

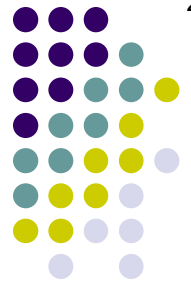
Anterior HSV Disease

First things first: What does HSV stand for in this context?



Anterior HSV Disease

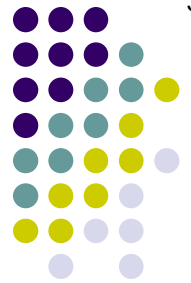
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Herpes simplex virus



Anterior HSV Disease

*First things first: What does **HSV** stand for in this context?*
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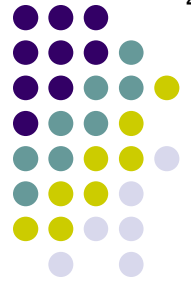
How many 'types' of the HSV are there, and what are they named?



Anterior HSV Disease

First things first: What does HSV stand for in this context?
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How many 'types' of the HSV are there, and what are they named?
There are two--HSV-1, and HSV-2



Anterior HSV Disease

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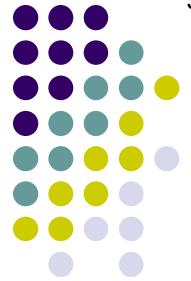
How many 'types' of the HSV are there, and what are they named?

There are two--HSV-1, and HSV-2

Which bodypart(s) does each have a predilection for?

--HSV-1 → ?

--HSV-2



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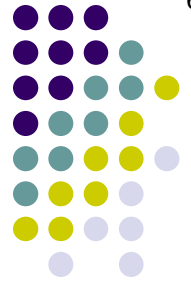
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--HSV-1 → 'Above the waist': The eyes, and perioral area (ie, 'cold sores')

--HSV-2



Anterior HSV Disease

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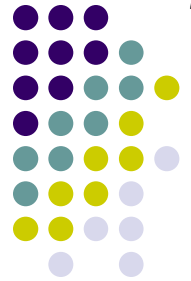
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Anterior **HSV** Disease

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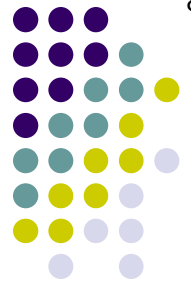
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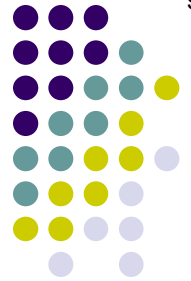
Which bodypart(s) does each have a predilection for?

--HSV-1 → 'Above the waist': The eyes, and perioral area (ie, 'cold sores')

--HSV-2 → 'Below the waist': The genitalia



Anterior HSV Disease



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How many 'types' of the HSV are there, and what are they named?
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Which body part(s) does each have a predilection for?
~~--HSV-1 → 'Above the waist': The eyes, and perioral area (ie, 'cold sores')~~
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Below the waist
Above the waist

Predilections aside, can HSV-1 cause genital herpes, and HSV-2 cause ocular/perioral infection?

Anterior HSV Disease

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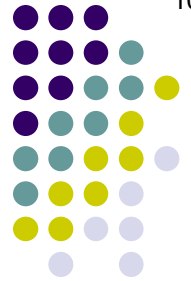
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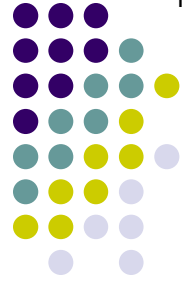
Which body part(s) does each have a predilection for?

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Below the waist
Above the waist

Predilections aside, can HSV-1 cause genital herpes, and HSV-2 cause ocular/perioral infection?
Yes and yes





Anterior HSV Disease

1) ?

2) ?

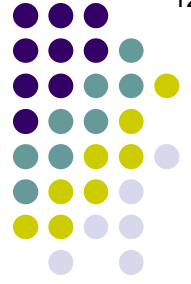
*You should think of anterior HSV eye dz as having two very broad forms.
What are they?*

Anterior HSV Disease

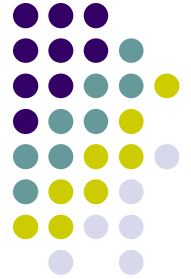
1) Primary ocular disease

2) Recurrent ocular disease

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Anterior HSV Disease

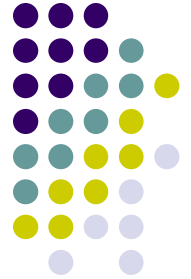


1) Primary ocular disease

2) **Recurrent** ocular disease

Does 'recurrence' mean the pt gets re-infected?

Anterior HSV Disease



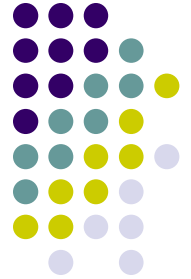
1) Primary ocular disease

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Does 'recurrence' mean the pt gets re-infected?

No! Remember, herpes virus infection is never cleared--rather, it becomes latent within the host. Thus, recurrence means the virus is **reactivated**, not re-acquired.

Anterior HSV Disease



1) Primary ocular disease

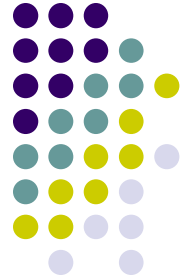
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Where in the body do herpesviruses establish their latency?

Anterior HSV Disease



1) Primary ocular disease

2) **Recurrent** ocular disease

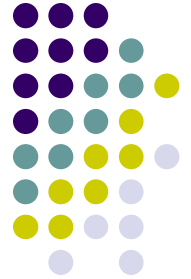
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Where in the body do herpesviruses establish their latency?

Different members of the herpesvirus family take up residence in different cell types. HSV-1 and HSV-2 hole up in sensory neural ganglia.

Anterior HSV Disease



1) Primary ocular disease

2) **Recurrent** ocular disease

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Which sensory ganglion harbors the virions responsible for recurrent ocular dz?

Anterior HSV Disease



1) Primary ocular disease

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Where in the body do herpesviruses establish their latency?

Different members of the herpesvirus family take up residence in different cell types.

