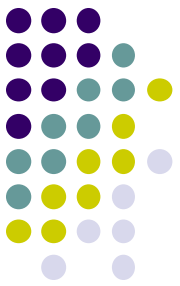
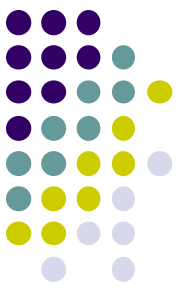
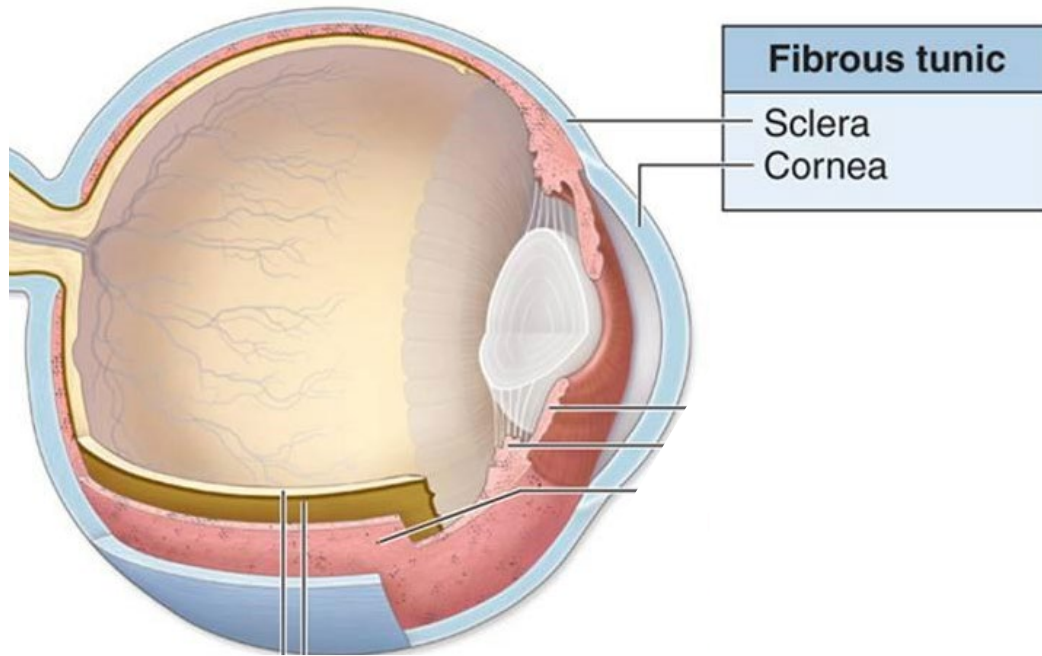


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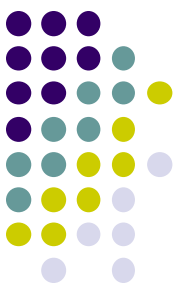
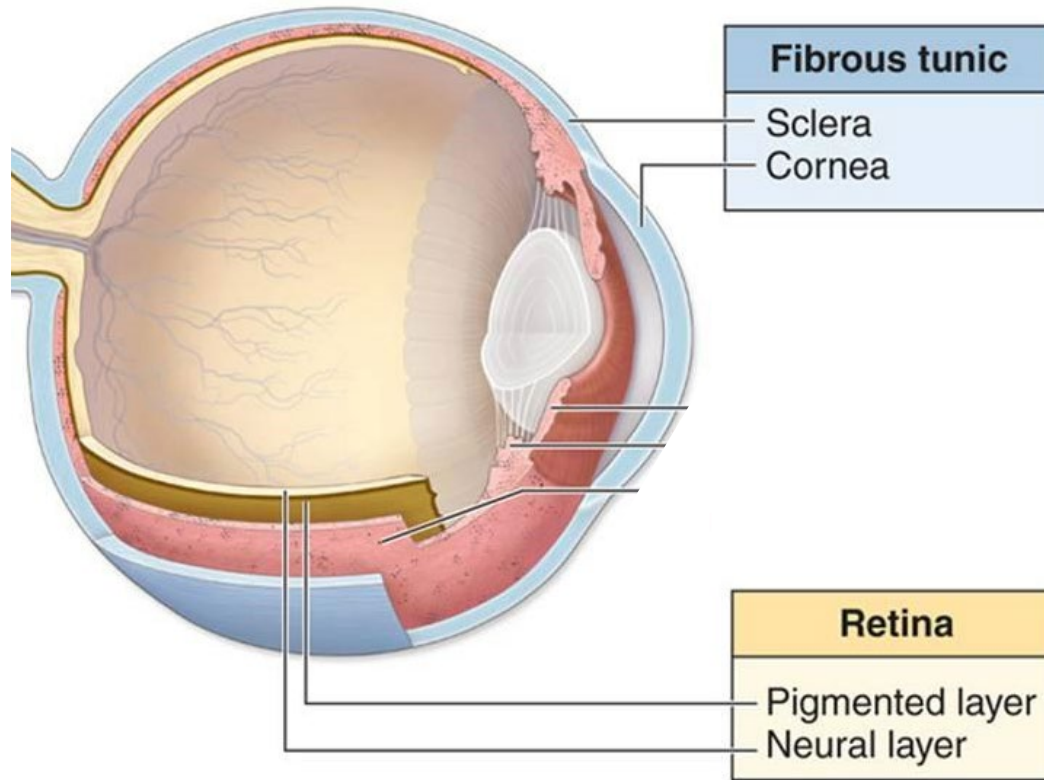


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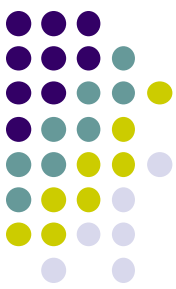
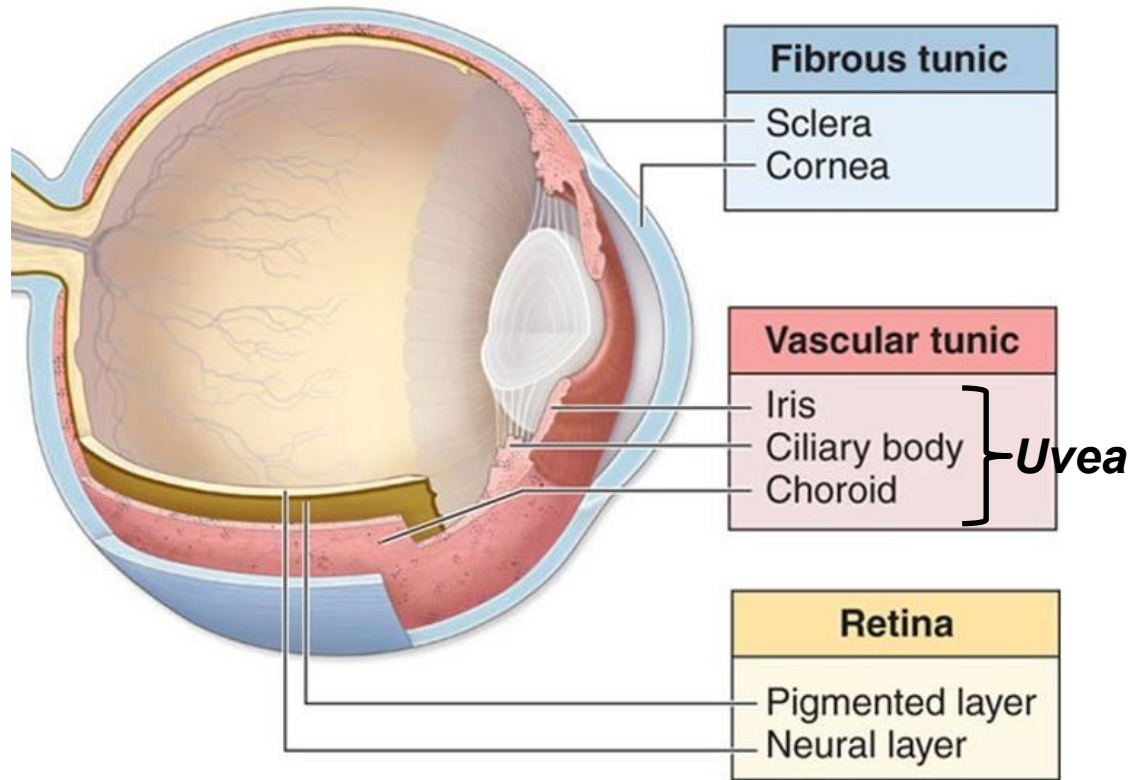
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*Think of the eye as being composed of three layers or 'tunics.' The sclera and cornea comprise the tough outer tunic. The RPE and neurosensory retina comprise the inner retinal tunic. In between these two is the highly vascular, highly pigmented tunic known as the **uvea**. (The word *uvea* derives from the Greek word for 'grape'—an acknowledgement of the deep-purple color characteristic of most of the uvea.)*

Uveitis



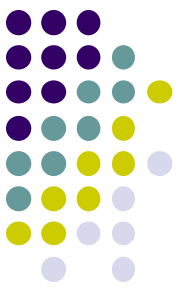
Uveal tissue. Note its deep purple hue



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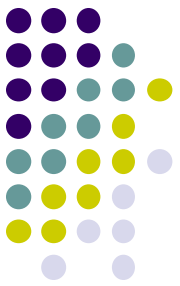


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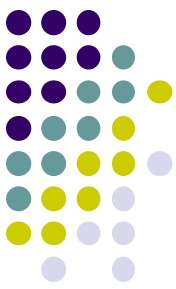


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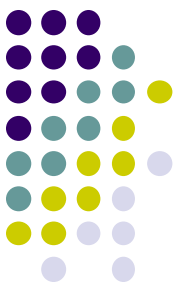
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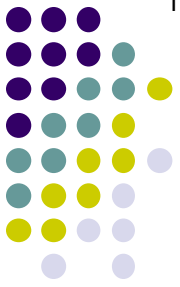
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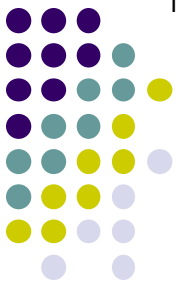
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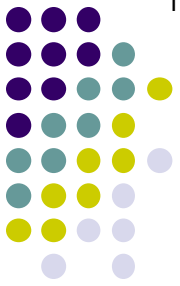
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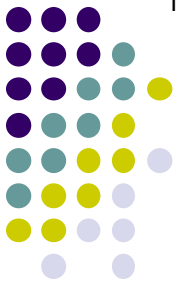
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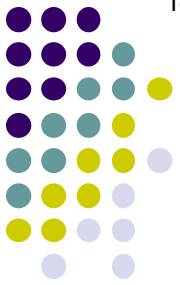
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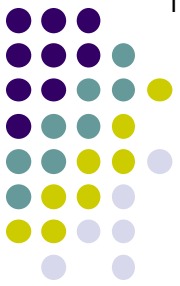
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- Intermediate
- Posterior
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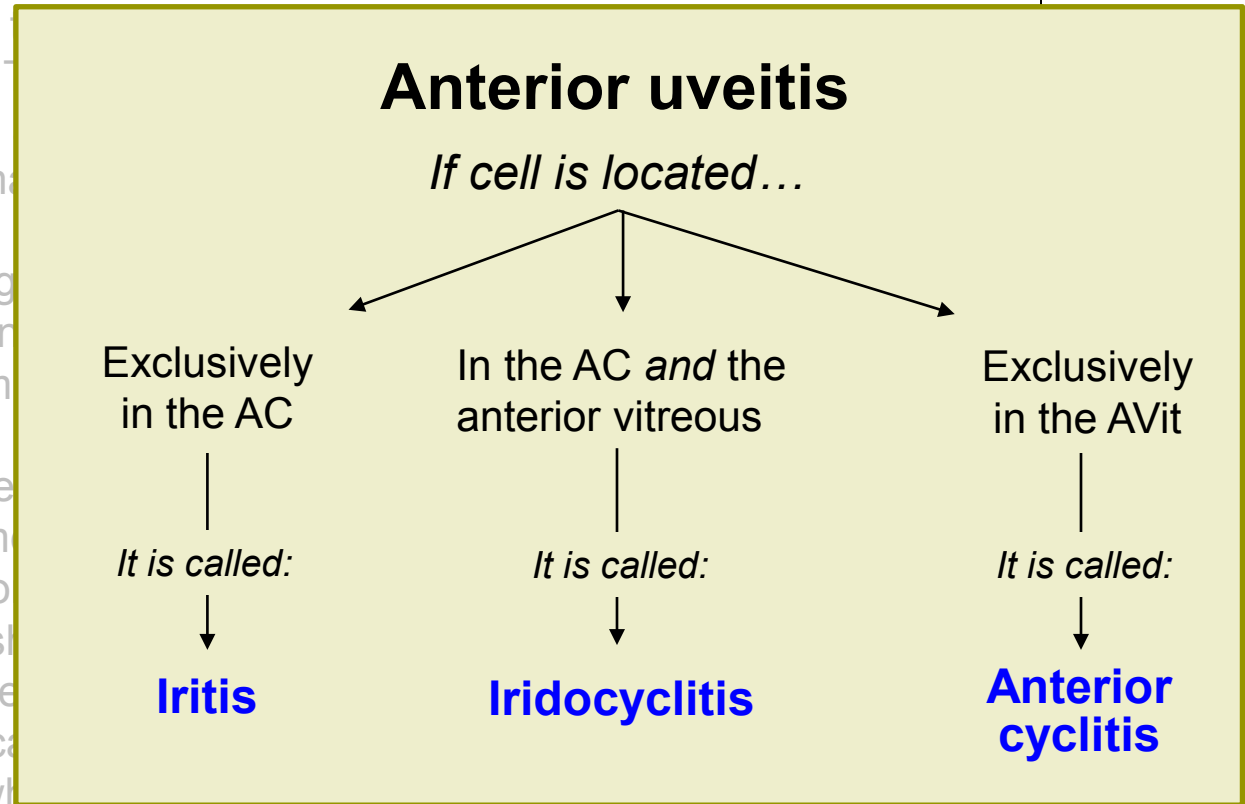
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In **anterior uveitis**, the primary location of inflammation is the anterior chamber and/or anterior vitreous.



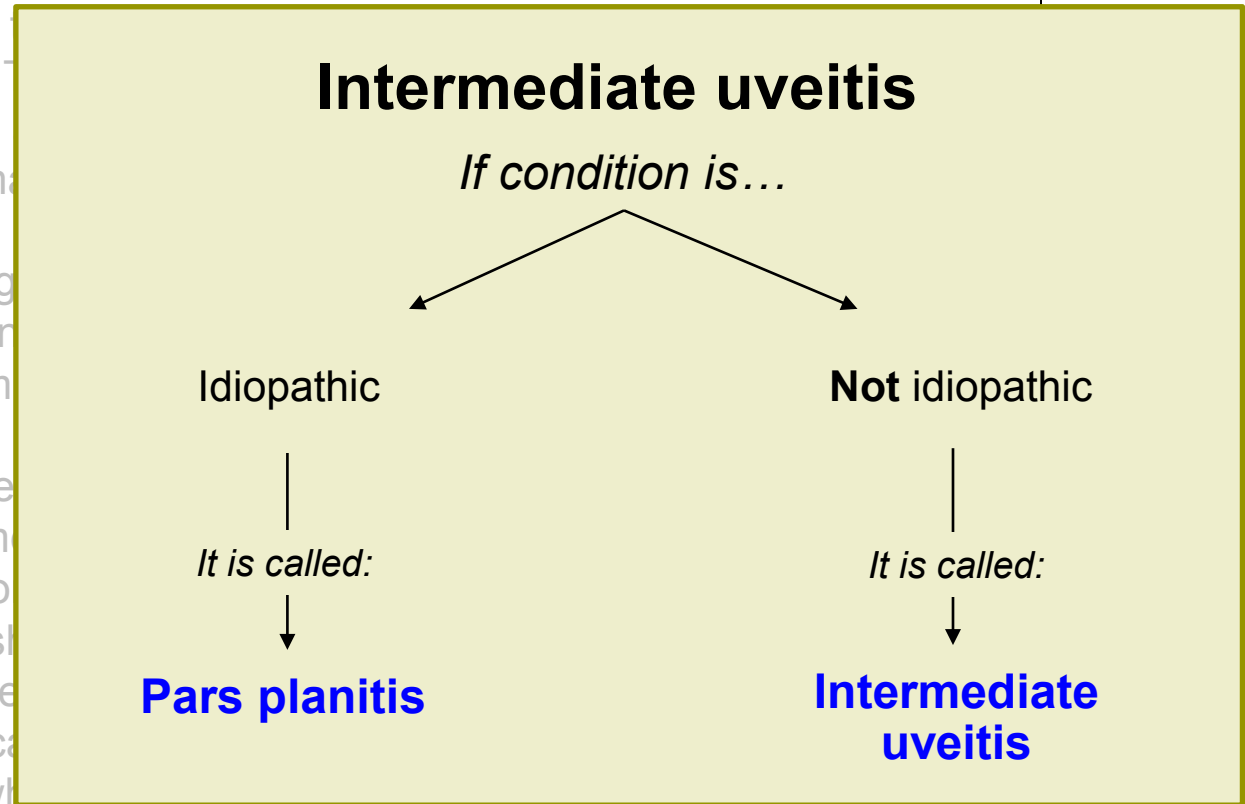
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In **intermediate uveitis**, the primary location of inflammation is the main vitreous cavity, +/- the peripheral retina



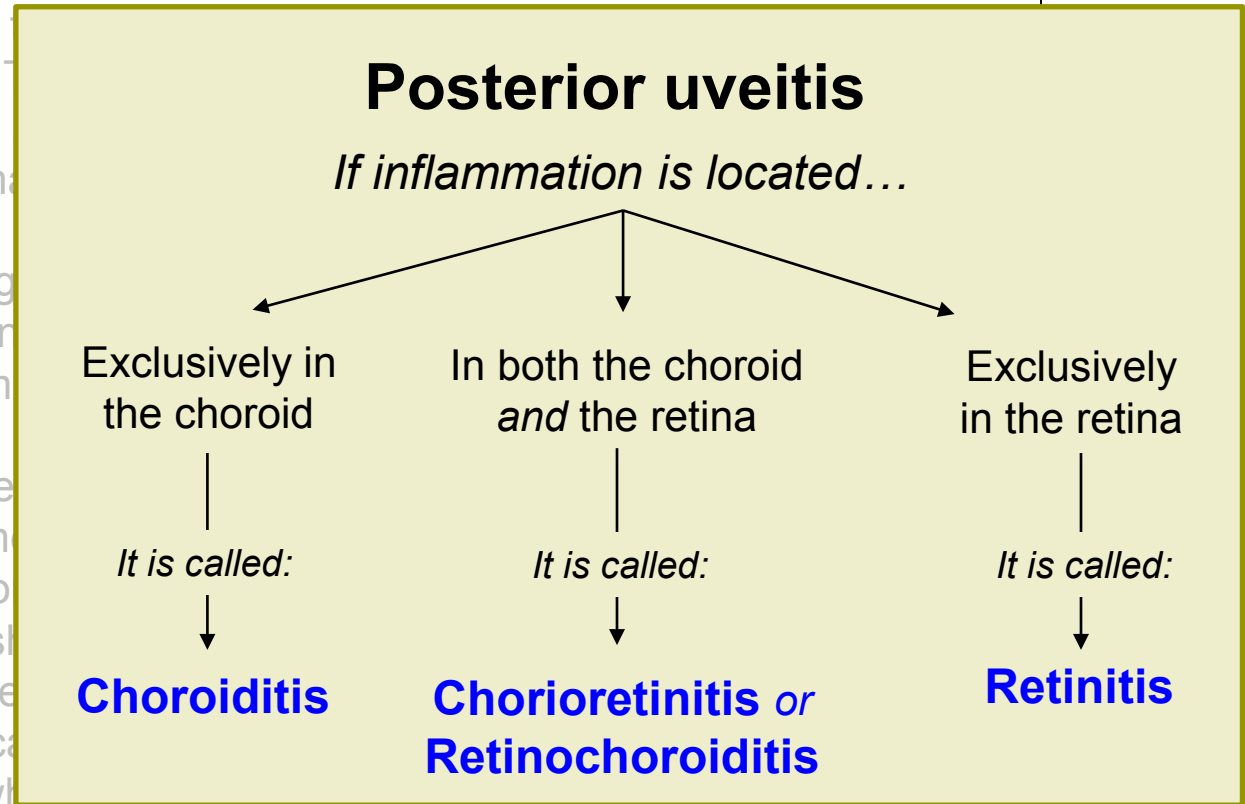
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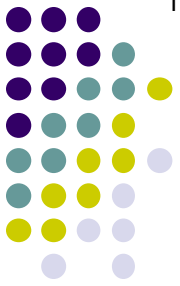
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In posterior uveitis, the site of inflammation is the retina and/or choroid (the optic nerve head can be involved too)

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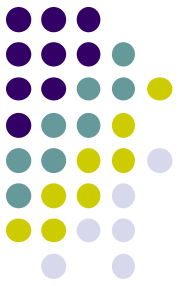
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Uveitis

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- 3) A differential diagnosis list is generated
- 4) Studies are obtained to identify the etiology

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Once a set of potential diagnoses have been identified via profiling and meshing, lab and other studies are obtained to identify the offending condition...

Uveitis

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- 3) A differential diagnosis list is generated
- 4) Studies are obtained to identify the etiology
- 5) Treatment appropriate for the etiology is initiated



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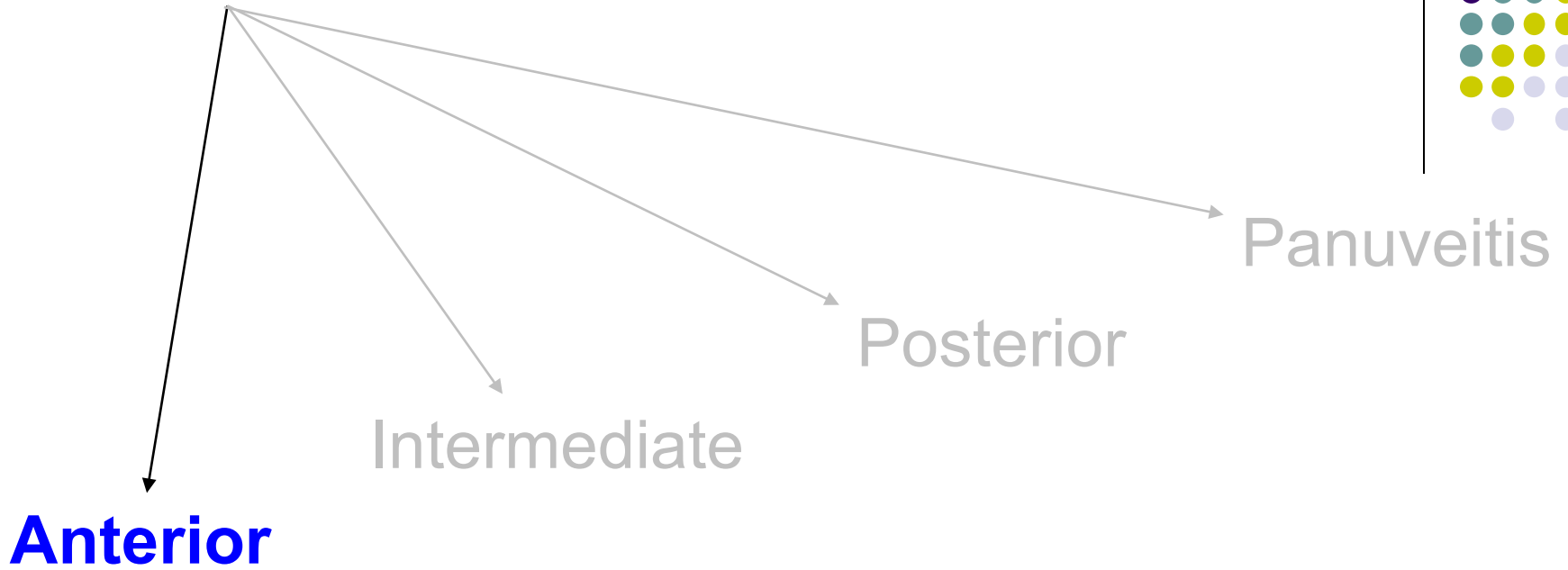
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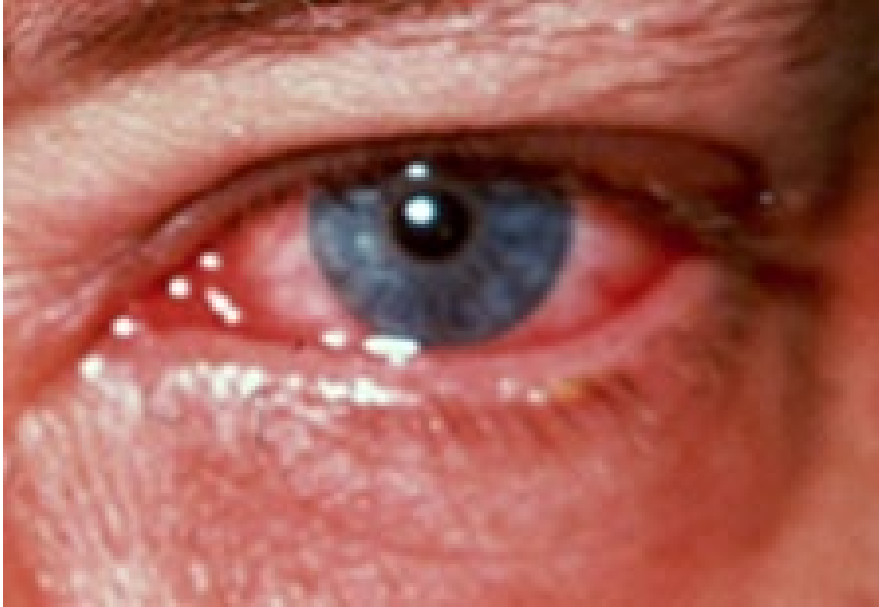
*Let's drill down on **anterior uveitis**. Specifically, let's look at how the BCSC organizes it by presentation*

Uveitis



Anterior uveitis is by far the most common form encountered clinically. The classic symptoms are **pain** and **photophobia**, along with some degree of **reduced vision**. Patients will also complain of **surface injection** (which presents often in a so-called 'ciliary flush' pattern).

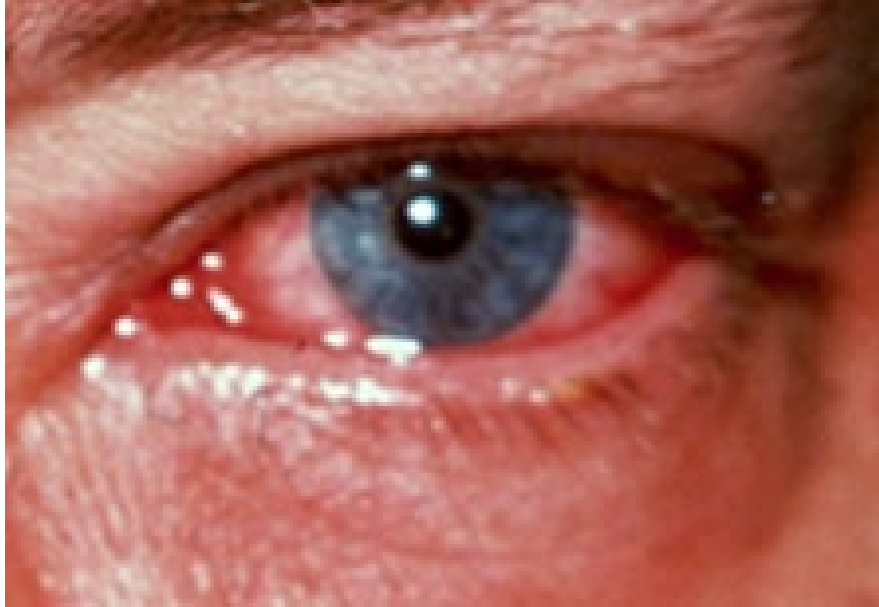
Uveitis



Injection in conjunctivitis

In surface disorders (eg, conjunctivitis), redness is either distributed uniformly across the eye, or it tapers off near the limbus.

Uveitis



Injection in conjunctivitis



Injection in anterior uveitis, aka *ciliary flush*

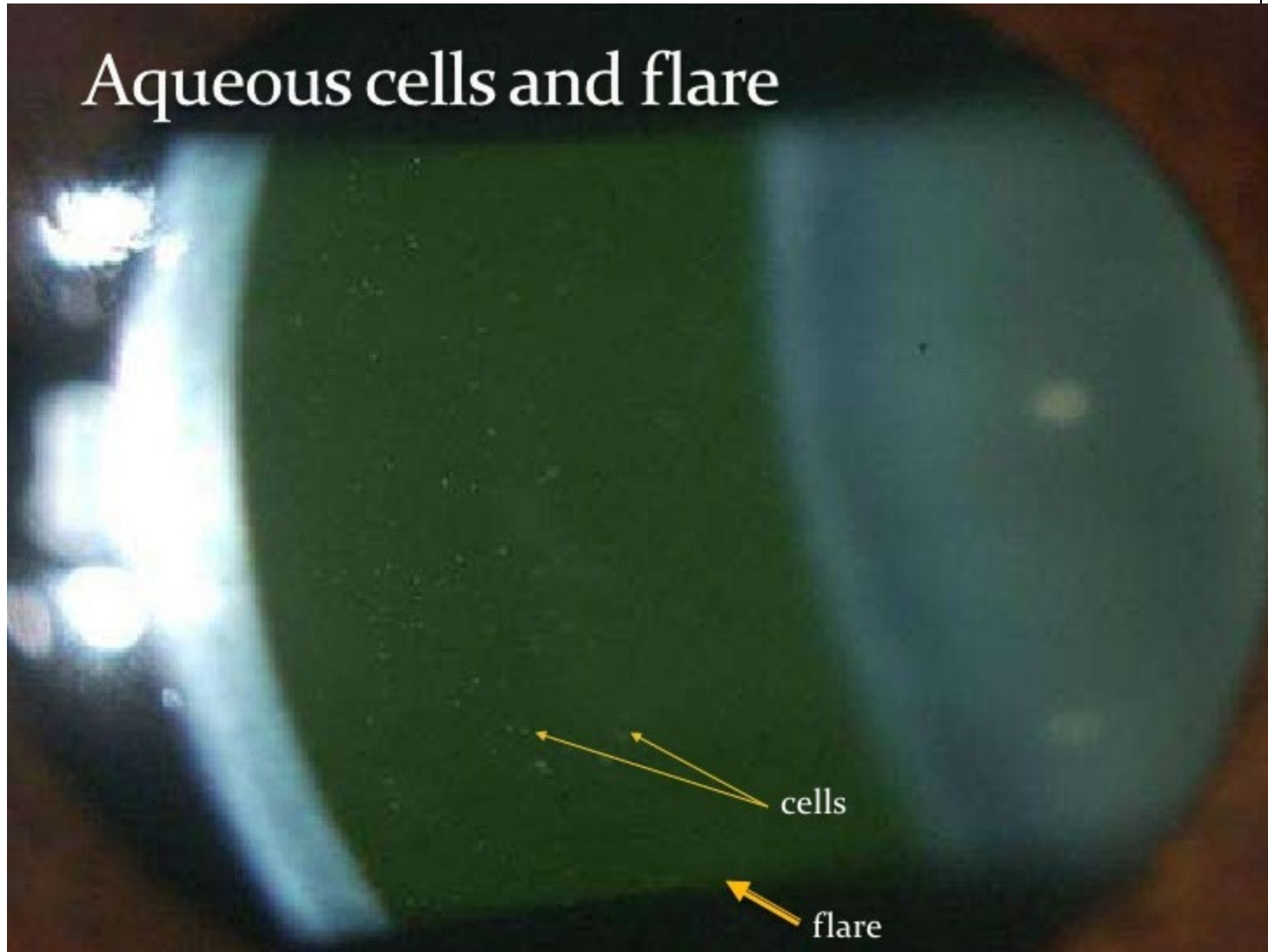
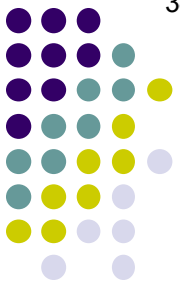
In surface disorders (eg, conjunctivitis), redness is either distributed uniformly across the eye, or it tapers off near the limbus. **In contrast, redness associated with anterior uveitis is usually most intense at and just behind the limbus.** This is because this area overlies the inflamed ciliary body—hence the term *ciliary flush* for this presentation.

