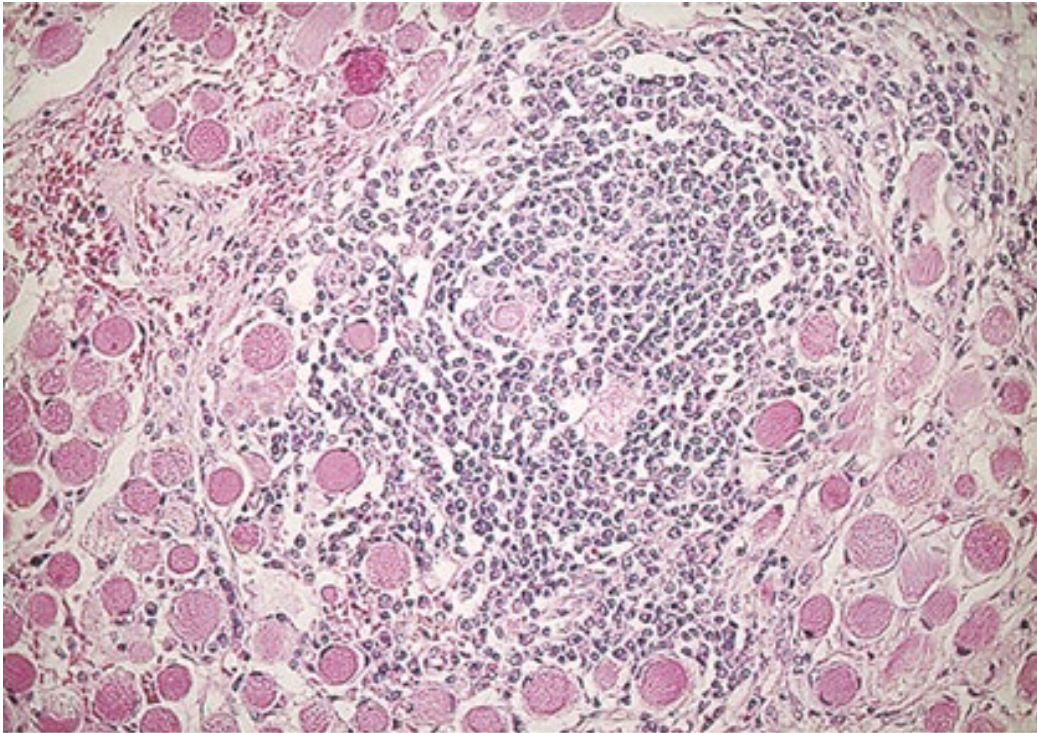
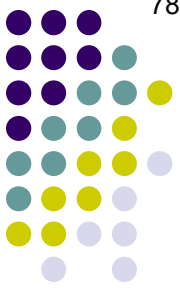
Lymphoma. Most orbital lymphomas are non-Hogkins low-grade B-cell tumors. In general, their prognosis is good .

Pathwatching



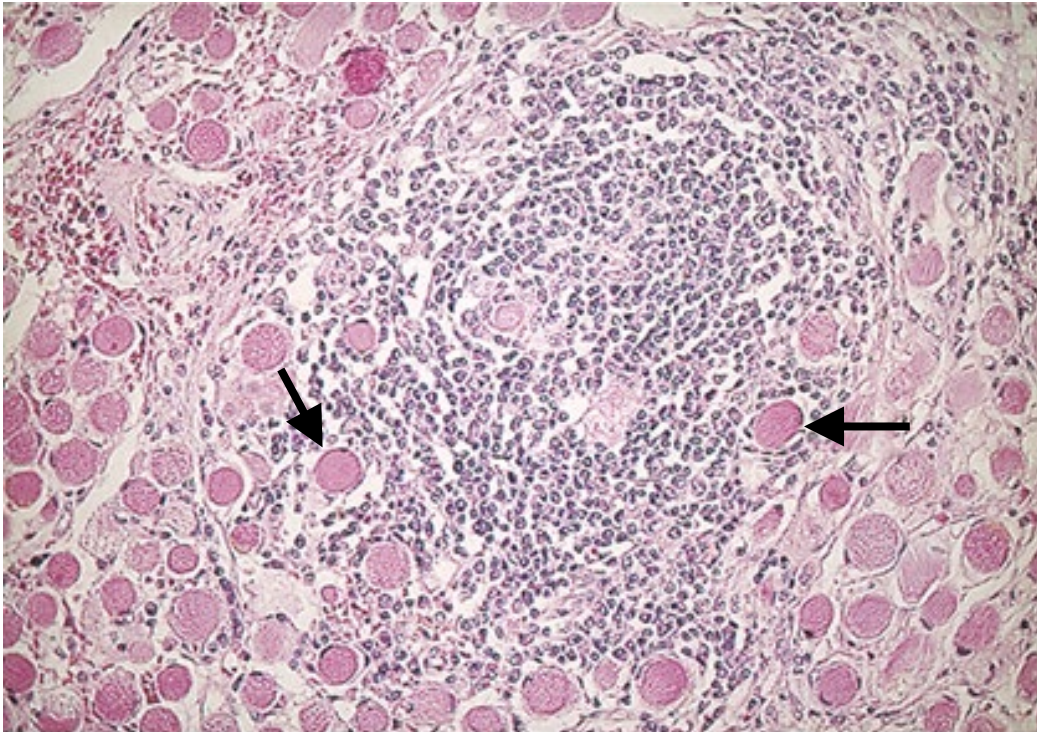
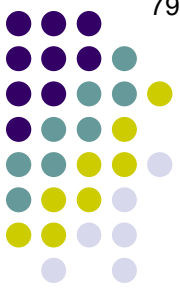
One of the first impressions you should take from this image is that there are a whole lotta cells present.

Pathwatching



One of the first impressions you should take from this image is that there are a whole lotta inflammatory cells present.

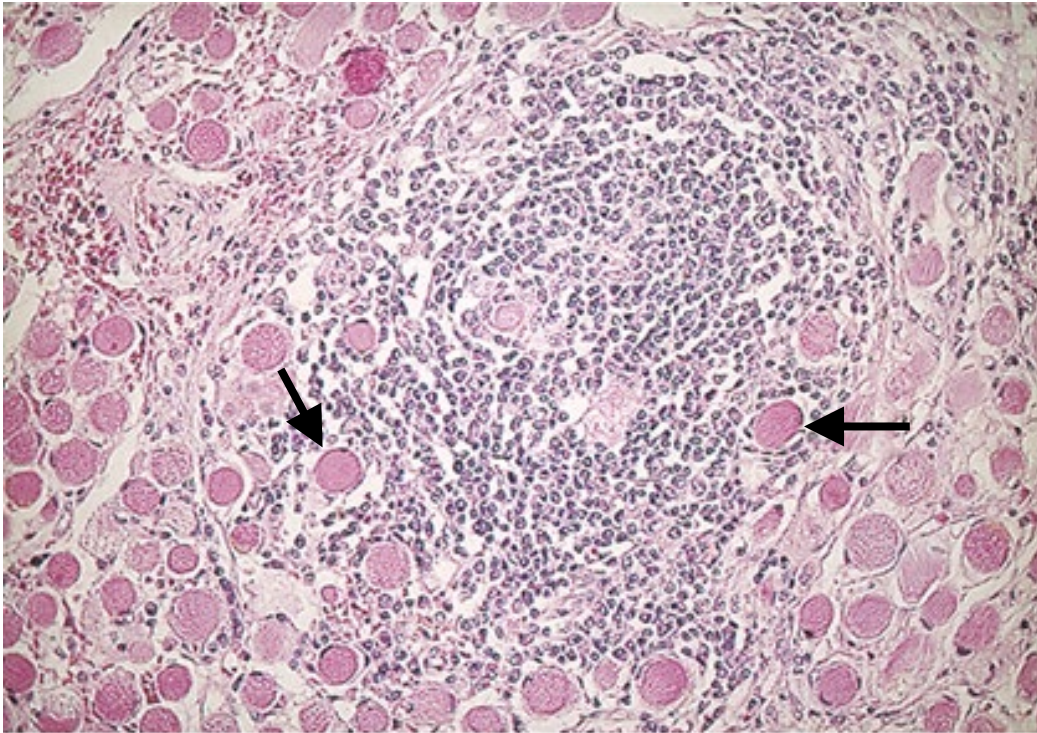
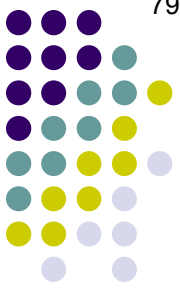
Pathwatching



One of the first impressions you should take from this image is that there are a whole lotta inflammatory cells present. However, there's a repeated structure that's obviously not inflammatory—*these things*, which are

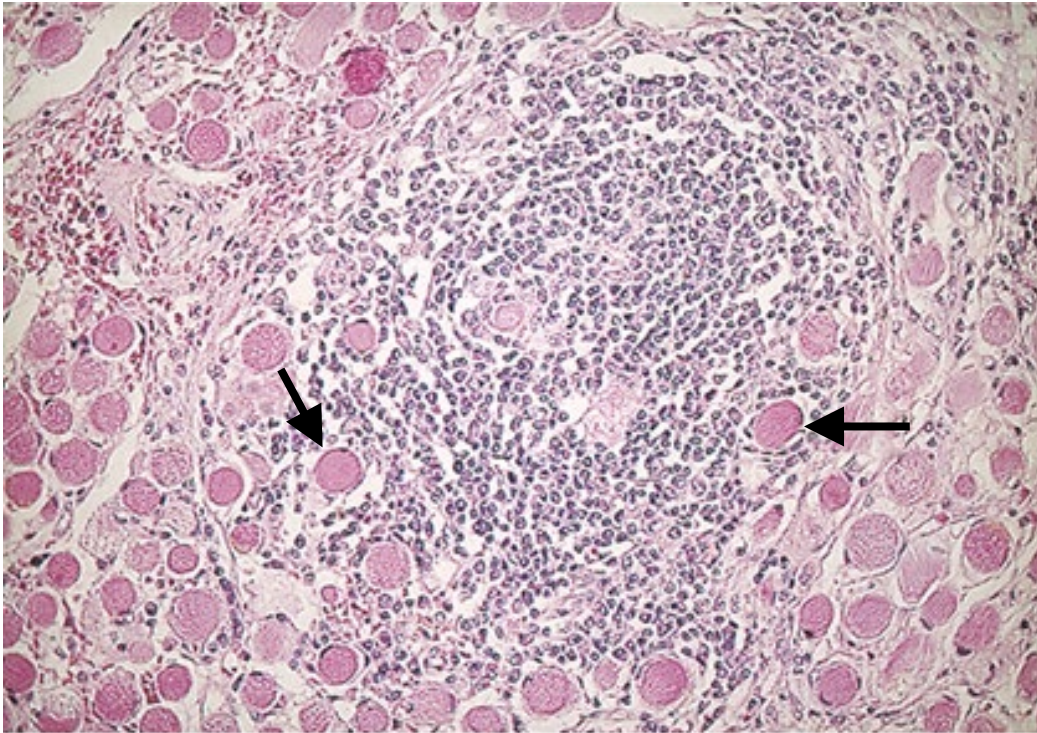
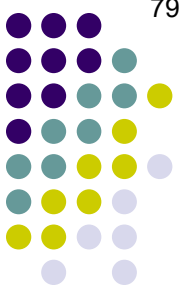
two words

Pathwatching



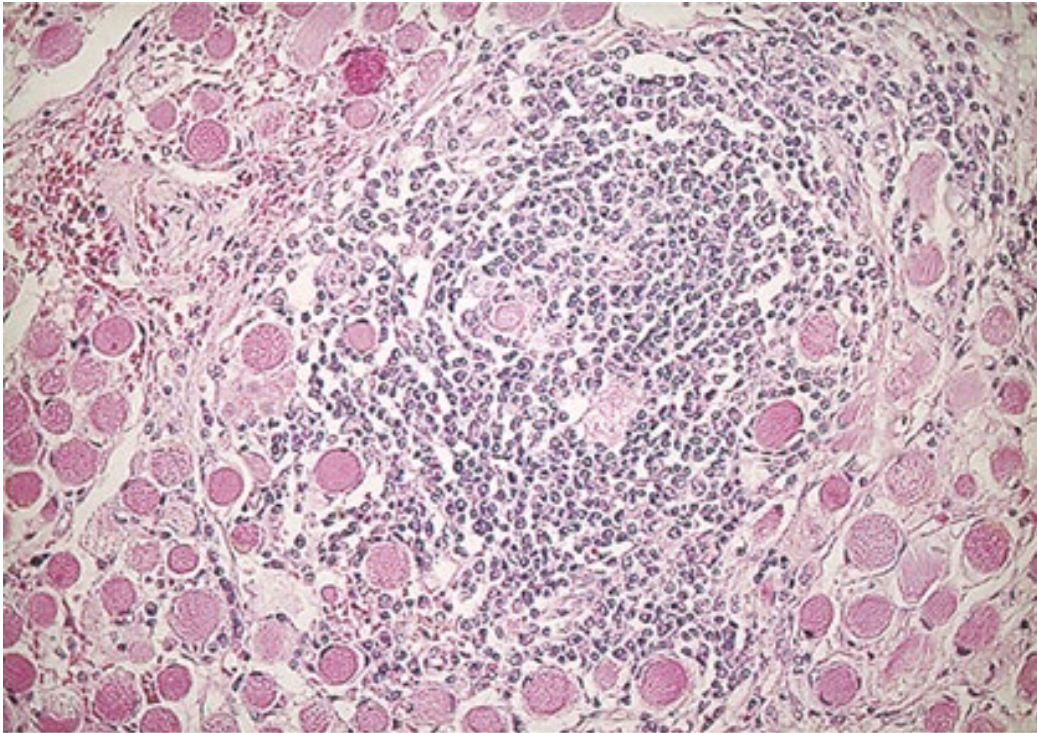
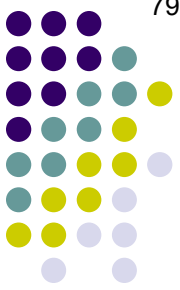
One of the first impressions you should take from this image is that there are a whole lotta inflammatory cells present. However, there's a repeated structure that's obviously not inflammatory—*these things*, which are muscle fibers .

Pathwatching



One of the first impressions you should take from this image is that there are a whole lotta inflammatory cells present. However, there's a repeated structure that's obviously not inflammatory—*these things*, which are muscle fibers. As we're eyedocs, this means the image consists of inflammatory infiltrates within EOMs.

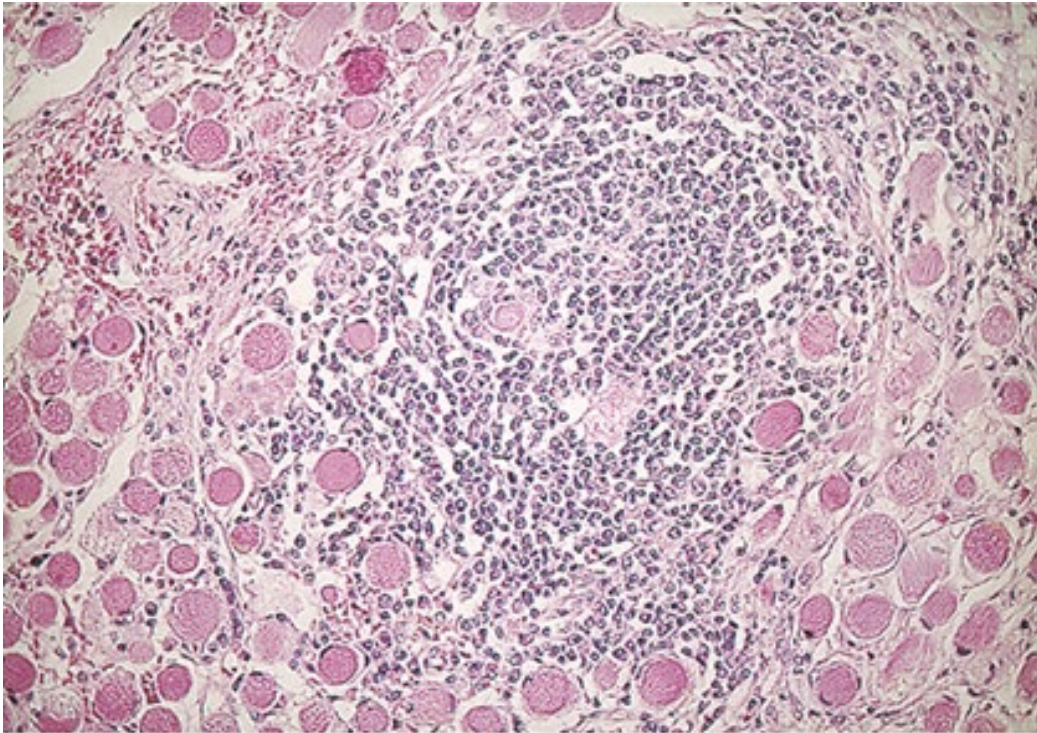
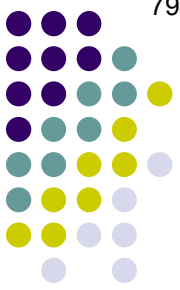
Pathwatching



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Pathwatching



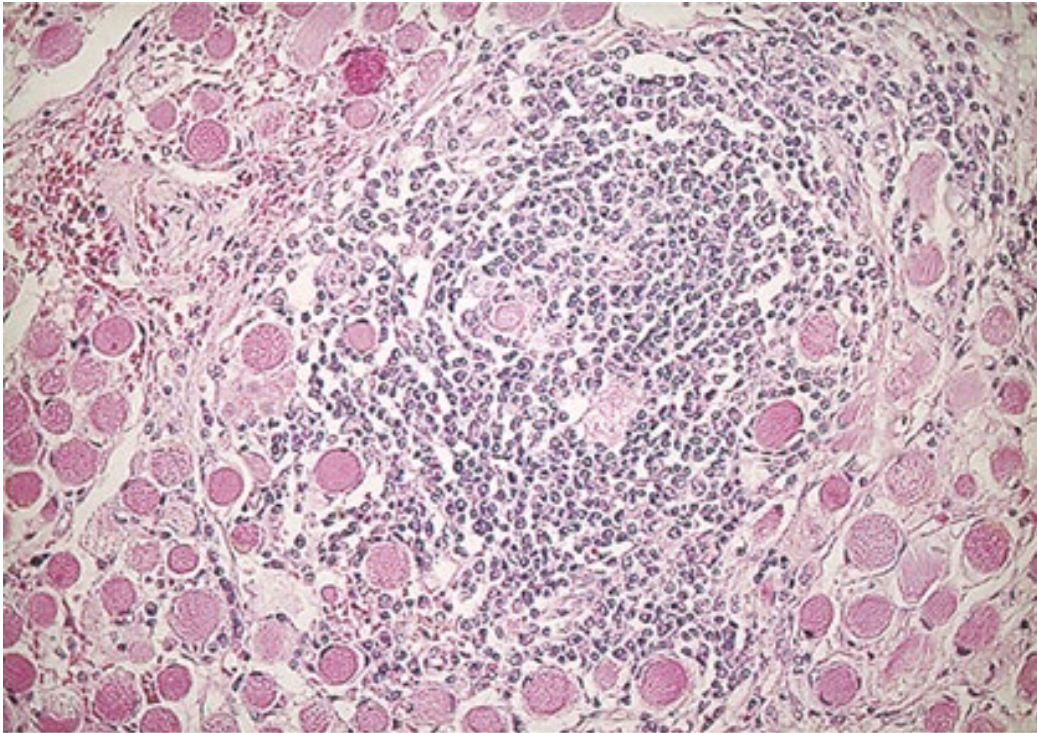
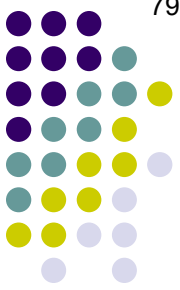
(For the record, this is in fact NSOI)

One of the first impressions you should take from this image is that there are a whole lotta inflammatory cells present. However, there's a repeated structure that's obviously not inflammatory—*these things*, which are muscle fibers. As we're eyedocs, this means the image consists of inflammatory infiltrates within EOMs.

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.*

*If you said something else, hold on—we'll circle back to the DDx shortly.

Pathwatching



(For the record, this is in fact NSOI)

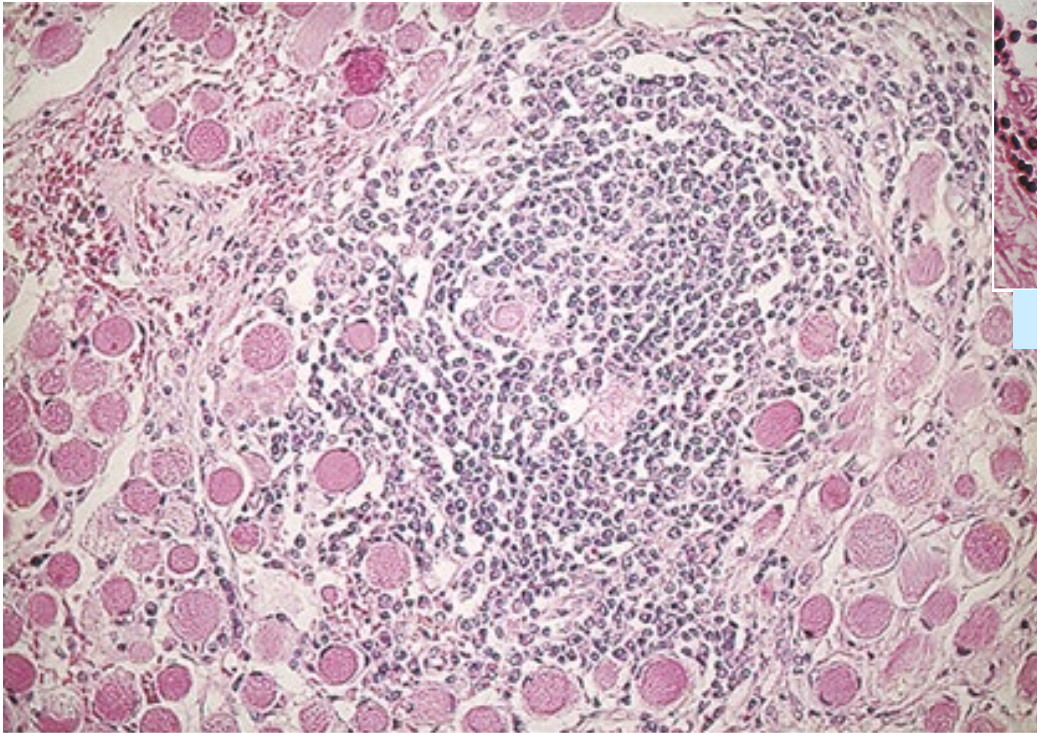
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If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, clinical, and/or imaging info will be provided.

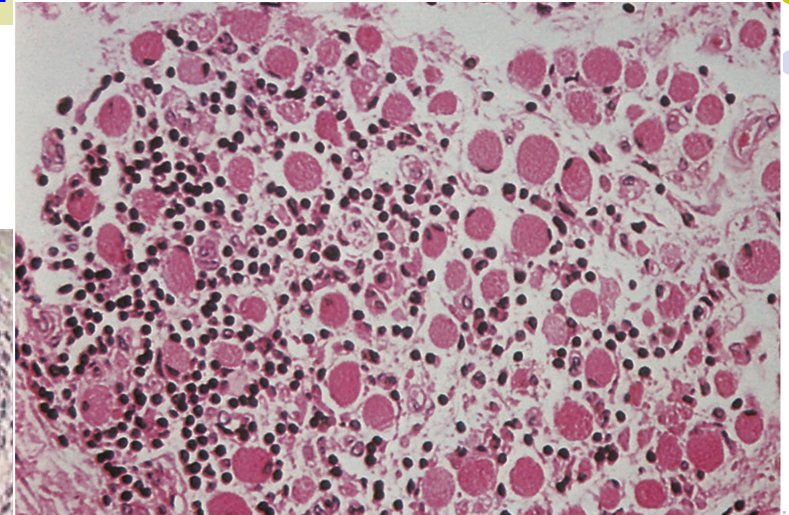
*If you said something else, hold on—we'll circle back to the DDx shortly.



Pathwatching



(For the record, this is in fact NSOI)



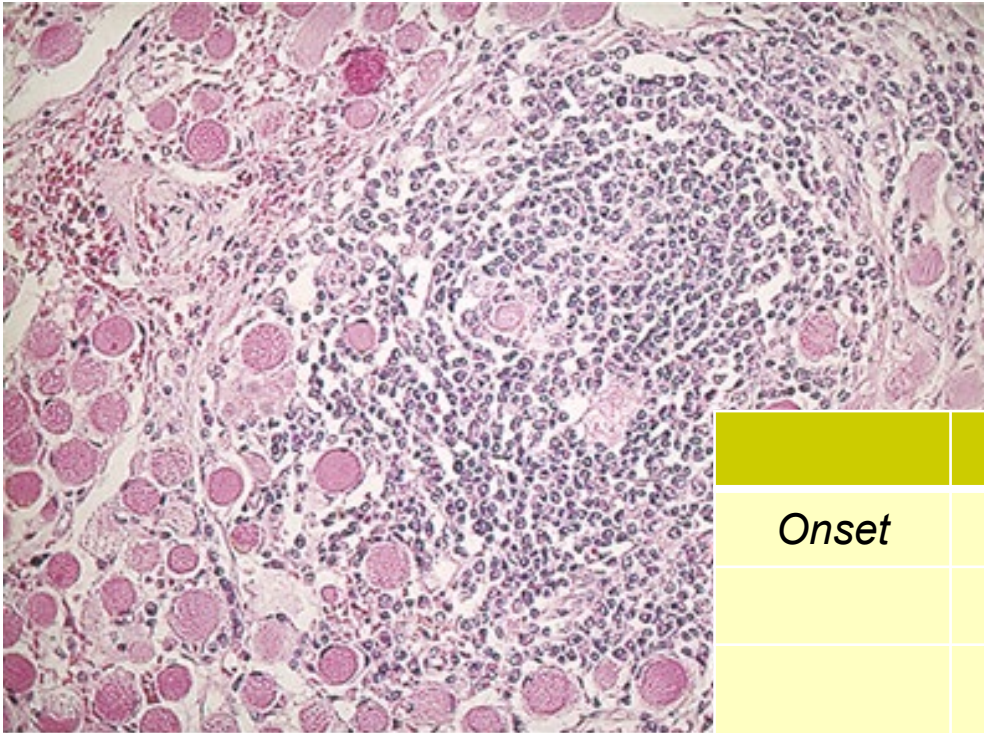
For comparison, here's **TED** involving the EOMs

muscle fibers . As we're eyedocs, this means the image consists of inflammatory infiltrates within EOMs.

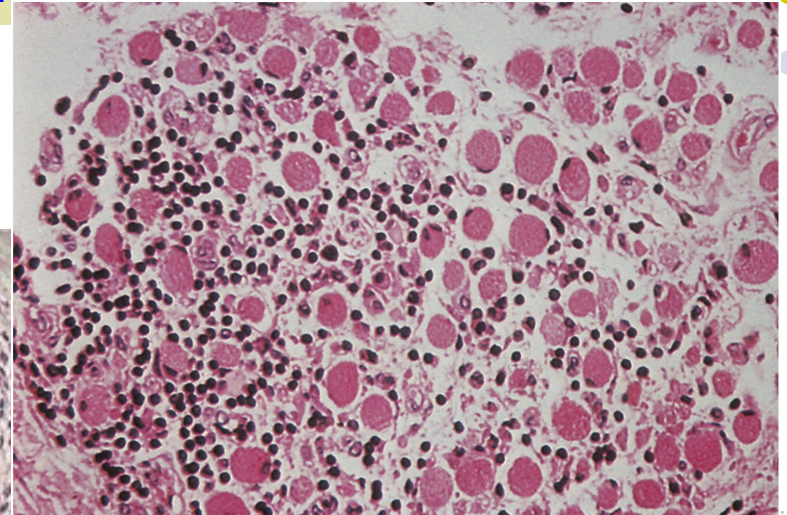
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Pathwatching



(For the record, this is in fact N



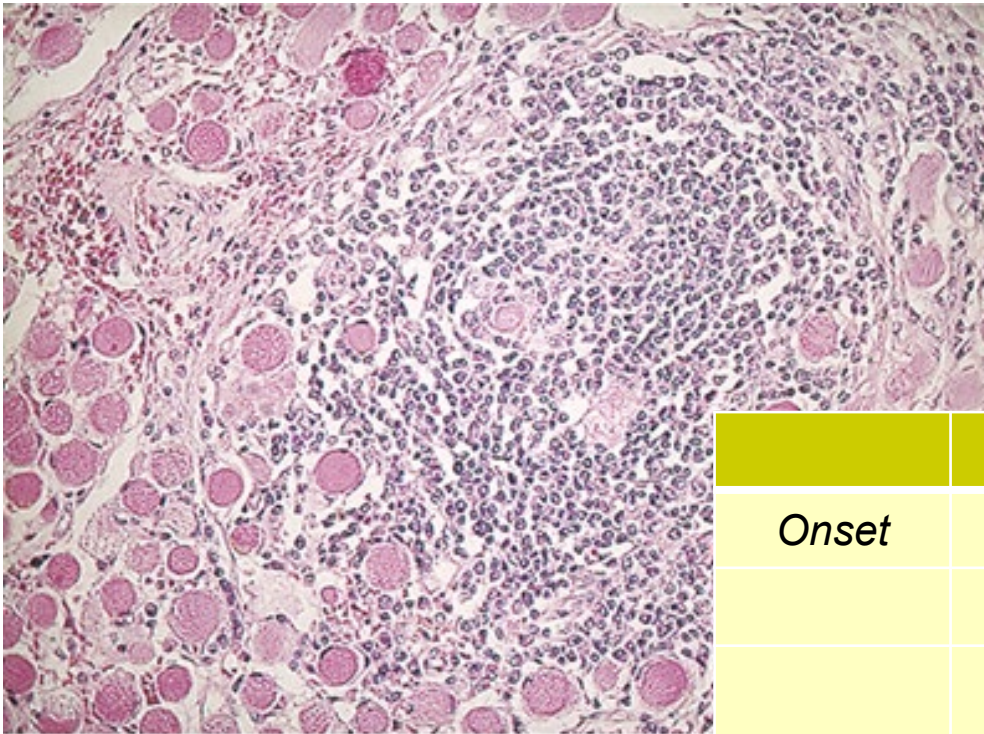
For comparison, here's **TED** involving the EOMs

muscle fibers. As we're eyedocs,

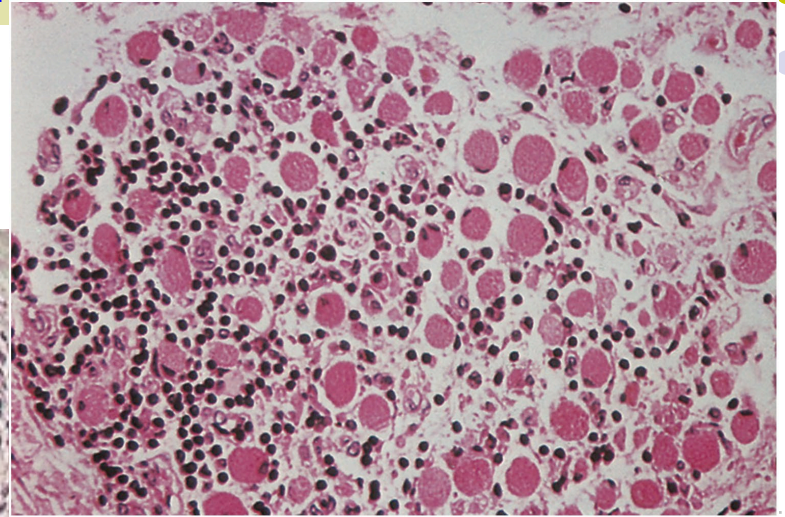
	NSOI	TED
<i>Onset</i>	?	?

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, **clinical, and/or imaging info** will be provided.

Pathwatching



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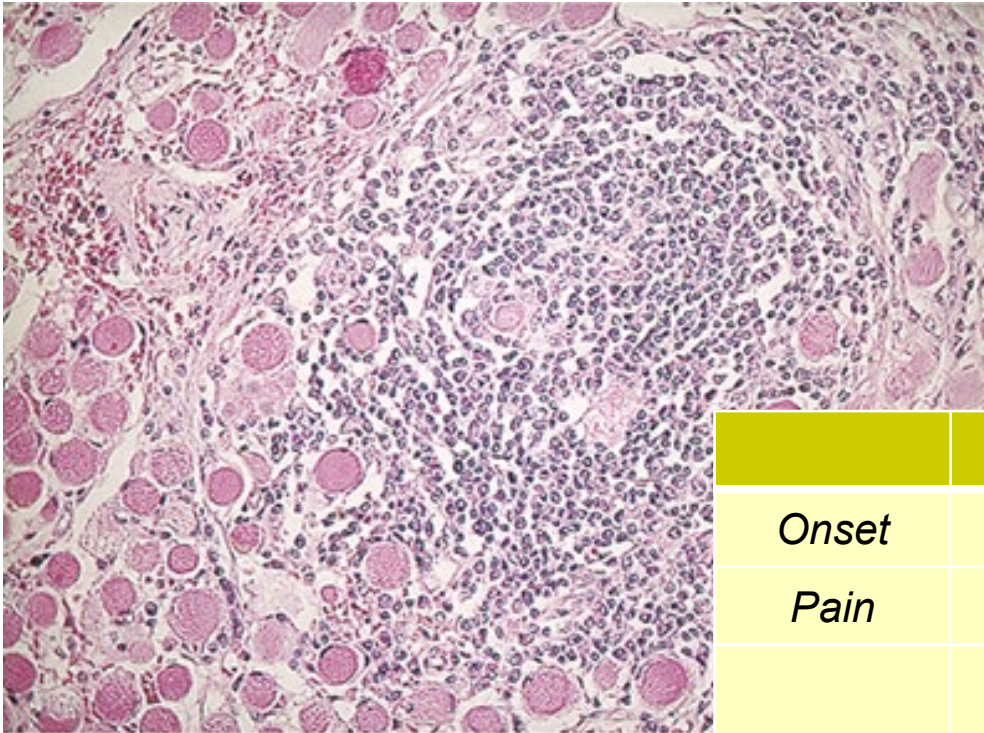
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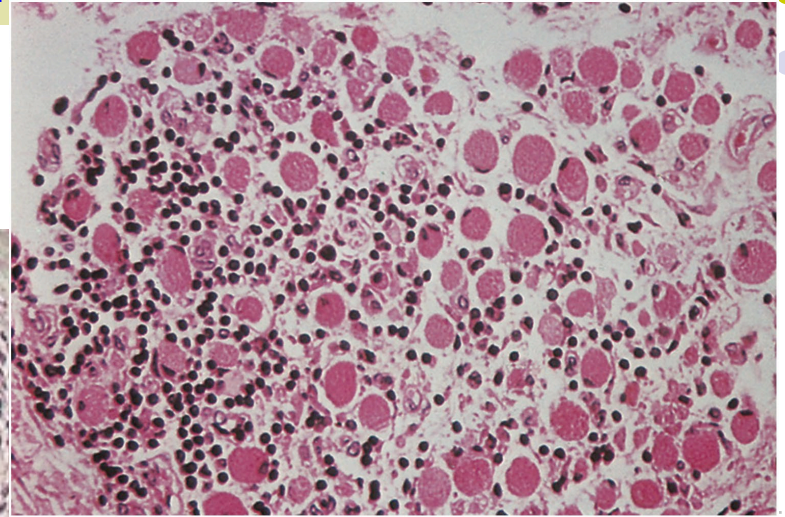
	NSOI	TED
<i>Onset</i>	Acute	Insidious

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 IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—
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Pathwatching



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For comparison, here's **TED** involving the EOMs

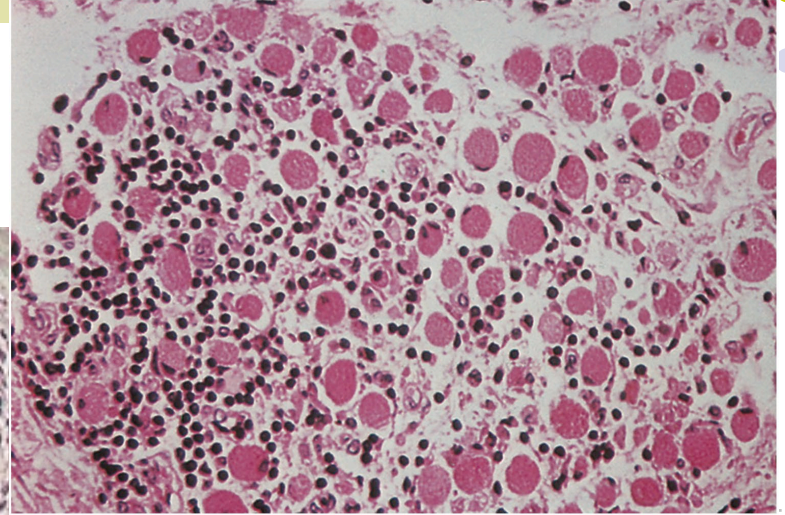
muscle fibers . As we're eyedocs,

	NSOI	TED
<i>Onset</i>	Acute	Insidious
<i>Pain</i>	?	?

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.*
 IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—
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Pathwatching



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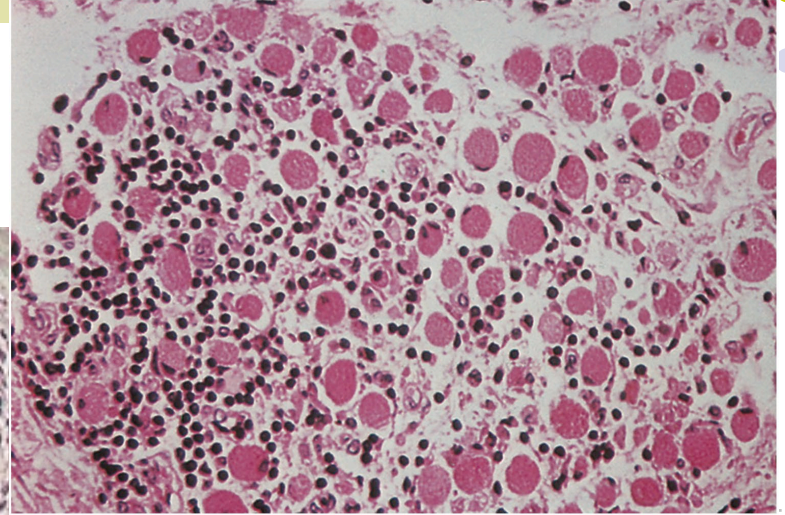
	NSOI	TED
<i>Onset</i>	Acute	Insidious
<i>Pain</i>	Severe	Mild-moderate

(For the record, this is in fact N

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.*
 IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—
 additional path-related, **clinical, and/or imaging info** will be provided.

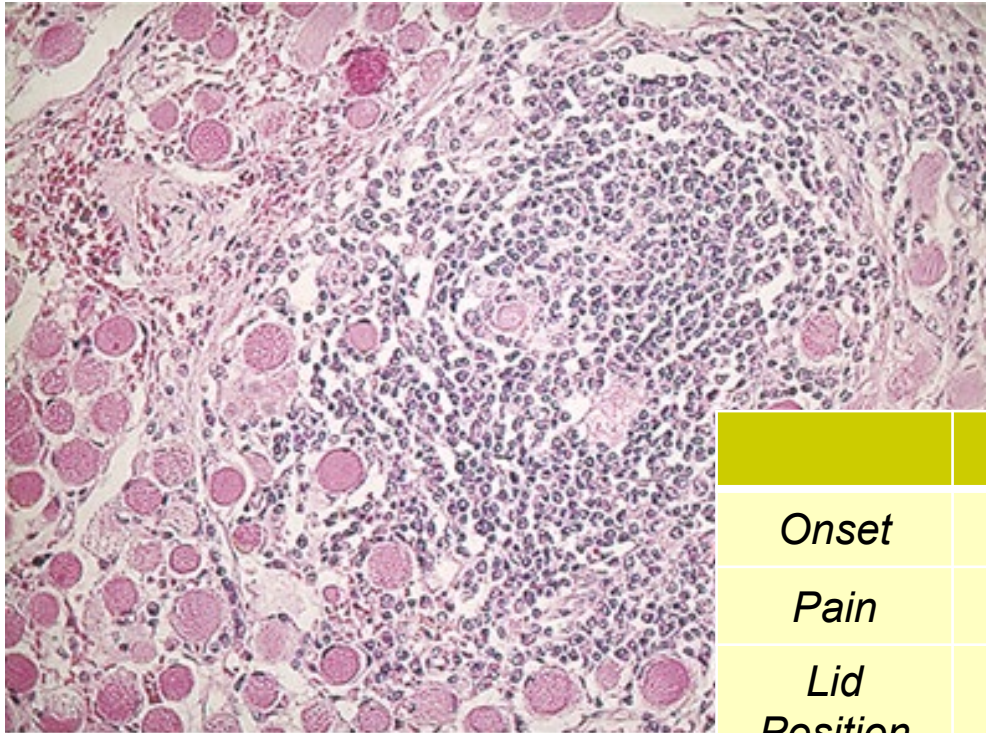


Pathwatching



For comparison, here's **TED** involving the EOMs

muscle fibers. As we're eyedocs,



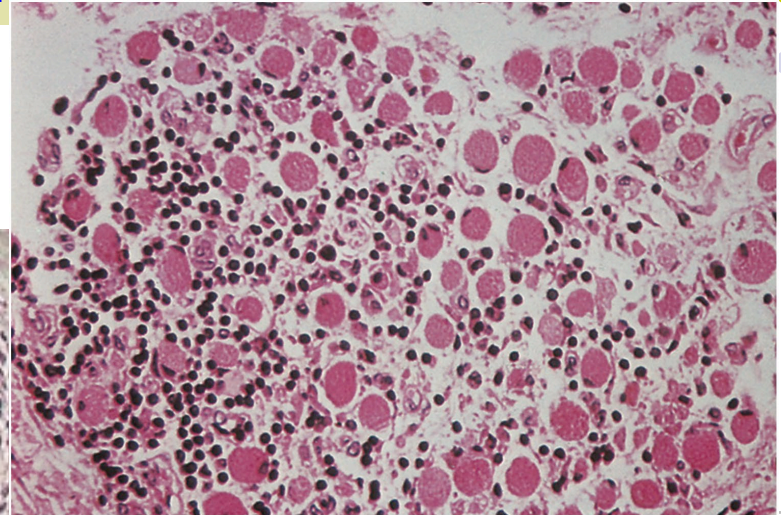
(For the record, this is in fact N

	NSOI	TED
<i>Onset</i>	Acute	Insidious
<i>Pain</i>	Severe	Mild-moderate
<i>Lid Position</i>	?	?

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, **clinical, and/or imaging info** will be provided.

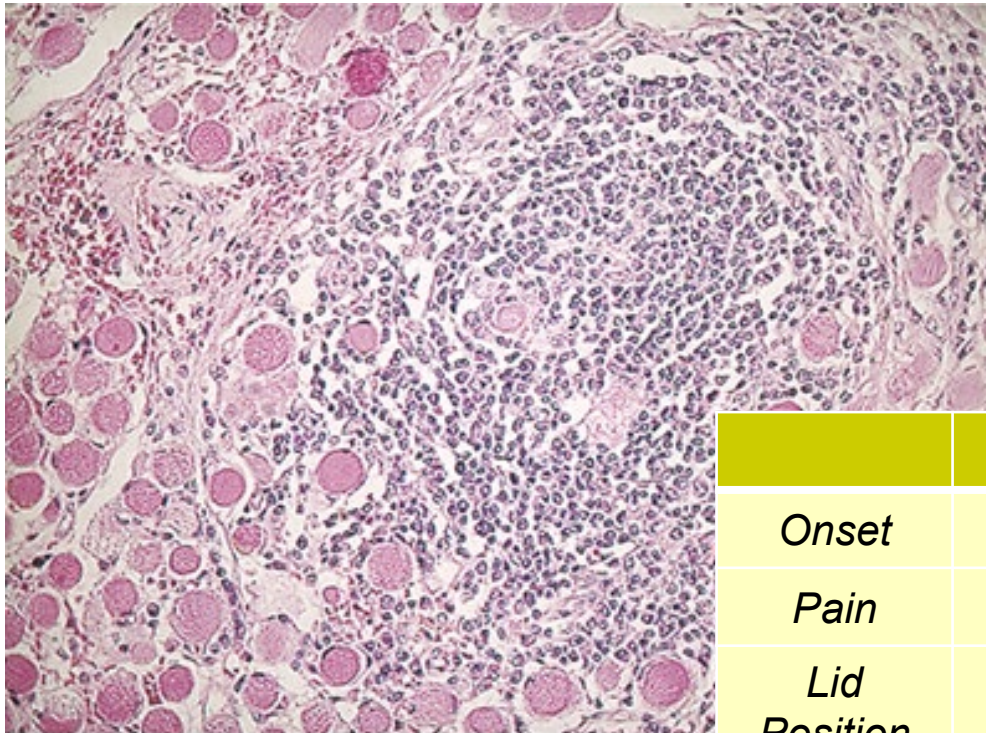


Pathwatching



For comparison, here's **TED** involving the EOMs

muscle fibers . As we're eyedocs,



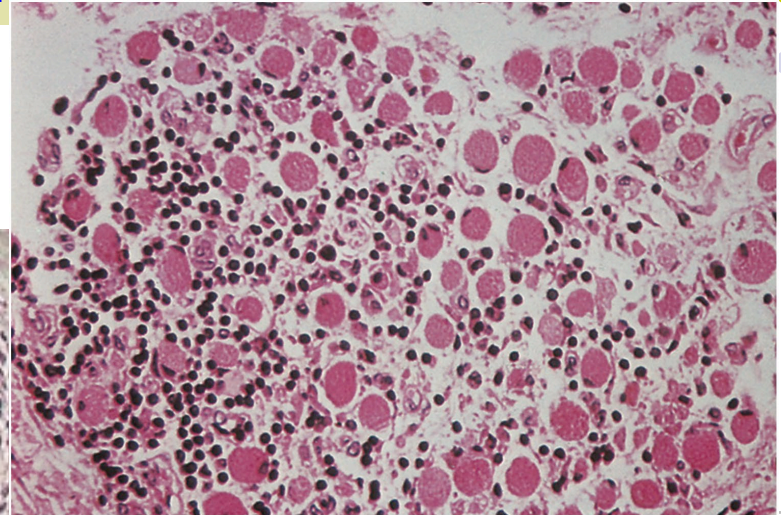
(For the record, this is in fact N

	NSOI	TED
<i>Onset</i>	Acute	Insidious
<i>Pain</i>	Severe	Mild-moderate
<i>Lid Position</i>	Ptotic	Retracted

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, **clinical, and/or imaging info** will be provided.

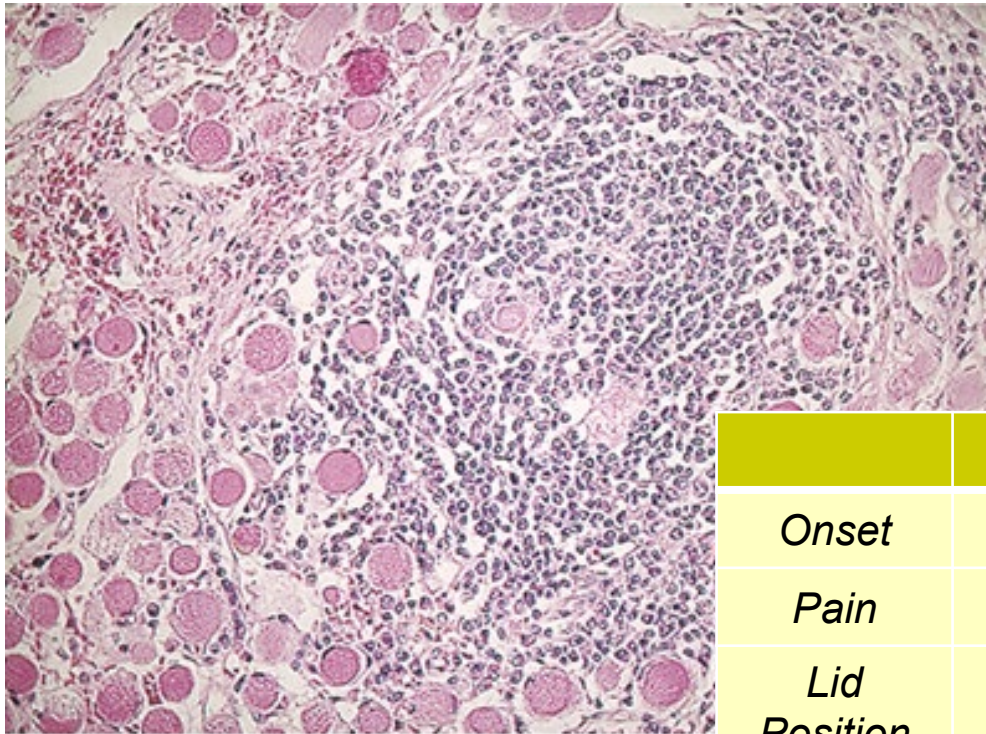


Pathwatching



For comparison, here's **TED** involving the EOMs

muscle fibers . As we're eyedocs,



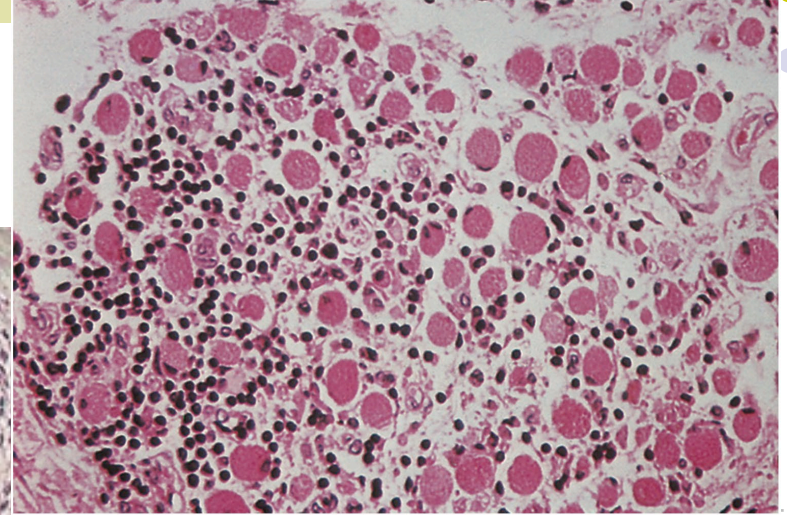
(For the record, this is in fact N

	NSOI	TED
<i>Onset</i>	Acute	Insidious
<i>Pain</i>	Severe	Mild-moderate
<i>Lid Position</i>	Ptotic	Retracted
<i>Imaging</i>	Tendon- ?	Tendon-?

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, **clinical, and/or imaging info** will be provided.



Pathwatching



For comparison, here's **TED** involving the EOMs

muscle fibers. As we're eyedocs,

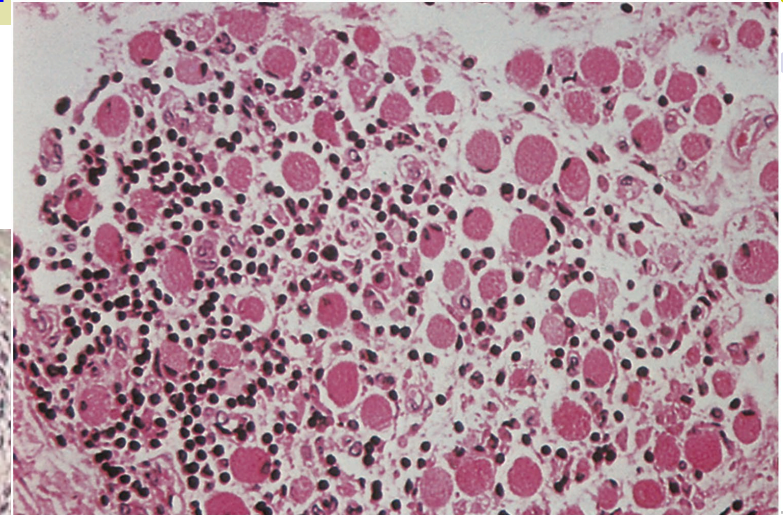
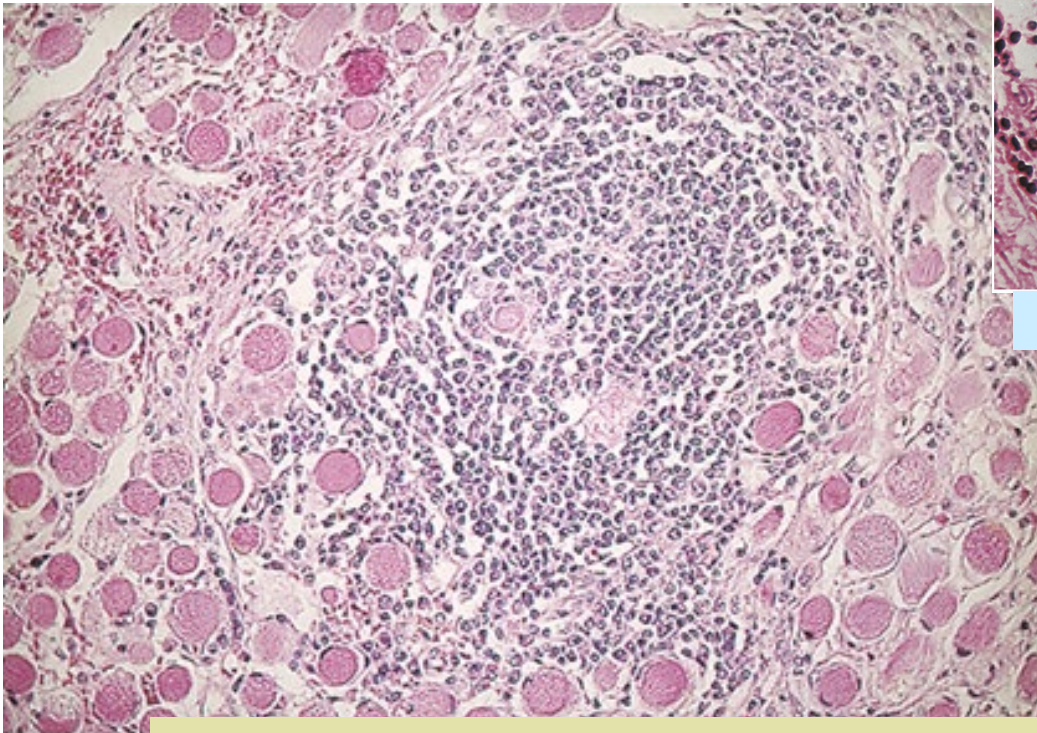
	NSOI	TED
<i>Onset</i>	Acute	Insidious
<i>Pain</i>	Severe	Mild-moderate
<i>Lid Position</i>	Ptotic	Retracted
<i>Imaging</i>	Tendon-involving	Tendon-sparing

(For the record, this is in fact N

If you said **nonspecific orbital inflammation (NSOI)** or **thyroid eye disease**, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, **clinical, and/or imaging info** will be provided.



Pathwatching



For comparison, here's **TED** involving the EOMs

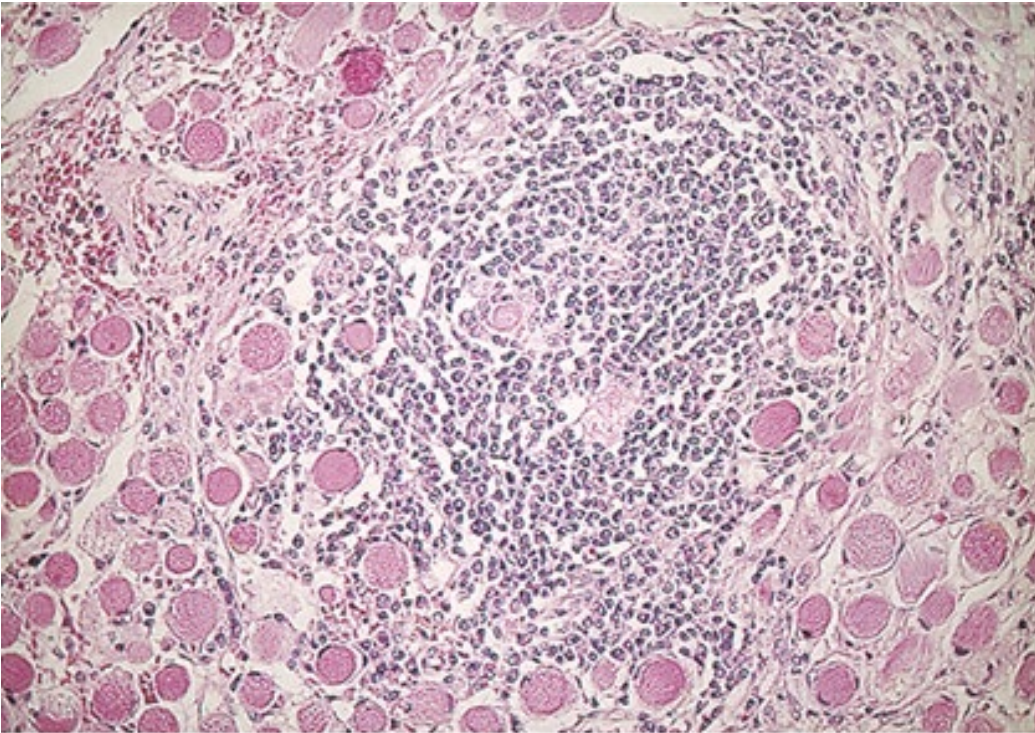
muscle fibers . As we're eyedocs, this means the image consists of inflammatory infiltrates within EOMs.

Bear in mind that orbital involvement in NSOI and TED are not limited to the EOM; any orbital structure can be affected (The point being, don't rely on the presence of muscle fibers on the slide to make these calls!)

If you said nonspecific orbital inflammation (NSOI) or thyroid eye disease, give yourself a check.* IMO, you will not be expected to distinguish between these *solely on the basis of a photomicrograph*—additional path-related, **clinical, and/or imaging info** will be provided.



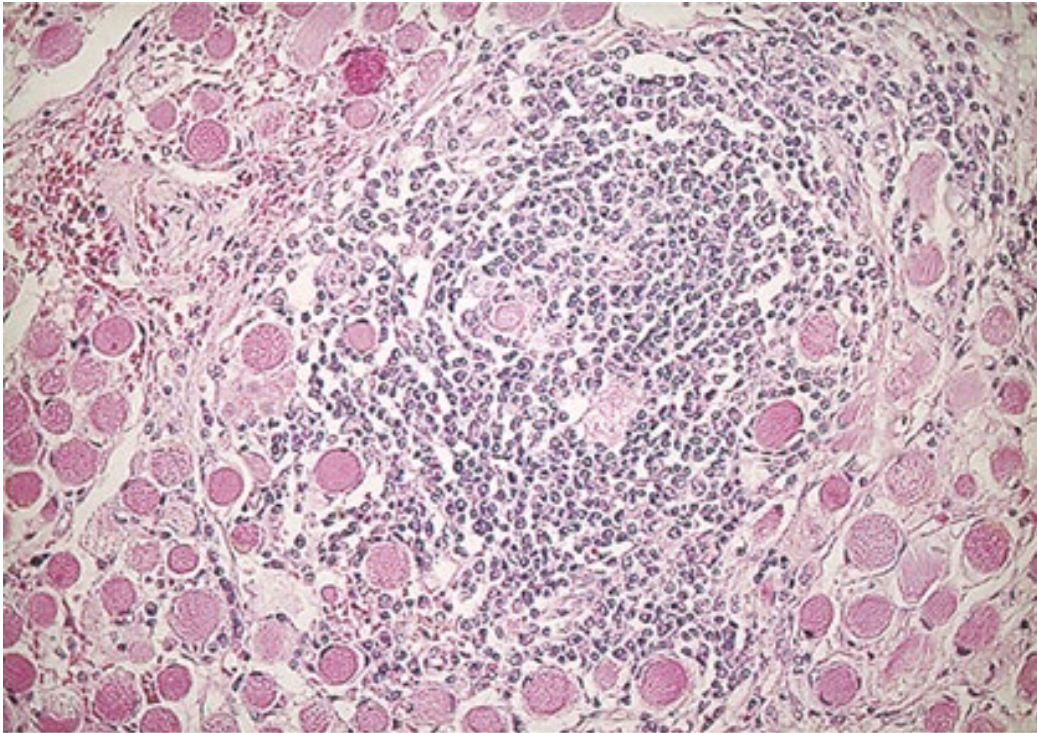
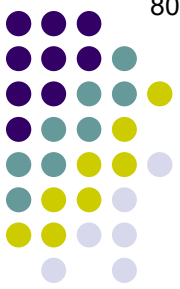
Pathwatching



One of the first impressions you should take from this image is that there are a whole lotta inflammatory cells present. However, there's a repeated structure that's obviously not inflammatory—*these things*, which are muscle fibers. As we're eyedocs, this means the image consists of inflammatory infiltrates within EOMs.