HSV-1 and HSV-2 hole up in sensory neural ganglia

Which sensory ganglion harbors the virions responsible for recurrent ocular dz?

The trigeminal (CN5; 'stellate') ganglion

Anterior HSV Disease

1) Primary ocular disease

--Usually a *unilateral* one long word

2) Recurrent ocular disease

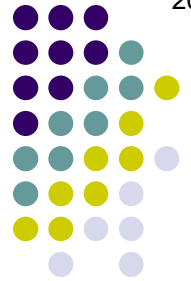


Anterior HSV Disease

1) Primary ocular disease

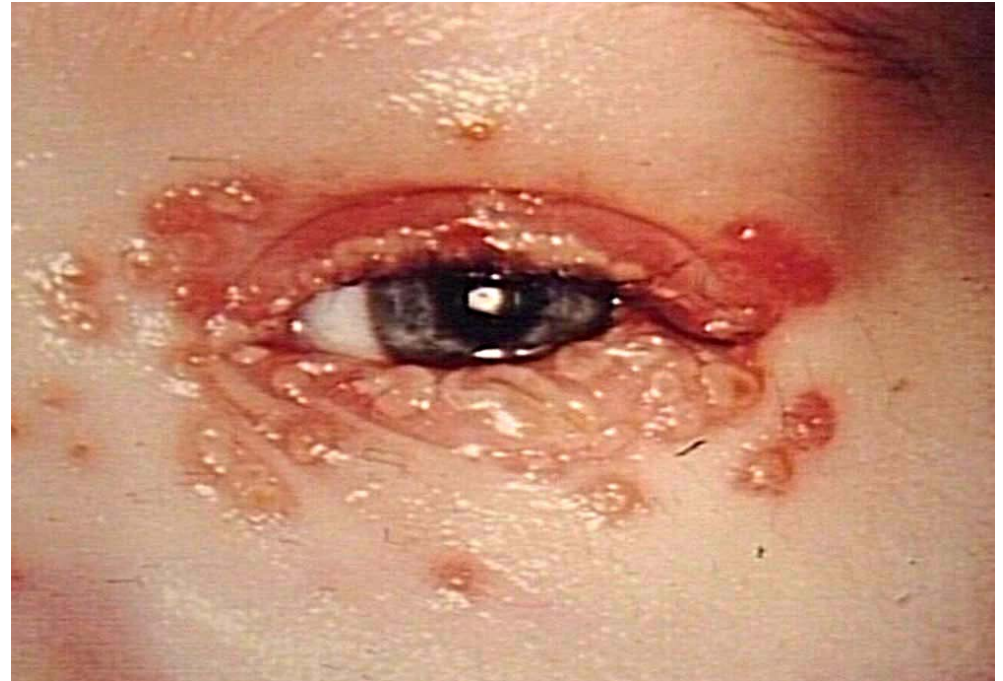
--Usually a *unilateral blepharoconjunctivitis*

2) Recurrent ocular disease





Anterior HSV Disease



HSV blepharconjunctivitis

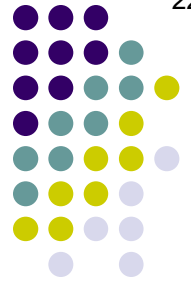
Anterior HSV Disease

1) Primary ocular disease

--Usually a *unilateral blepharoconjunctivitis*

--Presents with lid margin sign 1 and bulbar sign 2

2) Recurrent ocular disease



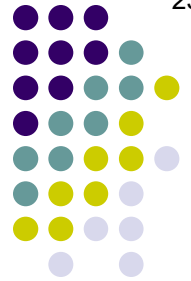
Anterior HSV Disease

1) Primary ocular disease

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--Presents with lid margin *vesicles/ulcers* and bulbar *conj ulcers*

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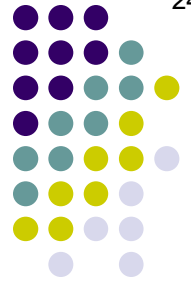
Anterior HSV Disease

1) Primary ocular disease

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--Presents with lid margin vesicles/ulcers and bulbar conj ulcers

In what percent of cases does primary HSV present bilaterally?



Anterior HSV Disease

1) Primary ocular disease

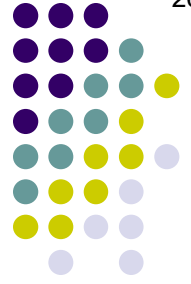
--Usually a *unilateral* *blepharconjunctivitis*

--Presents with lid margin vesicles/ulcers and bulbar conj ulcers

In what percent of cases does primary HSV present bilaterally? ~10%



Anterior HSV Disease



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2) Recurrent ocular disease

a) ?

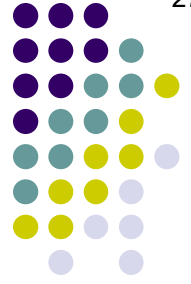
b) ?

c) ?

d) ?

*Four distinct ocular manifestations
(think broadly, and anatomically)*

Anterior HSV Disease



1) Primary ocular disease

--Usually a *unilateral blepharoconjunctivitis*

--Presents with lid margin *vesicles/ulcers* and bulbar *conj ulcers*

2) Recurrent ocular disease

a) *Blepharoconjunctivitis*

b) *Keratitis*

c) *Iridocyclitis*

d) *Trabeculitis*

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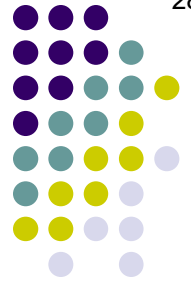
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a) *Blepharoconjunctivitis*: Looks like

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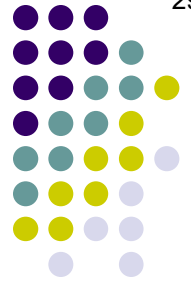
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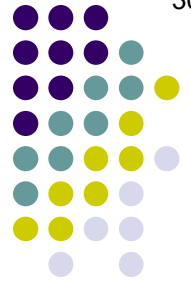
a) *Blepharoconjunctivitis*: Looks like primary disease

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Does recurrent blepharoconjunctivitis require aggressive treatment?

