

Q

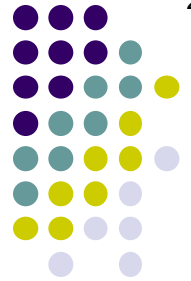
HIV and the Eye

How many HIV+ individuals are there in the US?



A

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

Q

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

--Women?

A/Q

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

--Women? **25%**

--African American?

A

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

--Women? **25%**

--African American? **50%**

Q

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

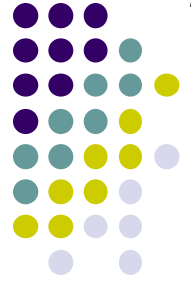
--Women? **25%**

--African American? **50%**

What percent of HIV+ individuals will have an ocular manifestation of the dz at some point?

A

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

--Women? **25%**

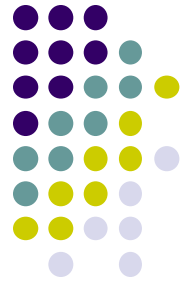
--African American? **50%**

What percent of HIV+ individuals will have an ocular manifestation of the dz at some point?

About 75%

Q

HIV and the Eye



How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

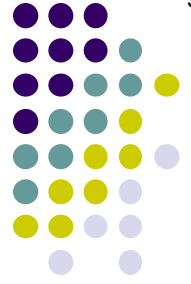
--Women? **25%**

--African American? **50%**

What percent of HIV+ individuals will have an ocular manifestation of the dz at some point?

About 75%

Are HIV+ children more or less likely than HIV+ adults to have ophthalmic involvement?



A

HIV and the Eye

How many HIV+ individuals are there in the US?

About 1 million!

What percent of HIV+ individuals are...

--Women? **25%**

--African American? **50%**

What percent of HIV+ individuals will have an ocular manifestation of the dz at some point?

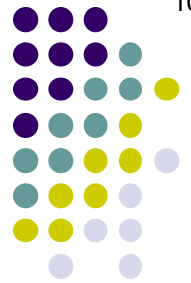
About 75%

Are HIV+ children more or less likely than HIV+ adults to have ophthalmic involvement?

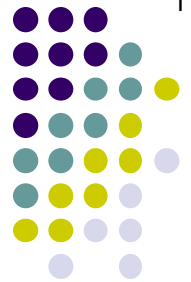
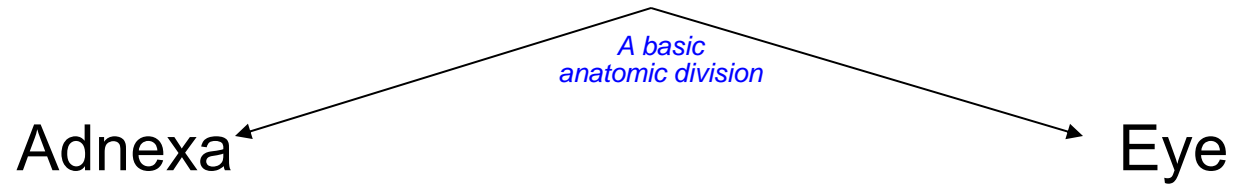
Less likely

Ophthalmic HIV manifestations

*A basic
anatomic division*

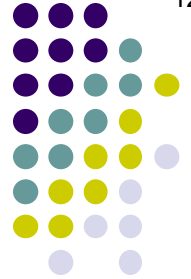
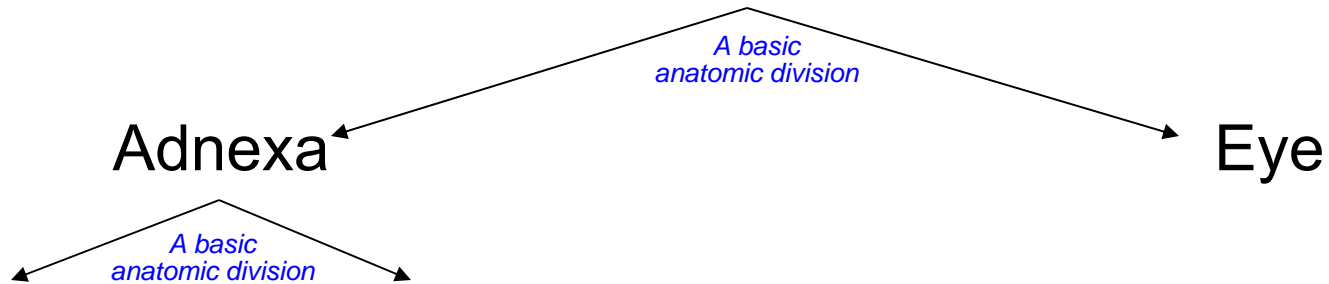