Finally, and circling back as promised: If you said or , give yourself a check as well.

Pathwatching

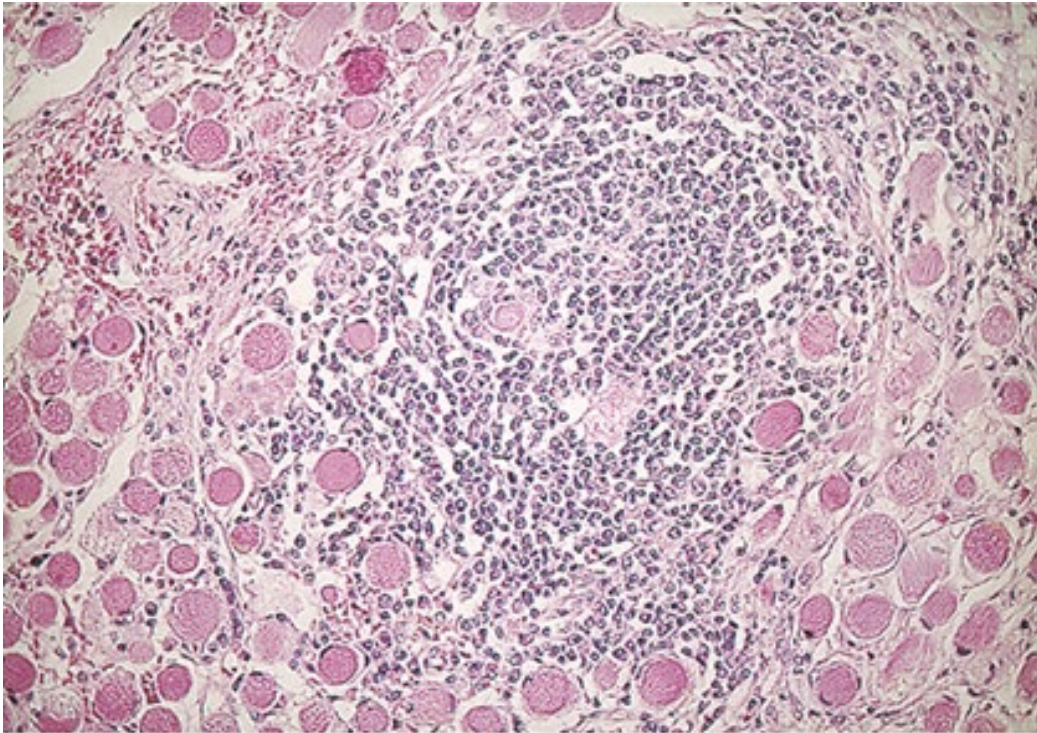


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Finally, and circling back as promised: If you said **IgG4-related orbital disease (IgG4-ROD)** or **lymphoproliferative disease**, give yourself a check as well.



Pathwatching



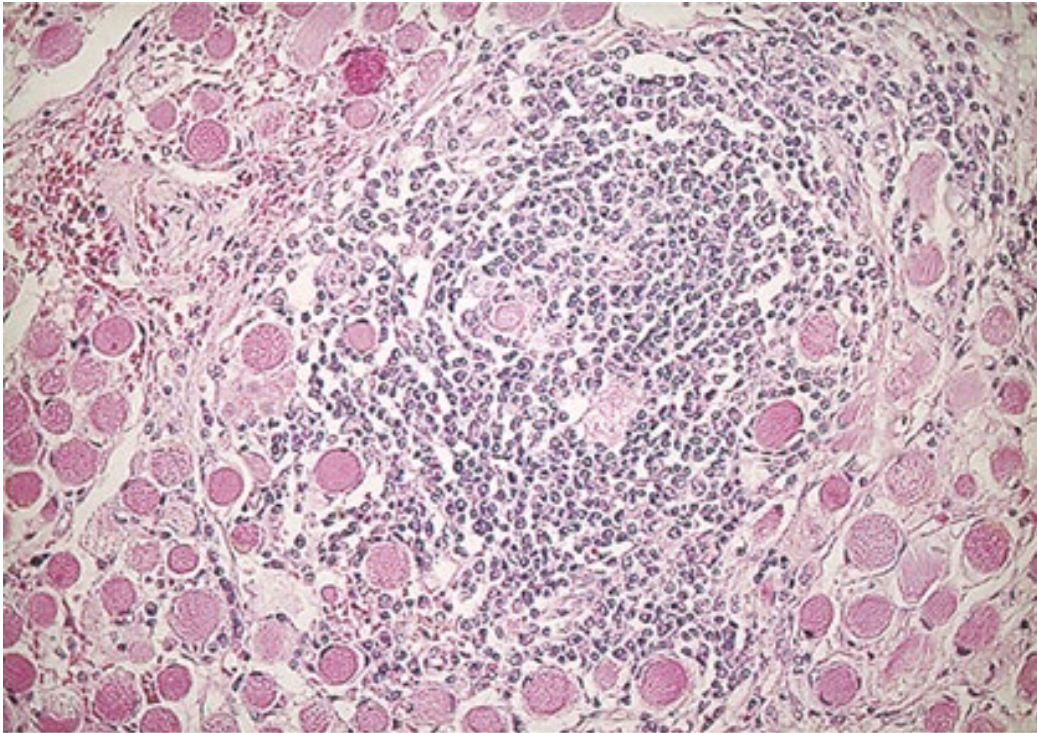
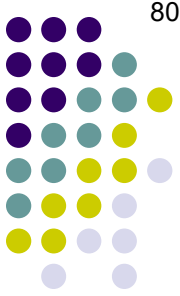
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Finally, and circling back as promised: If you said **IgG4-related orbital disease (IgG4-ROD)** or **lymphoproliferative disease**, give yourself a check as well. (But a somewhat smaller one—while these conditions are mos def in the DDX, they are far more likely to involve the

two words

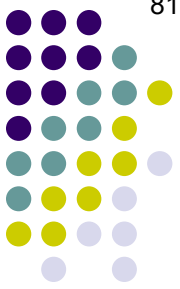
than the EOMs.)

Pathwatching

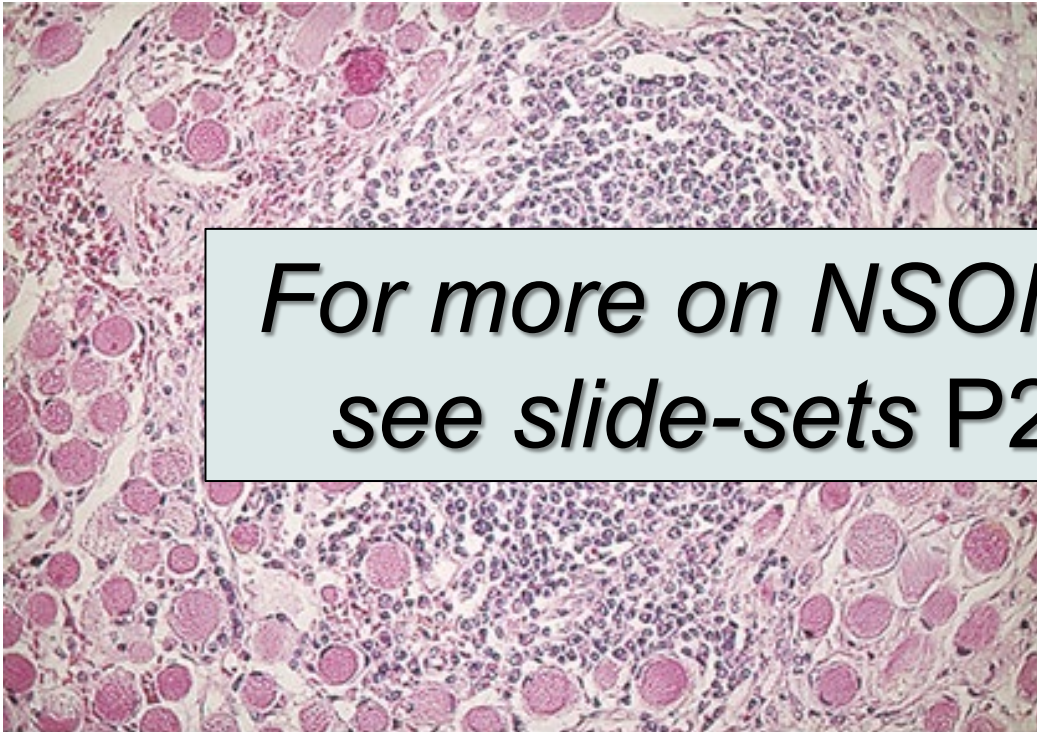


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Pathwatching



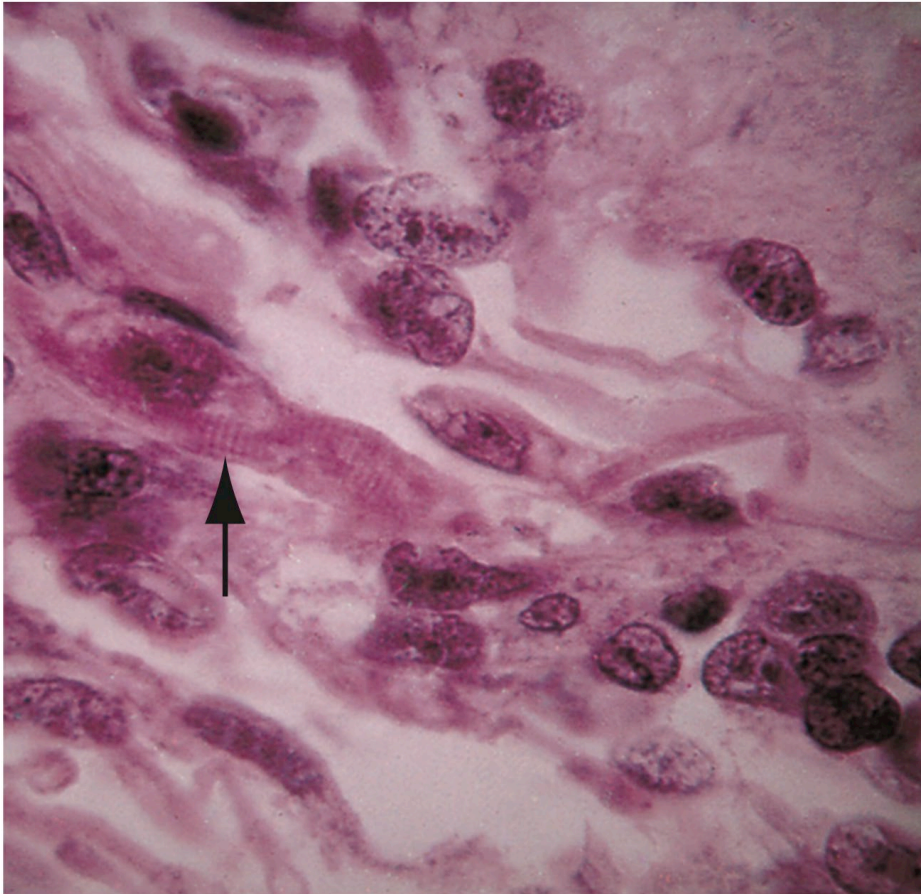
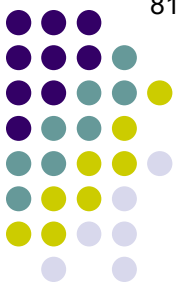
*For more on NSOI and TED,
see slide-sets P2 and O5*

One of the first impressions you should take from this image is that there are a whole lotta inflammatory

there's a
s obviously not
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eyedocs,
onsists of
within EOMs.

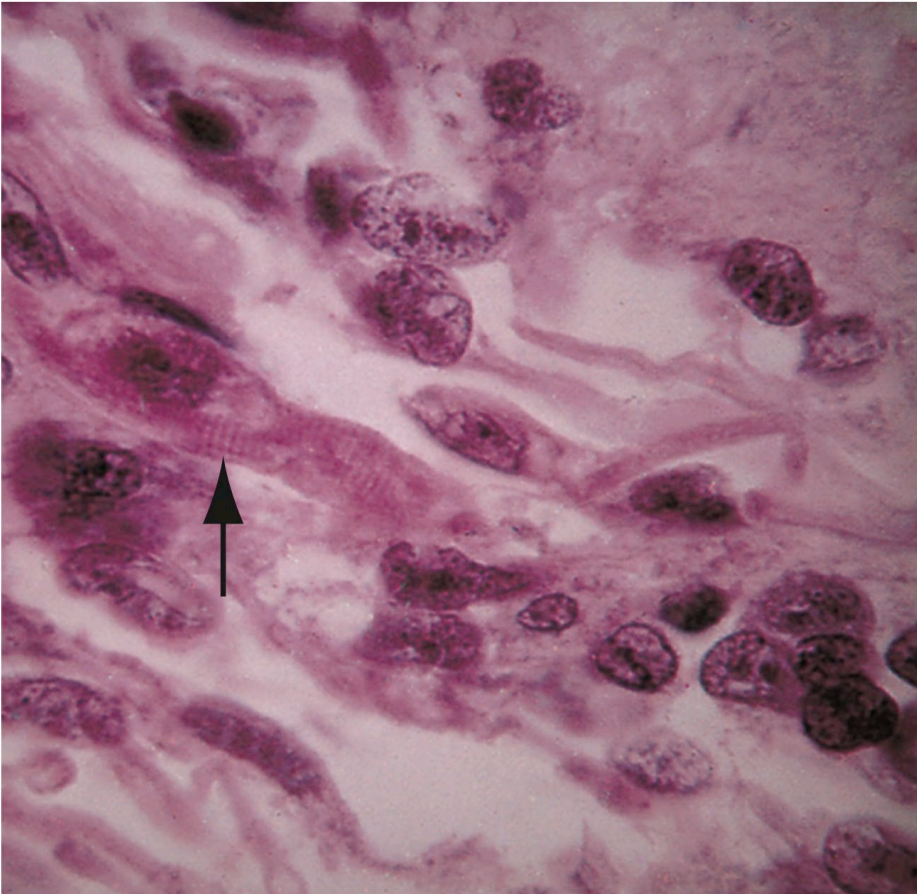
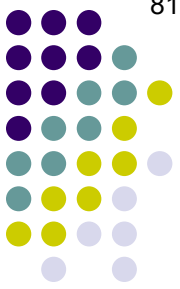
Finally, and circling back as promised: If you said **IgG4-related orbital disease (IgG4-ROD)** or **lymphoproliferative disease**, give yourself a check as well. (But a somewhat smaller one—while these conditions are mos def in the DDX, they are far more likely to involve the lacrimal gland than the EOMs.)

Pathwatching



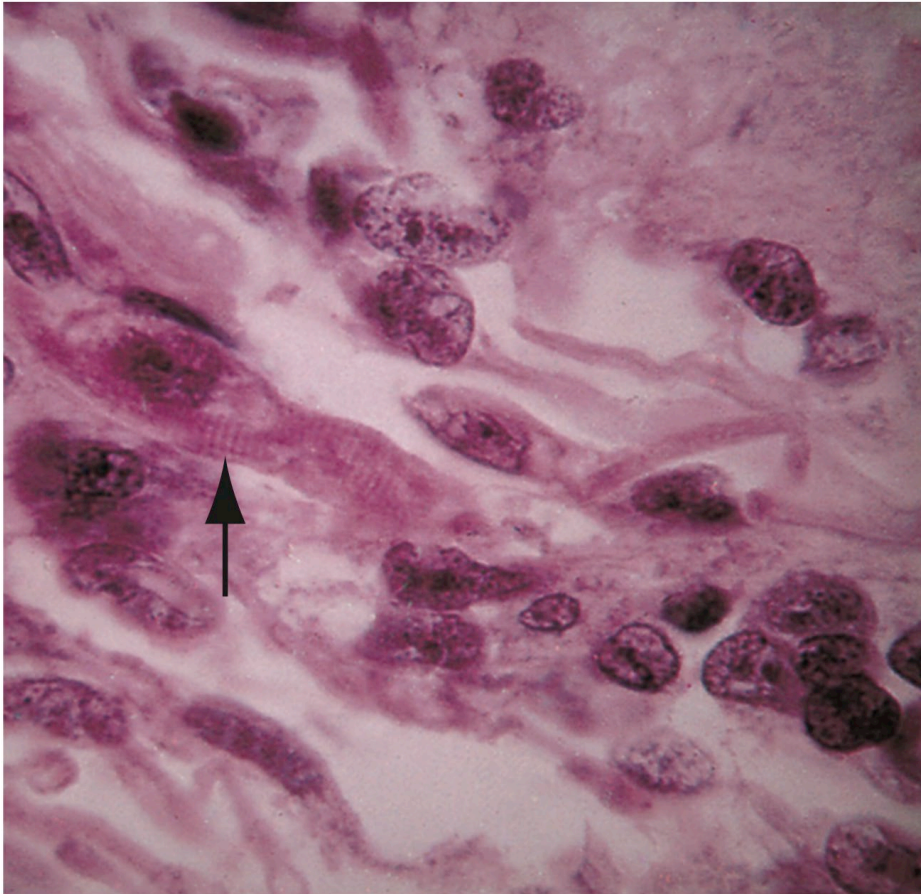
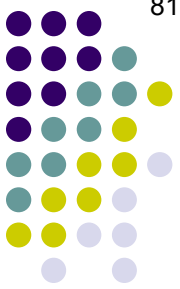
This field mark (*arrow*) is so difficult to see, I feel it would **have** to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of?

Pathwatching



This field mark (*arrow*) is so difficult to see, I feel it would **have** to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of? If you said ‘*muscle fiber striations,*’ good on ya. Now look at the slide in general and note both its disordered appearance and the large, heavily stained nuclei. What does *that* make you think of?

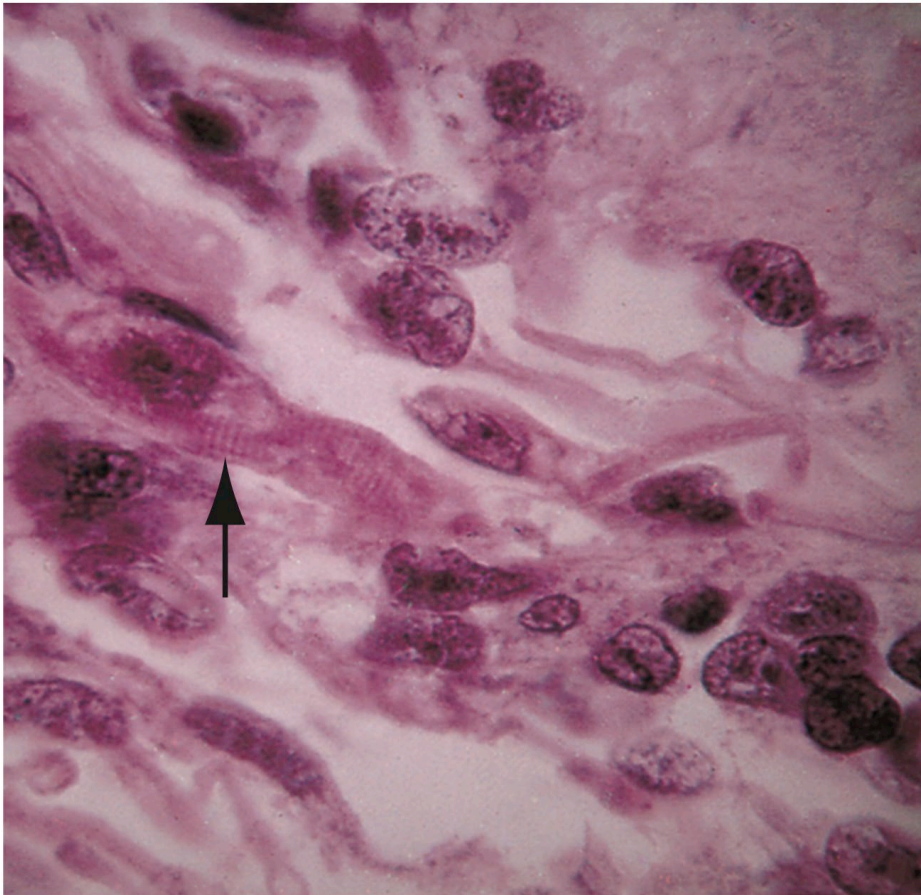
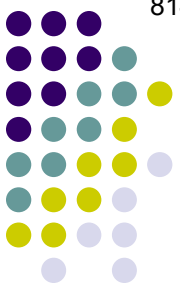
Pathwatching



What's the diagnosis?

This field mark (*arrow*) is so difficult to see, I feel it would **have** to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of? If you said ‘*muscle fiber striations,*’ good on ya. Now look at the slide in general and note both its disordered appearance and the large, heavily stained nuclei. What does *that* make you think of? If you said malignancy, bingo. Now put your Ophtho hat back on—what sort of malignancy is this?

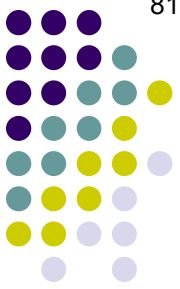
Pathwatching



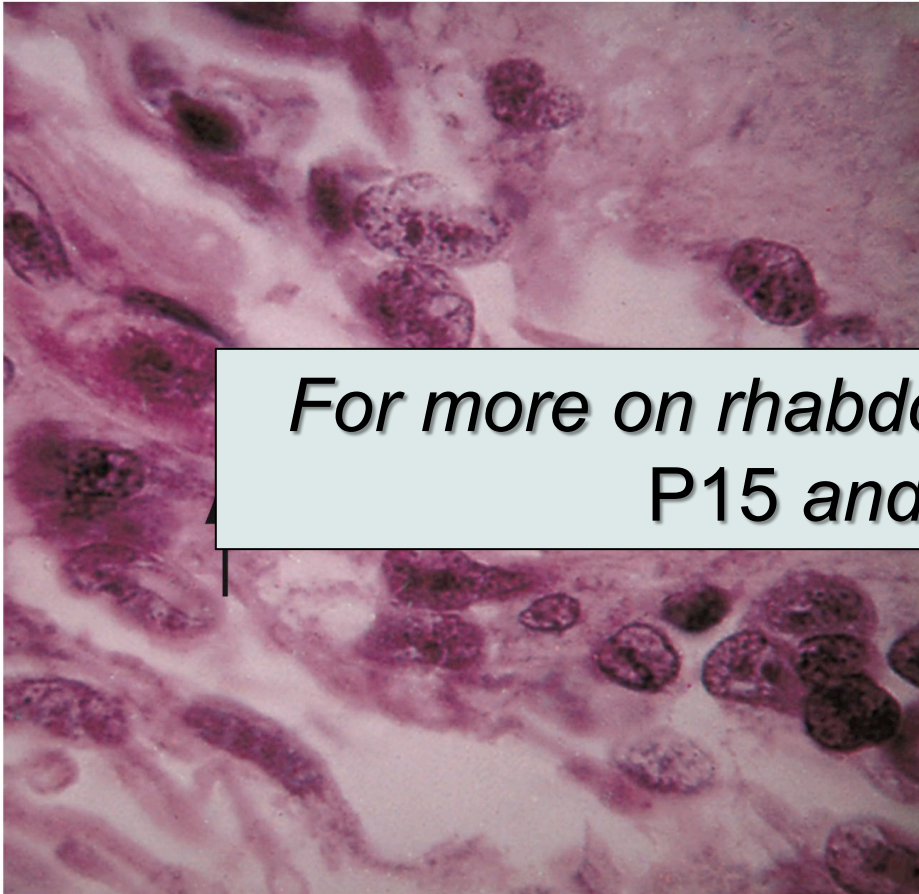
What's the diagnosis?

Rhabdomyosarcoma showing cross-striations (Z bands of actin-myosin complexes) within tumor cell cytoplasm

This field mark (*arrow*) is so difficult to see, I feel it would **have** to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of? If you said ‘muscle fiber striations,’ good on ya. Now look at the slide in general and note both its disordered appearance and the large, heavily stained nuclei. What does that make you think of? If you said malignancy, bingo. Now put your Ophtho hat back on—what sort of malignancy is this?



Pathwatching



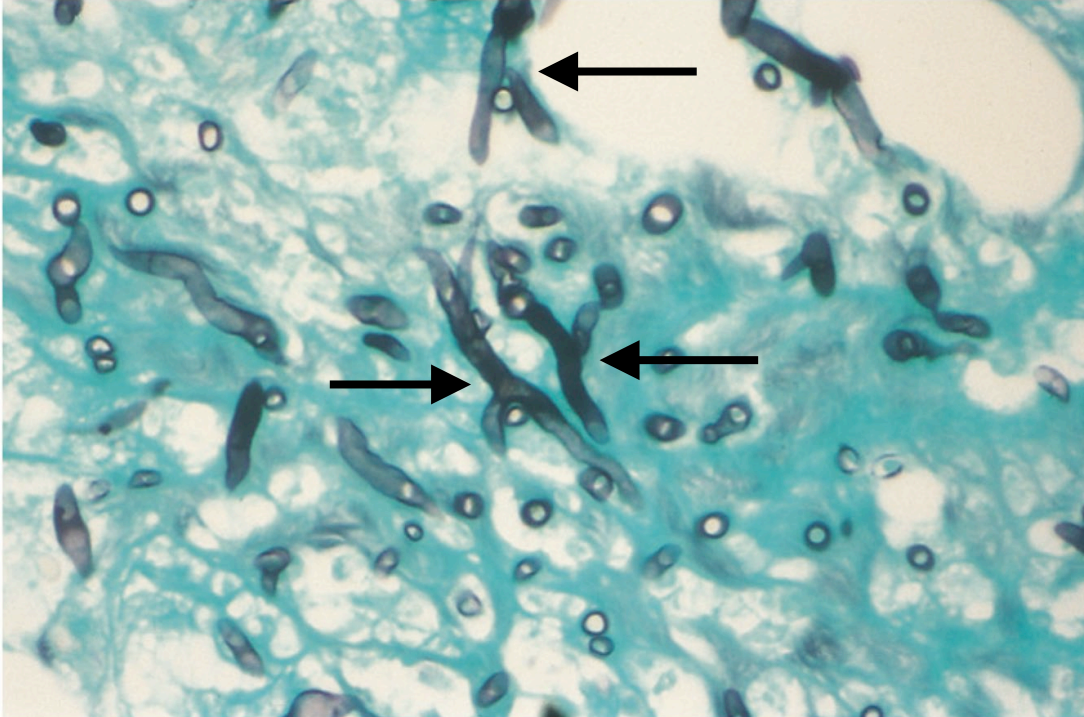
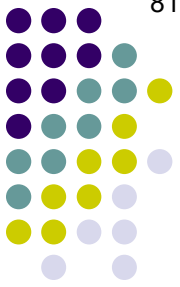
*For more on rhabdo, see slide-sets
P15 and O13*

This field mark (*arrow*) is so difficult to see, I feel it would **have** to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of? 'Cross-striations,' right? In general, rhabdo has a certain appearance and a certain behavior. What does that make you think of? If you said malignancy, bingo. Now put your Ophtho hat back on—what sort of malignancy is this?

What's the diagnosis?

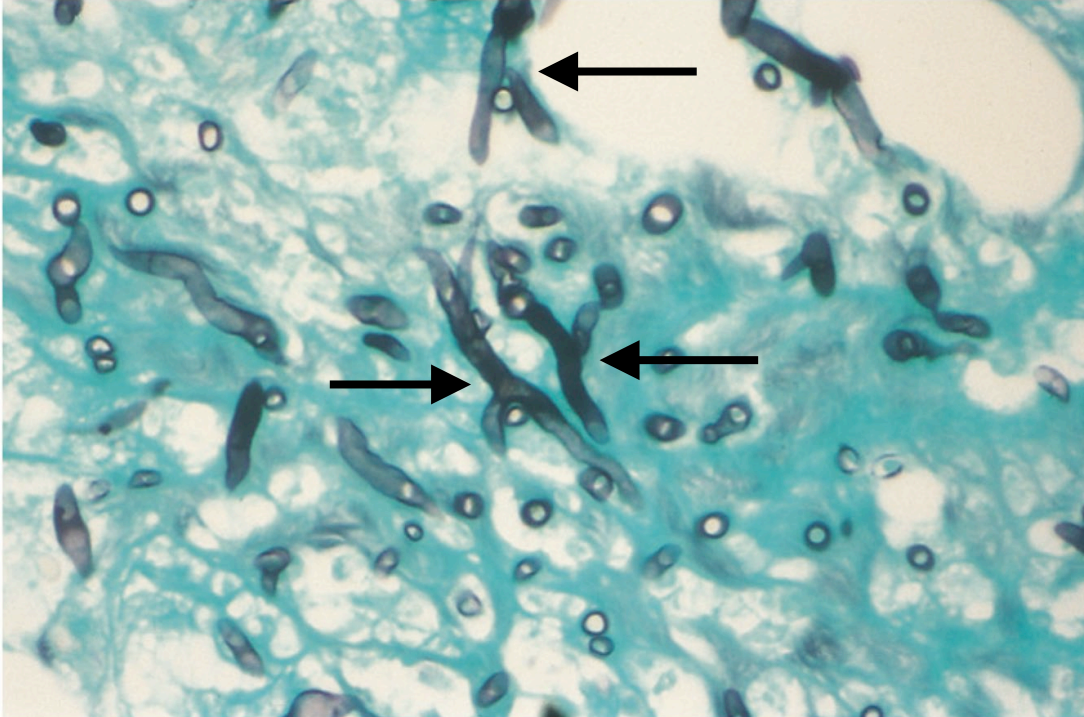
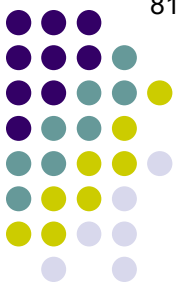
Rhabdomyosarcoma showing cross-striations (Z bands of actin-myosin complexes) within tumor cell cytoplasm

Pathwatching



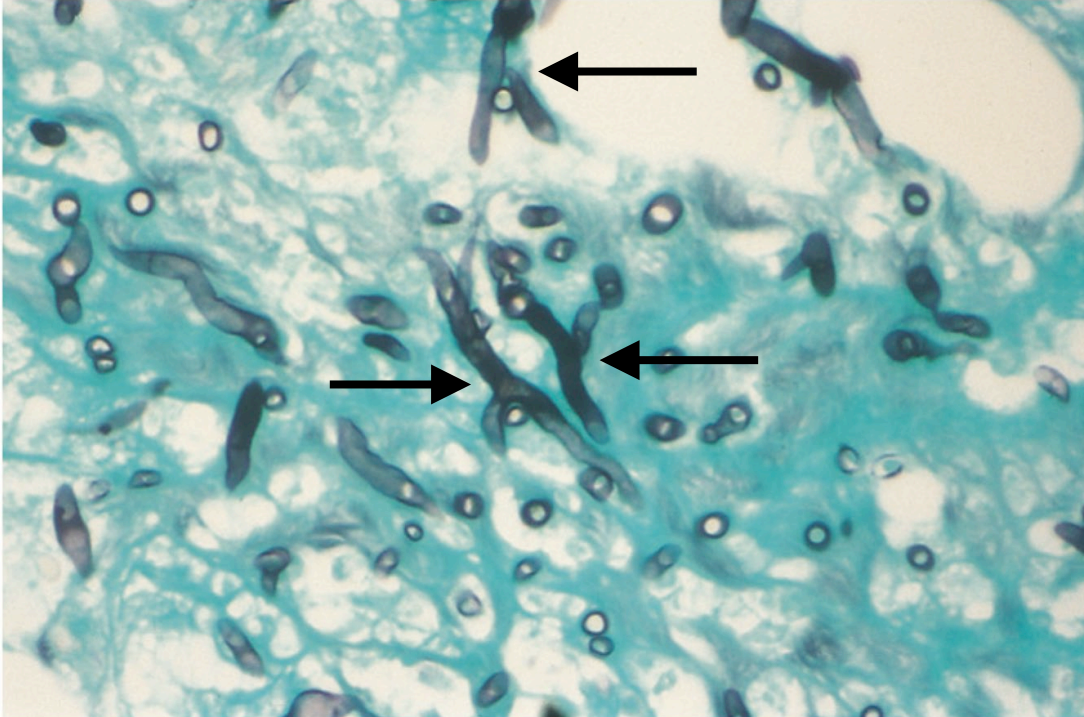
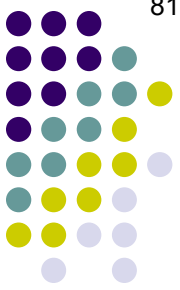
The field mark (*arrows*) for this condition is best remembered by describing it—'they are , and they .'

Pathwatching



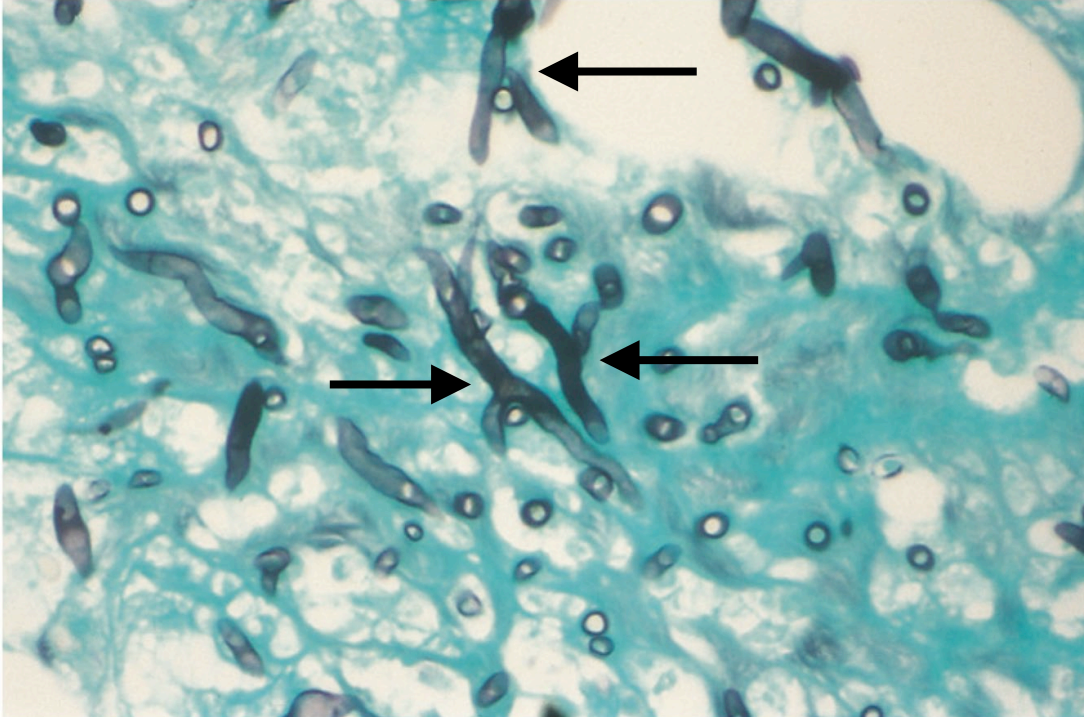
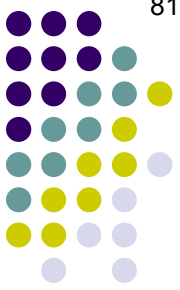
The field mark (*arrows*) for this condition is best remembered by describing it— 'they are broad , and they branch .'

Pathwatching



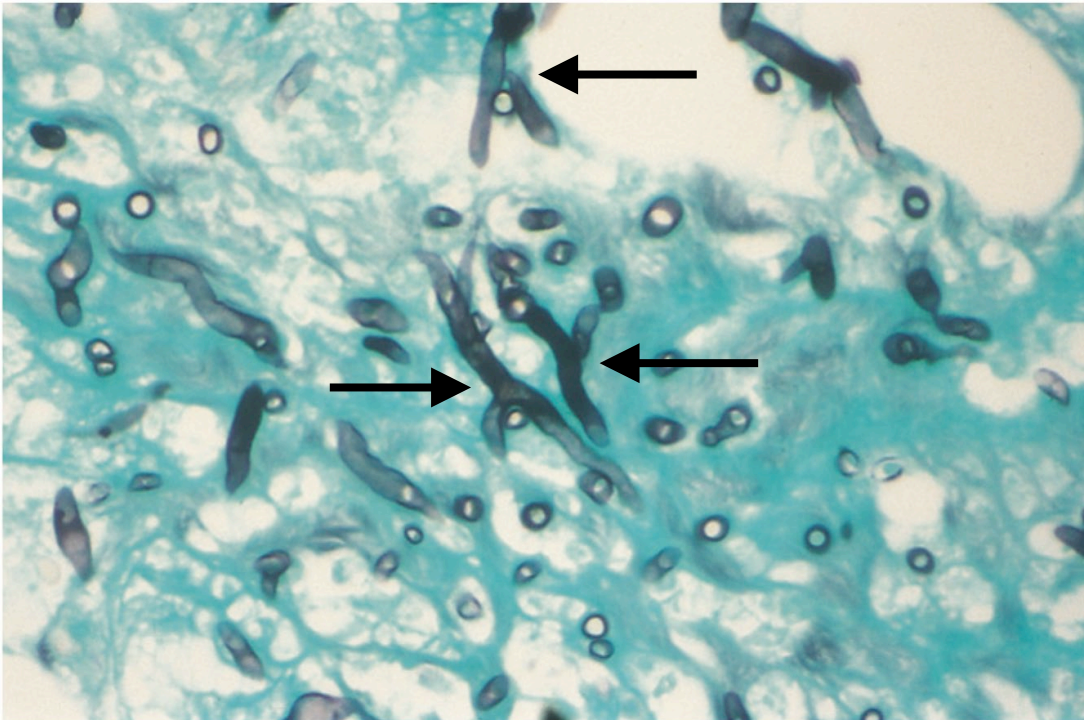
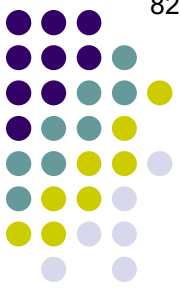
The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad , and they branch .' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is (Hint: It's an category dz).

Pathwatching



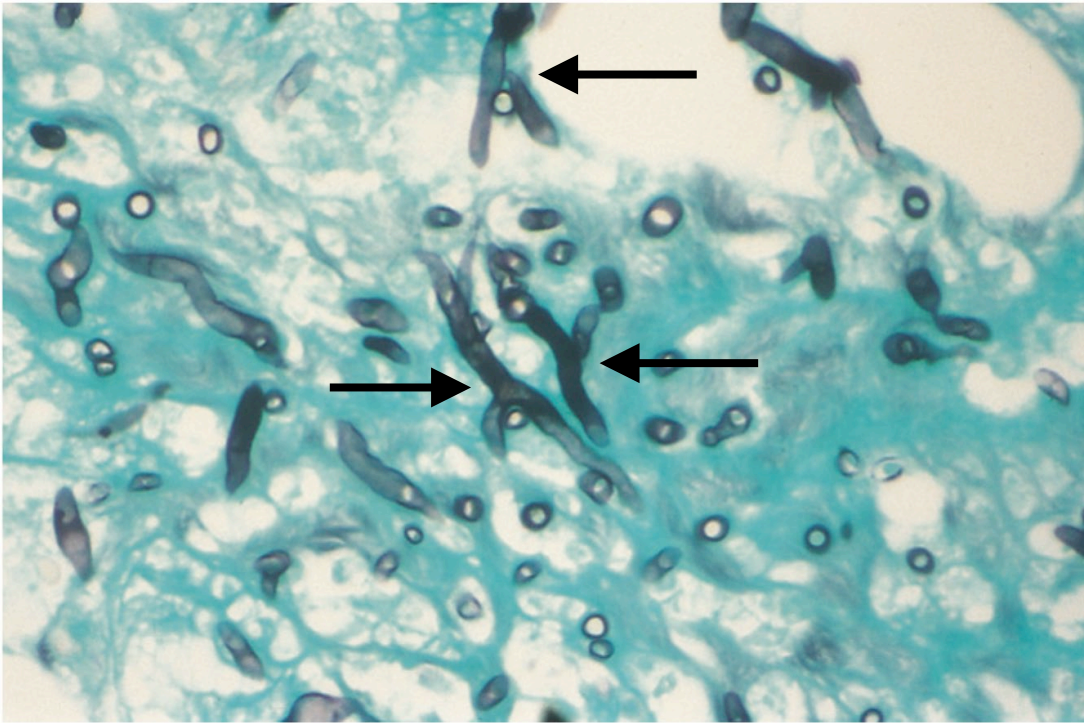
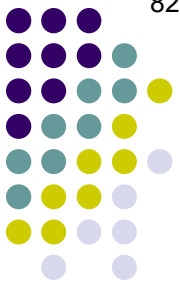
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Pathwatching



The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad , and they branch .' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

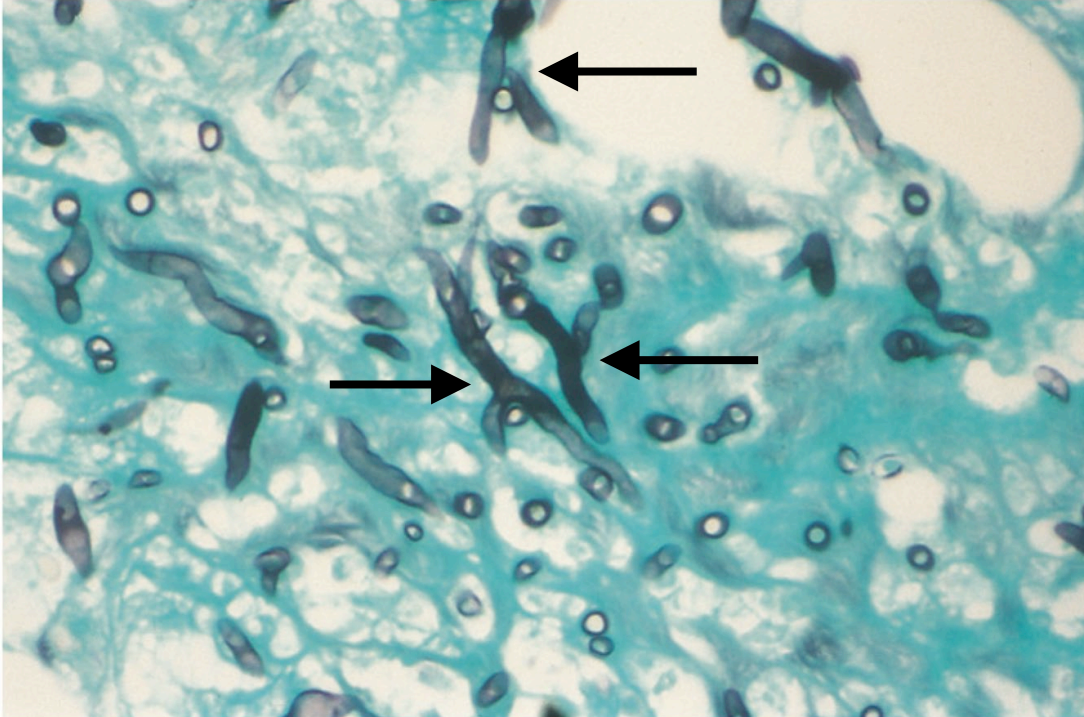
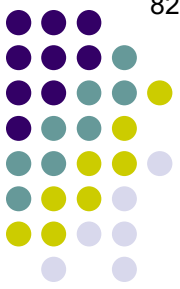
Pathwatching



What's the diagnosis?

The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad , and they branch .' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

Pathwatching

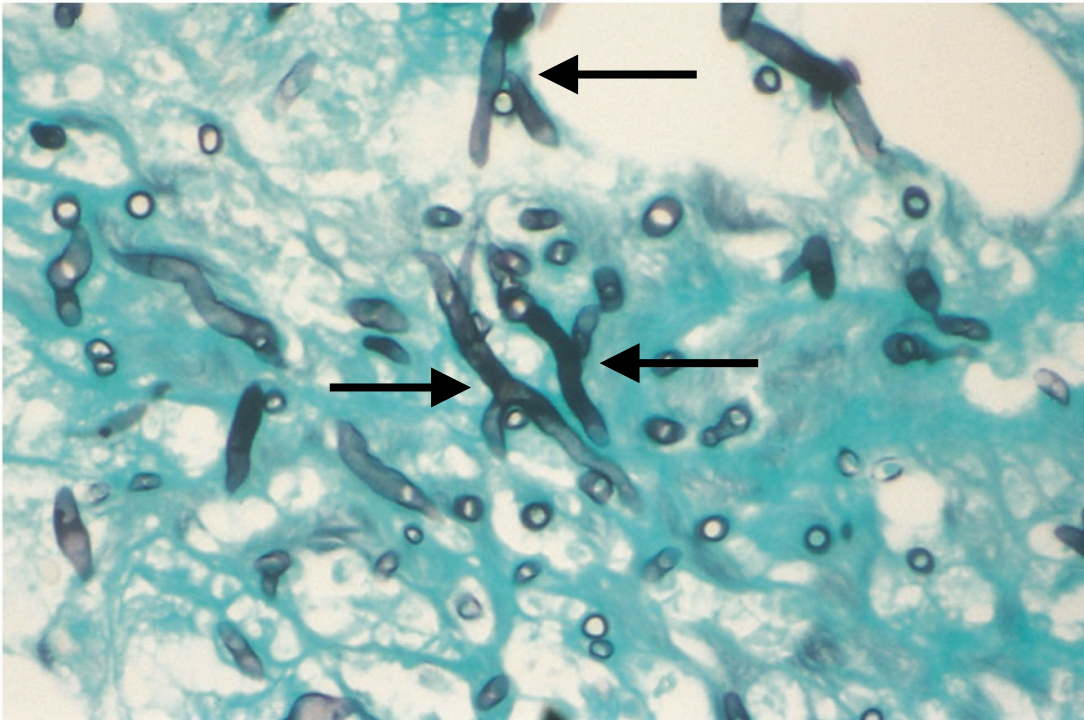
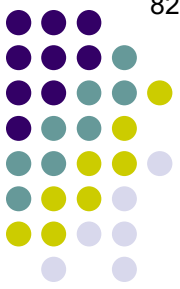


What's the diagnosis?

Aspergillus infection showing broad branching fungal hyphae

The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad, and they branch.' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

Pathwatching



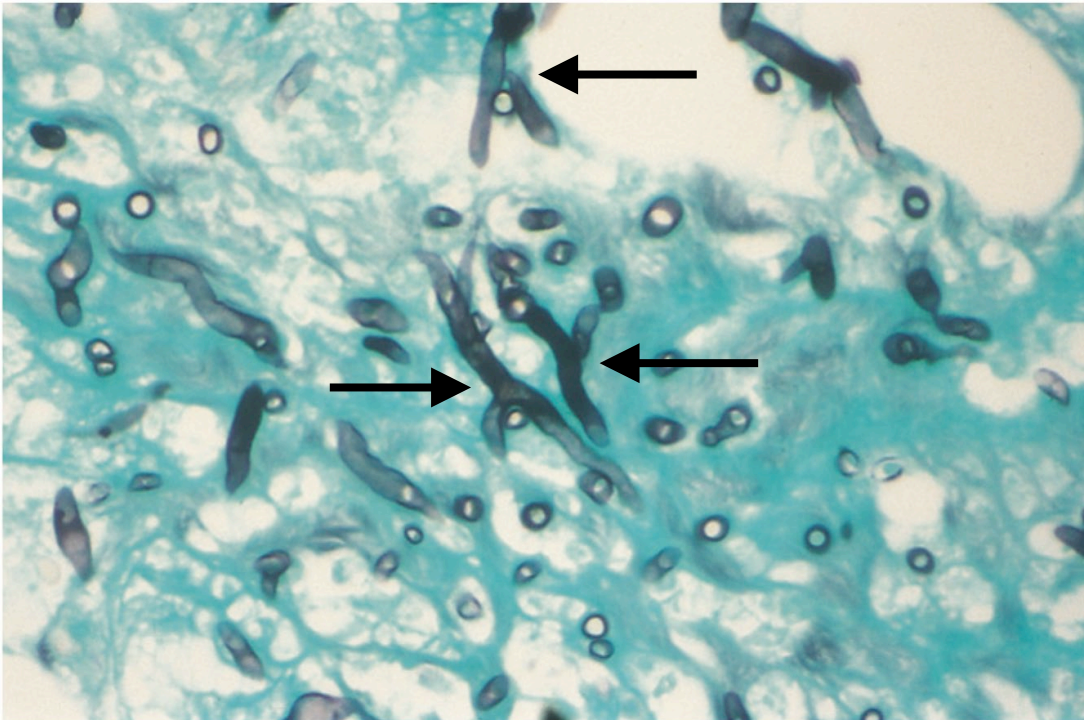
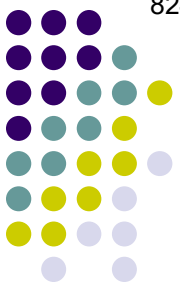
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What's the diagnosis?

Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis comes in three forms:**

- ? aspergillosis
- ? aspergillosis
- ? aspergillosis

Pathwatching



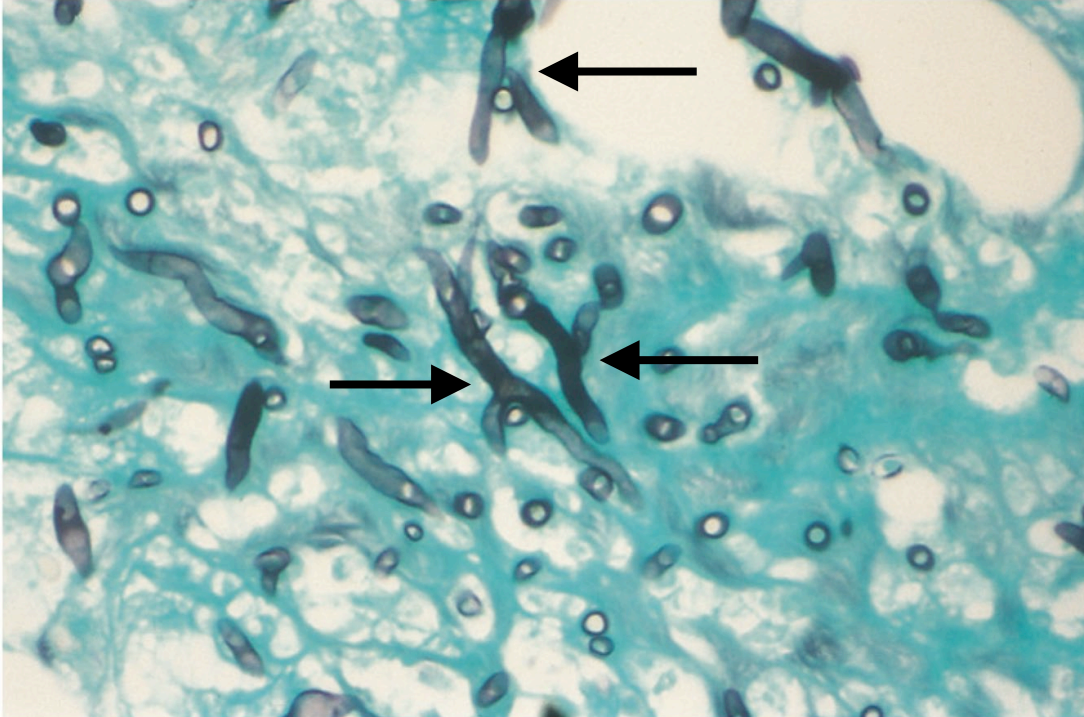
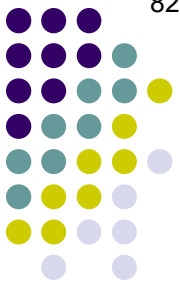
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What's the diagnosis?

Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis comes in three forms:**

- Invasive aspergillosis*
- Noninvasive aspergillosis*
- Allergic aspergillosis*

Pathwatching



The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad, and they branch.' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

What's the diagnosis?

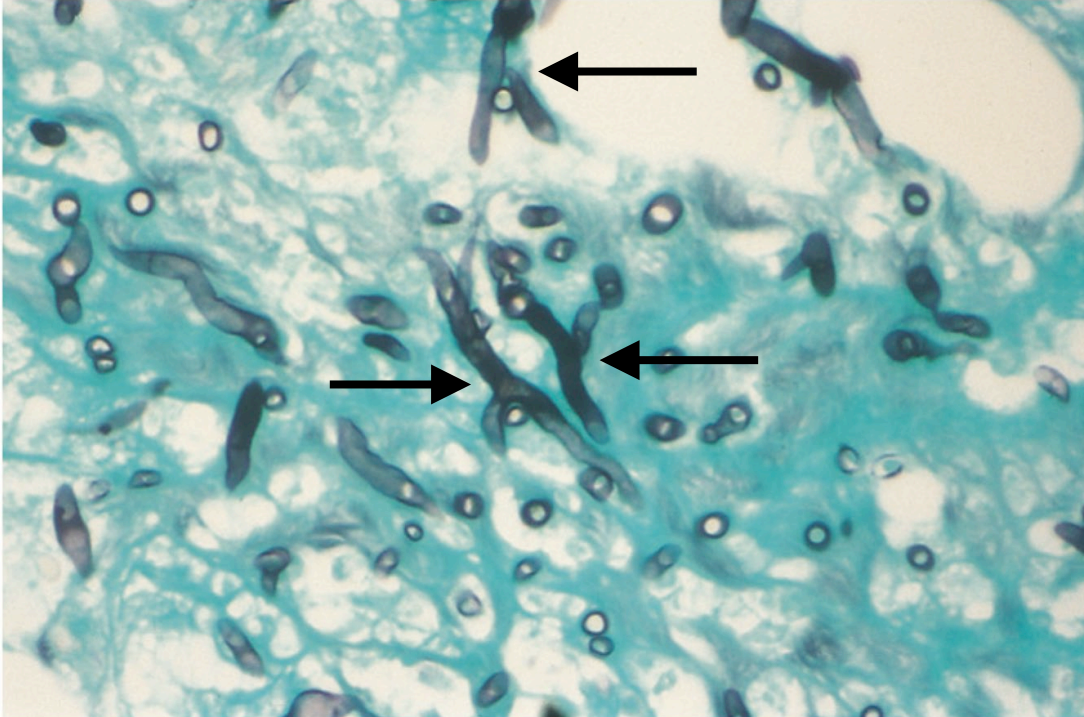
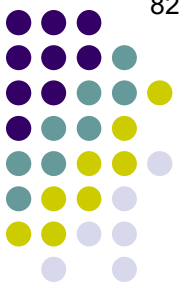
Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis** comes in three forms:

--**Invasive aspergillosis**: An broad category condition in general status pts

--*Noninvasive aspergillosis*

--*Allergic aspergillosis*

Pathwatching



The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad, and they branch.' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

What's the diagnosis?

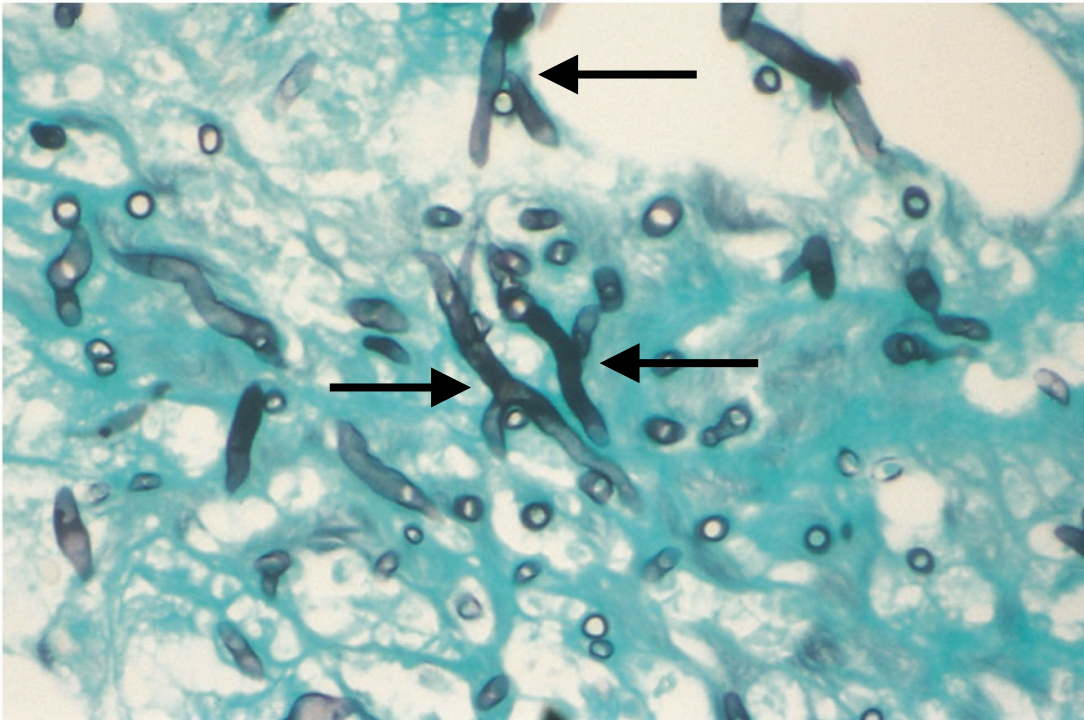
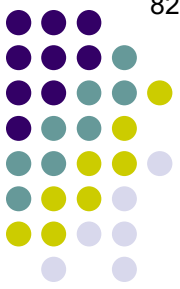
Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis comes in three forms:**

--**Invasive aspergillosis: An infectious condition in immunocompromised pts**

--*Noninvasive aspergillosis*

--*Allergic aspergillosis*

Pathwatching



The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad, and they branch.' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

What's the diagnosis?