c) *Iridocyclitis*

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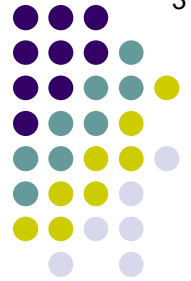
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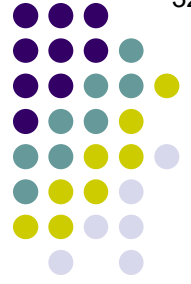
b) *Keratitis*

Does recurrent blepharoconjunctivitis require aggressive treatment?
Not generally—it tends to be self-limited

c) *Iridocyclitis*

d) *Trabeculitis*





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1) Primary ocular disease

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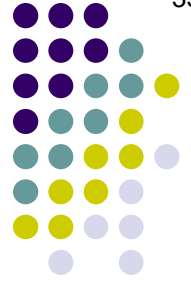
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*Under what **not** 'generally' conditions does it **not** tend to be self-limited, and therefore **would** require aggressive tx?*

c) *Iridoc*

d) *Trabeculitis*



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Does recurrent blepharoconjunctivitis require aggressive treatment?

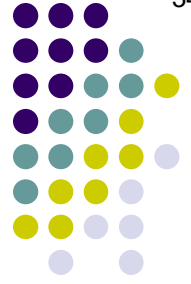
Not generally—it tends to be self-limited

*Under what **not** 'generally' conditions does it **not** tend to be self-limited, and therefore **would** require aggressive tx?*

c) *Iridoc*: If/when the pt is **immunocompromised**

d) *Trabeculitis*

Anterior HSV Disease



1) Primary ocular disease

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--?

--?

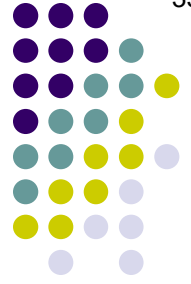
--?

c) *Iridocyclitis*

d) *Trabeculitis*

Three specific and distinct keratitis subtypes

Anterior HSV Disease



1) Primary ocular disease

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--*Epithelial* ←

--*Stromal* ←

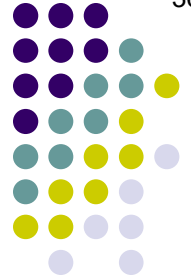
--*Endotheliitis* ←

Three specific and distinct keratitis subtypes

c) *Iridocyclitis*

d) *Trabeculitis*

Anterior HSV Disease



1) Primary ocular disease

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a) *Blepharoconjunctivitis*: Looks like *primary disease*

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--**Epithelial**: c/o . Classic sign:

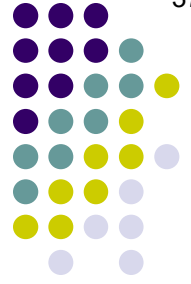
--Stromal

--Endotheliitis

c) *Iridocyclitis*

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Anterior HSV Disease



1) Primary ocular disease

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2) Recurrent ocular disease

a) *Blepharoconjunctivitis*: Looks like *primary disease*

b) *Keratitis*

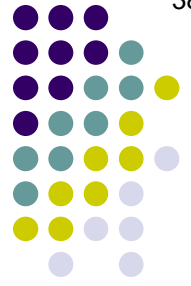
--**Epithelial**: c/o *foreign body sensation*. Classic sign: *Dendrites*

--Stromal

--Endotheliitis

c) *Iridocyclitis*

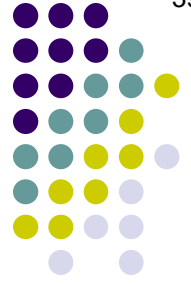
d) *Trabeculitis*



Anterior HSV Disease



HSV epithelial keratitis



Anterior HSV Disease

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b) *Keratitis*

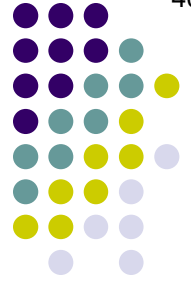
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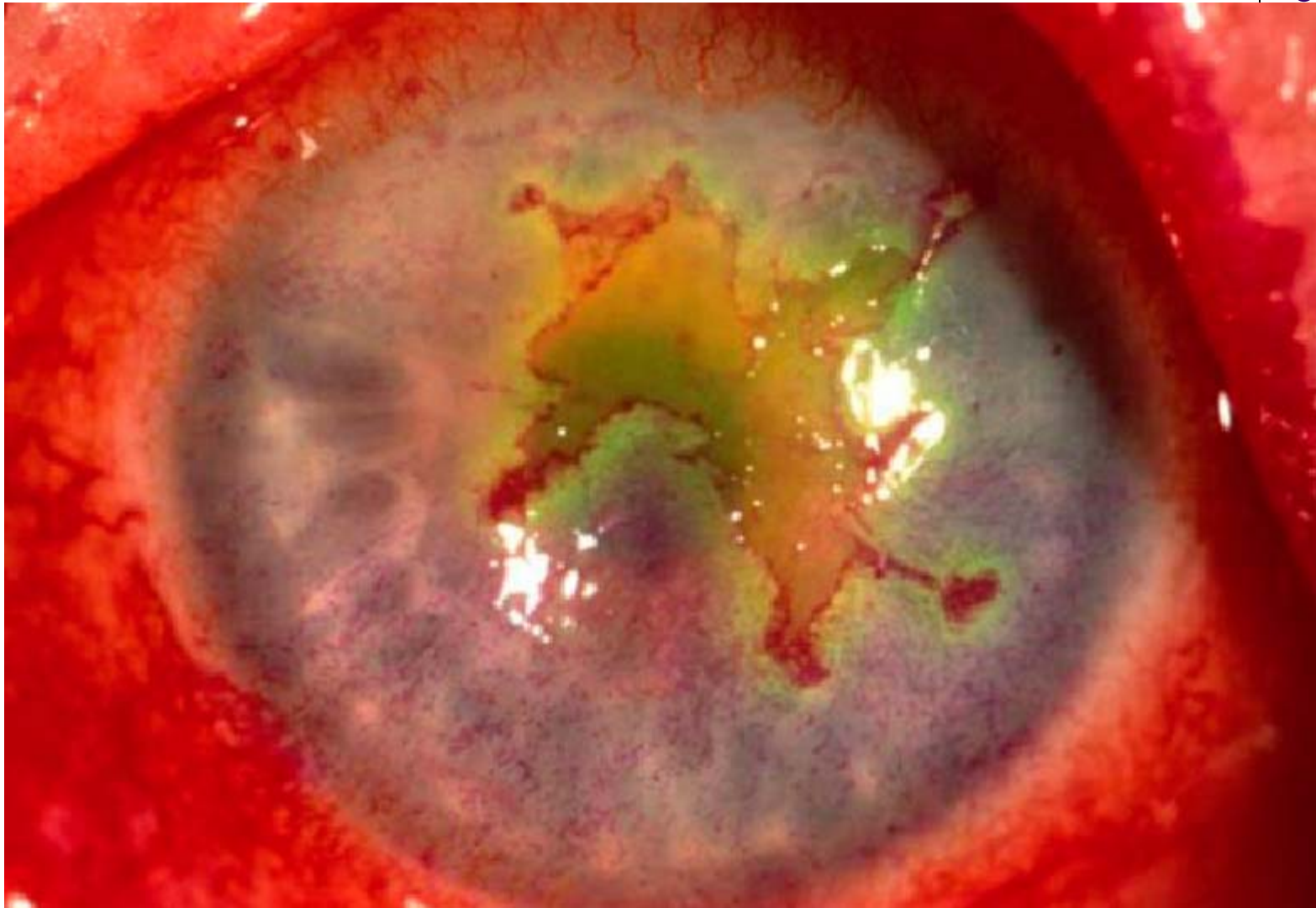
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--Endotheliit *How do HSV dendrites stain with fluorescein and rose bengal?*