Uveitis



Anterior uveitis is by far the most common form encountered clinically. The classic symptoms are **pain** and **photophobia**, along with some degree of **reduced vision**. Patients will also complain of **surface injection** (which presents often in a so-called 'ciliary flush' pattern). At the slit lamp, the classic signs of anterior uveitis are WBCs and inflammatory proteins in the AC (**'cell and flare'**).

Uveitis



Uveitis



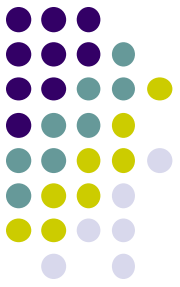
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Uveitis

Anterior Uveitis

Granulomatous

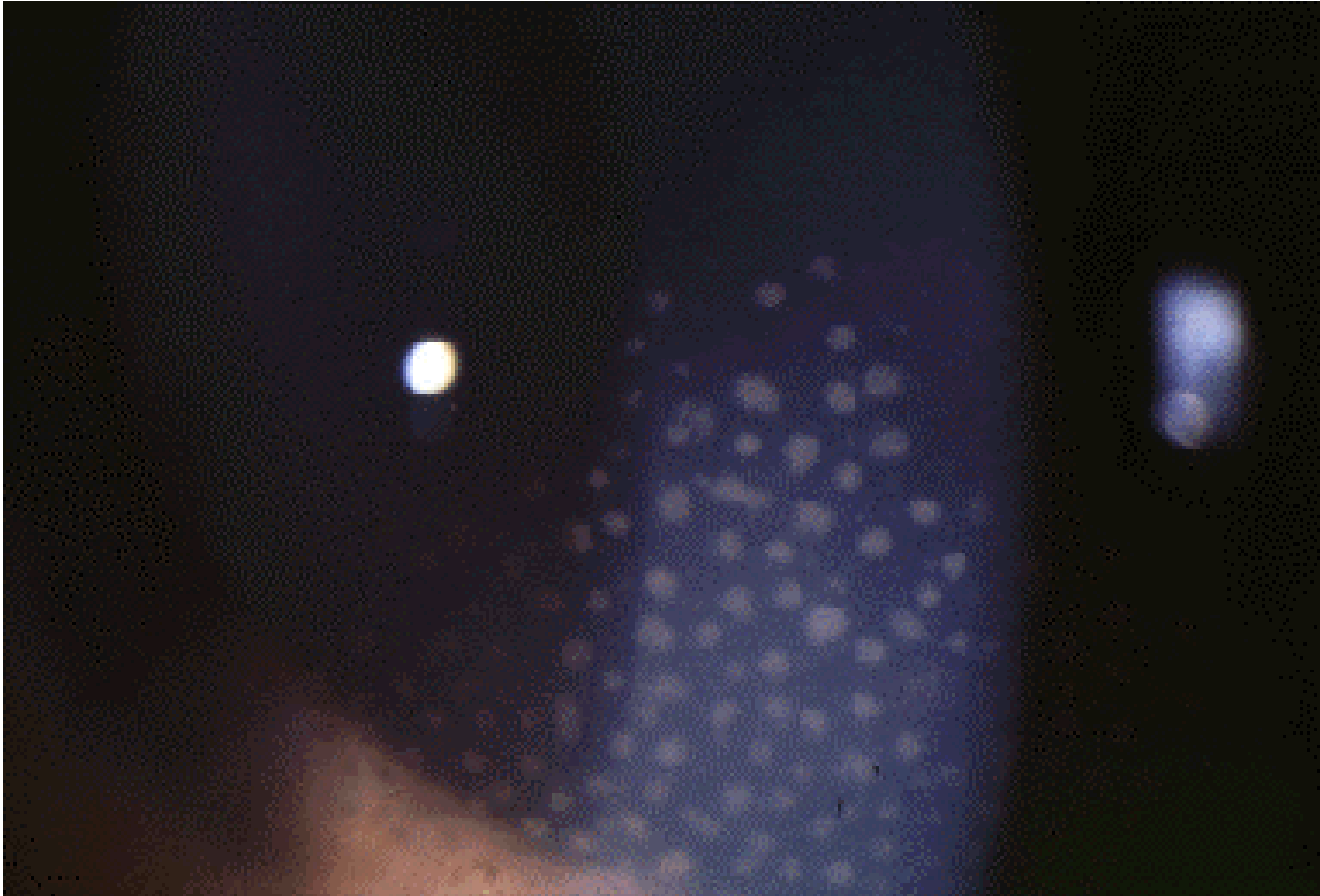
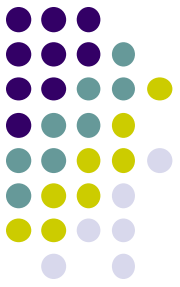
Nongranulomatous



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The *Uveitis* book employs an organizational tree on which it hangs the common causes of anterior uveitis. The first branch point in this tree is whether the inflammation is **granulomatous** or **nongranulomatous**. In clinical practice the term *granulomatous* refers to a particular slit-lamp appearance of KP—large, grayish, and ‘greasy.’

Uveitis



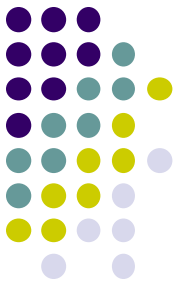
Granulomatous KP

Uveitis

Anterior Uveitis

Granulomatous

Nongranulomatous



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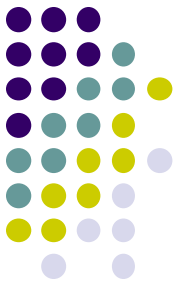
The *Uveitis* book employs an organizational tree on which it hangs the common causes of anterior uveitis. The first branch point in this tree is whether the inflammation is **granulomatous** or **nongranulomatous**. In clinical practice the term *granulomatous* refers to a particular slit-lamp appearance of KP—large, grayish, and ‘greasy.’ **As you will recall from med school, histologically speaking a condition is ‘granulomatous’ if epithelioid and giant cells are present. Note that while granulomatous uveitis often contains epithelioid and/or giant cells, it is not the case that clinically granulomatous uveitis is always histologically granulomatous. This is key: In clinical parlance the term *granulomatous* refers to the slit-lamp appearance of the KP, not to the underlying histology of the condition.**

Uveitis

Anterior Uveitis

Granulomatous

Nongranulomatous



Anterior uveitis is by far the most common form encountered clinically. The classic symptoms are **pain** and **photophobia**, along with some degree of **reduced vision**. Patients will also complain of **surface injection** (which presents often in a so-called ‘ciliary flush’ pattern). At the slit lamp, the classic signs of anterior uveitis are WBCs and inflammatory proteins in the AC (‘**cell and flare**’). **Keratic precipitates** (KP)—deposits of inflammatory debris on the endothelial surface of the cornea—may be present.

The *Uveitis* book employs an organizational tree on which it hangs the common causes of anterior uveitis. The first branch point in this tree is whether the inflammation is **granulomatous** or **nongranulomatous**. In clinical practice the term *granulomatous* refers to a particular slit-lamp appearance of KP—large, grayish, and ‘greasy.’ As you will recall from med school, histologically speaking a condition is ‘granulomatous’ if epithelioid and giant cells are present. Note that while granulomatous uveitis often contains epithelioid and/or giant cells, it is not the case that clinically granulomatous uveitis is always histologically granulomatous. *This is key*: In clinical parlance the term *granulomatous* refers to the slit-lamp appearance of the KP, **not** to the underlying histology of the condition.

In contrast, *nongranulomatous KP* are smaller, lighter in color, and do not look greasy. (Note: If no KP are present, the inflammation is considered nongranulomatous.)

Uveitis



Nongranulomatous KP

Uveitis

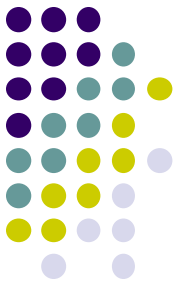
Anterior Uveitis

Granulomatous

- TB
- Sarcoid
- Syphilis
- HSV
- VKH
- Toxoplasmosis
- Lyme

These are the common entities that can produce a granulomatous anterior uveitis. (Note: For some of these, the granulomatous anterior findings are part of an overall panuveitic presentation, ie, they typically do not present as an *isolated* anterior uveitis.)

Nongranulomatous

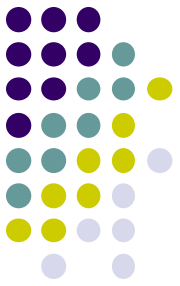


Uveitis

Anterior Uveitis

Granulomatous

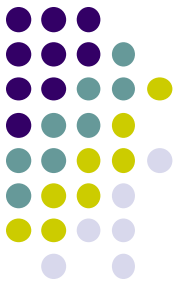
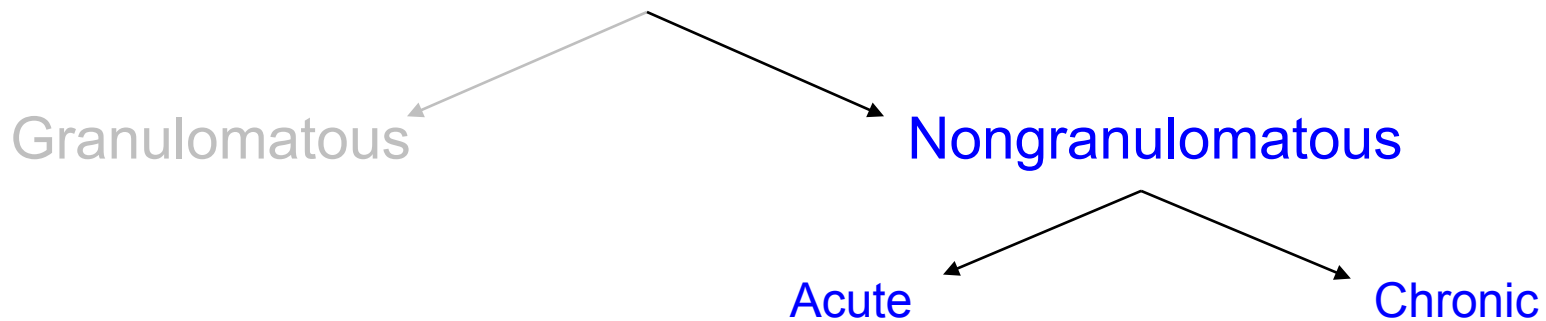
Nongranulomatous



The rest of the anterior-uveitis classification tree concerns **nongranulomatous** dz.

Uveitis

Anterior Uveitis



The rest of the anterior-uveitis classification tree concerns **nongranulomatous dz**. The first branch-point divides the etiologies into those that produce **acute dz** vs those producing **chronic dz**.

Uveitis

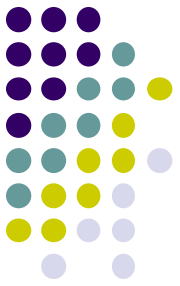
Anterior Uveitis

Granulomatous

Nongranulomatous

Acute

Chronic



The rest of the anterior-uveitis classification tree concerns nongranulomatous dz. The first branch-point divides the etiologies into those that produce **acute dz** vs those producing **chronic dz**.

Acute uveitis comes on suddenly and resolves fairly quickly.

Uveitis

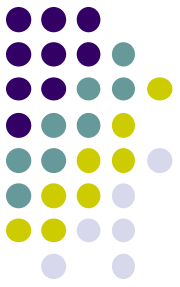
Anterior Uveitis

Granulomatous

Nongranulomatous

Acute

Chronic



The rest of the anterior-uveitis classification tree concerns nongranulomatous dz. The first branch-point divides the etiologies into those that produce **acute dz** vs those producing **chronic dz**.

Acute uveitis comes on suddenly and resolves fairly quickly.
Chronic uveitis also resolves, but once treatment is withdrawn, it relapses within three months.

Uveitis

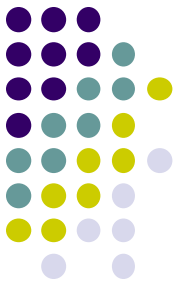
Anterior Uveitis

Granulomatous

Nongranulomatous

Acute

Chronic



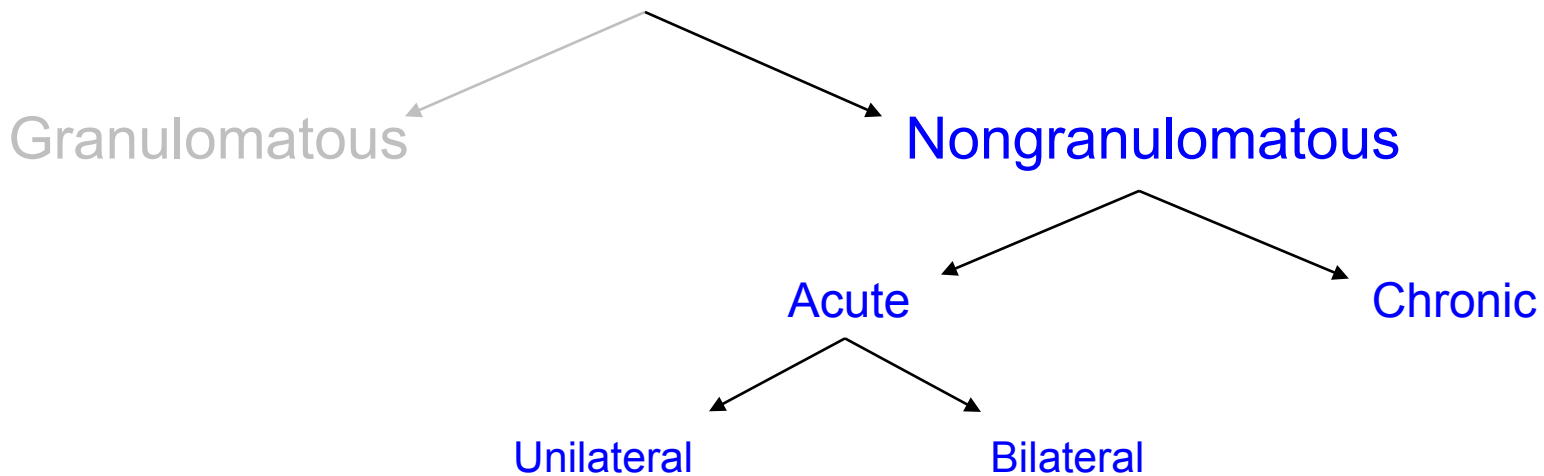
The rest of the anterior-uveitis classification tree concerns nongranulomatous dz. The first branch-point divides the etiologies into those that produce **acute dz** vs those producing **chronic dz**.

Acute uveitis comes on suddenly and resolves fairly quickly.
Chronic uveitis also resolves, but once treatment is withdrawn, it relapses within three months.

(FYI: If a uveitis eventually relapses but is quiescent off-treatment for **longer** than three months, it is termed a *recurrent* uveitis.)

Uveitis

Anterior Uveitis

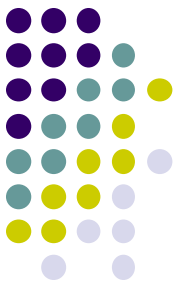
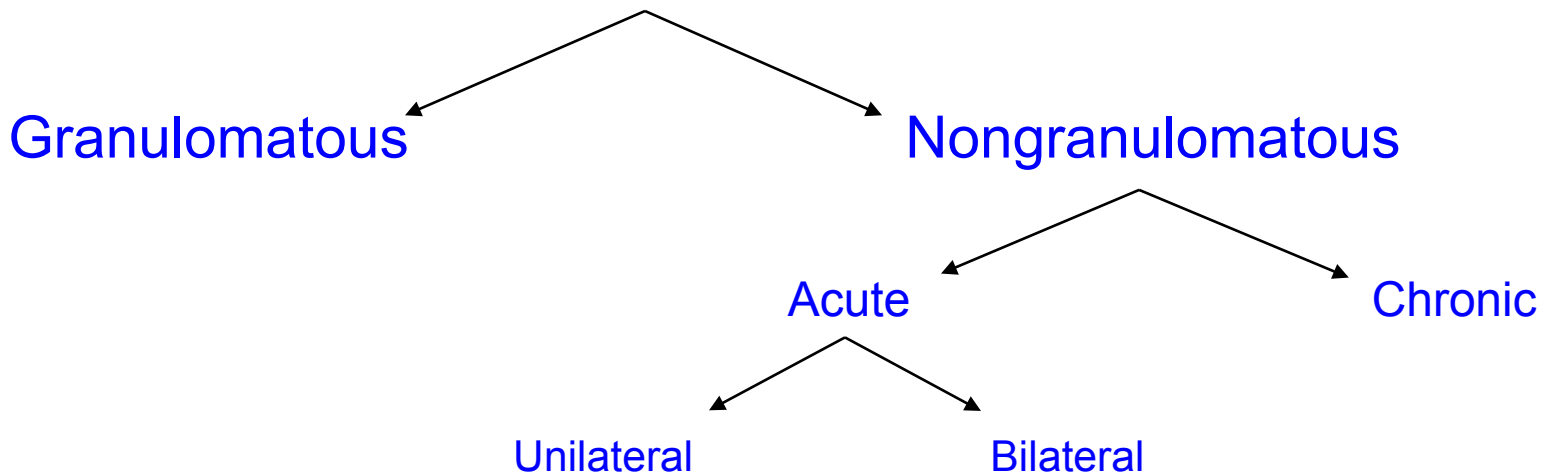


The rest of the anterior-uveitis classification tree concerns nongranulomatous dz. The first branch-point divides the etiologies into those that produce **acute dz** vs those producing **chronic dz**.

Finally, the acute uveitides are divided into those that present **unilaterally** vs those that tend to present **bilaterally**.

Uveitis

Anterior Uveitis



The rest of the anterior-uveitis classification tree concerns nongranulomatous dz.

The first branch-point divides the etiologies into those that produce **acute dz** vs

those that tend to present **bilaterally**.
Take a good look at this slide—it represents how you should think about anterior uveitides encountered in the clinic or on the OKAP. (It wouldn't be a bad idea to commit this to memory at this juncture.)

those that tend to present **bilaterally**.

Uveitis

Anterior Uveitis

Granulomatous

- TB
- Sarcoid
- Syphilis
- HSV
- VKH
- Toxoplasmosis
- Lyme

Nongranulomatous

Acute

Unilateral

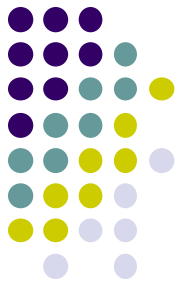
- HLA-B27 dz
- Posner-Schlossman
- HSV/VZV
- Sarcoid
- Syphilis
- TB

Bilateral

- TINU
- Behçet
- Drug rxn
- Leptospirosis
- IBD/PA
- Sarcoid
- Syphilis
- TB

Chronic

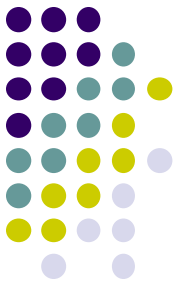
- JIA
- FHI
- IBD/PA
- Sarcoid
- Syphilis
- TB



Just as an FYI, these are the anterior uveitides that are covered in detail in the *Uveitis* book. **Don't try to memorize all this at this juncture!** (They will stick better if you learn them in their naturally-occurring groupings.)

Uveitis

Anterior Uveitis



Granulomatous

- TB
- Sarcoid
- Syphilis
- HSV
- VKH
- Toxoplasmosis
- Lyme

Nongranulomatous

Acute

Unilateral

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Chronic

- JIA
- FHI
- IBD/PA
- Sarcoid
- Syphilis
- TB

Note that *syphilis*, *sarcoid* and *TB* show up everywhere on the tree. This is because *all three can manifest in so many different ways.*

Uveitis

Anterior Uveitis



Granulomatous

- TB
- Sarcoid
- Syphilis
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Chronic

- JIA
- FHI
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- Sarcoid
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- TB

Note that *syphilis*, *sarcoid* and *TB* show up everywhere on the tree. This is because *all three can manifest in so many different ways.*

Rule of thumb:

Syphilis, sarcoid and TB are on the Ddx for **every** pt with **any** form of uveitis!

Uveitis

Anterior Uveitis

Granulomatous

- TB
- Sarcoid
- Syphilis

- HSV

- VKH

- Toxoplasmosis

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Nongranulomatous

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- JIA

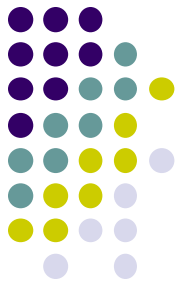
- FHI

- IBD/PA

- Sarcoid

- Syphilis

- TB



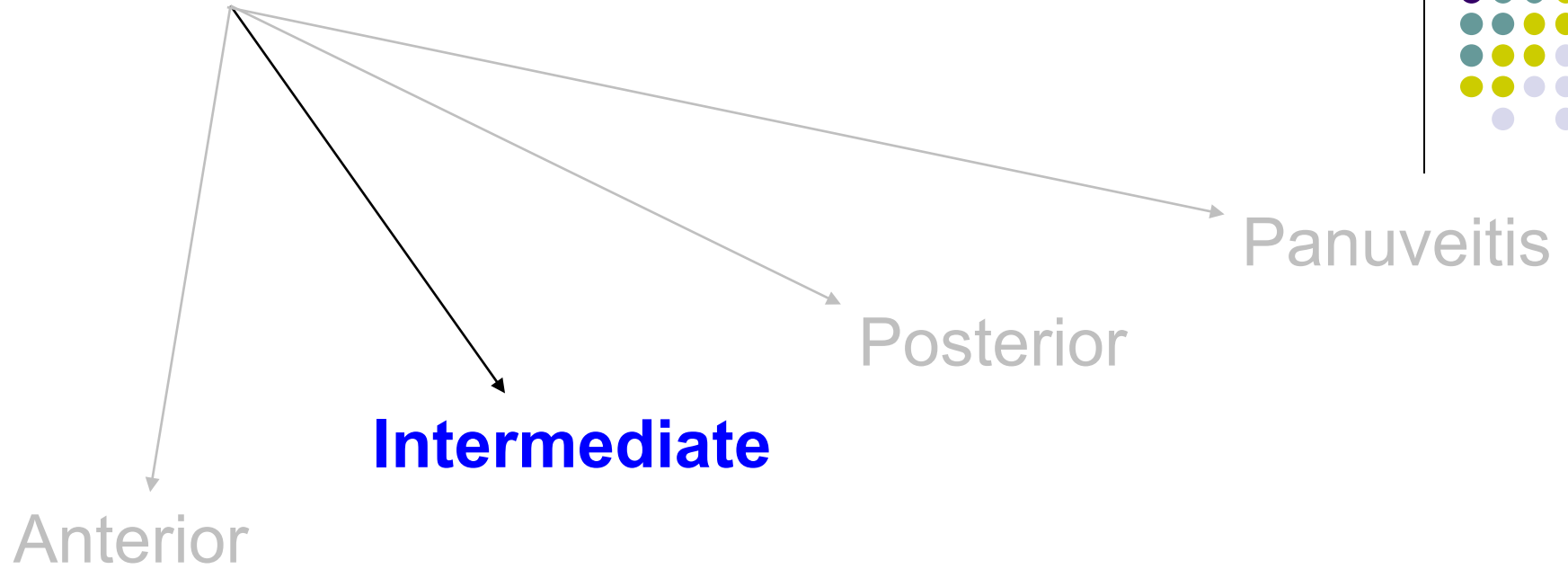
This fact is very useful early in training, a period during which you will be clueless regarding uveitis. That is, if your Uveitis attending presses you for a Ddx on a pt and you have **no idea** what it could be, stroke your chin thoughtfully and say “Well, certainly syphilis must be considered...[pause, more chin-stroking]...and TB of course...[more pseudo-contemplation]...and I would think sarcoid should be on the differential as well.”

Note: Sarcoid, Syphilis, and TB are circled everywhere on the tree. This is because *all three can manifest in so many different ways.*

Rule of thumb:

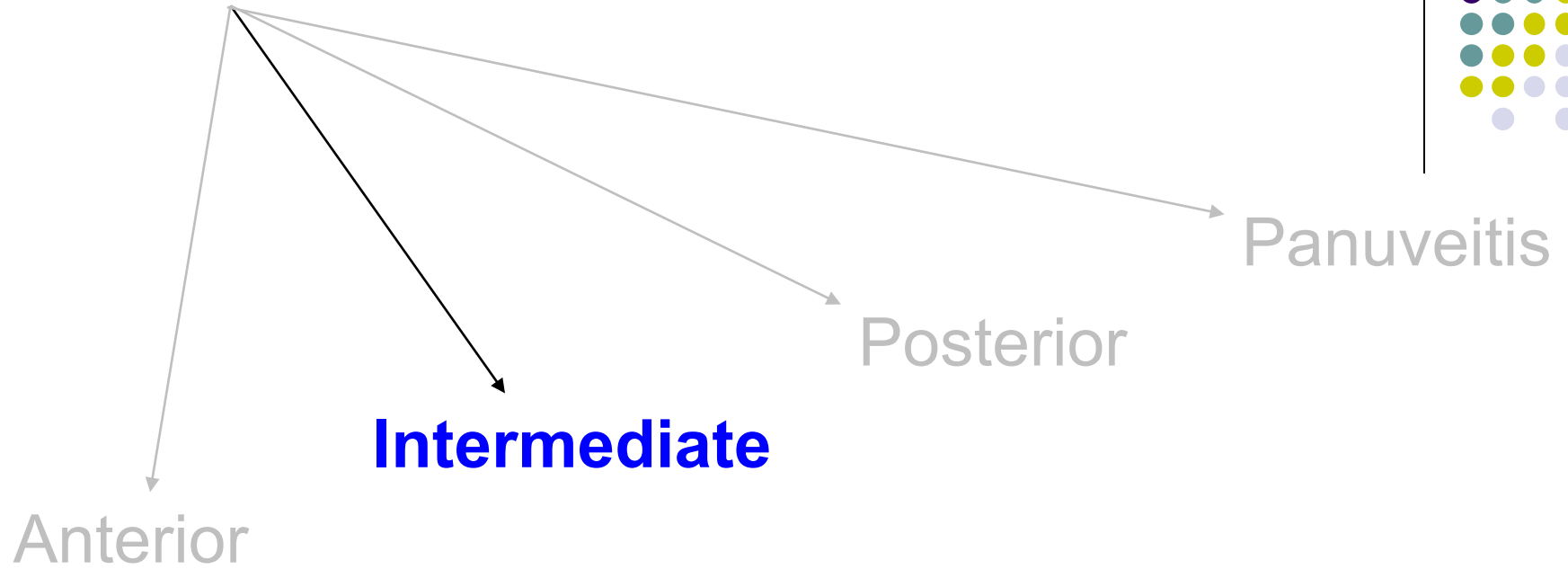
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Uveitis



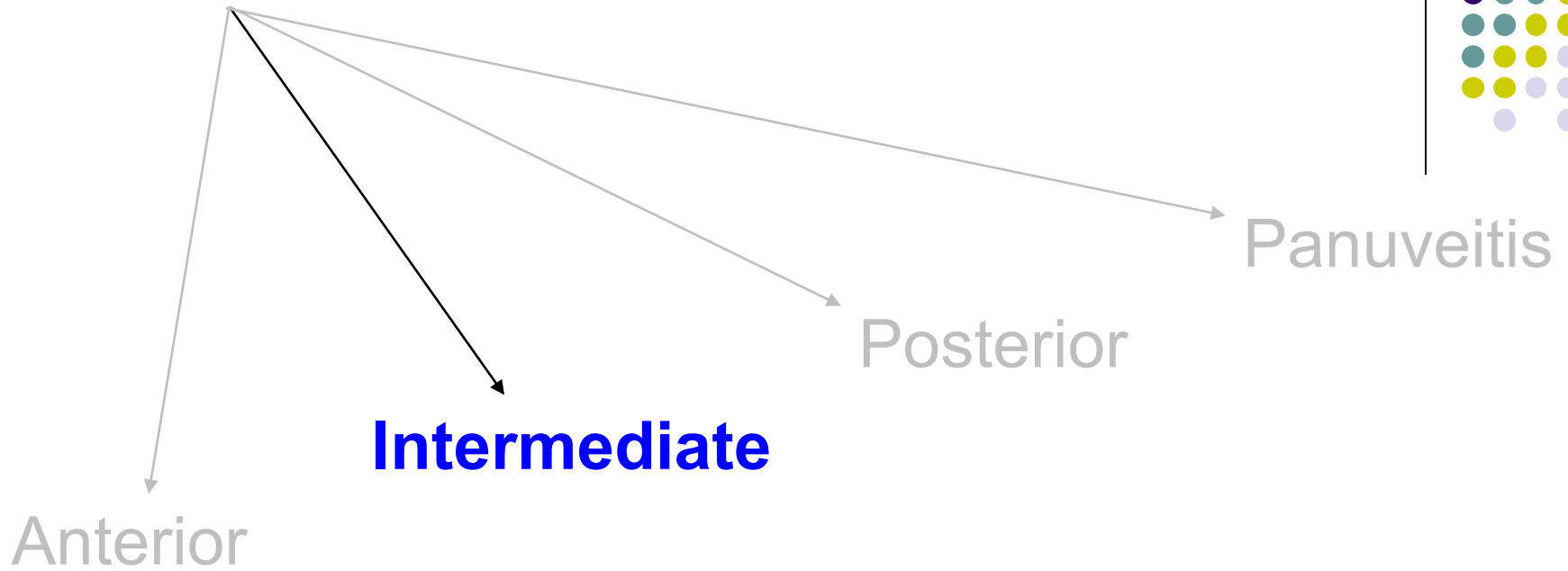
*Next let's look at **intermediate uveitis***