Ophthalmic HIV manifestations



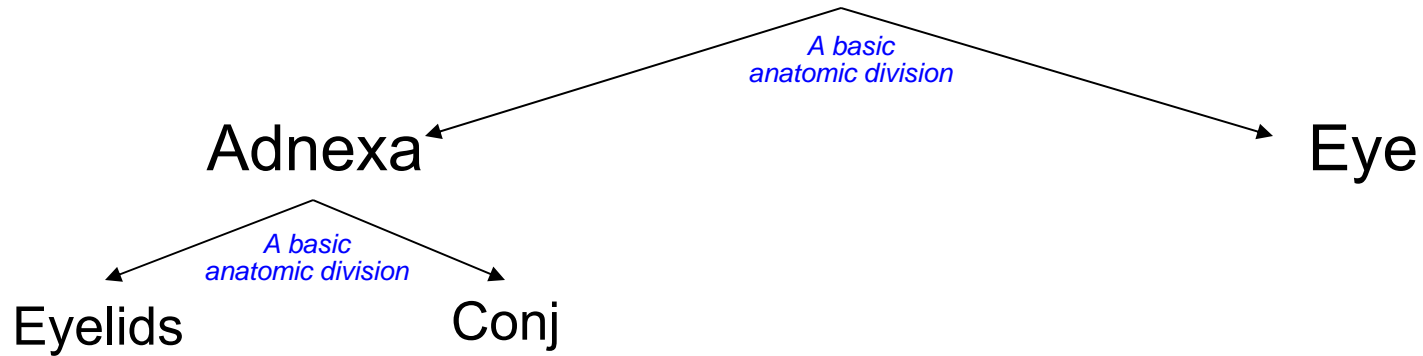
HIV and the Eye

Ophthalmic HIV manifestations



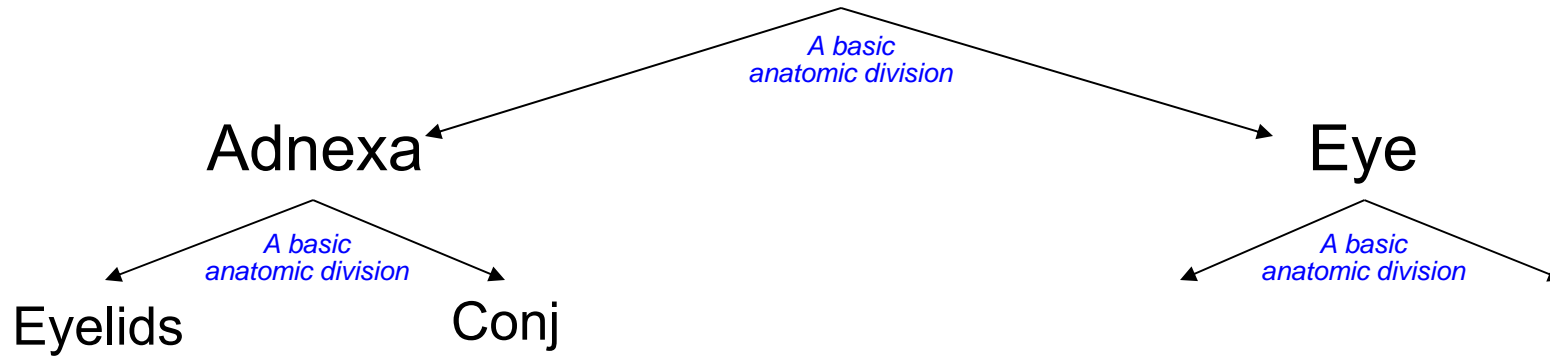
HIV and the Eye

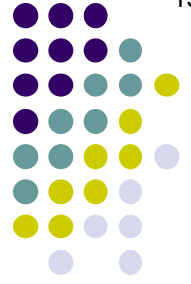
Ophthalmic HIV manifestations



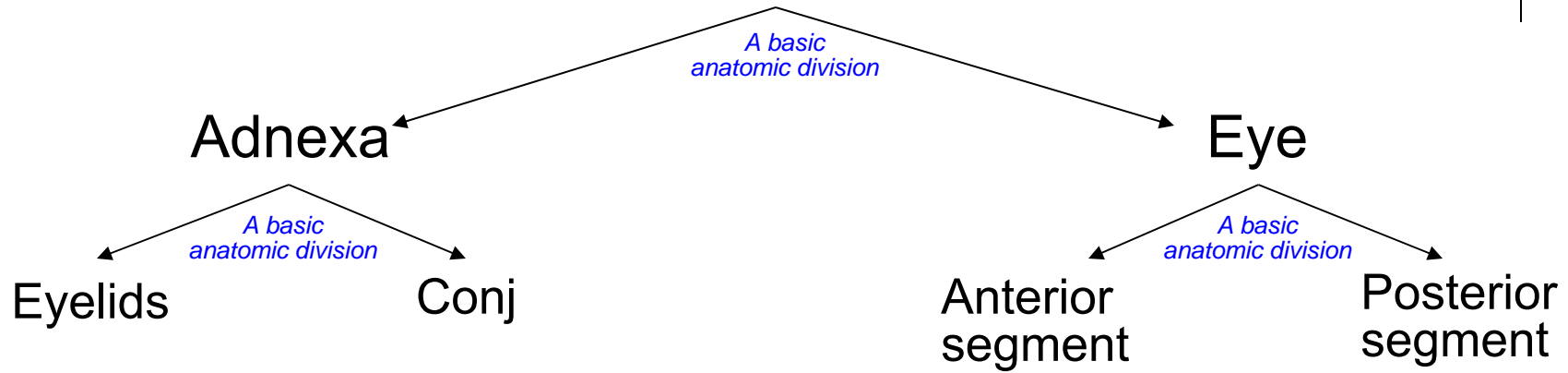


Ophthalmic HIV manifestations



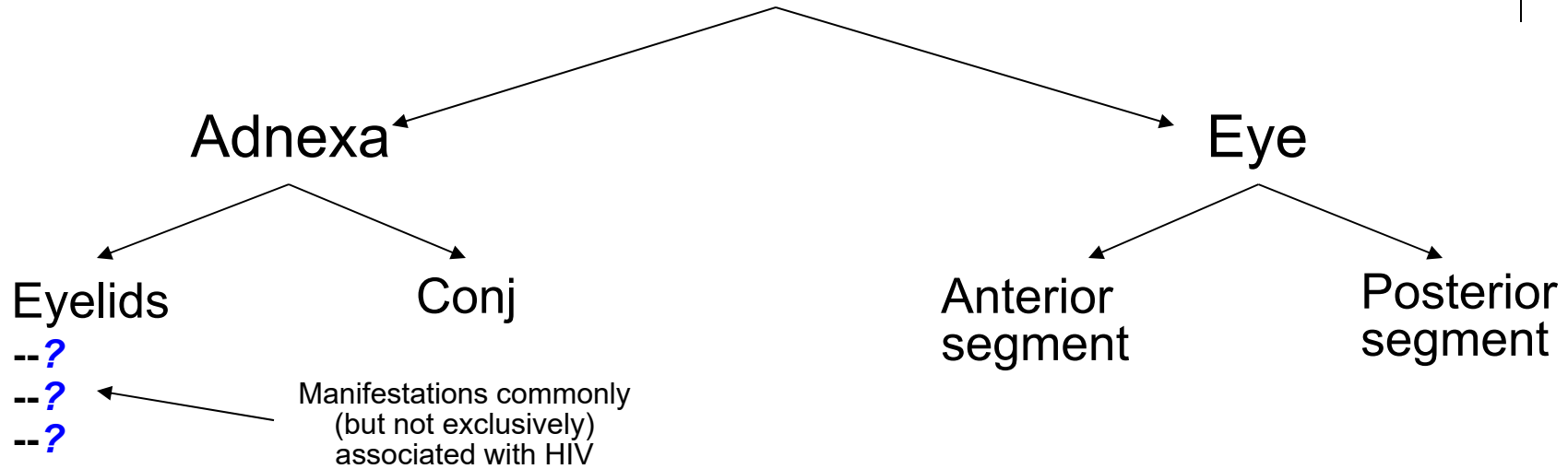


Ophthalmic HIV manifestations



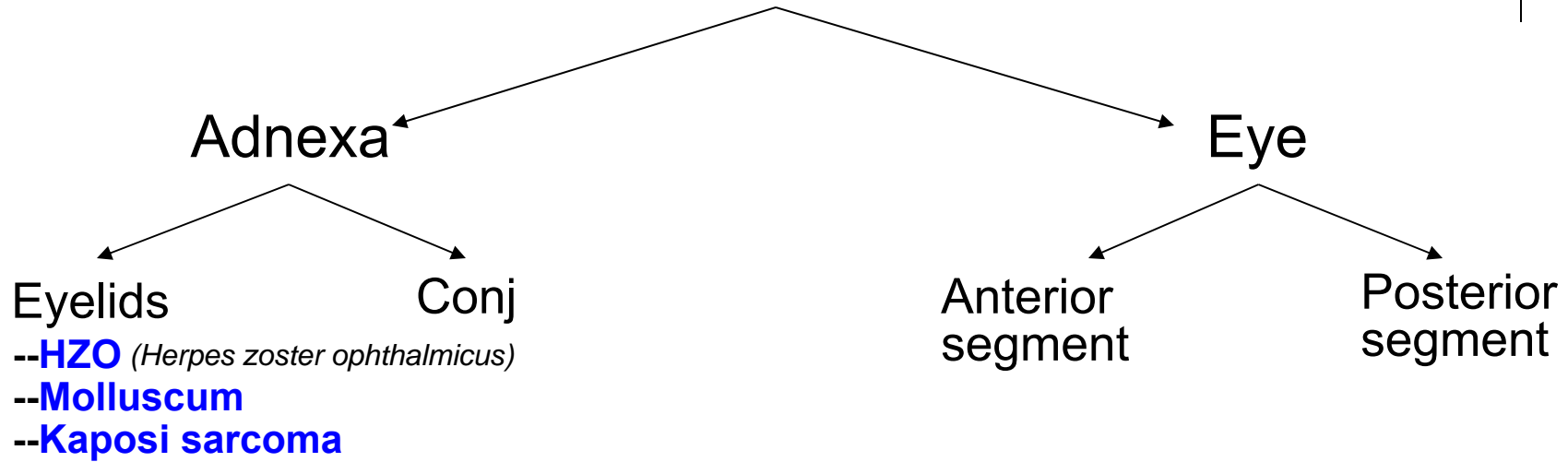
HIV and the Eye

Ophthalmic HIV manifestations



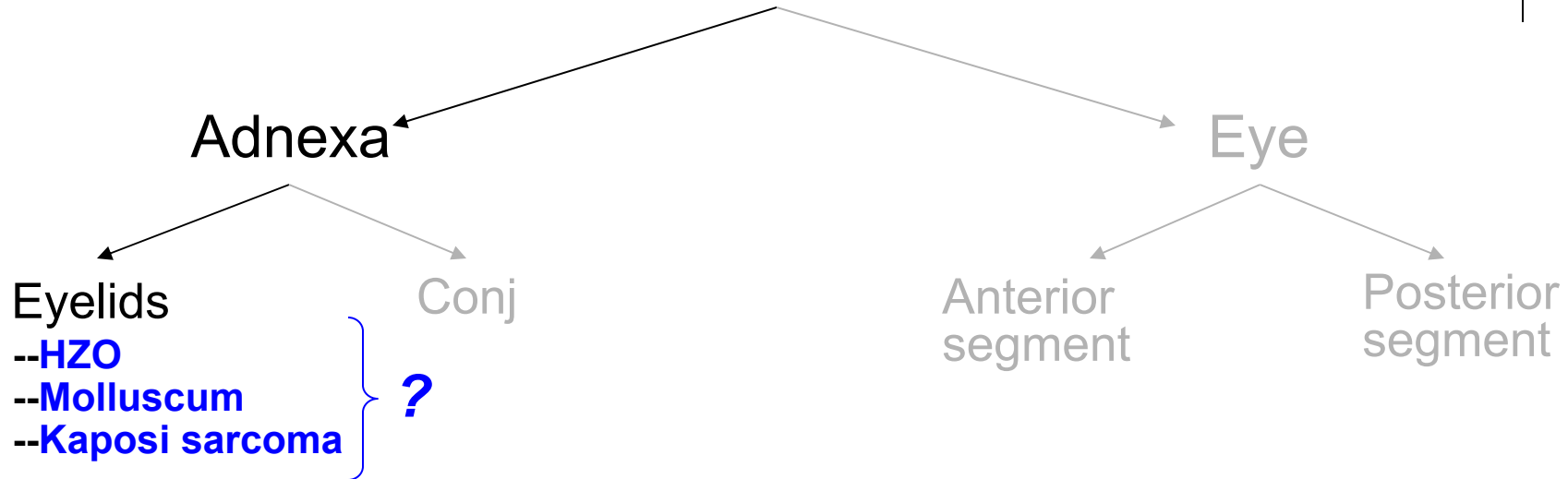


Ophthalmic HIV manifestations



HIV and the Eye

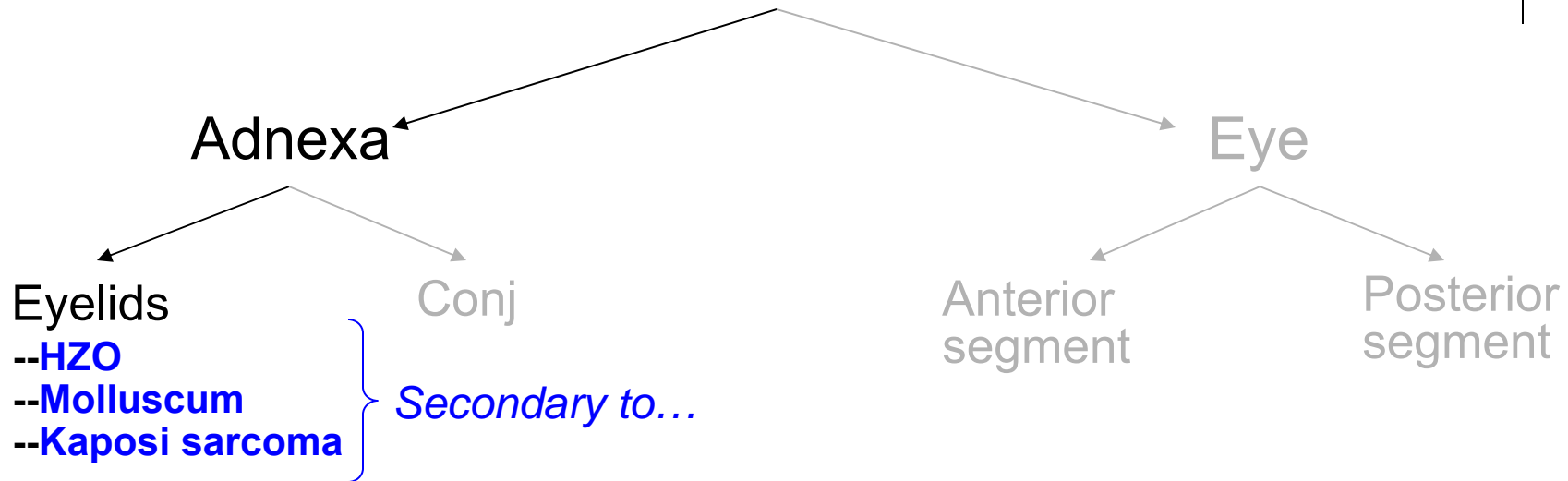
Ophthalmic HIV manifestations



What underlying commonality do these three conditions share?