c) *Iridocyclitis*

The base stains with **fluorescein**; the edges stain with **rose bengal**

d) *Trabeculitis*



The base stains with **fluorescein**; the edges stain with **rose bengal**



Anterior HSV Disease

1) Primary ocular disease

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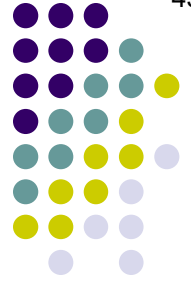
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-- *What is the typical treatment for HSV infectious epitheliopathy?*

c) *Iri*

d) *Tr*



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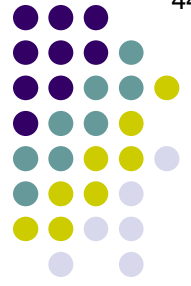
b) *Keratitis*

--**Epithelial**: c/o foreign body sensation. Classic sign: Dendrites

-- *What is the typical treatment for HSV infectious epitheliopathy?*
Viroptic 9x/day x 2 weeks, then stop

c) *Iri*

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Anterior HSV Disease

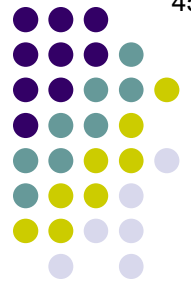
What is the generic name for Viroptic?

What is the typical treatment for HSV infectious epitheliopathy?

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Anterior HSV Disease

What is the generic name for Viroptic?

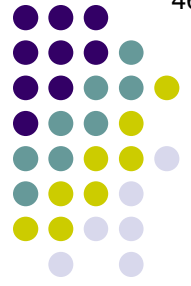
Trifluridine

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Anterior HSV Disease

What is the generic name for Viroptic?

Trifluridine

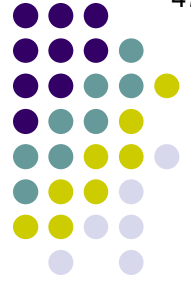
Are there other topical treatments available?

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Anterior HSV Disease

What is the generic name for Viroptic?

Trifluridine

Are there other topical treatments available?

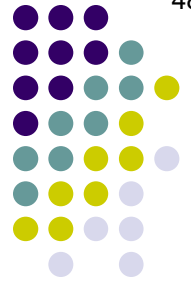
Yes--ganciclovir gel (Zirgan)

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Viroptic 9x/day x 2 weeks, then stop

c) Iri

d) Tr



Anterior HSV Disease

What is the generic name for Viroptic?

Trifluridine

Are there other topical treatments available?

Yes--ganciclovir gel (Zirgan)

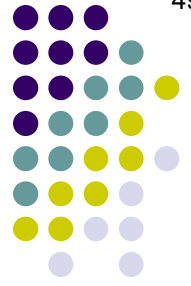
What is the standard treatment regimen for Zirgan?

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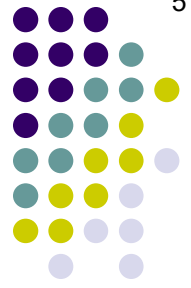
Other than its less-onerous dosing schedule, does Zirgan have any advantages over Viroptic?