Uveitis



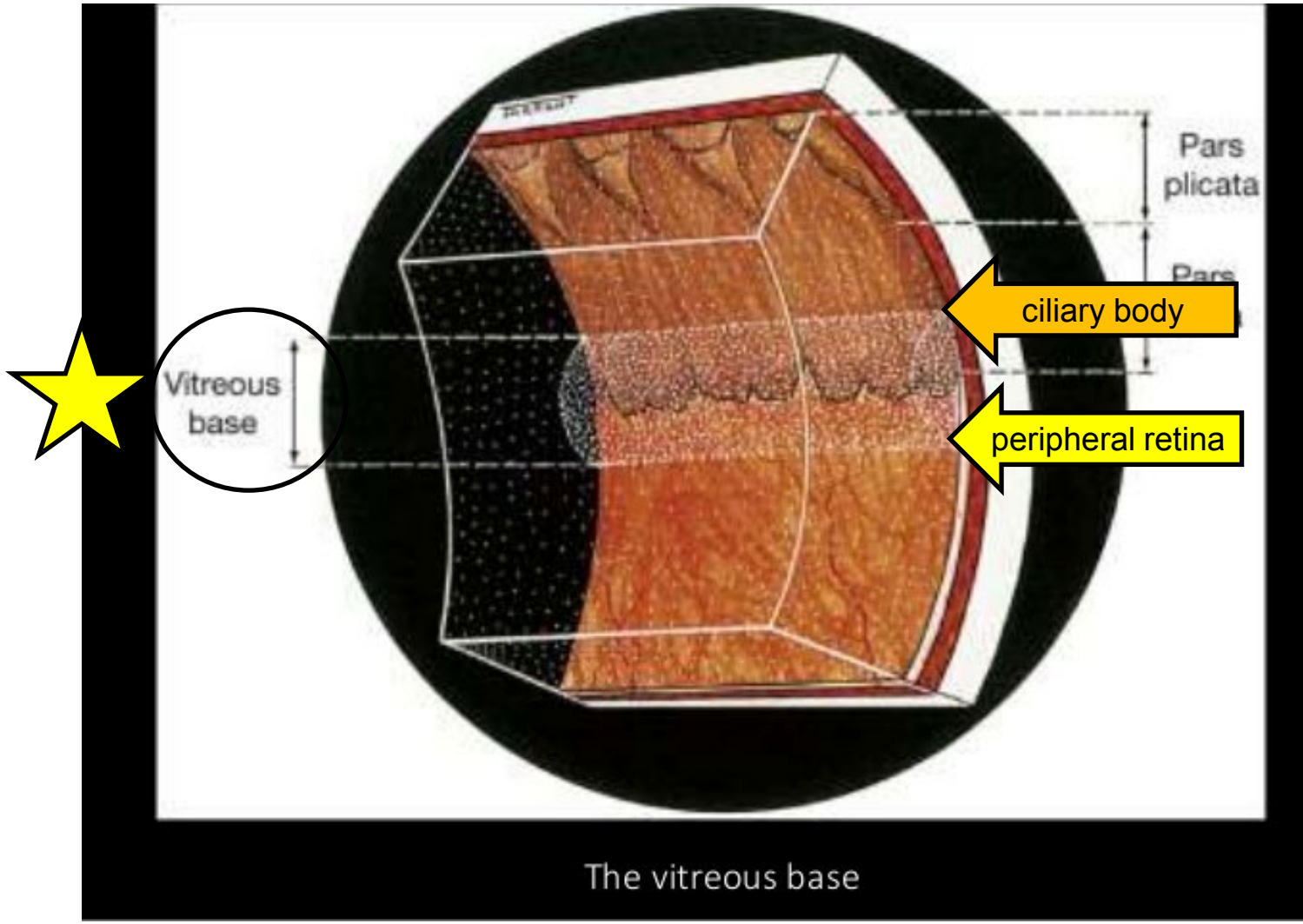
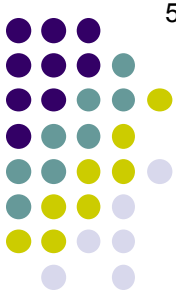
The hallmark of **intermediate uveitis** (IU) is inflammation in the anterior vitreous that involves the vitreous base.

Uveitis

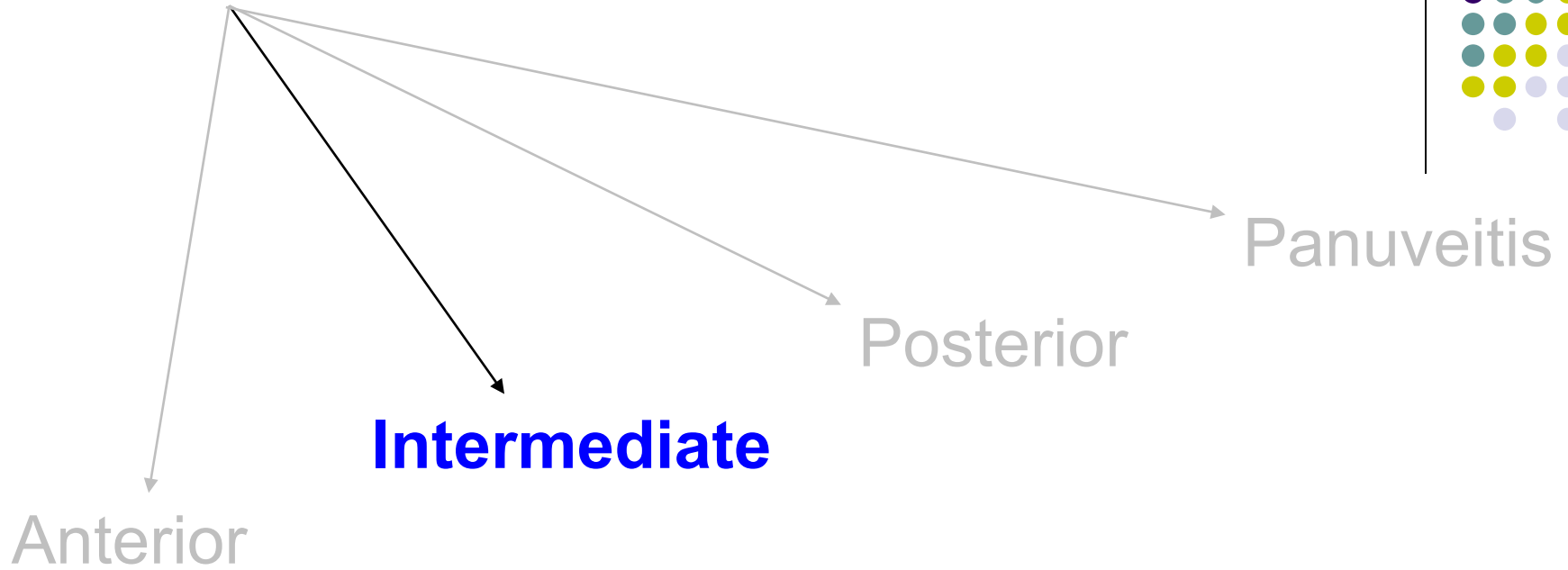


The hallmark of **intermediate uveitis (IU)** is inflammation in the anterior vitreous that involves the **vitreal base**. The vitreal base is the primary attachment point of the vitreous; it forms a ~5 mm-wide band that straddles the ora serrata (the location where the anteriormost retina meets the posteriormost portion of the ciliary body).

Uveitis

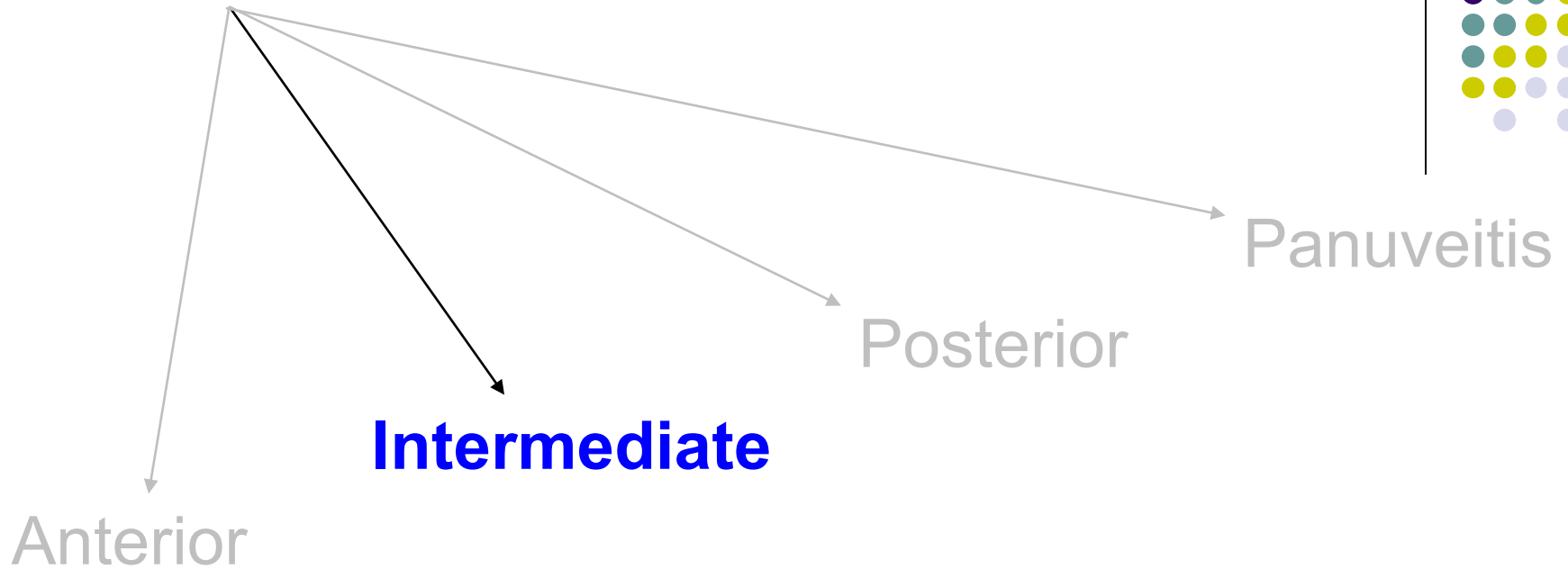


Uveitis



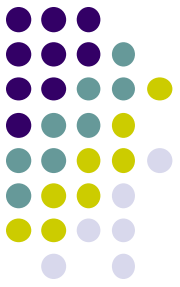
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Uveitis



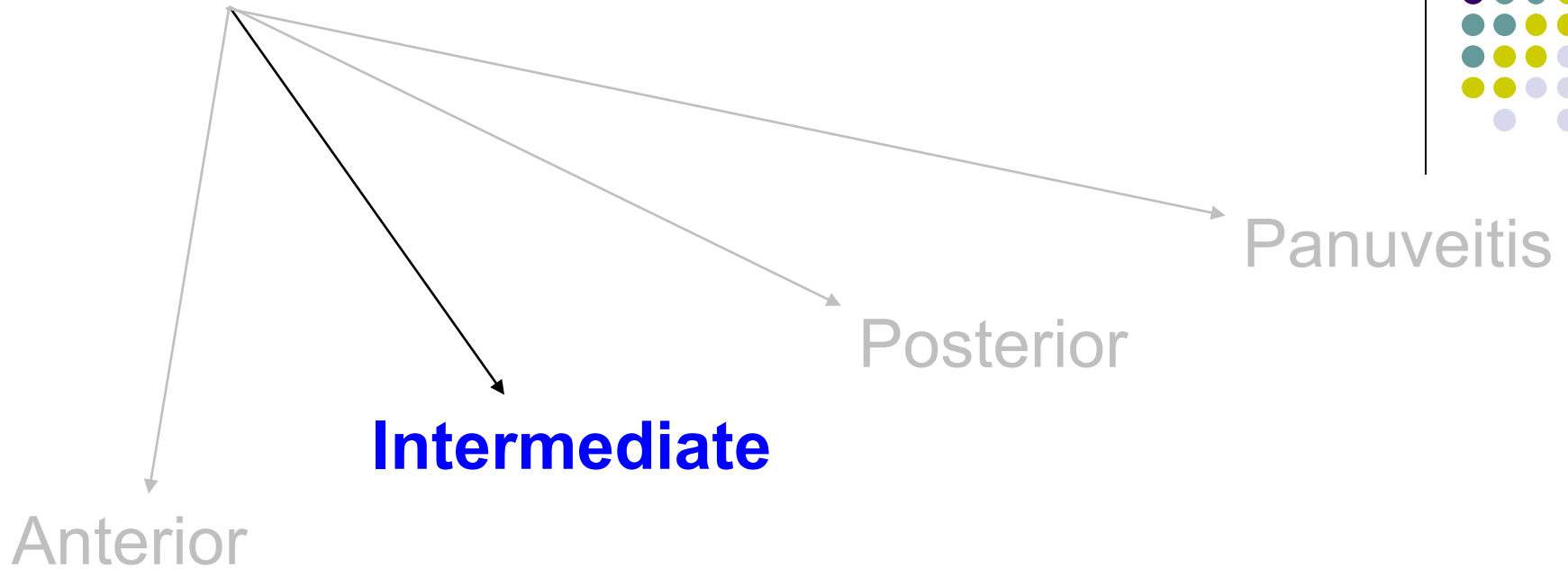
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Uveitis



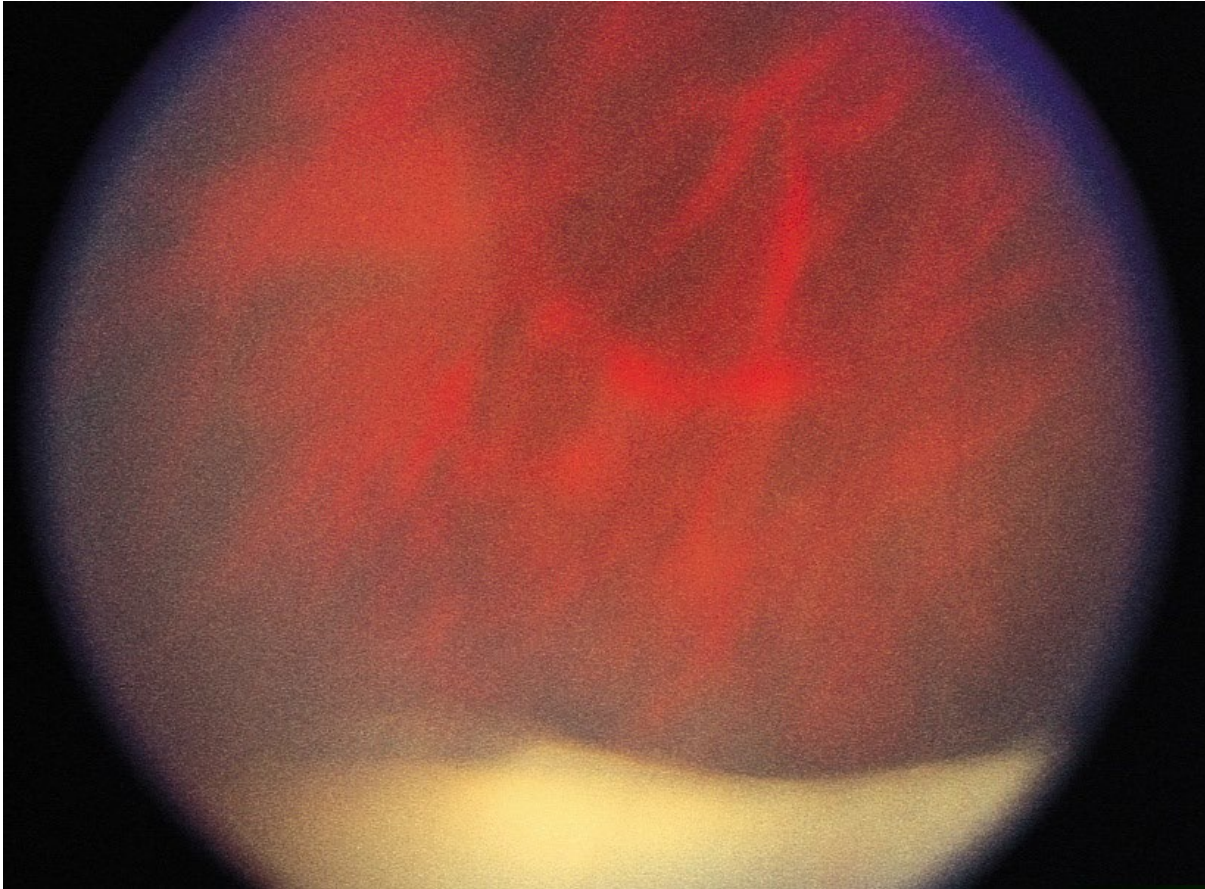
Snowballs in intermediate uveitis

Uveitis



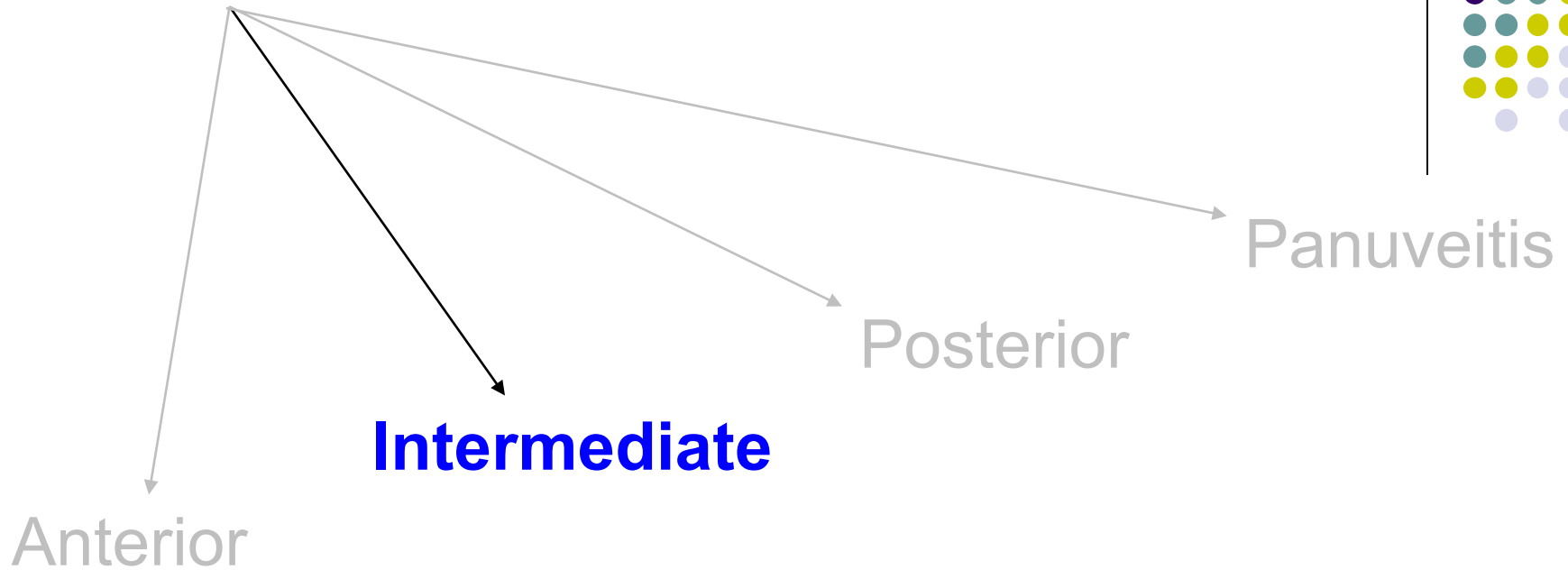
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Uveitis



Snowbanking in intermediate uveitis

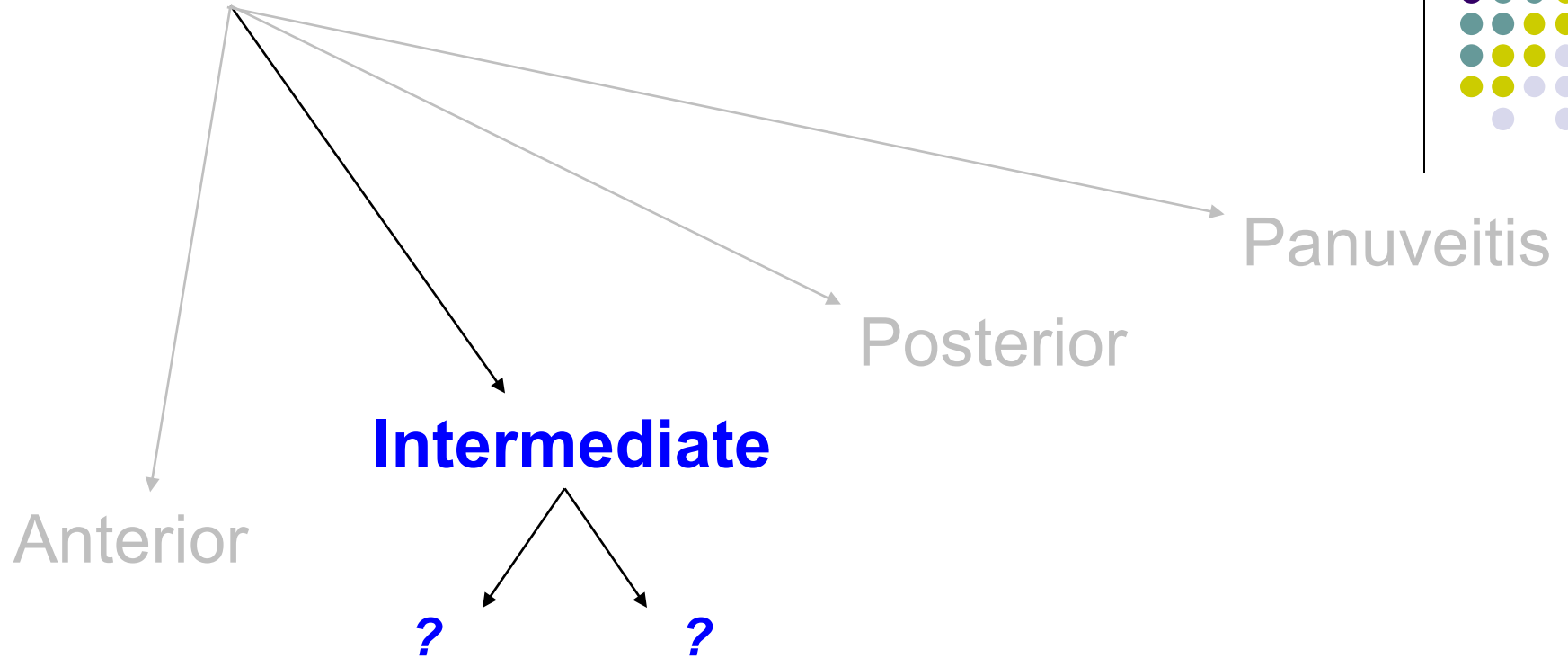
Uveitis



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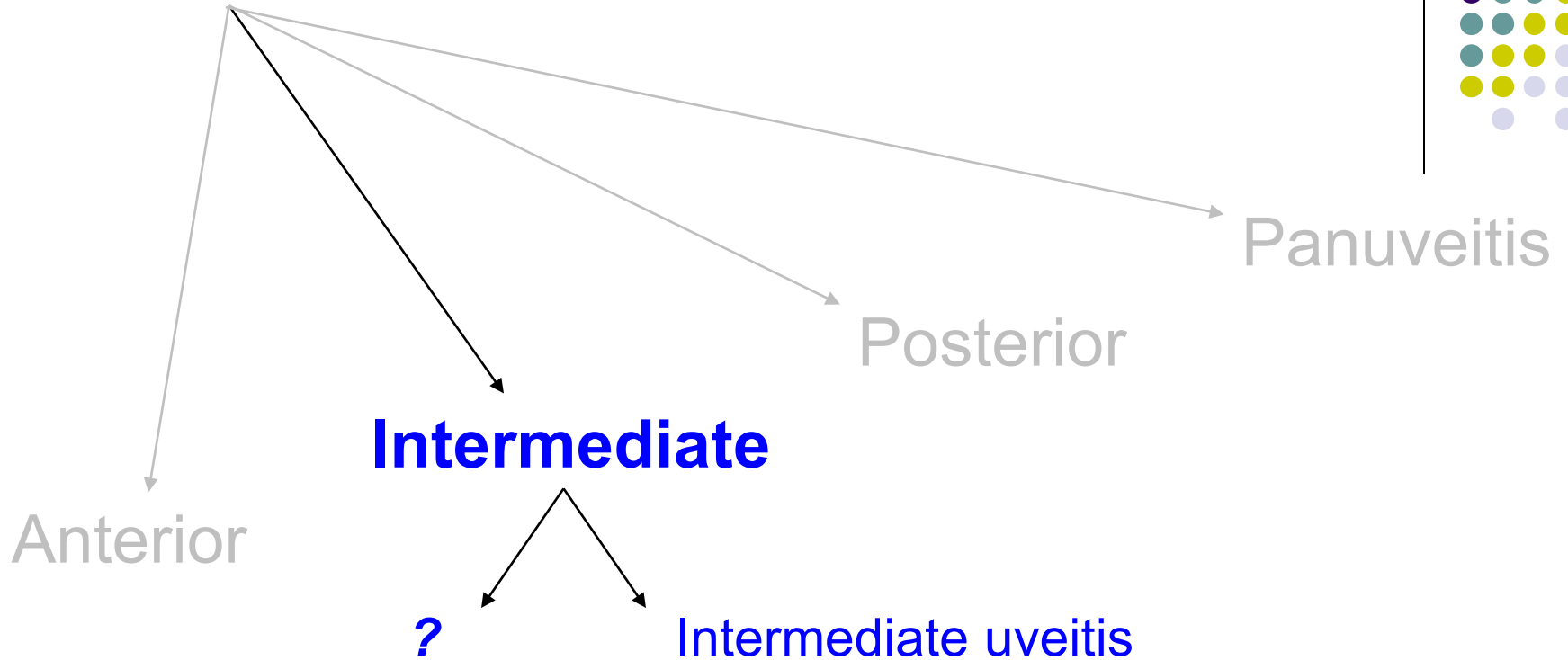
IU tends to be a dz of young people—teens through 40 or so. It is bilateral in most (80%) cases, although it can be quite asymmetric.

Uveitis



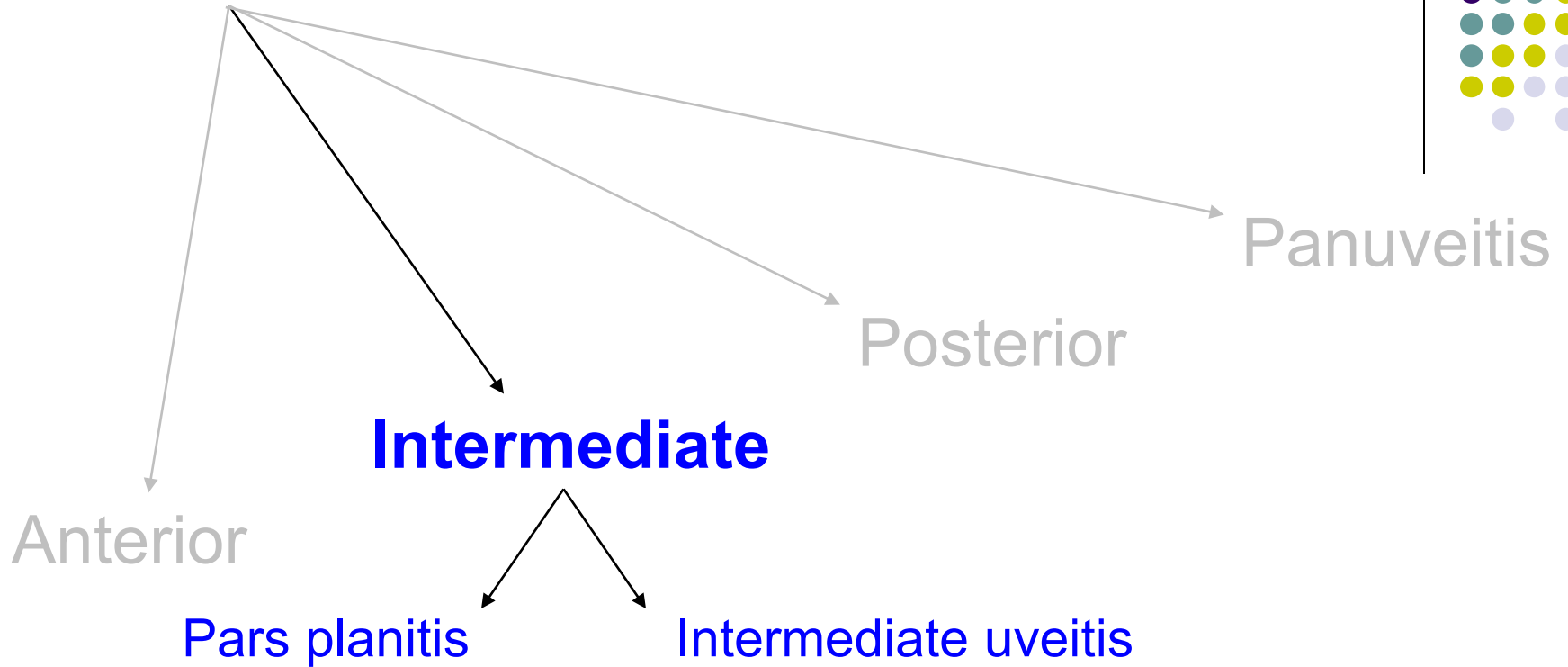
IU is dividved up into two categories.