HIV and the Eye

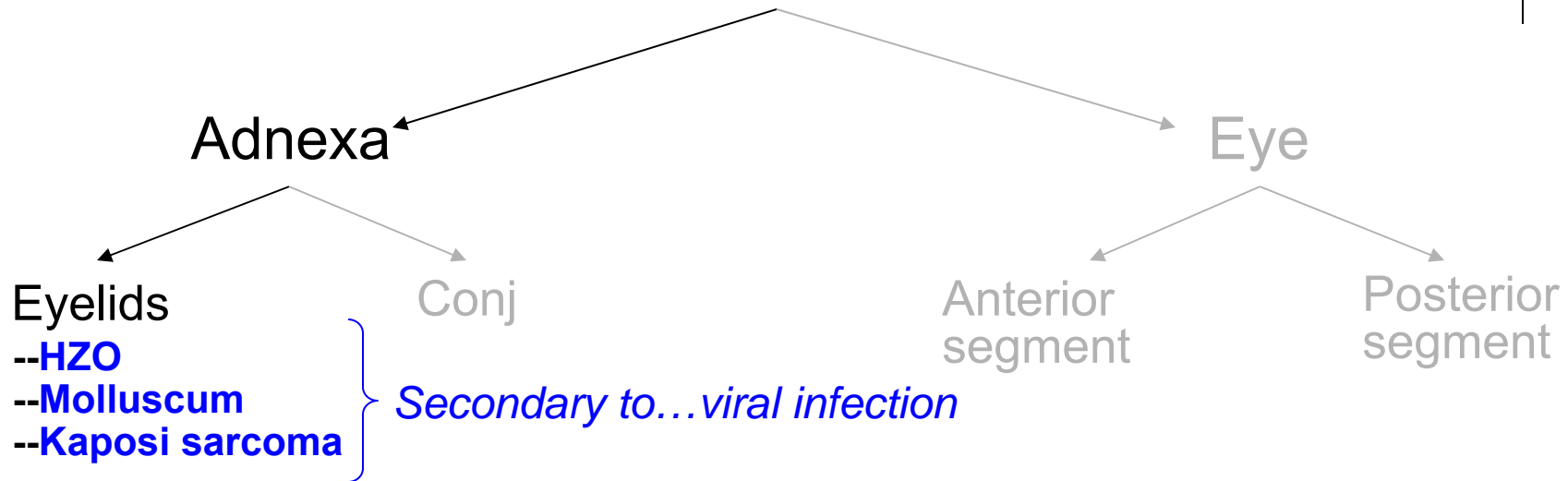
Ophthalmic HIV manifestations



What underlying commonality do these three conditions share?
All three are secondary to...

HIV and the Eye

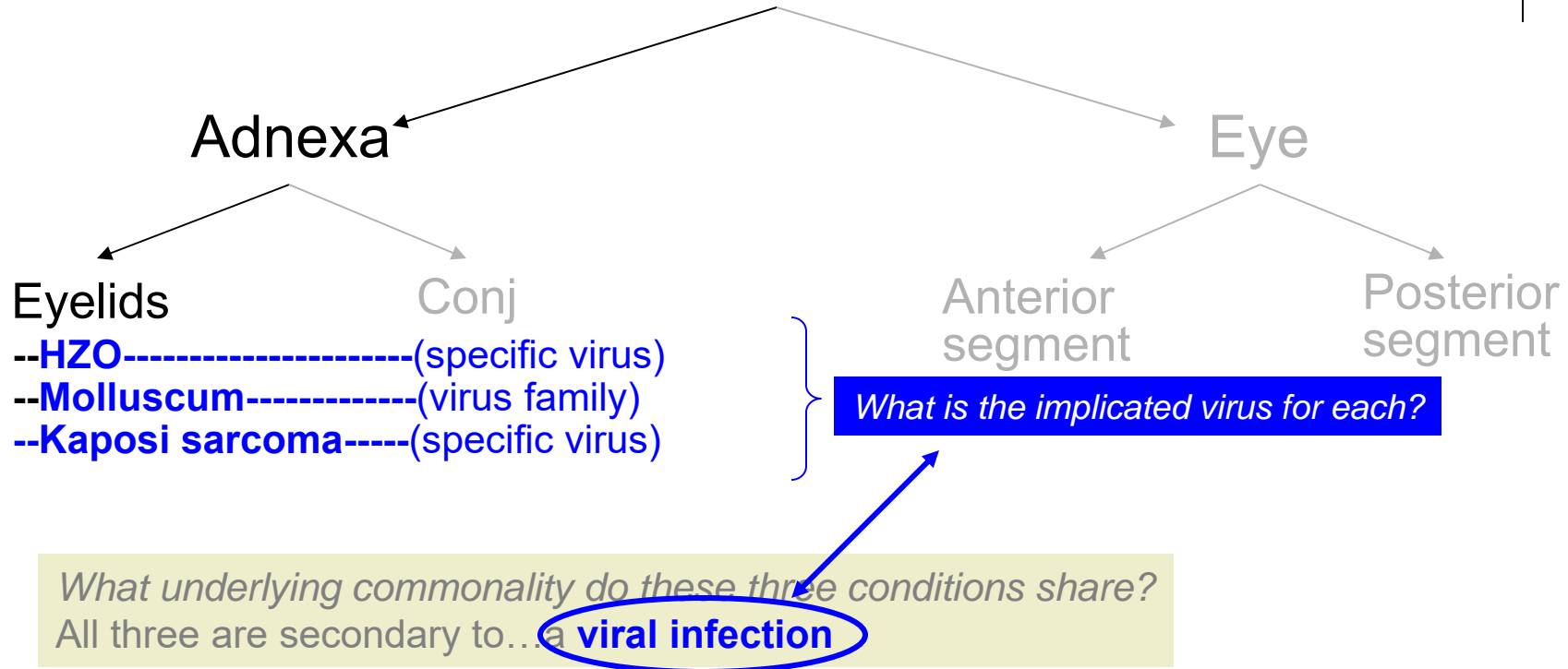
Ophthalmic HIV manifestations



What underlying commonality do these three conditions share?
All three are secondary to...a viral infection

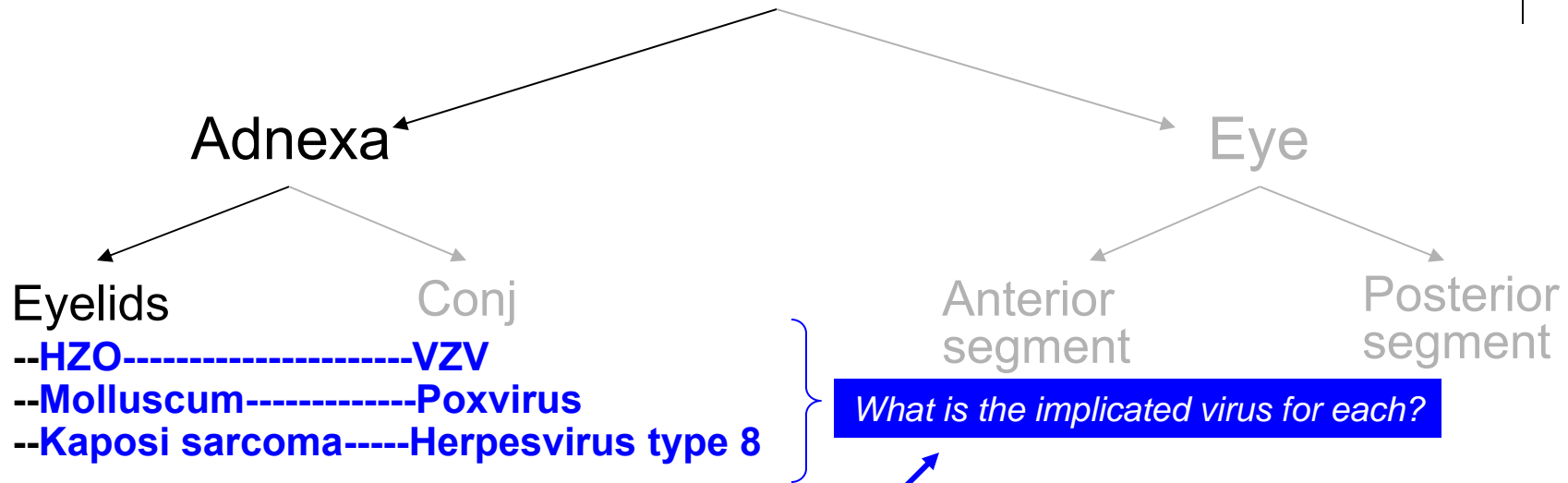
HIV and the Eye

Ophthalmic HIV manifestations



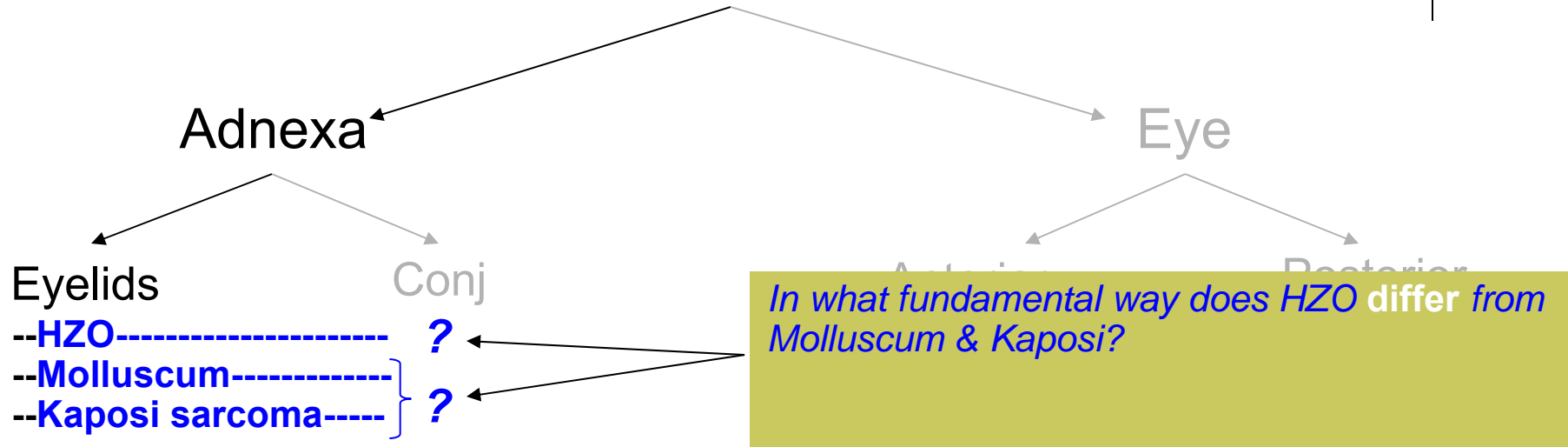
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