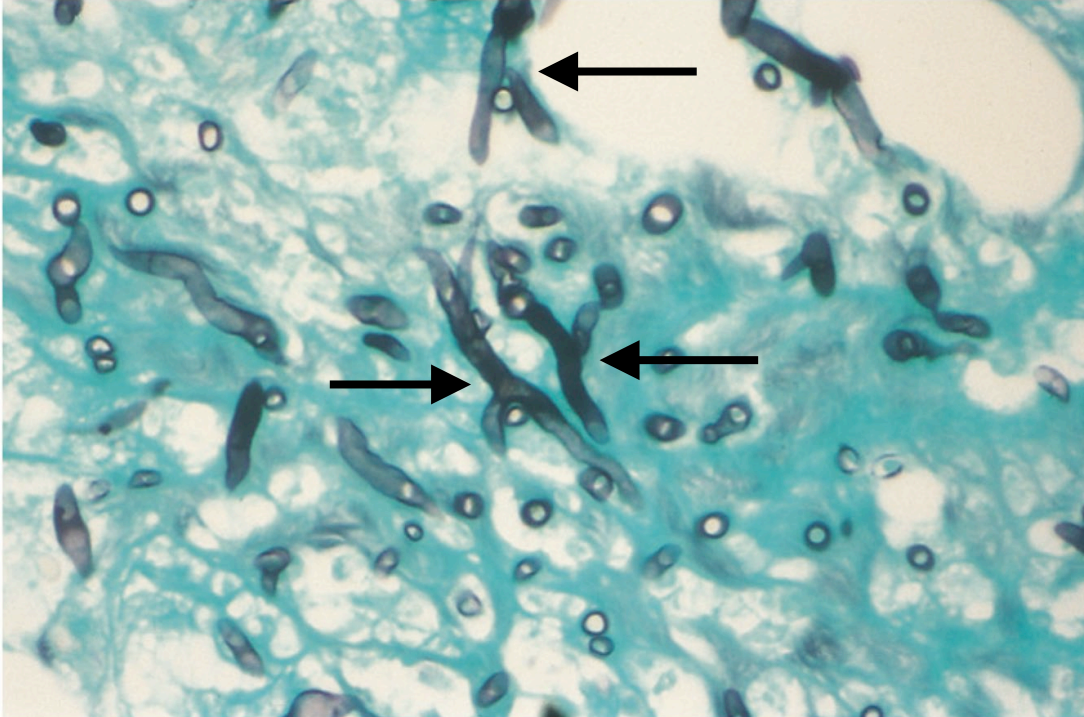
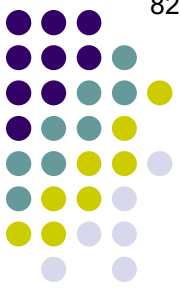
Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis** comes in three forms:

--**Invasive aspergillosis**: An infectious condition in immunocompromised pts

--**Noninvasive aspergillosis**: Characterized by the presence of an one word (aka a 'two words')

--**Allergic aspergillosis**

Pathwatching



The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad, and they branch.' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

What's the diagnosis?

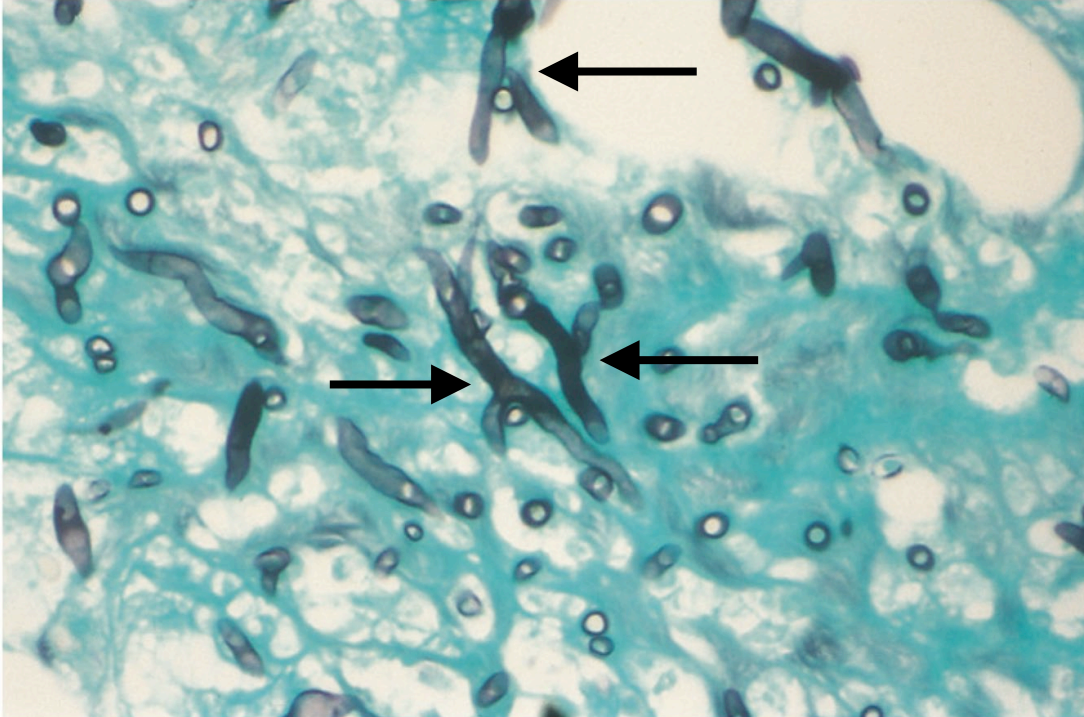
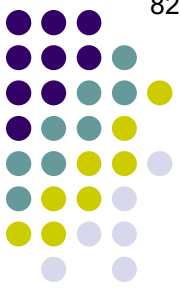
Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis** comes in three forms:

--**Invasive aspergillosis**: An infectious condition in immunocompromised pts

--**Noninvasive aspergillosis**: Characterized by the presence of an aspergilloma (aka a 'fungal ball')

--**Allergic aspergillosis**

Pathwatching



The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad, and they branch.' There's a third word that goes with the first two; ie, when you think *broad* and *branch* the third should come immediately to mind. That word is *hyphae* (Hint: It's an infectious dz).

What's the diagnosis?

Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis** comes in three forms:

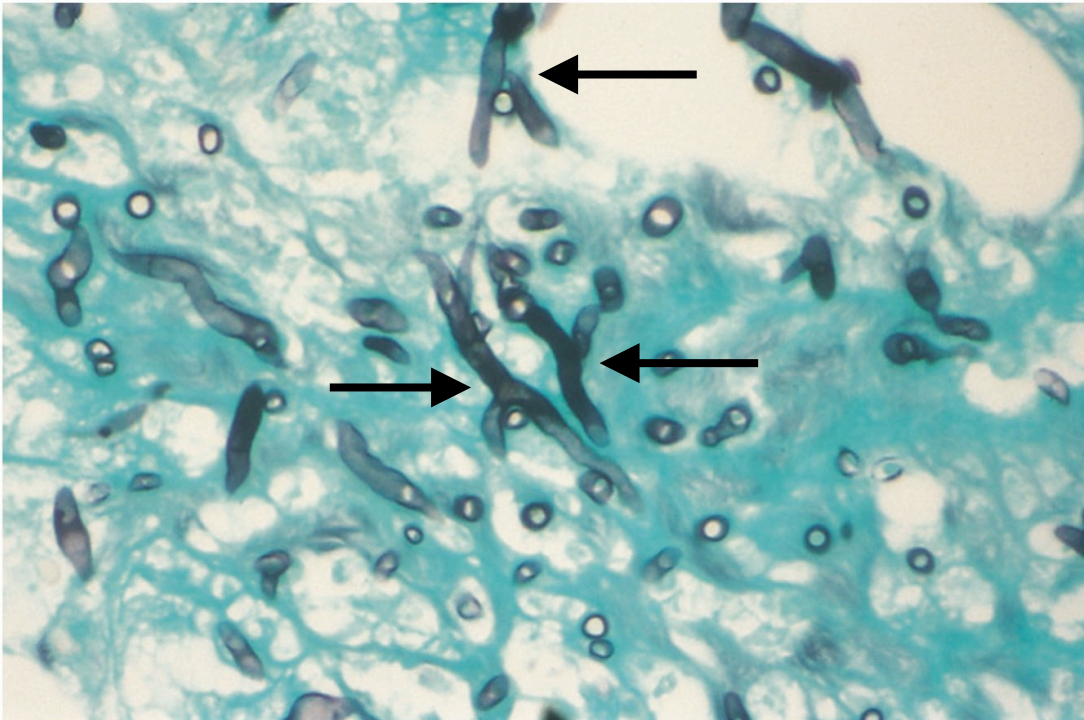
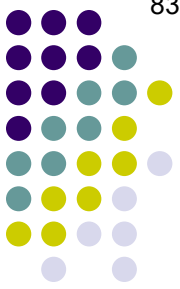
--*Invasive aspergillosis*: An infectious condition in immunocompromised pts

--*Noninvasive aspergillosis*: Characterized by the presence of an aspergilloma (aka a 'fungal ball')

--*Allergic aspergillosis*: As named. Pts are usually

general status

Pathwatching



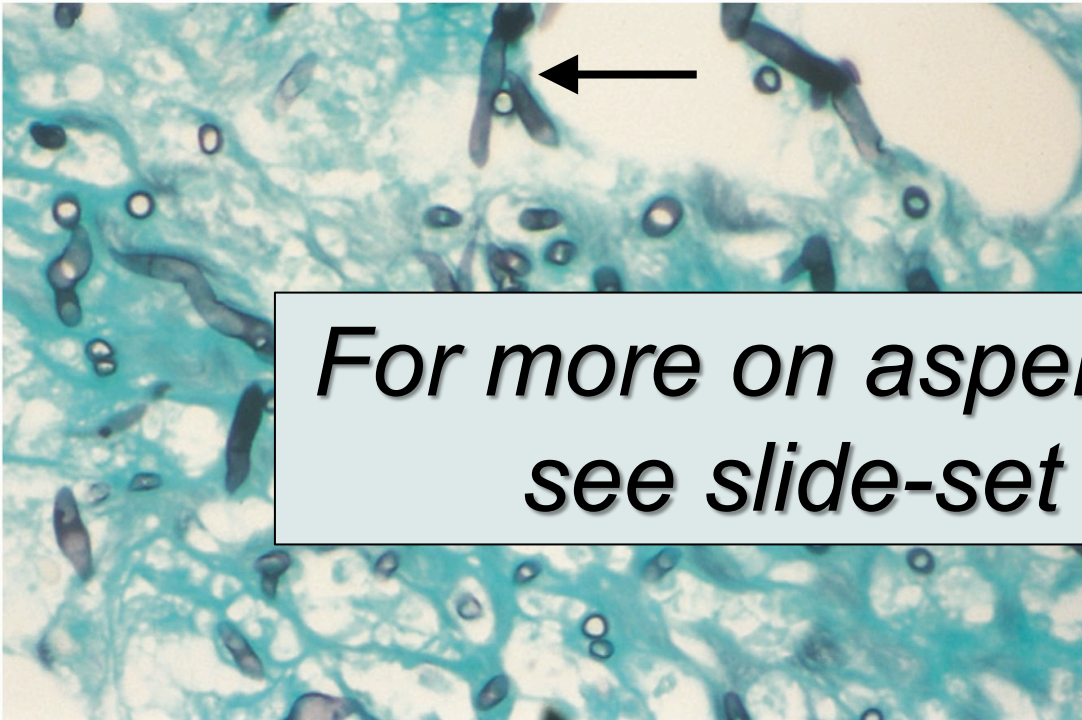
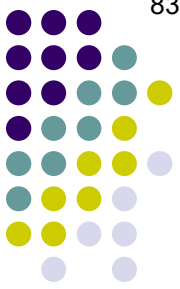
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What's the diagnosis?

Aspergillus infection showing broad branching fungal hyphae. **Orbital aspergillosis** comes in three forms:

- Invasive aspergillosis**: An infectious condition in immunocompromised pts
- Noninvasive aspergillosis**: Characterized by the presence of an aspergilloma (aka a 'fungal ball')
- Allergic aspergillosis**: As named. Pts are usually atopic

Pathwatching



***For more on aspergillosis,
see slide-set U9***

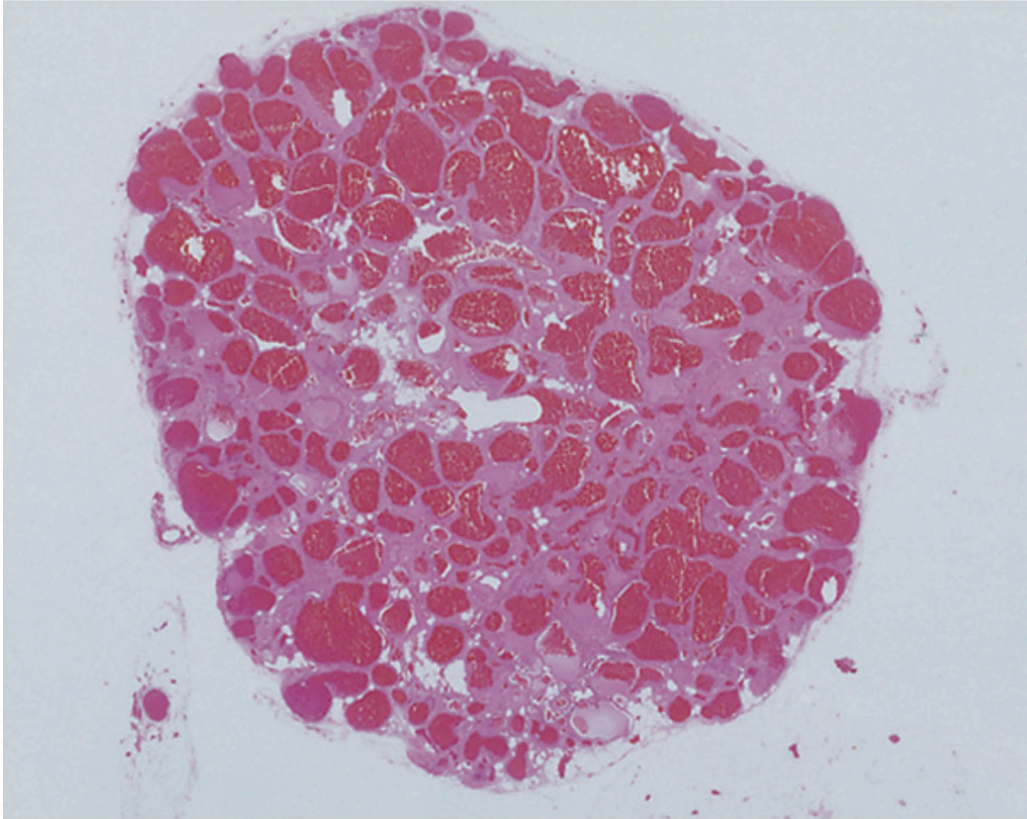
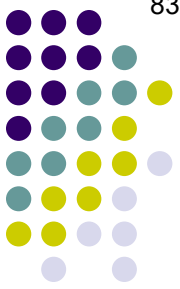
The field mark (*arrows*) for this condition is best remembered by describing it—'they are broad , and they branch .' There's a third word that goes with the first two: ie. when you think *broad* and *branch*, the third word should come . That word is *infectious dz*.

What's the diagnosis?

Aspergillus infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

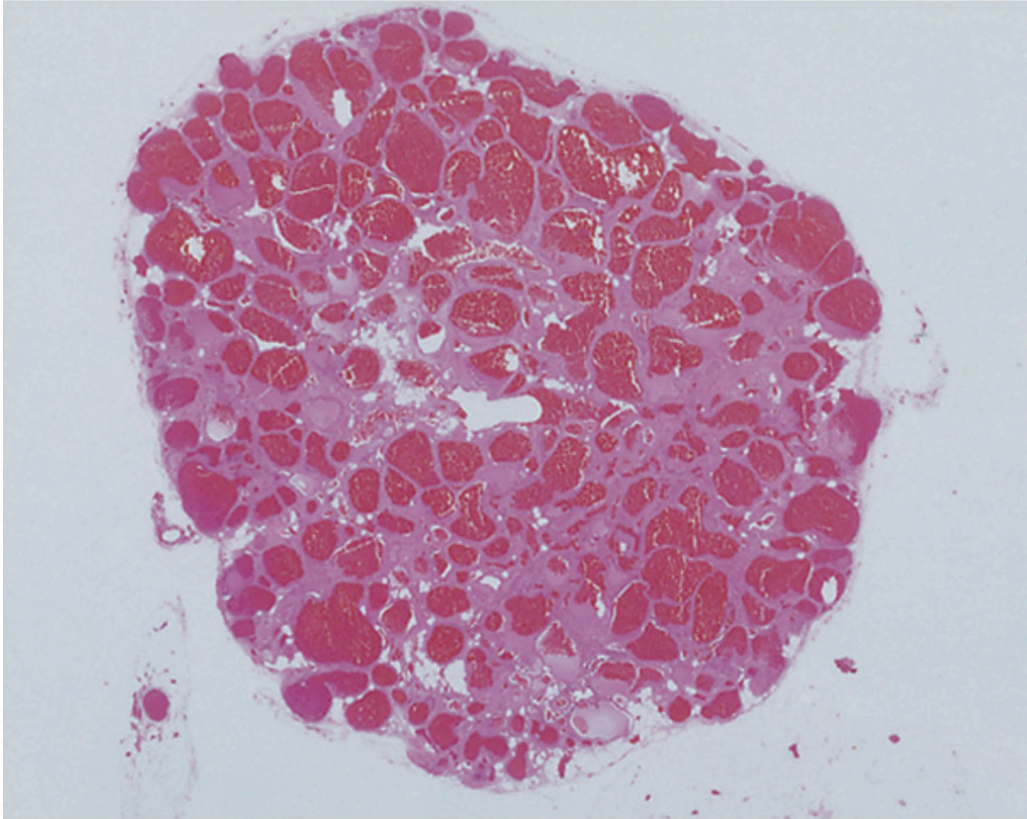
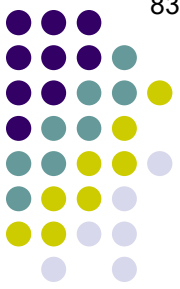
- Invasive* aspergillosis: An infectious condition in immunocompromised pts
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- Allergic* aspergillosis: As named. Pts are usually atopic

Pathwatching



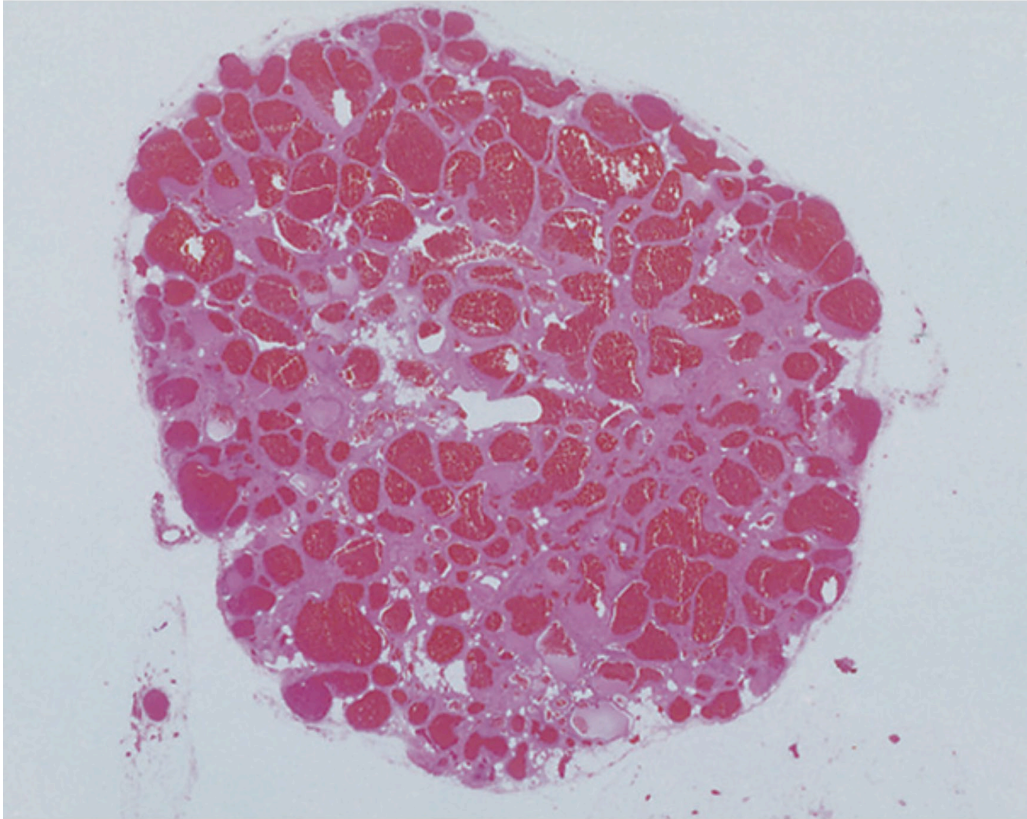
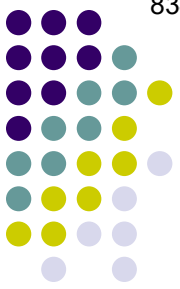
The striking thing about this mass is that it is comprised chiefly of numerous large two-words spaces. That's all you need to know to ID it.

Pathwatching



The striking thing about this mass is that it is comprised chiefly of numerous large **blood-filled** spaces. That's all you need to know to ID it.

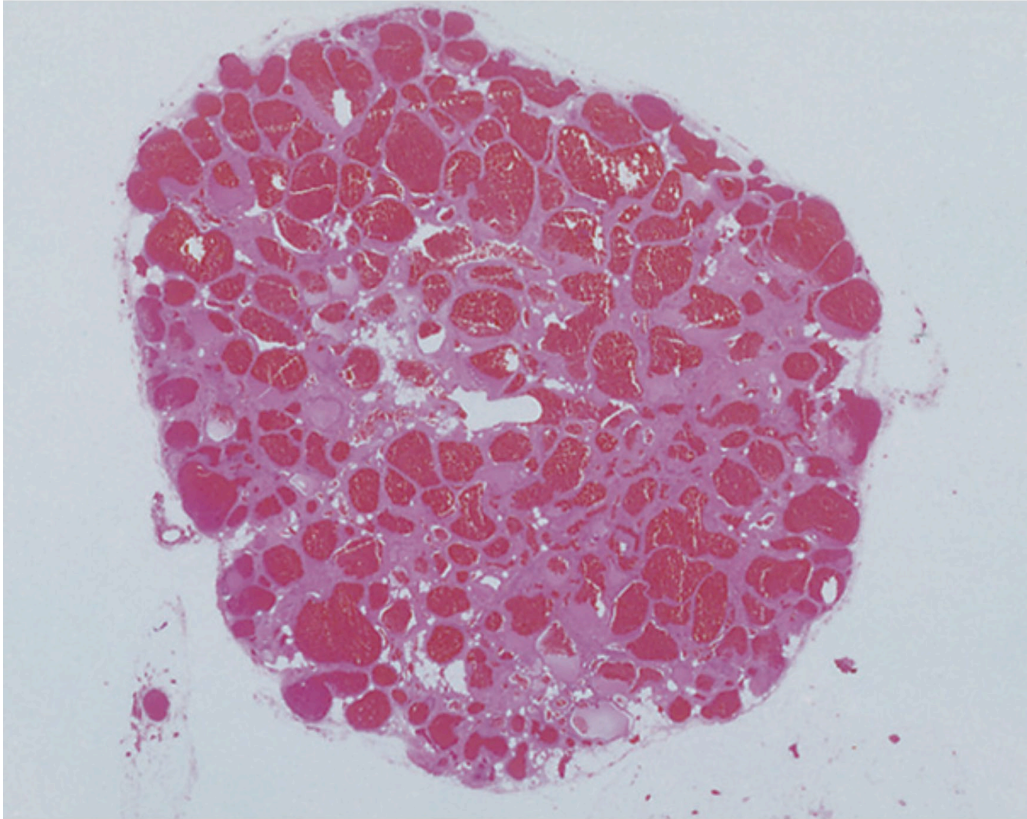
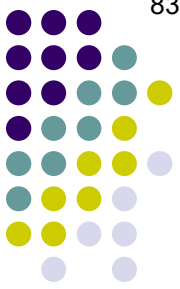
Pathwatching



The striking thing about this mass is that it is comprised chiefly of numerous large **blood-filled** spaces. That's all you need to know to ID it.

What's the diagnosis?

Pathwatching

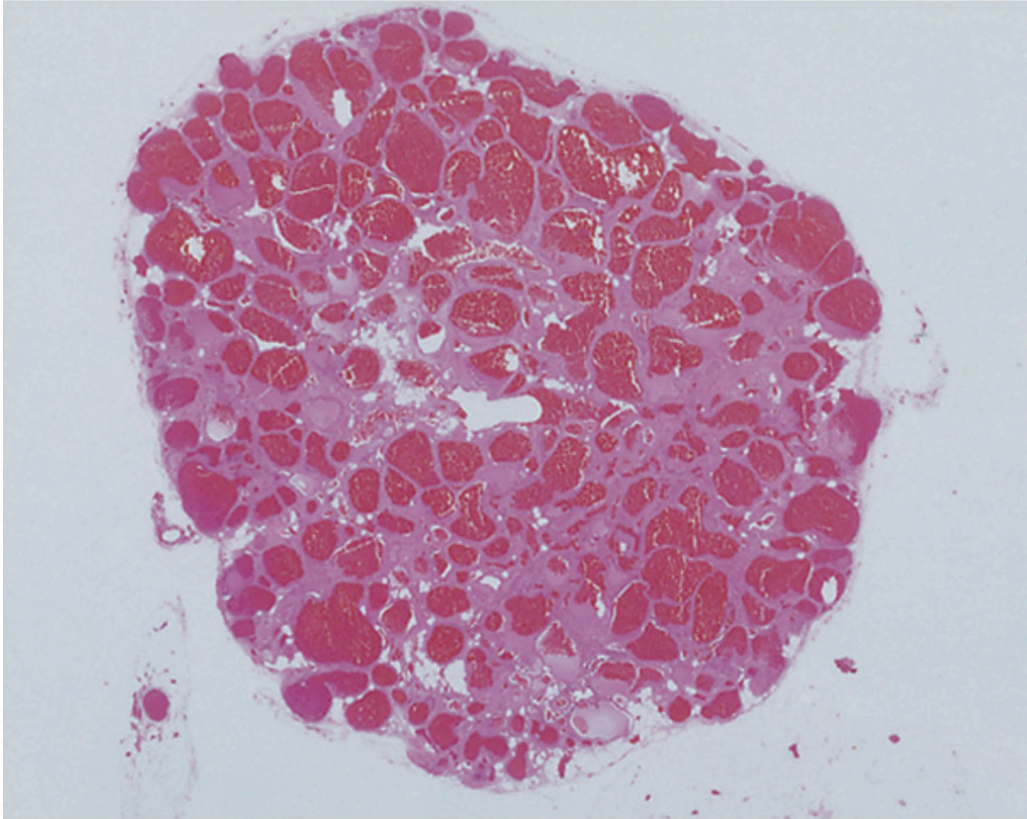
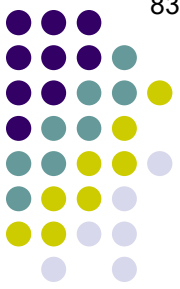


The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

Cavernous hemangioma (aka)

Pathwatching

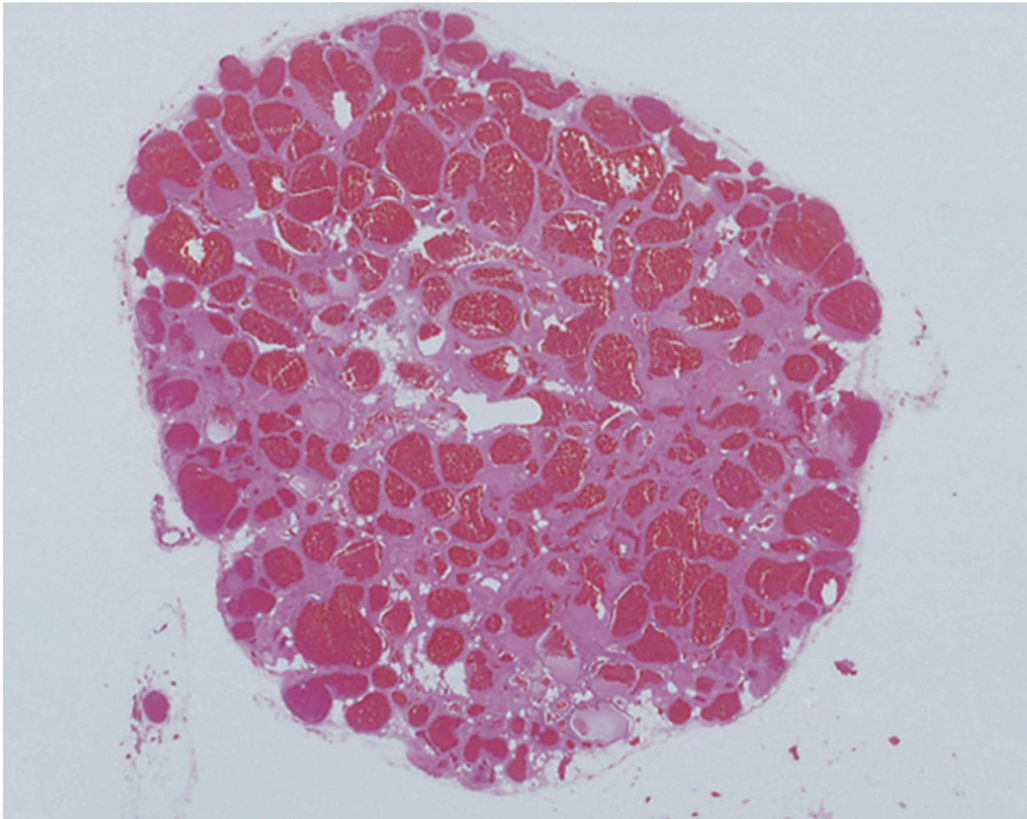
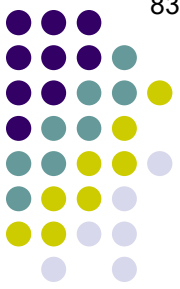


The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

Cavernous hemangioma (aka *cavernous venous malformation*)

Pathwatching

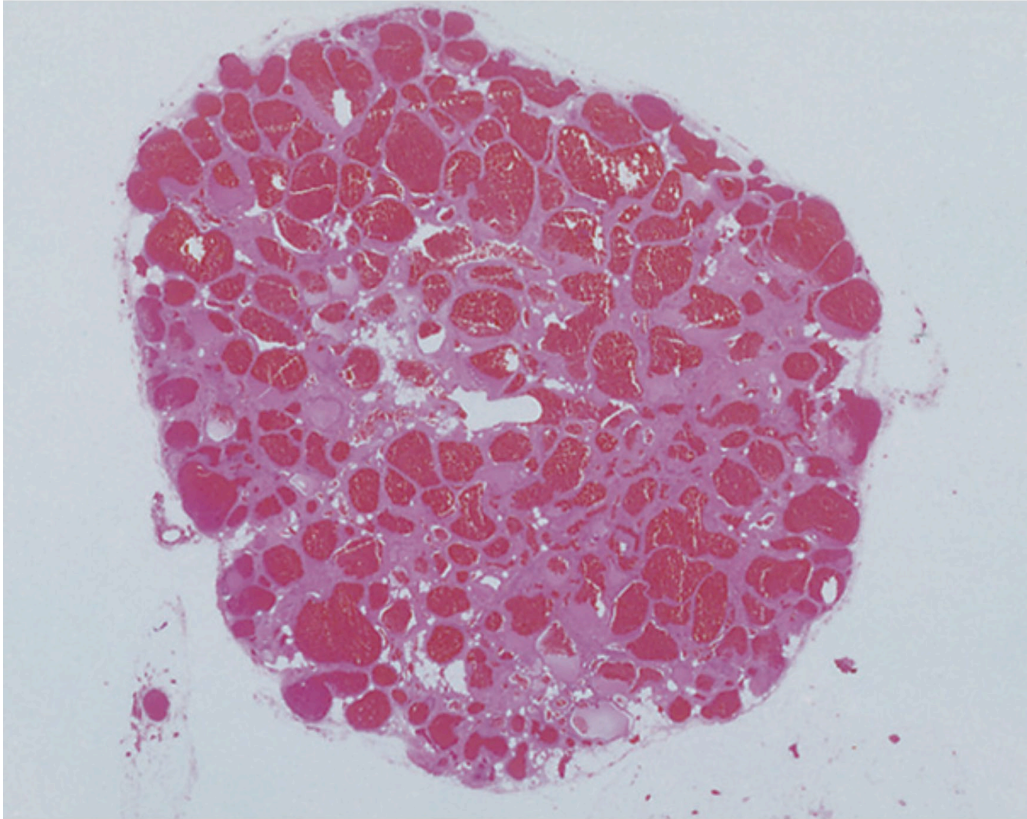
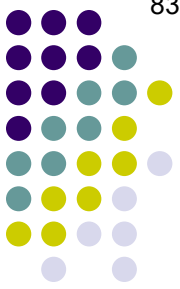


The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

Cavernous hemangioma (aka *cavernous venous malformation*) is the **most v least** common primary orbital lesion in adults

Pathwatching

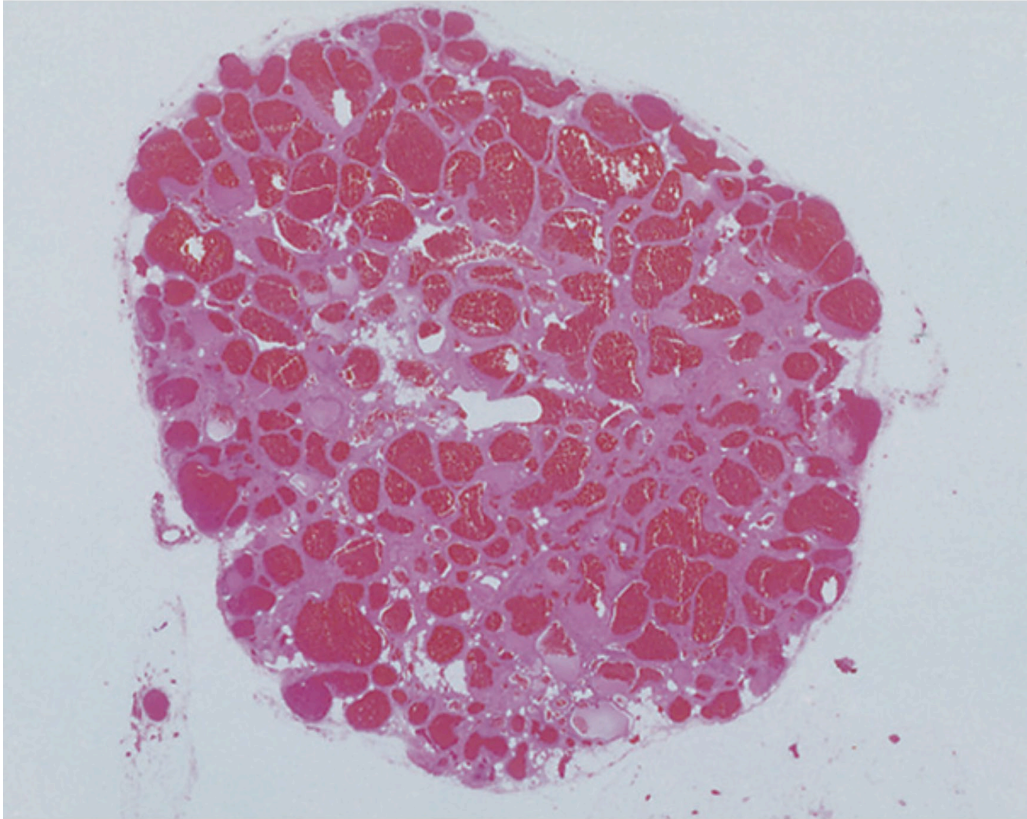
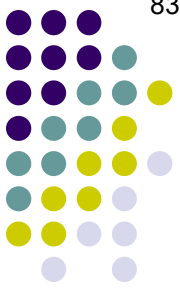


The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

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Pathwatching

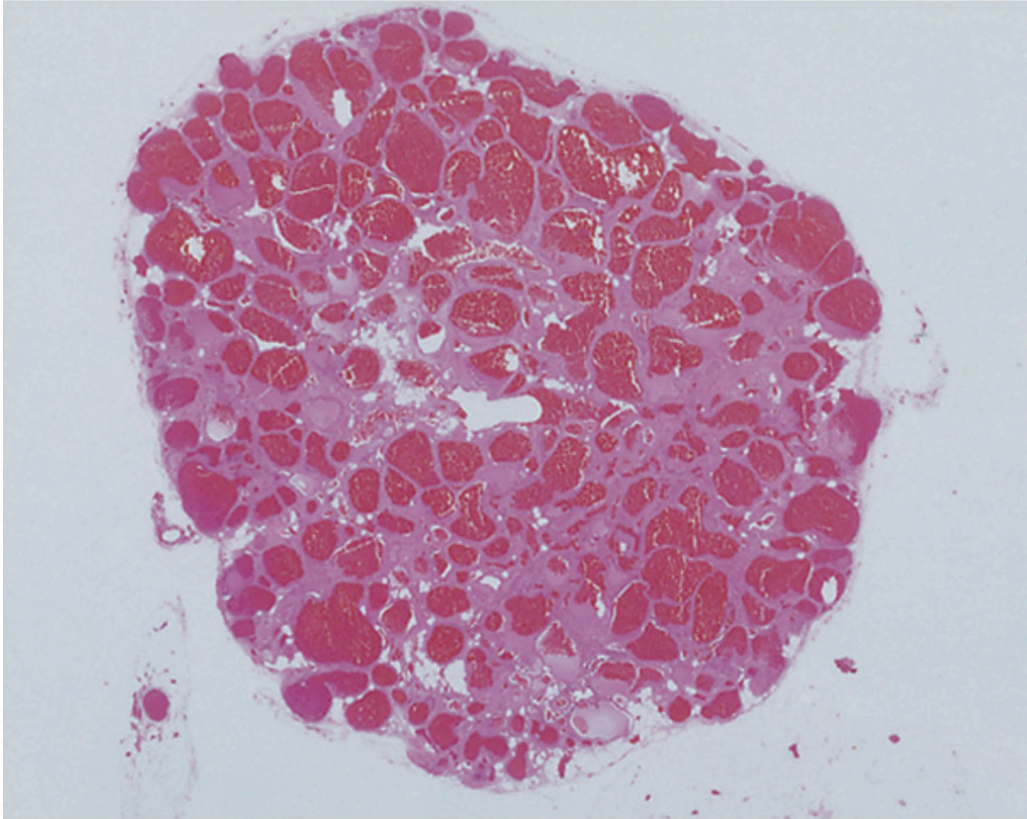
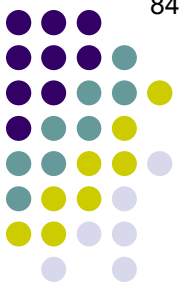


The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

Cavernous hemangioma (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults (usually the range decade).

Pathwatching

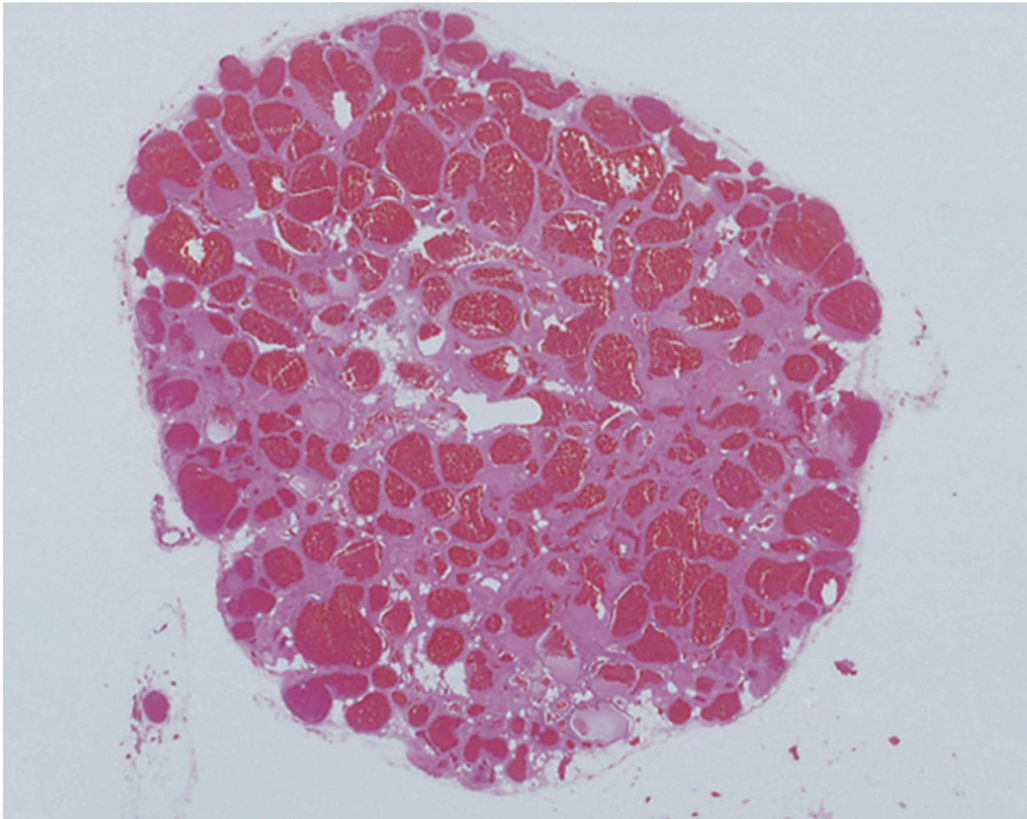
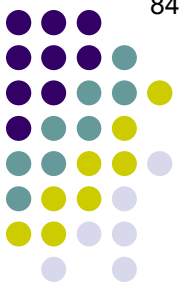


The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

Cavernous hemangioma (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults (usually the 4th to 5th decade).

Pathwatching



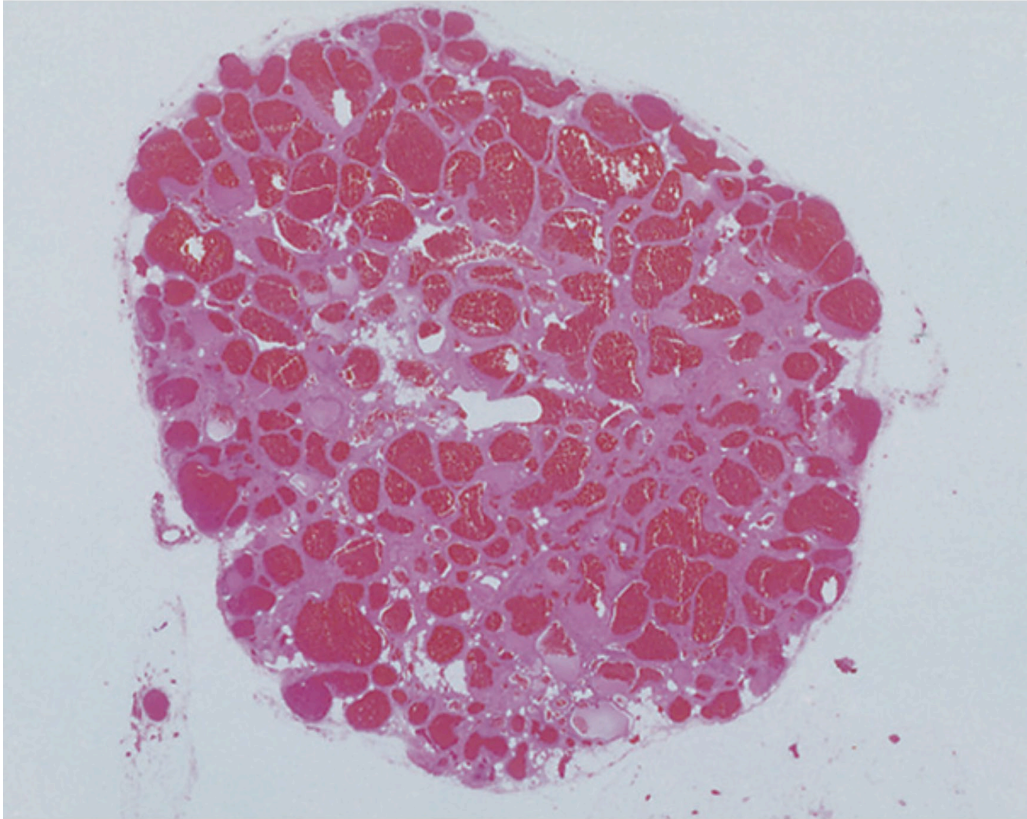
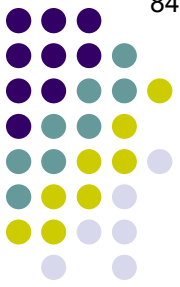
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men vs
women

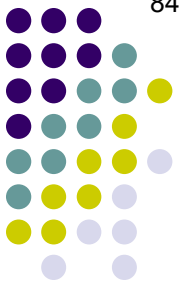
Pathwatching



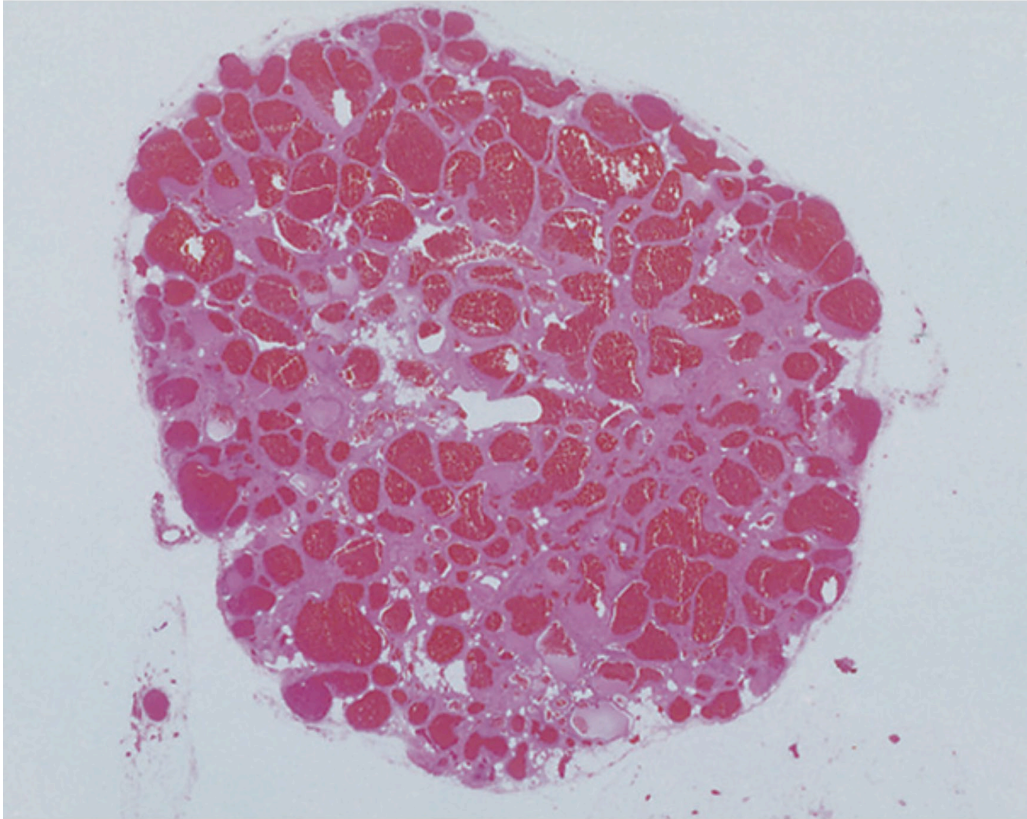
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Pathwatching

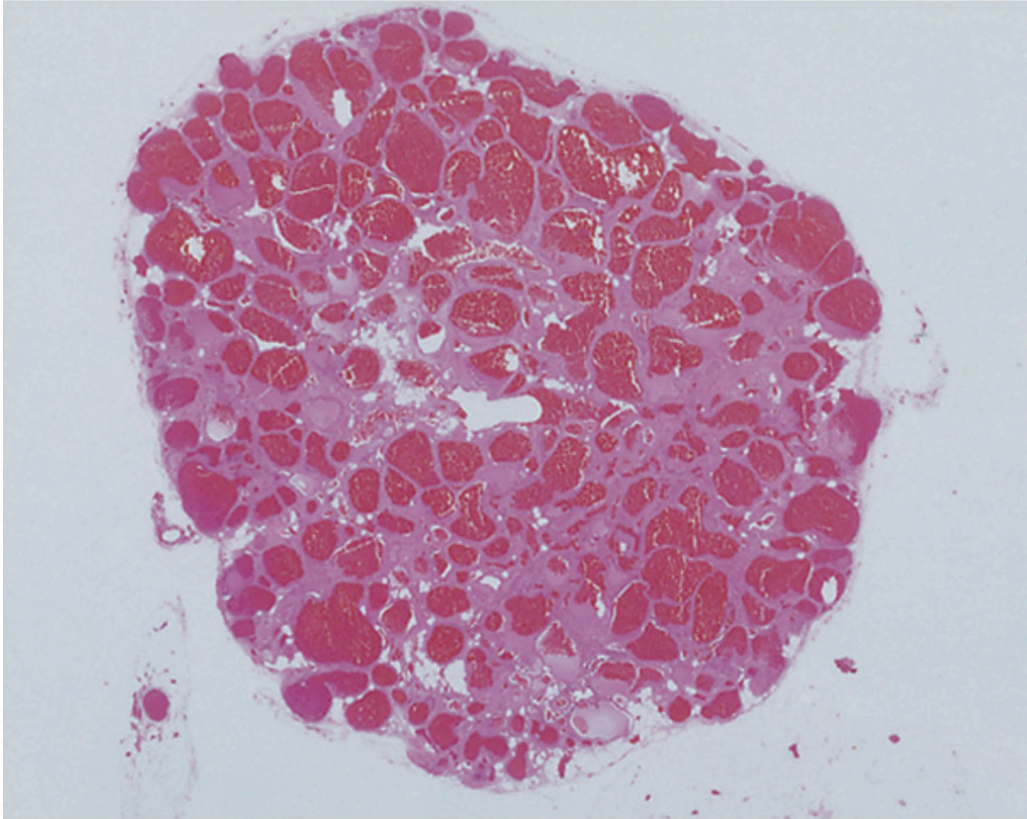
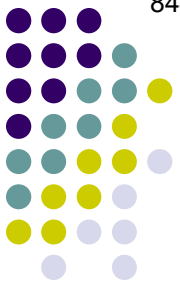


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What's the diagnosis?

Cavernous hemangioma (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults (usually the 4th to 5th decade). More common in women. Presents with slowly vs rapidly progressive and painful vs painless proptosis.

Pathwatching



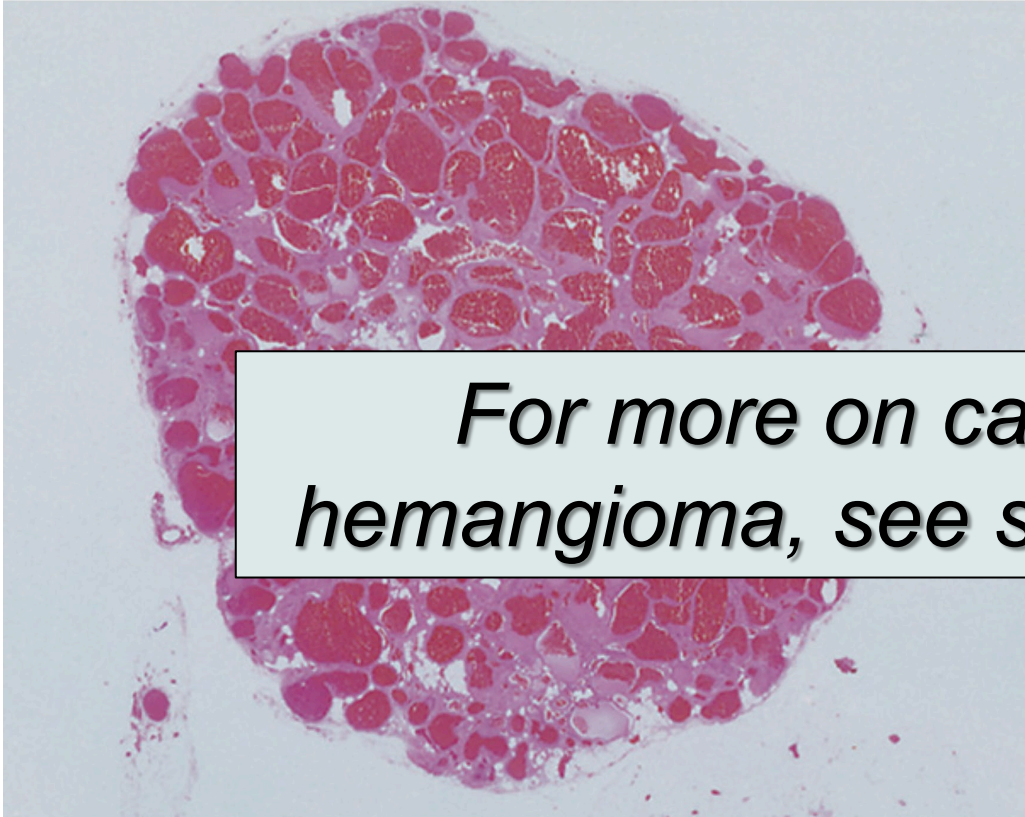
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Pathwatching



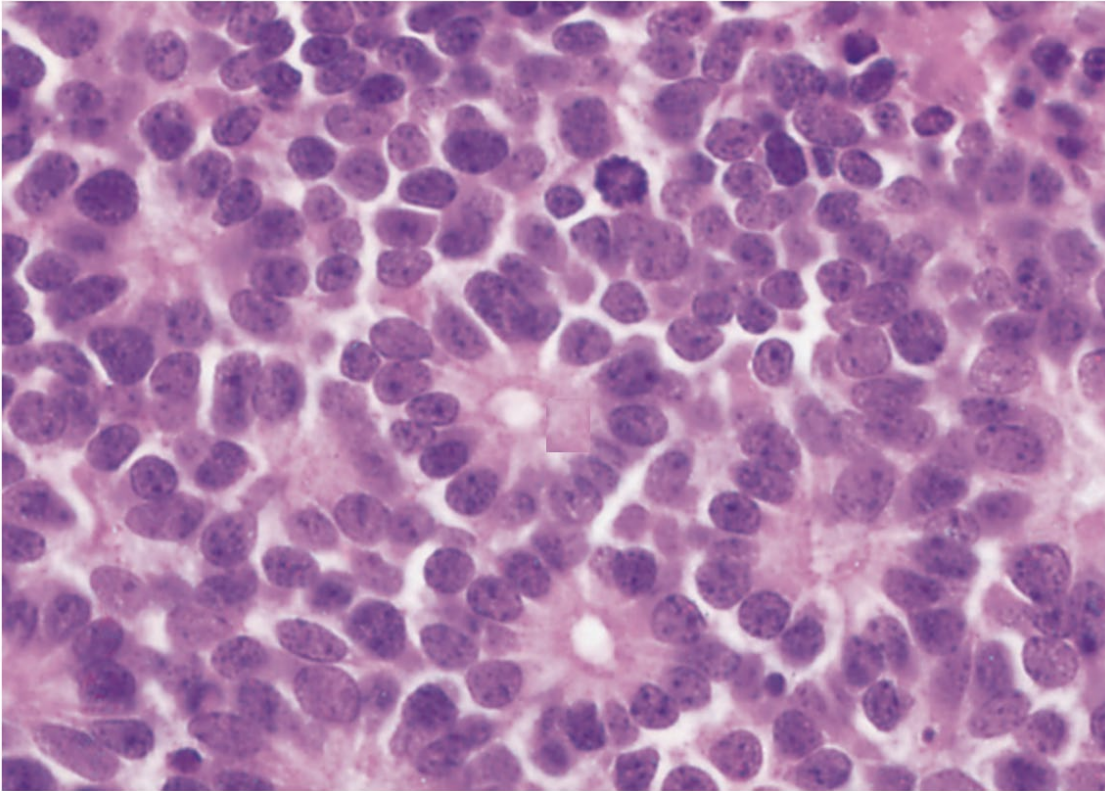
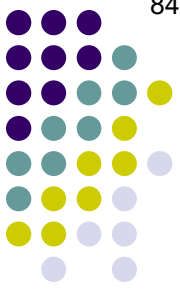
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For more on cavernous hemangioma, see slide-set O10

What's the diagnosis?

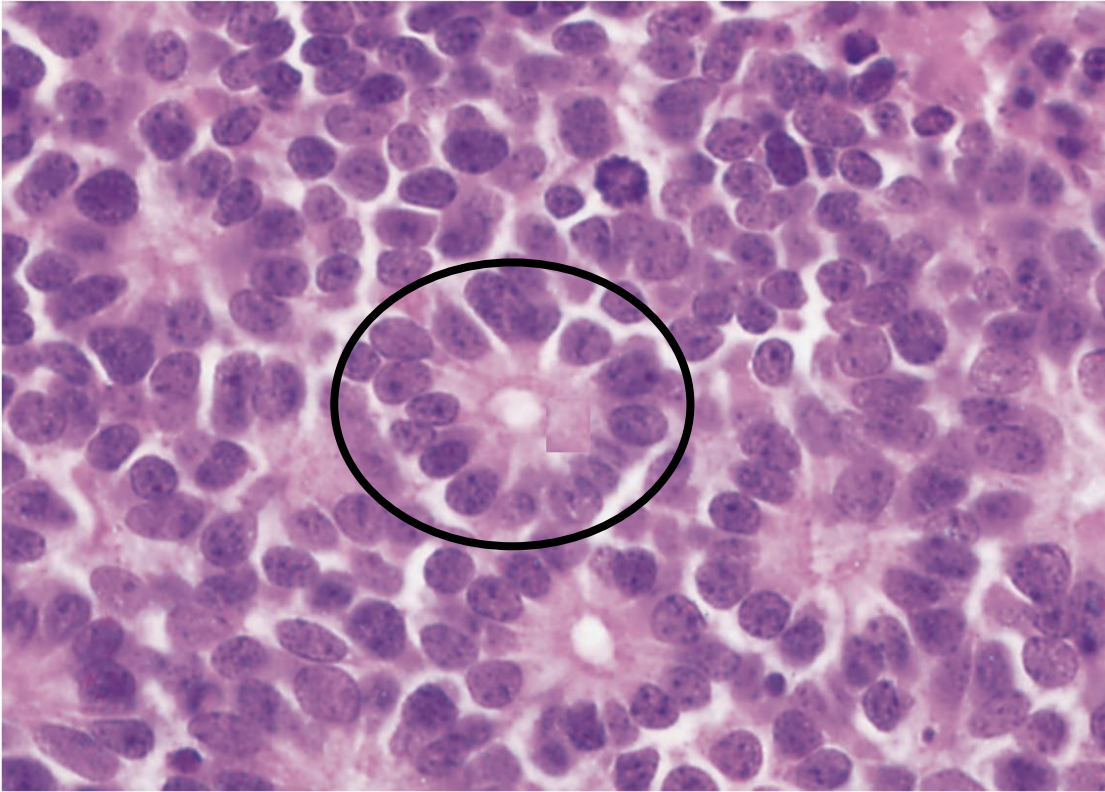
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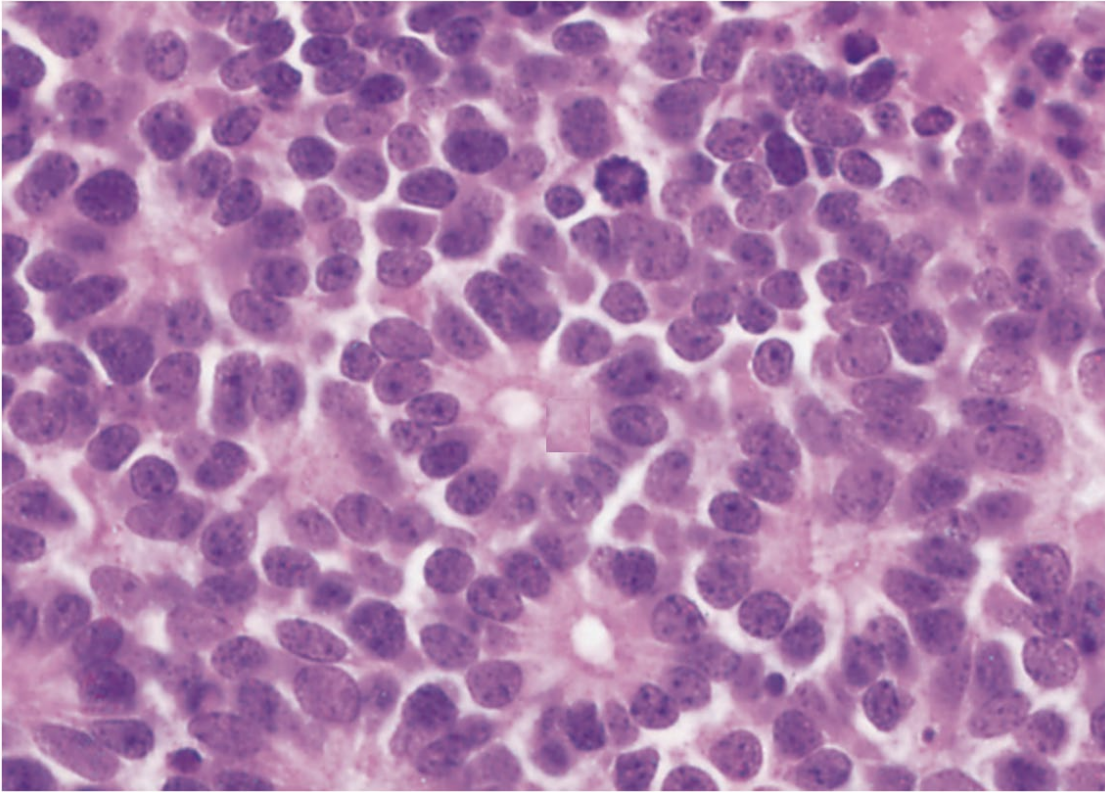
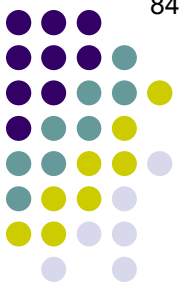
There is a classic finding here of a high-profile ophthalmic condition—can you find it?