Uveitis



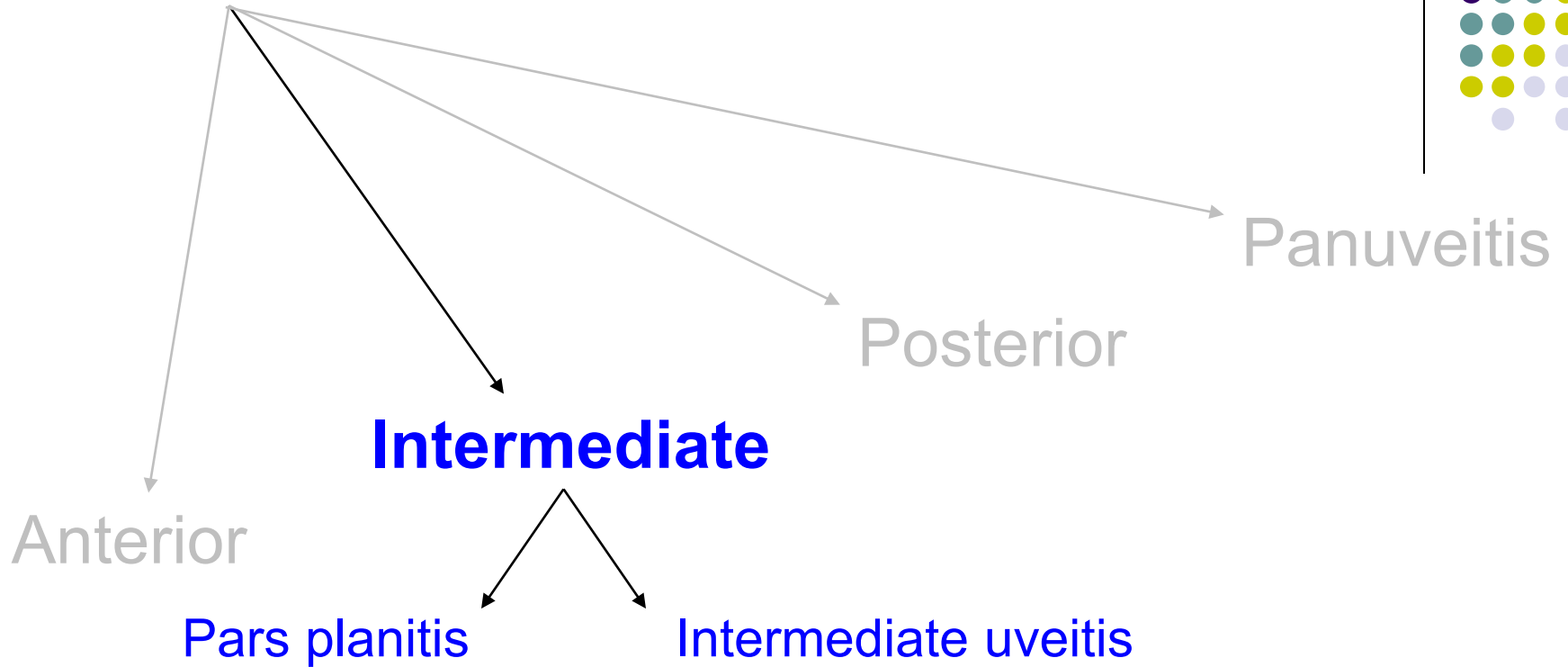
IU is divided up into two categories. If the inflammation is associated with an identifiable condition, the uveitis is called **IU**.

Uveitis



IU is divided up into two categories. If the inflammation is associated with an identifiable condition, the uveitis is called **IU**. If it is idiopathic, ie, if no cause can be identified, it is called **pars planitis**.

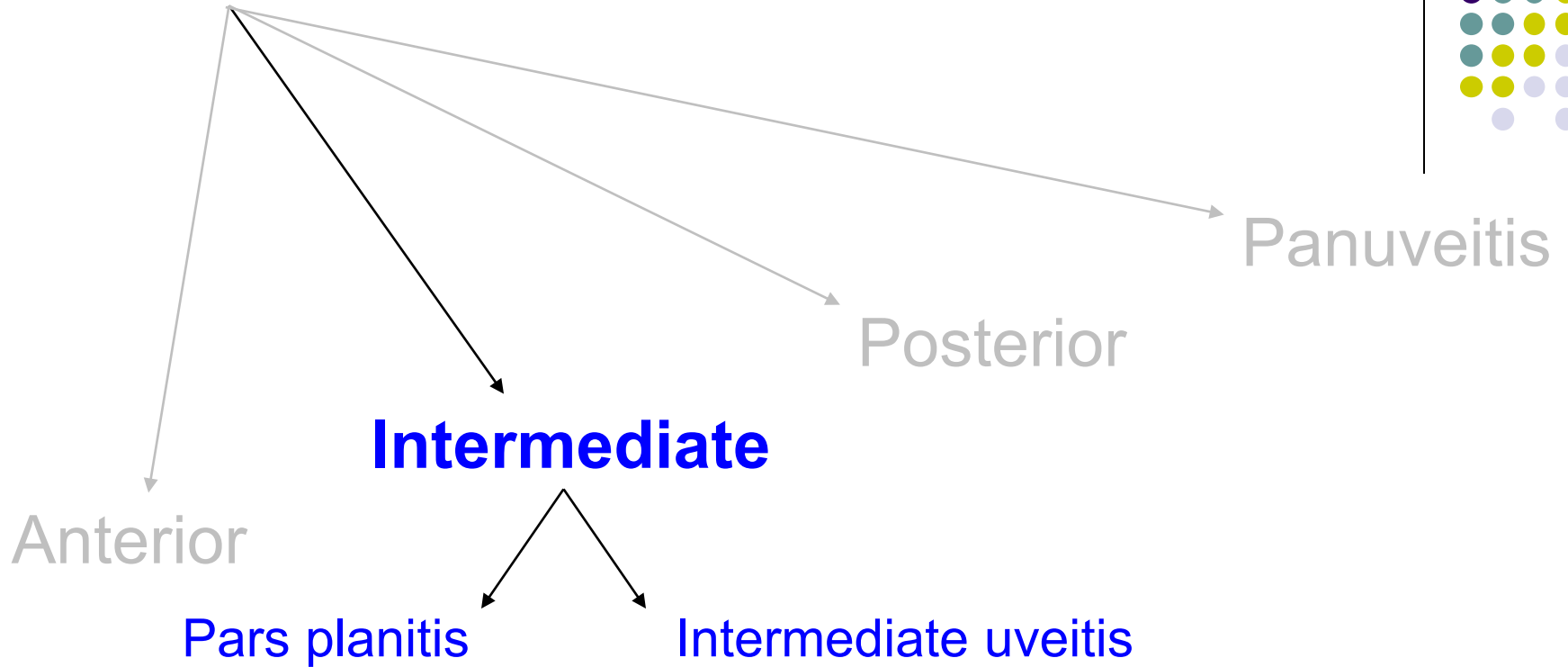
Uveitis



The entities most likely to produce IU

- MS
- Lyme
- Toxocariasis
- Sarcoid
- Syphilis
- TB

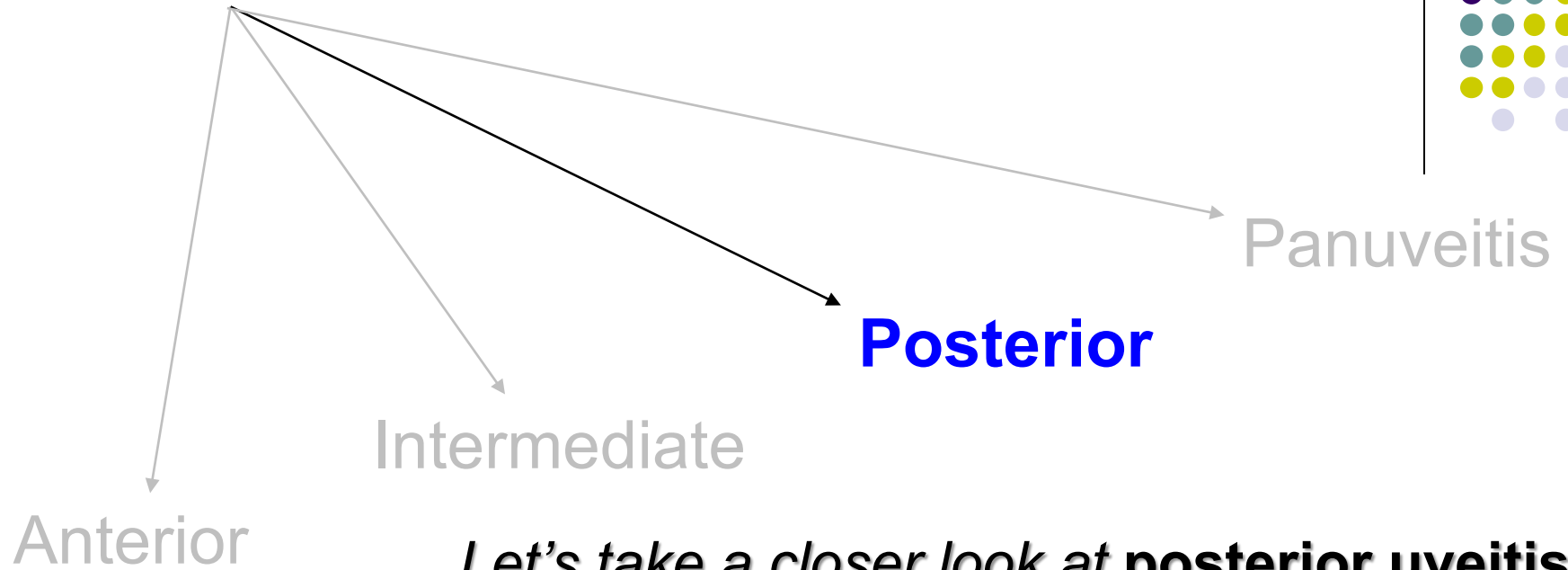
Uveitis



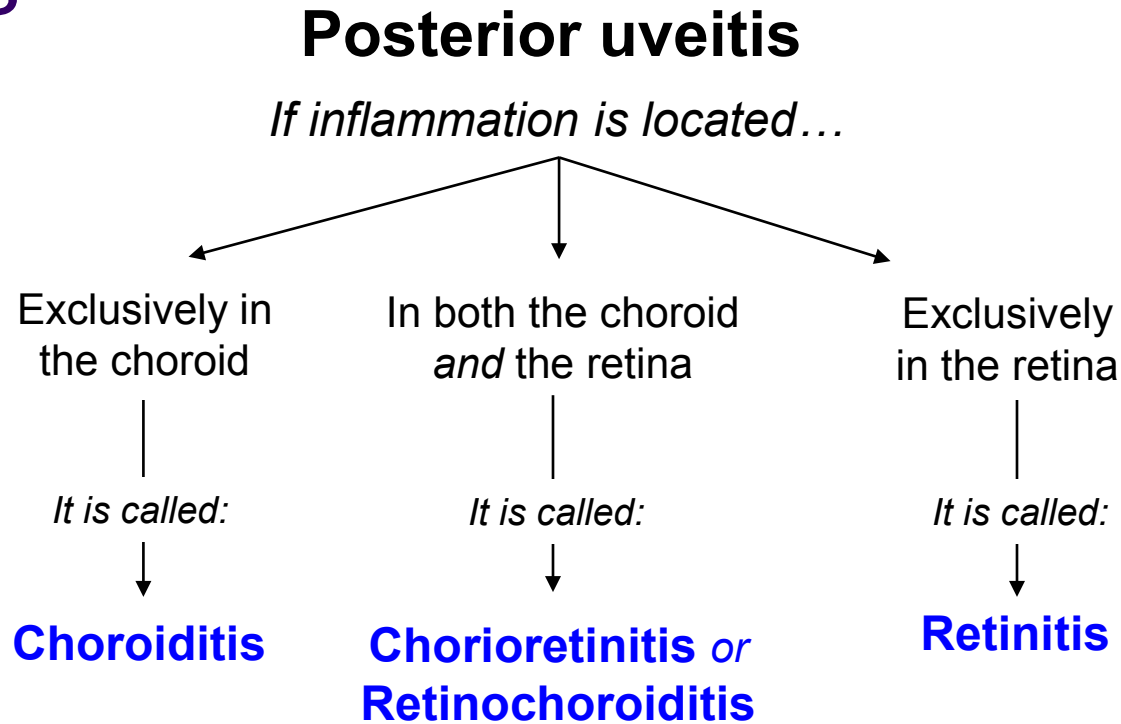
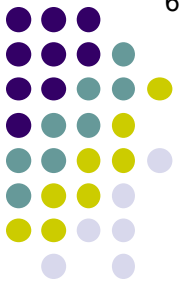
- MS
- Lyme
- Toxocariasis
- **Sarcoid**
- **Syphilis**
- **TB**

Note the appearance of these three on the IU DDx as well

Uveitis

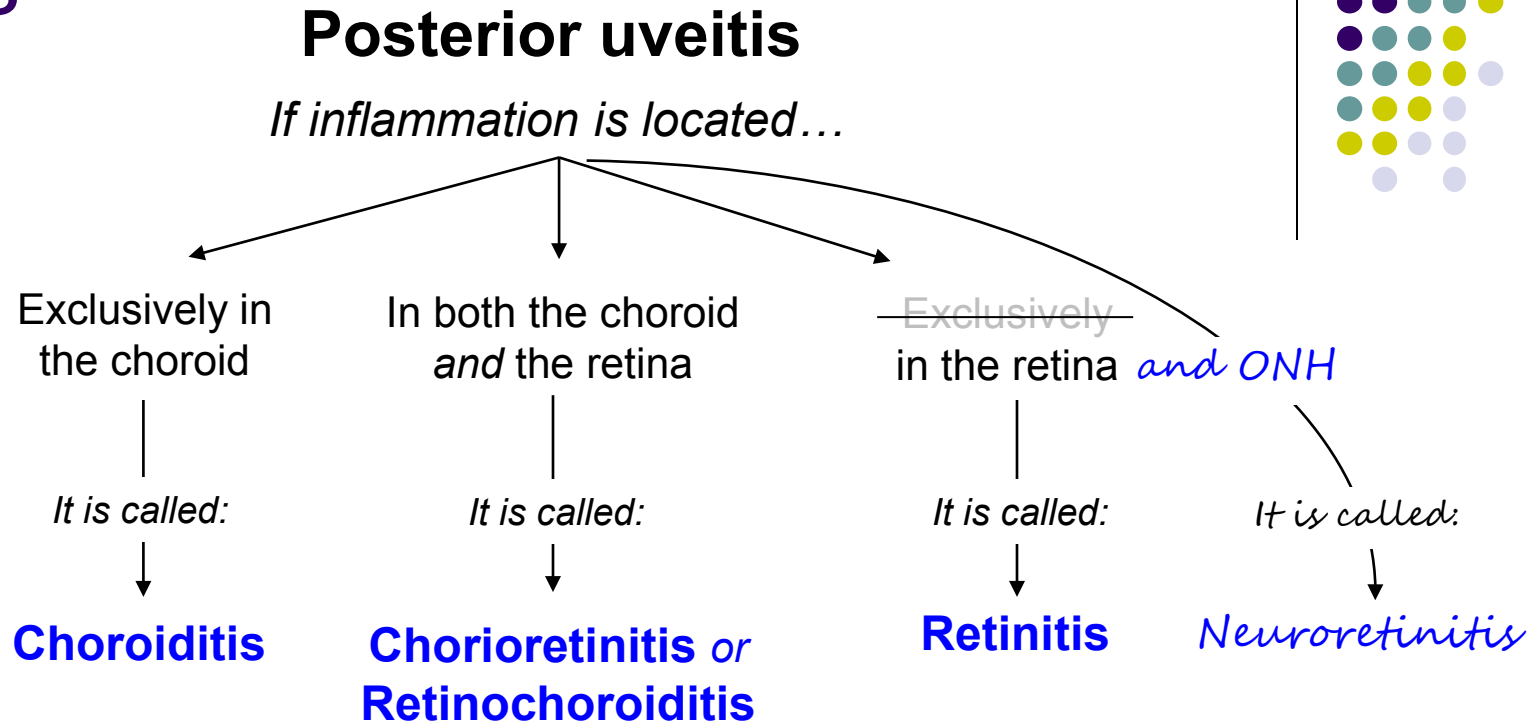


Uveitis



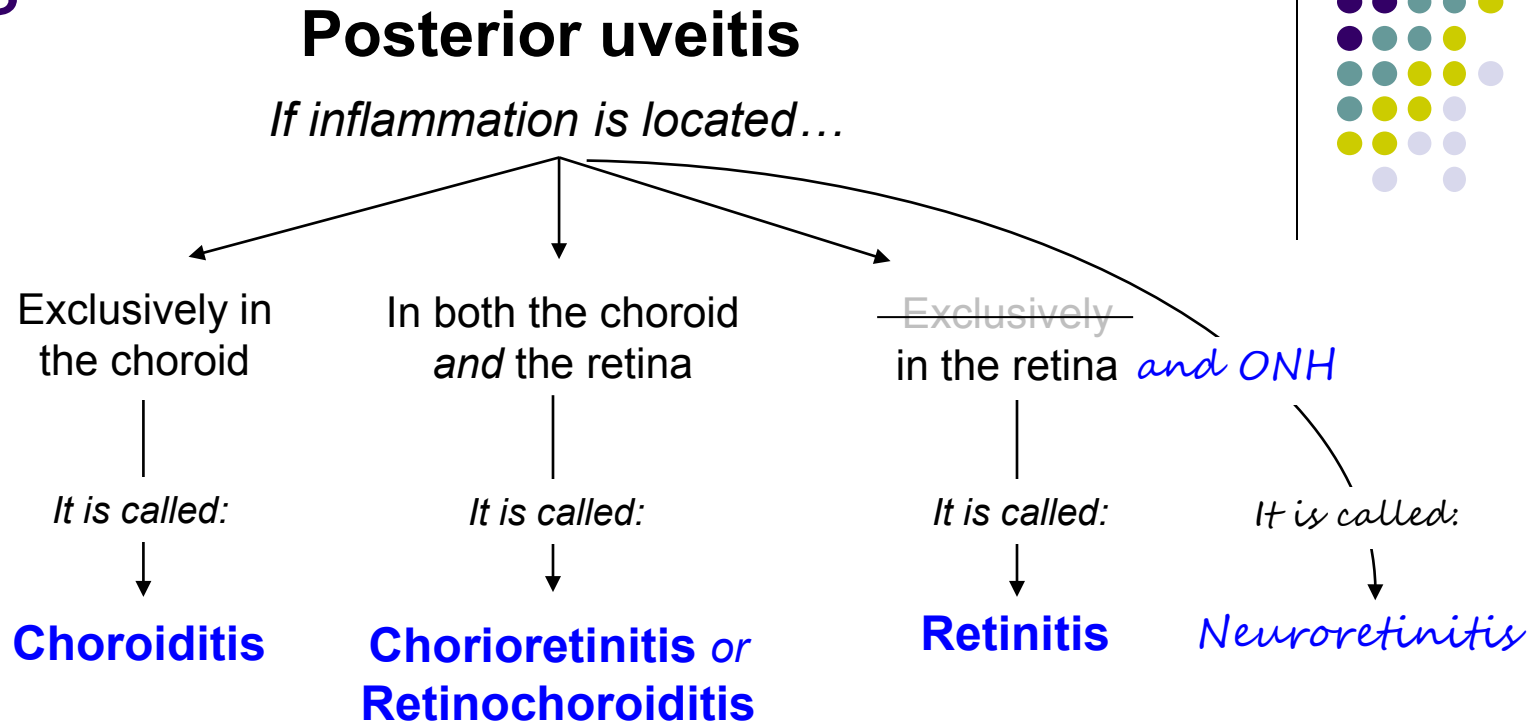
As presented previously, here are the ways **posterior uveitis** can manifest.

Uveitis



As presented previously, here are the ways **posterior uveitis** can manifest. One more—*neuroretinitis*, inflammation involving both the retina and optic nerve—should be added for completeness sake.

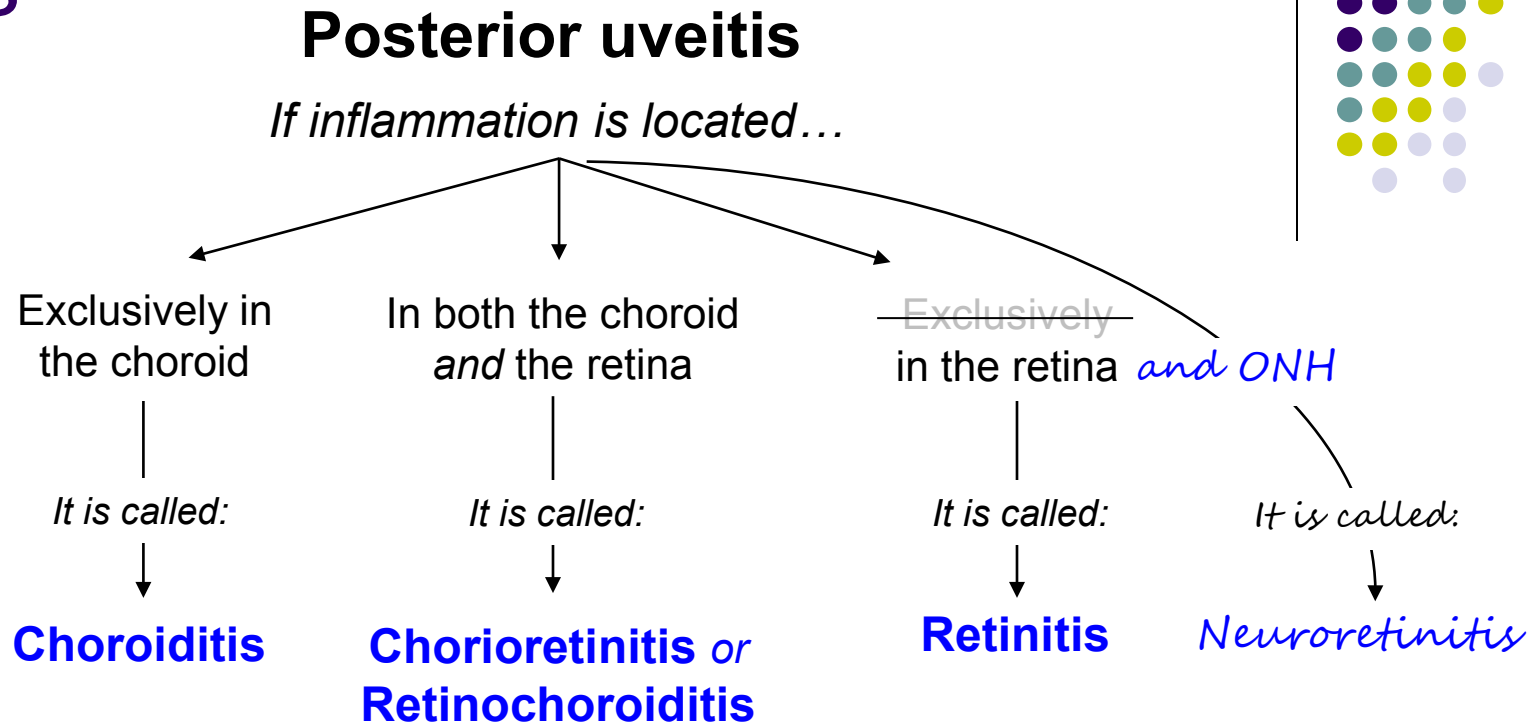
Uveitis



As presented previously, here are the ways **posterior uveitis** can manifest. One more—*neuroretinitis*, inflammation involving both the retina and optic nerve—should be added for completeness sake.

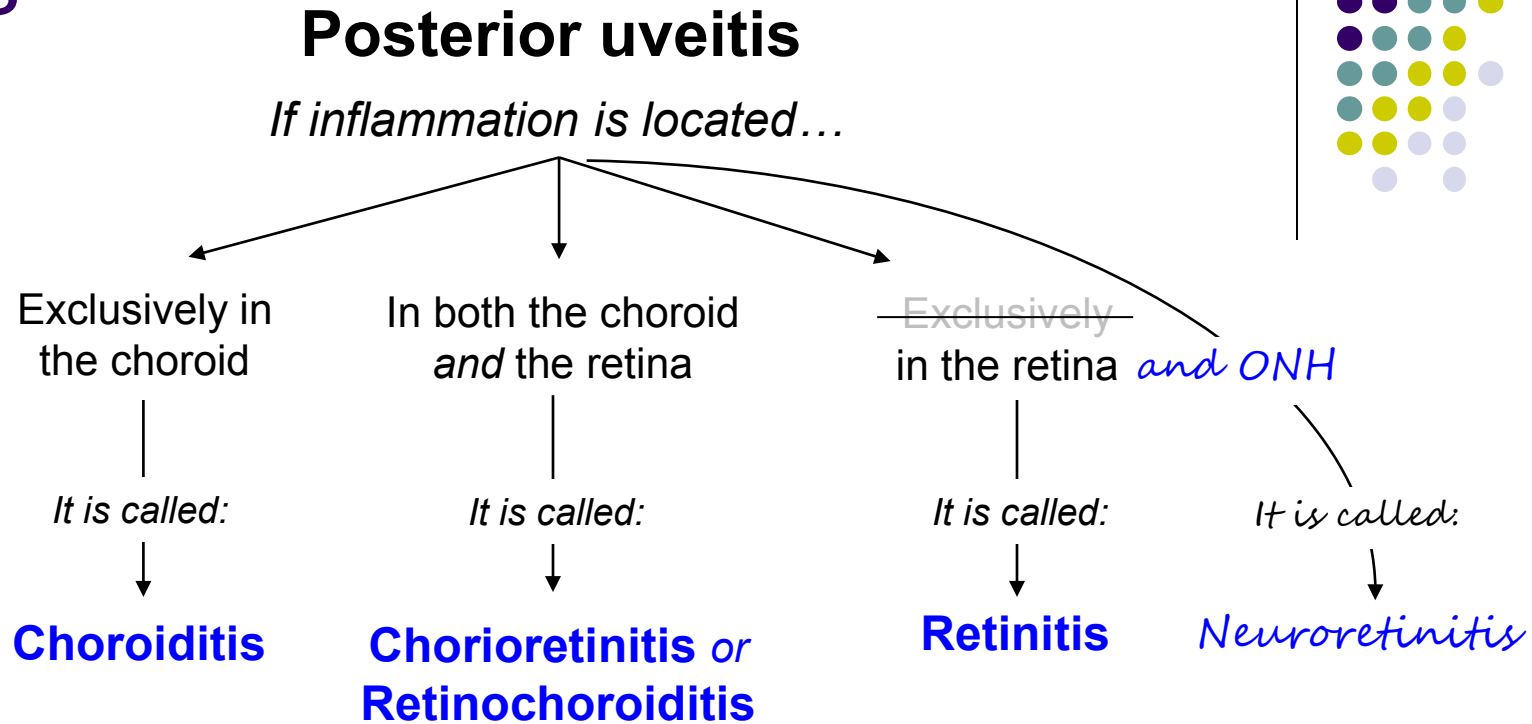
About 80% of **anterior** uveitis cases are **noninfectious** in origin. *The opposite is true for posterior uveitis*: most cases are infectious—weirdly, also about 80%.

Uveitis



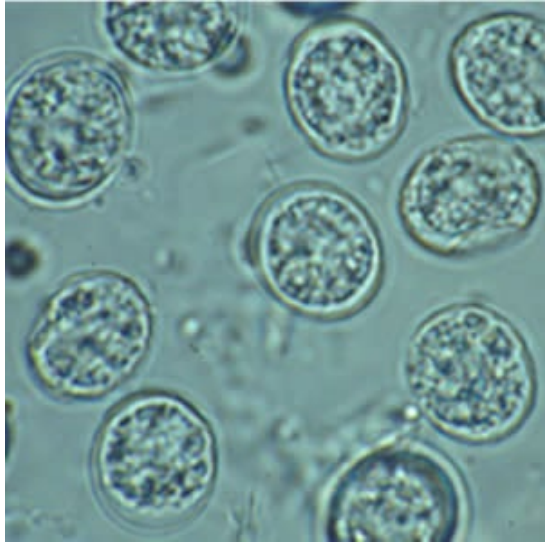
Toxoplasmosis is a common, classic cause of posterior uveitis. It is infectious, the bug being *Toxoplasma gondii*, an obligate intracellular parasite. The cat is its definitive host. *T gondii* has a worldwide distribution; an estimated one billion people are infected. Humans usually acquire the parasite via consumption of unwashed produce or undercooked meat.