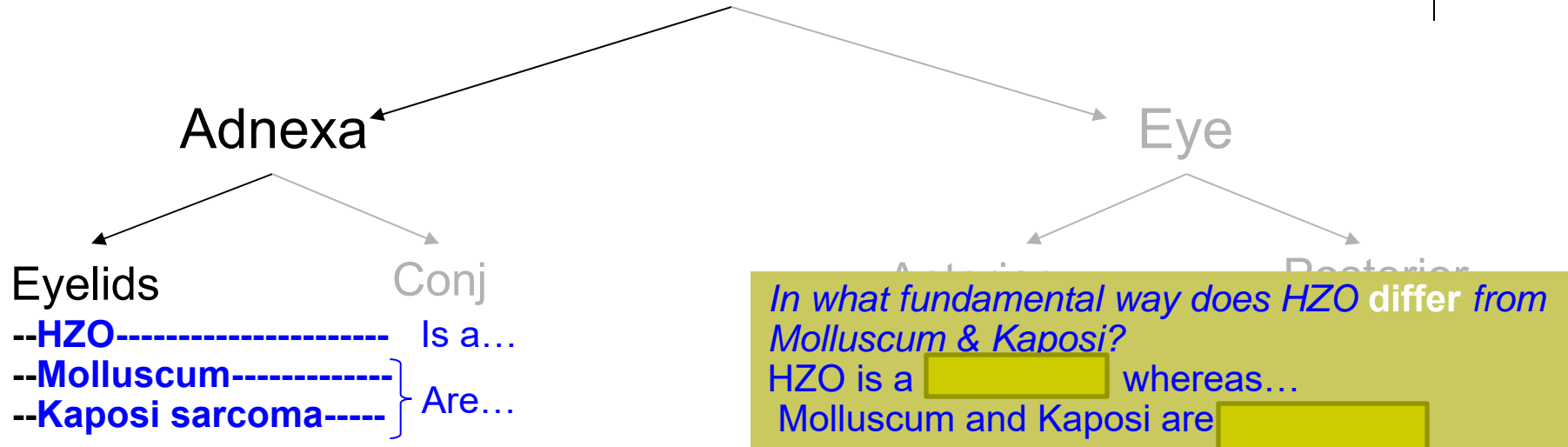
Ophthalmic HIV manifestations





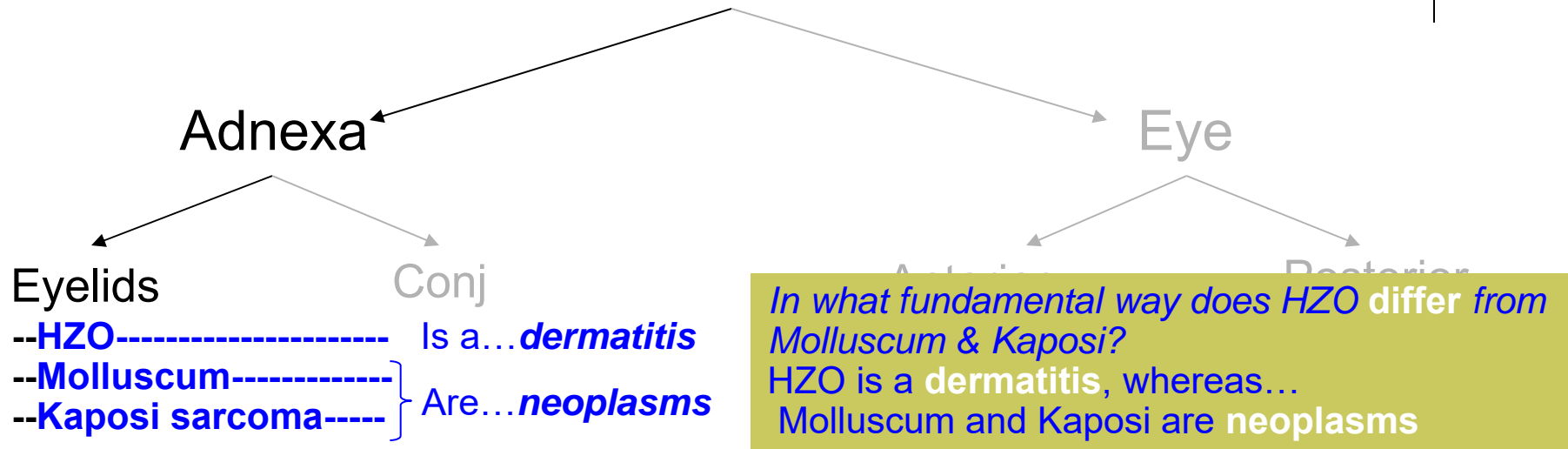
HIV and the Eye

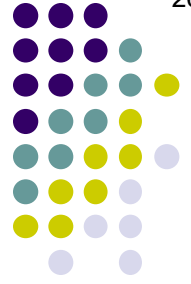
Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations





HIV and the Eye

Ophthalmic HIV manifestations

Adnexa

Eye

Which of these adnexal manifestations of HIV is most common?

Eyelids

--HZO

--Molluscum

--Kaposi sarcoma

Posterior
segment

HIV and the Eye

Ophthalmic HIV manifestations

Adnexa

Eyelids

--HZO

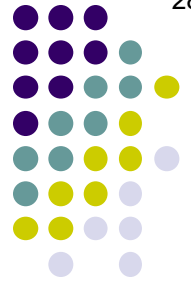
--**Molluscum**

--Kaposi sarcoma

Which of these adnexal manifestations of HIV is most common?
Molluscum contagiosum

Posterior
segment





HIV and the Eye

Ophthalmic HIV manifestations

Adnexa

Eyelids

--HZO

--**Molluscum**

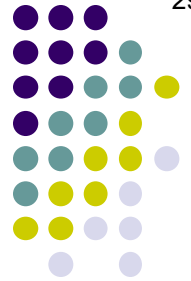
--Kaposi sarcoma

Which of these adnexal manifestations of HIV is most common?

Molluscum contagiosum

What is the classic ophthalmic presentation (not HIV-related)?

Posterior
segment



HIV and the Eye

Ophthalmic HIV manifestations

Adnexa

Eyelids

- HZO
- Molluscum**
- Kaposi sarcoma

Which of these adnexal manifestations of HIV is most common?
Molluscum contagiosum

What is the classic ophthalmic presentation (not HIV-related)?
Pt presents with a chronic follicular conjunctivitis that fails to respond to conventional treatment. Close inspection of the lid margin reveals a previously unnoticed molluscum lesion, the excision of which leads to resolution of the conjunctivitis.

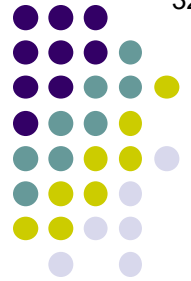
Posterior segment



Molluscum contagiosum lesion of eyelid



Molluscum contagiosum lesion of eyelid with conjunctivitis



HIV and the Eye

Ophthalmic HIV manifestations

Adnexa

Eyelids

- HZO
- Molluscum**
- Kaposi sarcoma

Which of these adnexal manifestations of HIV is most common?
Molluscum contagiosum

What is the classic ophthalmic presentation (not HIV-related)?
Pt presents with a chronic follicular conjunctivitis that fails to respond to conventional treatment. Close inspection of the lid margin reveals a previously unnoticed molluscum lesion, the excision of which leads to resolution of the conjunctivitis.

What aspect of the presentation would lead you to consider whether a molluscum pt might be HIV+?

Posterior segment



HIV and the Eye

Ophthalmic HIV manifestations

Adnexa

Eyelids

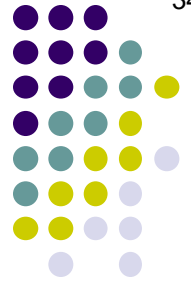
- HZO
- Molluscum**
- Kaposi sarcoma

Which of these adnexal manifestations of HIV is most common?
Molluscum contagiosum

What is the classic ophthalmic presentation (not HIV-related)?
Pt presents with a chronic follicular conjunctivitis that fails to respond to conventional treatment. Close inspection of the lid margin reveals a previously unnoticed molluscum lesion, the excision of which leads to resolution of the conjunctivitis.