Pathwatching



There is a classic finding here of a high-profile ophthalmic condition—can you find it? **This** is it.

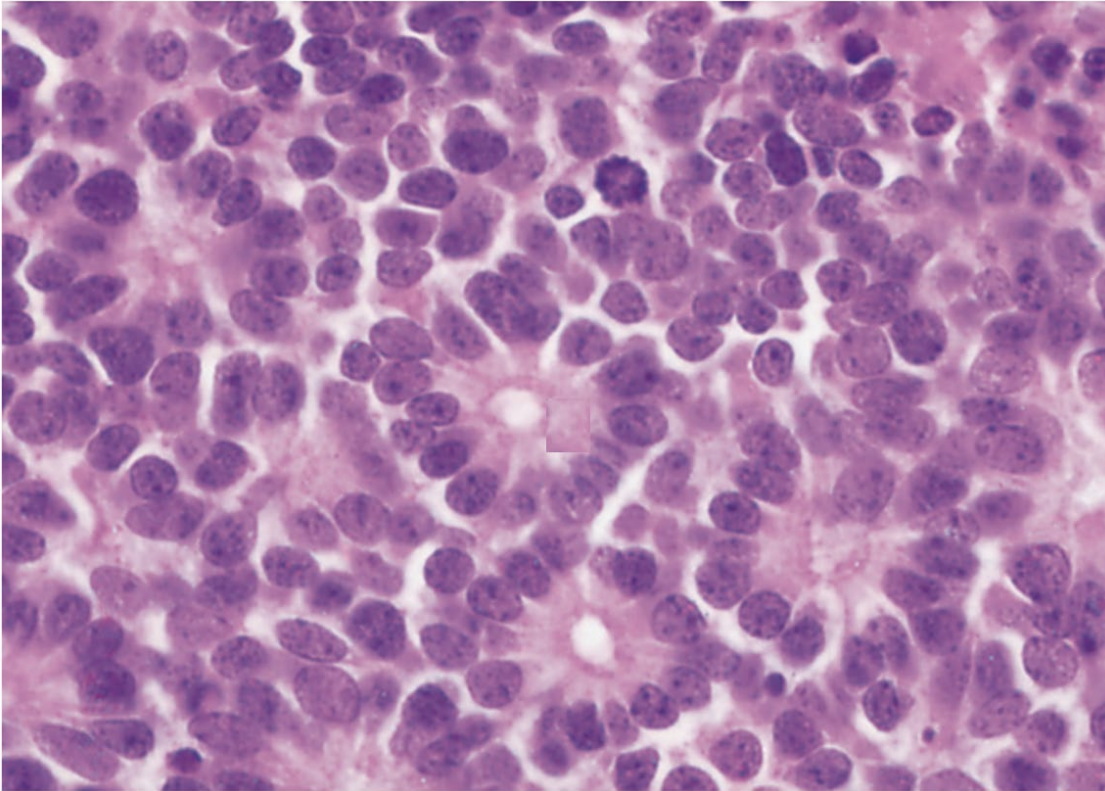
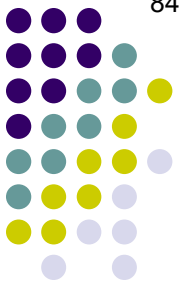
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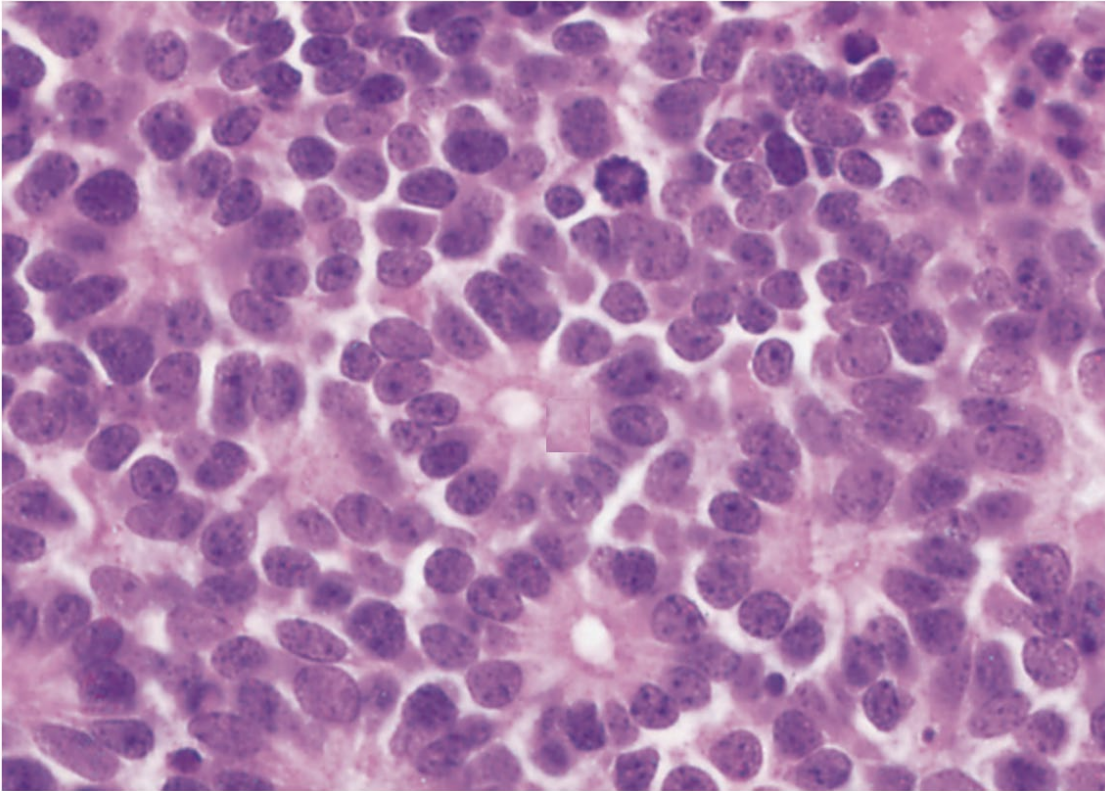
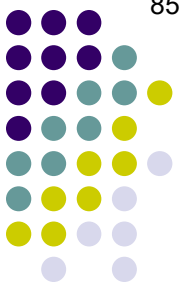
What's the diagnosis?

two words

rosettes in

disease

Pathwatching

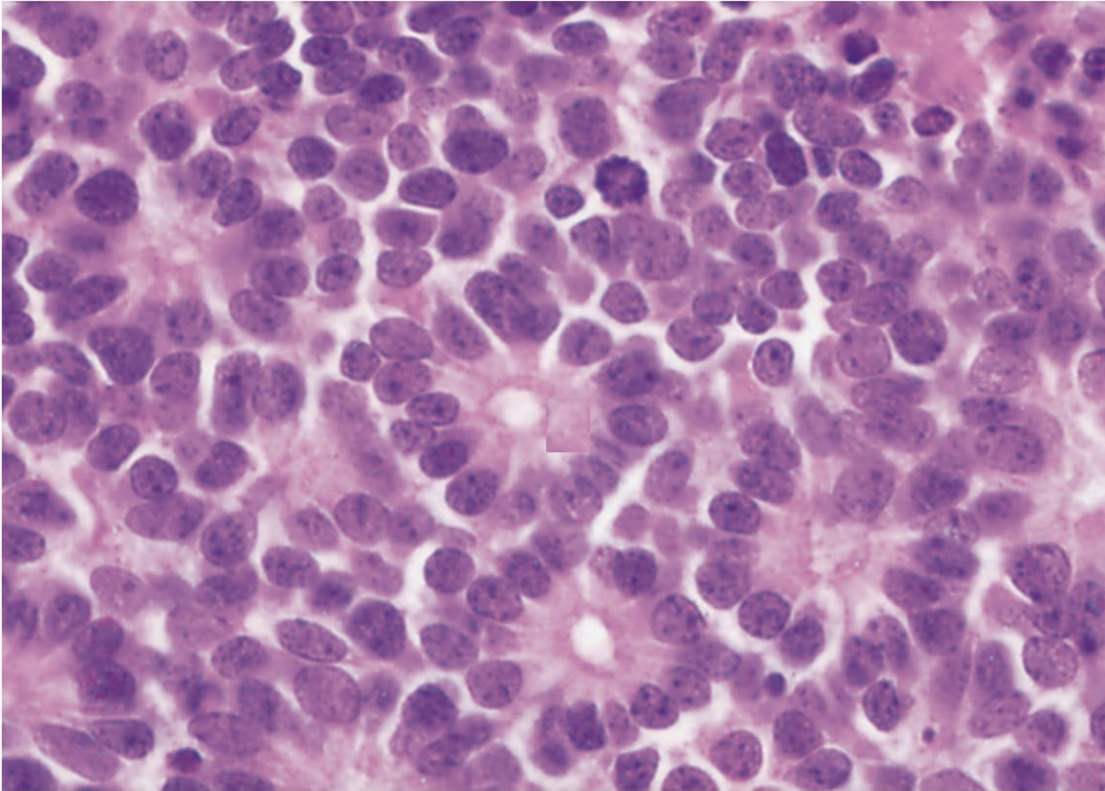
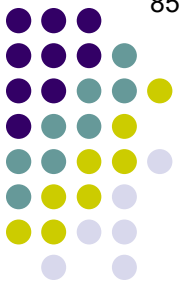


There is a classic finding here of a high-profile ophthalmic condition—can you find it? **This** is it.

What's the diagnosis?

Flexner-Wintersteiner rosettes in retinoblastoma (Rb) .

Pathwatching

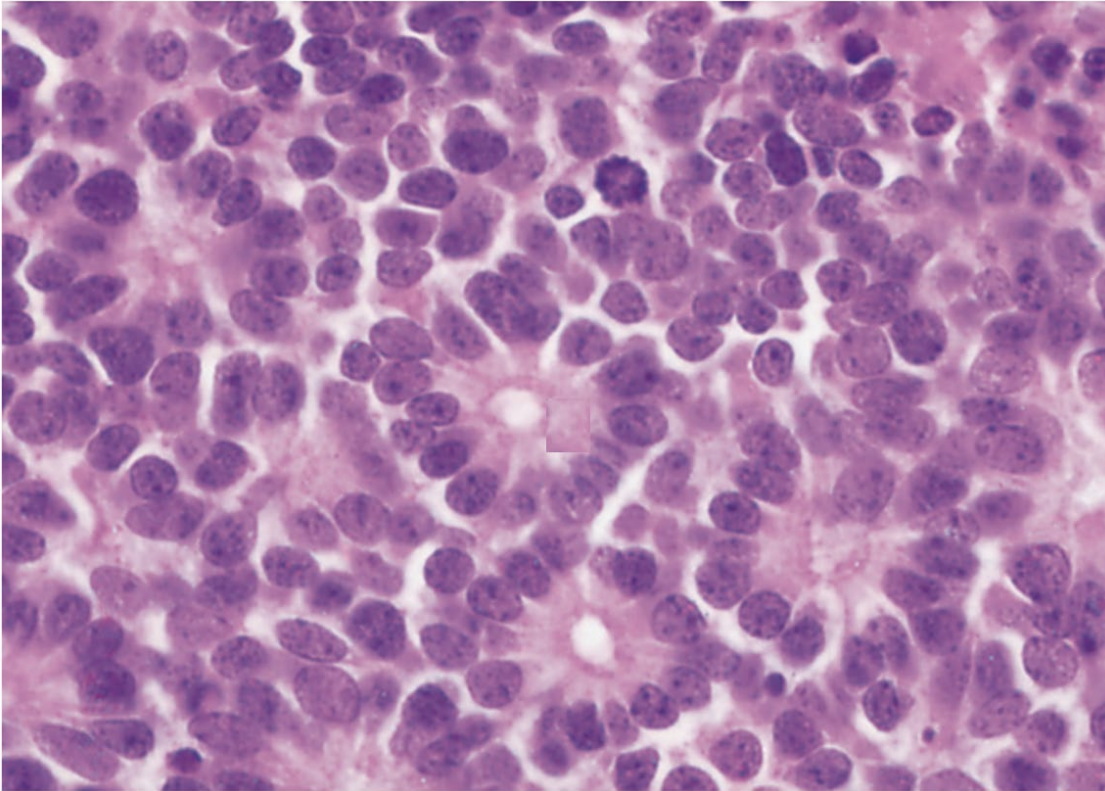
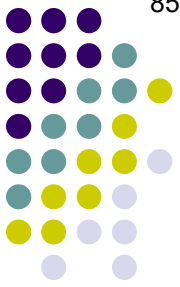


There is a classic finding here of a high-profile ophthalmic condition—can you find it? **This** is it.

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Flexner-Wintersteiner rosettes in **retinoblastoma (Rb)** Is vs
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Pathwatching

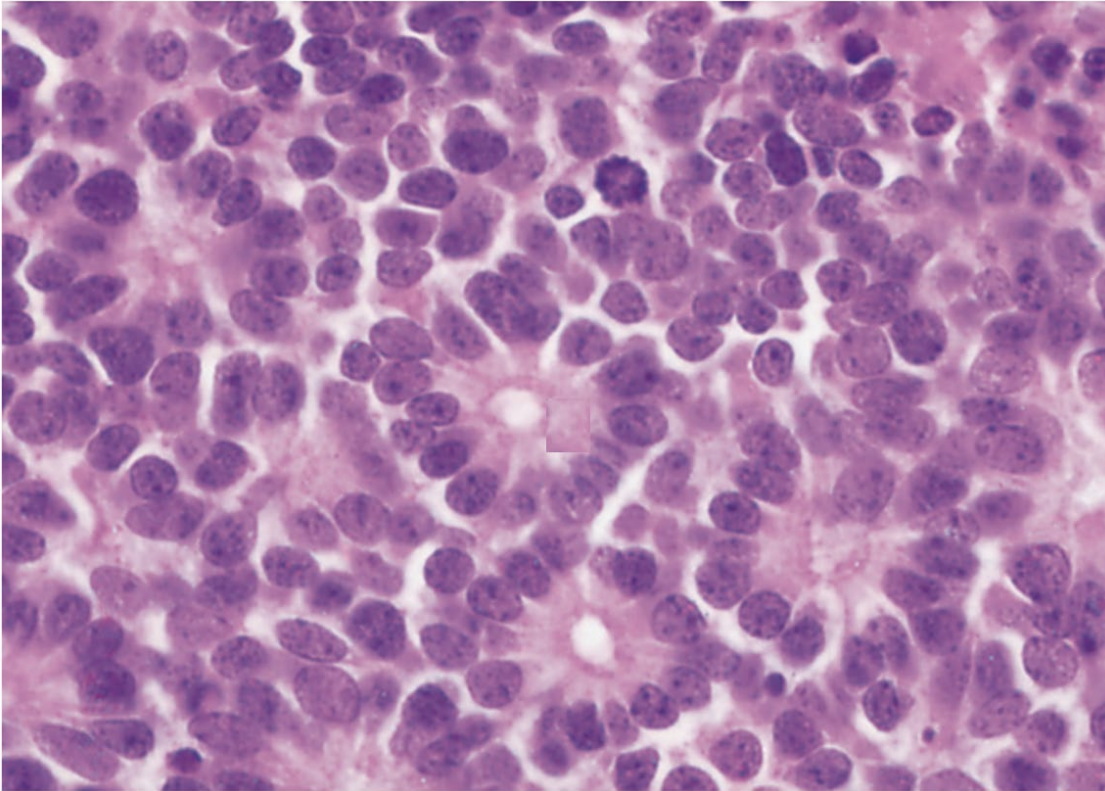
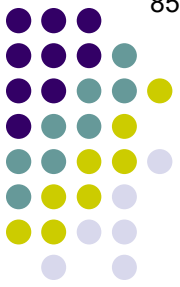


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Pathwatching

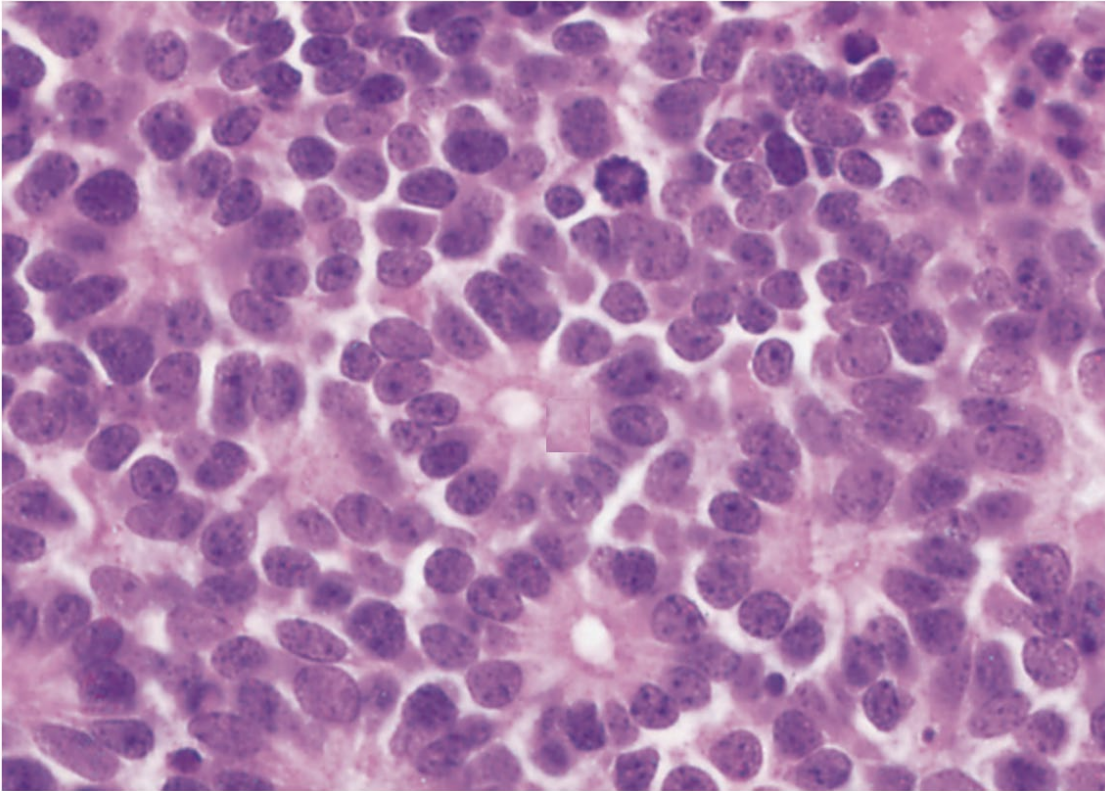
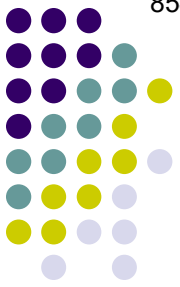


There is a classic finding here of a high-profile ophthalmic condition—can you find it? **This** is it.

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Flexner-Wintersteiner rosettes in **retinoblastoma** (Rb). **Not pathognomonic** for Rb, but they are only rarely found in other general cell type tumors.

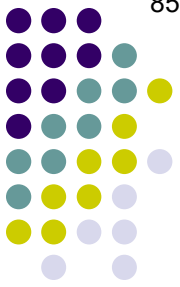
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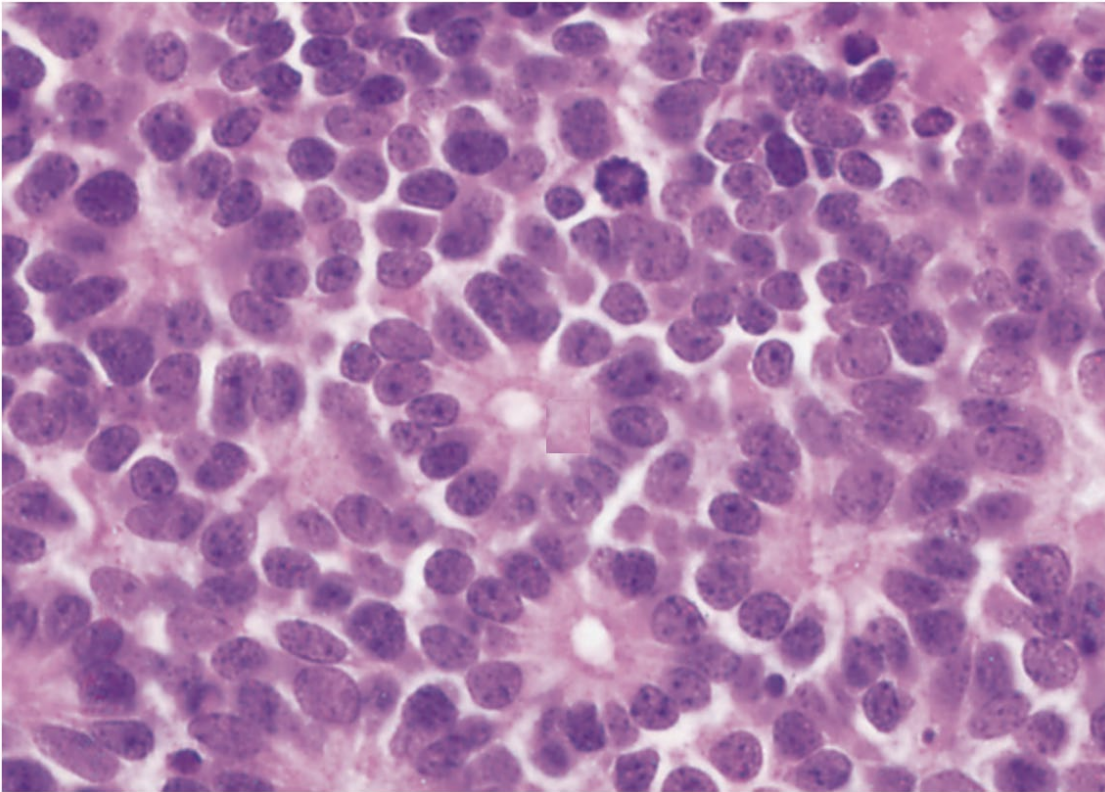
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Pathwatching

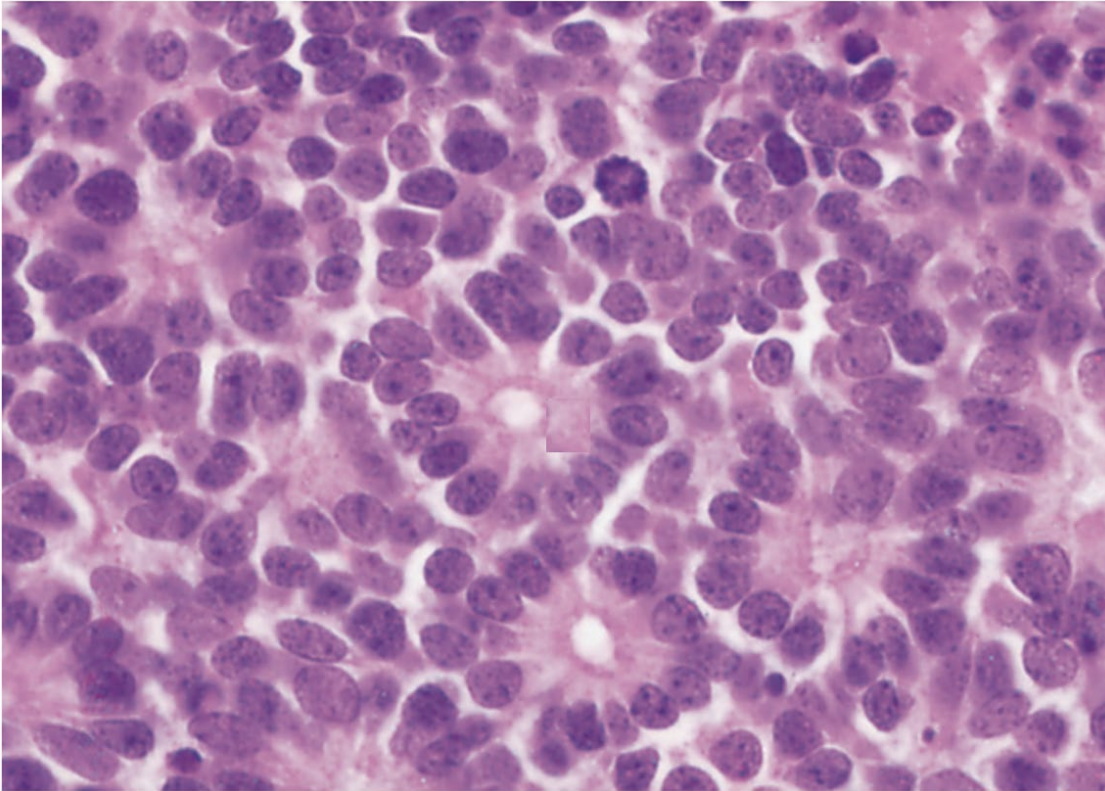
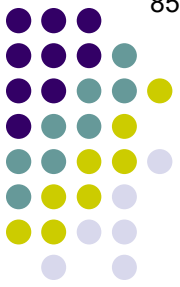


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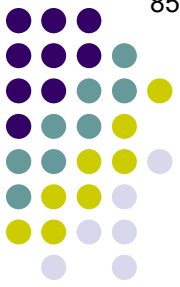
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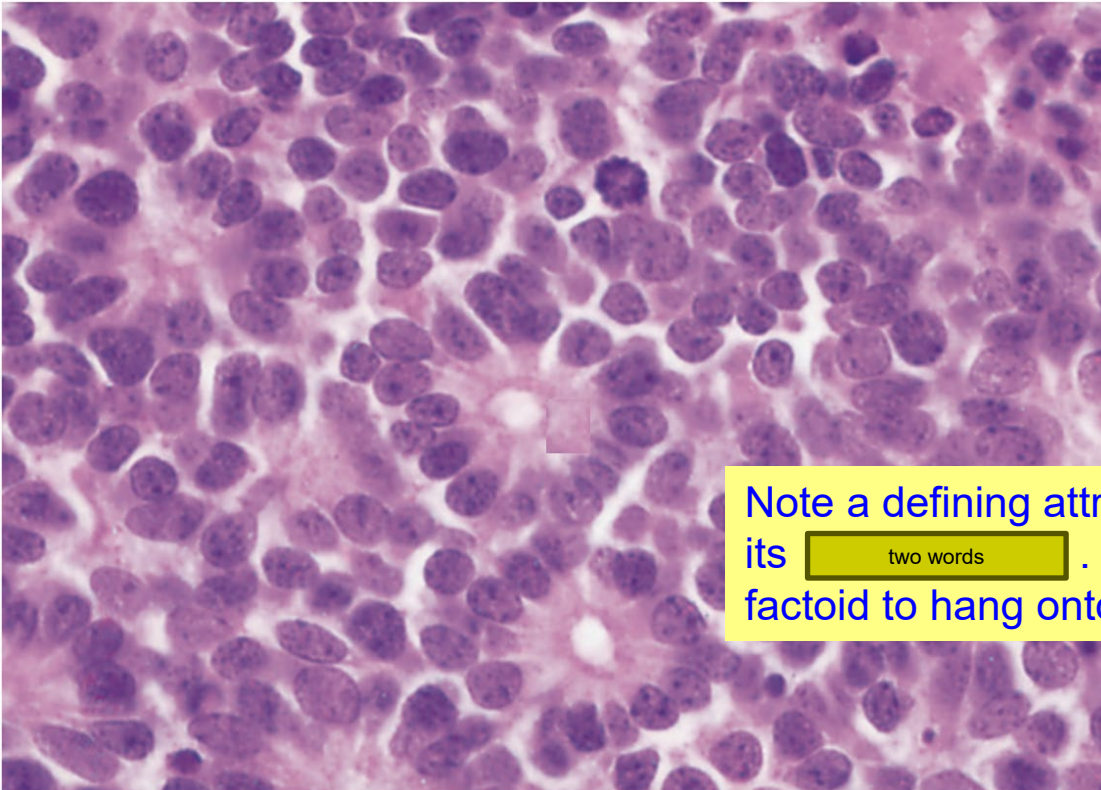
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Pathwatching



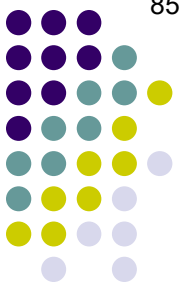
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Note a defining attribute of the F-W rosette—its . (This is an important factoid to hang onto.)

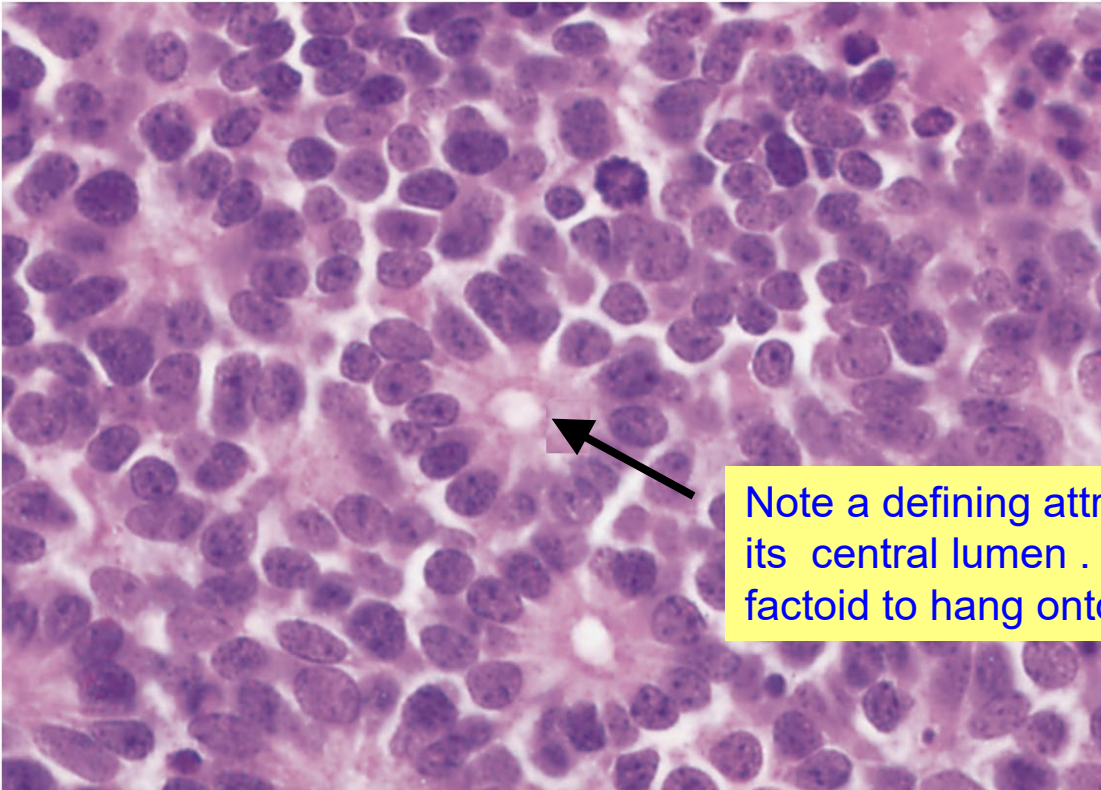
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Flexner-Wintersteiner rosettes in **retinoblastoma** (Rb) . Not pathognomonic for Rb, but they are only rarely found in other neuroblastic tumors. Represents differentiation of the tumor, ie, an attempt to form mature retinal tissue.

Pathwatching



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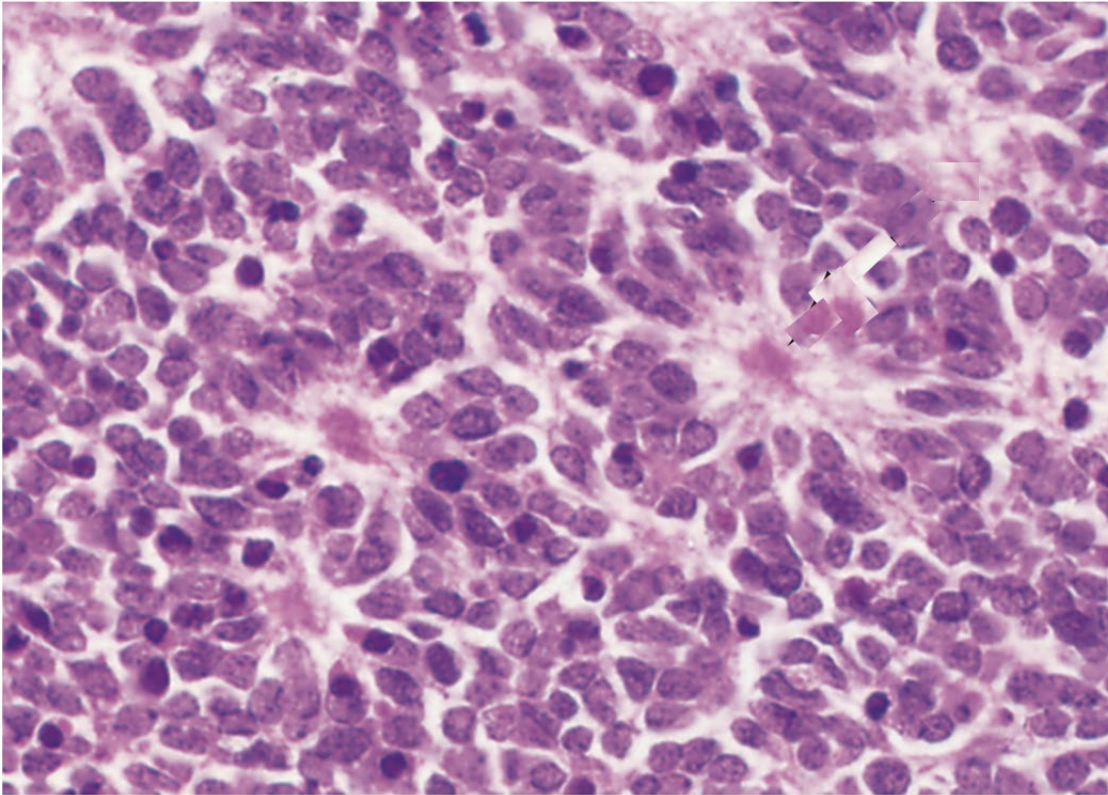
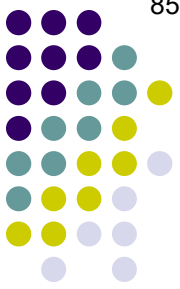


Note a defining attribute of the F-W rosette—its central lumen. (This is an important factoid to hang onto.)

What's the diagnosis?

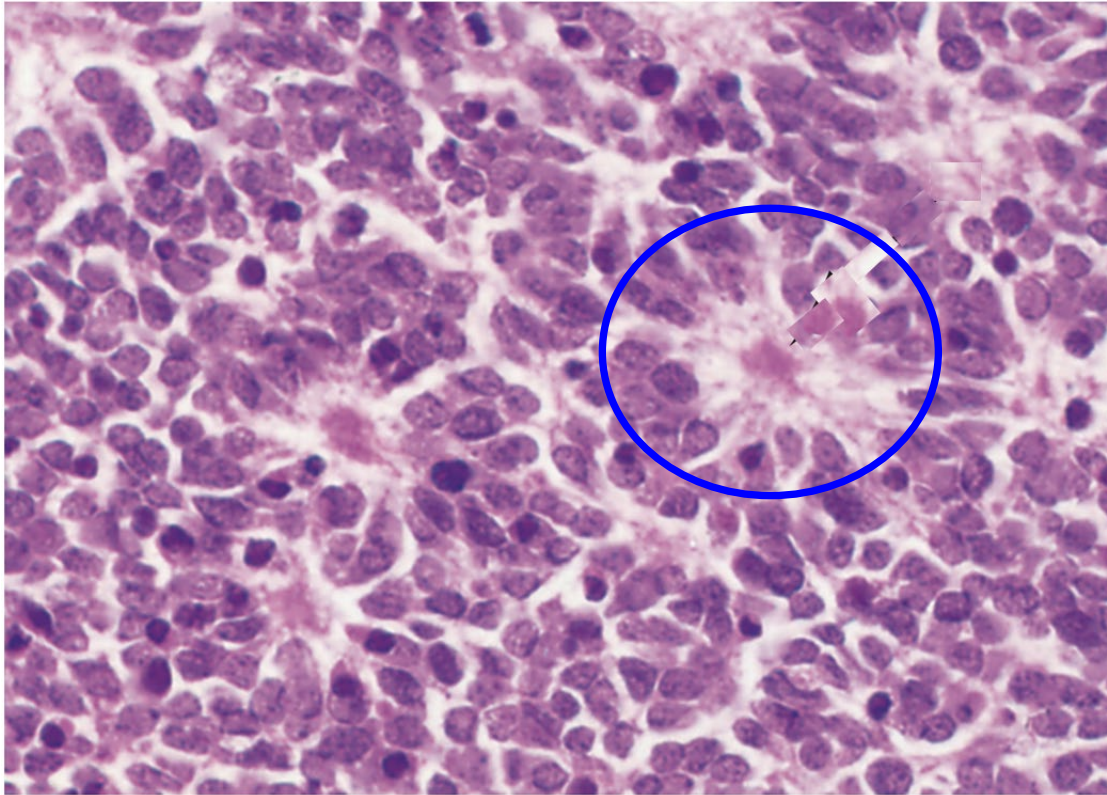
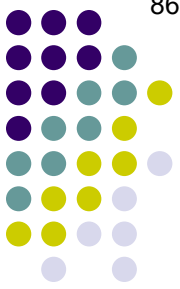
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Pathwatching



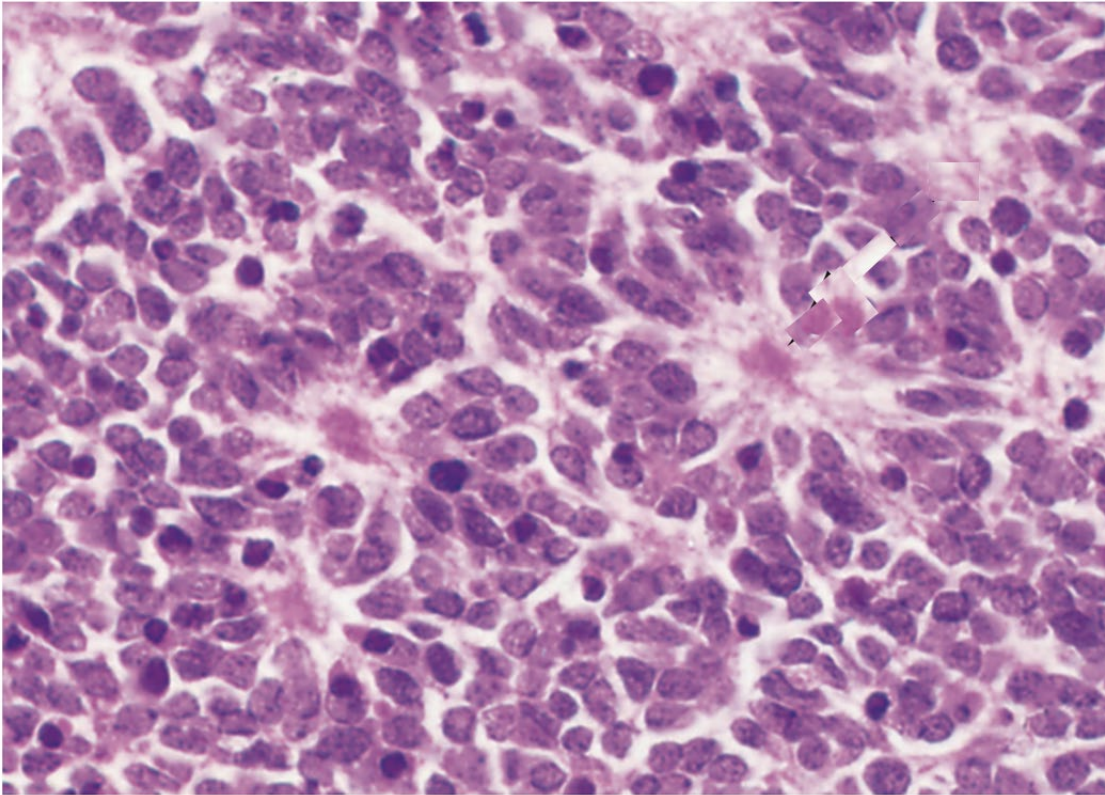
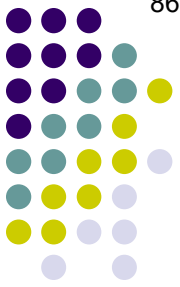
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it?

Pathwatching



Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? [Here it is.](#)

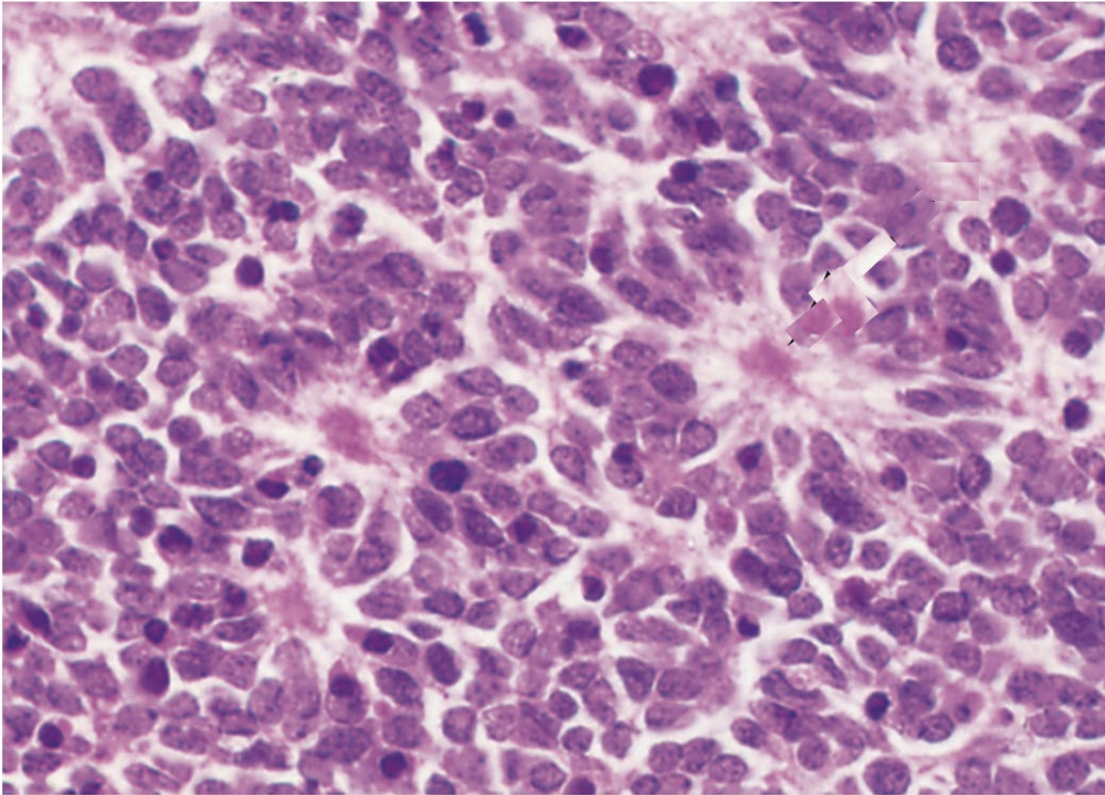
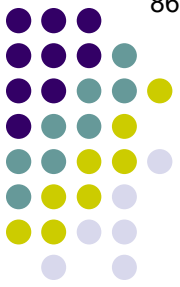
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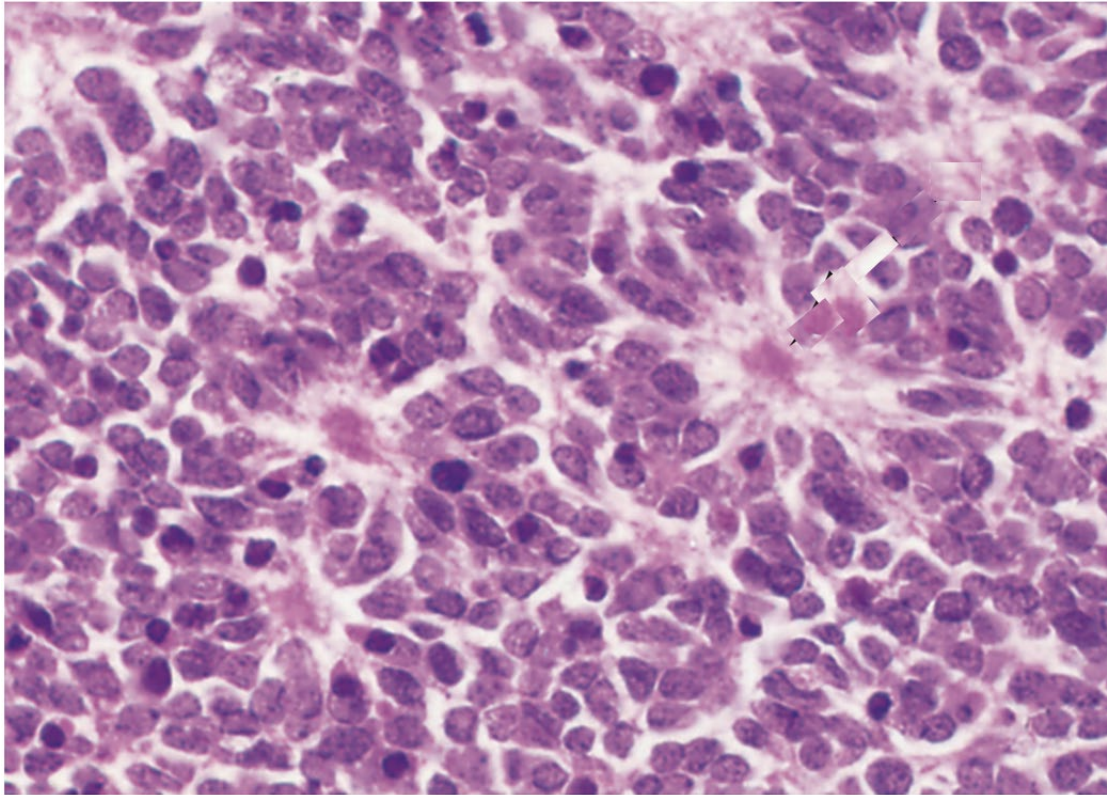
What's the finding?

two words

rosettes in **retinoblastoma (Rb)** .

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Pathwatching

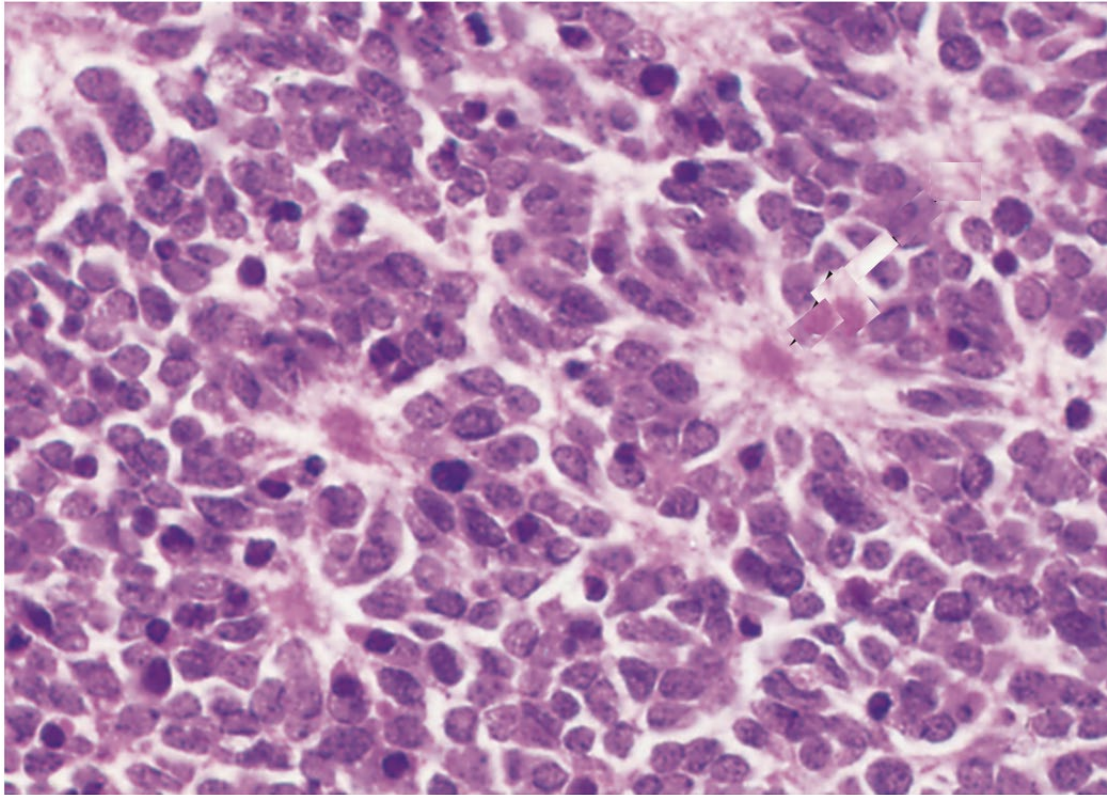
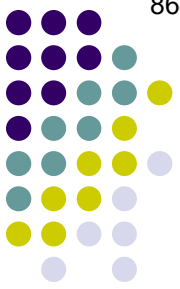


What's the finding?

Homer Wright rosettes in **retinoblastoma (Rb)** .

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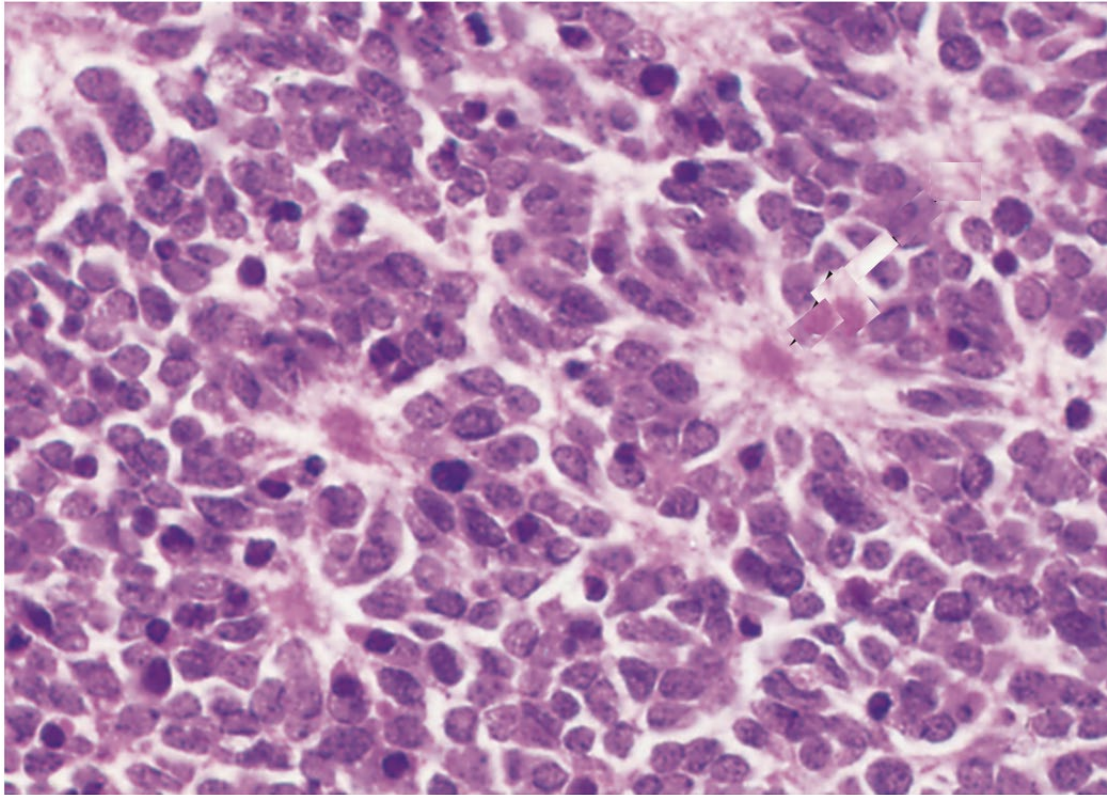
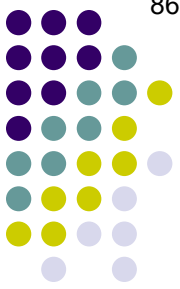


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Homer Wright rosettes in **retinoblastoma (Rb)** Is vs
Is not **pathognomonic for Rb**

Pathwatching

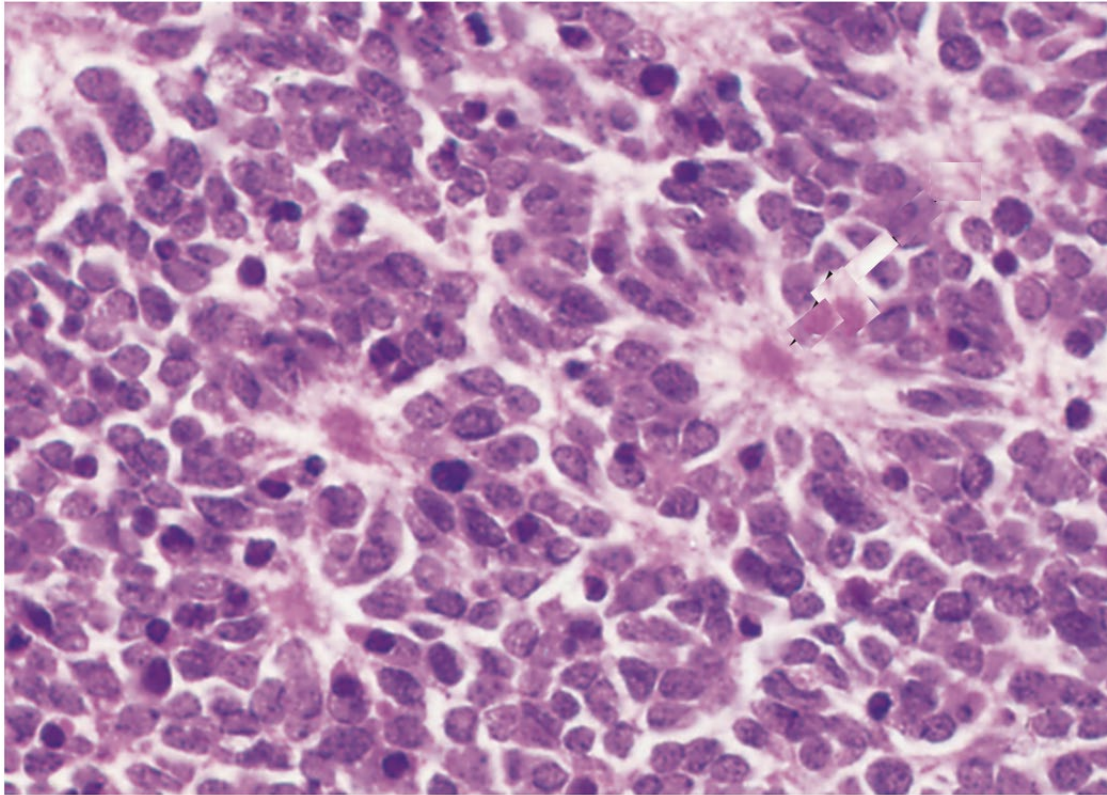
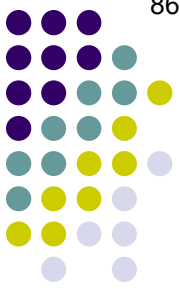


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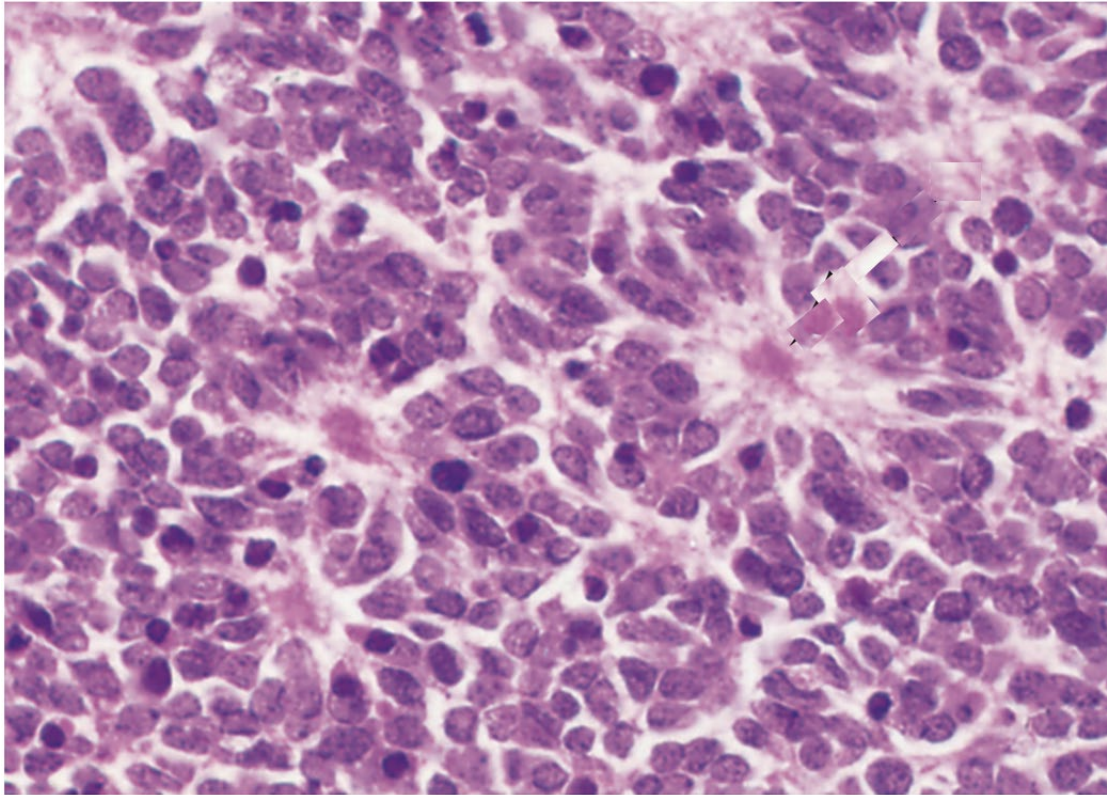
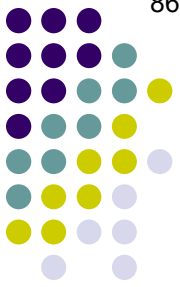


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Homer Wright rosettes in **retinoblastoma (Rb)**. **Not pathognomonic for Rb**; they are found in other **general cell type** tumors.