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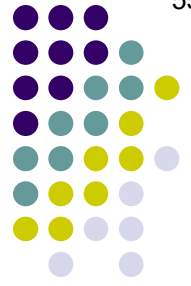
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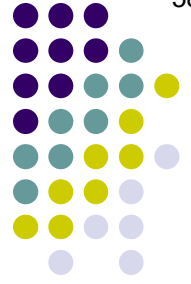
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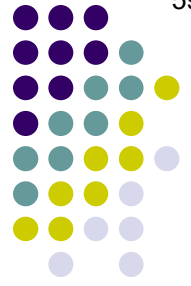
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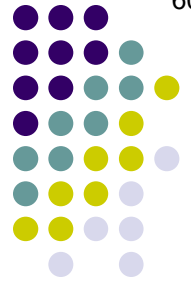
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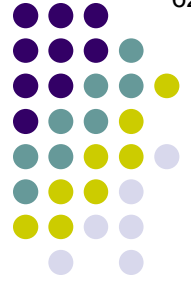
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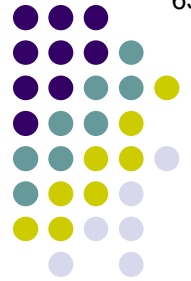
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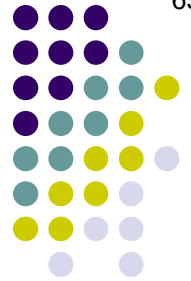
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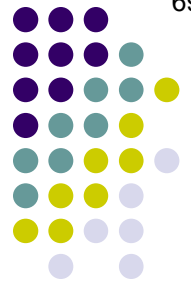
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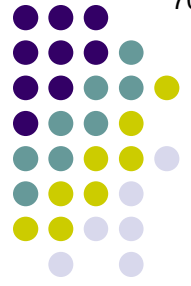
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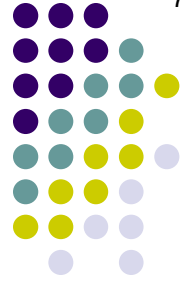
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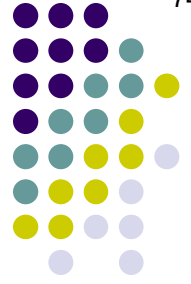
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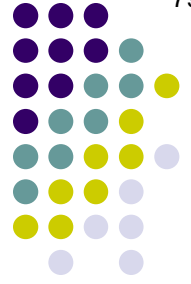
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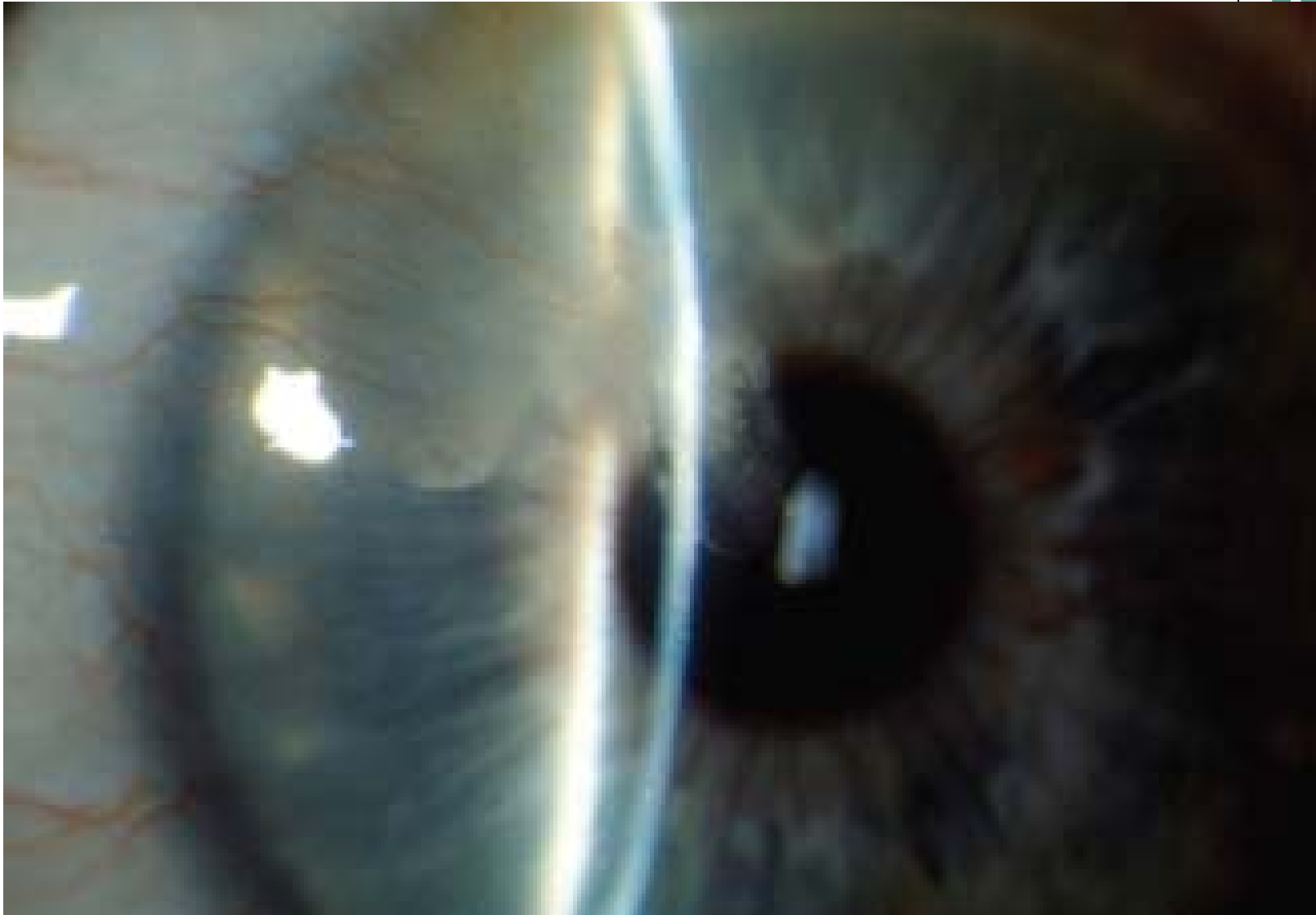
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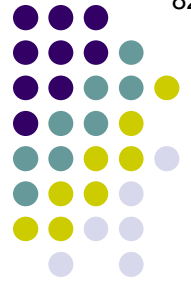
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Study Guide: Anterior HSV dz



HSV interstitial keratitis



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--**Endotheliitis**

c) *Iridocyclitis*

d) *Trabeculitis*

Anterior HSV Disease



1) Primary ocular disease

--Usually a *unilateral blepharoconjunctivitis*

--Presents with lid margin *vesicles/ulcers* and bulbar *conj ulcers*

2) Recurrent ocular disease

a) *Blepharoconjunctivitis*: Looks like *primary disease*

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--**Epithelial**: c/o *foreign body sensation*. Classic sign: *Dendrites*