Uveitis



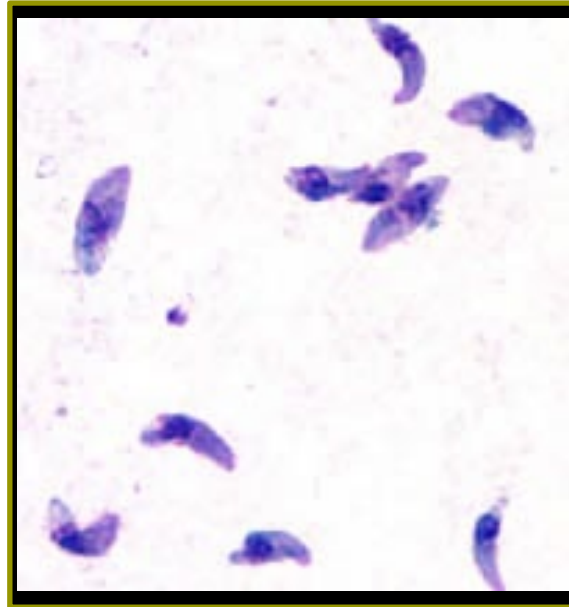
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Uveitis



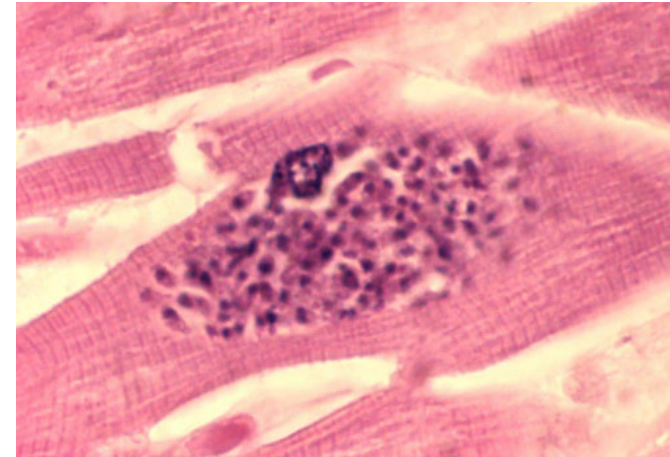
Oocyst form

- Found in GI tract of cat (shed in feces)
- Acquired via ingestion of unwashed produce



Tachyzoite form

- Found in circulatory system of infected mother
- Responsible for transplacental infection

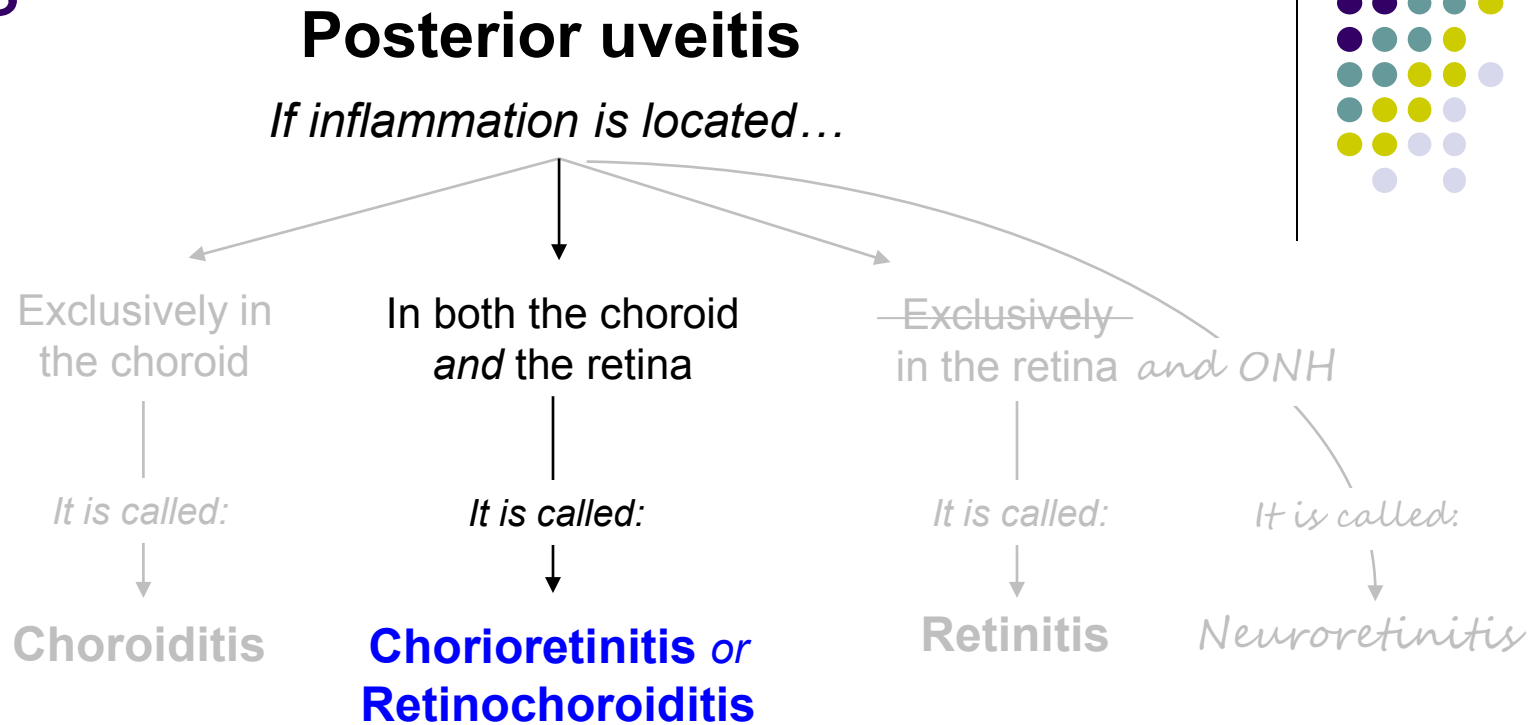


Tissue cyst

- Found in tissue of infected livestock
- Acquired via consumption of undercooked meat

Toxoplasma gondii: Three infectious forms

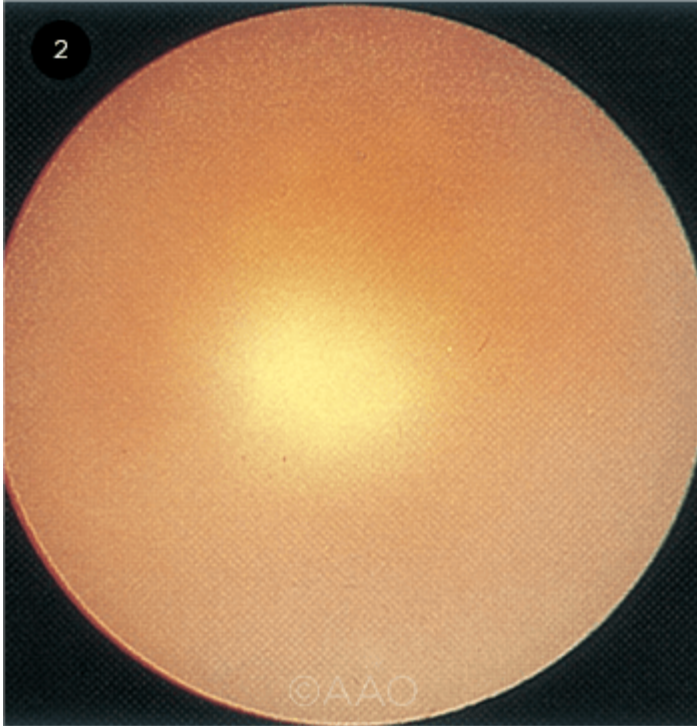
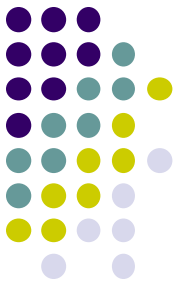
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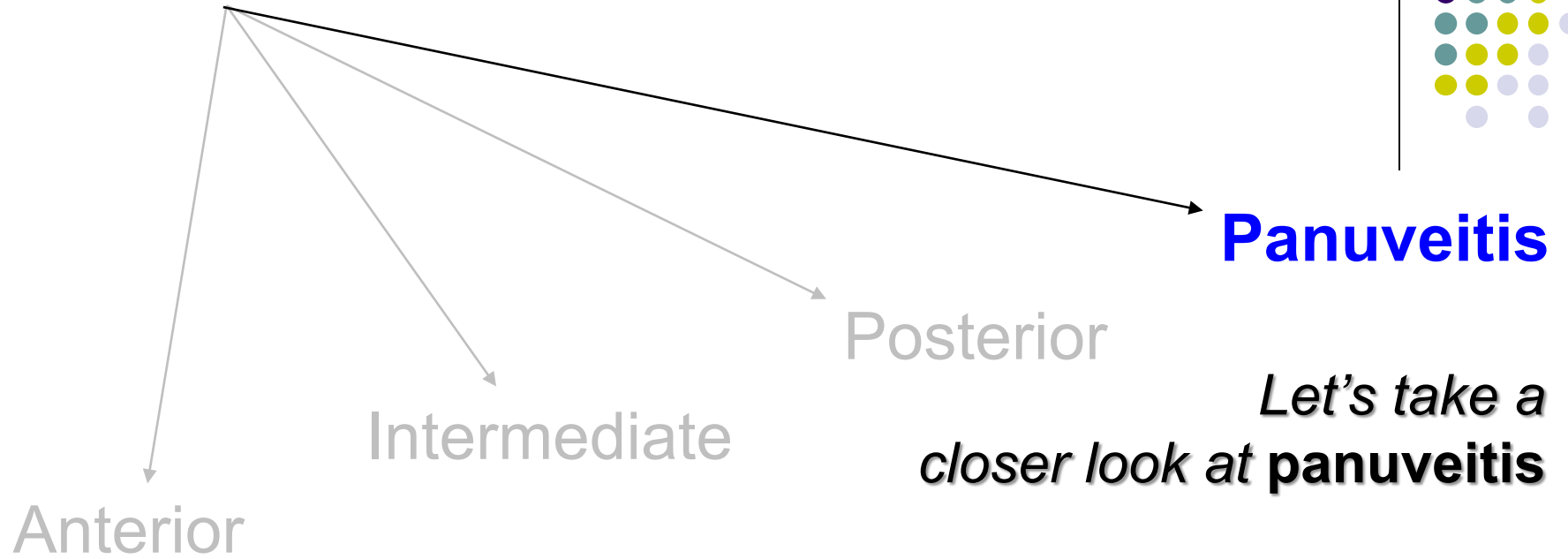
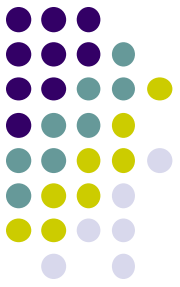
The typical posterior-uveitis manifestation of toxoplasmosis is a retinochoroiditis accompanied by a dense overlying vitritis. Taken together, the appearance has been likened to a **'headlight in the fog.'**

Uveitis

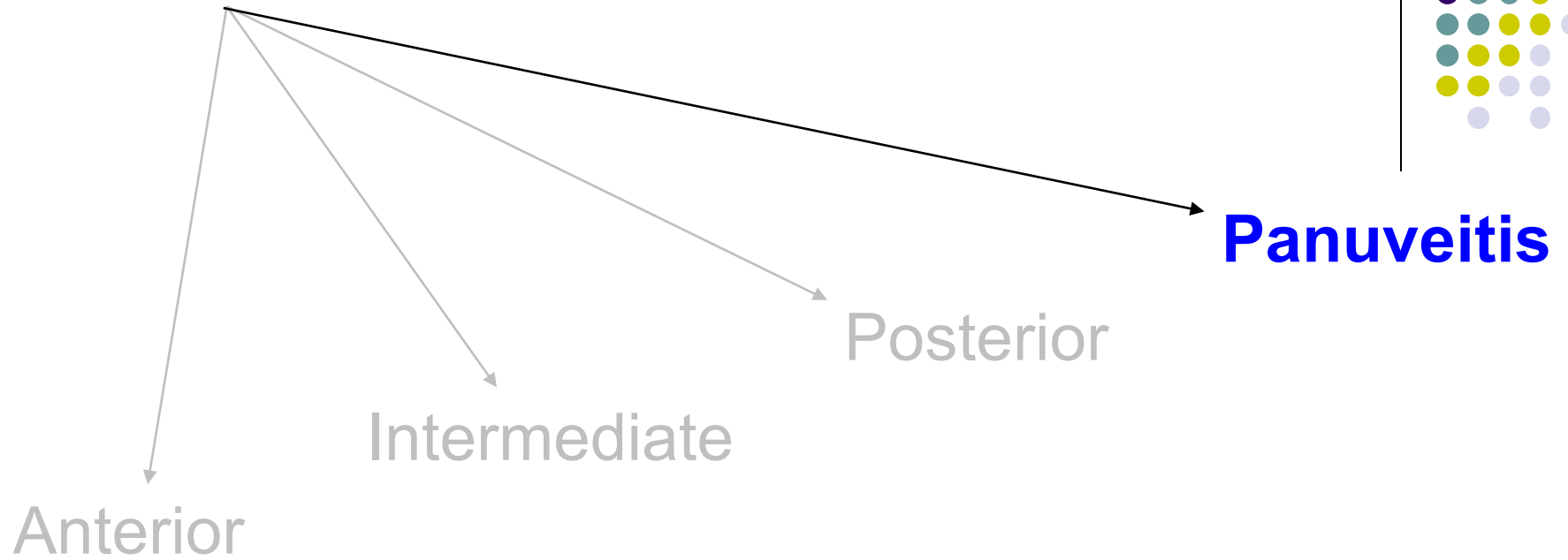


Ocular toxoplasmosis: Headlight in the fog

Uveitis

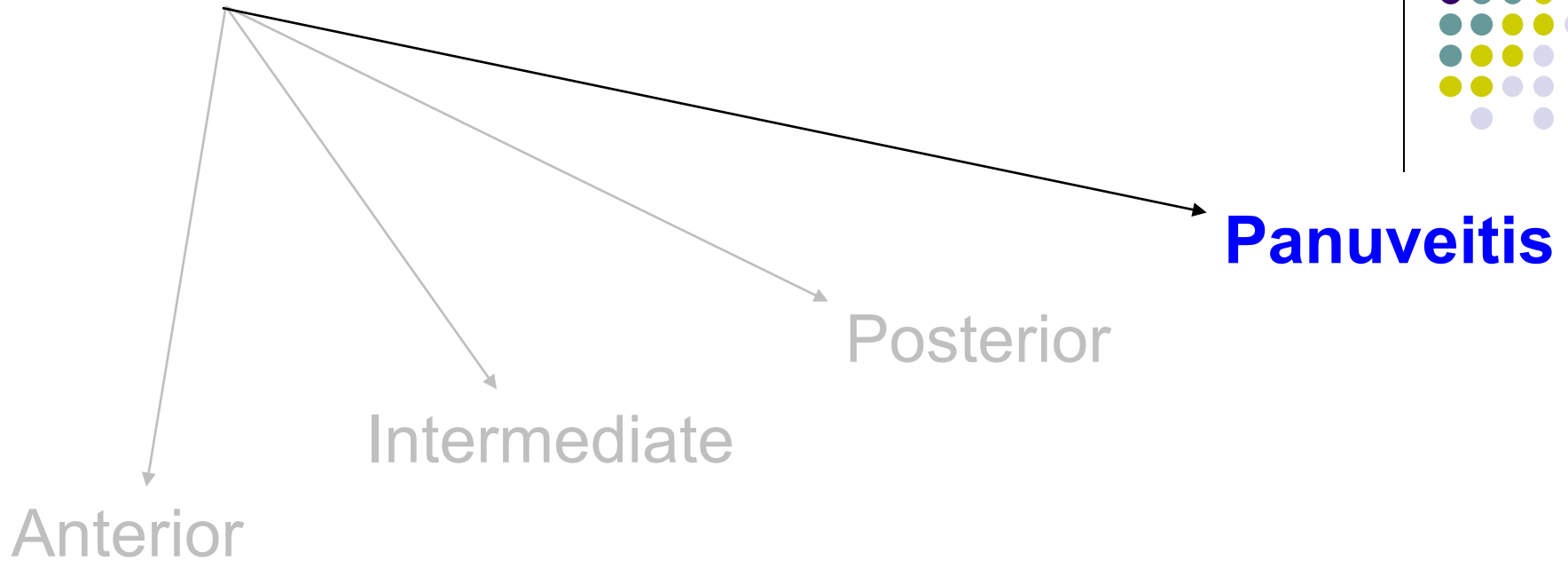


Uveitis



To qualify as a **panuveitis**, all compartments of the eye—the AC, vitreous, and retina/choroid—must be equally involved in the inflammatory process. Panuveitis is usually a bilateral condition, although it may be asymmetric.

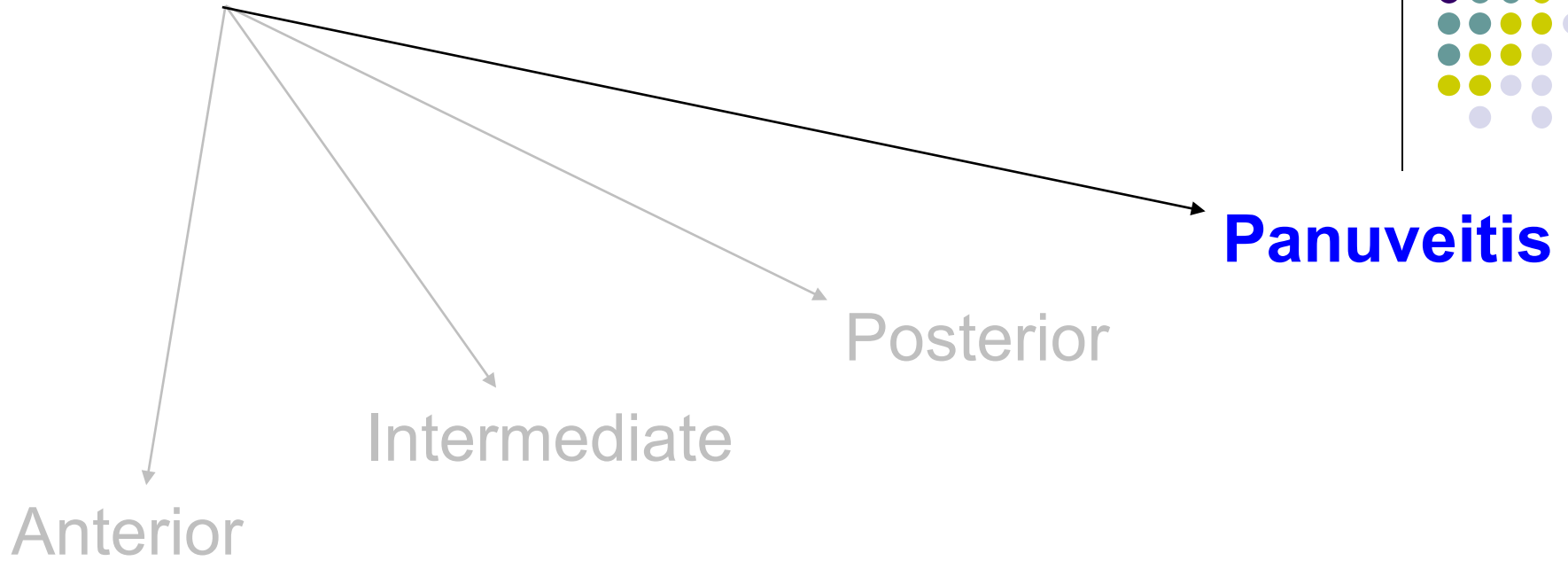
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The panuveitides are divided into **Noninfectious** and **Infectious** causes.

Uveitis

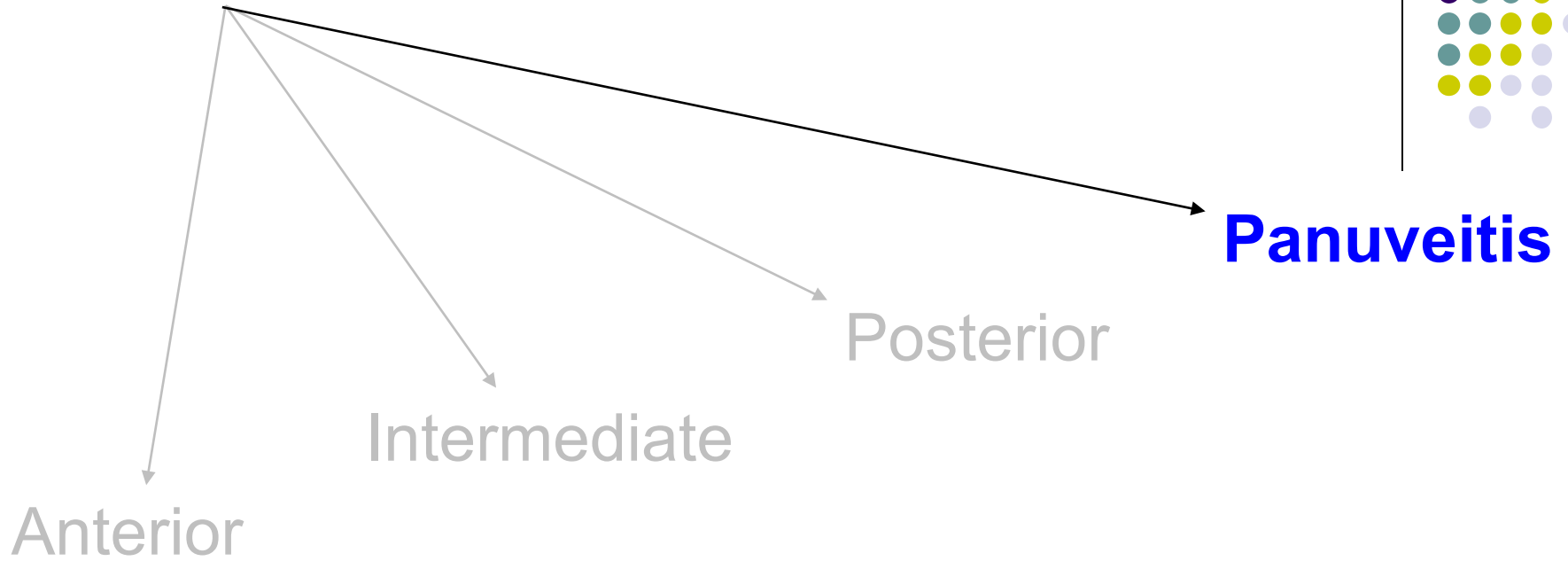


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- Sarcoid
- Sympathetic ophthalmia
- Vogt-Koyanagi-Harada
- Behçet syndrome

Uveitis

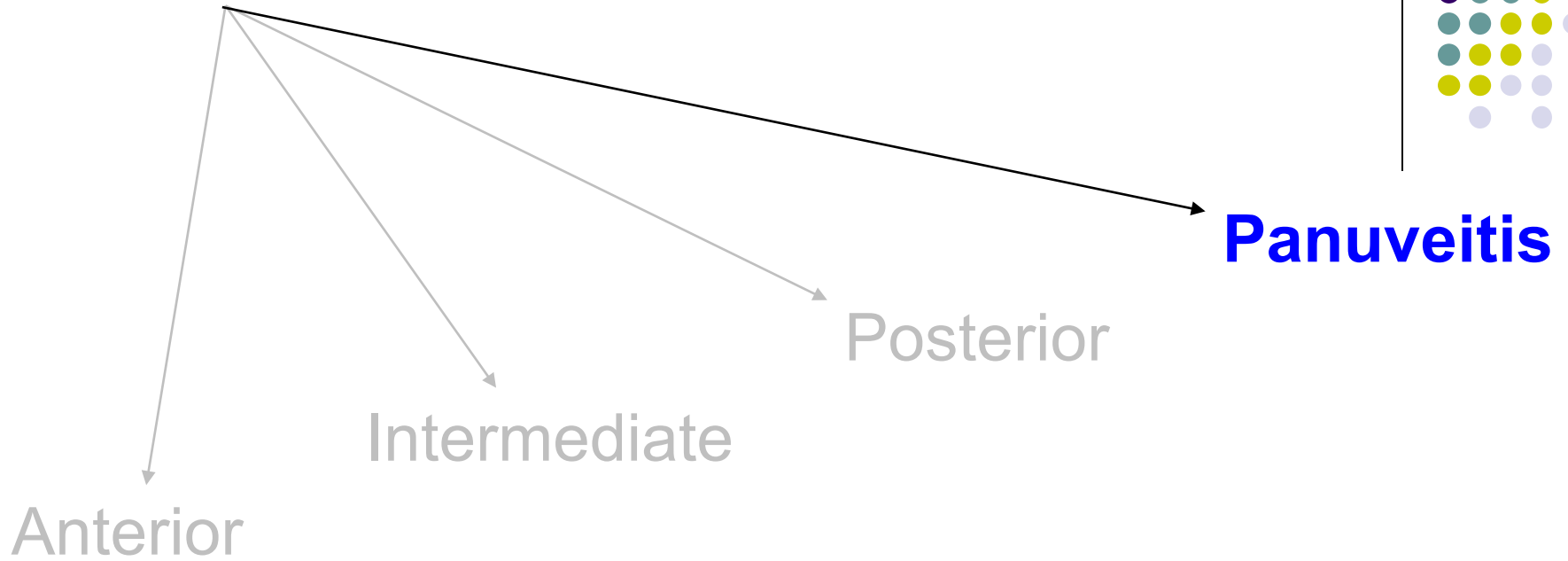
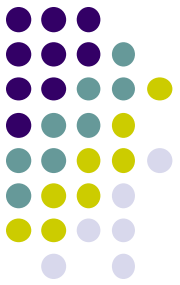


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- | | | |
|------------------------|---|---------------|
| Sarcoid | — | Syphilis |
| Sympathetic ophthalmia | — | TB |
| Vogt-Koyanagi-Harada | — | Lyme |
| Behçet syndrome | — | Leptospirosis |
| | | Whipple dz |

Uveitis



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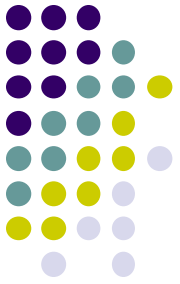
Sarcoid	<i>Note that these three appear yet again</i>	Syphilis
Sympathetic ophthalmia		TB
Vogt-Koyanagi-Harada		Lyme
Behçet syndrome		Leptospirosis
		Whipple dz

Endophthalmitis



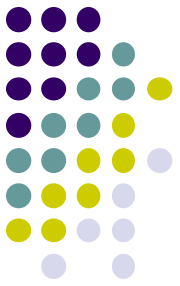
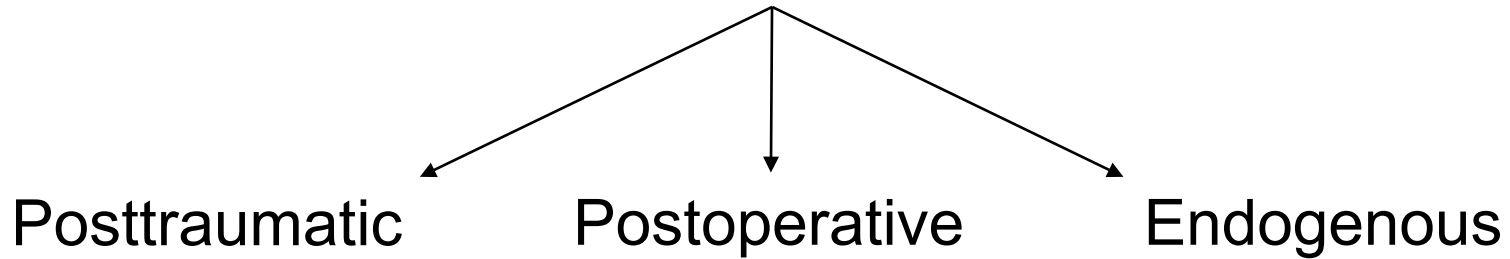
Now we'll change gears and look at endophthalmitis

Endophthalmitis



The *Uveitis* book defines **endophthalmitis** as an inflammatory process involving both the AC and vitreous cavities that is 2ndry to bacterial or fungal infection.

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Endophthalmitis can be **posttraumatic**, **postoperative** or **endogenous**.

Endogenous Endophthalmitis



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Endogenous endophthalmitis involves hematogenous spread of infection from a remote location to the eye. It is uncommon, accounting for less than 10% of all cases of endophthalmitis. Individuals at increased risk of endogenous endophthalmitis include those with impaired immune status, those who recently underwent an invasive medical procedure, and those subjected to chronic and/or repeated breaching of the body's outer barrier.

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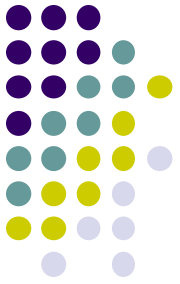
The fact that the route is hematogenous indicates a nidus of infection is present somewhere in the body, and it is incumbent upon the pt's care team to find and treat it!

Endogenous Endophthalmitis

Bacterial

Fungal

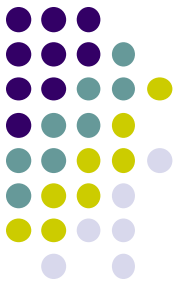
As mentioned, endogenous endophthalmitis can be bacterial or fungal.



Endogenous Endophthalmitis

Bacterial

Fungal



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Bacterial endophthalmitis presents with the expected ocular signs of pain, redness, and decreased vision. Additional ocular signs include periorbital/lid edema, a dense AC reaction (often with hypopyon), and vitreous inflammation. Retinal microabscesses may be present, including white-centered hemorrhages (aka *Roth spots*). Significantly, systemic findings of infection—fever, elevated white count, malaise, etc—will likely be present as well.

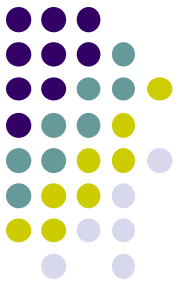


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Endogenous Endophthalmitis



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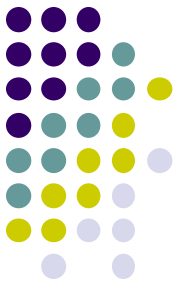
Some classic bacterial pathogen associations in endogenous endophthalmitis:

- Endocarditis*: *Strep*
- Skin infections*: *Staph*
- IVDU*: *Bacillus*
- Liver abscess*: *Klebsiella*

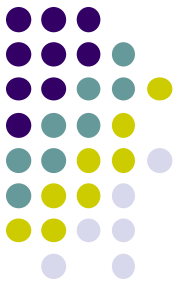
Endogenous Endophthalmitis

Bacterial

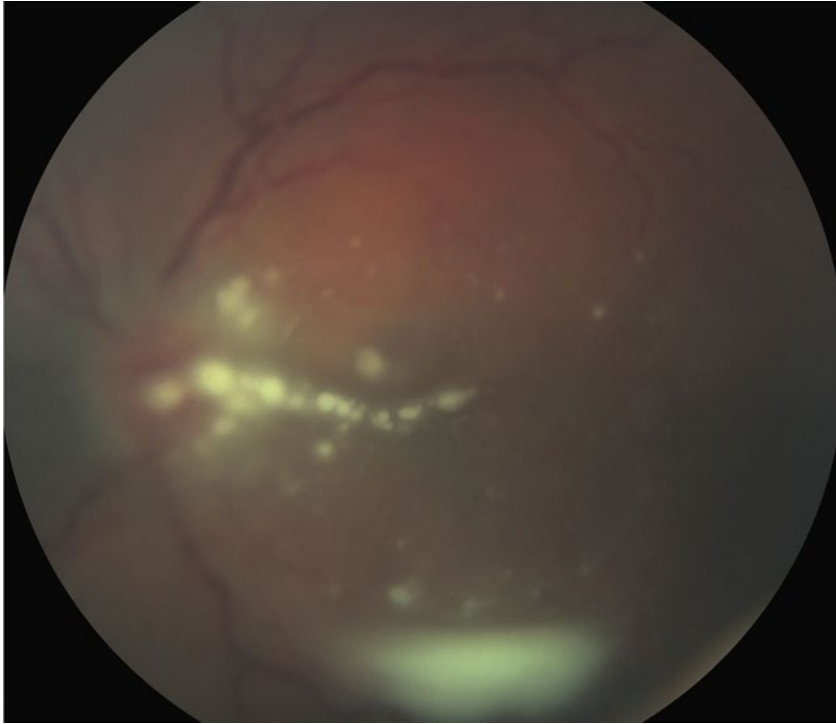
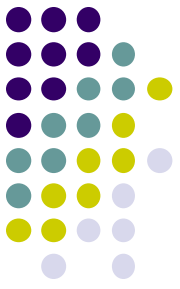
Fungal



In contrast to the bacterial version, endogenous **fungal** endophthalmitis tends to be more insidious in onset. It generally progresses in a particular fashion. First, isolated choroidal metastatic lesions appear. With time, these break through Bruch's membrane to involve the retina. Eventually, the bug reaches the vitreous, and (if still unchecked) the anterior segment.