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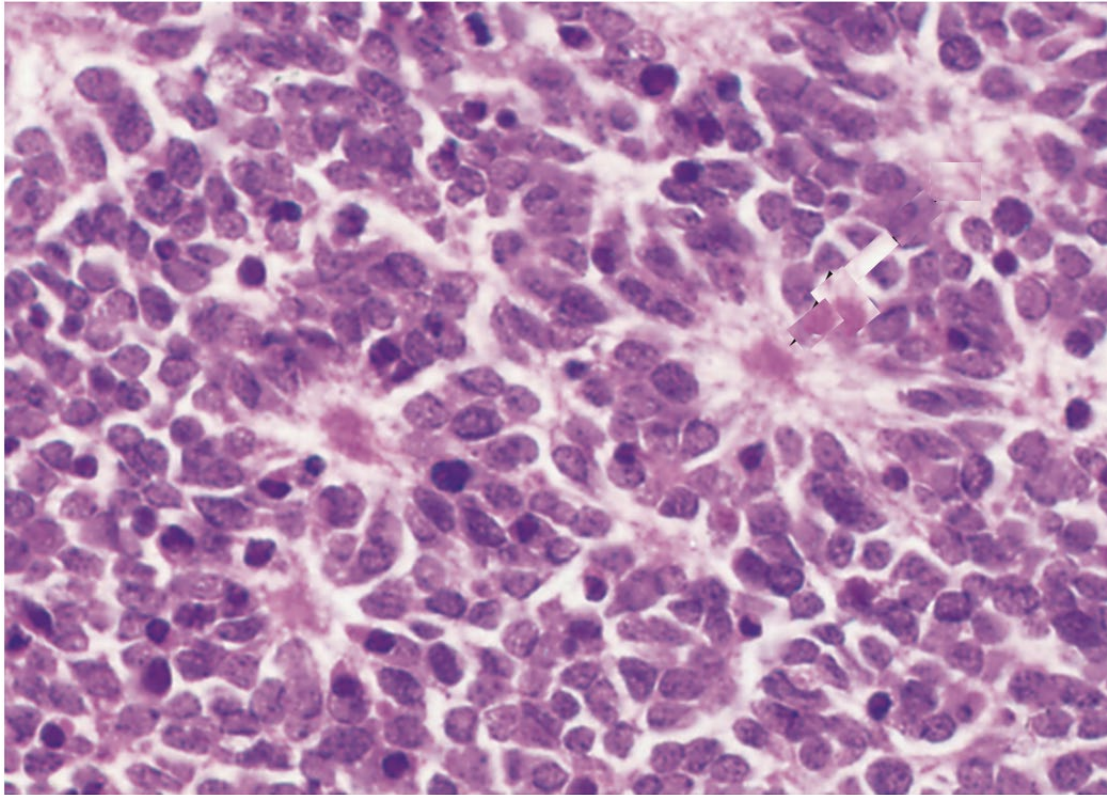
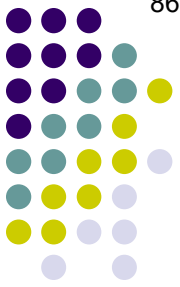


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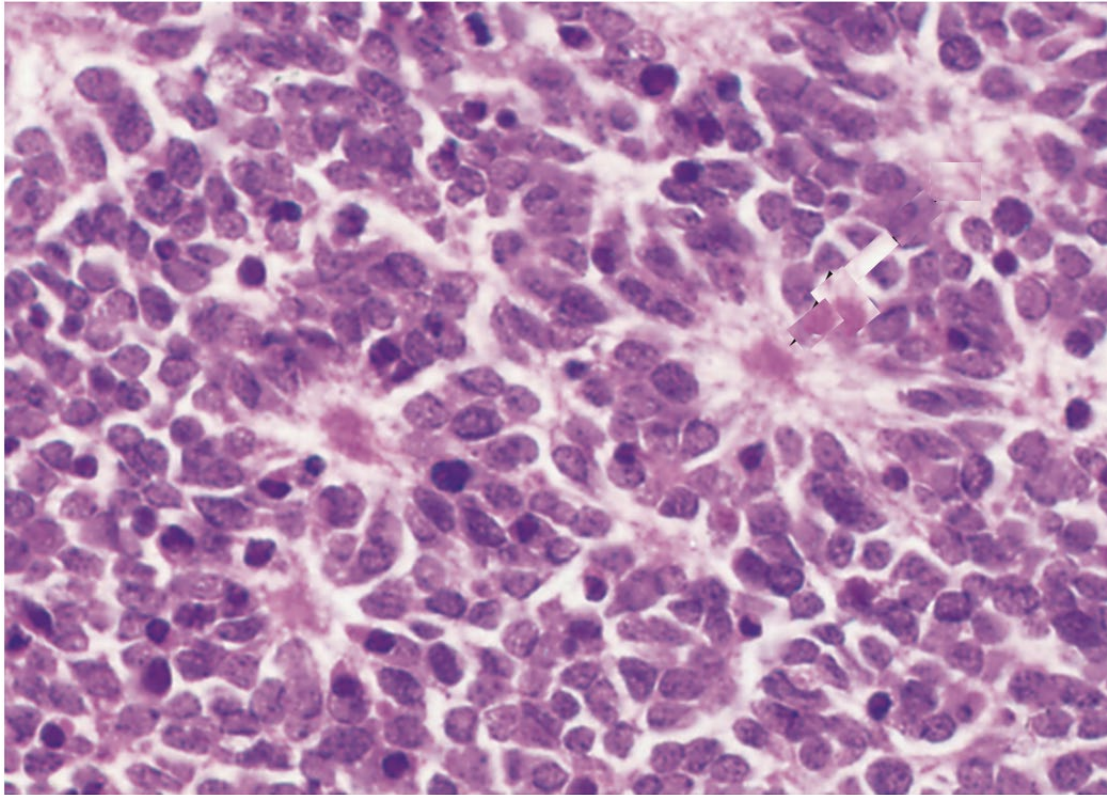
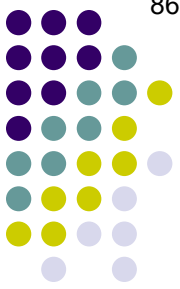


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Homer Wright rosettes in **retinoblastoma (Rb)**. **Not pathognomonic for Rb**; they are found in other neuroblastic tumors. **Also represents tumor** process.

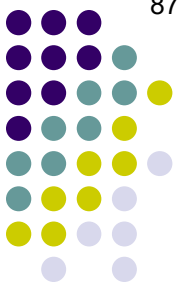
Pathwatching



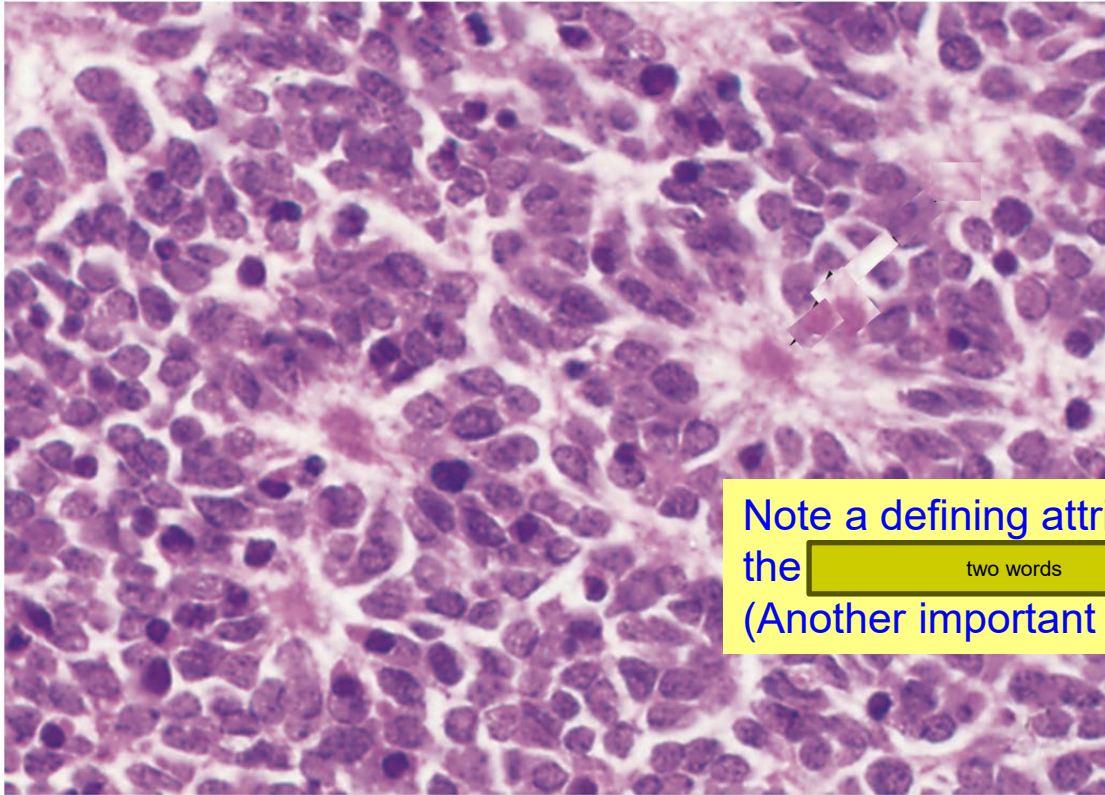
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Pathwatching

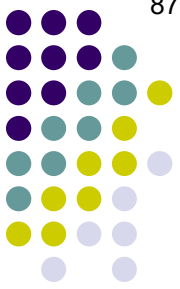


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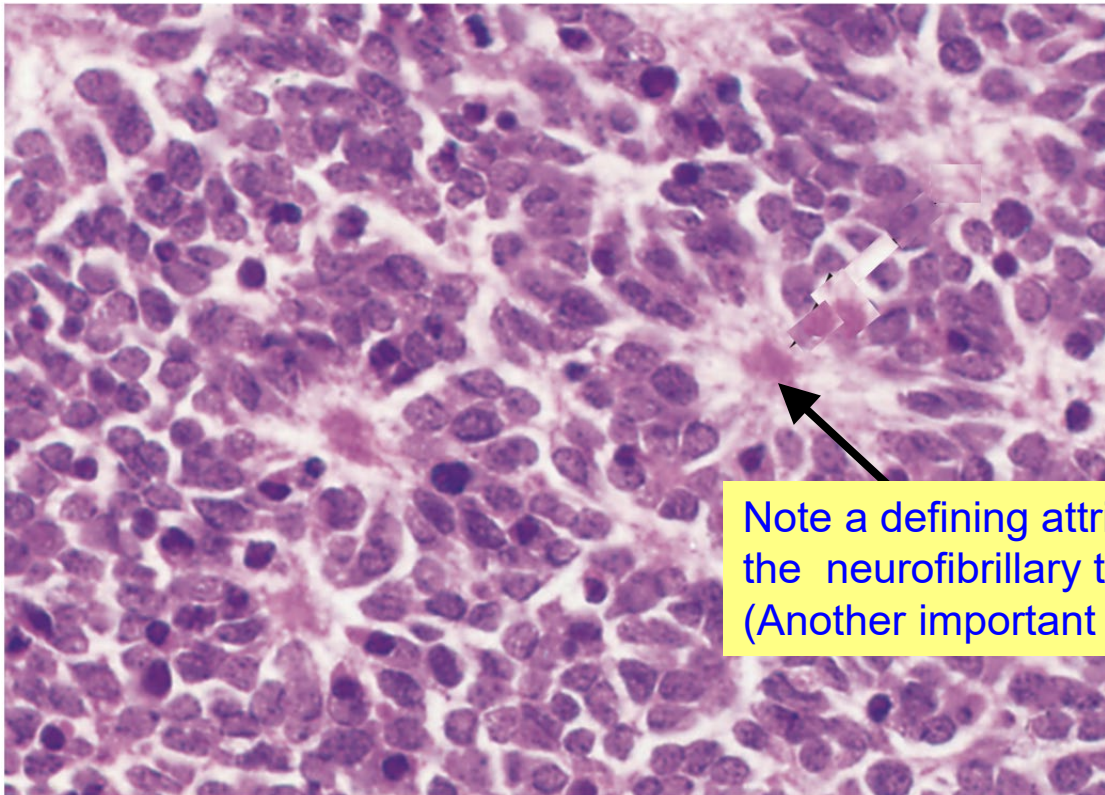
Note a defining attribute of the HW rosette—the at its center.
(Another important factoid.)

What's the finding?

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Pathwatching



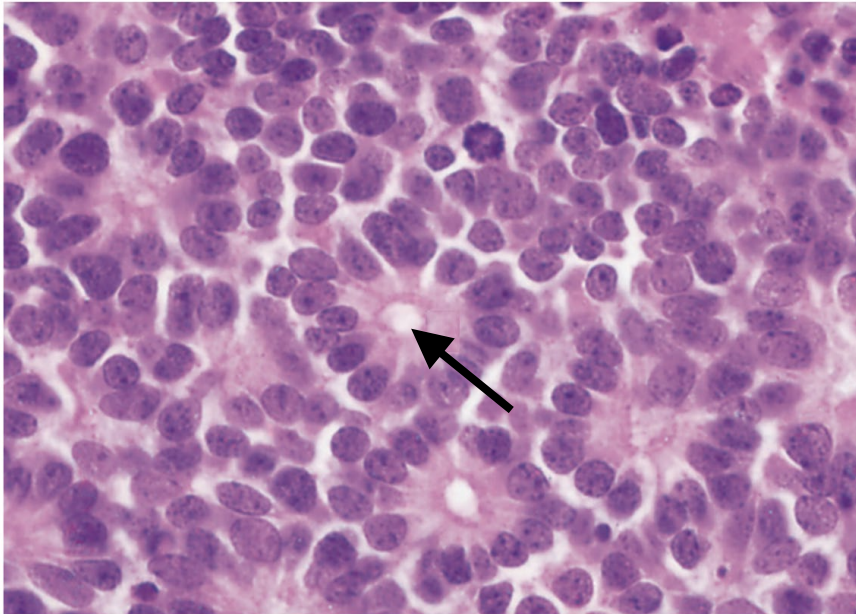
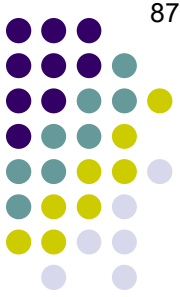
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? **Here** it is.

Note a defining attribute of the HW rosette—the neurofibrillary tangle at its center. (Another important factoid.)

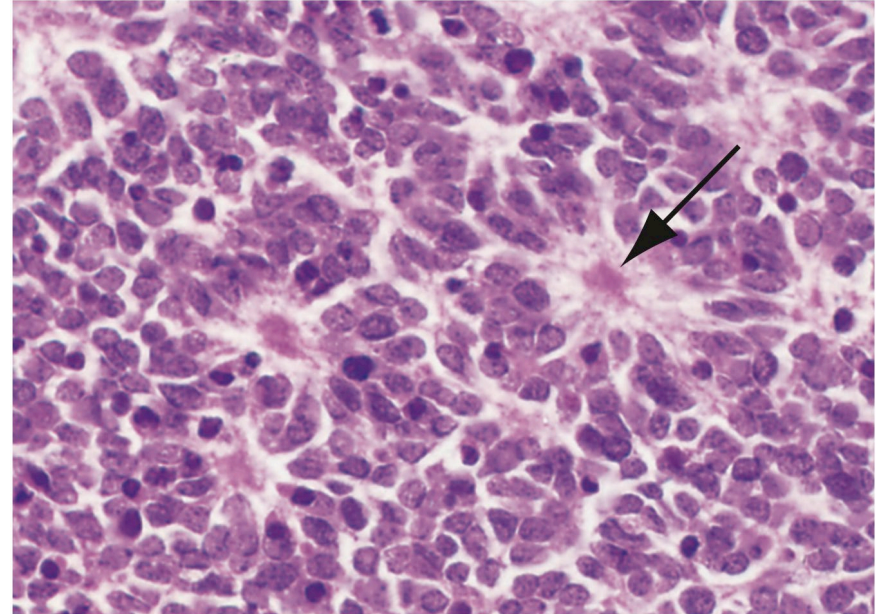
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Pathwatching



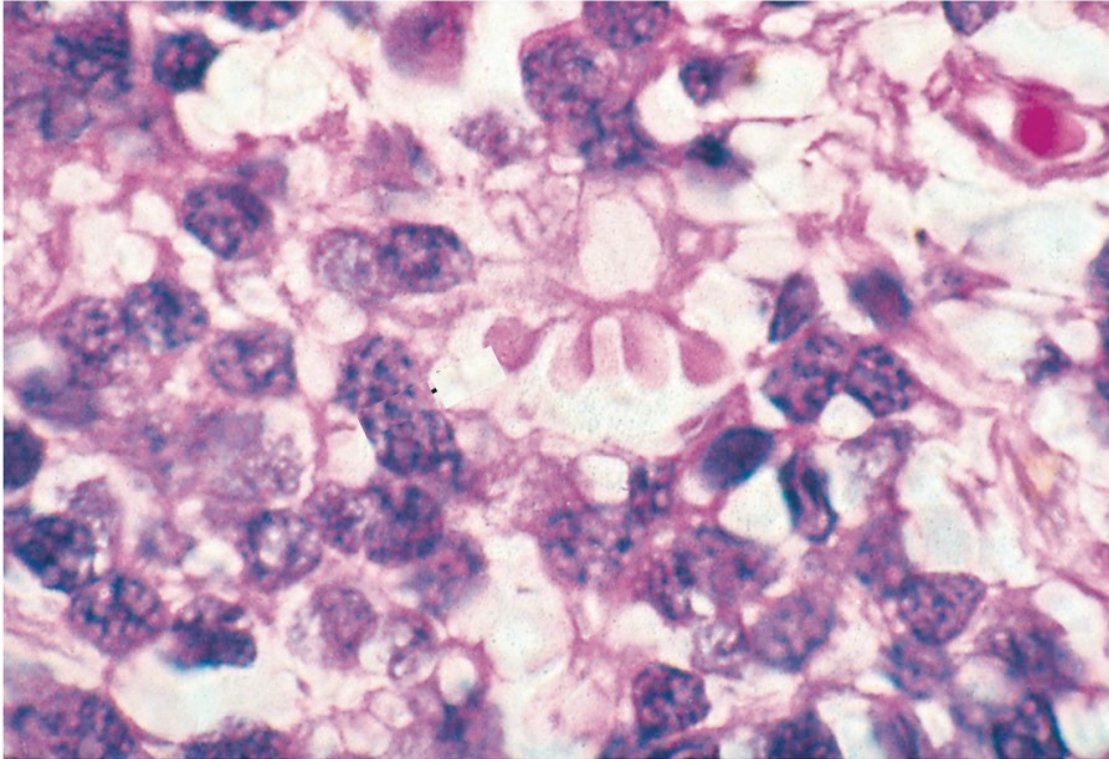
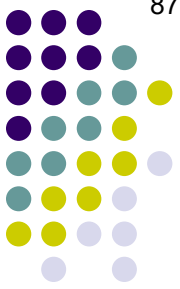
F-W rosette: Empty central lumen



HW rosette: Neurofibrillary tangle centrally

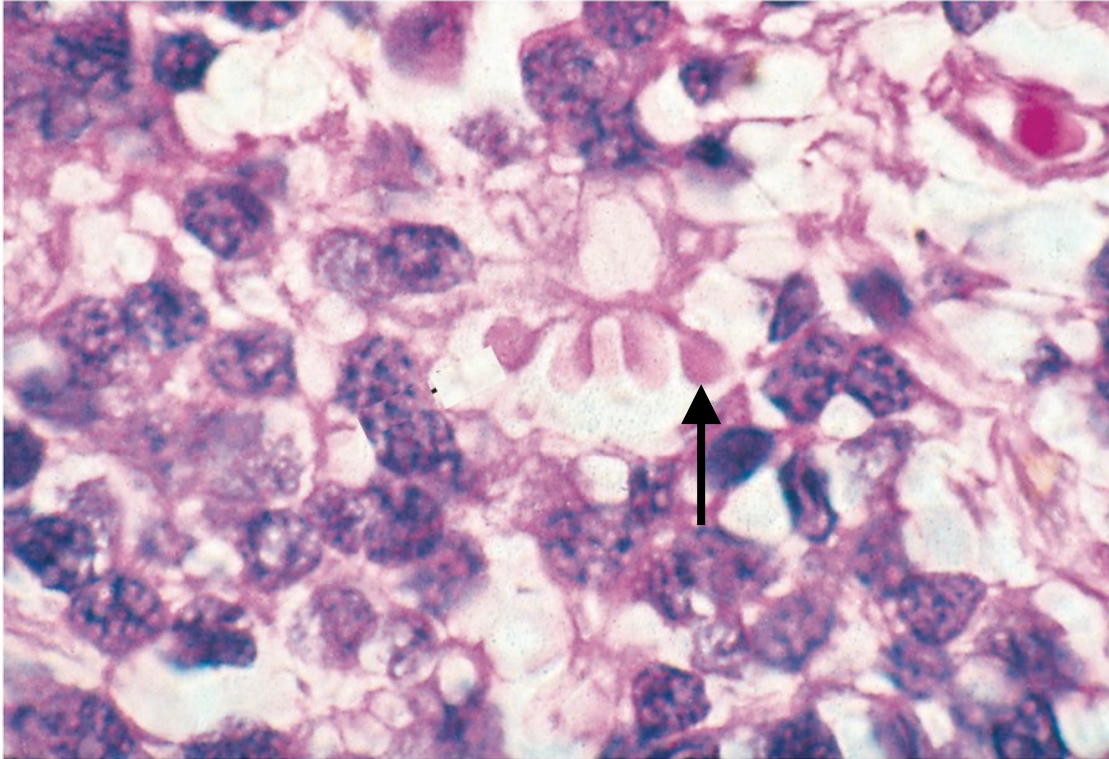
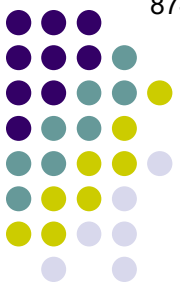
Flexner-Wintersteiner vs Homer Wright rosettes

Pathwatching



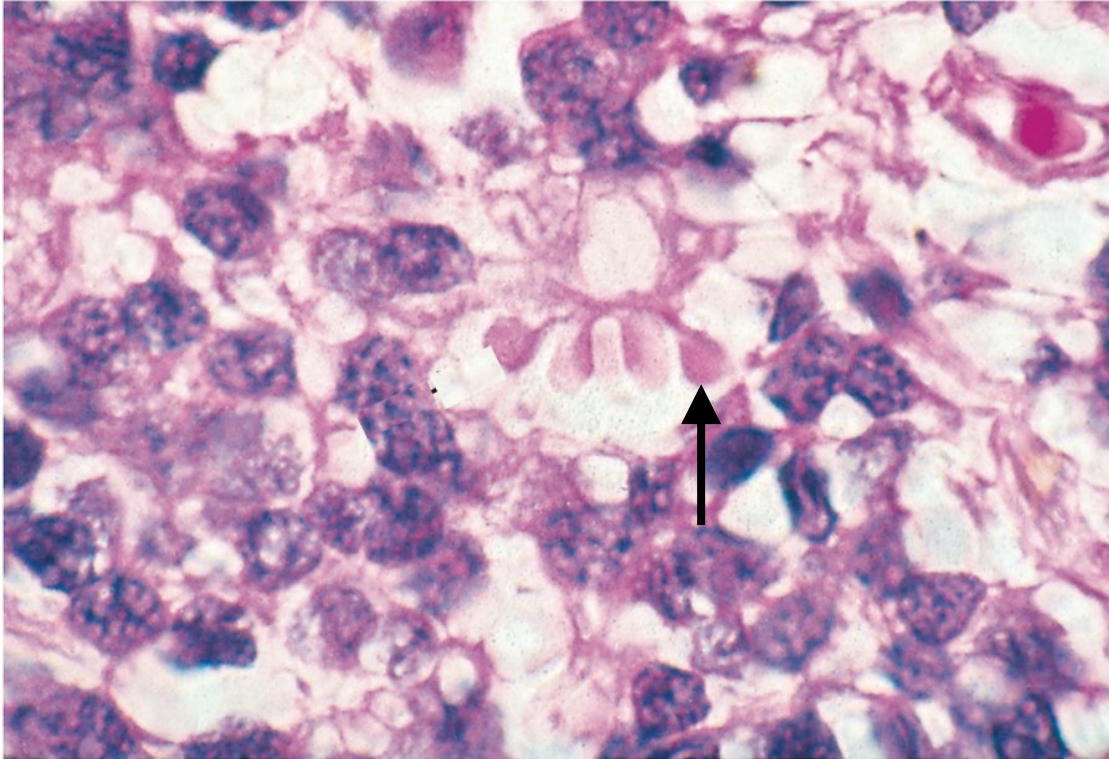
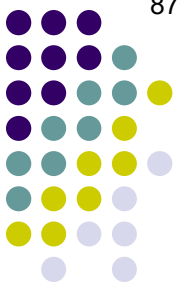
A third classic finding Rb, less infamous and spot-able still—see it?

Pathwatching



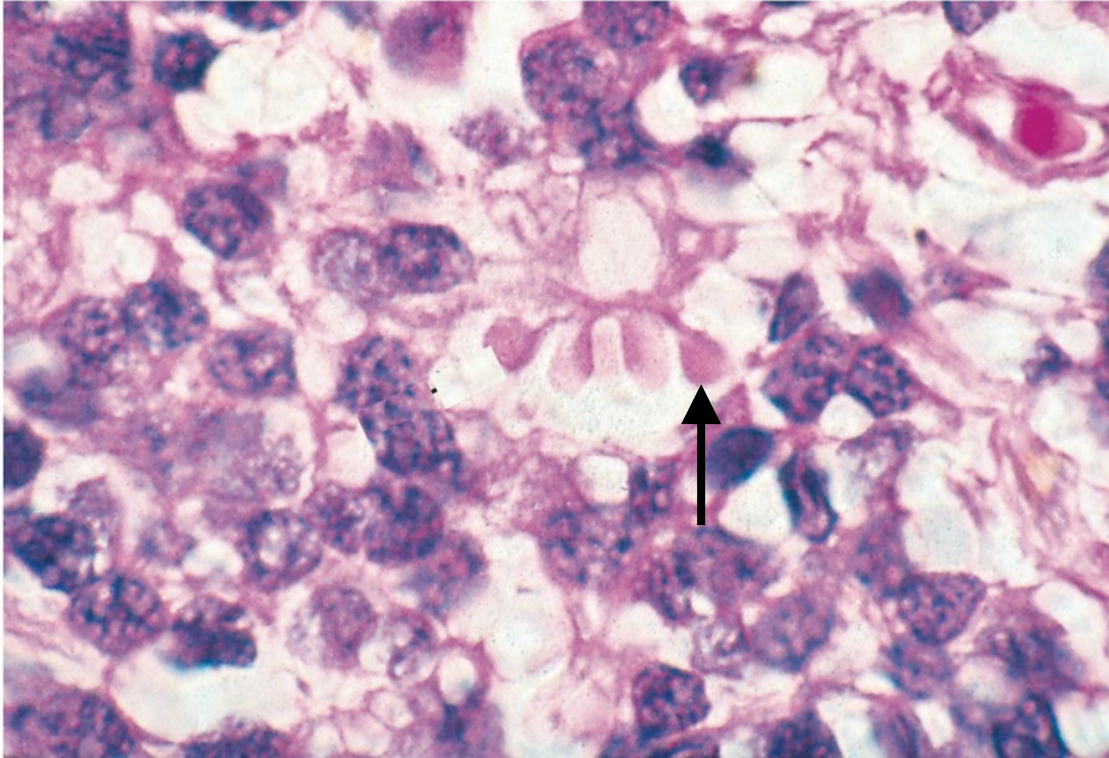
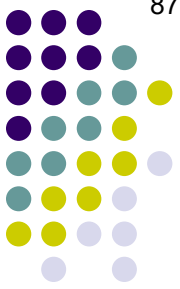
A third classic finding Rb, less infamous and spot-able still—see it?
Here it is.

Pathwatching



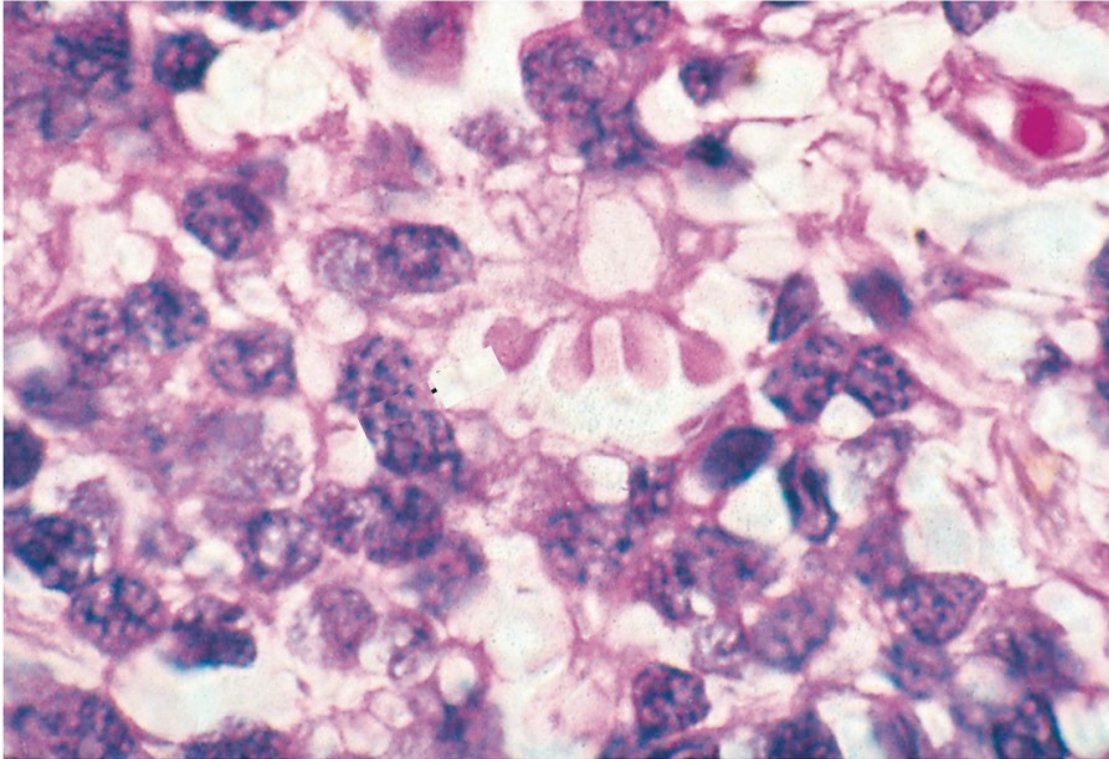
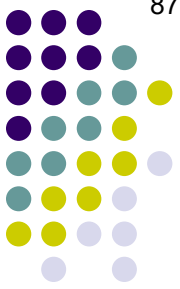
A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'buzzterm'.

Pathwatching



A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

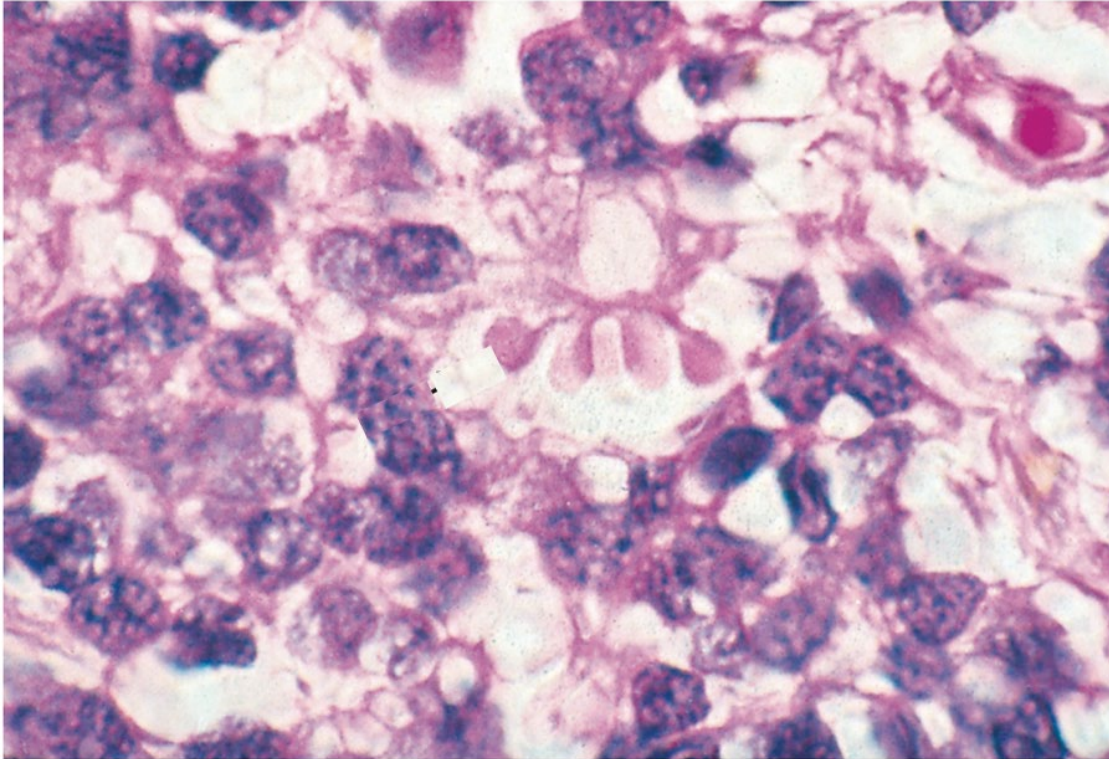
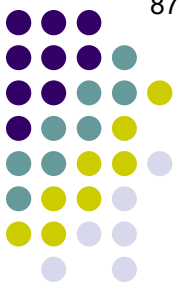
Pathwatching



A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

What's the finding?

Pathwatching

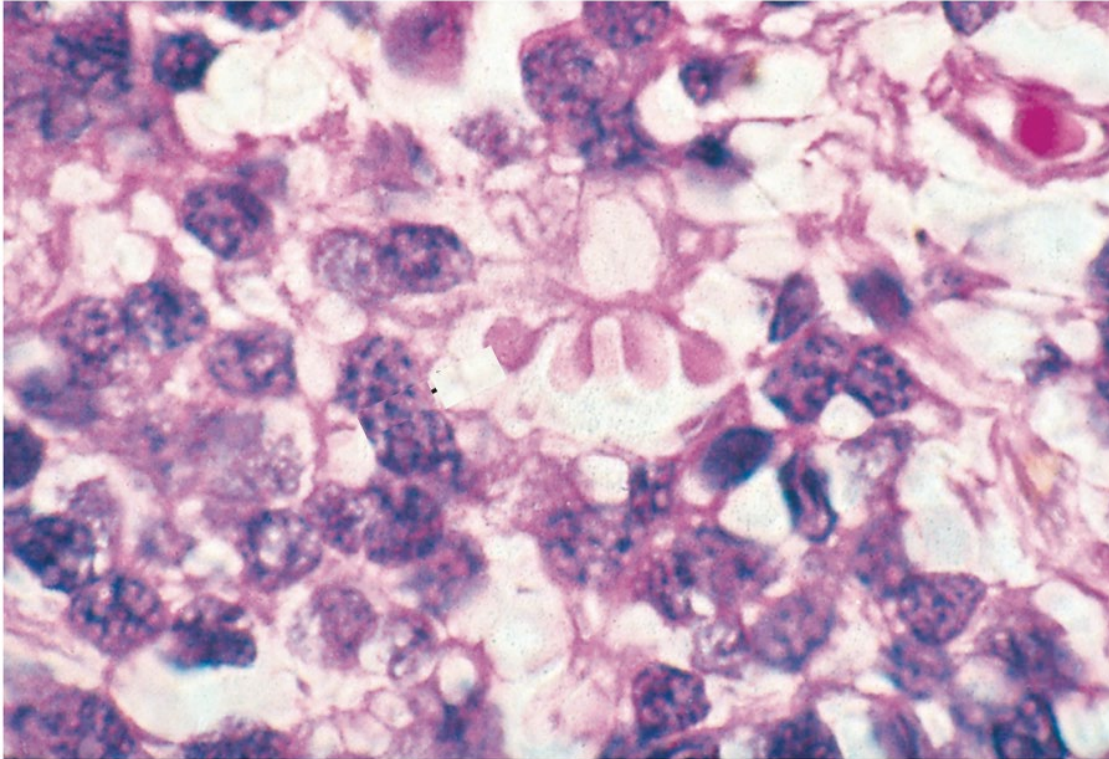
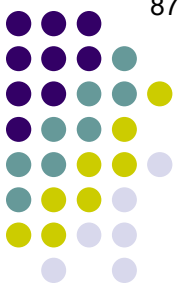


A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

What's the finding?

in **retinoblastoma (Rb)**.

Pathwatching

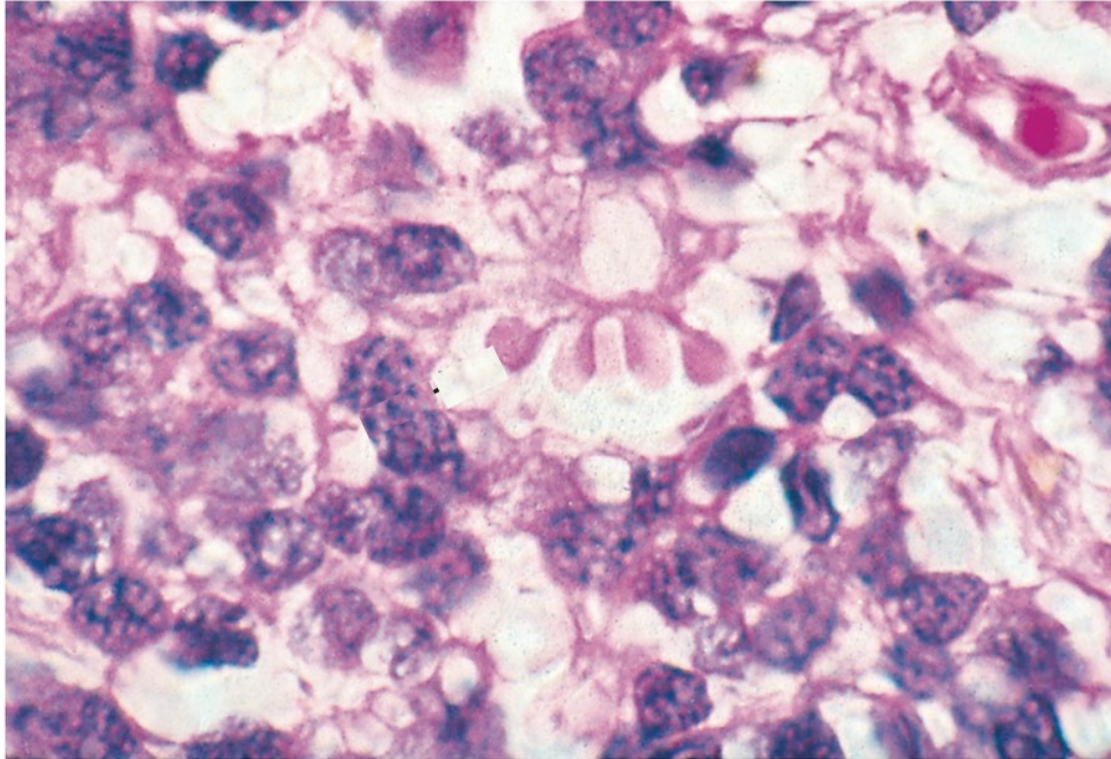
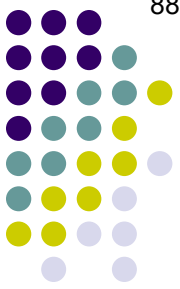


What's the finding?

Fleurettes in **retinoblastoma (Rb)** .

A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

Pathwatching



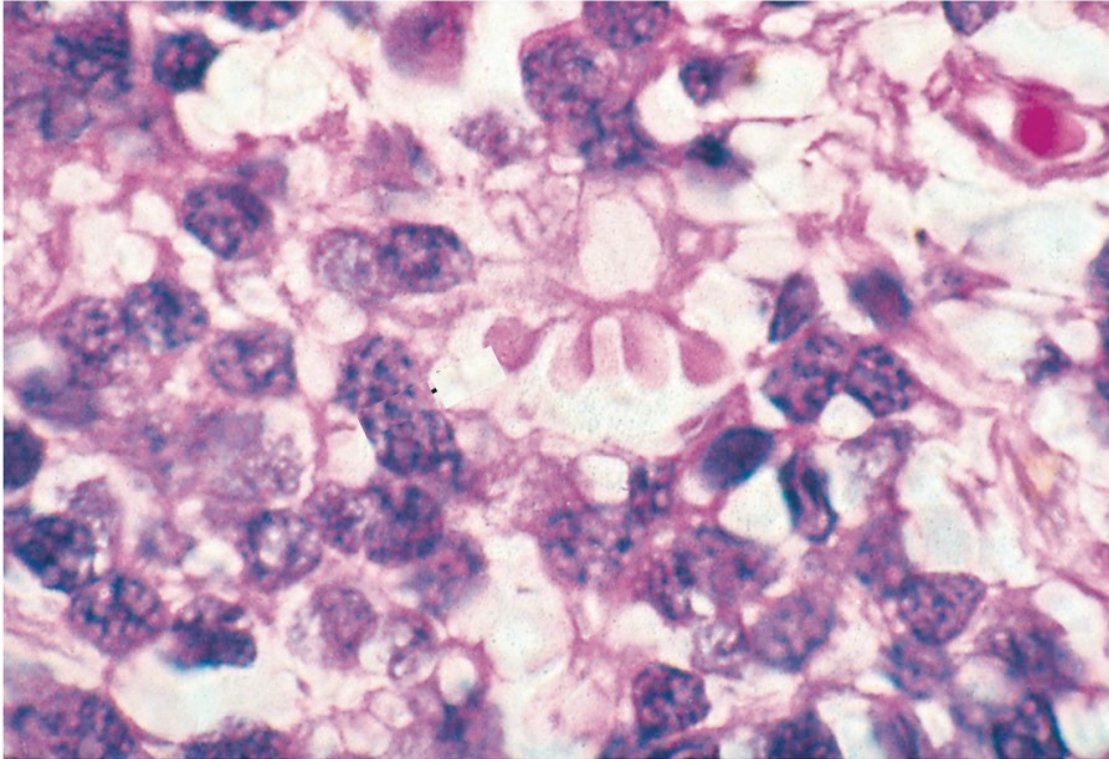
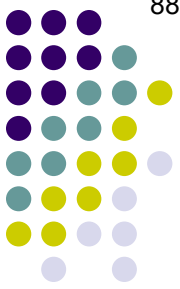
A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

What's the finding?

Fleurettes in **retinoblastoma (Rb)**. Also represents tumor differentiation, specifically **differentiation**. .

specific structure

Pathwatching

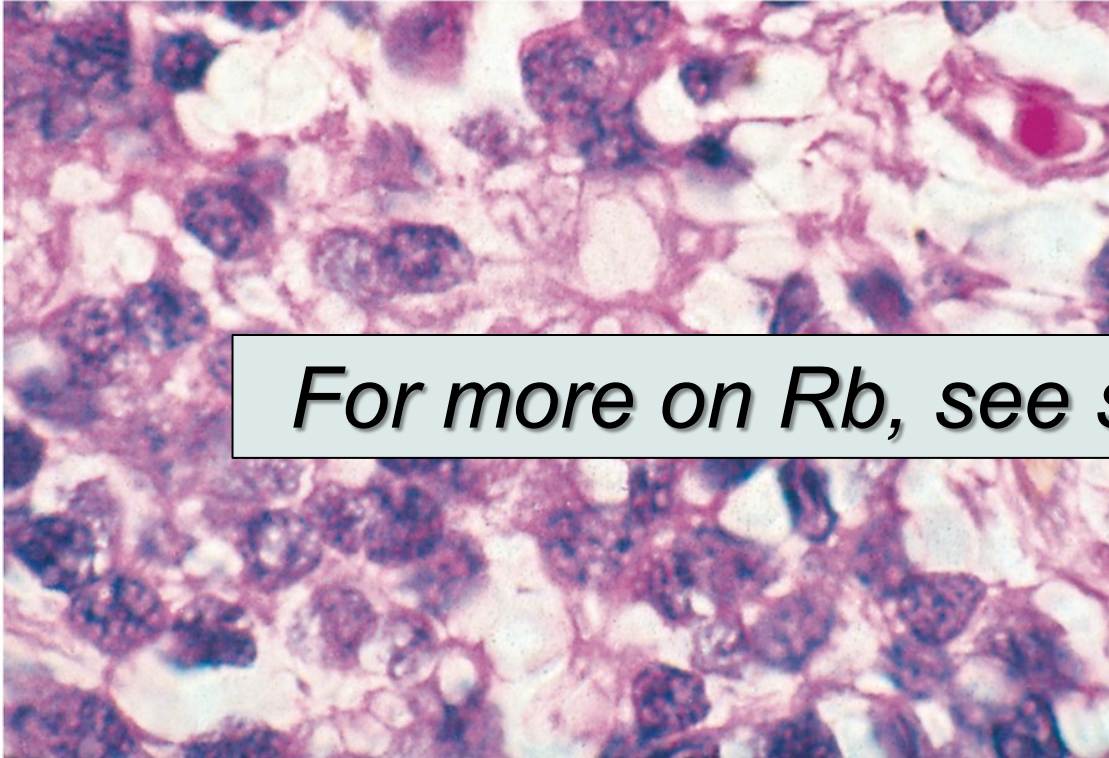
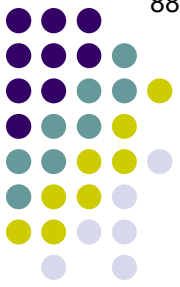


A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

What's the finding?

Fleurettes in **retinoblastoma** (Rb) . Also represents tumor differentiation, specifically photoreceptor differentiation. .

Pathwatching



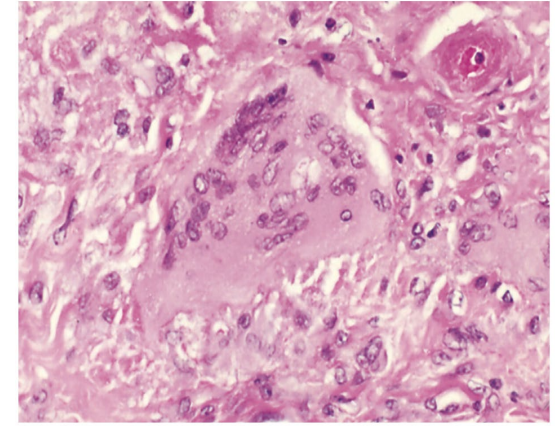
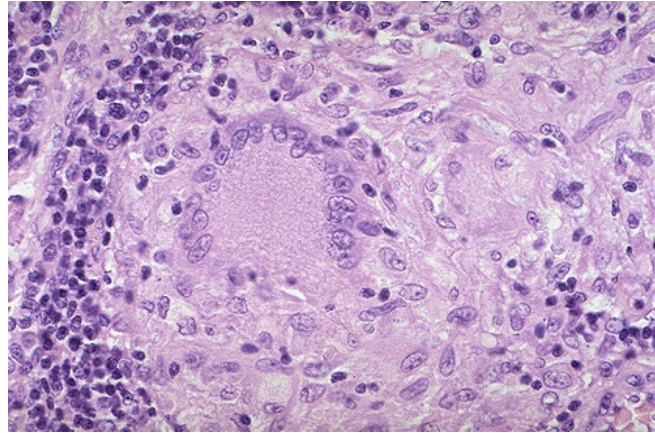
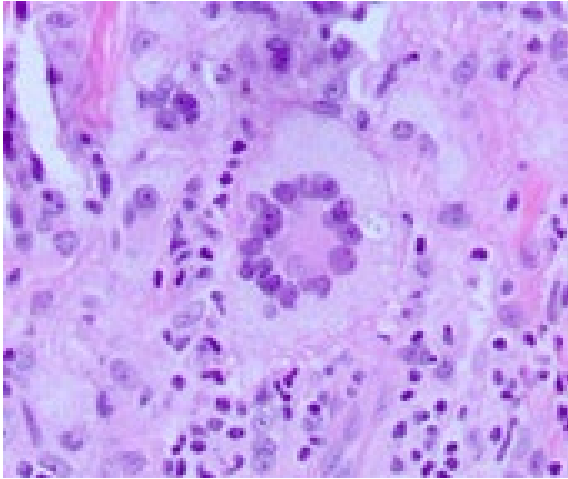
For more on Rb, see slide-set R2

A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is 'bulbous.'

What's the finding?

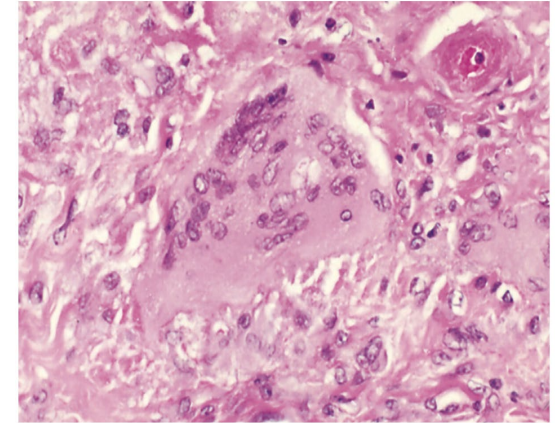
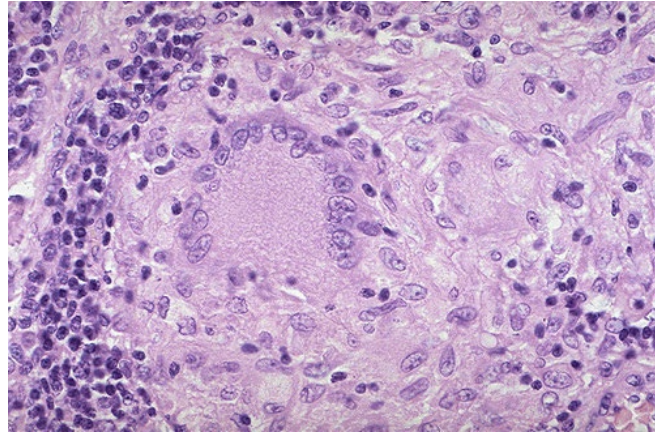
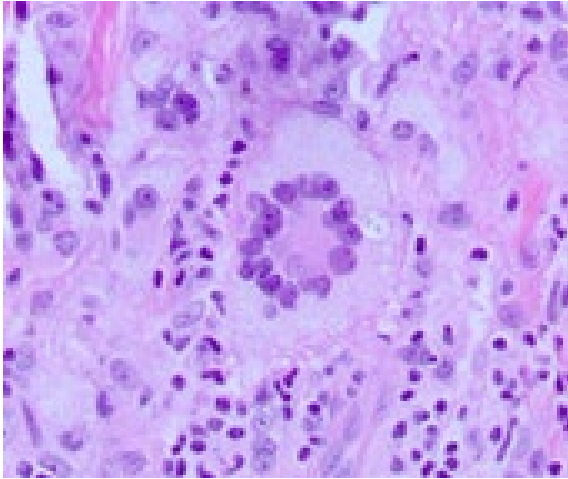
Fleurettes in **retinoblastoma (Rb)**. Also represents tumor differentiation, specifically photoreceptor differentiation.

Pathwatching



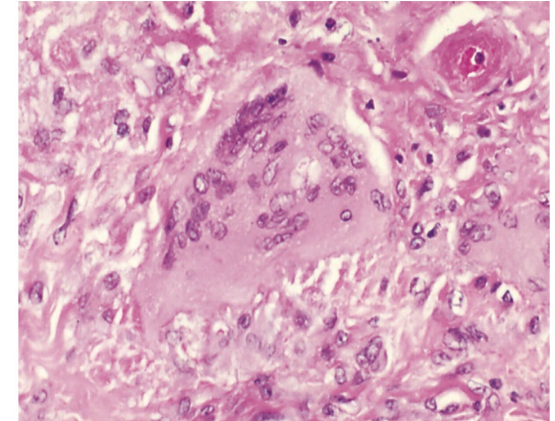
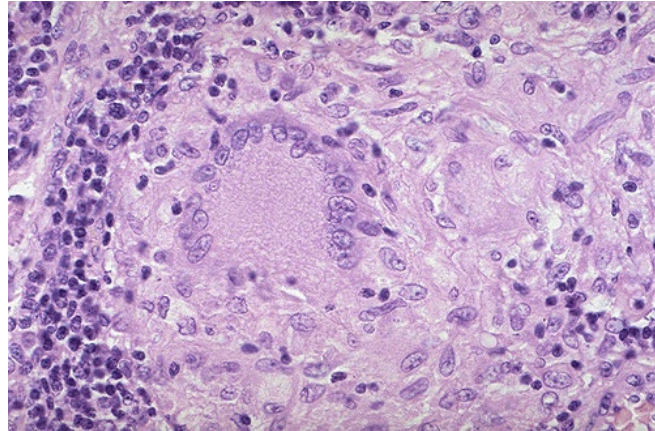
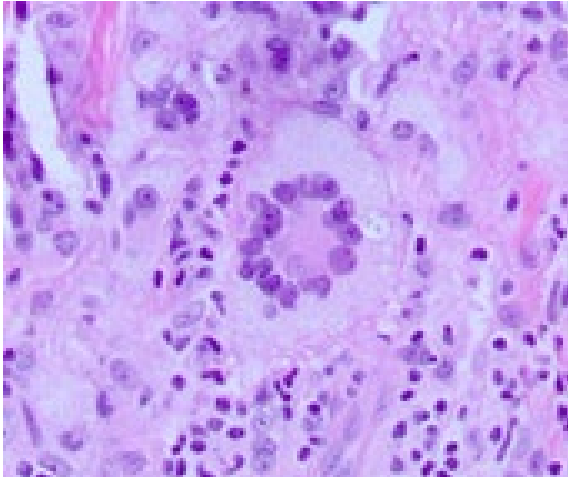
Another set of classic findings that must become readily recognizable.

Pathwatching



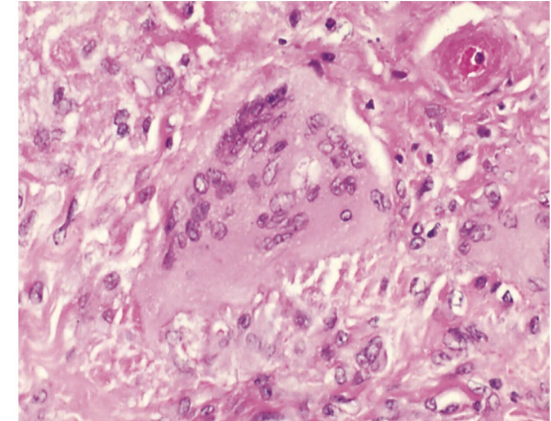
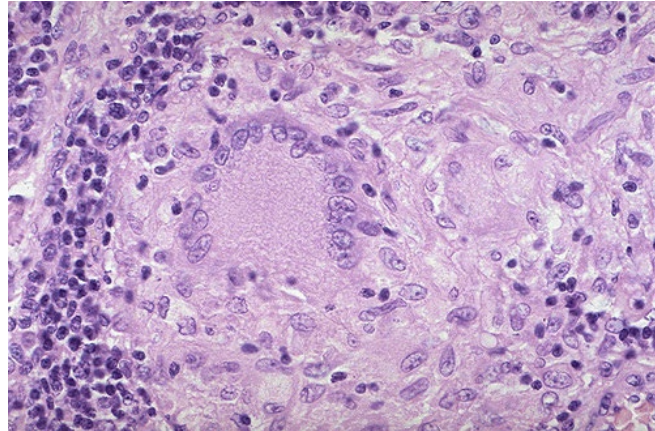
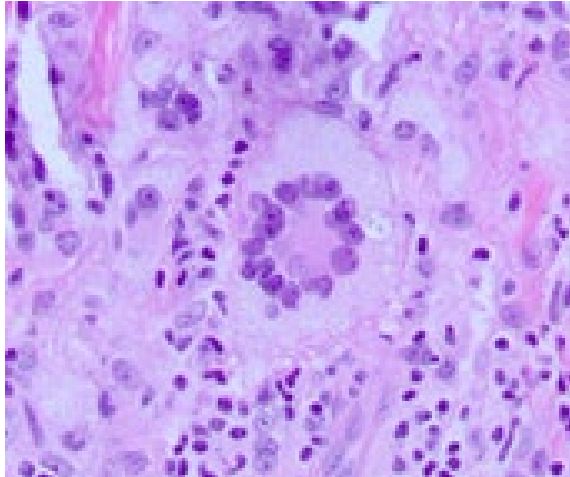
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A

Pathwatching



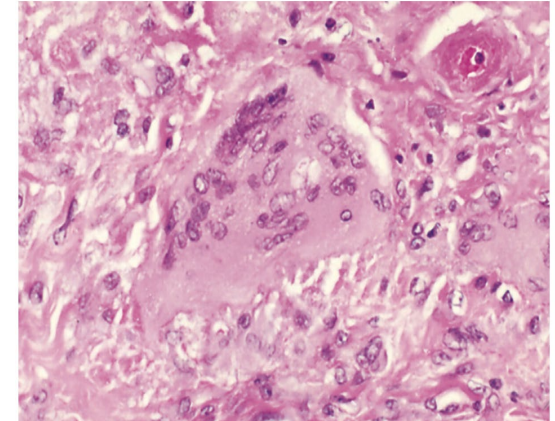
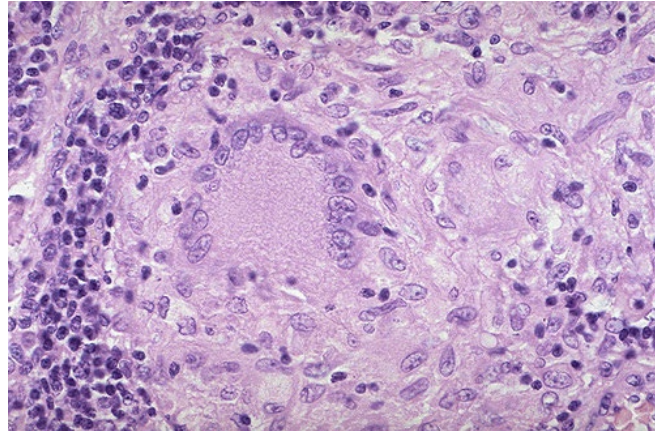
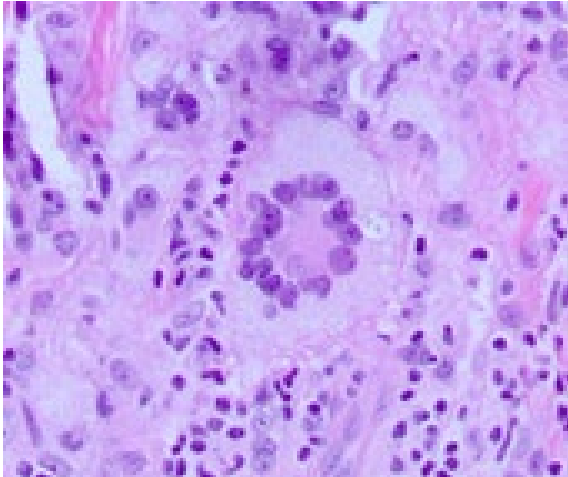
Another set of classic findings that must become readily recognizable. **First things first**—in general terms, what does each image depict? A *giant cell*

Pathwatching



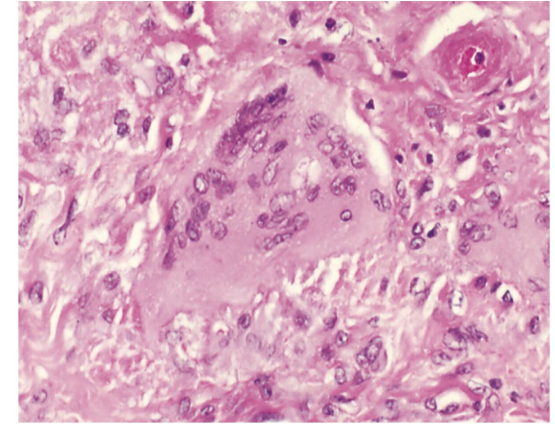
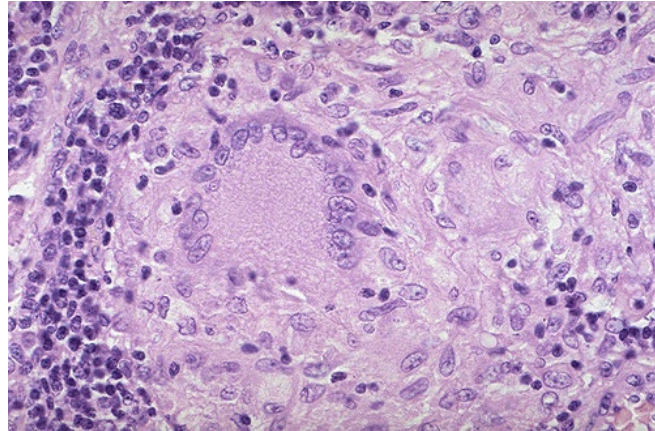
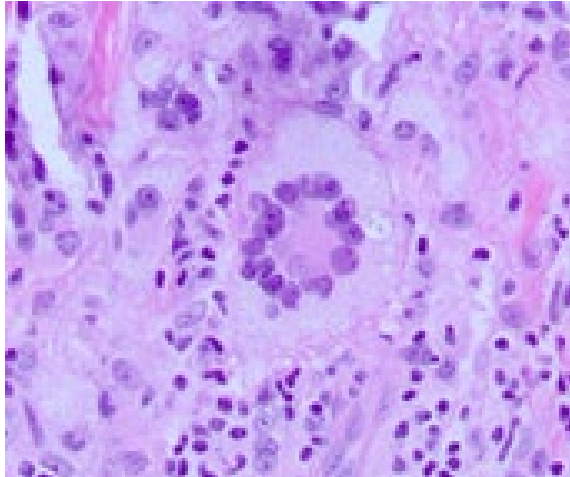
Another set of classic findings that must become readily recognizable. **First things first—in general terms, what does each image depict? A *giant cell*** , which is just a **fancy word** of **two names for one cell type** .