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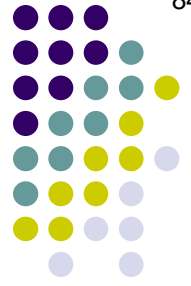
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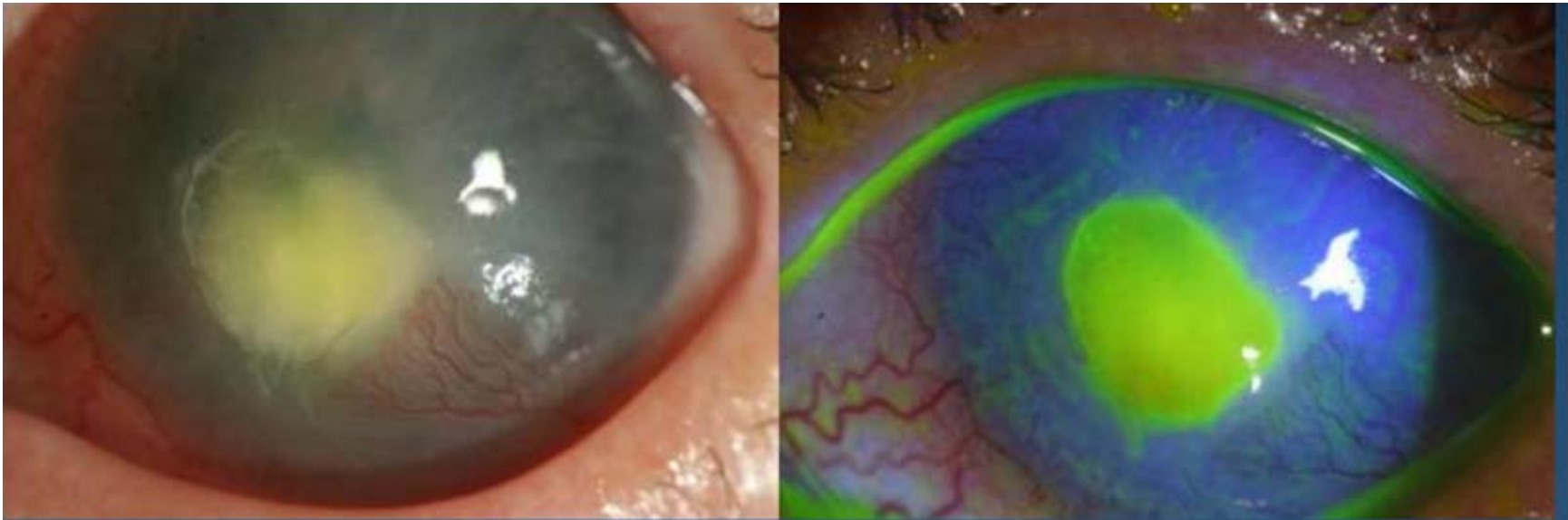
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Study Guide: Anterior HSV dz



HSV necrotizing keratitis



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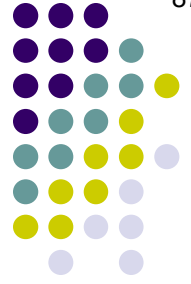
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--**Endotheliitis** (aka two words): Presents as -shaped edematous area with abb.

c) *Iridocyclitis*

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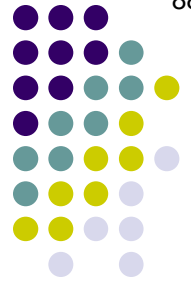
c) *Iridocyclitis*

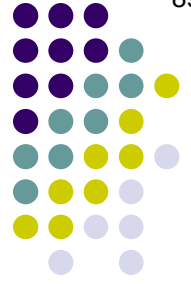
d) *Trabeculitis*

Study Guide: Anterior HSV dz



HSV endotheliitis/disciform keratitis





Anterior HSV Disease

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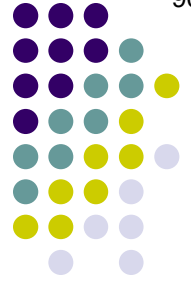
What are the three main complications/sequelae of HSV corneal disease?

--

d) *Trabeculitis*

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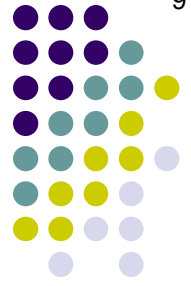
c) *Iridocyclitis*

What are the three main complications/sequelae of HSV corneal disease?

--Toxic epitheliopathy 2° to Viroptic

d) *Trabeculitis* -- [redacted] ulcer

-- [redacted] ulcer



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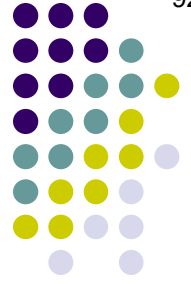
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--Neurotrophic ulcer

--Metaherpetic ulcer

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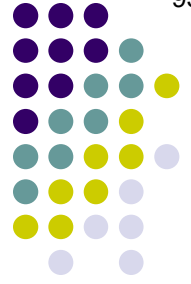
What are the three main complications? What does this mean?

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--Metaherpetic ulcer

d) *Trabeculitis*



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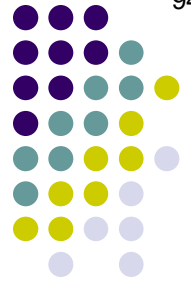
--**Neurotrophic ulcer**

--Metaherpetic ulcer

What does this mean?

Keratopathy 2° to decreased sensation

d) *Trabeculitis*



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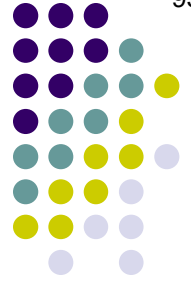
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What does this mean?



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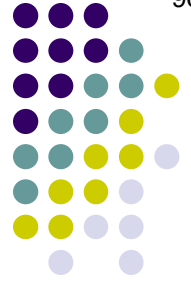
--Neurotrophic ulcer

--**Metaherpetic ulcer**

d) *Trabeculitis*

What does this mean?