Candida endophthalmitis: Choroidal lesions

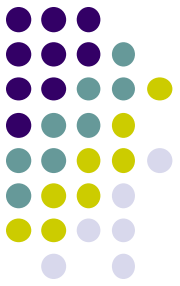


Candida endophthalmitis: Classic 'string of pearls' vitreous involvement

Endogenous Endophthalmitis

Bacterial

Fungal

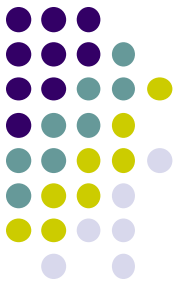


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Endogenous Endophthalmitis

Bacterial

Fungal

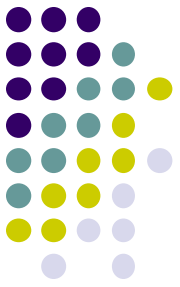


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Some classic fungal pathogen associations in endogenous endophthalmitis:

- Chronic indwelling lines/catheters: *Candida*
- HIV/AIDS: *Cryptococcus*
- Hx liver transplantation: *Aspergillus*
- San Joaquin valley: *Coccidioides*

Uveitis



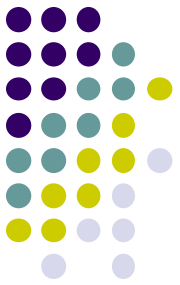
Scleritis

Next let's take a look at scleritis

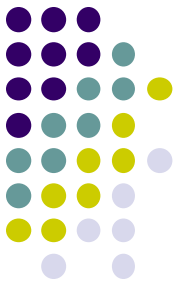
Uveitis

Scleritis

Scleritis is an inflammatory condition characterized by painful infiltrative scleral edema and congestion of the deep episcleral plexus. It can be extremely painful, and can lead to blindness and loss of the eye. Women are more likely to be affected than are men. It is rare in children.



Uveitis



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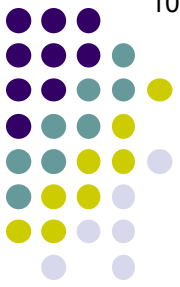
To make matters worse, it can herald the presence or worsening of a systemic conditions that may be potentially lethal. About 40% of scleritis pts have an identifiable systemic inflammatory condition, the most common of which is rheumatoid arthritis.

Uveitis

Scleritis is divided up with respect
to whether the...



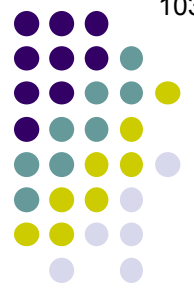
Uveitis



Scleritis is divided up with respect to whether the...

Anterior sclera is affected, vs the **Posterior** sclera.

Uveitis



Scleritis

Anterior

Posterior

There are three classic signs of anterior scleritis:

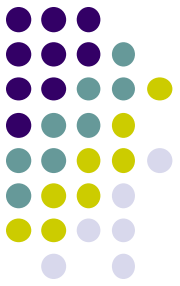
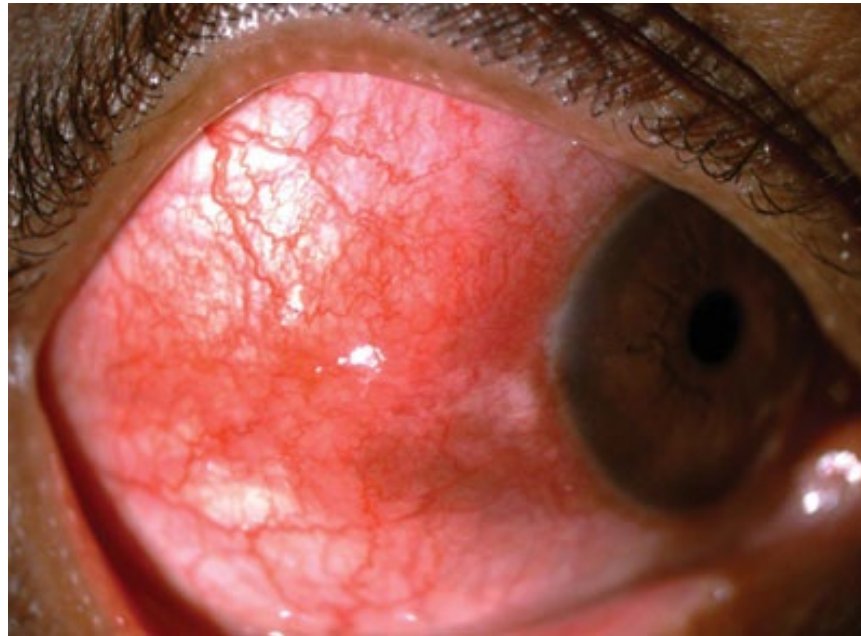
--Scleral edema

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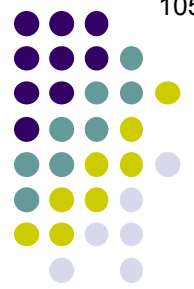
Uveitis

Anterior scleritis:
Scleral edema



Anterior scleritis: Scleral edema. Note the thickening of the limbal sclera (b) in comparison to the unaffected fellow eye (a)

Uveitis



Scleritis

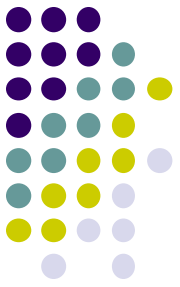
Anterior

Posterior

There are three classic signs of anterior scleritis:

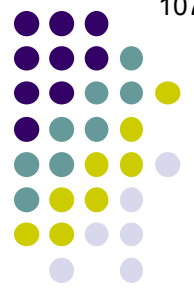
- Scleral **edema**
- Sclera has a **violaceous** hue
-

Uveitis



Anterior scleritis: Violaceous hue

Uveitis



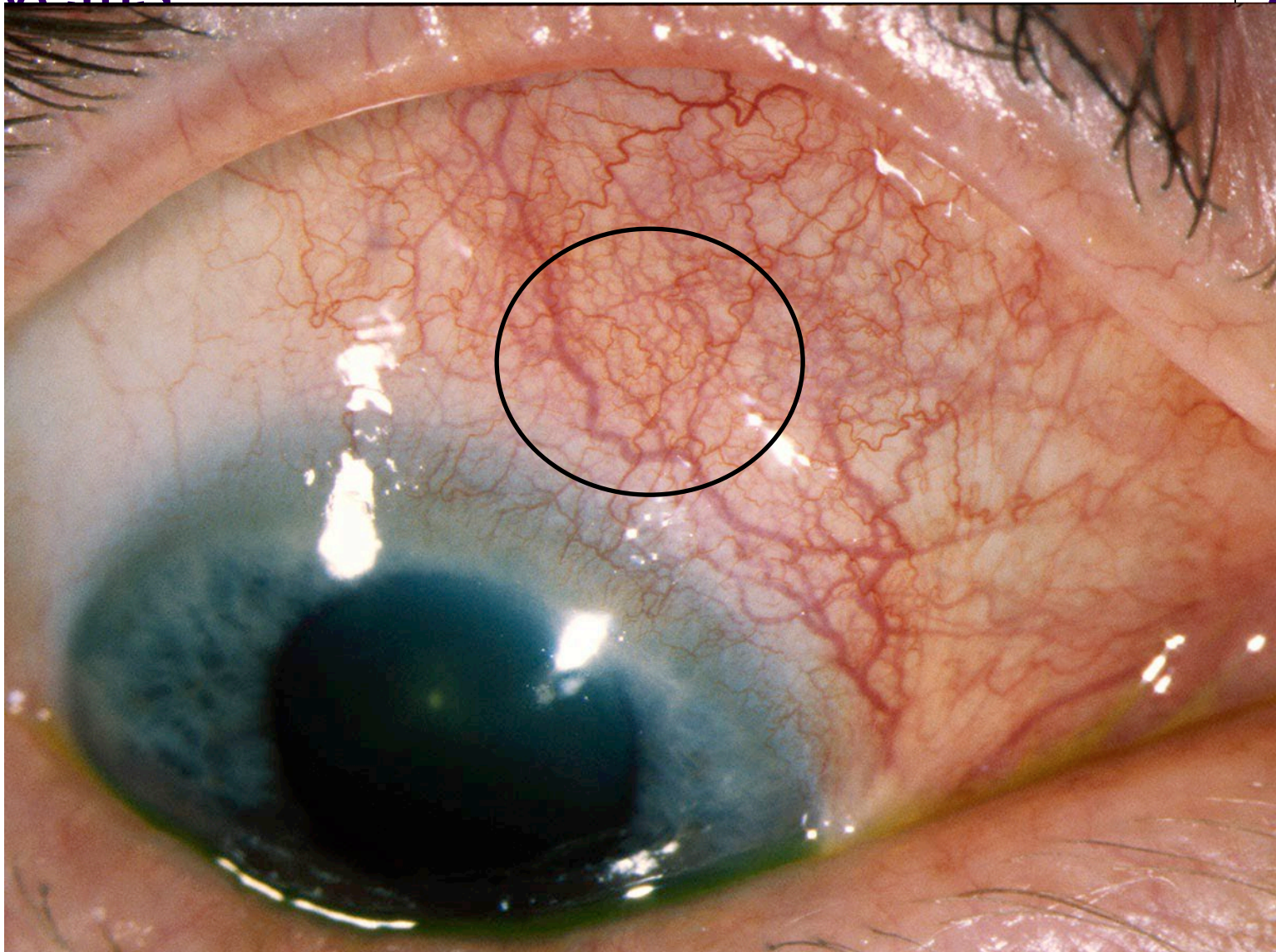
Scleritis

Anterior

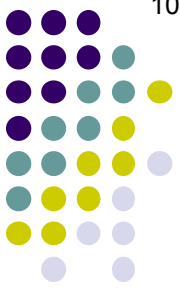
Posterior

There are three classic signs of anterior scleritis:
--Scleral **edema**
--Sclera has a **violaceous** hue
--Inflamed vasculature has a **criss-cross** pattern

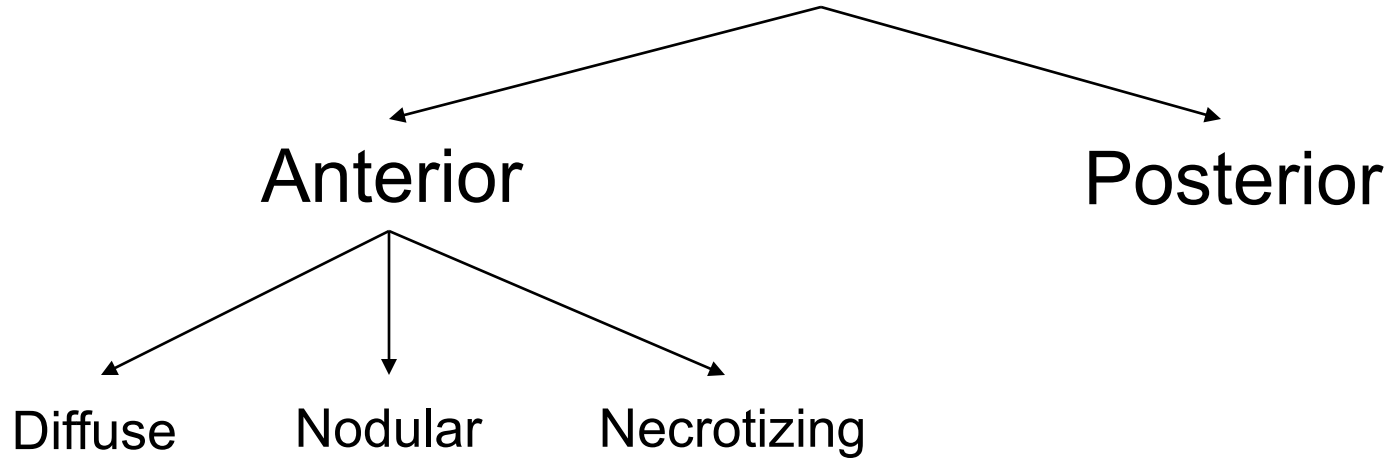
Uveitis



'Criss-cross' injection of the deep vasculature in anterior scleritis. To see it, you have to look past the brighter injection of the inflamed overlying conj vessels

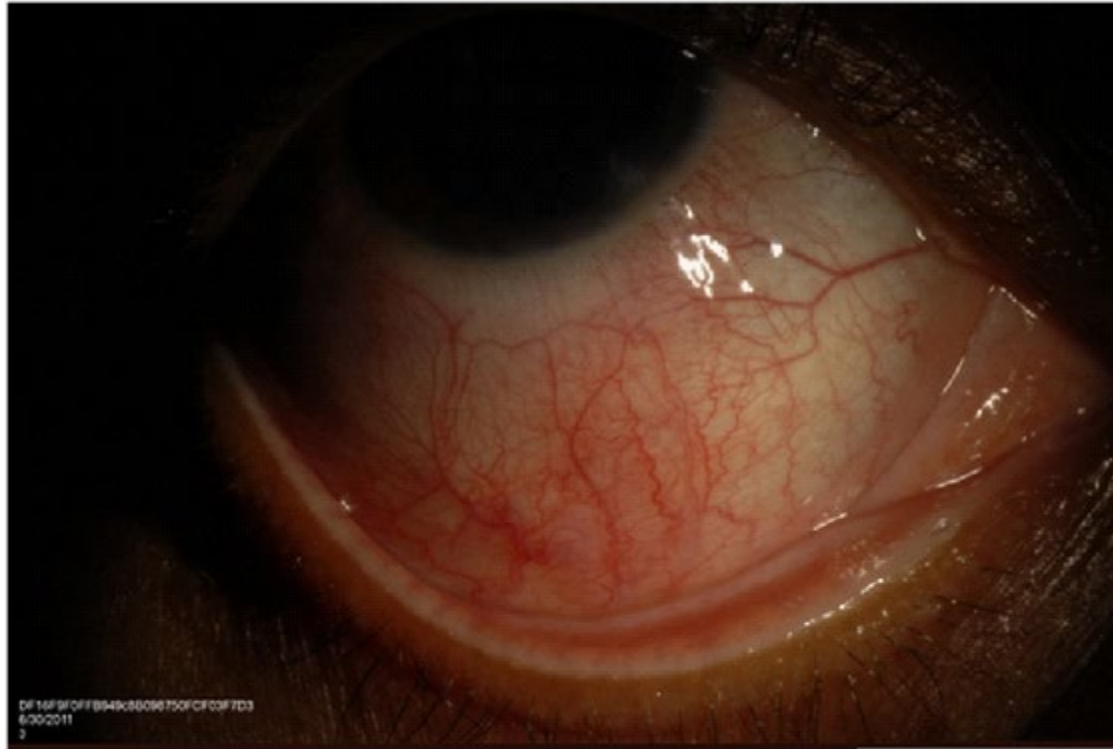


Scleritis

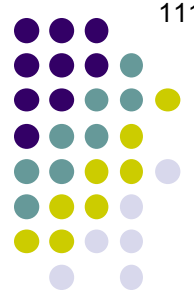


Anterior scleritis comes in three forms:
Diffuse, nodular and necrotizing

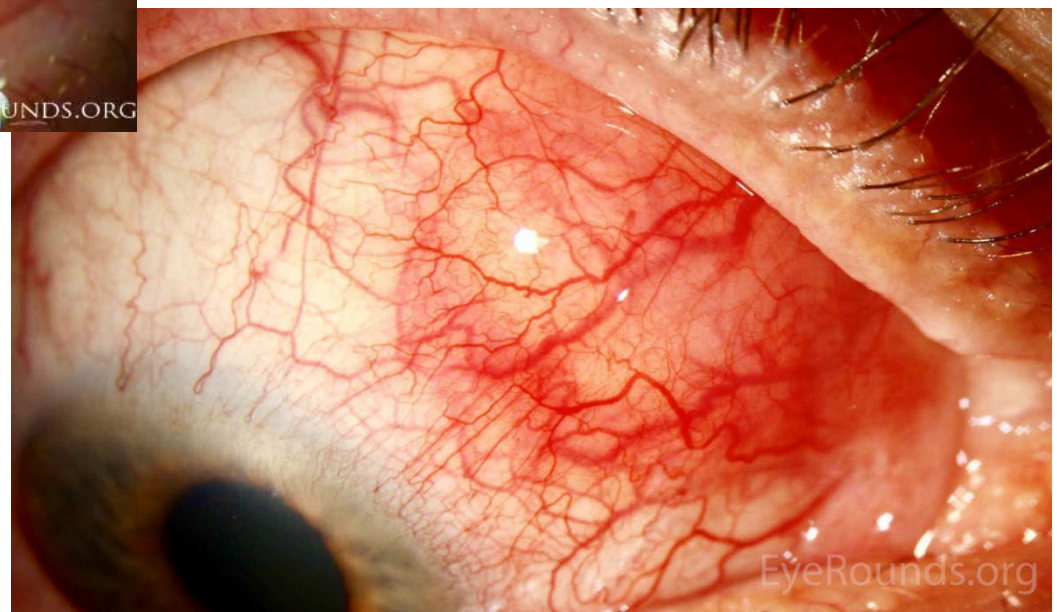
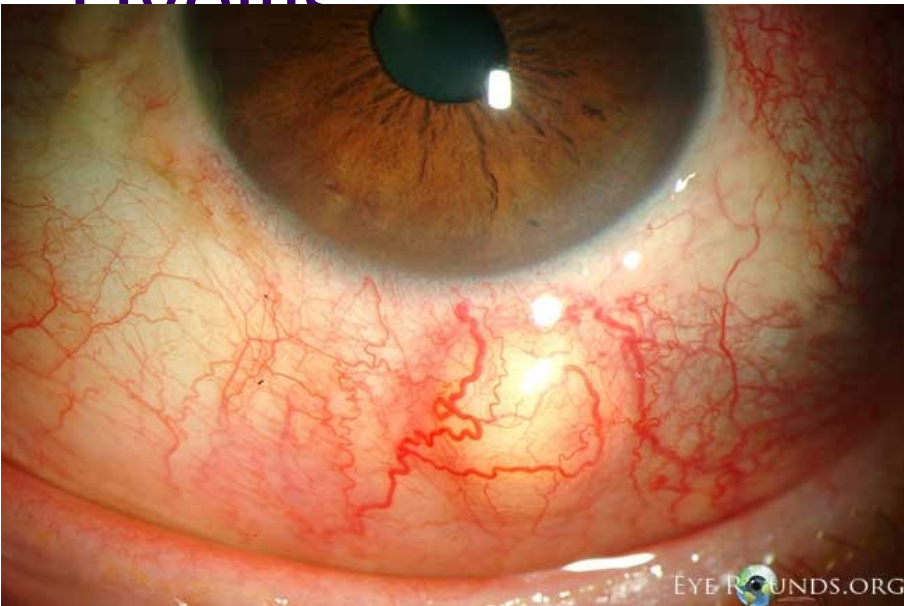
Uveitis



Diffuse anterior scleritis



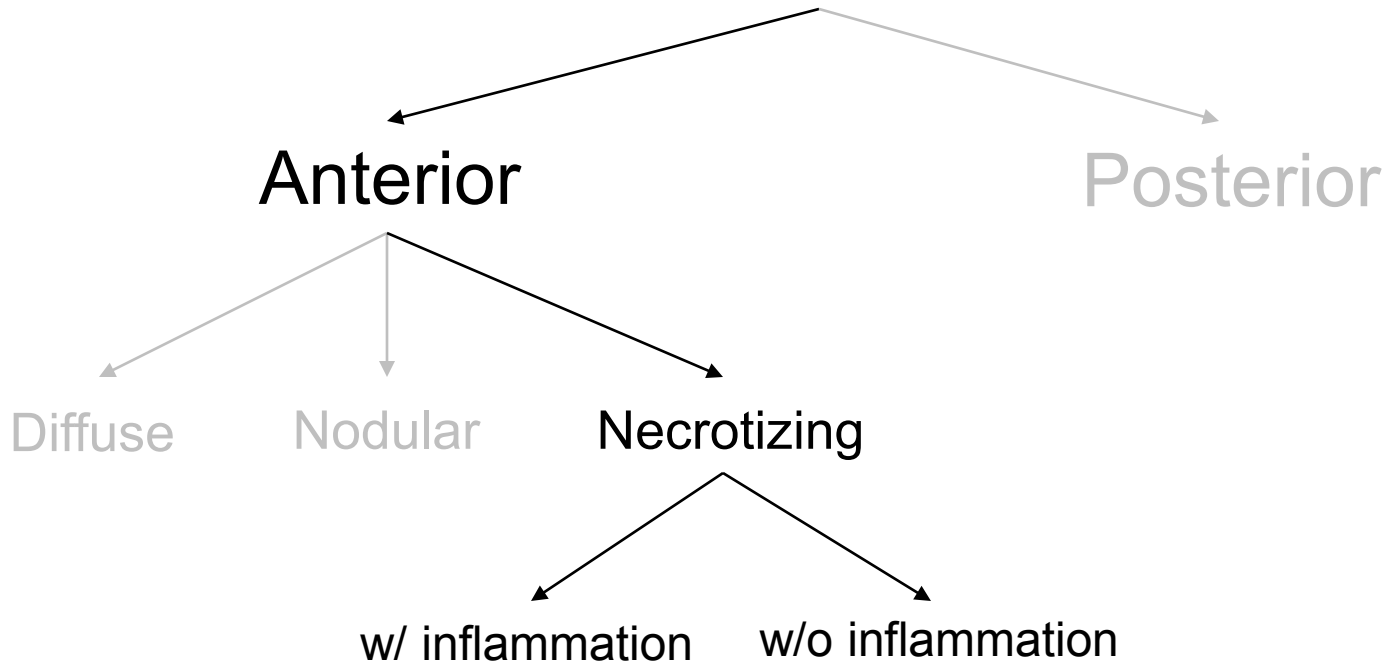
Ilyoitis



Nodular anterior scleritis

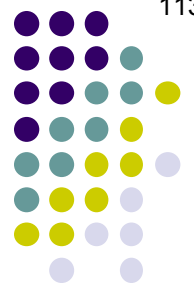


Scleritis

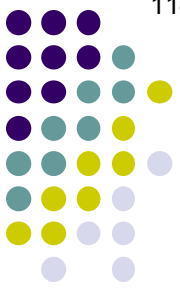


Necrotizing anterior scleritis comes in two forms: *with and without inflammation*

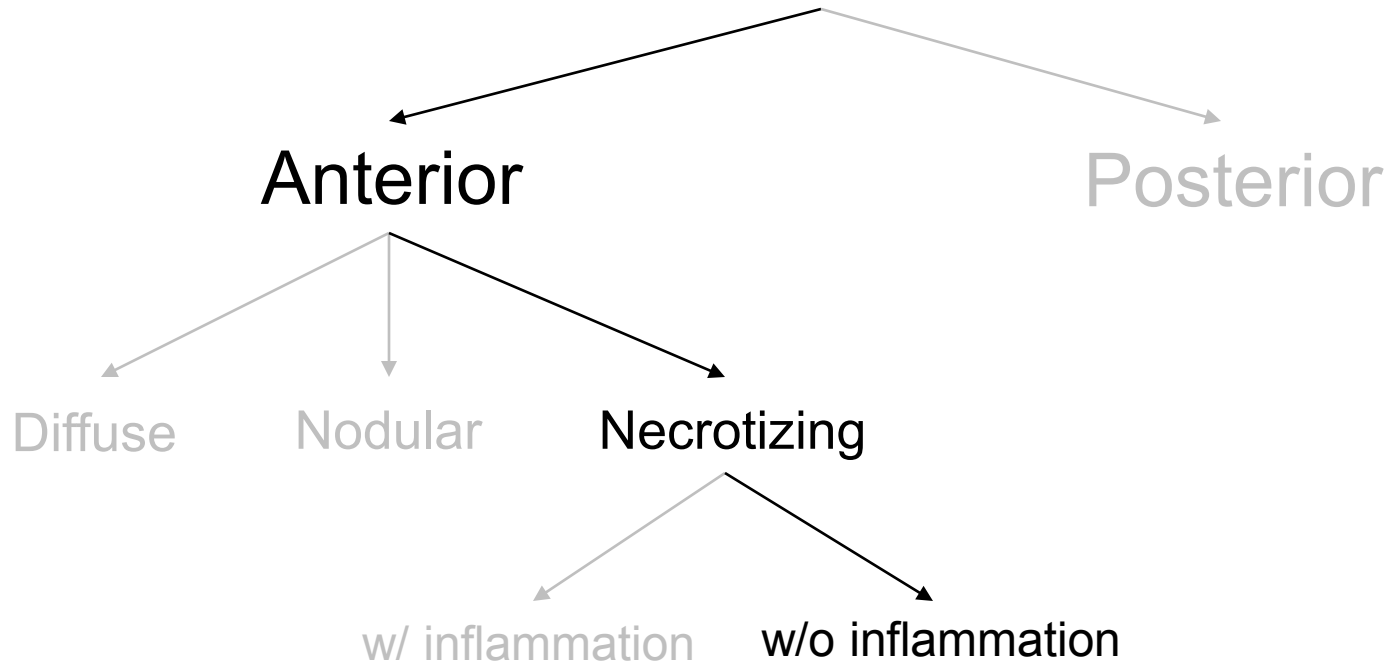
Uveitis



Necrotizing anterior scleritis **with** inflammation

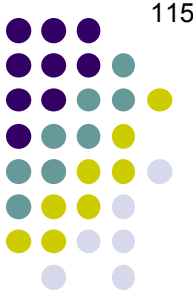


Scleritis

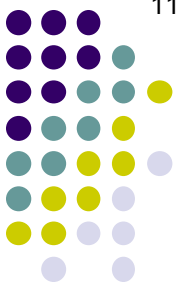


Contrary to the implications of the name, inflammation is present in *necrotizing scleritis w/o inflammation*. It is so named because, unlike its 'with inflammation' cousin, it is typically painless, and the eye does not *appear* inflamed.

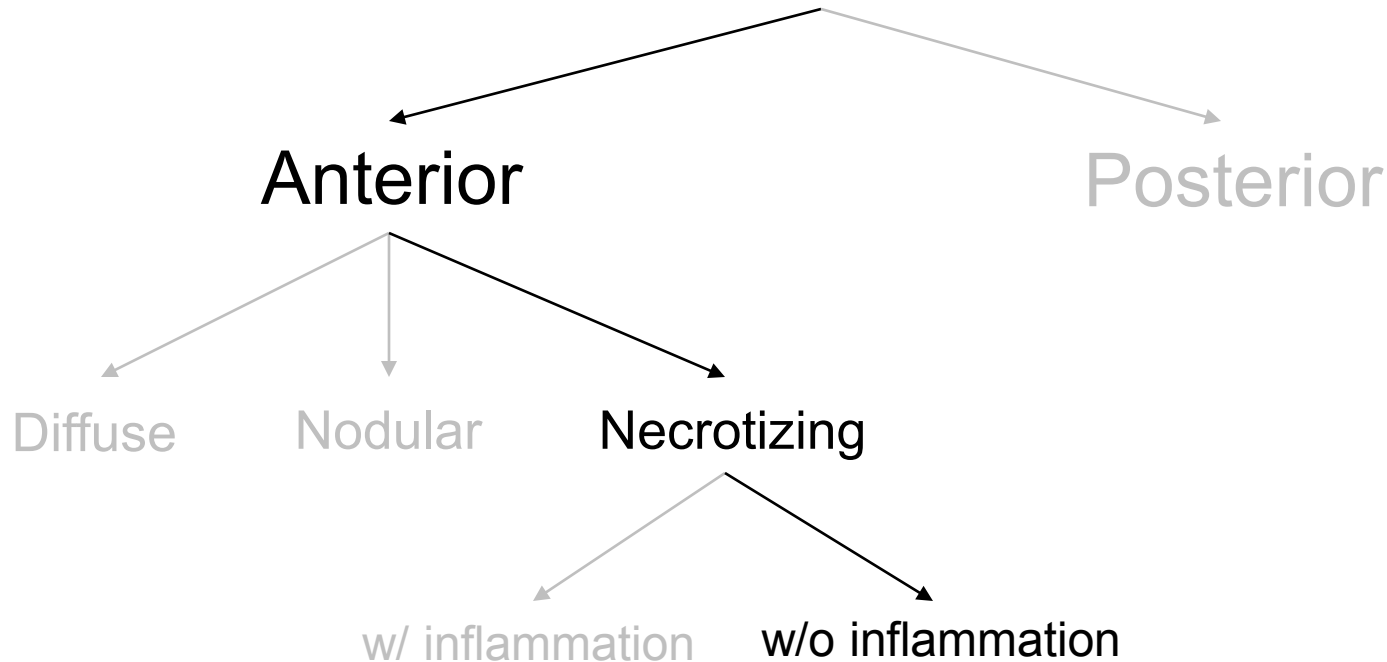
Uveitis



Necrotizing anterior scleritis without inflammation



Scleritis



Contrary to the implications of the name, inflammation is present in *necrotizing scleritis w/o inflammation*. It is so named because, unlike its 'with inflammation' cousin, it is typically painless, and the eye does not *appear* inflamed. Necrotizing scleritis w/o inflammation is also known as **scleromalacia perforans**. It is strongly associated with RA.