Pathwatching



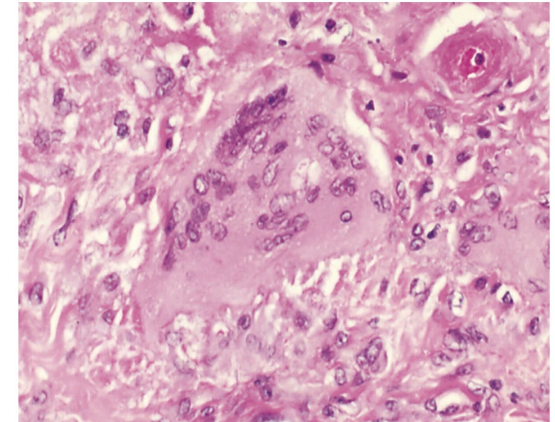
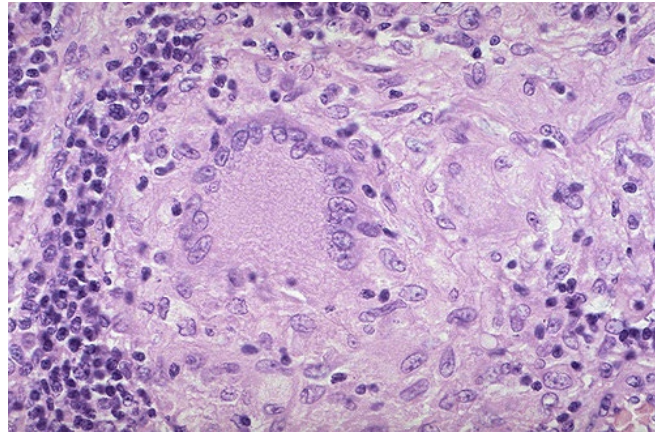
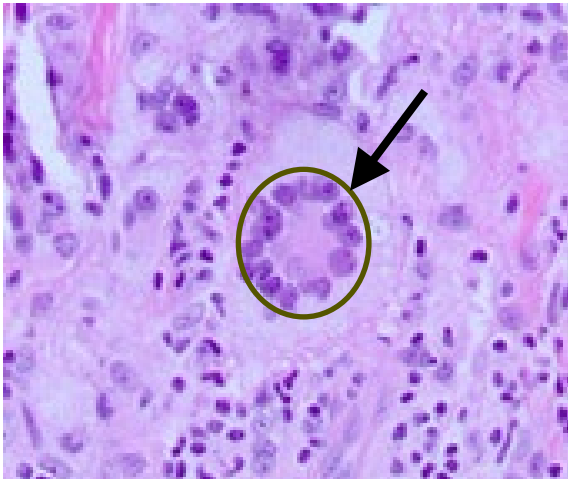
Another set of classic findings that must become readily recognizable. **First things first—in general terms, what does each image depict? A *giant cell*** , which is just a syncytium of histiocytes/macrophages .

Pathwatching



Another set of classic findings that must become readily recognizable. **First things first—in general terms, what does each image depict? A *giant cell***, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching

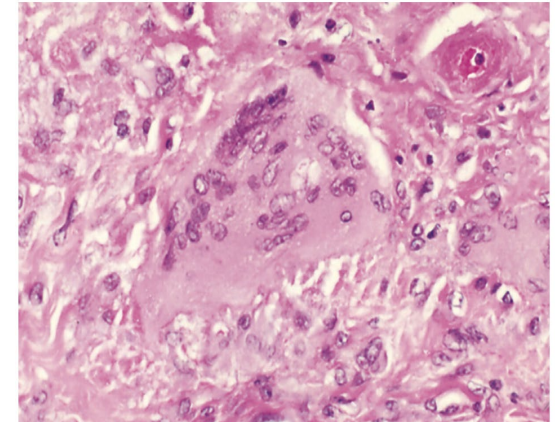
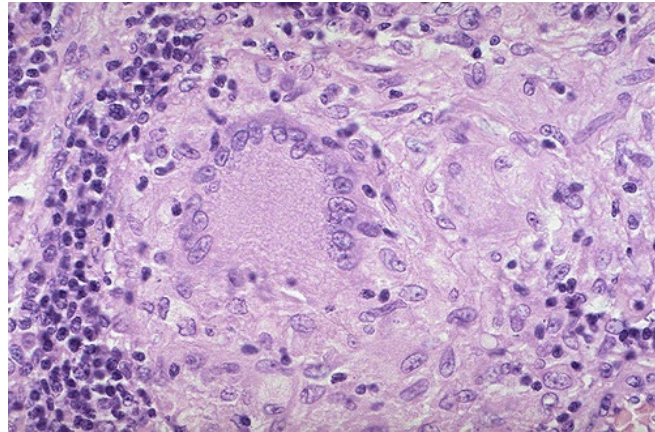
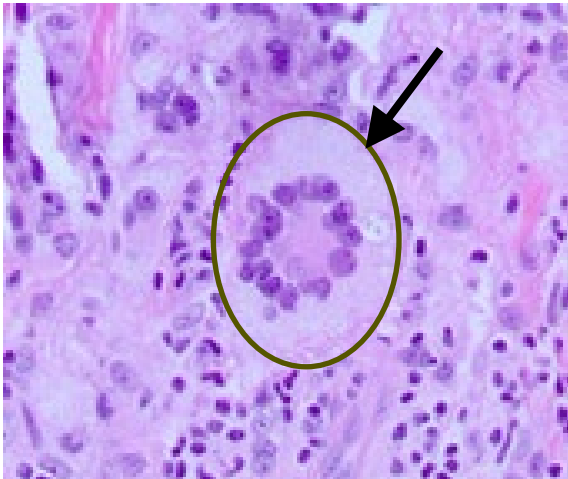


Note:

--Crucially: *This* is **not** the giant cell...

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching

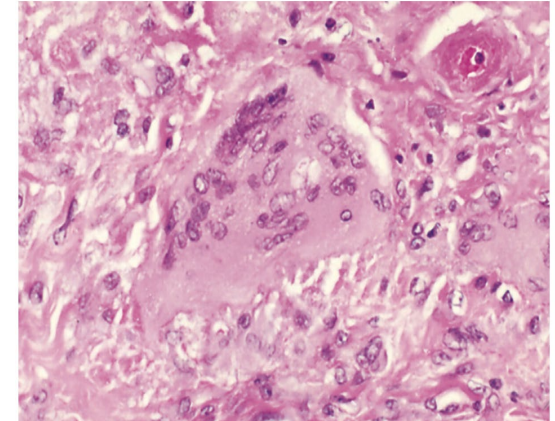
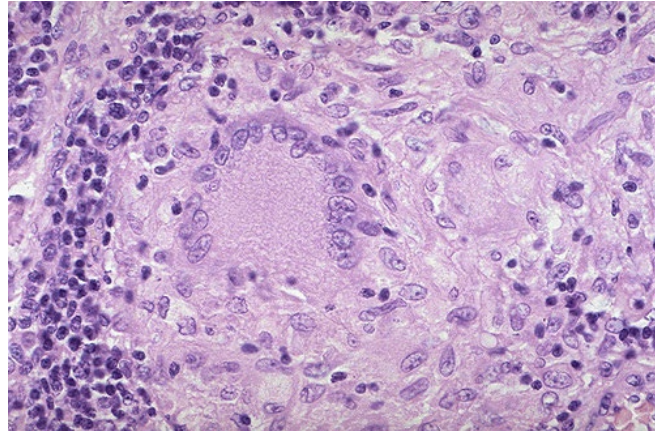
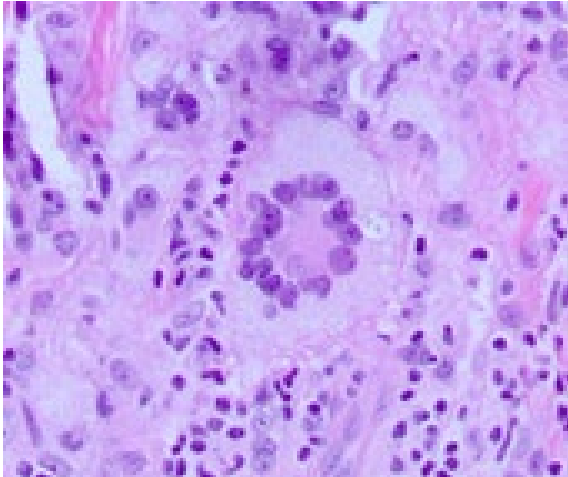


Note:

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Pathwatching



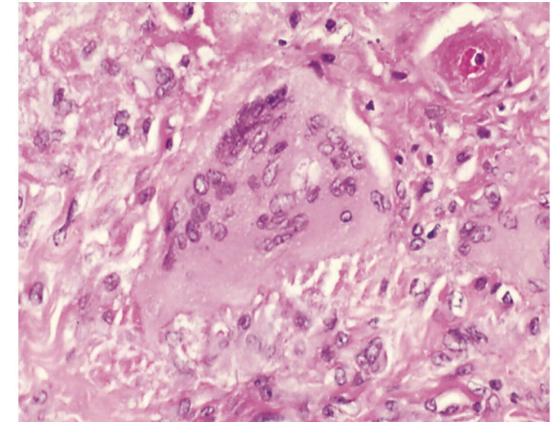
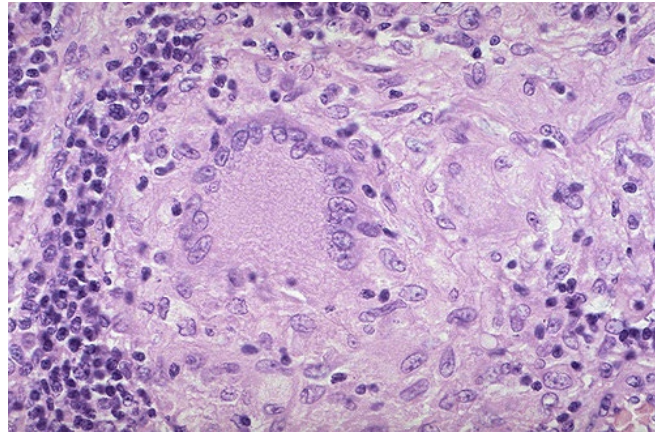
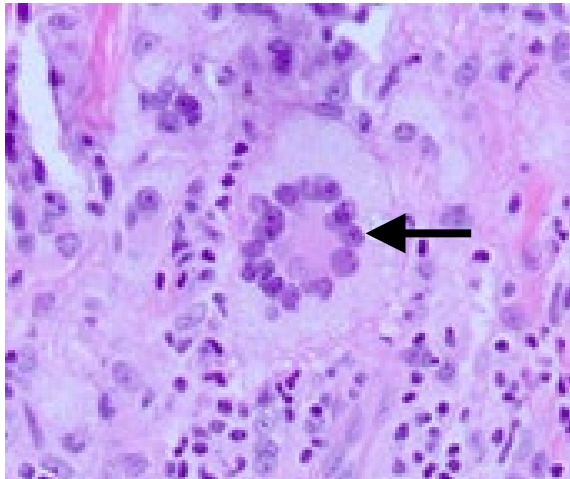
Note:

--Crucially: *This* is **not** the giant cell... *This* is

-- location ring of nuclei

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching

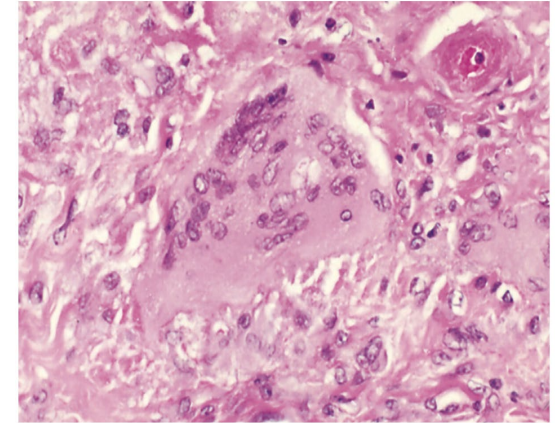
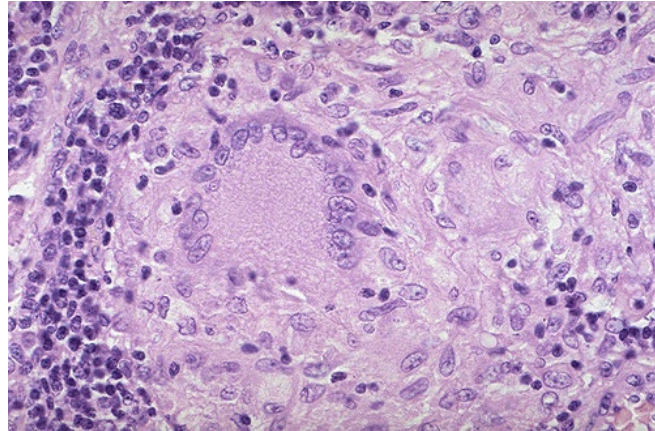
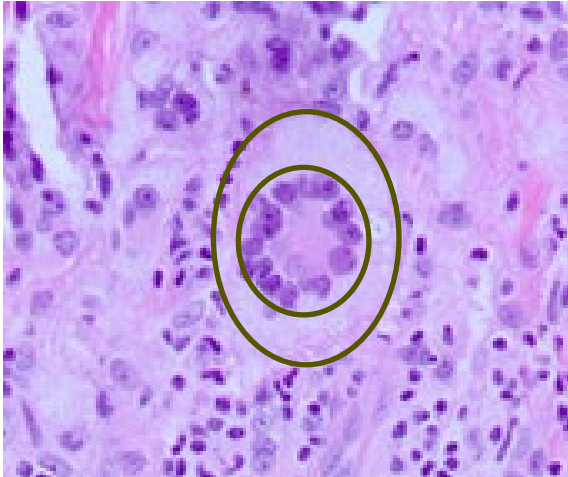


Note:

- Crucially: *This* is **not** the giant cell... *This* is
- Central ring of nuclei

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching

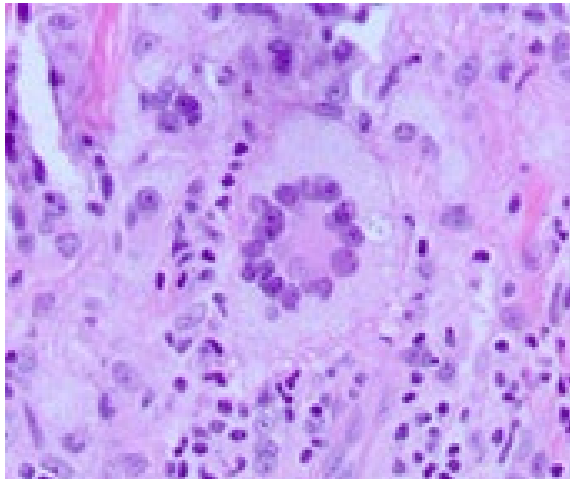


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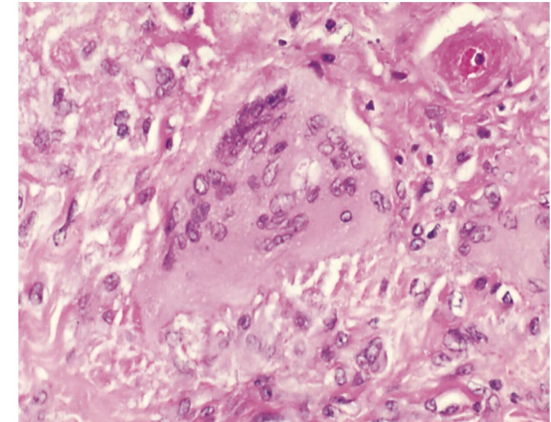
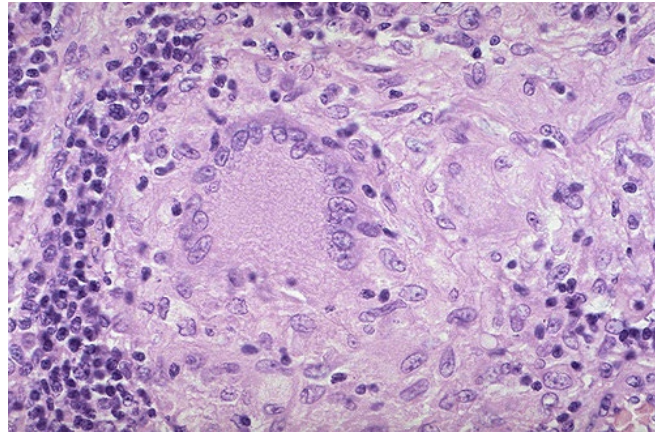
- Crucially: *This* is **not** the giant cell... *This* is
- Central ring of nuclei
- A surrounding donut of lipid

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching



? giant cell



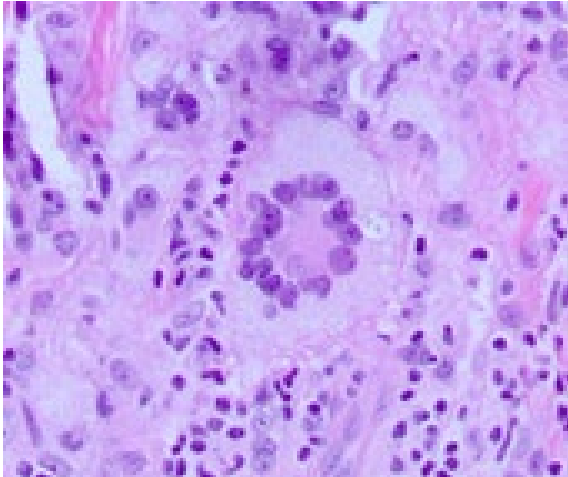
Note:

- Crucially: *This* is **not** the giant cell... ***This is***
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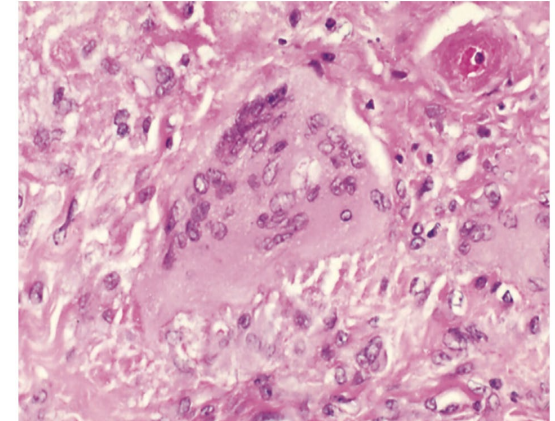
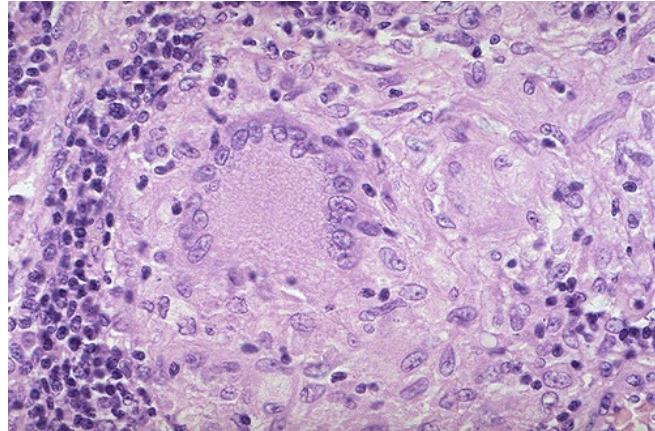
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

What's the finding?

Pathwatching



Touton giant cell



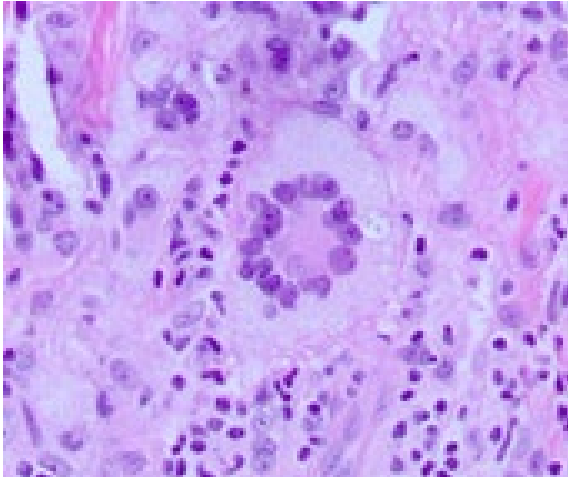
Note:

- Crucially: *This* is **not** the giant cell... ***This* is**
- Central ring of nuclei
- A surrounding donut of lipid

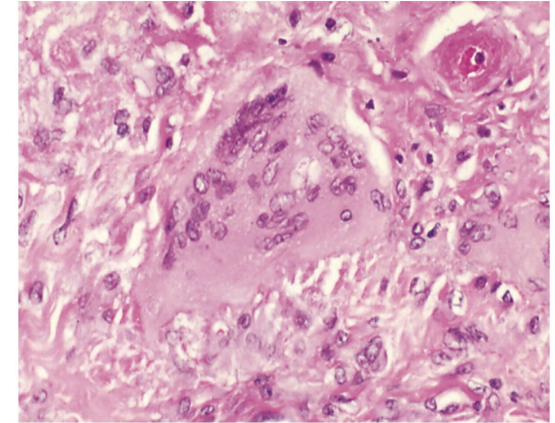
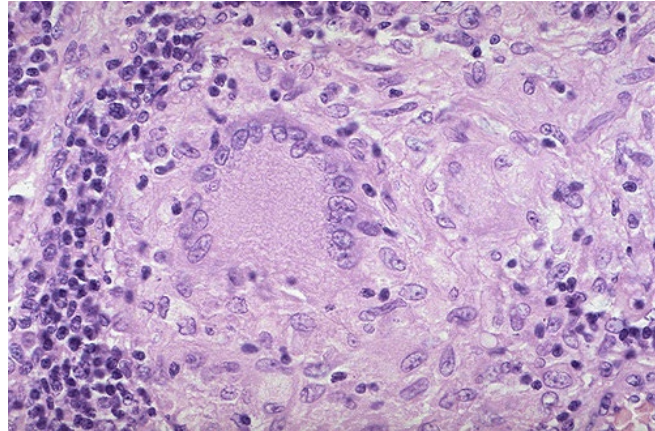
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

What's the finding?

Pathwatching



Touton giant cell



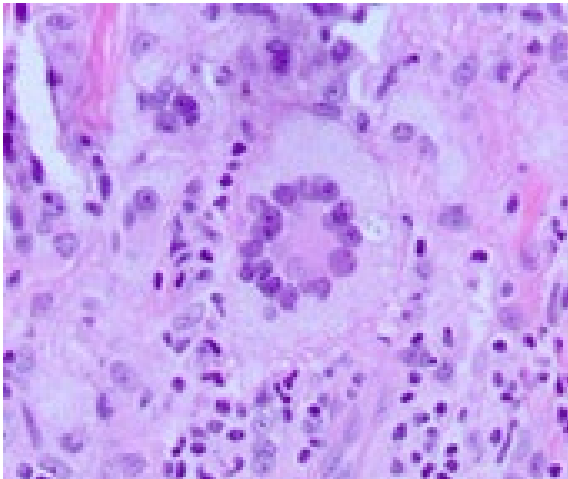
Touton giant cells are most closely associated with

two words

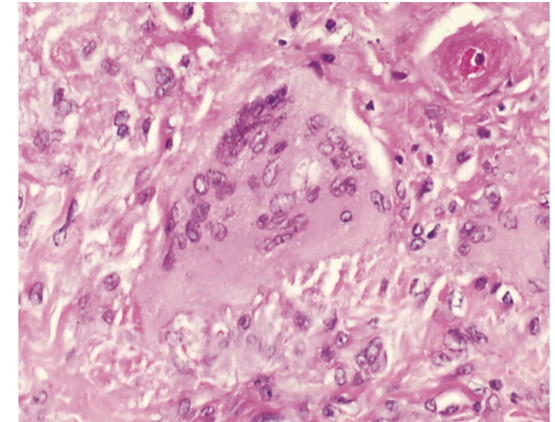
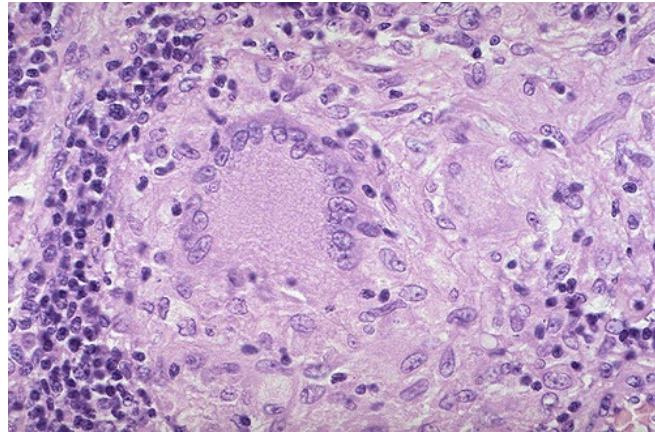
- Central ring of nuclei
- A surrounding donut of lipid

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching



Touton giant cell

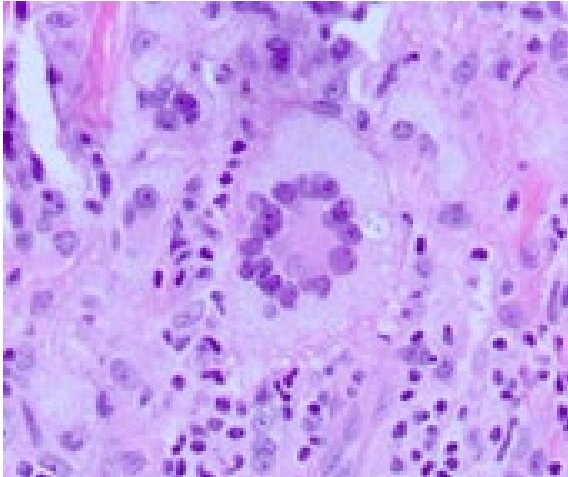


Touton giant cells are most closely associated with juvenile xanthogranuloma (JXG) .

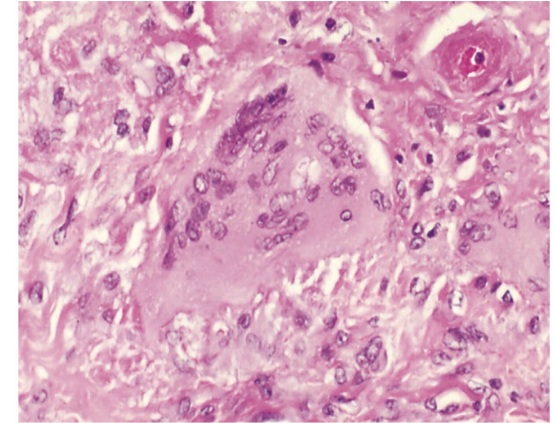
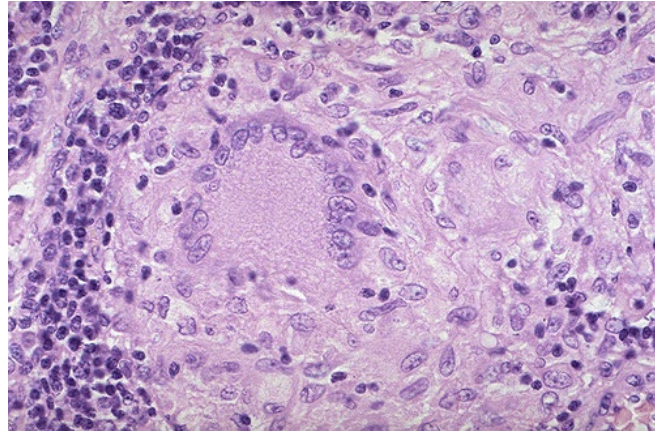
- Central ring of nuclei
- A surrounding donut of lipid

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell* , which is just a syncytium of histiocytes/macrophages . Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching



Touton giant cell

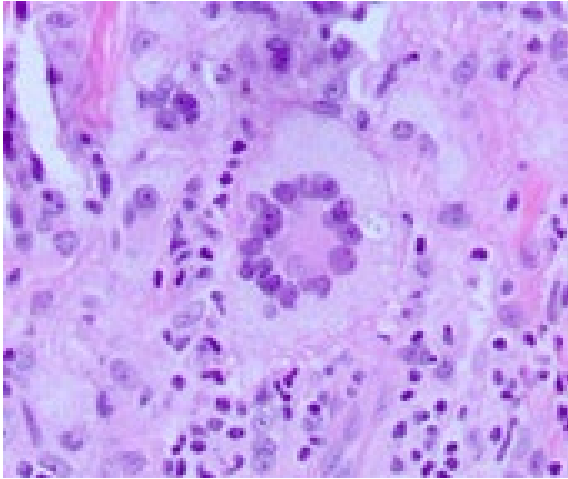


Touton giant cells are most closely associated with juvenile xanthogranuloma (JXG). However, they are also associated with xanthogranuloma dz.

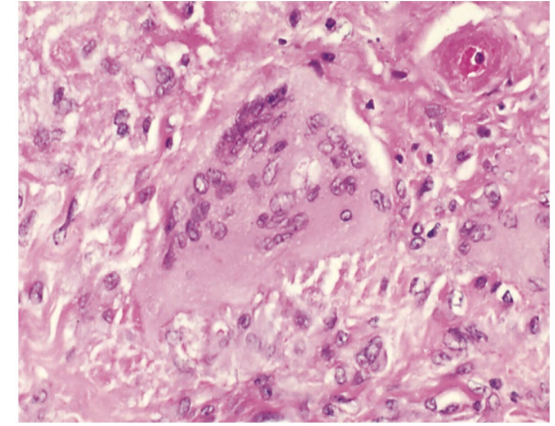
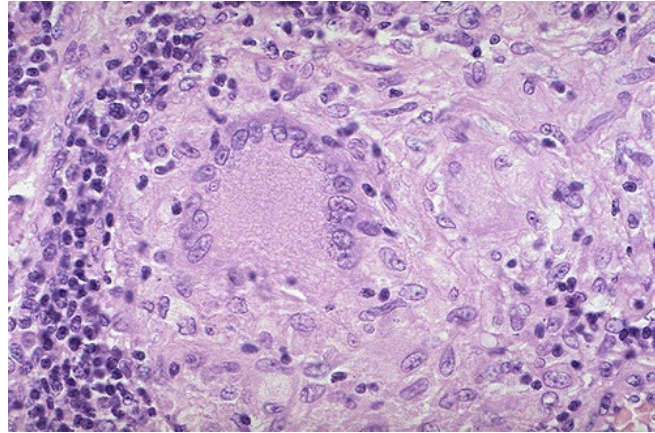
--Central ring of nuclei
--A surrounding donut of lipid

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

Pathwatching



Touton giant cell

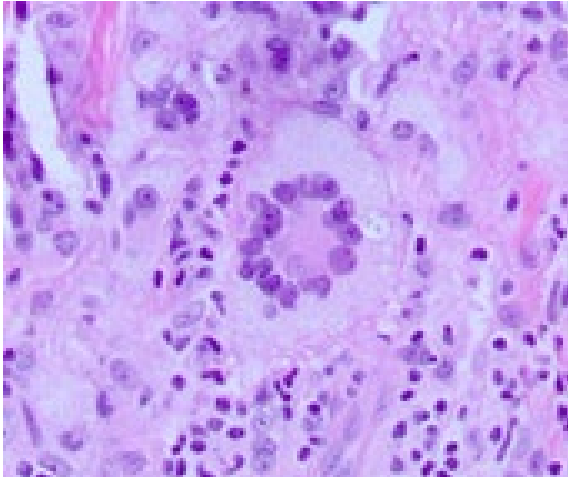


Touton giant cells are most closely associated with juvenile xanthogranuloma (JXG). However, they are also associated with adult-onset xanthogranuloma dz.

- Central ring of nuclei
- A surrounding donut of lipid

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let's go through them.

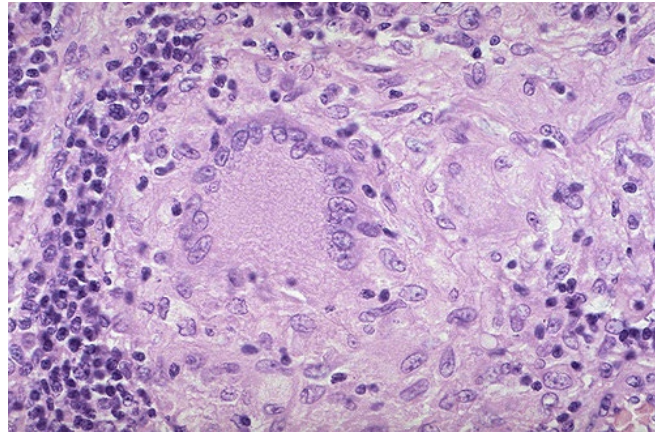
Pathwatching



Touton giant cell

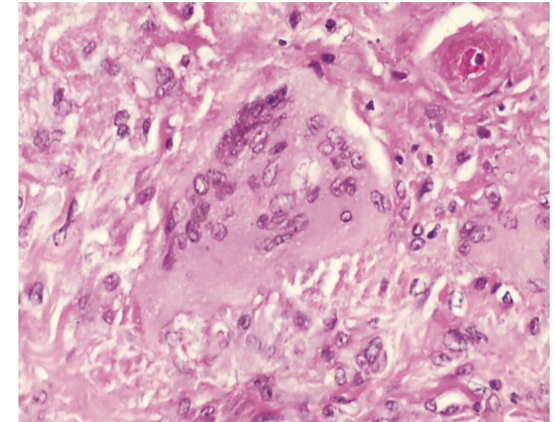
Note:

- Crucially: *This* is **not** the giant cell... *This* is
- Central ring of nuclei
- A surrounding donut of lipid



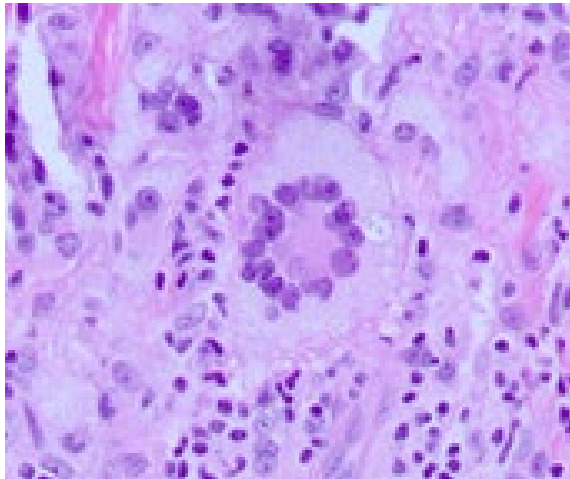
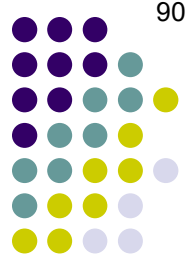
Note:

- location ring of nuclei



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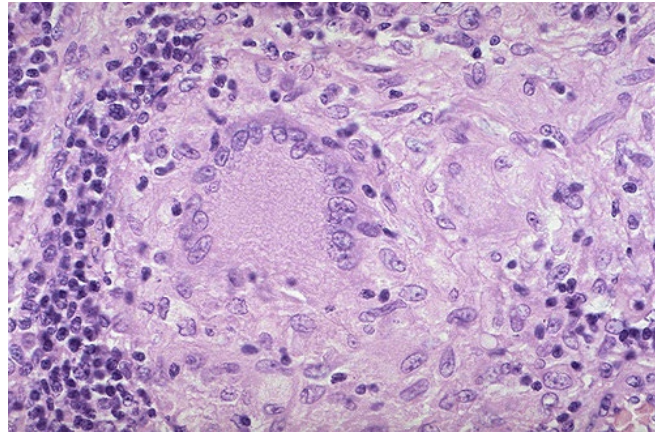
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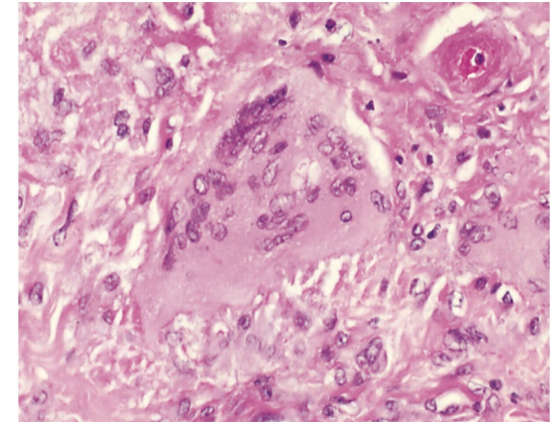
Note:

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- Central ring of nuclei
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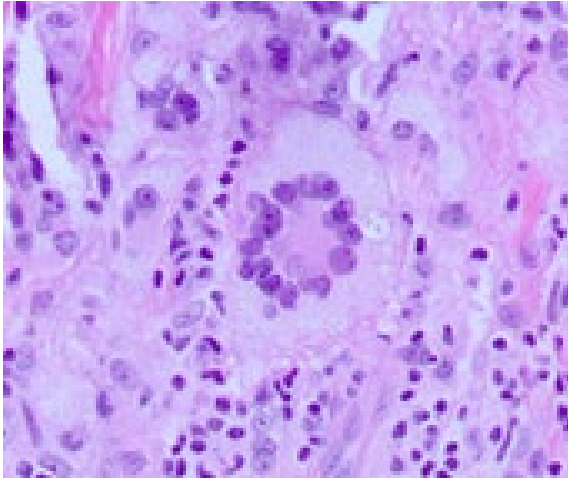
Note:

- Peripheral ring of nuclei



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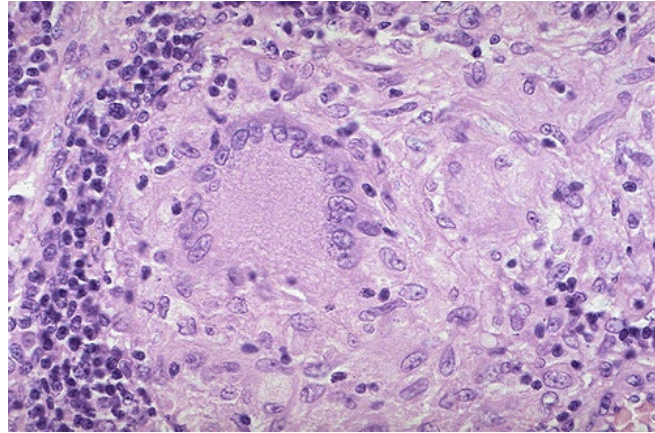
Pathwatching



Touton giant cell

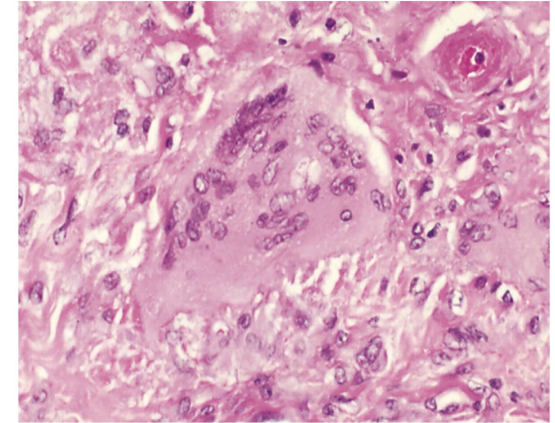
Note:

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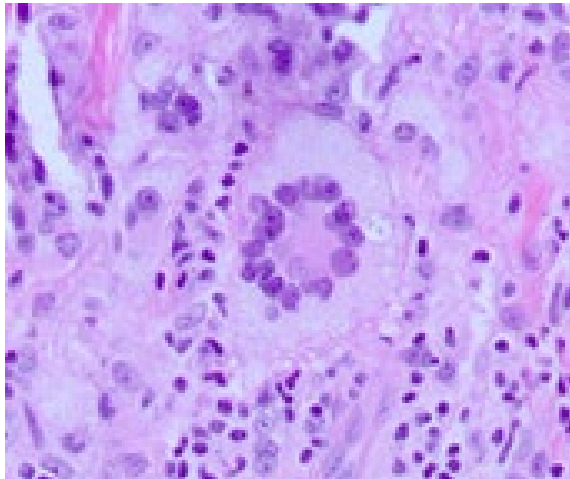
Note:

- Peripheral ring of nuclei
(often in a shape)



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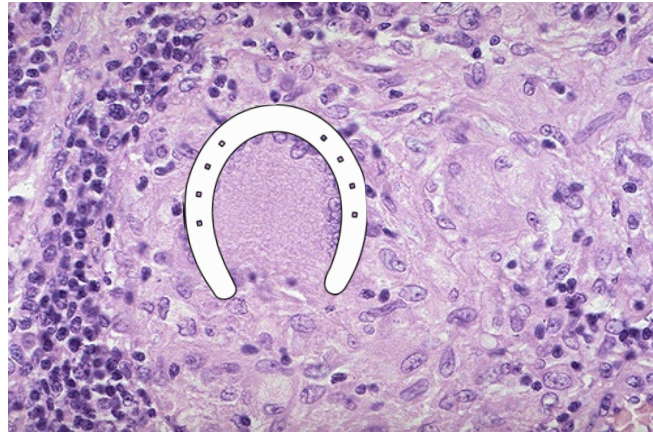
Pathwatching



Touton giant cell

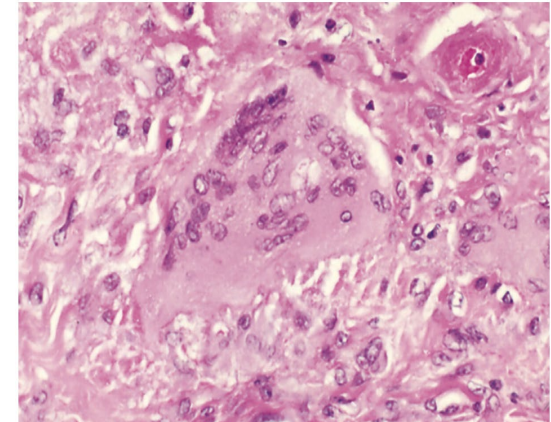
Note:

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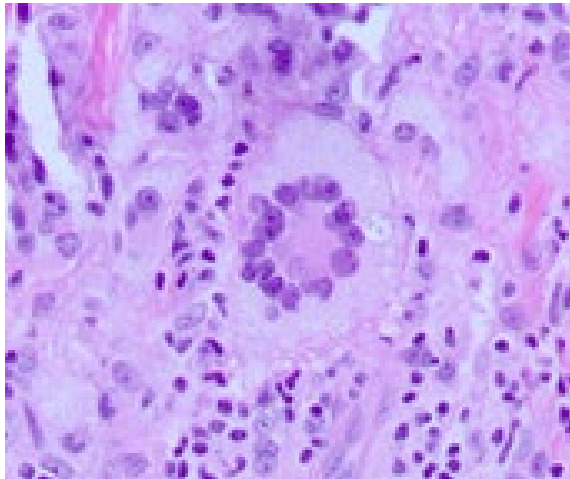
Note:

- Peripheral ring of nuclei
(often in a horseshoe)



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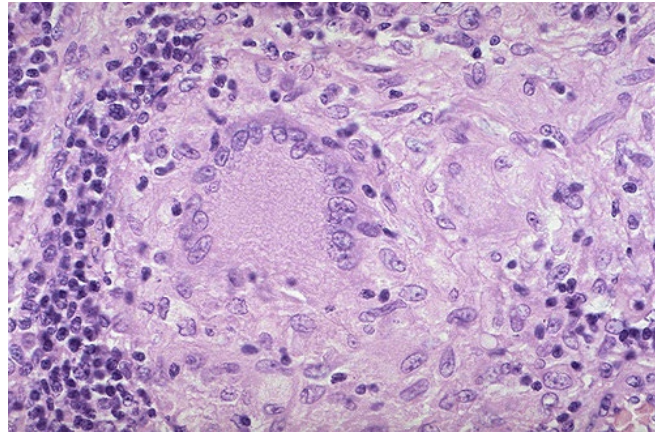
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Note:

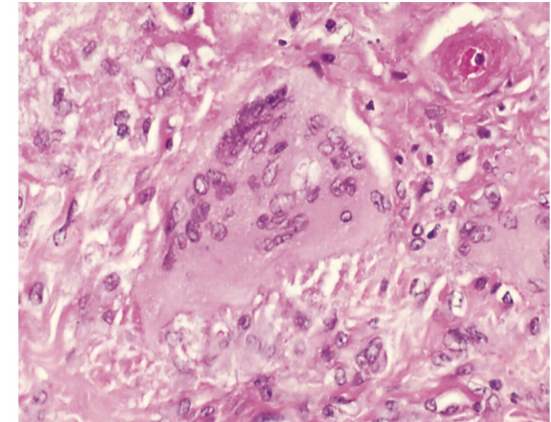
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? giant cell

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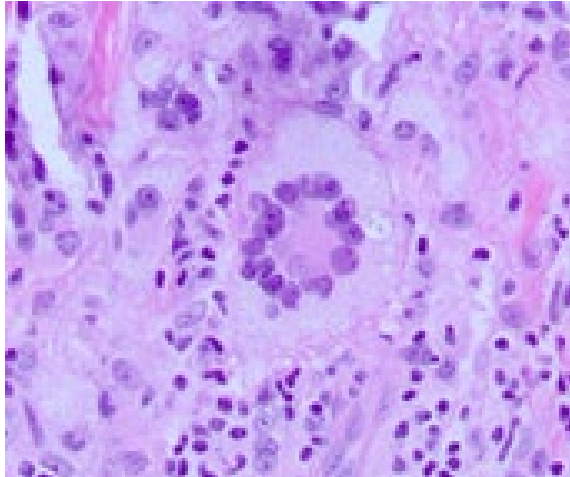
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What's the finding?

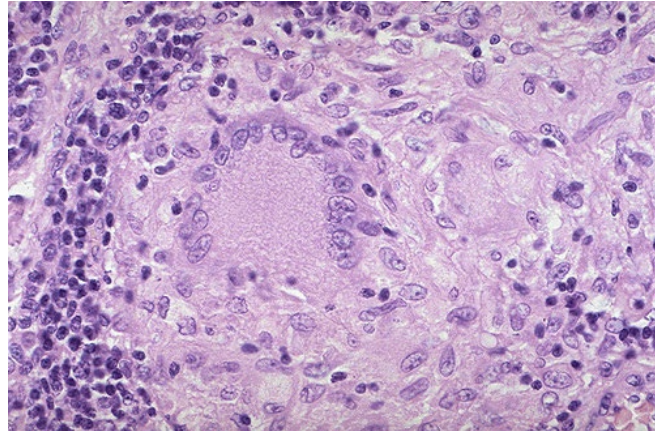
Pathwatching



Touton giant cell

Note:

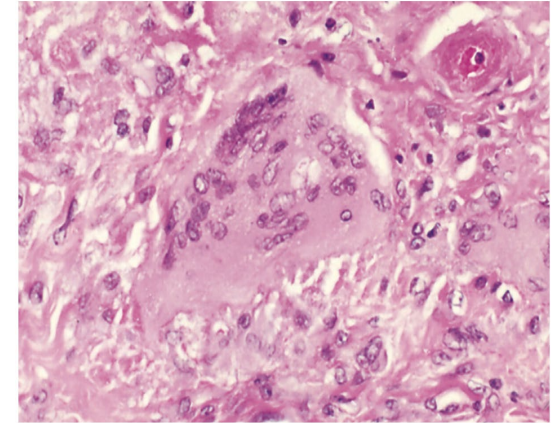
- Crucially: *This* is **not** the giant cell... *This* is
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Langhans giant cell

Note:

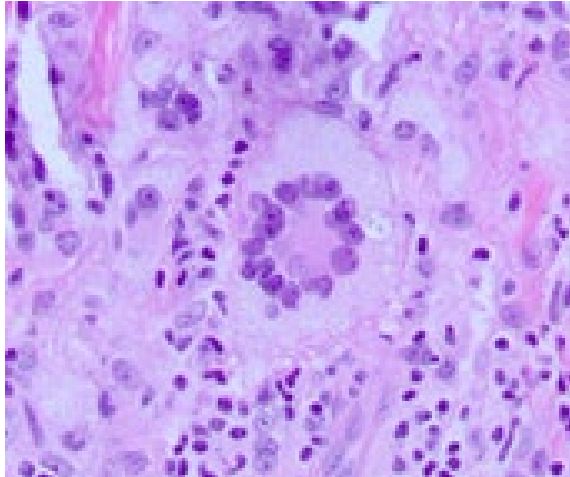
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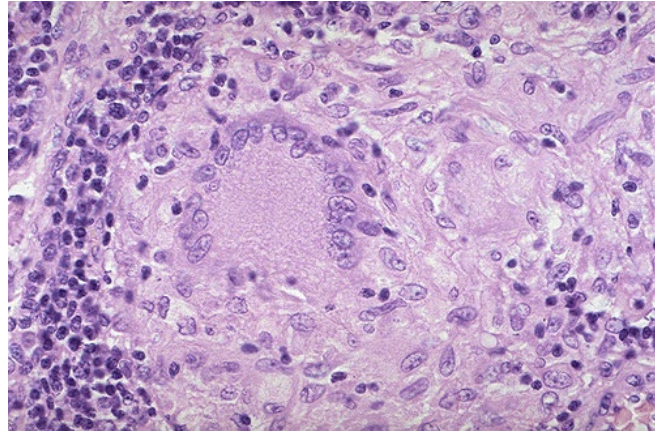
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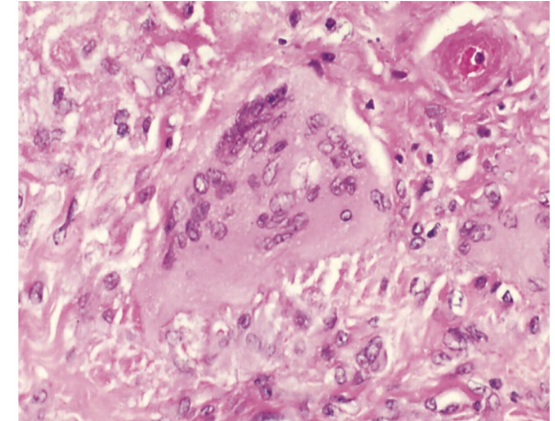
Pathwatching



Touton giant cell



Langhans giant cell



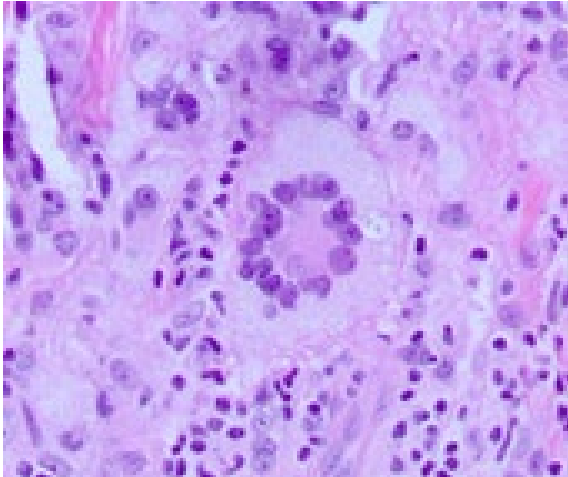
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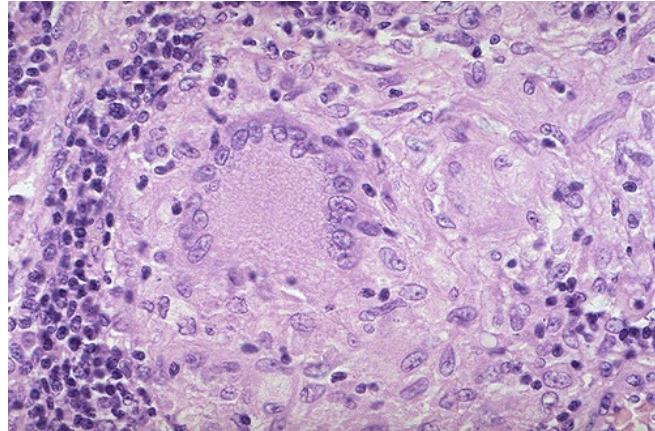
Langhans giant cells are associated with infectious etiologies, one of particular note being abb.

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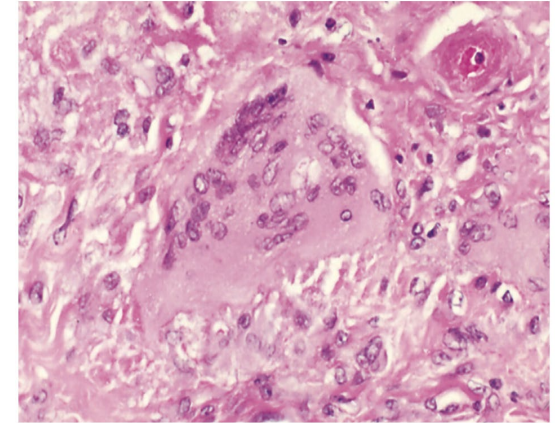
Pathwatching



Touton giant cell



Langhans giant cell



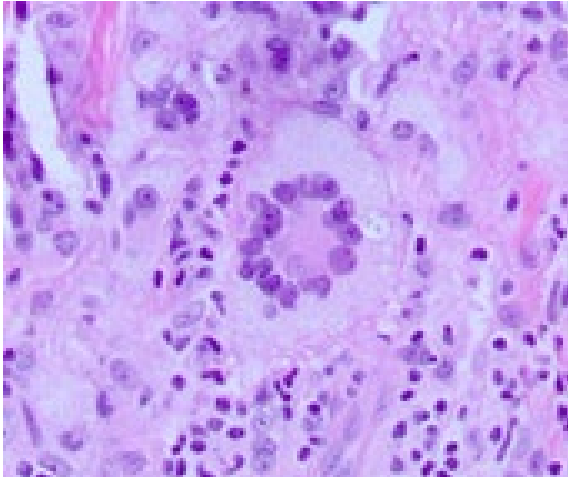
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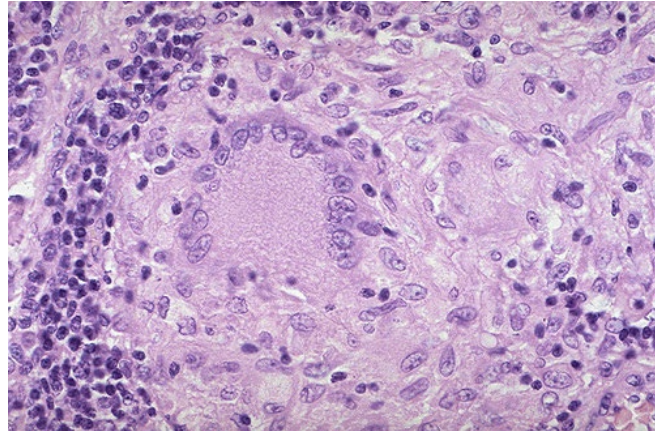
Pathwatching



Touton giant cell

Note:

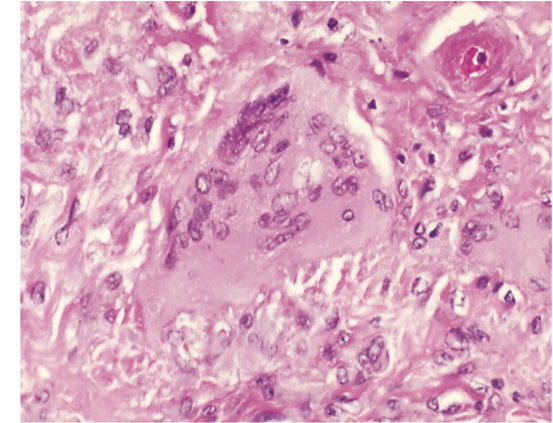
- Crucially: *This* is **not** the giant cell... *This* is
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Langhans giant cell

Note:

- Peripheral ring of nuclei (often in a horseshoe)

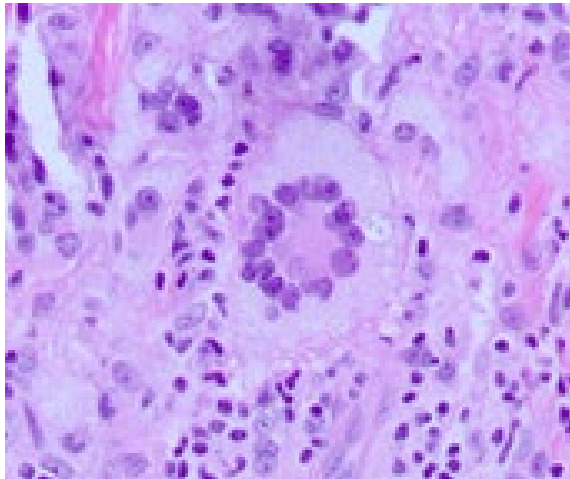


Note:

- adjective** arrangement of nuclei

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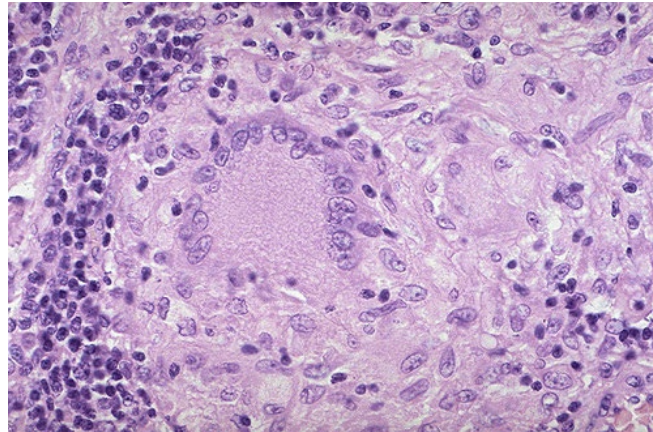
Pathwatching



Touton giant cell

Note:

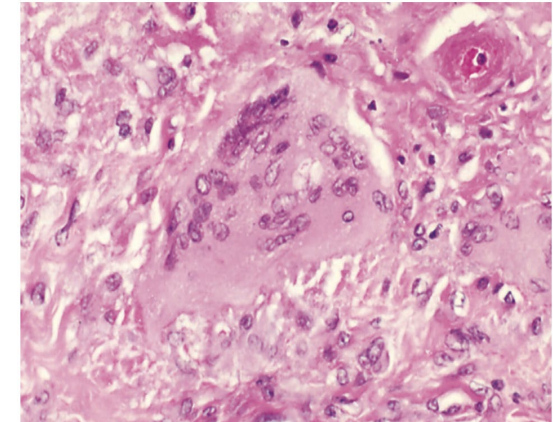
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Langhans giant cell

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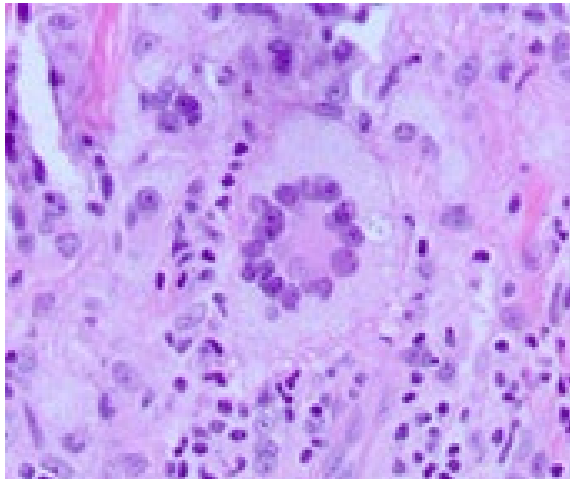


Note:

- Haphazard arrangement of nuclei

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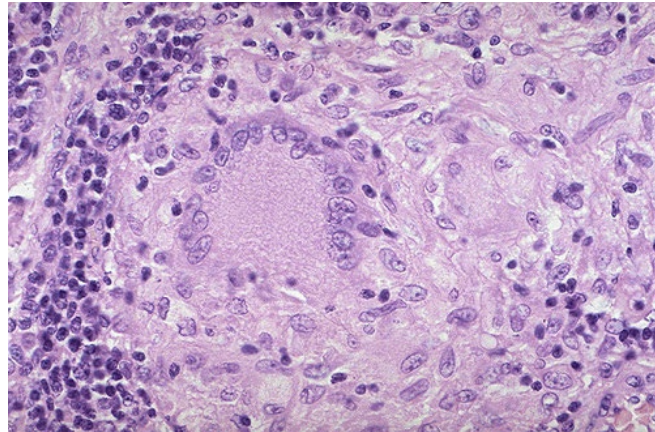
Pathwatching



Touton giant cell

Note:

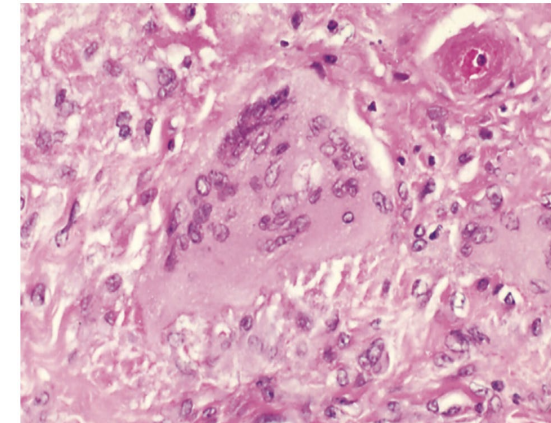
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Langhans giant cell

Note:

- Peripheral ring of nuclei (often in a horseshoe)



? giant cell

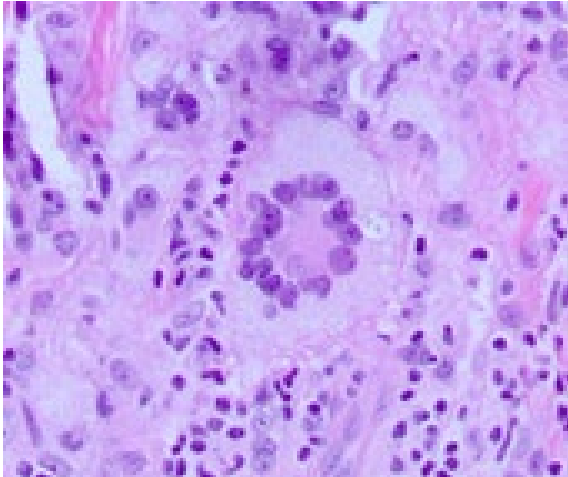
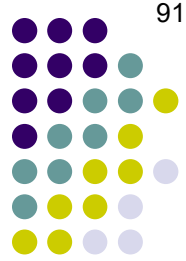
Note:

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What's the finding?