Interstitial keratitis with chronic overlying epi defect



Anterior HSV Disease

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--**Epithelial**: *How can these be differentiated from infectious epitheliopathy?*

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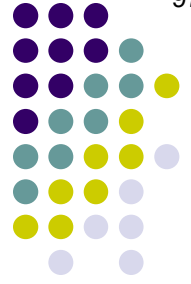
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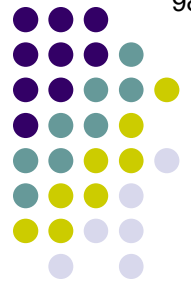
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--**Neurotrophic ulcer**

--**Metaherpetic ulcer**



Anterior HSV Disease

1) Primary ocular disease

- Usually a unilateral **blepharoconjunctivitis**
- Presents with lid margin

Why not?

2) Recurrent ocular disease

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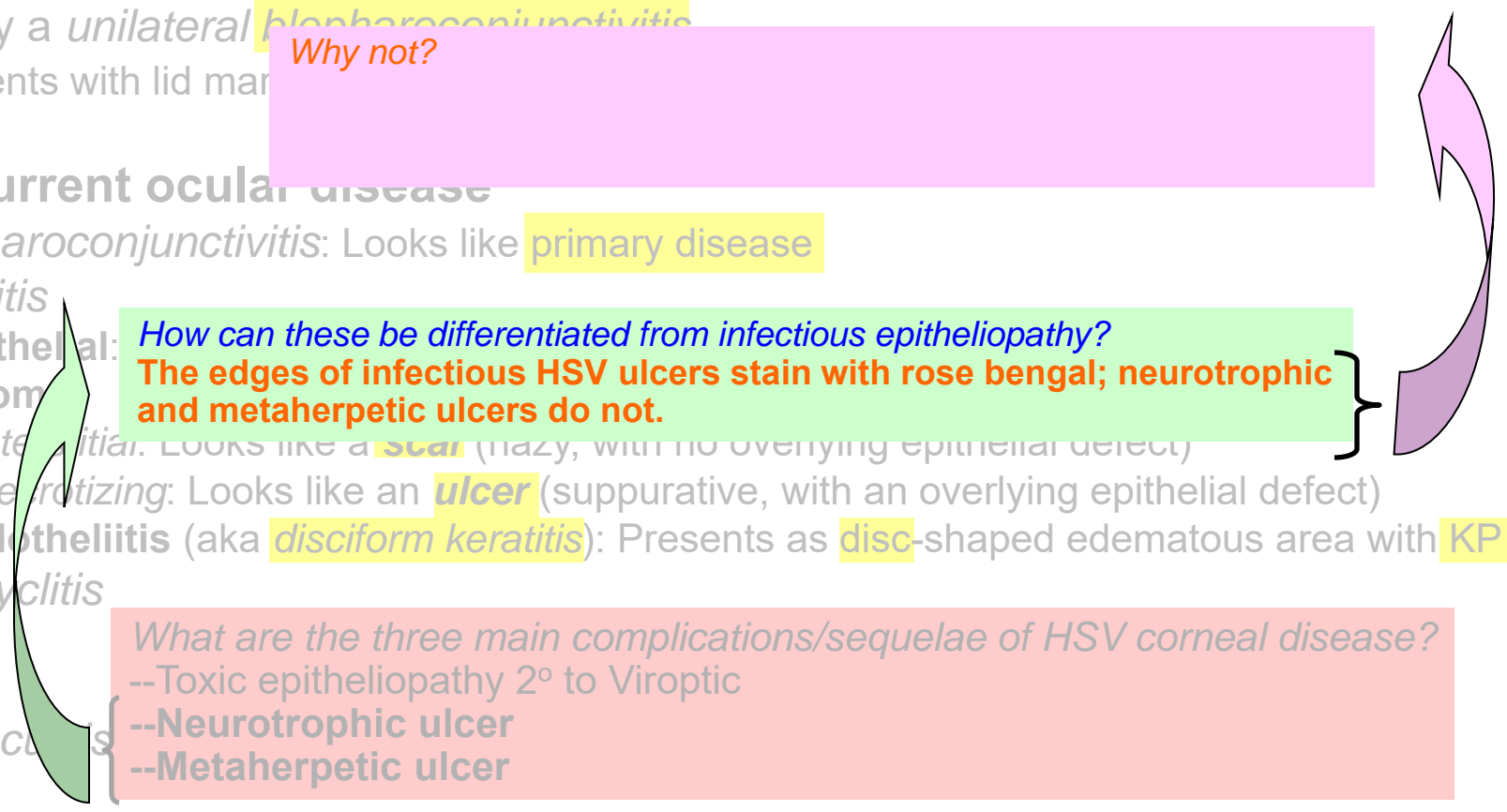
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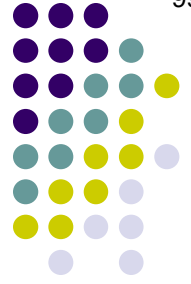
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Anterior HSV Disease

1) Primary ocular disease

- Usually a *unilateral blepharoconjunctivitis*
- Presents with lid margin

Why not?
 Recall that rose bengal stains dead and/or devitalized epithelium, as happens when cells are infected. Cells at the edges of a neurotrophic or metaherpetic ulcer are healthy, so they don't take the stain