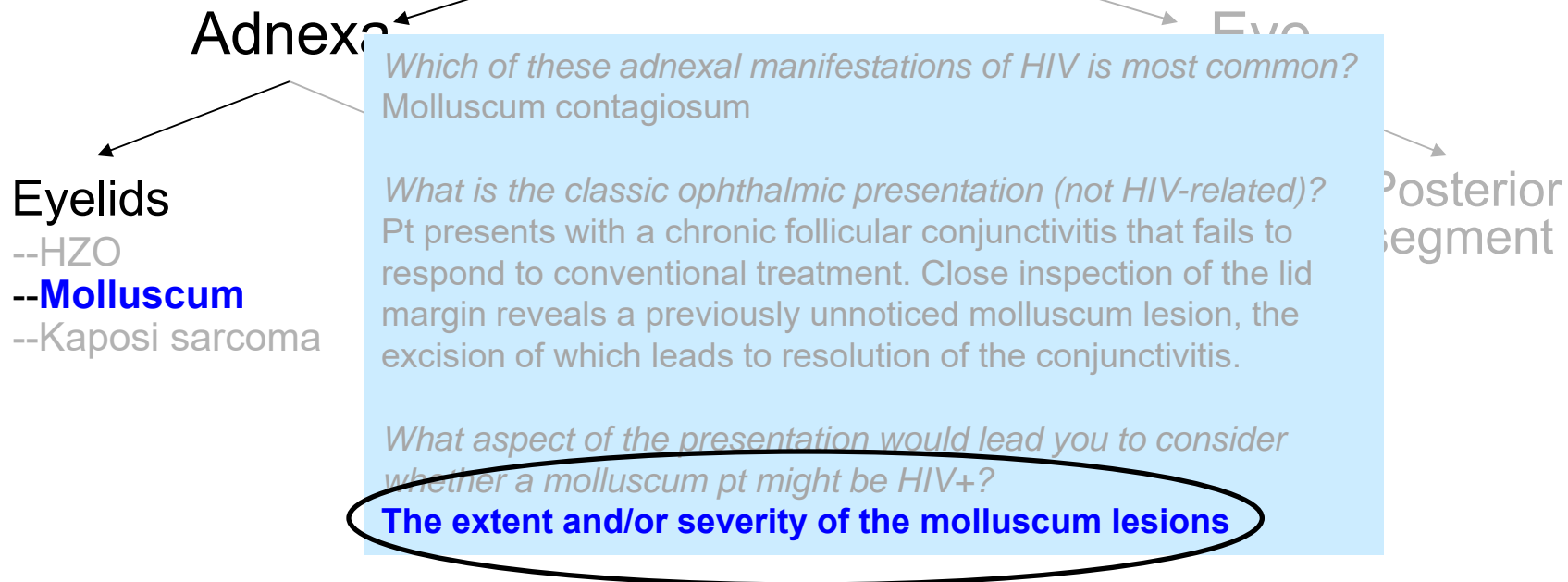
What aspect of the presentation would lead you to consider whether a molluscum pt might be HIV+?
The extent and/or severity of the molluscum lesions

Posterior segment



HIV and the Eye

Ophthalmic HIV manifestations



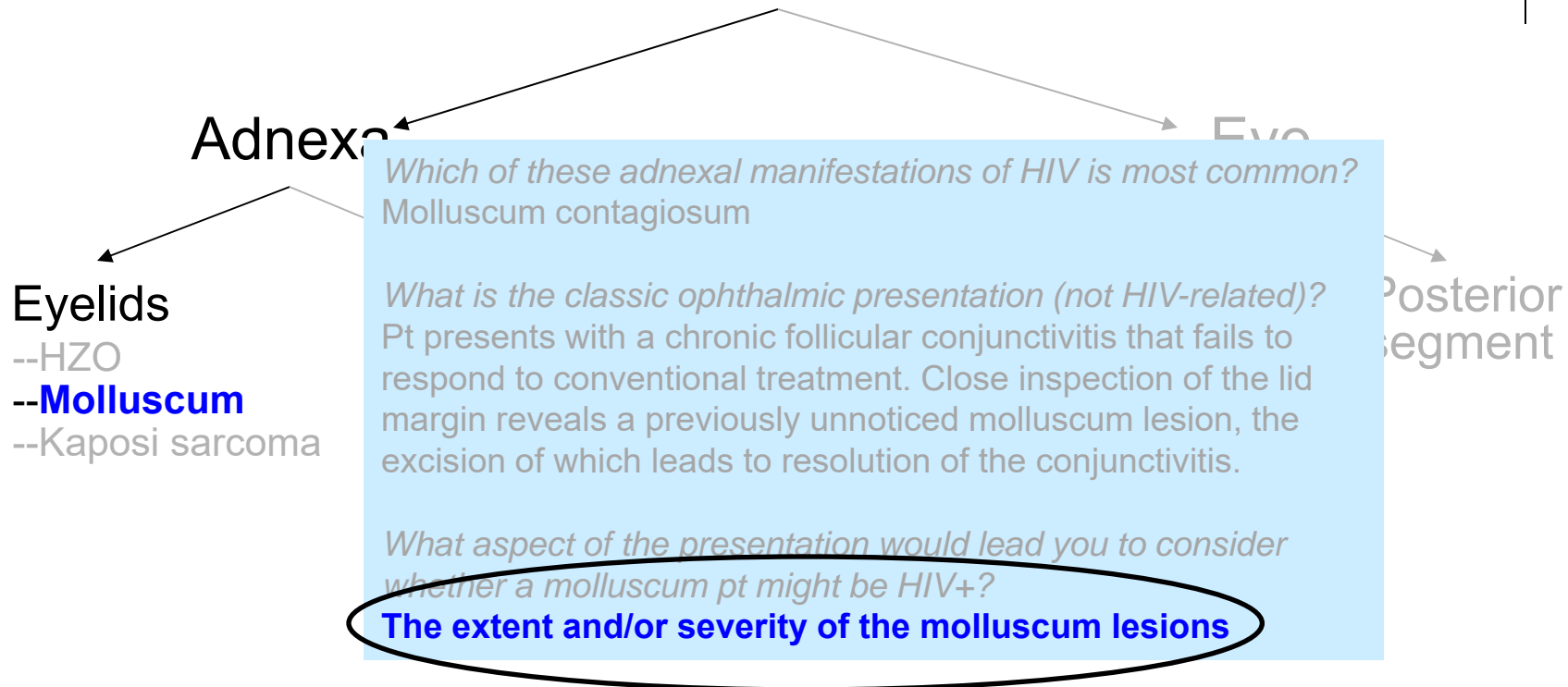
Fill-in-the-blanks with respect to ocular molluscum presentation in AIDS vs non-AIDS pts:

| | <i>Laterality</i> | <i>Numerosity</i> |
|---------------------|-------------------|-------------------|
| <i>Non-AIDS pts</i> | <i>?</i> | <i>?</i> |
| <i>AIDS pts</i> | <i>?</i> | <i>?</i> |



HIV and the Eye

Ophthalmic HIV manifestations

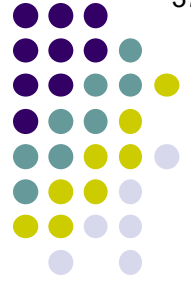


Fill-in-the-blanks with respect to ocular molluscum presentation in AIDS vs non-AIDS pts:

| | <i>Laterality</i> | <i>Numerosity</i> |
|---------------------|-------------------|-------------------|
| <i>Non-AIDS pts</i> | Unilateral | Few |
| <i>AIDS pts</i> | Bilateral | Numerous |