Scleritis

Anterior

Posterior

Diffuse

Unlike anterior scleritis, **posterior scleritis** does not present with a **red** eye, and nodules are not present. Instead, posterior scleritis presents with:

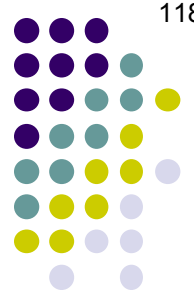
--**Proptosis**

Discoedema

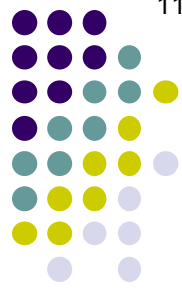
w/ inflammation

w/o inflammation

Uveitis



Posterior scleritis: Proptosis



Scleritis

Anterior

Posterior

Diffuse

Unlike anterior scleritis, **posterior scleritis** does not present with a **red** eye, and nodules are not present. Instead, posterior scleritis presents with:

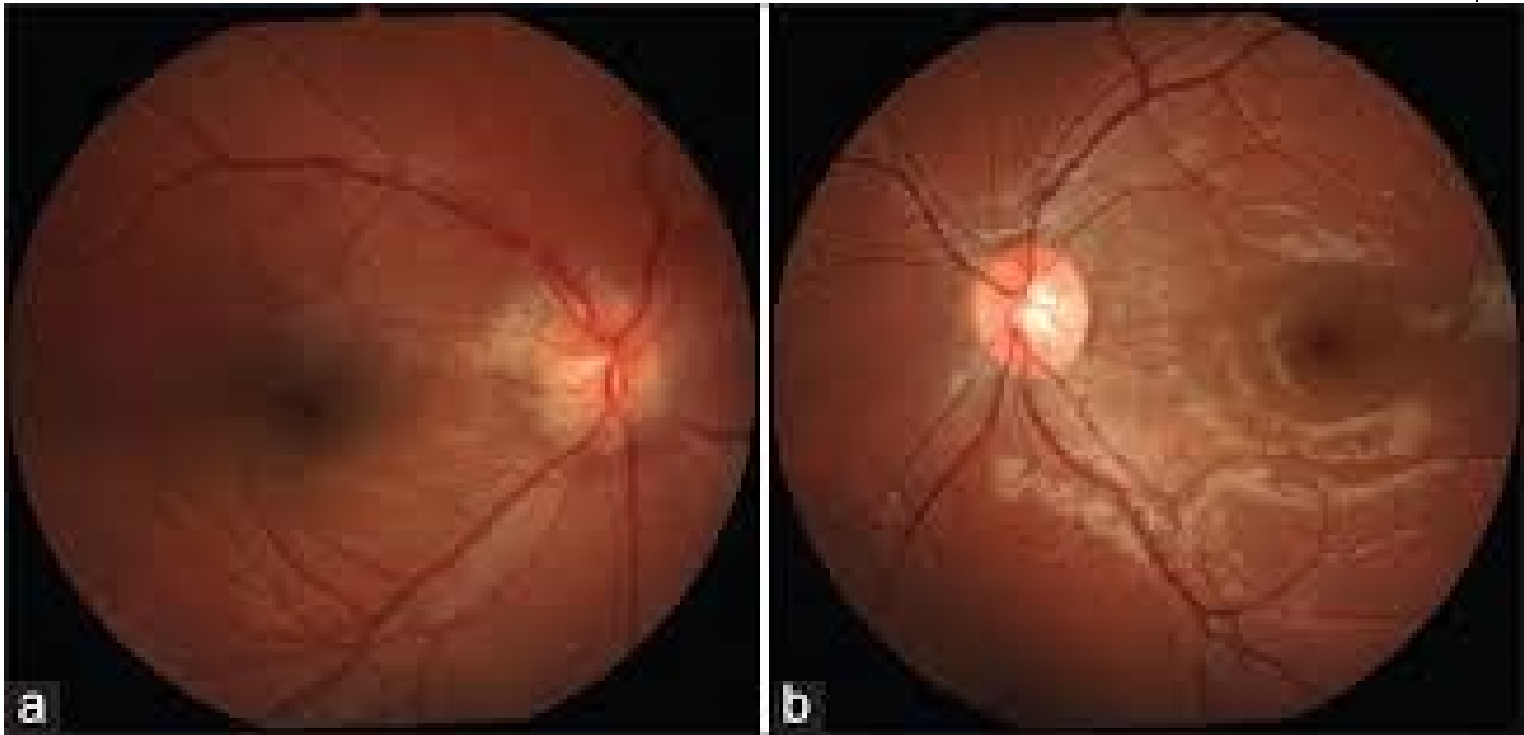
--**Proptosis**

--**Disc edema**

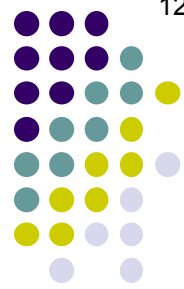
w/ inflammation

w/o inflammation

Uveitis



Posterior scleritis OD: Optic nerve edema



Scleritis

Anterior

Posterior

Diffuse

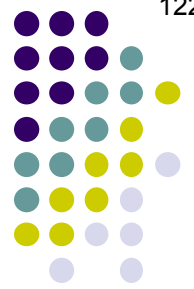
Unlike anterior scleritis, **posterior scleritis** does not present with a **red** eye, and nodules are not present. Instead, posterior scleritis presents with:

- Proptosis**
- Disc edema**
- Retinal/choroidal findings**

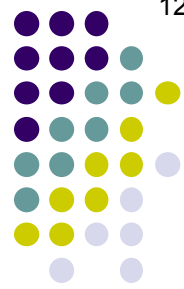
w/ inflammation

w/o inflammation

Uveitis



Posterior scleritis producing retinal folds



Scleritis

Anterior

Posterior

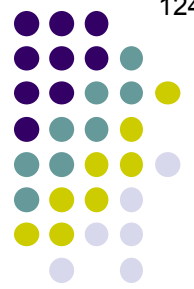
Diffuse

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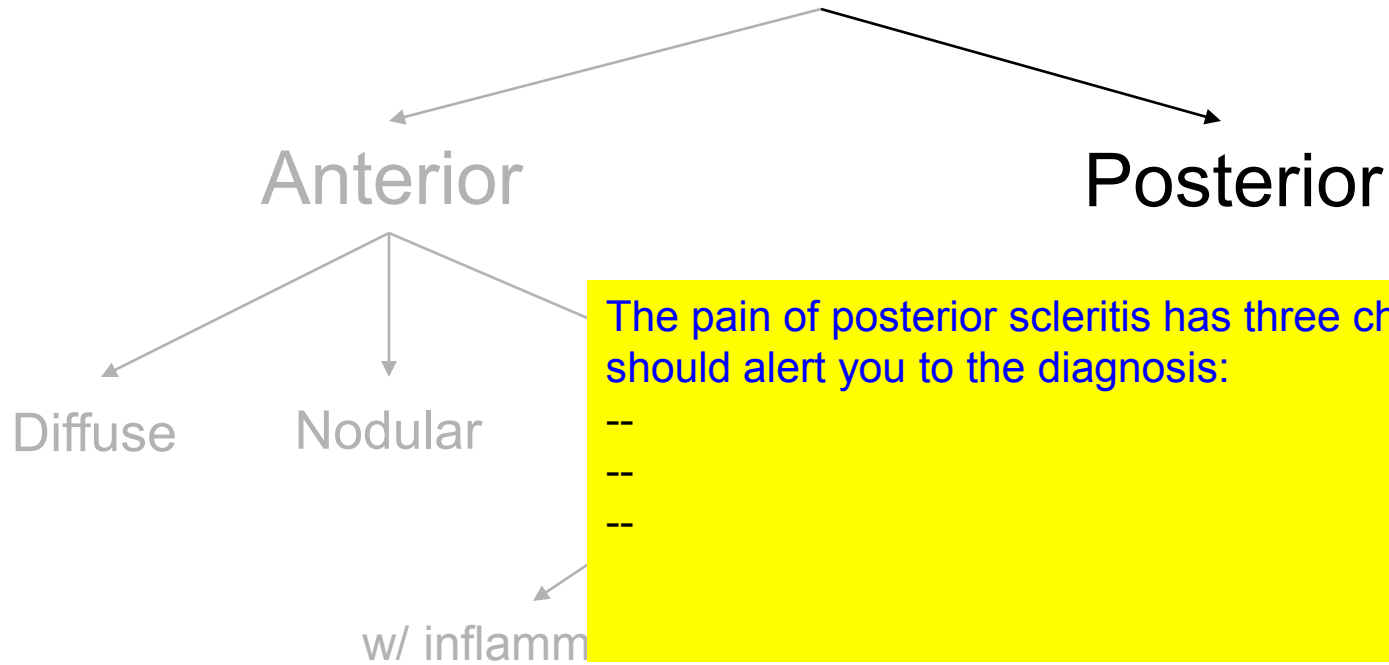
- Proptosis**
- Disc edema**
- Retinal/choroidal findings**
- Motility disorders**

w/ inflammation

w/o inflammation

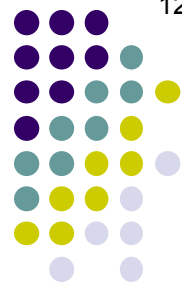


Scleritis

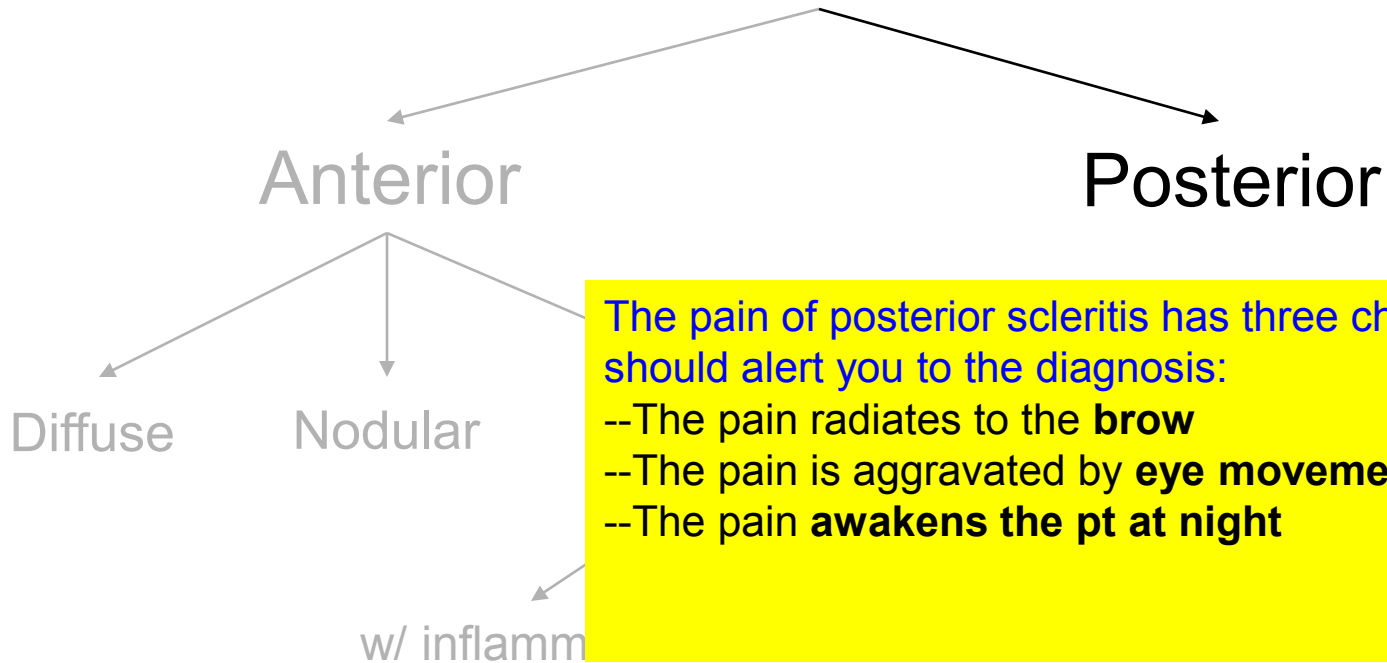


The pain of posterior scleritis has three characteristics that should alert you to the diagnosis:

-
-
-

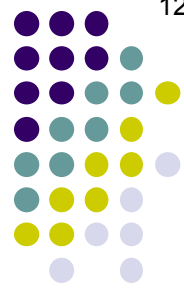


Scleritis

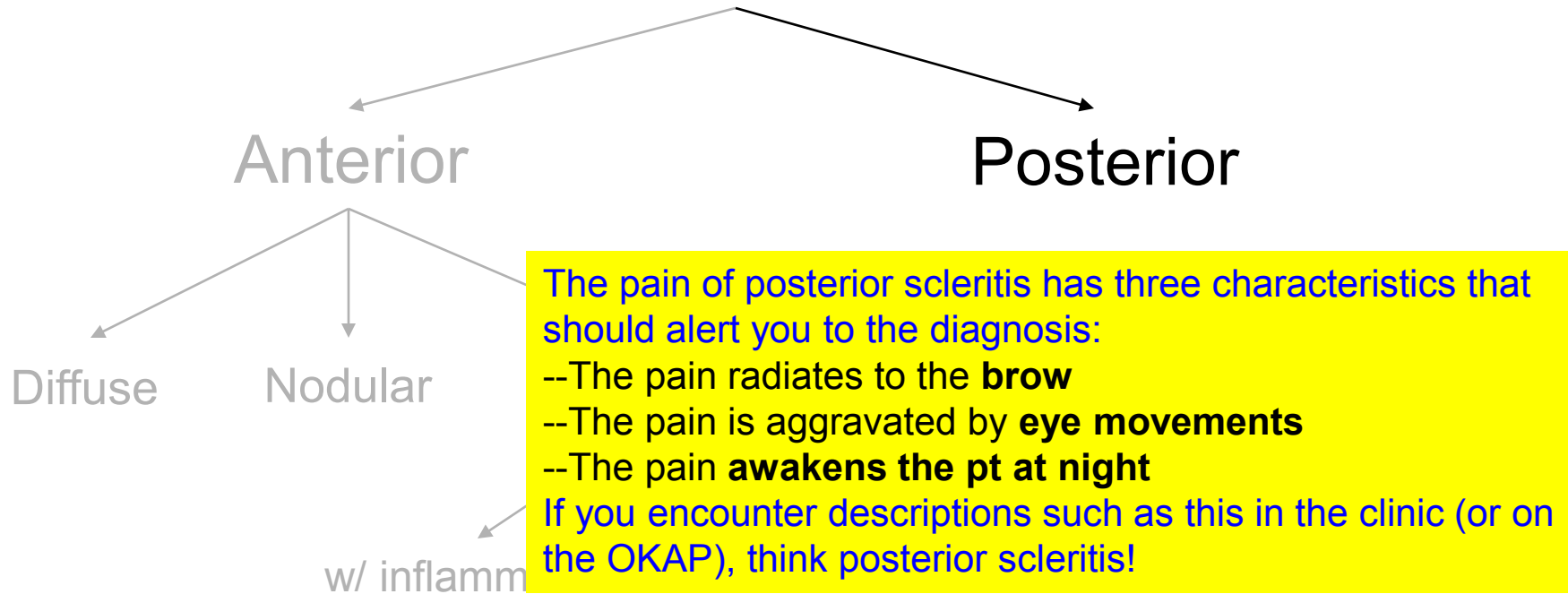


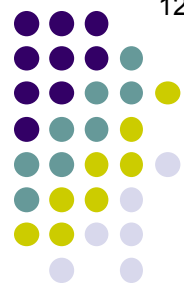
The pain of posterior scleritis has three characteristics that should alert you to the diagnosis:

- The pain radiates to the **brow**
- The pain is aggravated by **eye movements**
- The pain **awakens the pt at night**

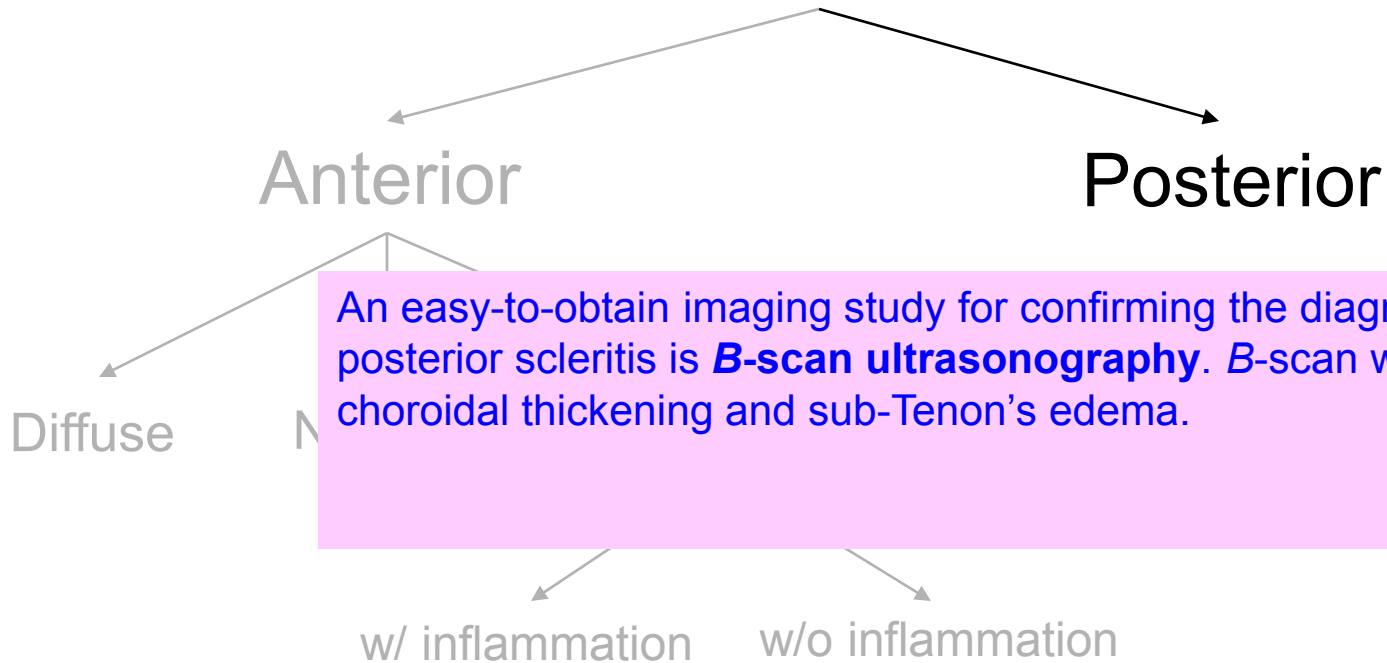


Scleritis

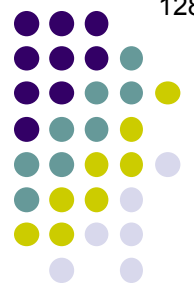




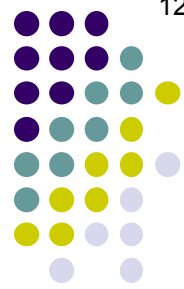
Scleritis



Uveitis



Posterior scleritis: Sub-Tenon's edema



Scleritis

Anterior

Posterior

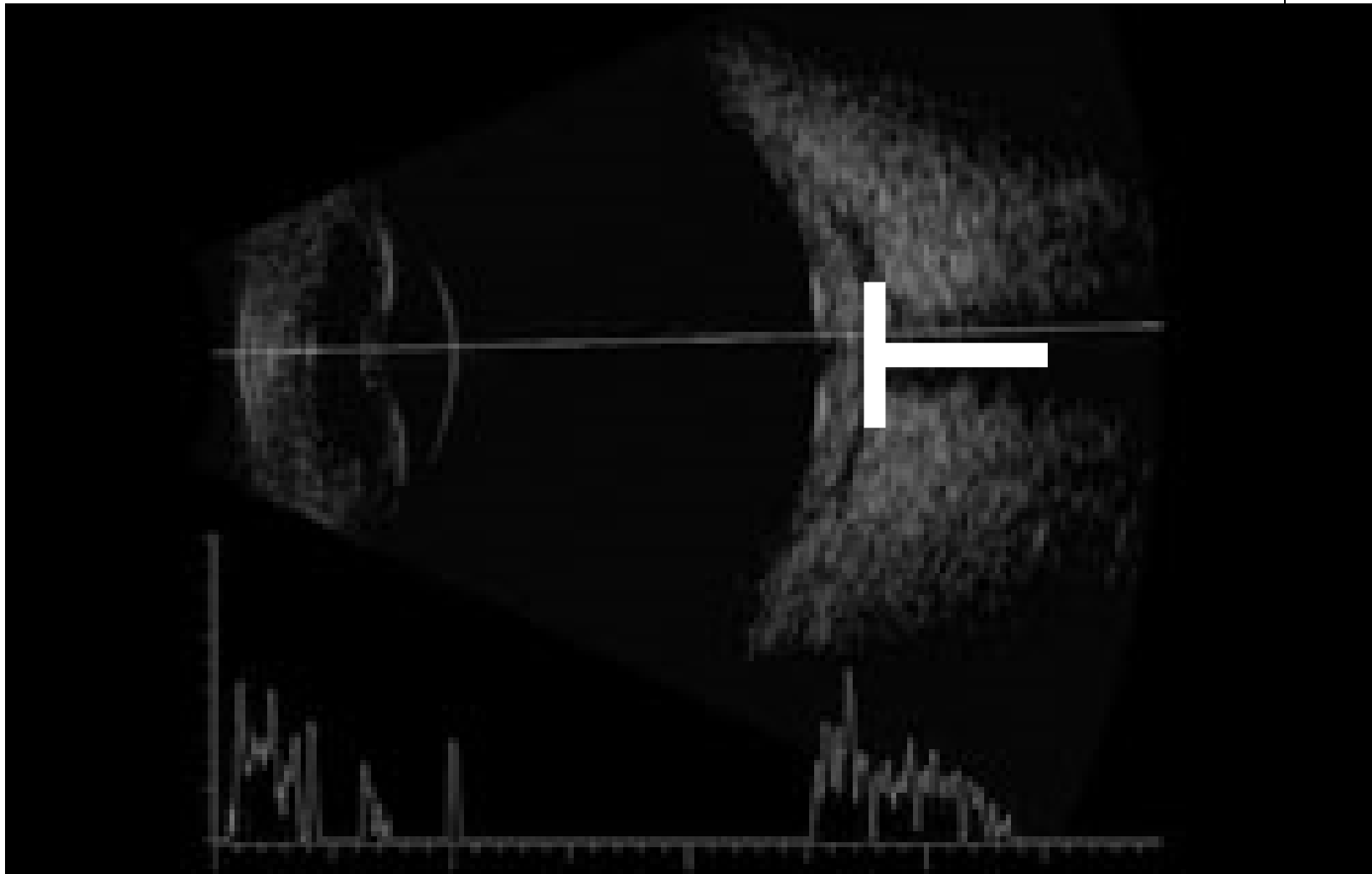
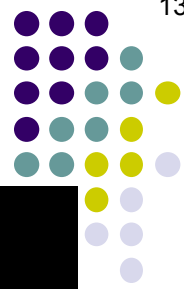
Diffuse

An easy-to-obtain imaging study for confirming the diagnosis of posterior scleritis is **B-scan ultrasonography**. B-scan will reveal choroidal thickening and sub-Tenon's edema. When sub-Tenon's edema involves the space around the optic nerve, the classic **T sign** finding will result.

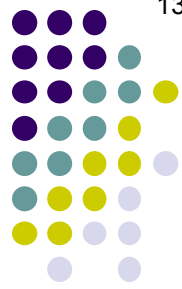
w/ inflammation

w/o inflammation

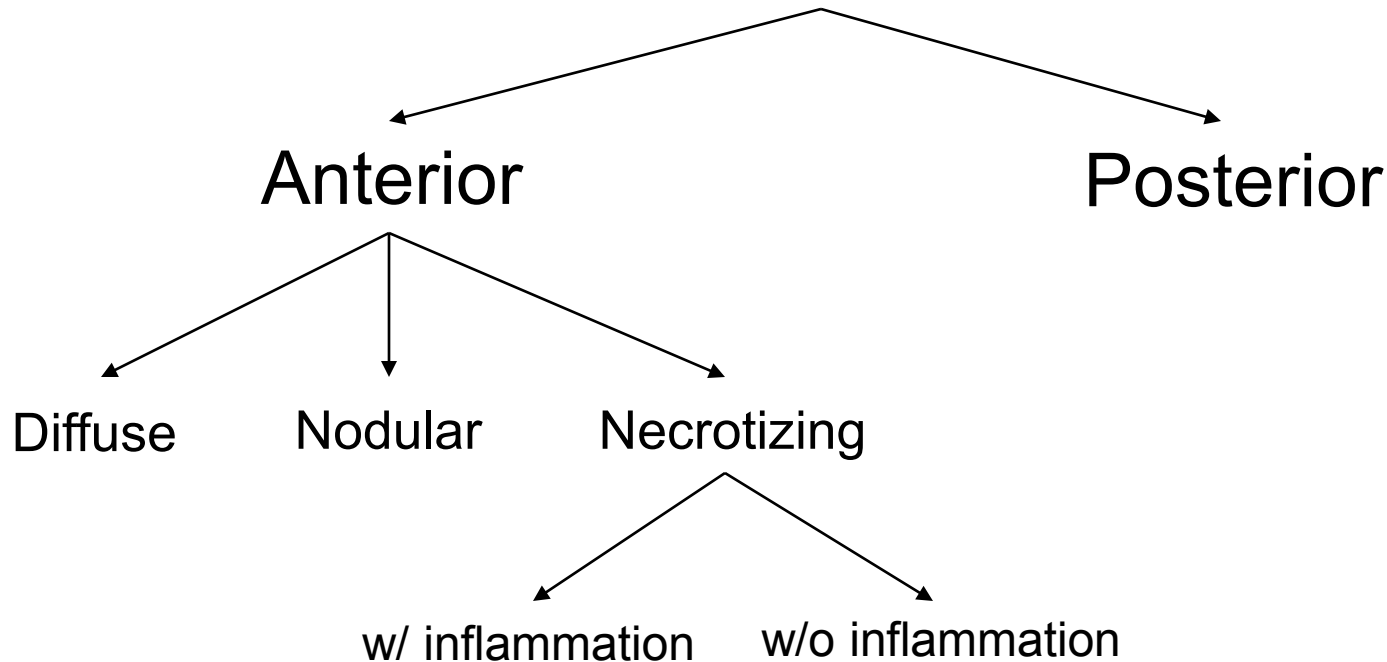
Uveitis



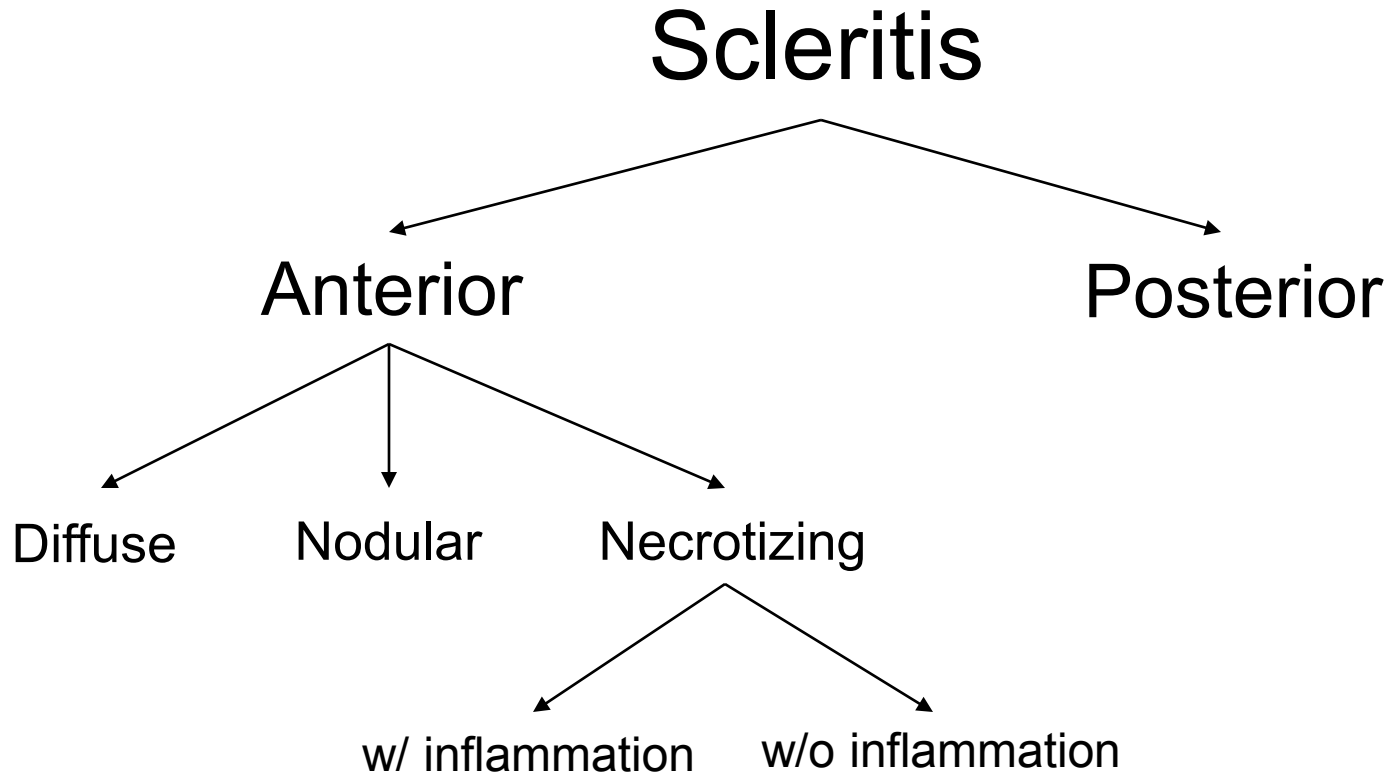
Posterior scleritis: T-sign



Scleritis



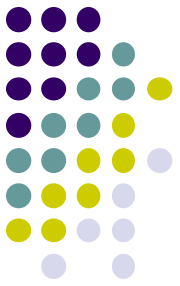
Scleritis requires systemic treatment. Diffuse scleritis might respond to PO NSAIDs—try these first. For the others, PO steroids are usually the first-line med, although NSAIDs may be tried. More powerful immunosuppression is frequently required.



Scleritis requires systemic treatment. Diffuse scleritis might respond to PO NSAIDs—try these first. For the others, PO steroids are usually the first-line med, although NSAIDs may be tried. More powerful immunosuppression is frequently required. Subconj depot steroids, long considered contraindicated, have recently gained wide acceptance as a treatment option.

Uveitis

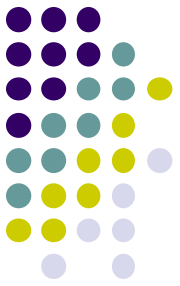
Masquerade Syndrome



Finally, we will look at masquerade syndromes

Uveitis

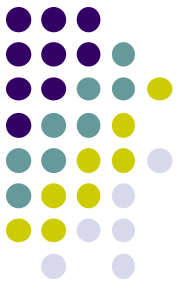
*Masquerade
Syndrome* refers to entities
that mimic immune-mediated dz.