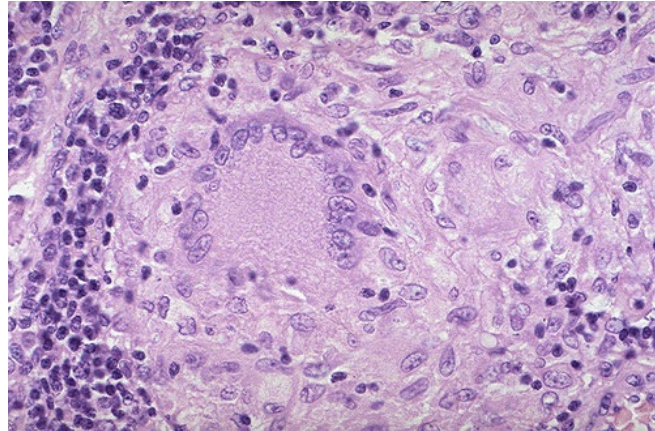
Pathwatching



Touton giant cell

Note:

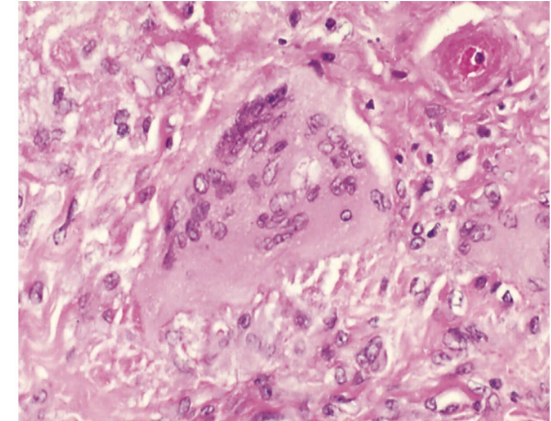
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- Central ring of nuclei
- A surrounding donut of lipid



Langhans giant cell

Note:

- Peripheral ring of nuclei (often in a horseshoe)



Foreign-body giant cell

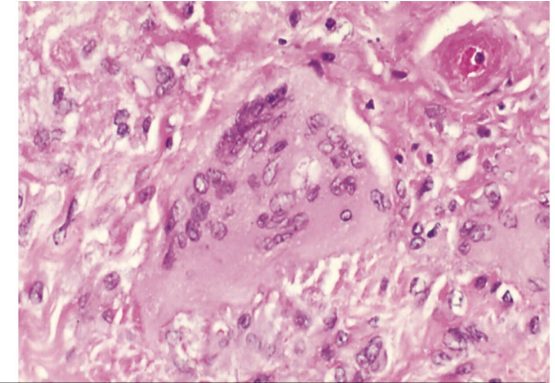
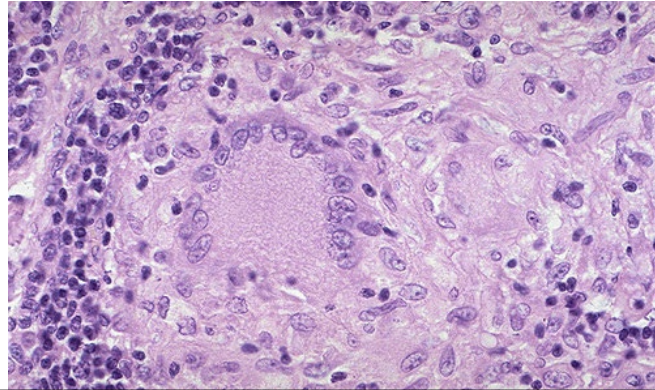
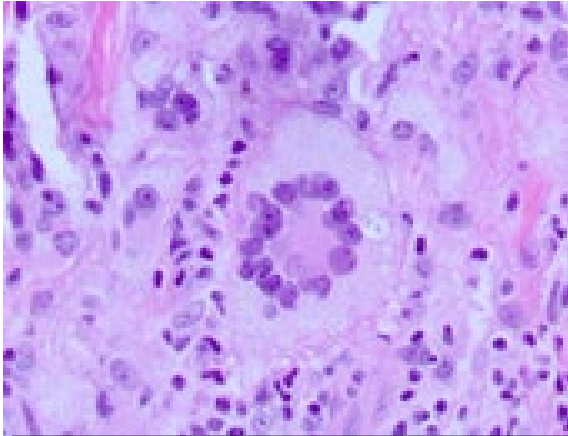
Note:

- Haphazard arrangement of nuclei

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What's the finding?

Pathwatching



For more on giant cells, see slide-set K20

Note:

- Crucially: *This* is **not** the giant cell... ***This*** is
- Central ring of nuclei
- A surrounding donut of lipid

Note:

- Peripheral ring of nuclei (often in a horseshoe)

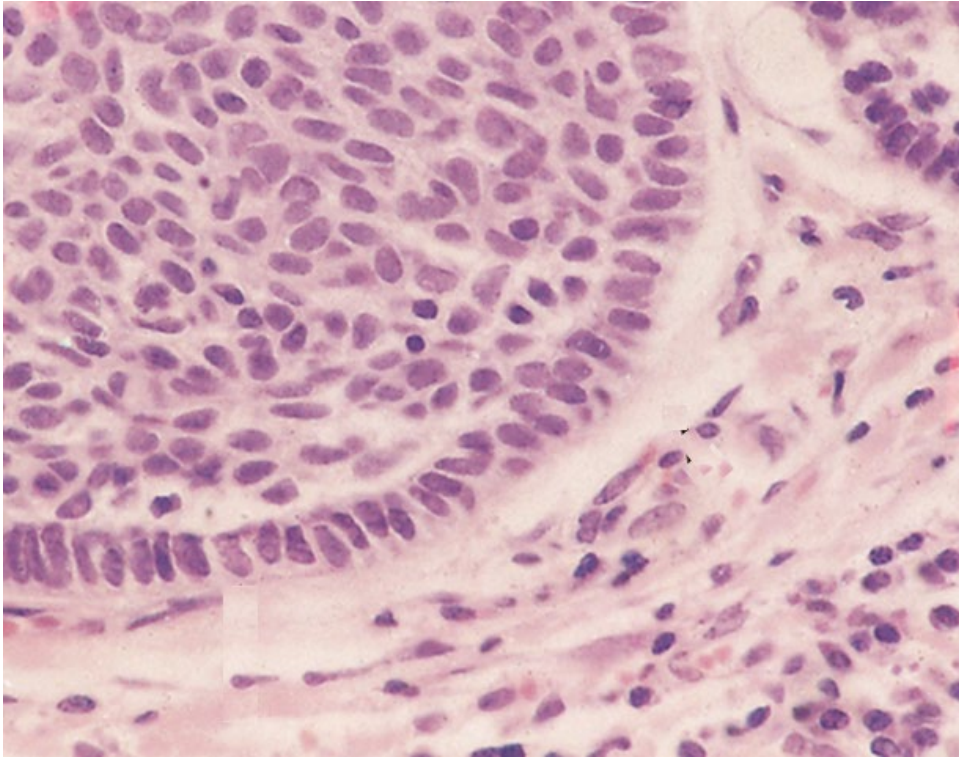
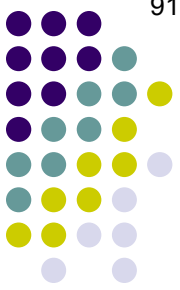
Note:

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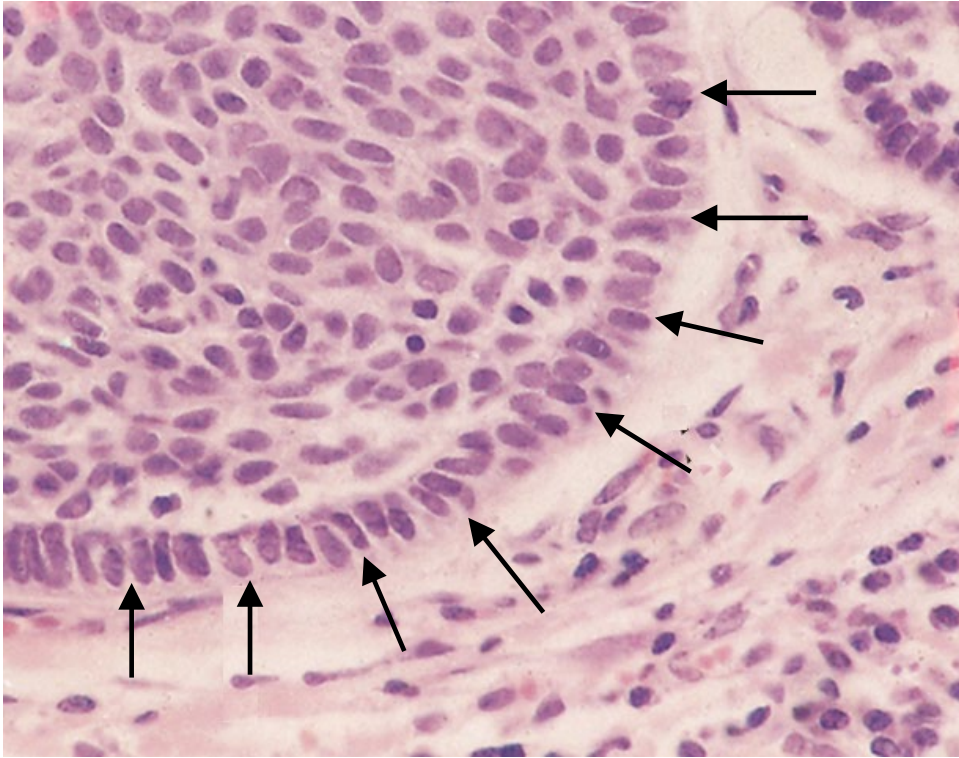
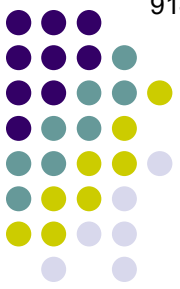
What's the finding?

Pathwatching



Another classic Path finding—what is it?

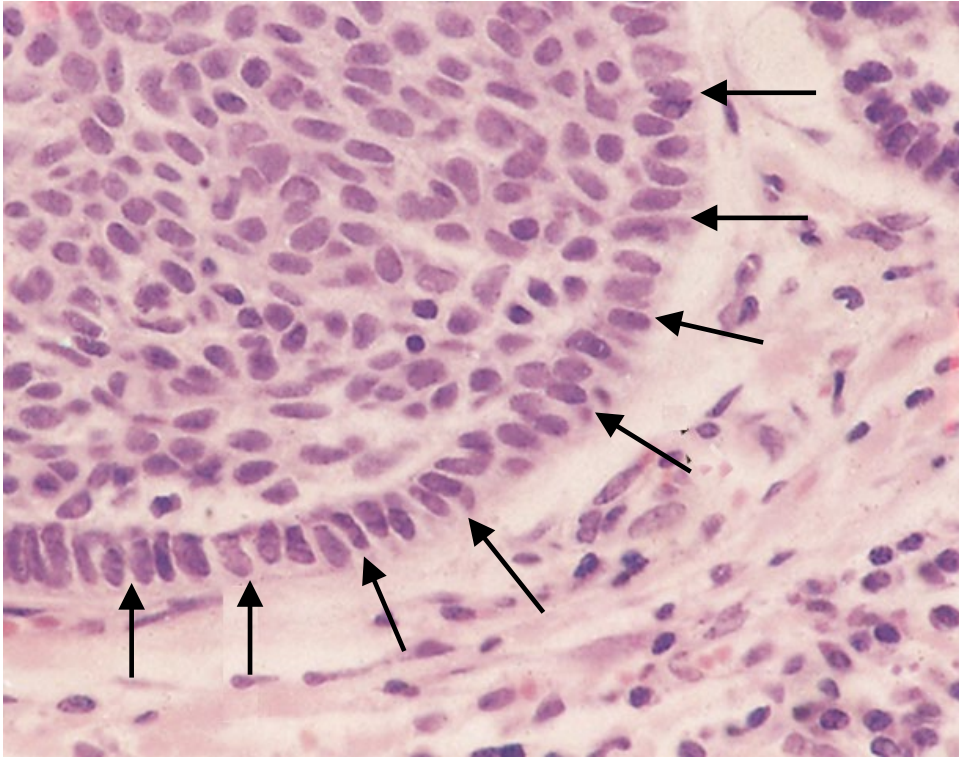
Pathwatching



Another classic Path finding—what is it? It's **this** 'picket fence' of cells (*arrows*) on the border of a large nest of similar-appearing cells.

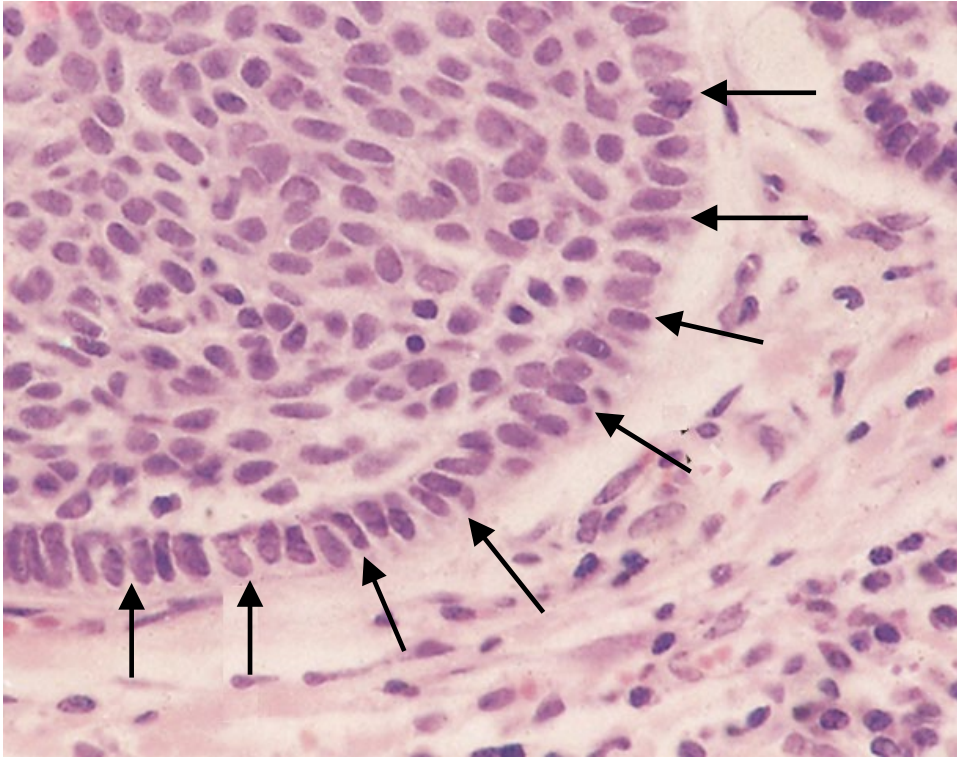
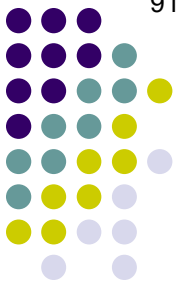


Pathwatching



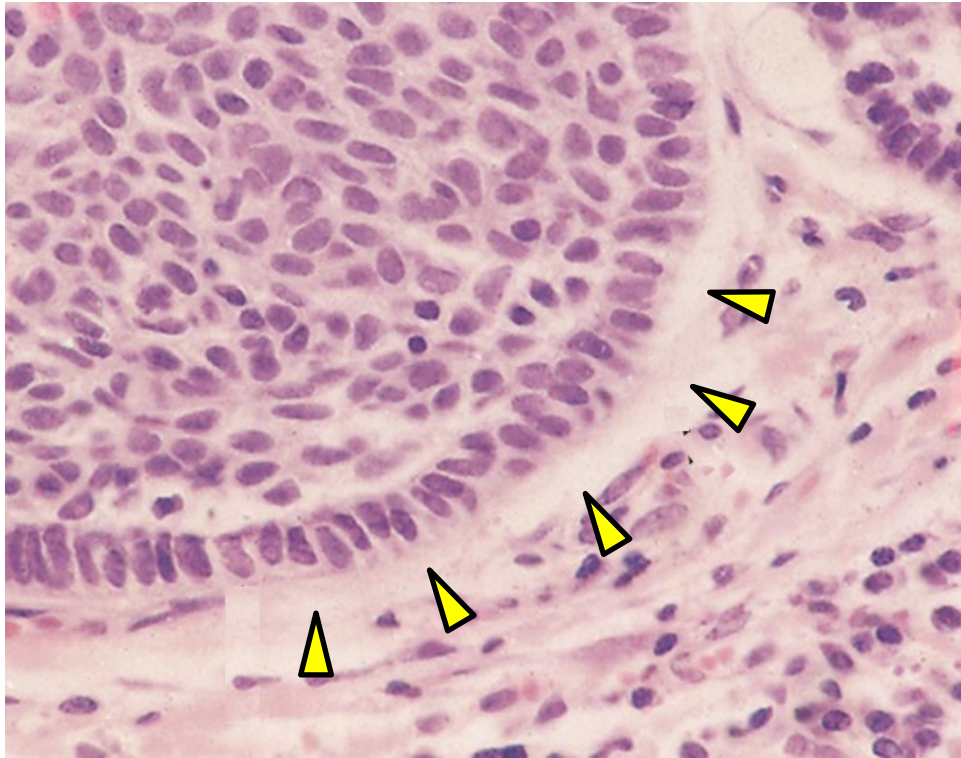
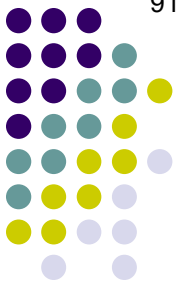
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Pathwatching



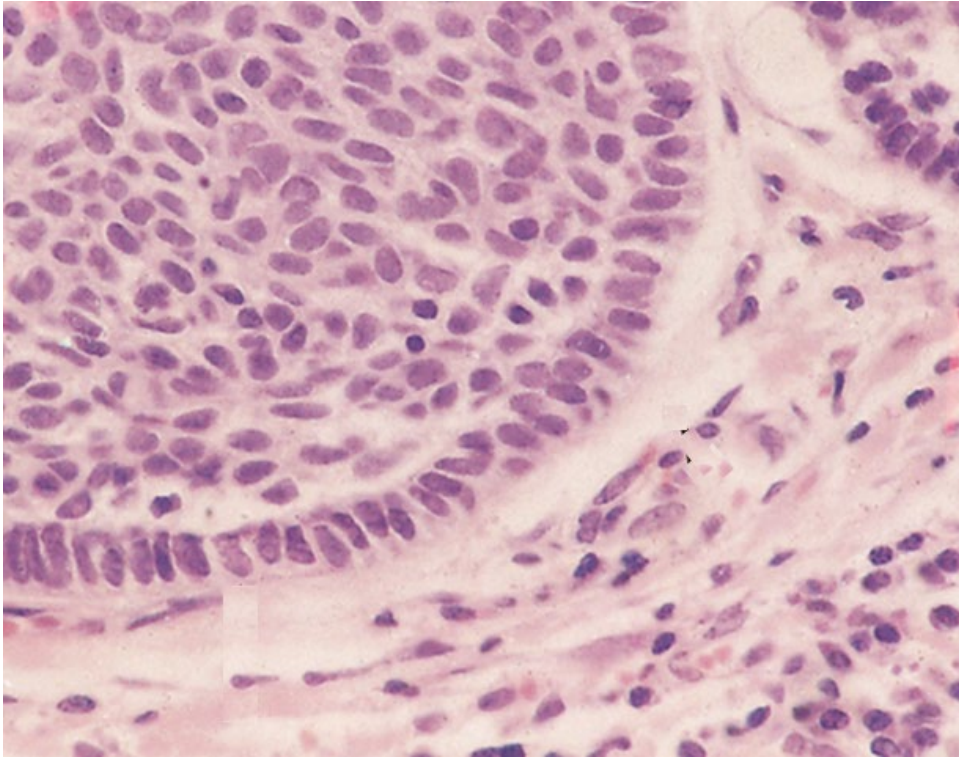
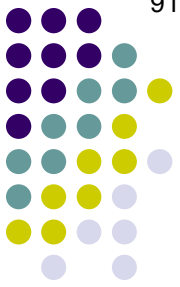
Another classic Path finding—what is it? It's **this** 'picket fence' of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be 'palisading'.

Pathwatching



Another classic Path finding—what is it? It's **this** 'picket fence' of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be 'palisading'. Note also the clear space (*arrowheads*) between the palisading cells and the surrounding tissue.

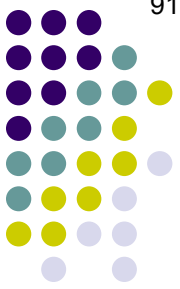
Pathwatching



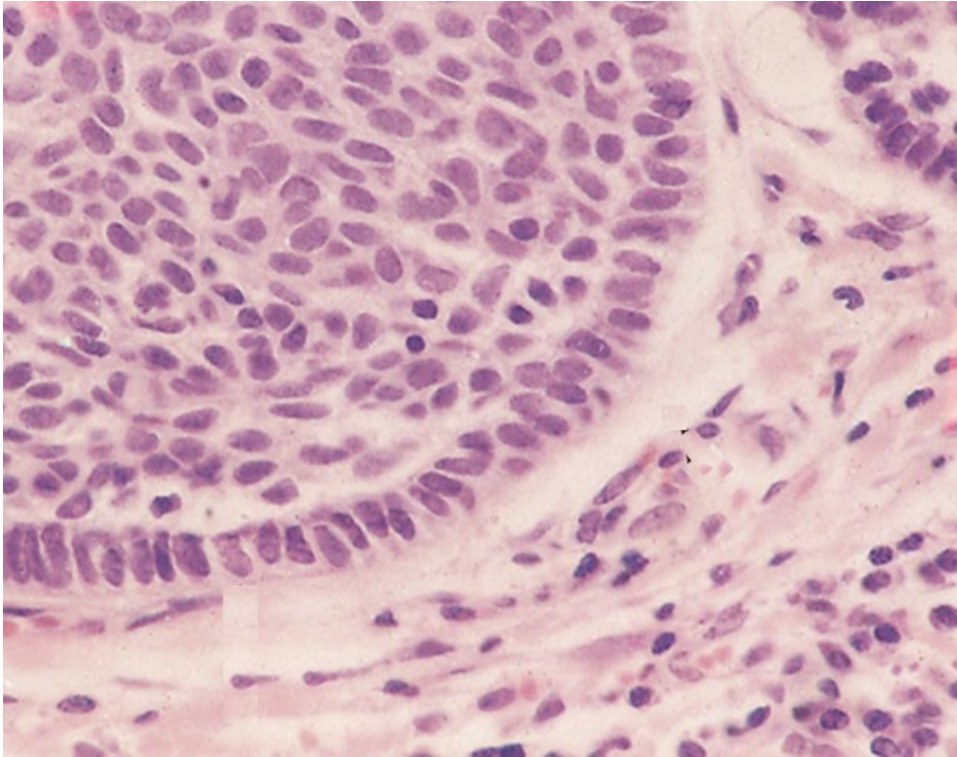
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When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?



Pathwatching



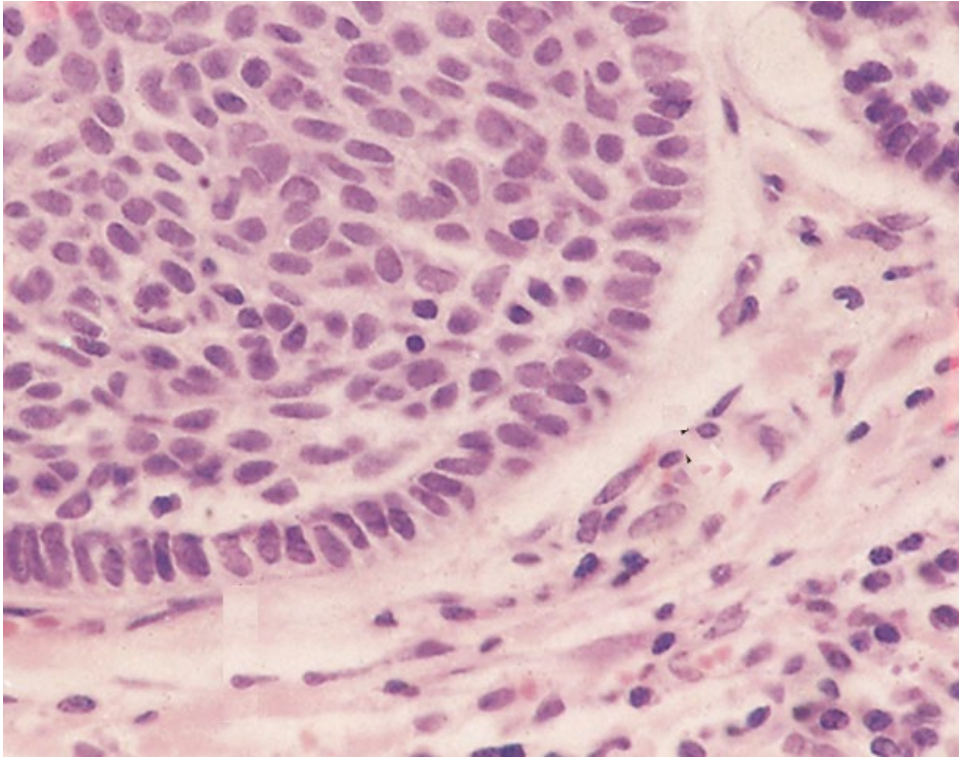
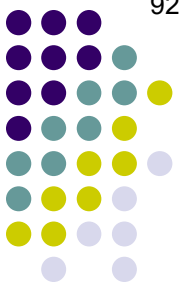
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When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the **structure**

Pathwatching

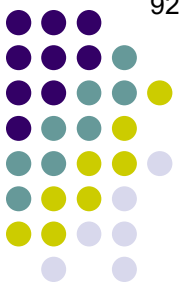


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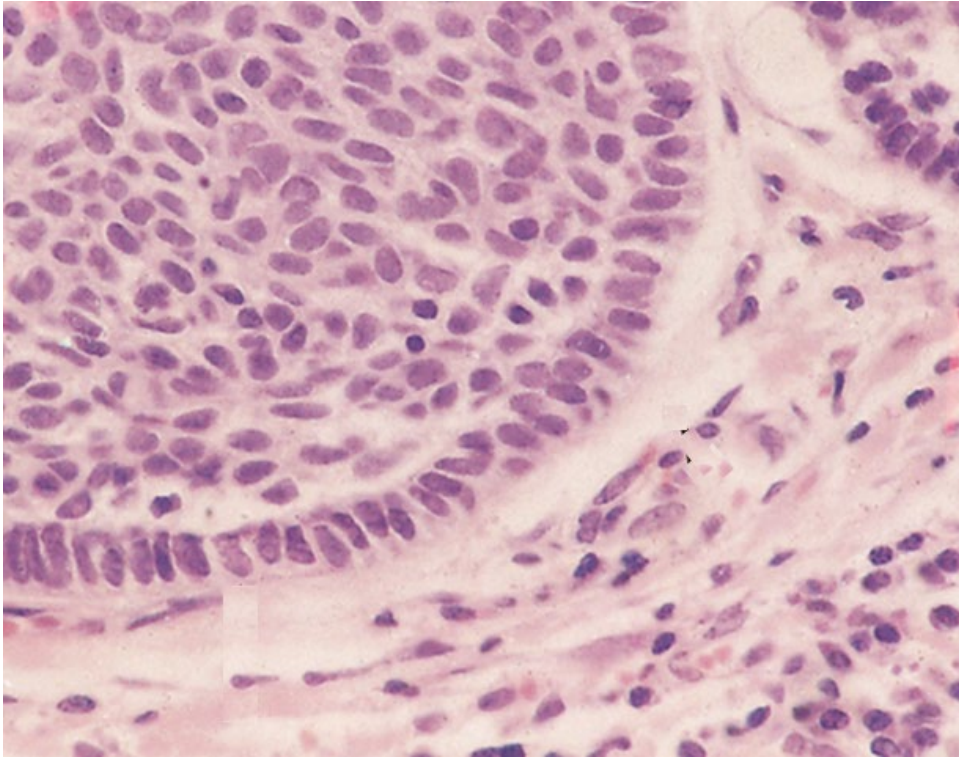
When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids



Pathwatching



Another classic Path finding—what is it? It's **this** 'picket fence' of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be 'palisading'. Note also the clear space (*arrowheads*) between the palisading cells and the surrounding tissue.

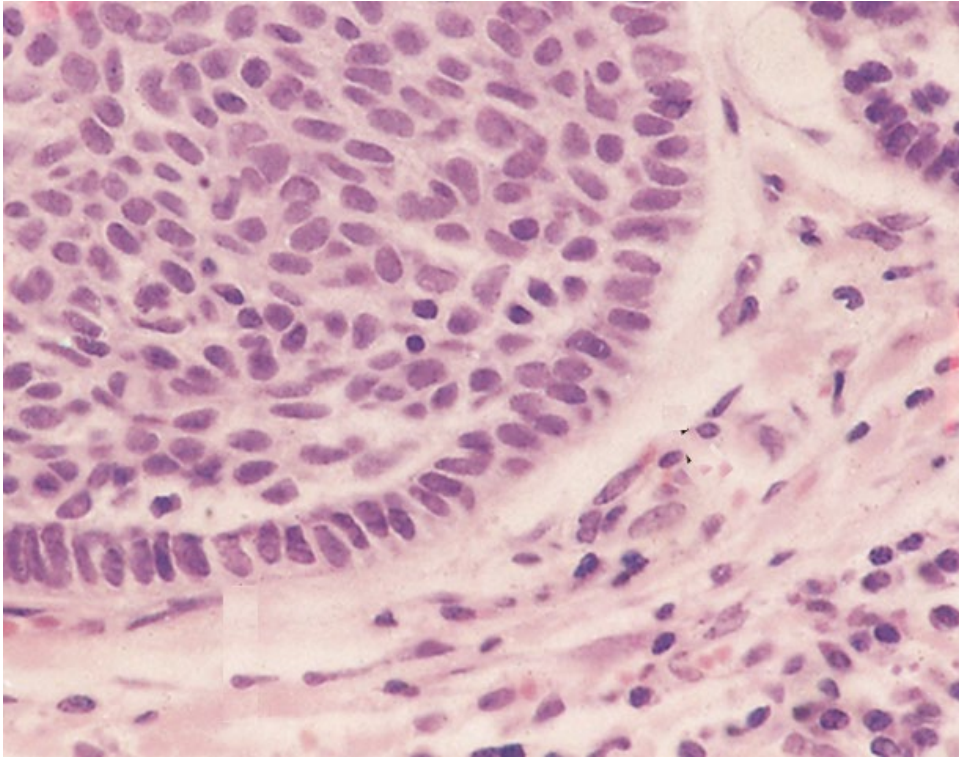
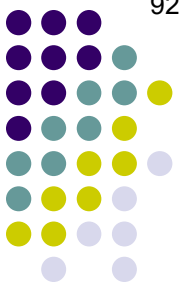
When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids .
is a strong risk factor

two words

Pathwatching



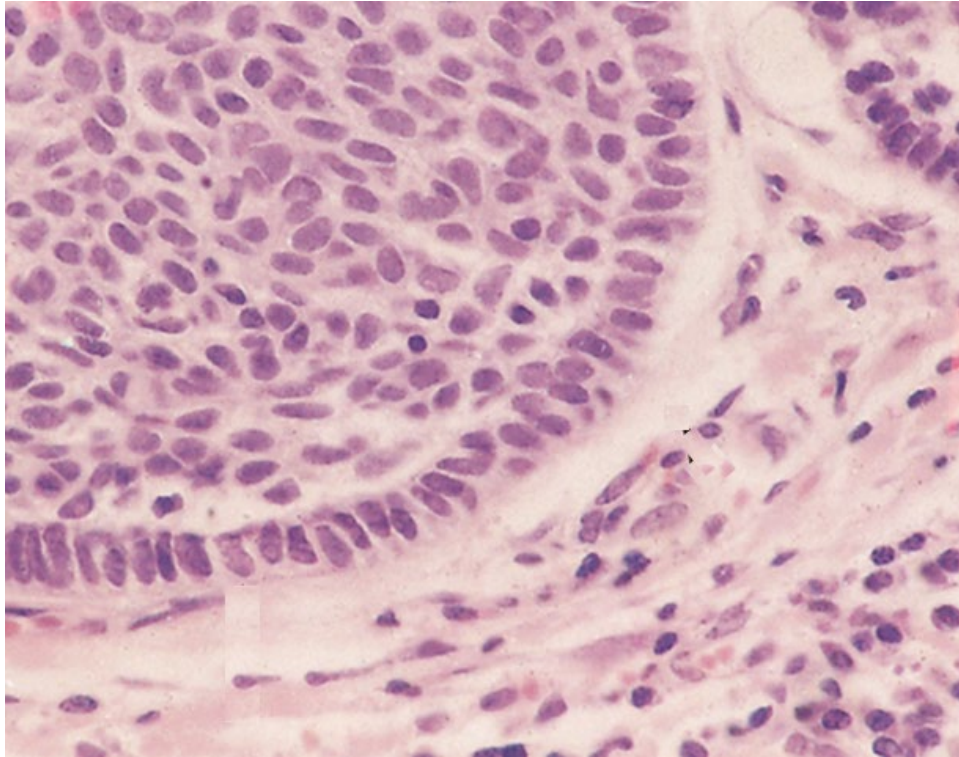
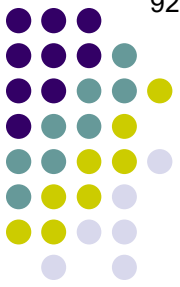
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What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids . [Sun exposure](#) is a strong risk factor

Pathwatching



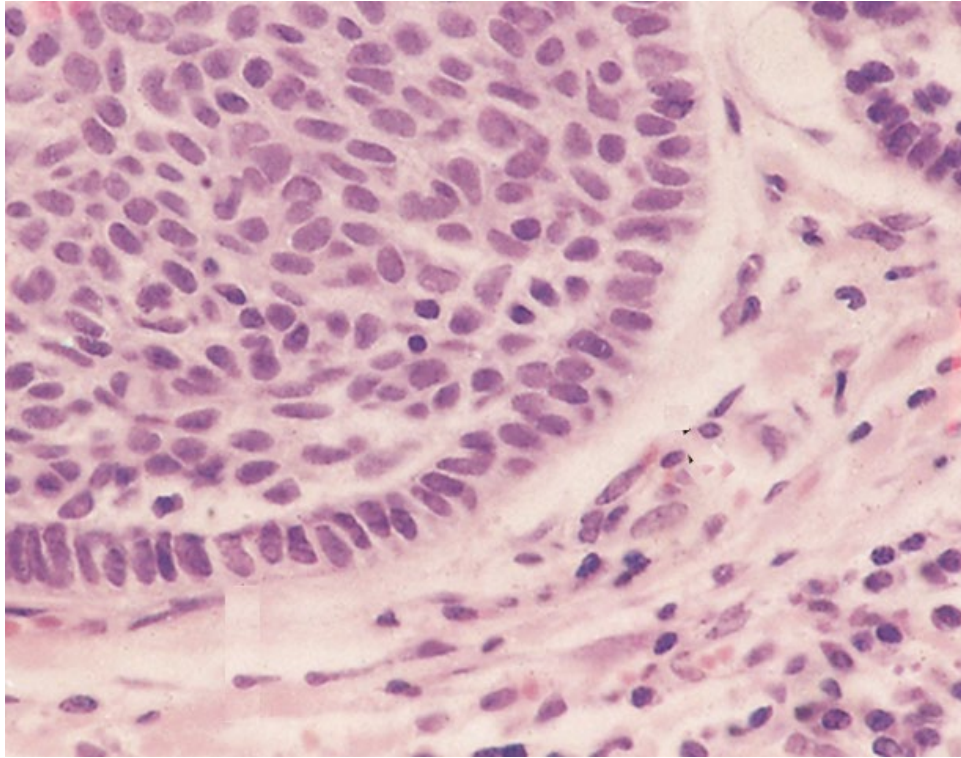
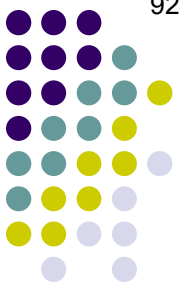
Another classic Path finding—what is it? It's **this** 'picket fence' of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be 'palisading'. Note also the clear space (*arrowheads*) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids . **Sun exposure** is a strong risk factor, and explains why the lower vs upper lid is more commonly affected.

Pathwatching

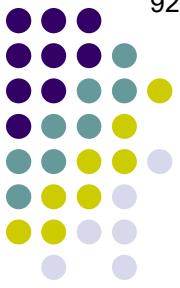


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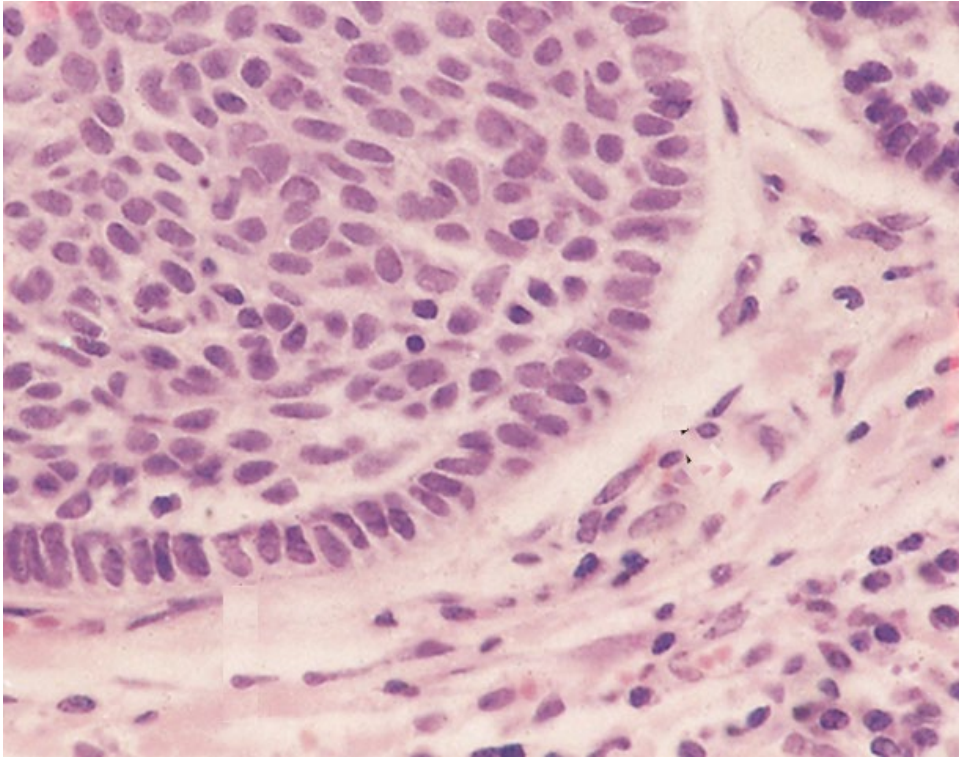
When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids . **Sun exposure is a strong risk factor**, and explains why the lower lid is more commonly affected.



Pathwatching



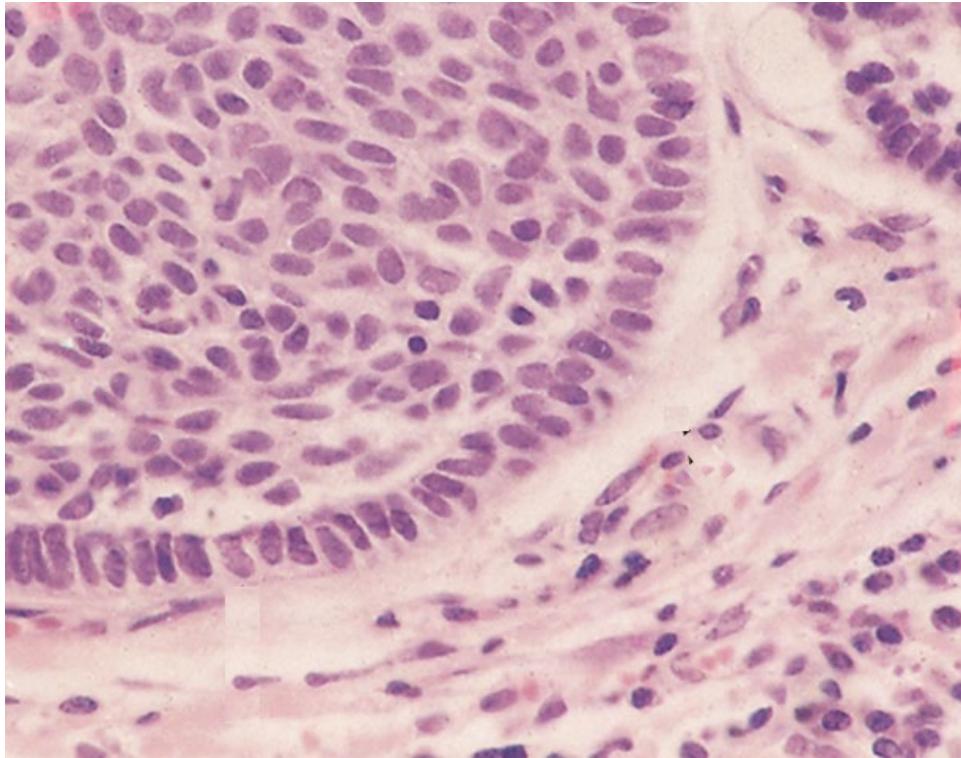
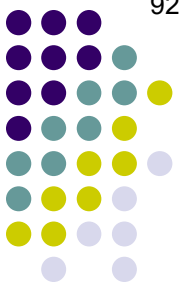
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When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids . **Sun exposure is a strong risk factor**, and explains why the lower lid is more commonly affected. **The clear spaces surrounding the tumor-cell islands are**

Pathwatching



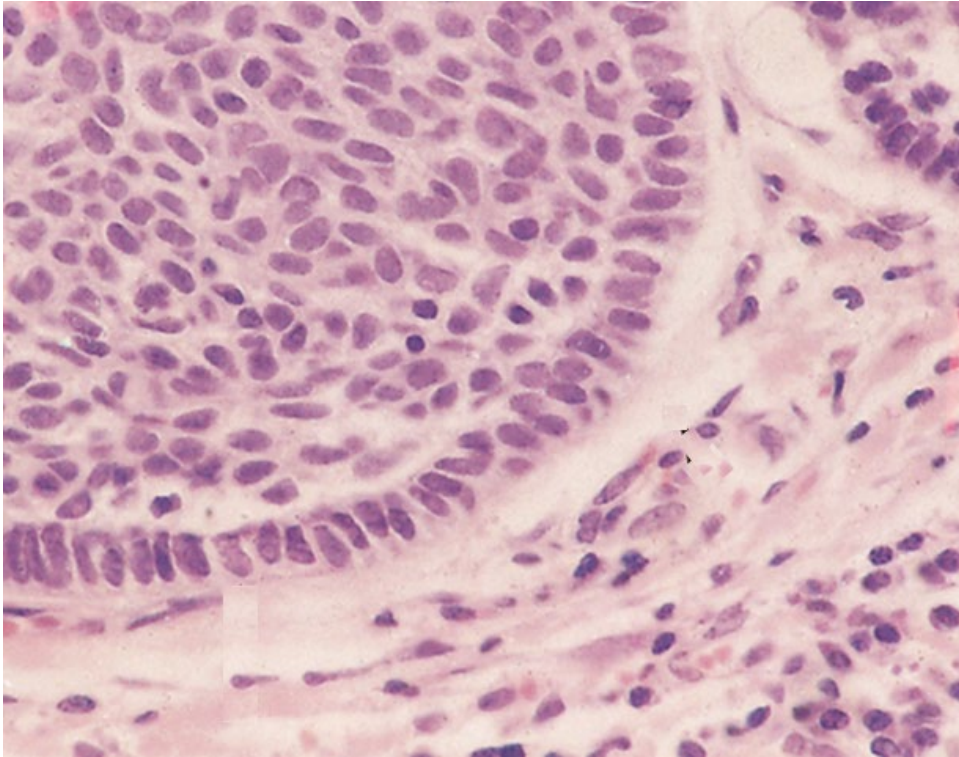
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When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids . **Sun exposure is a strong risk factor**, and explains why the lower lid is more commonly affected. **The clear spaces surrounding the tumor-cell islands are factitious**

Pathwatching



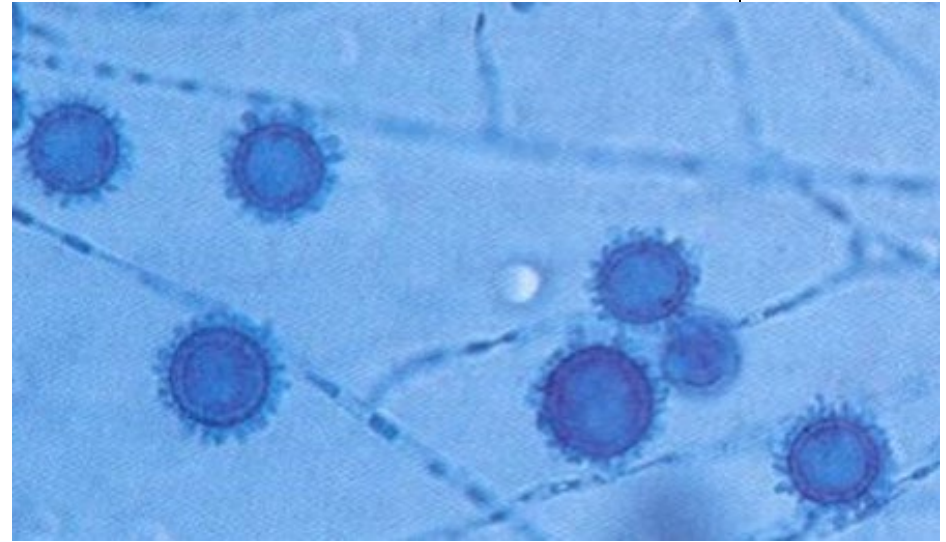
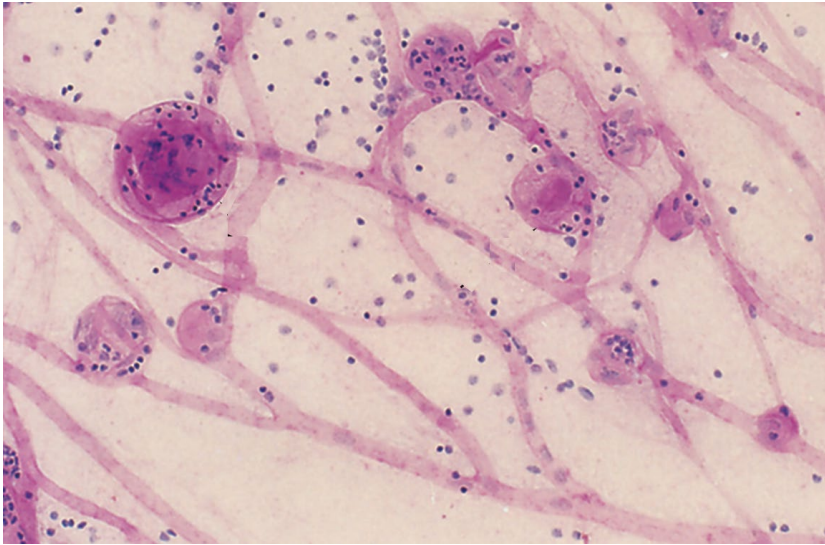
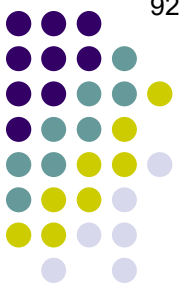
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When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What's the diagnosis?

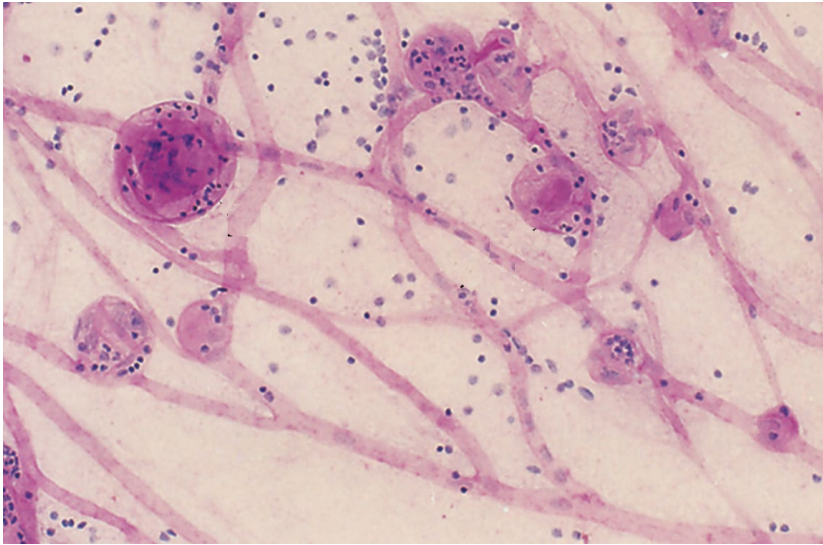
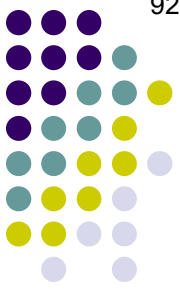
Basal cell carcinoma (BCC) is the most common malignancy of the eyelids . **Sun exposure is a strong risk factor**, and explains why the lower lid is more commonly affected. **The clear spaces surrounding the tumor-cell islands are factitious** (they arise during tissue processing).

Pathwatching

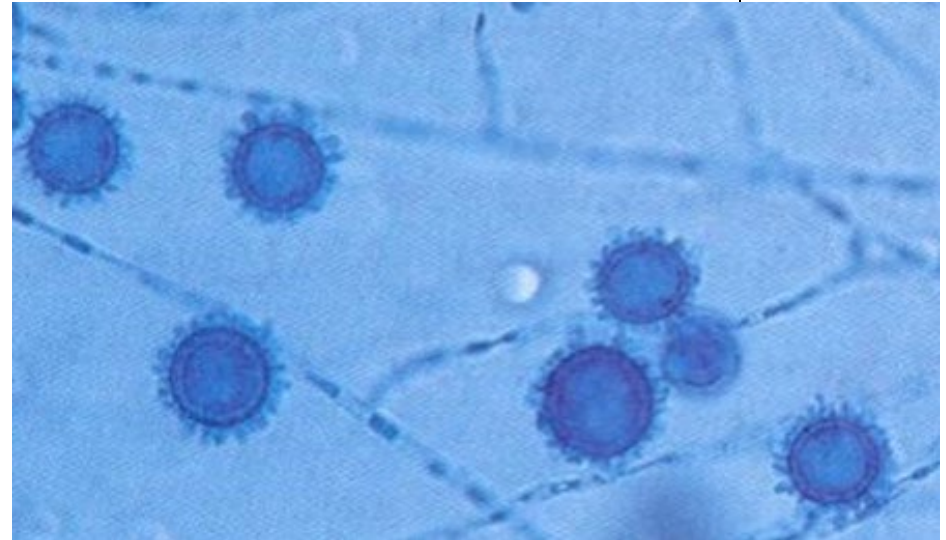


These pics could easily be confused for one another, but the path they depict couldn't be more different.
What are they?

Pathwatching

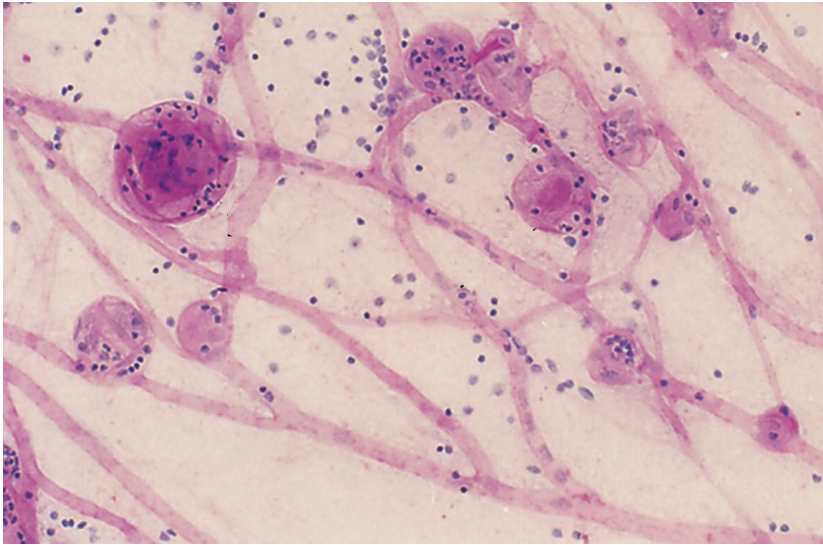
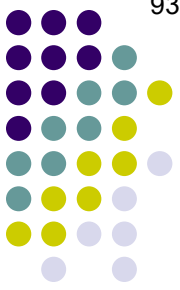


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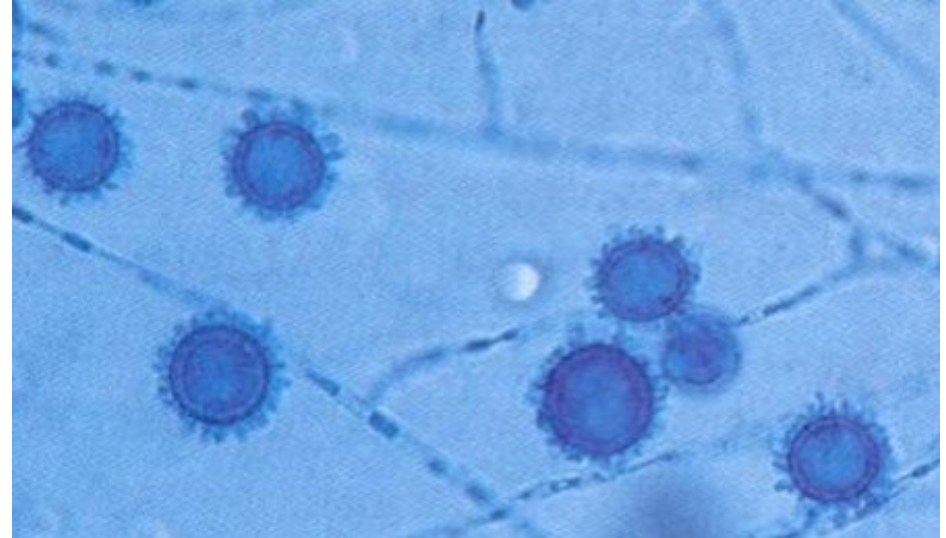


These pics could easily be confused for one another, but the path they depict couldn't be more different. What are they? The pic on the left is a special prep that allows one to see of the retinal vasculature.