2) Recurrent ocular disease

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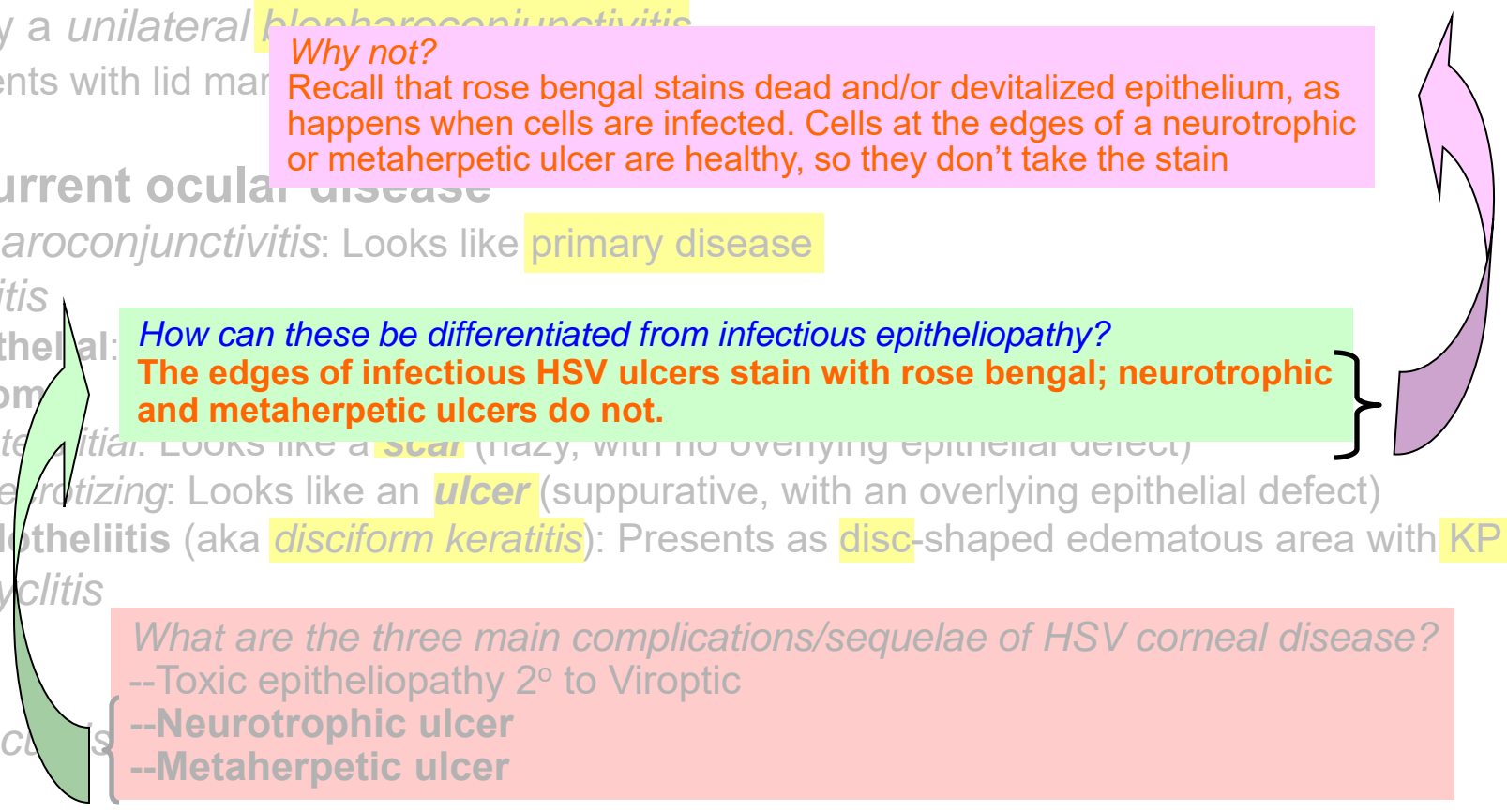
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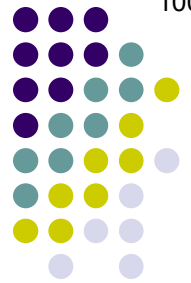
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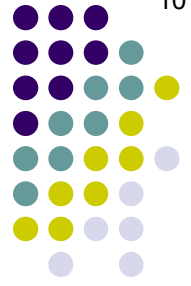
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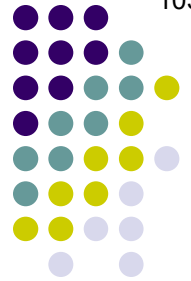
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Topical or PO, and why?



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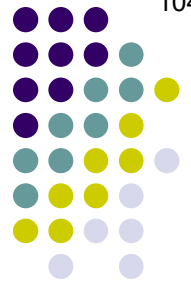
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Topical or PO, and why?

PO (Viroptic will tear up the already-compromised epithelium of the graft)



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In contrast, what one word describes the appearance of iris transillumination defects after a bout of VZV iridocyclitis?



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In contrast, what one word describes the appearance of iris transillumination defects after a bout of VZV iridocyclitis?

'Sectoral'



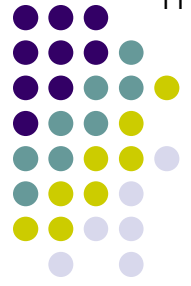
Anterior HSV Disease

1) Primary ocular disease

- Usually a *unilateral blepharoconjunctivitis*
- Presents with lid margin *vesicles/ulcers* and bulbar *conj ulcers*

2) Recurrent ocular disease

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 - Interstitial*: Looks like a *scar* (hazy, with no overlying epithelial defect)
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 - Endotheliitis** (aka *disciform keratitis*): Presents as *disc*-shaped edematous area with *KP*
- c) *Iridocyclitis*
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- d) *Trabeculitis*
 - Presents with key exam finding



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 - Presents with *unilateral elevated IOP*

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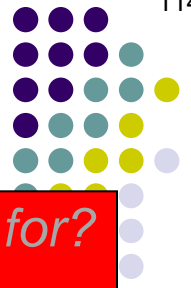
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No. A short course of PO acyclovir did nothing to reduce the risk of future stromal keratitis or iritis.

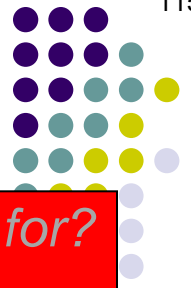
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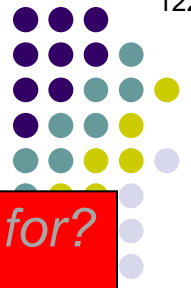
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Some authorities opt for PO acyclovir instead of Viroptic in necrotizing stromal keratitis—why?

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--Classic sign: pupillary

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HEDS tl;dr

The main contribution of the HEDS to clinical ophthalmology is the clarity it provided regarding the best way to manage **stromal keratitis**. The key takeaways from the HEDS are as follows:

- Topical steroids (in conjunction with a prophylactic antiviral) are an effective tx;
- prophylaxis w/ oral acyclovir reduces the recurrence rate and preserves vision; and
- in pts with a hx of multiple recurrences, lifelong prophylaxis should be pursued.

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d) *Trabeculitis*

- Presents with unilateral elevated IOP