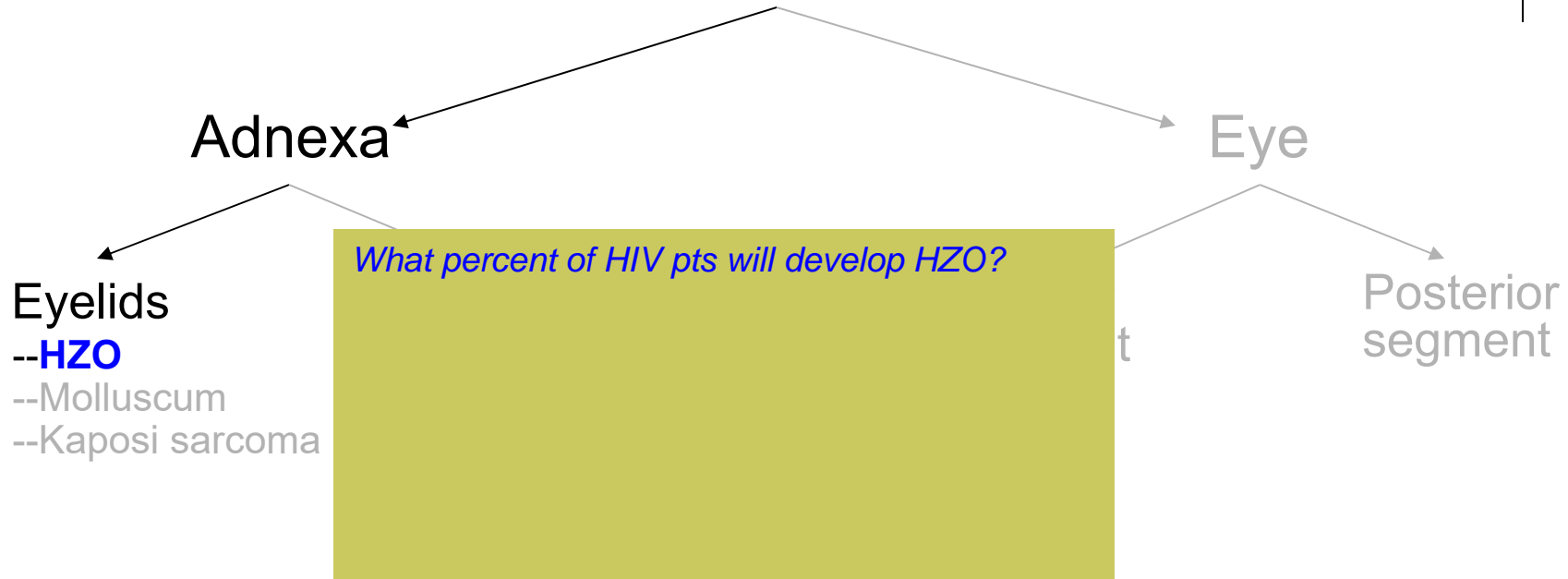


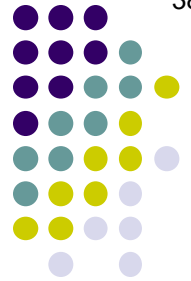
Molluscum contagiosum in AIDS pt



HIV and the Eye

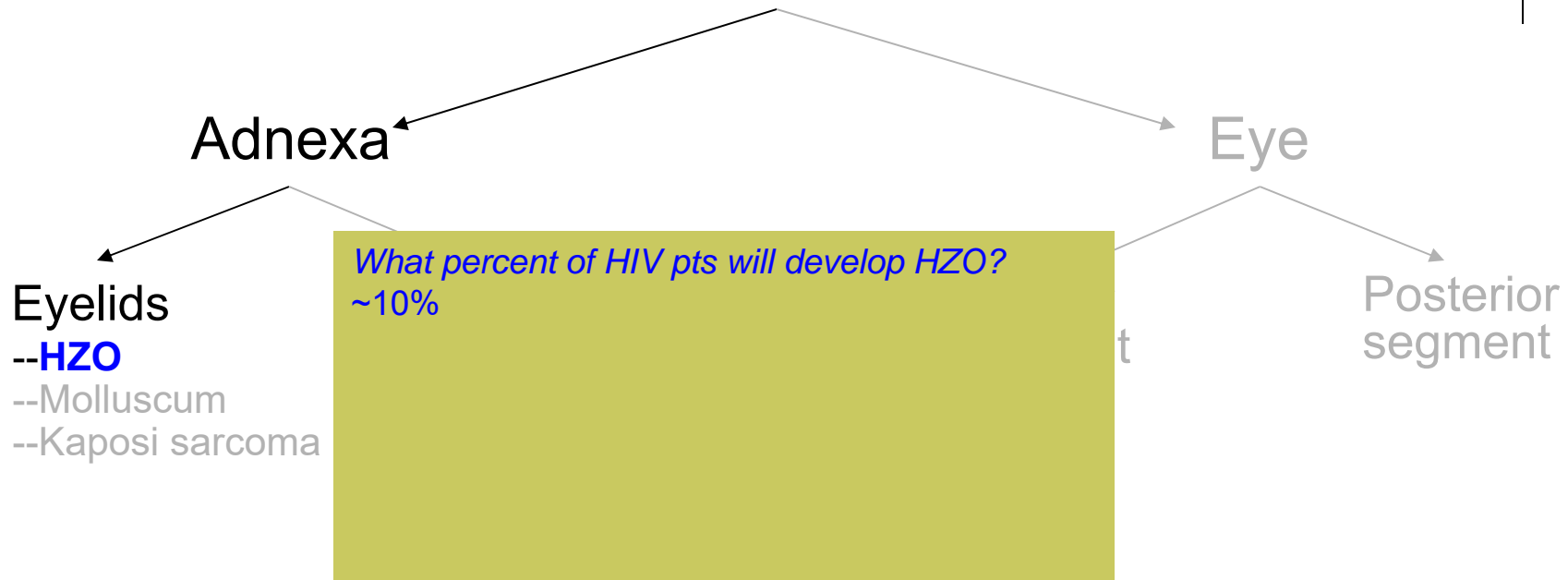
Ophthalmic HIV manifestations





HIV and the Eye

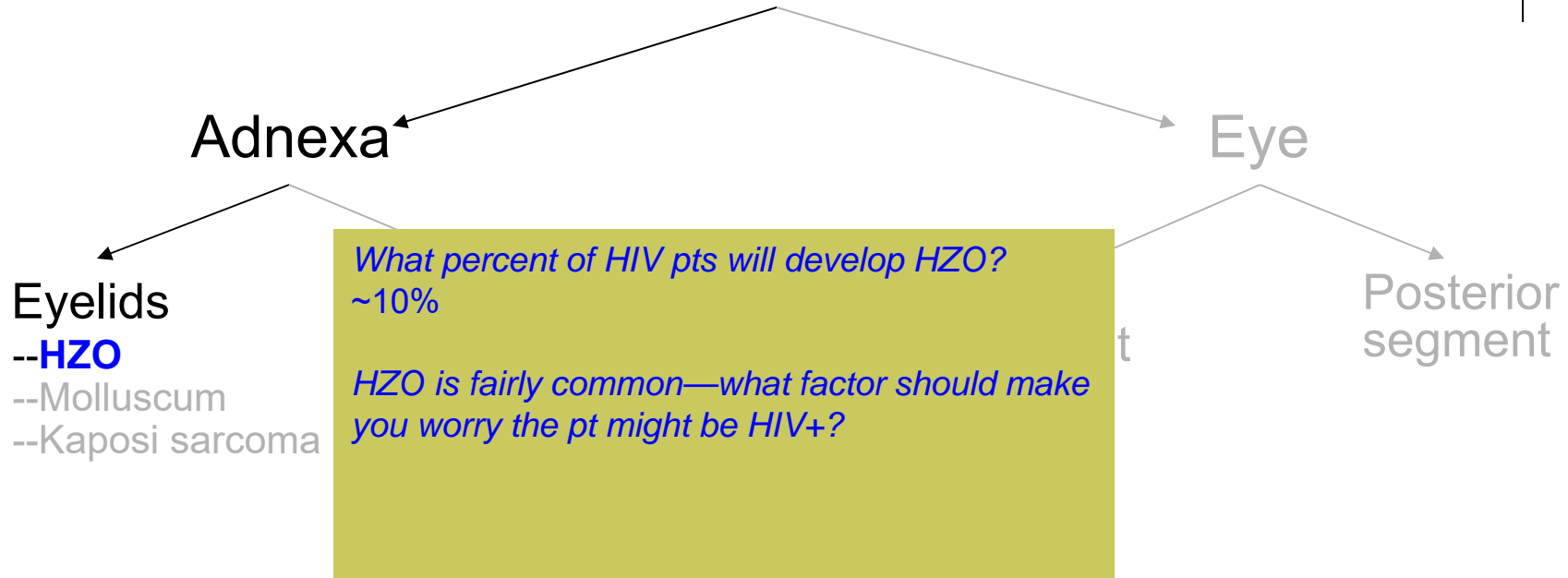
Ophthalmic HIV manifestations

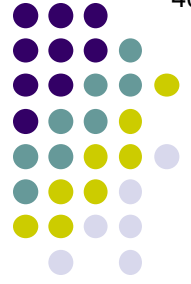




HIV and the Eye

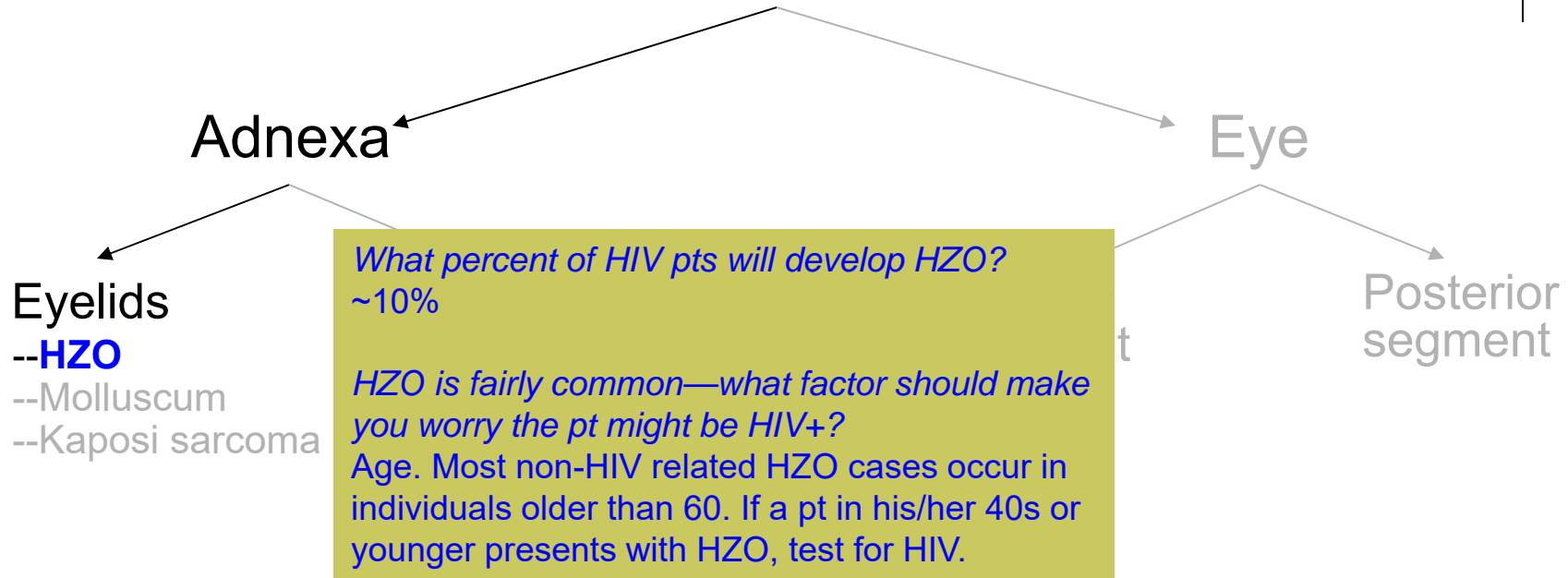