Uveitis

Masquerade

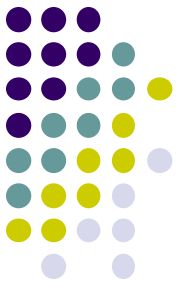
Syndrome refers to entities
that mimic immune-mediated dz.



The entities can be broadly divided into Nonneoplastic
and Neoplastic causes.

Uveitis

Masquerade Syndrome



Nonneoplastic

Neoplastic

Hematologic

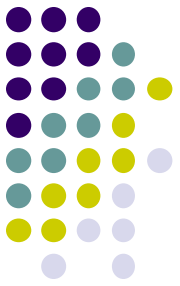
The most common entity to masquerade as intraocular uveitis is **primary vitreoretinal lymphoma (PVRL)**

Lymphoid

└ **Primary vitreoretinal lymphoma**

Uveitis

Masquerade Syndrome



Neoplastic

Nonneoplastic

Virtually all PVRLs are non-Hodgkin B-cell lymphomas. The typical PVRL pt is an adult in their 50s-60s. They usually present with complaints of decreased vision and/or floaters.

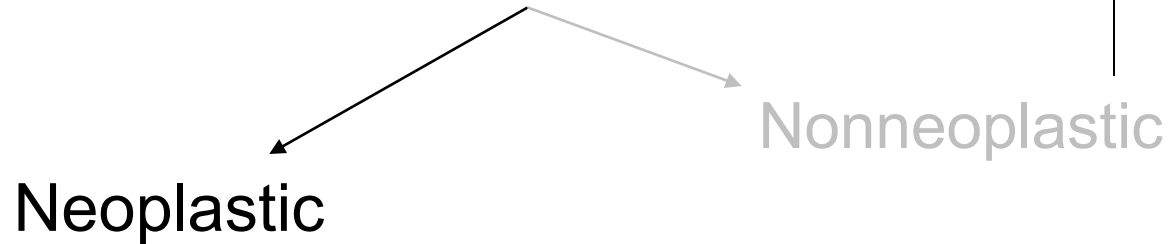
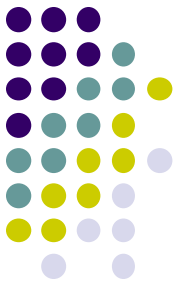
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Lymphoid

└ **Primary vitreoretinal lymphoma**

Uveitis

Masquerade Syndrome



Virtually all PVRLs are non-Hodgkin B-cell lymphomas. The typical PVRL pt is an adult in their 50s-60s. They usually present with complaints of decreased vision and/or floaters. Importantly, many will also manifest evidence of CNS involvement, the most common being changes in behavior or personality. Other, more obvious S/S include seizures, cerebellar signs, hemiparesis and cranial nerve palsies. Confusion, weakness, and memory loss may also occur.

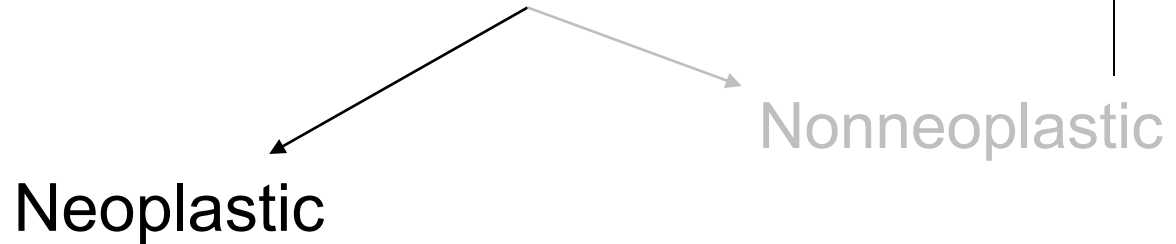
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Lymphoid

└ **Primary vitreoretinal lymphoma**

Uveitis

Masquerade Syndrome



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The most common entity to masquerade as intraocular uveitis is **primary vitreoretinal lymphoma (PVRL)**

Lymphoid

└ **Primary vitreoretinal lymphoma**

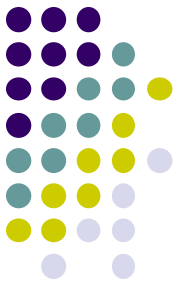
Uveitis



PVRL: Typical white-yellow subretinal infiltrates

Uveitis

Masquerade Syndrome



Neoplastic

Nonneoplastic

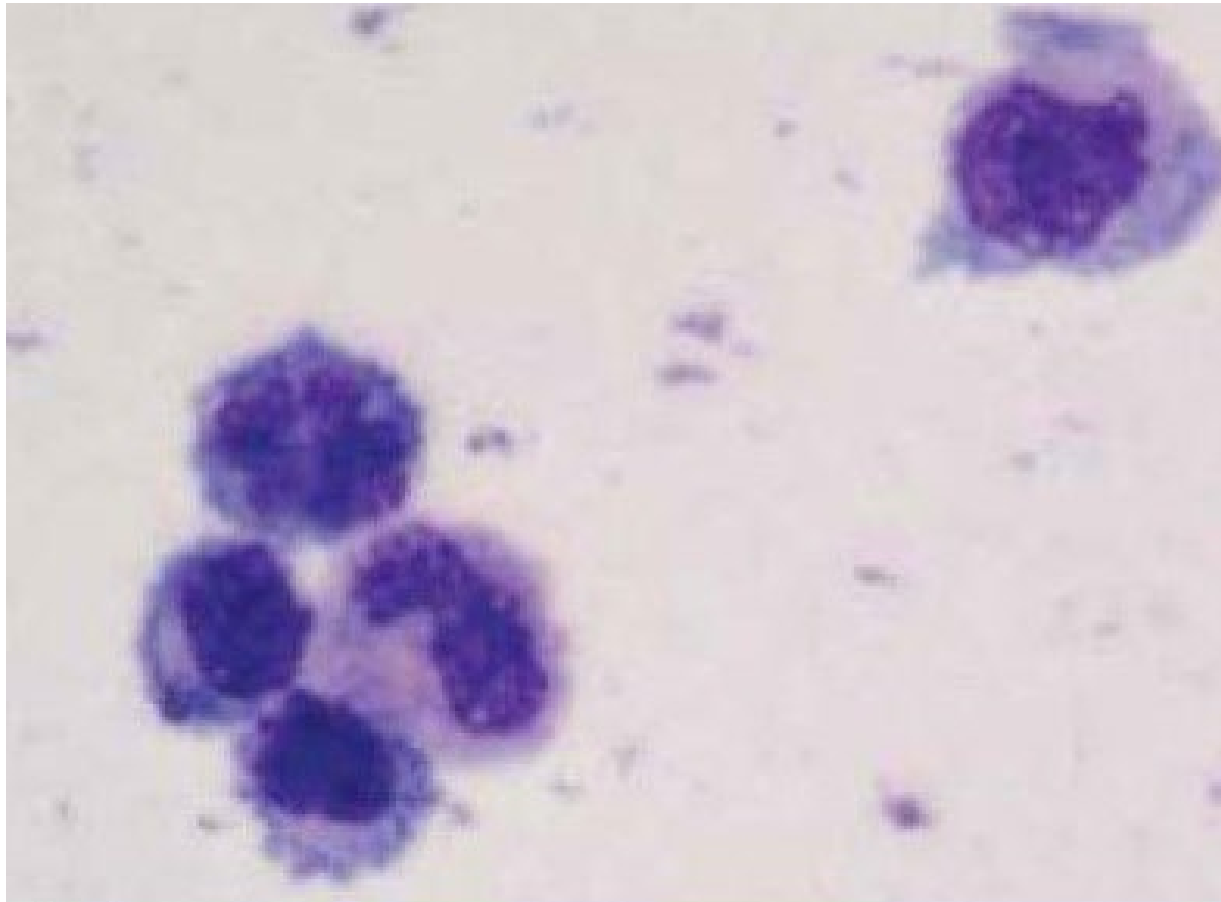
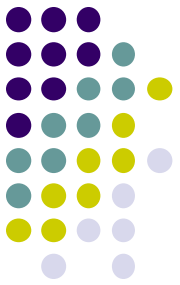
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The most common entity to masquerade as intraocular uveitis is **primary vitreoretinal lymphoma (PVRL)**

Lymphoid

└ **Primary vitreoretinal lymphoma**

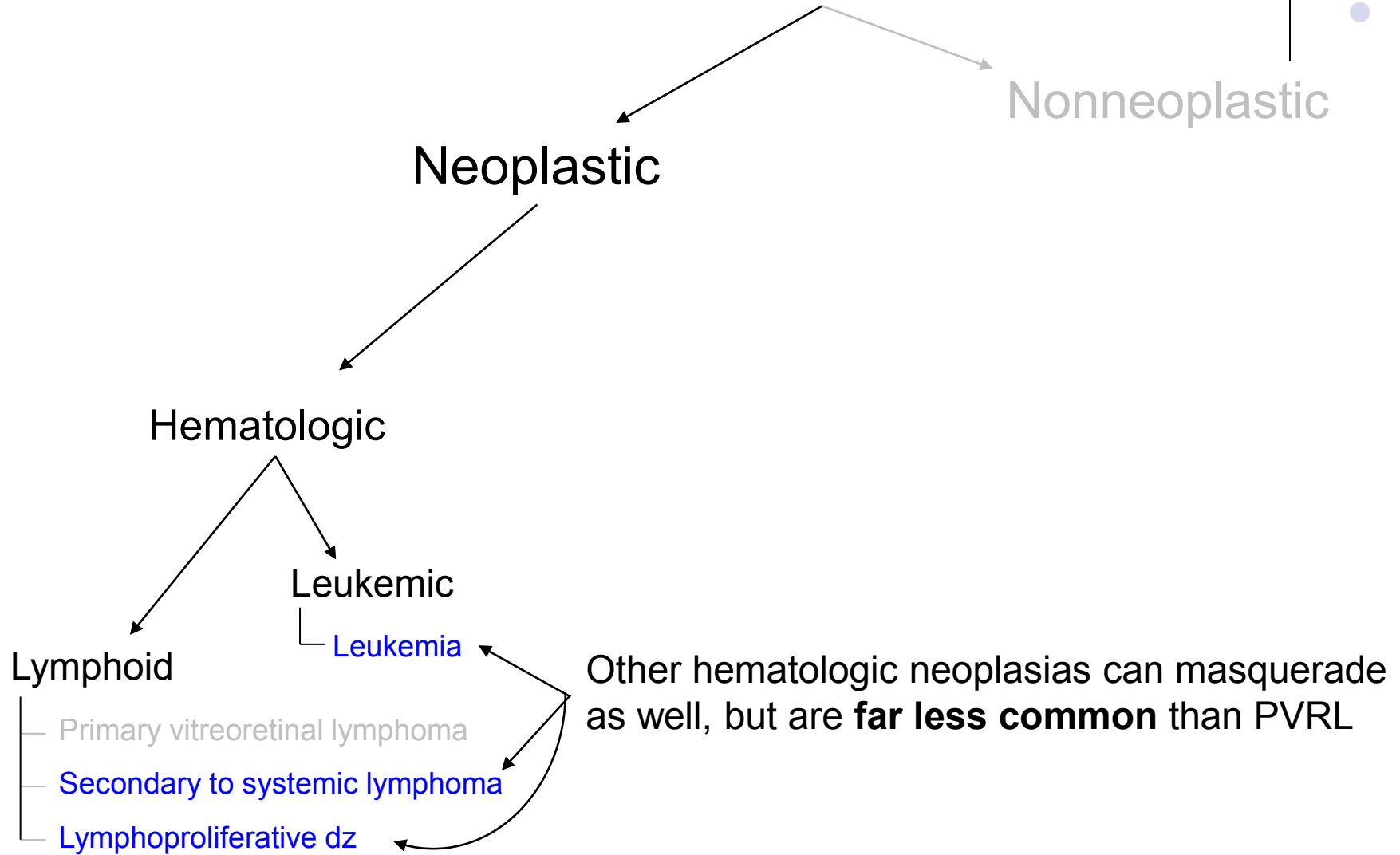
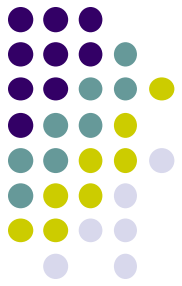
Uveitis



Typical cytology of PVRL cells from the vitreous showing several atypical lymphoid cells with basophilic cytoplasm and large prominent irregular nuclei

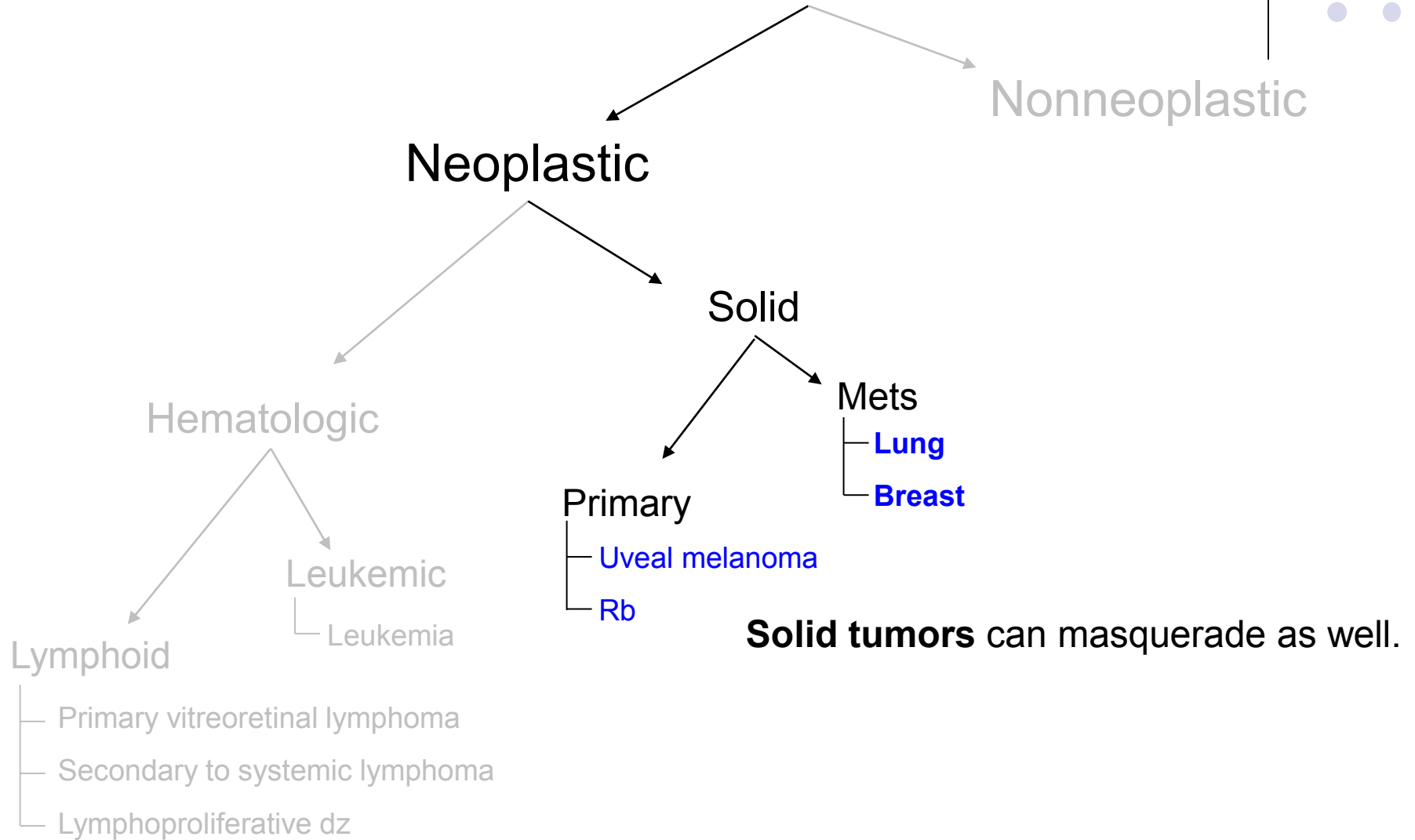
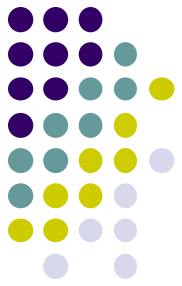
Uveitis

Masquerade Syndrome



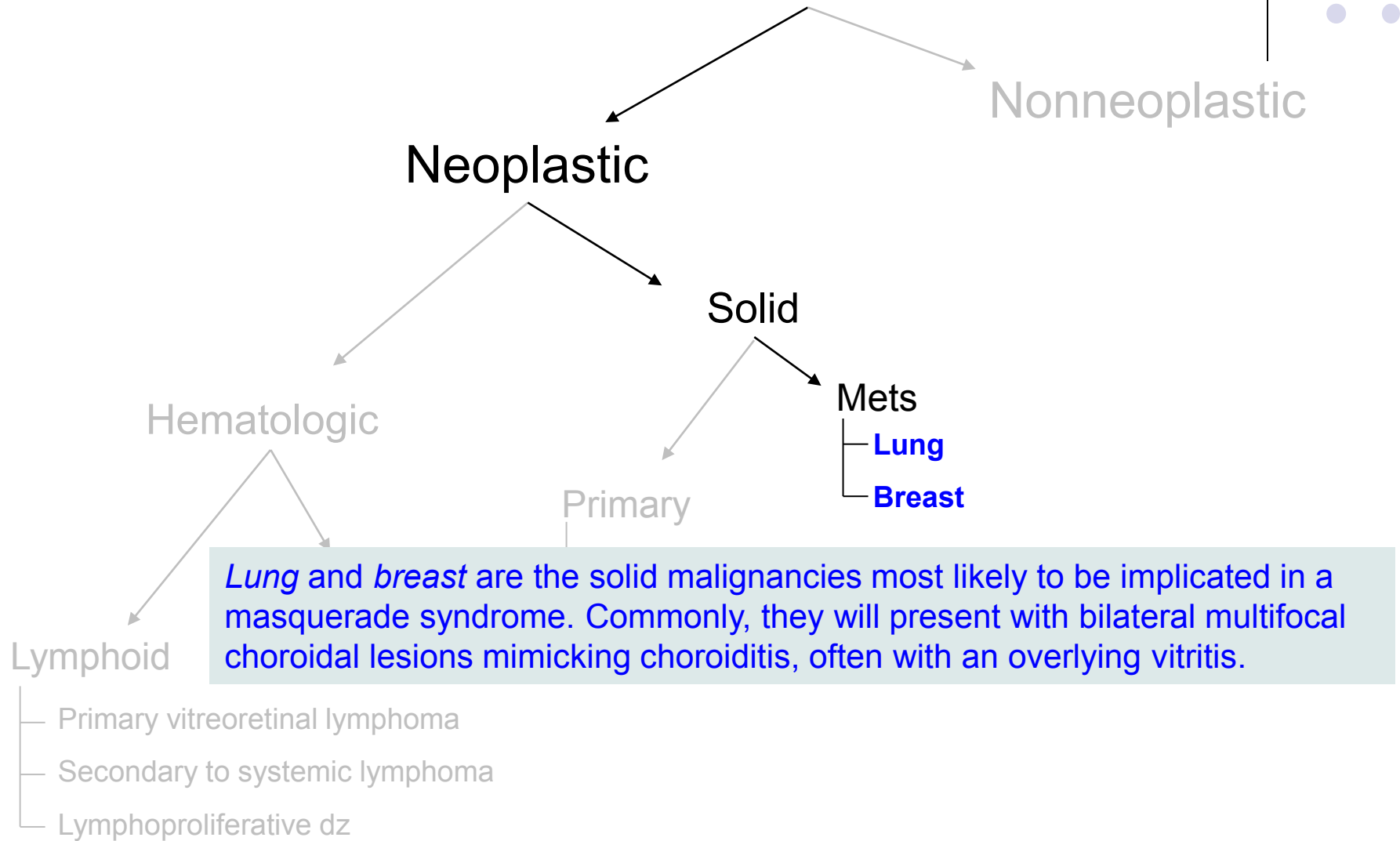
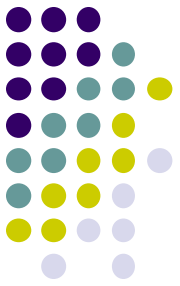
Uveitis

Masquerade Syndrome

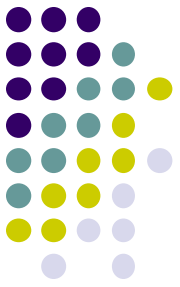


Uveitis

Masquerade Syndrome

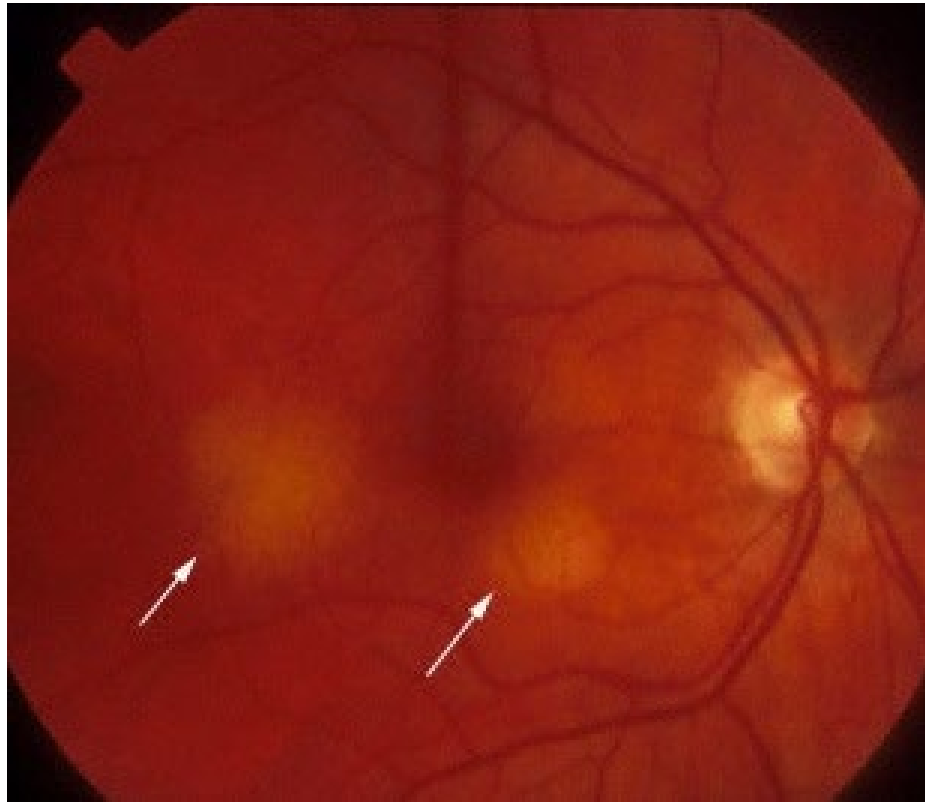


Uveitis



Bilateral metastatic lung cancer

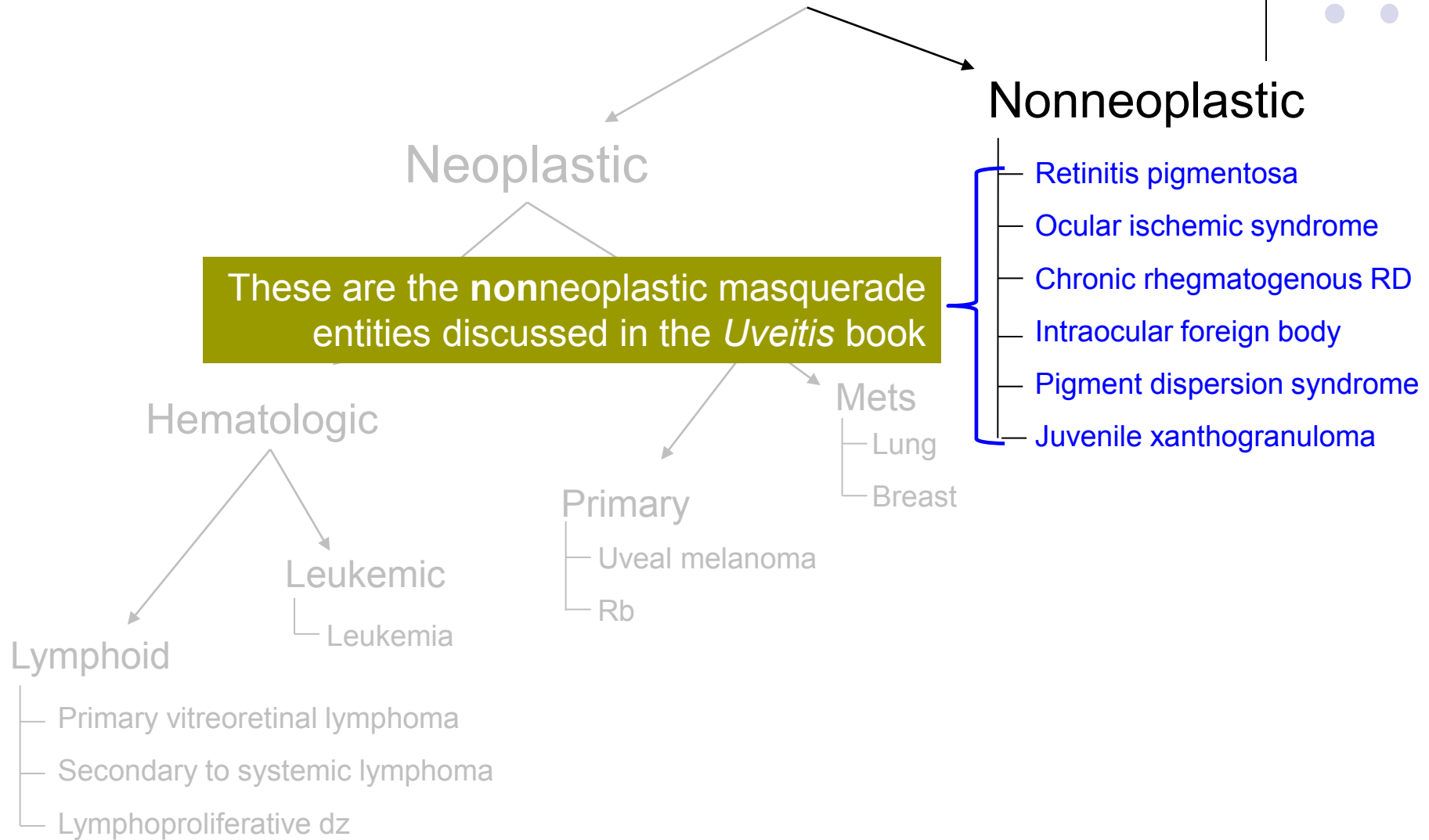
Uveitis



Bilateral metastatic breast cancer

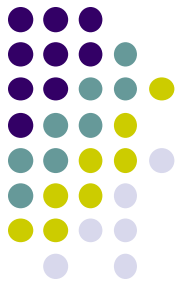
Uveitis

Masquerade Syndrome



Uveitis

Masquerade Syndrome



Ocular ischemic syndrome (OIS) is a constellation of ocular abnormalities stemming from chronic hypoperfusion of the globe. The classic cause is carotid stenosis ipsilateral to the eye in question. The typical pt is an elderly vasculopathic male.

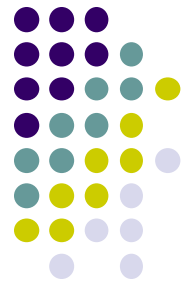
Nonneoplastic

- RP
- **OIS**
- Chronic rhegmatogenous RD
- Intraocular foreign body
- Pigment dispersion syndrome
- Juvenile xanthogranuloma

- Lymphoid
 - Primary vitreoretinal lymphoma
 - Secondary to systemic lymphoma
 - Lymphoproliferative dz
- Leukemic
 - Leukemia
- Ocular melanoma
 - Rb

Uveitis

Masquerade Syndrome



Ocular ischemic syndrome (OIS) is a constellation of ocular abnormalities stemming from chronic hypoperfusion of the globe. The classic cause is carotid stenosis ipsilateral to the eye in question. The typical pt is an elderly vasculopathic male.

Four findings, common in OIS, can (mis)lead one to conclude the pt has uveitis:

- AC cell and flare
- Low IOP
- Neovascularization of the iris and/or angle
- Cataract more advanced on that side

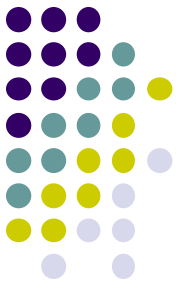
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Uveitis

Masquerade Syndrome



Neoplastic

The hallmark of *PDS* is the liberation of pigment from the posterior aspect of the iris. This pigment subsequently migrates into the anterior chamber, where the pigment granules can be mistaken for inflammatory cells.

Nonneoplastic

- RP
- OIS
- Chronic rhegmatogenous RD
- IOFB
- **Pigment dispersion syndrome**
- Juvenile xanthogranuloma

Leukemic

Leukemia

Primary

Uveal melanoma

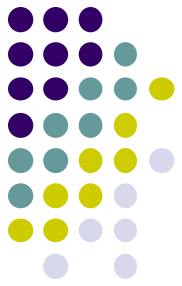
Rb

Lymphoid

- Primary vitreoretinal lymphoma
- Secondary to systemic lymphoma
- Lymphoproliferative dz

Uveitis

Masquerade Syndrome



Neoplastic

The hallmark of *PDS* is the liberation of pigment from the posterior aspect of the iris. This pigment subsequently migrates into the anterior chamber, where the pigment granules can be mistaken for inflammatory cells. Typically, retroillumination of the iris will reveal transillumination defects with a radial orientation.

Nonneoplastic

- RP
- OIS
- Chronic rhegmatogenous RD
- IOFB
- **Pigment dispersion syndrome**
- Juvenile xanthogranuloma

Leukemic

Leukemia

Primary

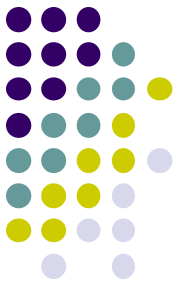
Uveal melanoma

Rb

Lymphoid

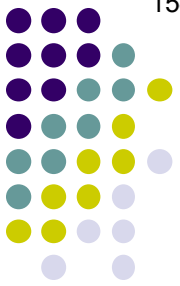
- Primary vitreoretinal lymphoma
- Secondary to systemic lymphoma
- Lymphoproliferative dz

Uveitis



PDS: Radial transillumination defects

Uveitis



That's it! Go through this slide-set a couple of times (at least) until you feel like you have a handle on it. [When you're ready, do slide-set U10, which covers this material in a Q&A format \(and more detail\).](#)