Pathwatching

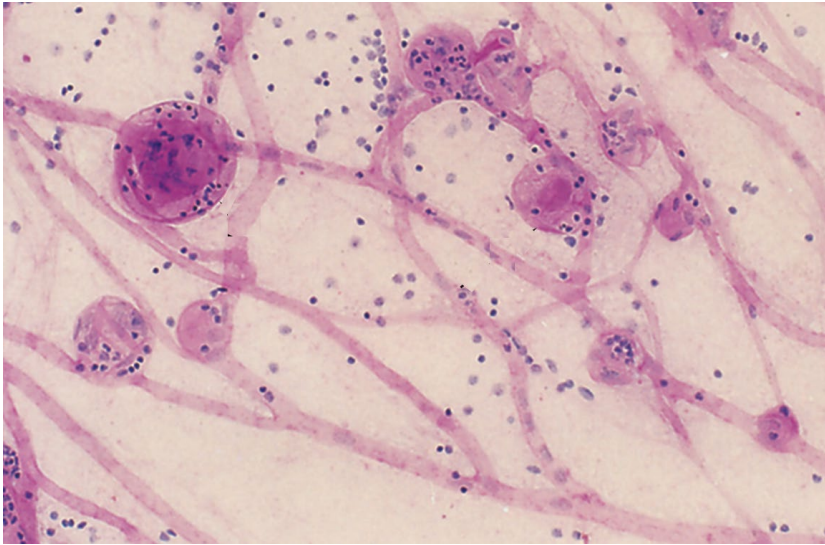
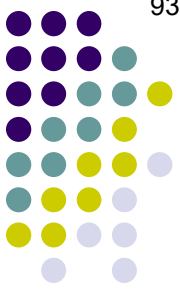


Diabetic microaneurysms (MA)

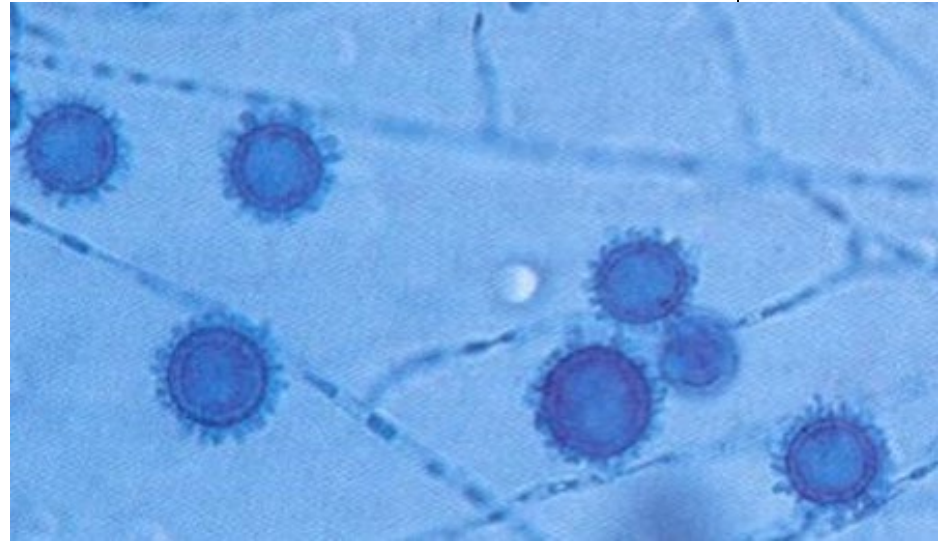


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Pathwatching



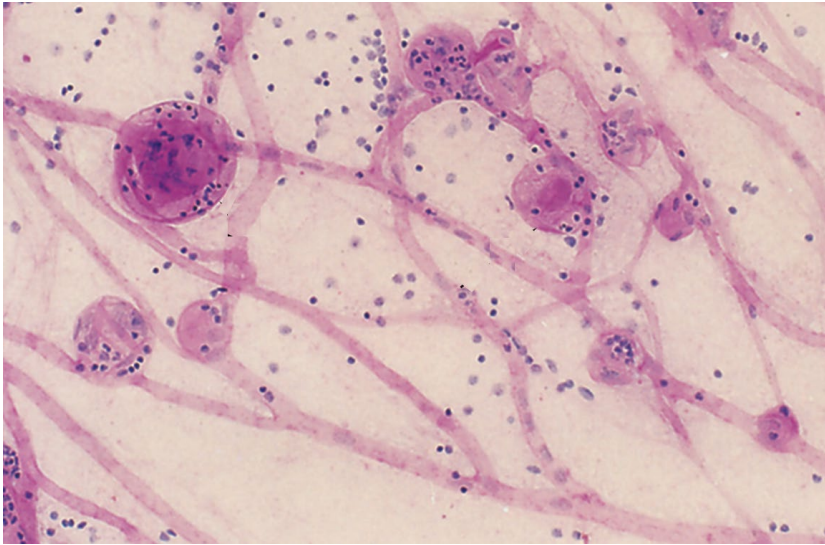
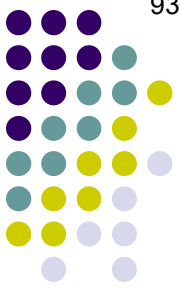
Diabetic microaneurysms (MA)



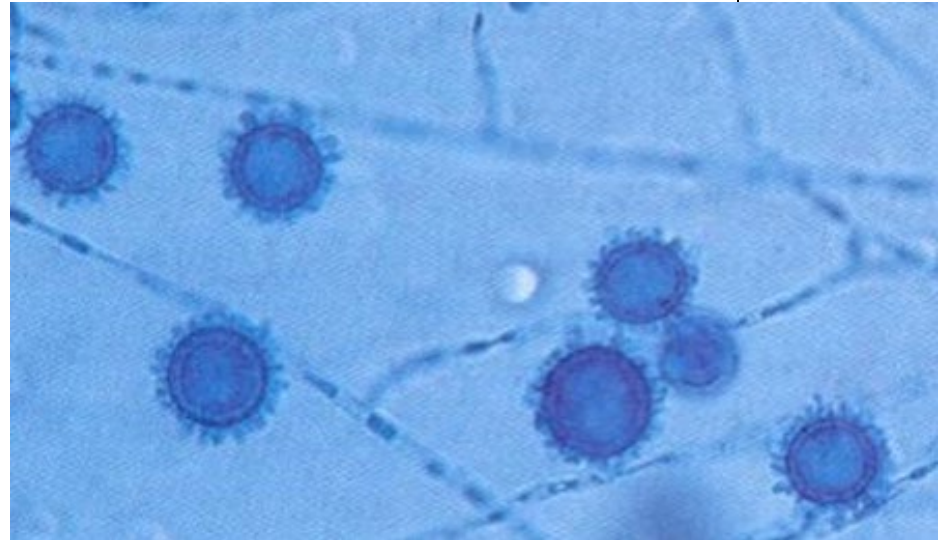
?

These pics could easily be confused for one another, but the path they depict couldn't be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts...

Pathwatching



Diabetic microaneurysms (MA)

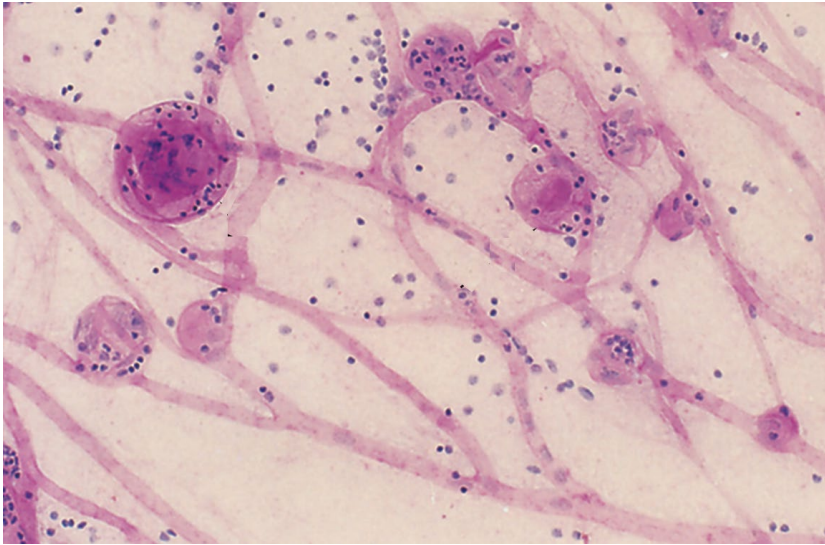
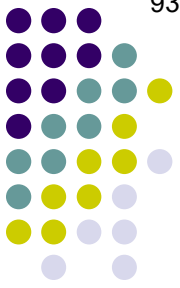


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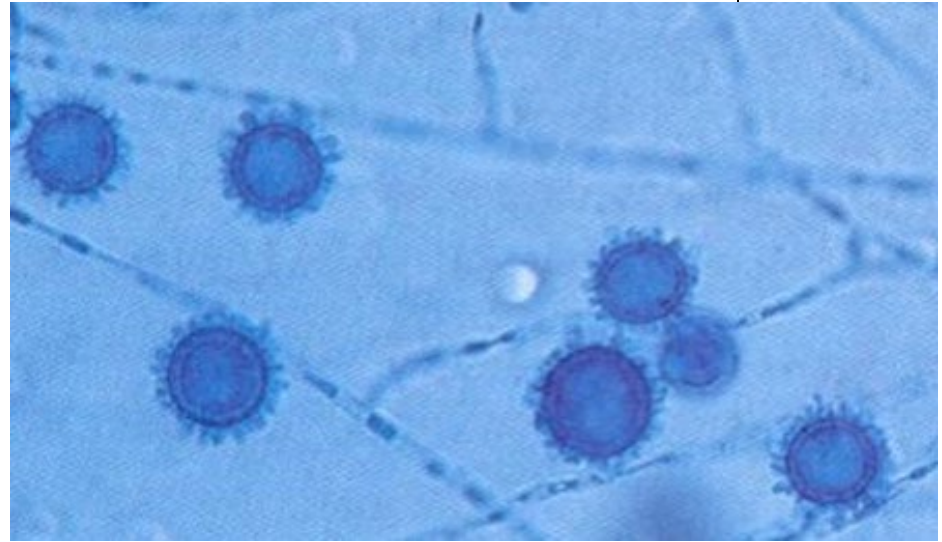
These pics could easily be confused for one another, but the path they depict couldn't be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts...the filamentous/mold form of the dimorphic fungus

two words

Pathwatching



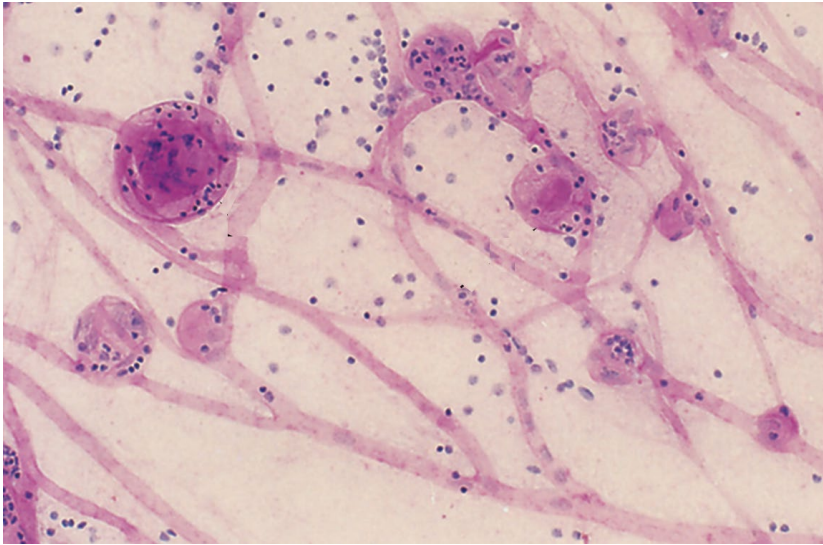
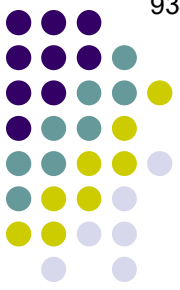
Diabetic microaneurysms (MA)



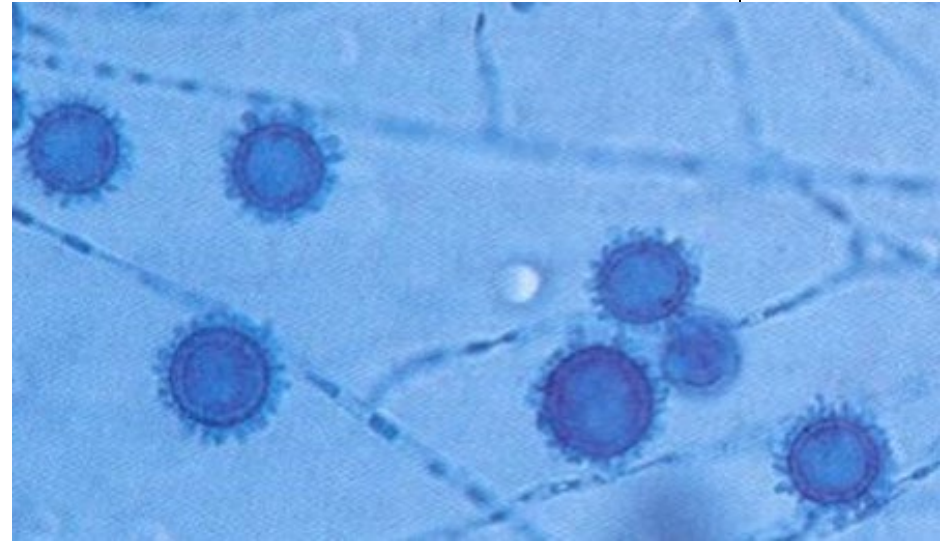
Histoplasma capsulatum

These pics could easily be confused for one another, but the path they depict couldn't be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts...the filamentous/mold form of the dimorphic fungus *Histoplasma capsulatum*.

Pathwatching



Diabetic microaneurysms (MA)

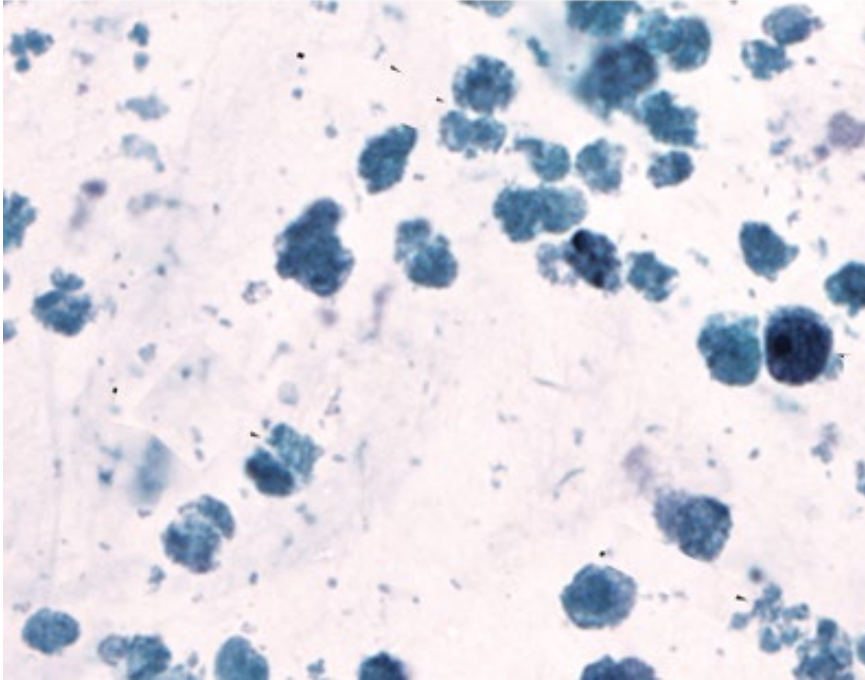
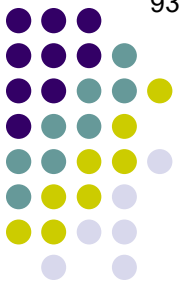


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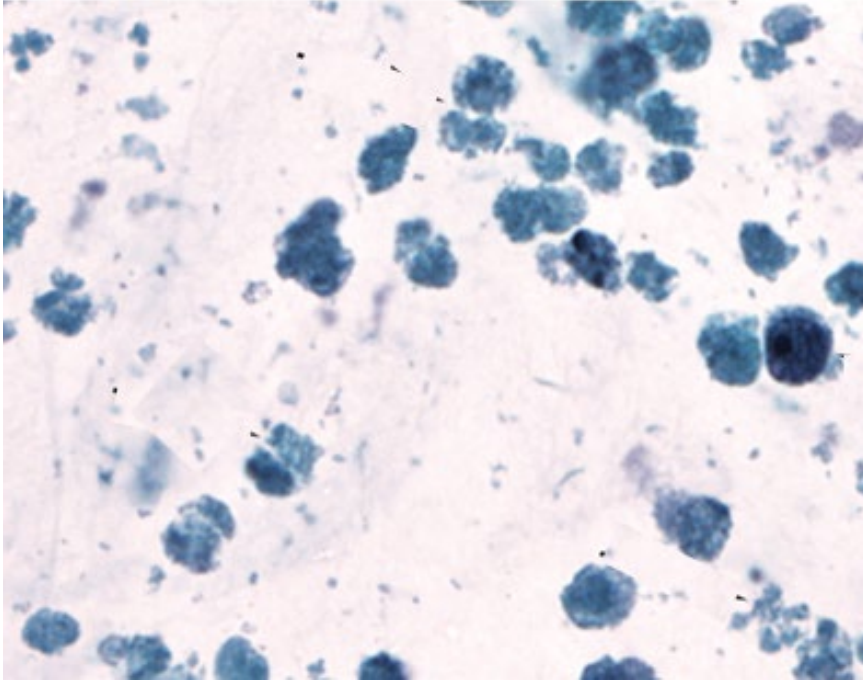
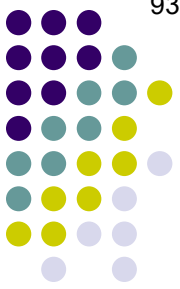
Take note of these strikingly similar images, lest you get fooled on an exam into thinking one is the other!

Pathwatching



All you're told about this is it's a vitreous biopsy.

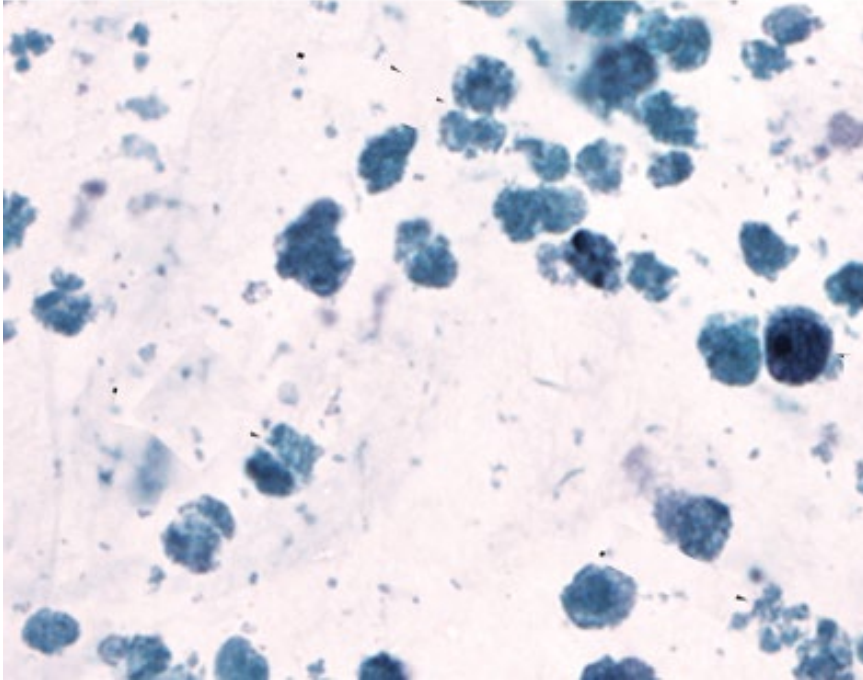
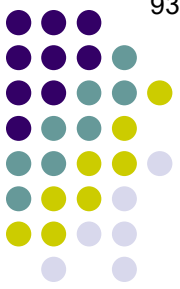
Pathwatching



All you're told about this is it's a vitreous biopsy.

In three words, what do you see?

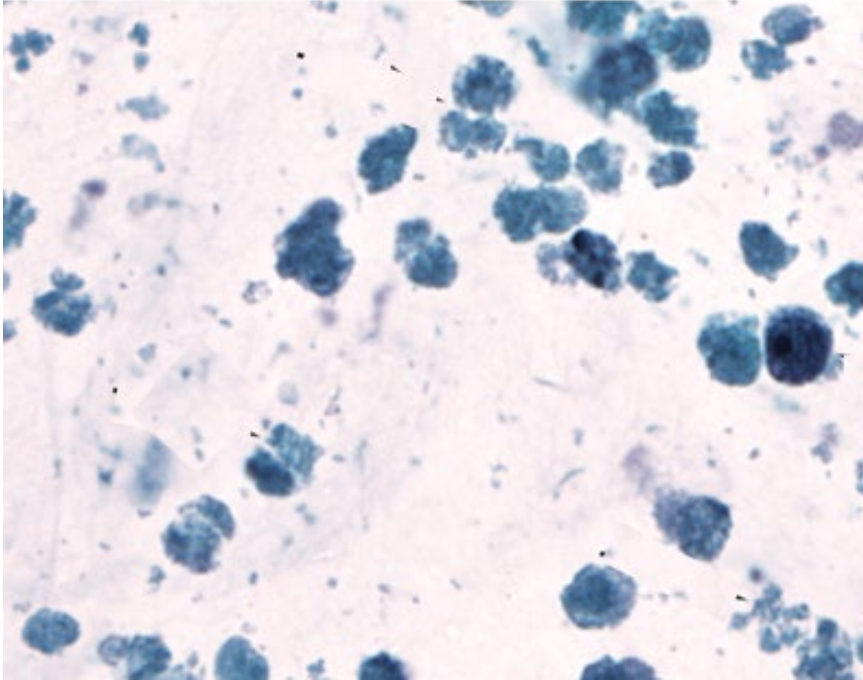
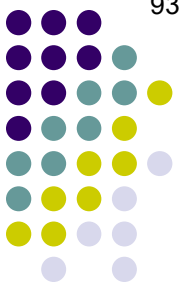
Pathwatching



All you're told about this is it's a vitreous biopsy.

In three words, what do you see? **Big blue cells**

Pathwatching



All you're told about this is it's a vitreous biopsy.

In three words, what do you see? **Big blue cells**

Note that these BBCs demonstrate several worrisome characteristics:

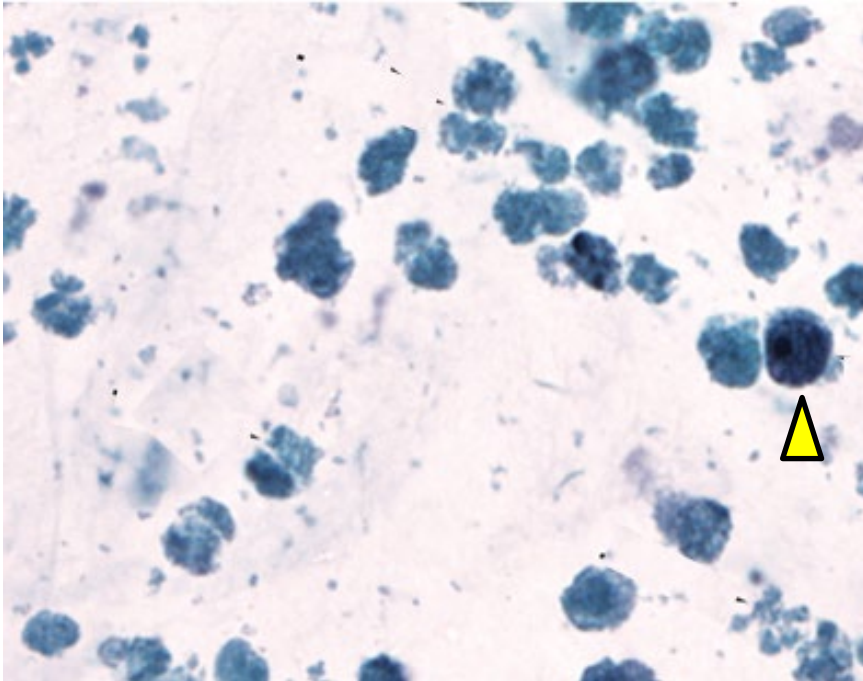
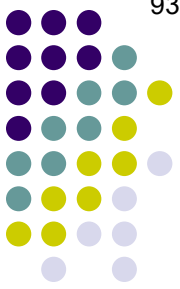
--?

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Pathwatching



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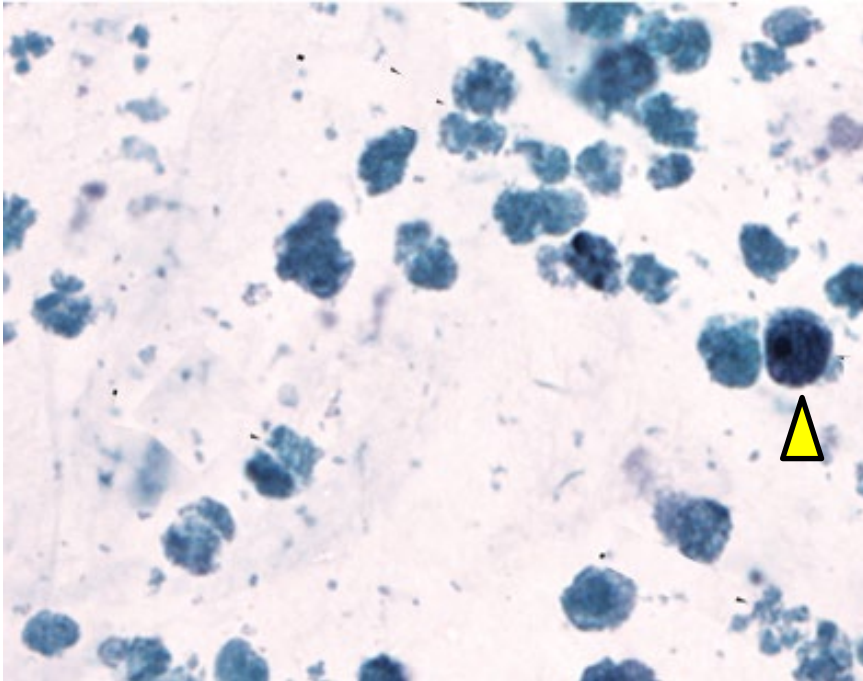
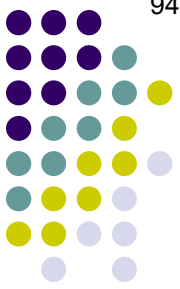
--Scant (*arrowhead*)

--?

--?

--?

Pathwatching



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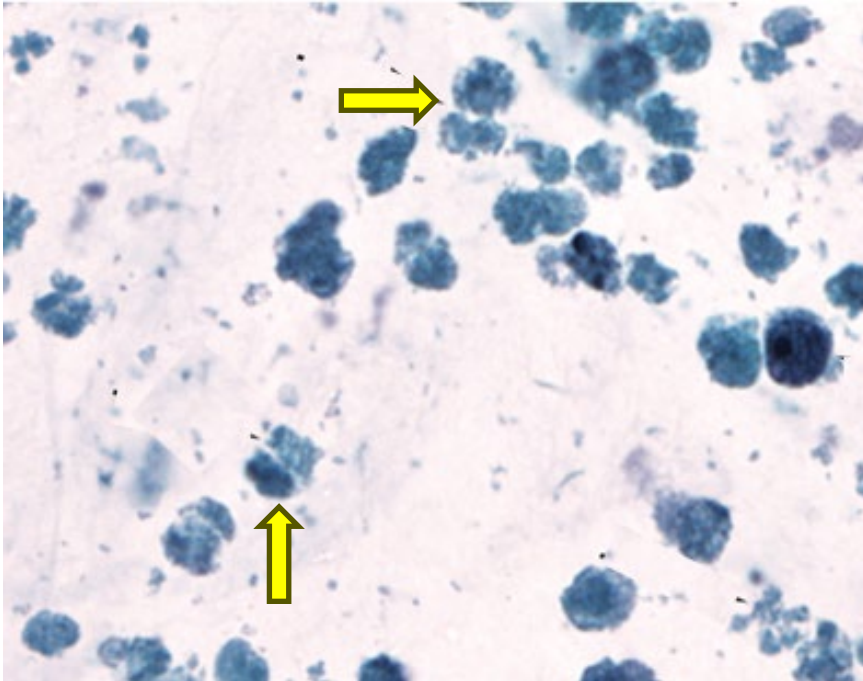
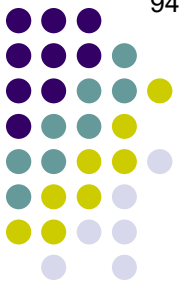
--Scant cytoplasm (*arrowhead*)

--?

--?

--?

Pathwatching



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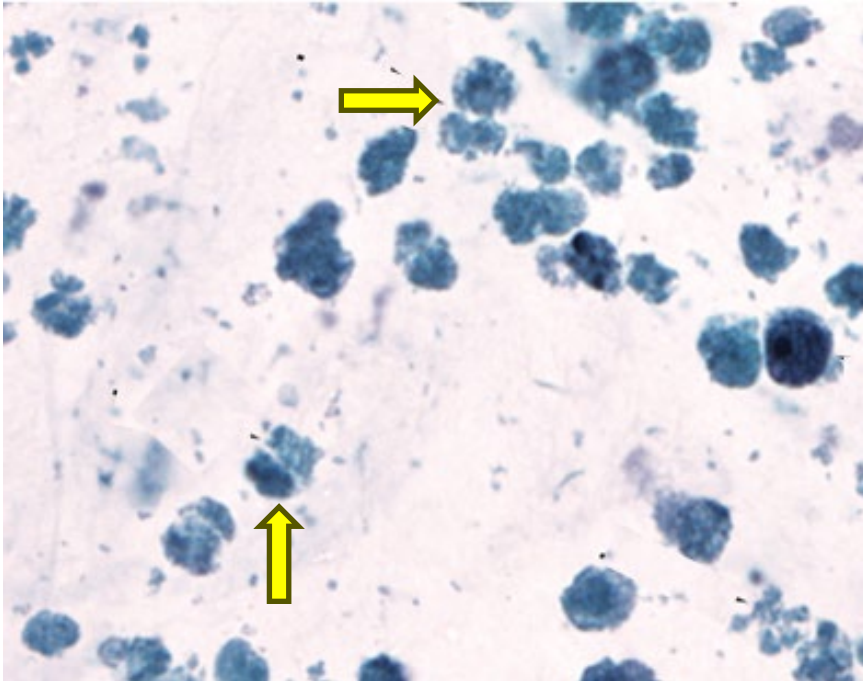
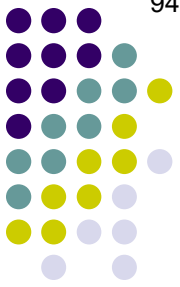
--Scant cytoplasm (*arrowhead*)

-- cells (*arrows*)

--?

--?

Pathwatching



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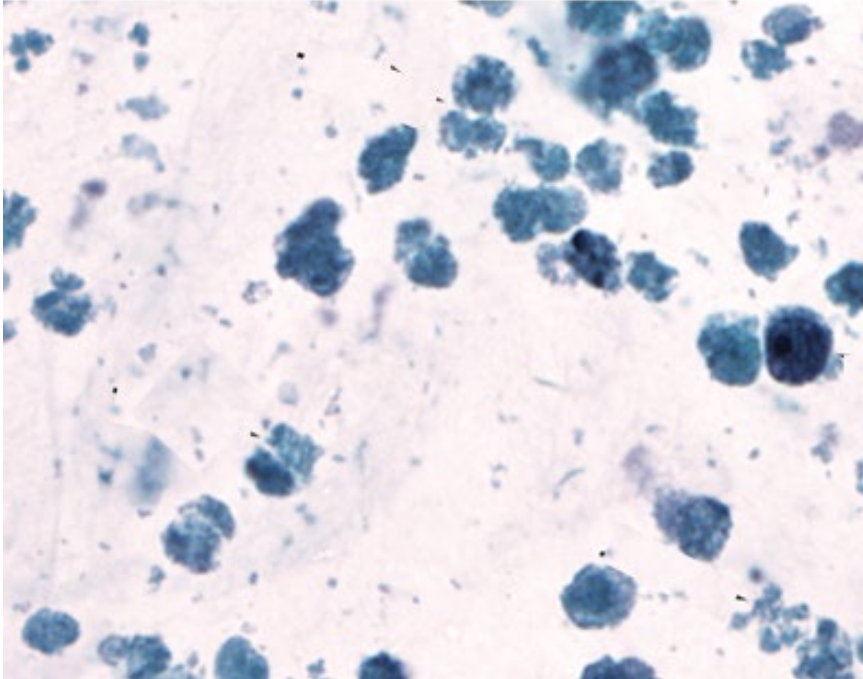
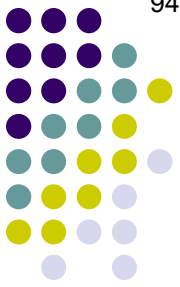
--Scant cytoplasm (*arrowhead*)

--Smudge cells (*arrows*)

--?

--?

Pathwatching



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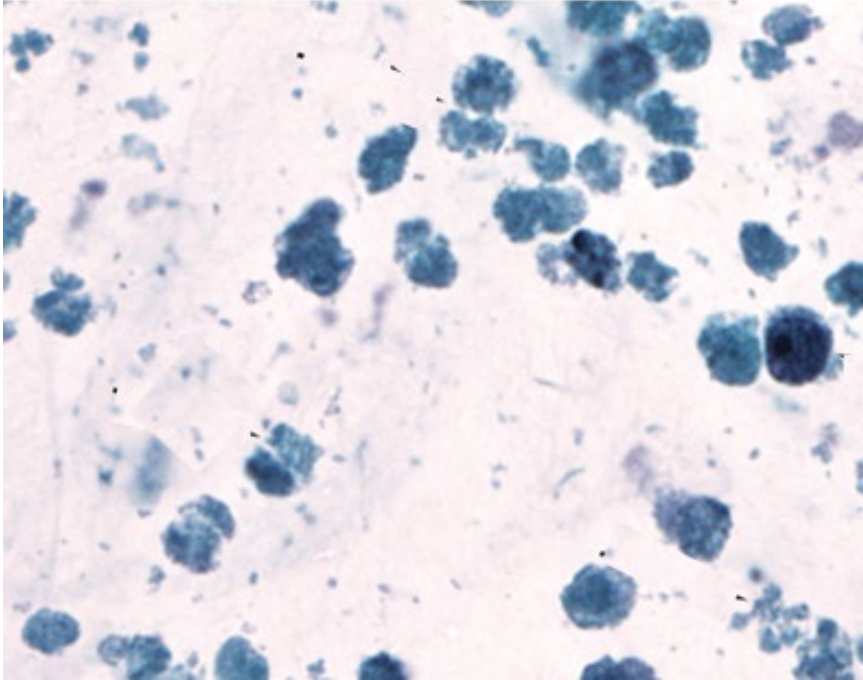
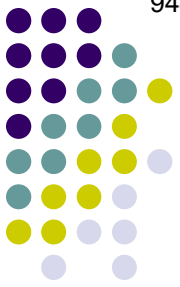
--Scant cytoplasm (*arrowhead*)

--Smudge cells (*arrows*)

--Hyperchromatic

--?

Pathwatching



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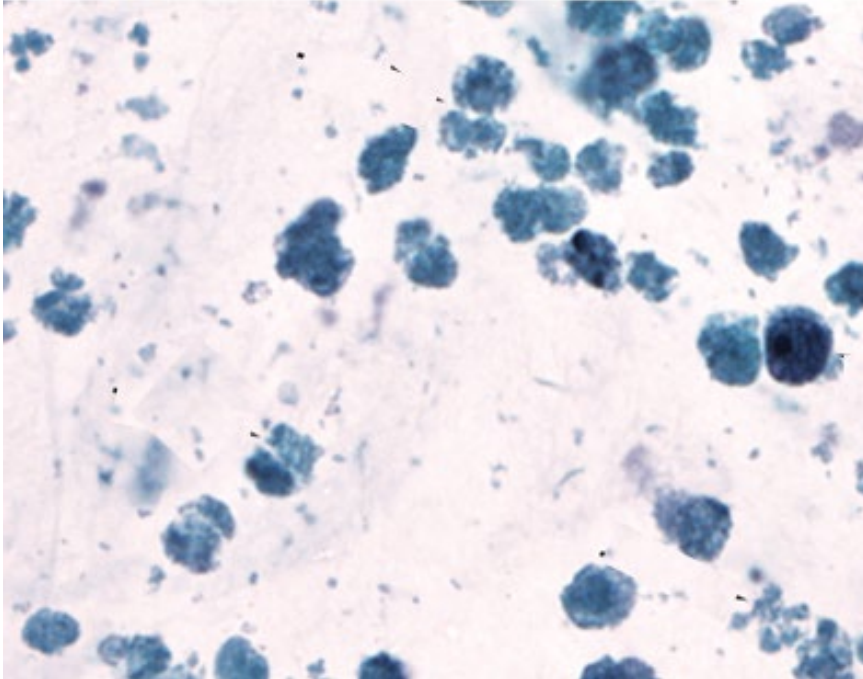
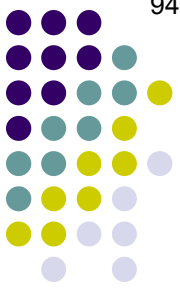
--Scant cytoplasm (*arrowhead*)

--Smudge cells (*arrows*)

--Hyperchromatic nuclei

--?

Pathwatching



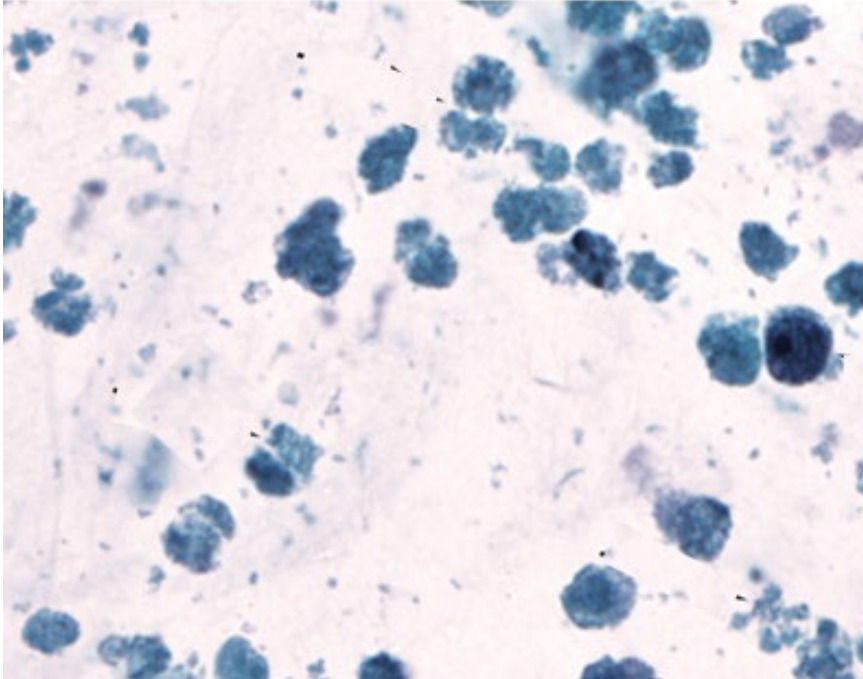
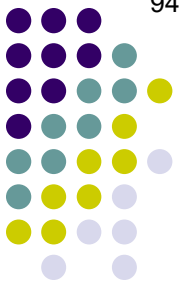
All you're told about this is it's a vitreous biopsy.

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Note that these BBCs demonstrate several worrisome characteristics:

- Scant cytoplasm (*arrowhead*)
- Smudge cells (*arrows*)
- Hyperchromatic nuclei
- Prominent

Pathwatching



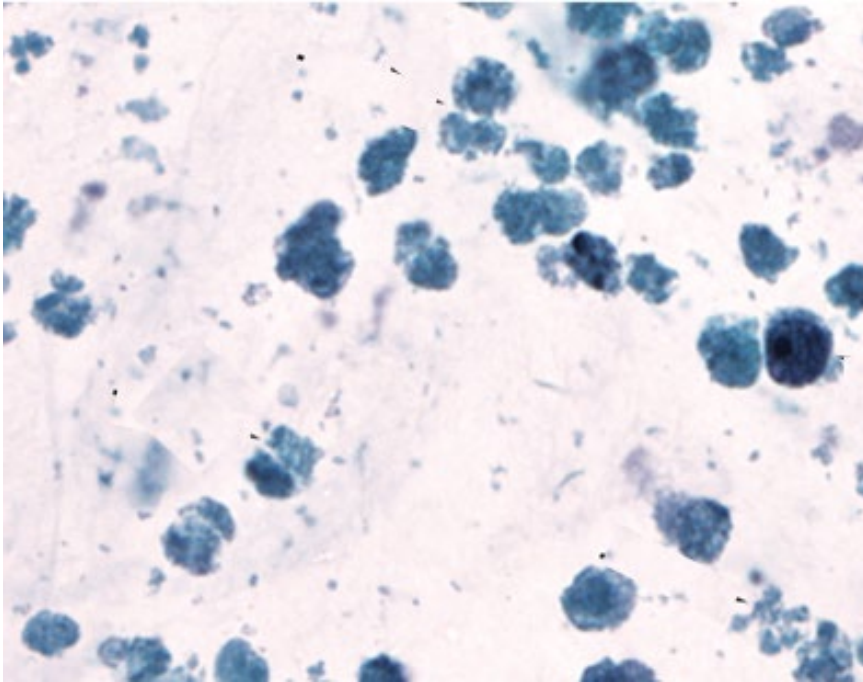
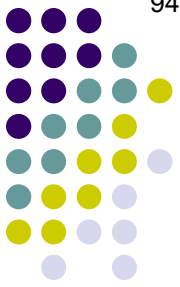
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Pathwatching



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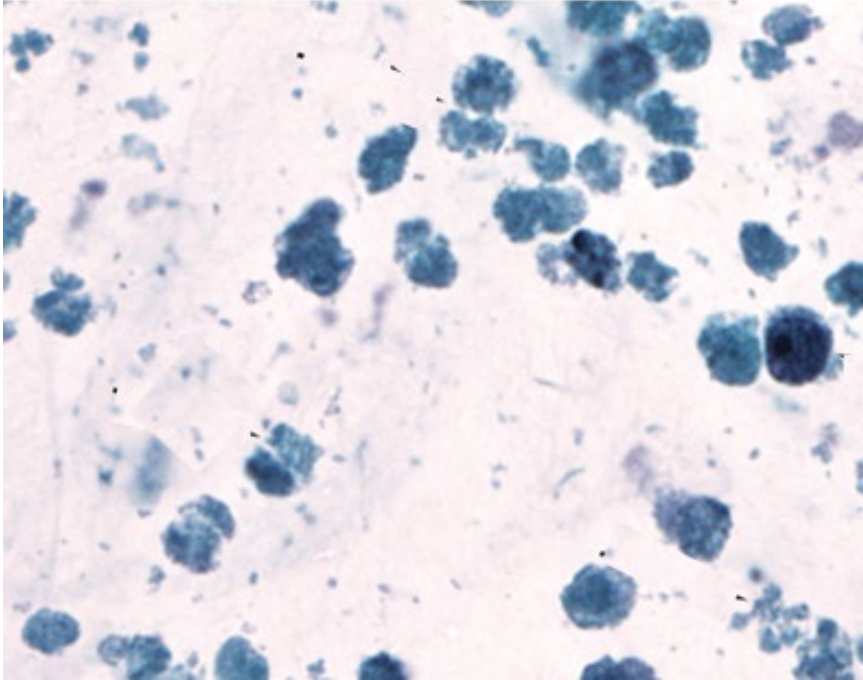
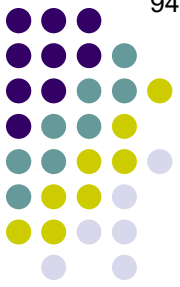
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

Pathwatching



What's the diagnosis?

All you're told about this is it's a vitreous biopsy.

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Note that these BBCs demonstrate several worrisome characteristics:

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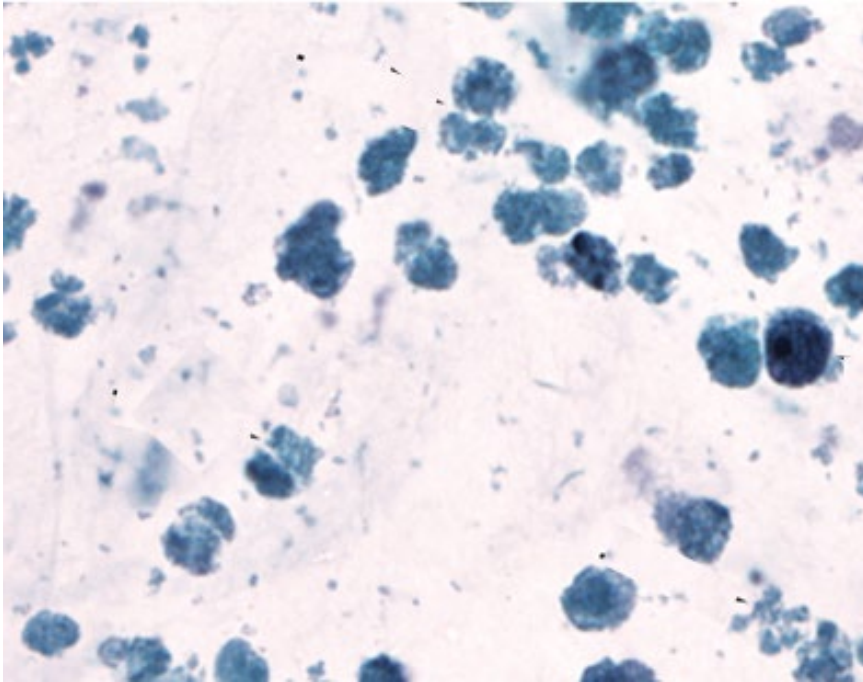
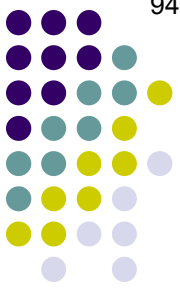
When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

Primary intraocular lymphoma (PIOL) is

a very common vs
an uncommon vs
a very rare

malignancy

Pathwatching



What's the diagnosis?

All you're told about this is it's a vitreous biopsy.

*In three words, what do you see? **Big blue cells***

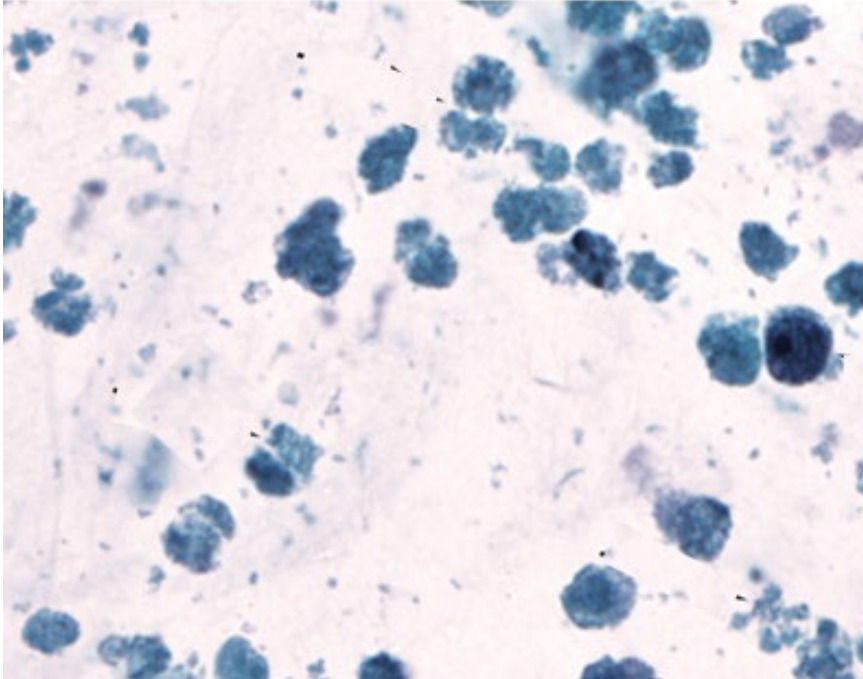
Note that these BBCs demonstrate several worrisome characteristics:

- Scant cytoplasm (*arrowhead*)
- Smudge cells (*arrows*)
- Hyperchromatic nuclei
- Prominent nucleoli

When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

Primary intraocular lymphoma (PIOL) is an uncommon malignancy

Pathwatching



What's the diagnosis?

All you're told about this is it's a vitreous biopsy.

*In three words, what do you see? **Big blue cells***

Note that these BBCs demonstrate several worrisome characteristics:

- Scant cytoplasm (*arrowhead*)
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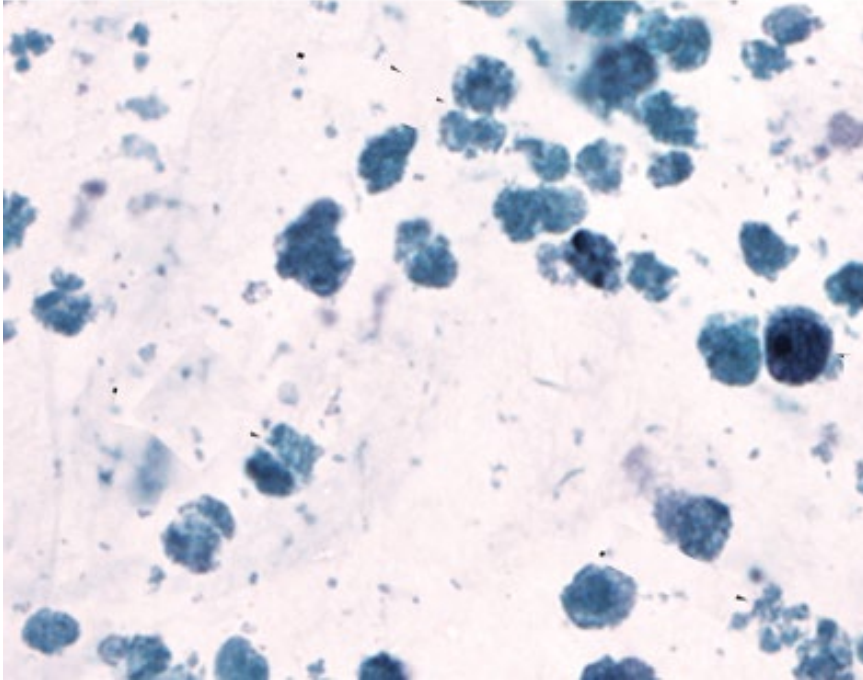
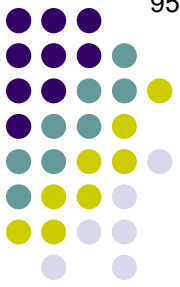
When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

Primary intraocular lymphoma (PIOL) is an uncommon malignancy . **The vast majority are**

B- vs
T-cell

in origin.

Pathwatching



What's the diagnosis?

All you're told about this is it's a vitreous biopsy.

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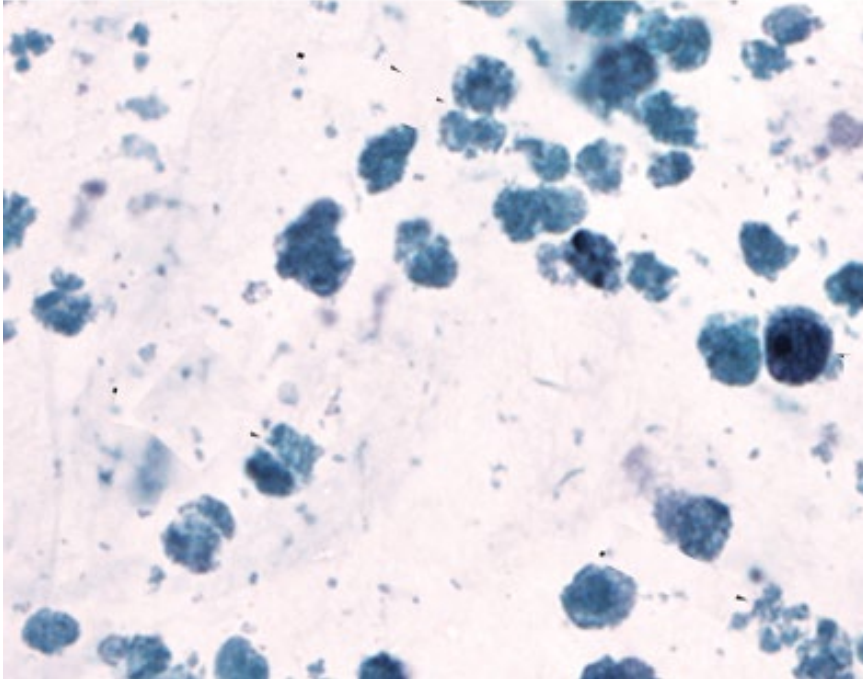
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

Primary intraocular lymphoma (PIOL) is an uncommon malignancy . **The vast majority are B-cell in origin.**

Pathwatching



What's the diagnosis?

All you're told about this is it's a vitreous biopsy.

*In three words, what do you see? **Big blue cells***

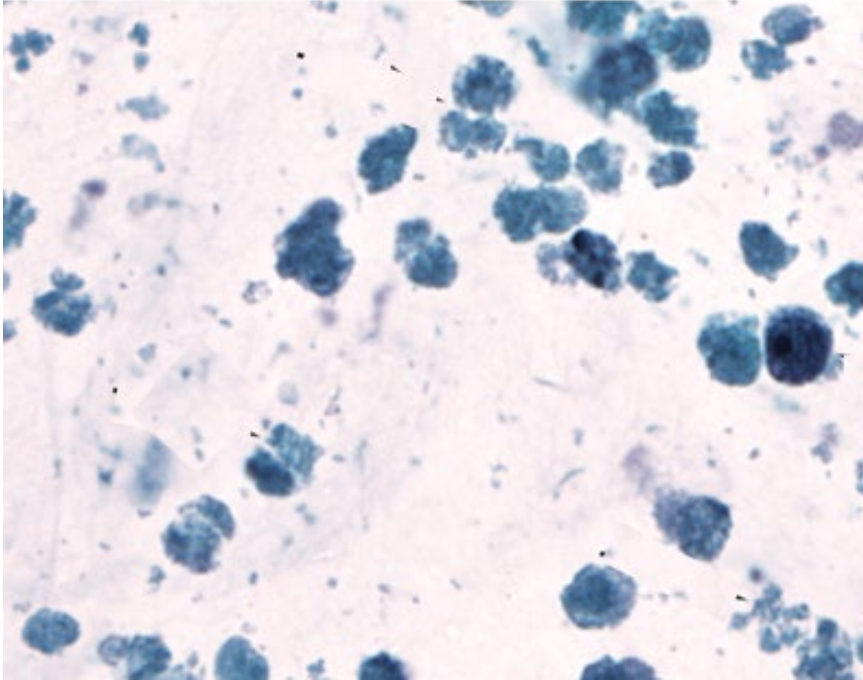
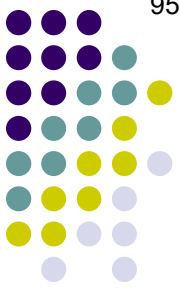
Note that these BBCs demonstrate several worrisome characteristics:

- Scant cytoplasm (*arrowhead*)
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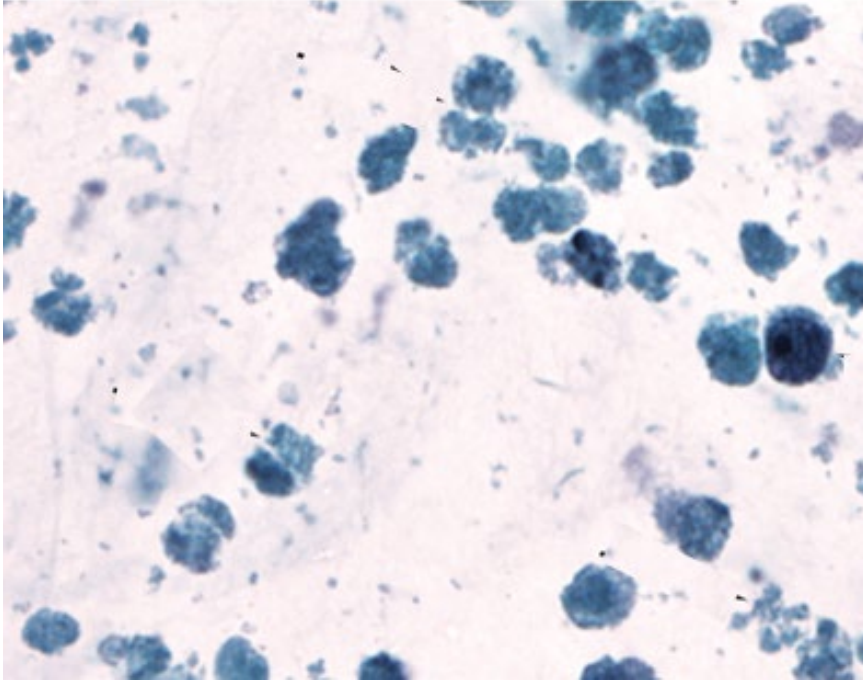
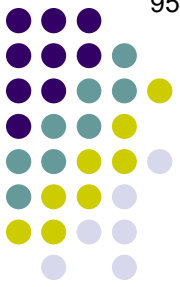
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Pathwatching



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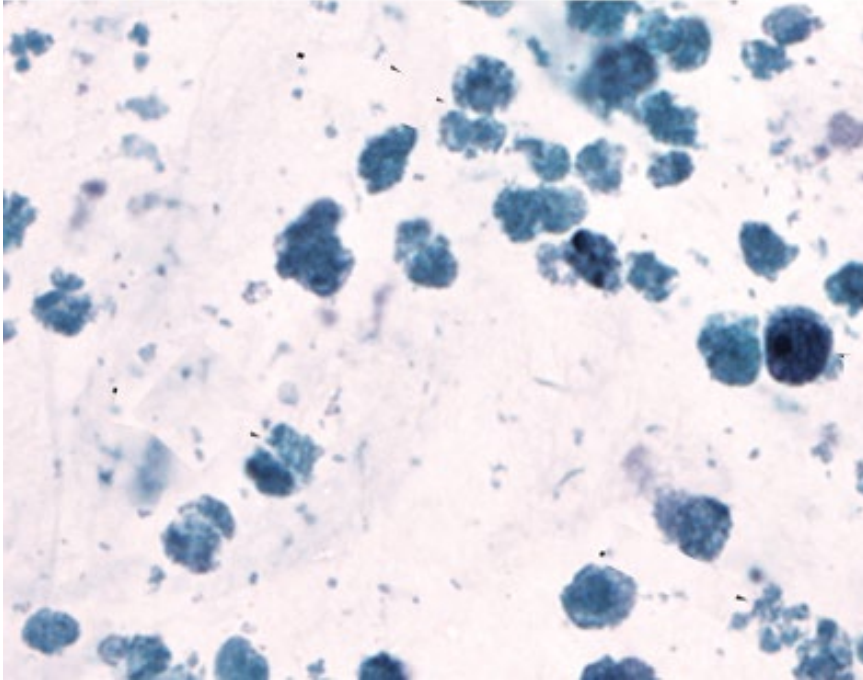
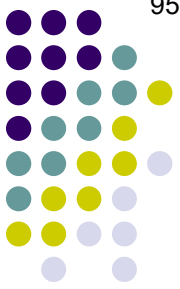
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