Ophthalmic HIV manifestations





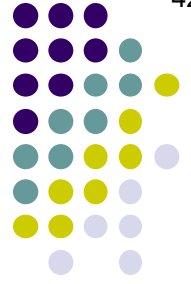
HIV and the Eye

Ophthalmic HIV manifestations



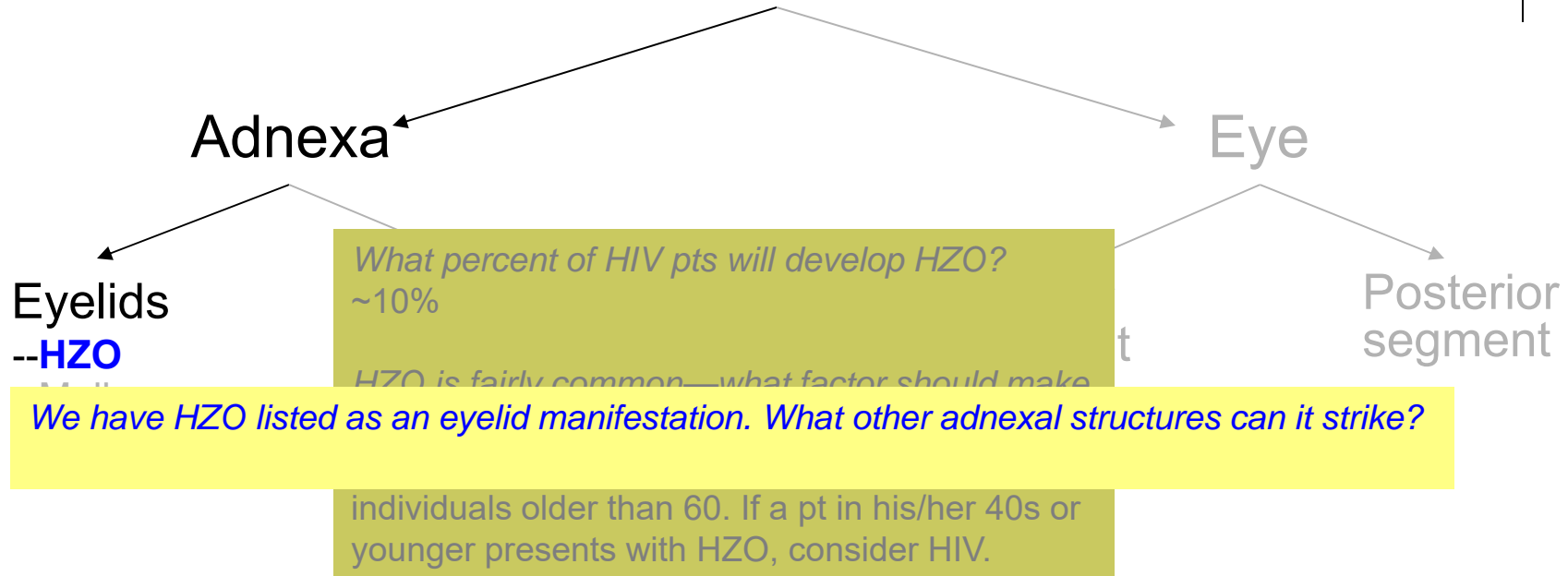


HZO in AIDS pt



HIV and the Eye

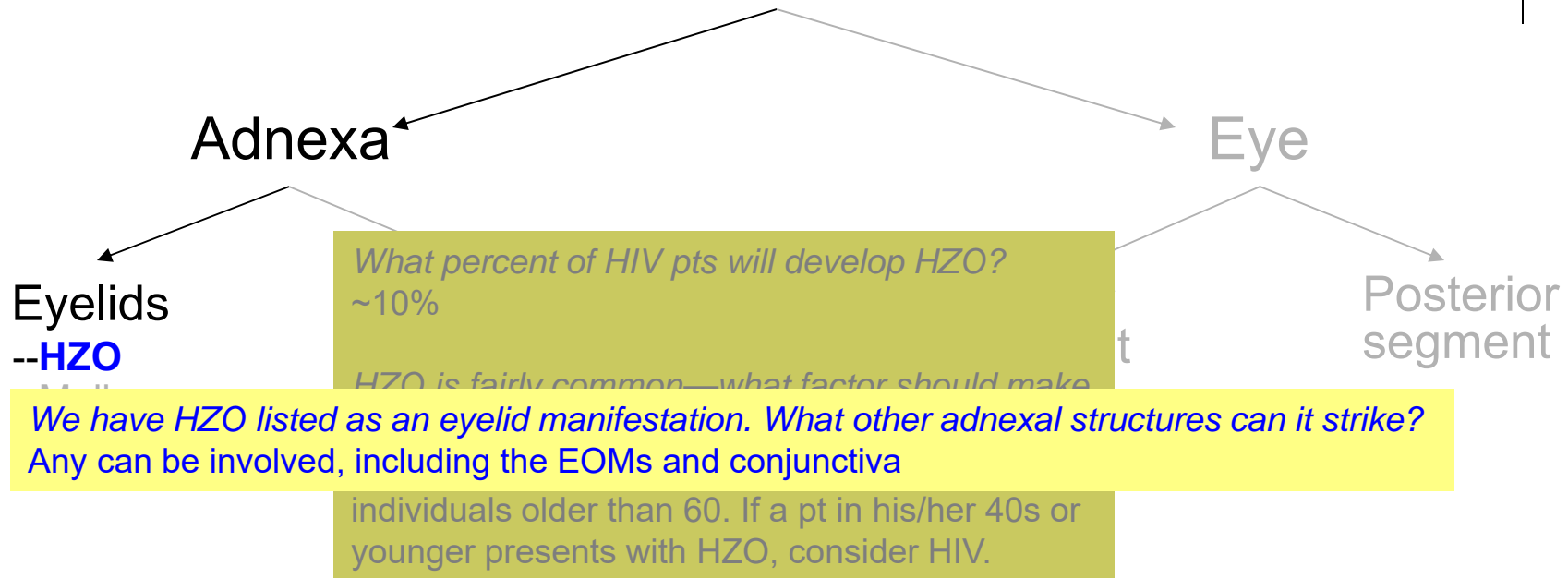
Ophthalmic HIV manifestations

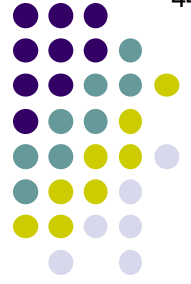




HIV and the Eye

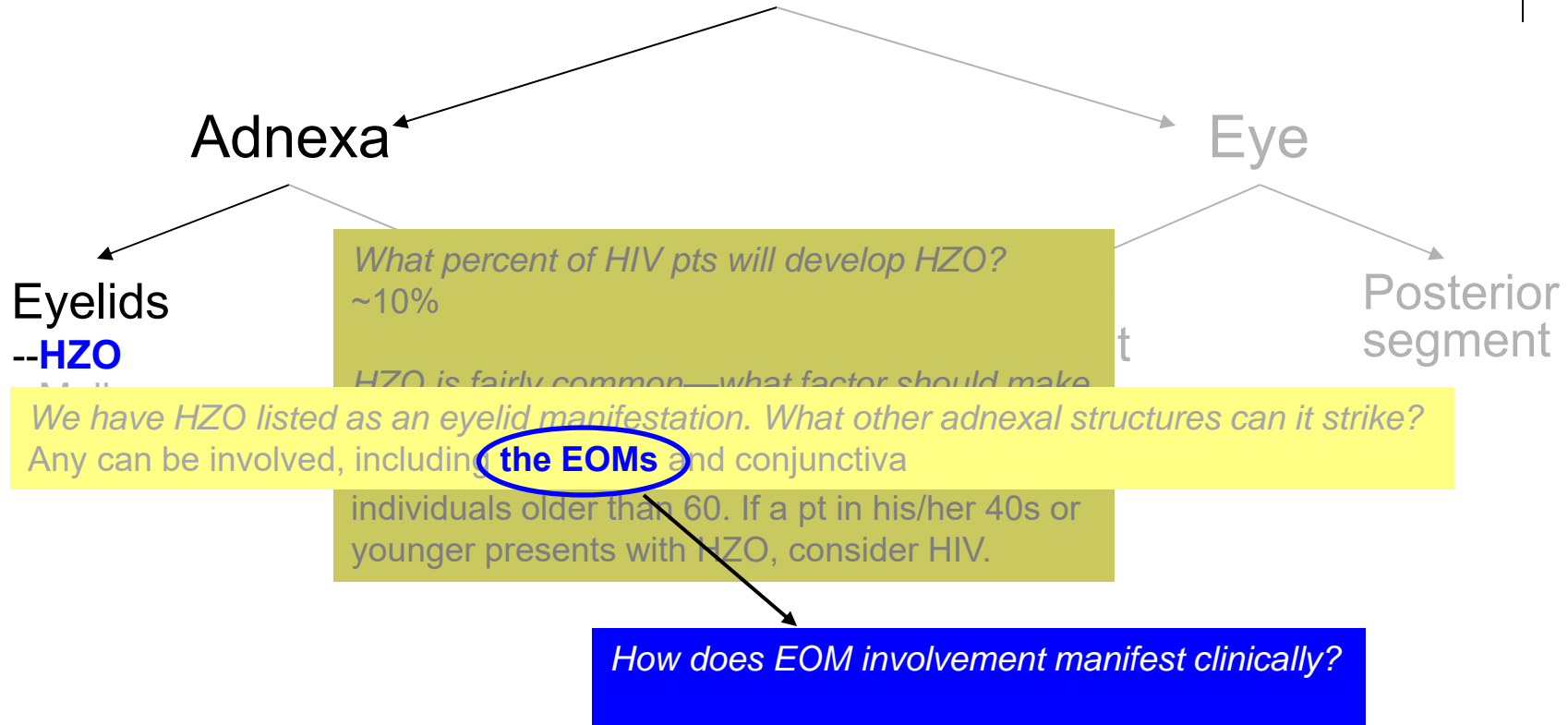
Ophthalmic HIV manifestations





HIV and the Eye

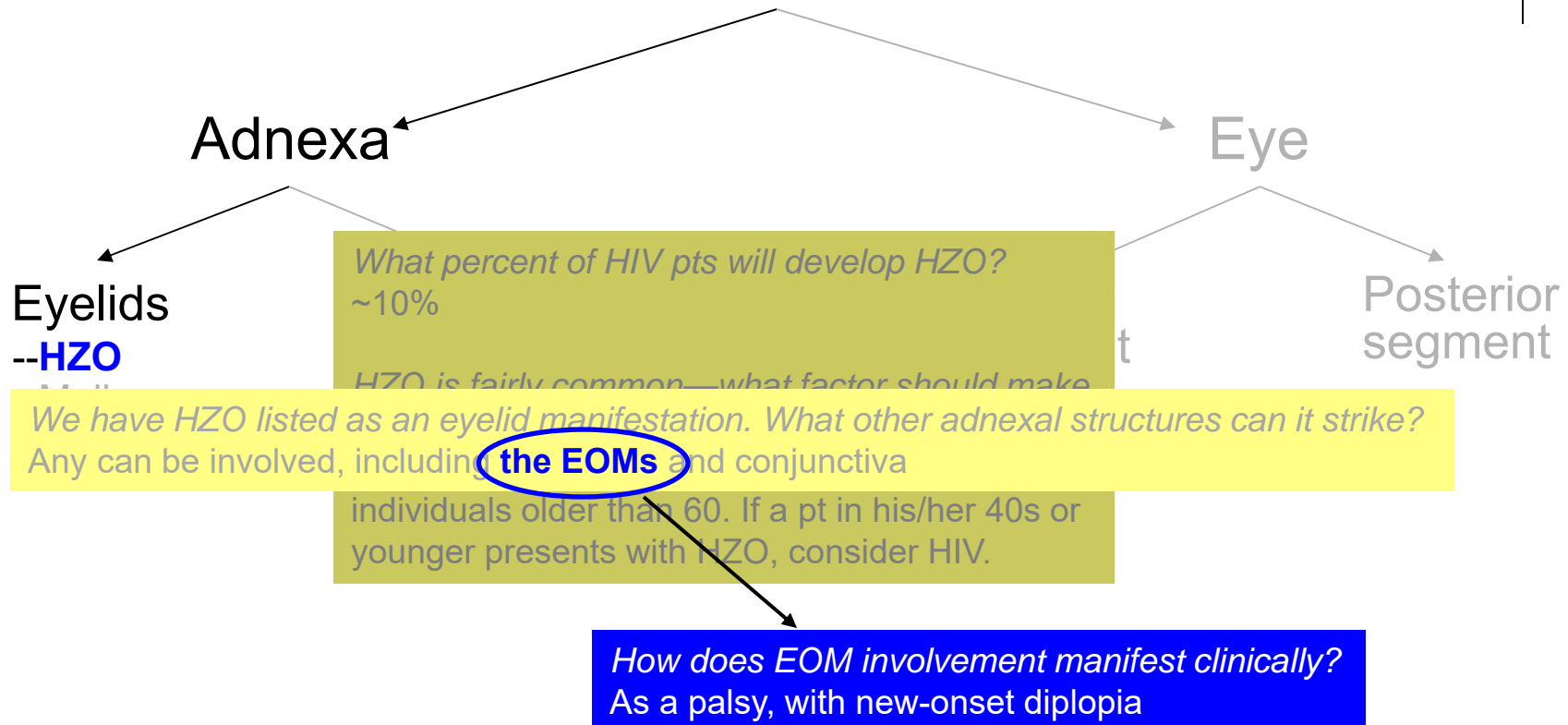
Ophthalmic HIV manifestations





HIV and the Eye

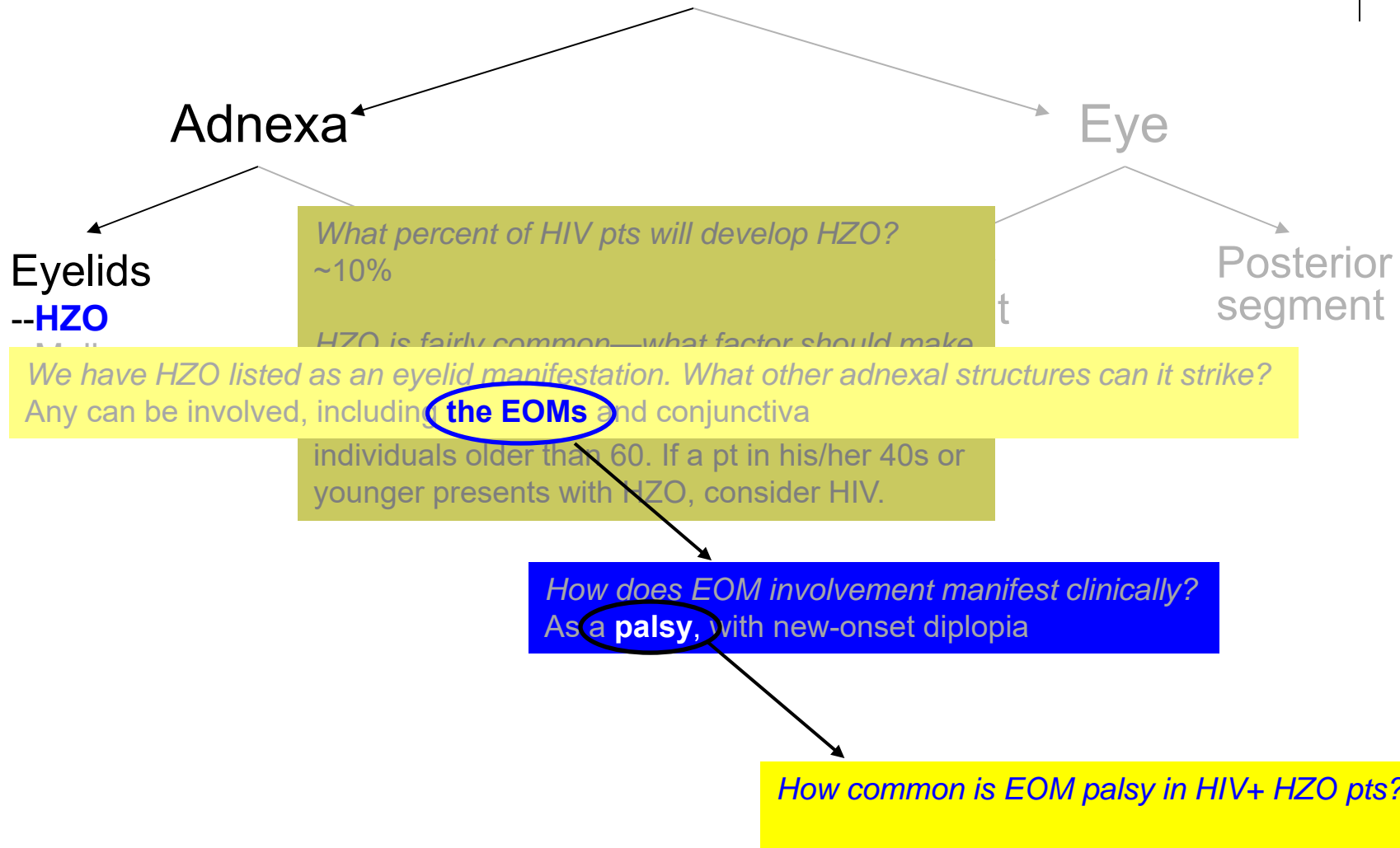
Ophthalmic HIV manifestations

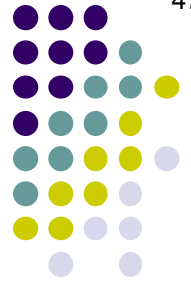




HIV and the Eye

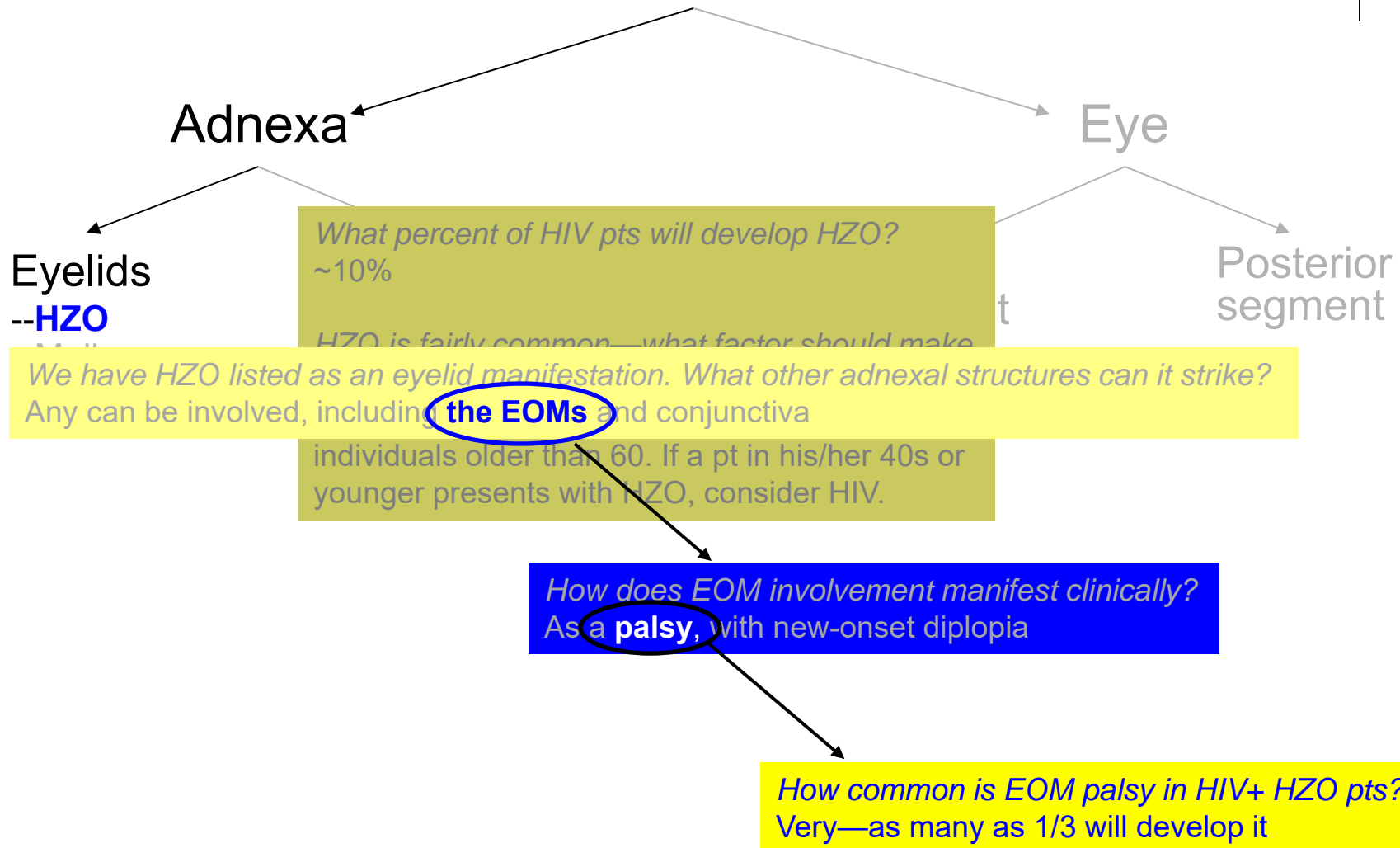
Ophthalmic HIV manifestations

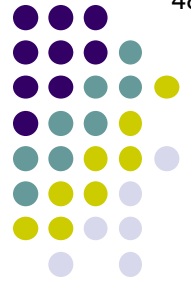




HIV and the Eye

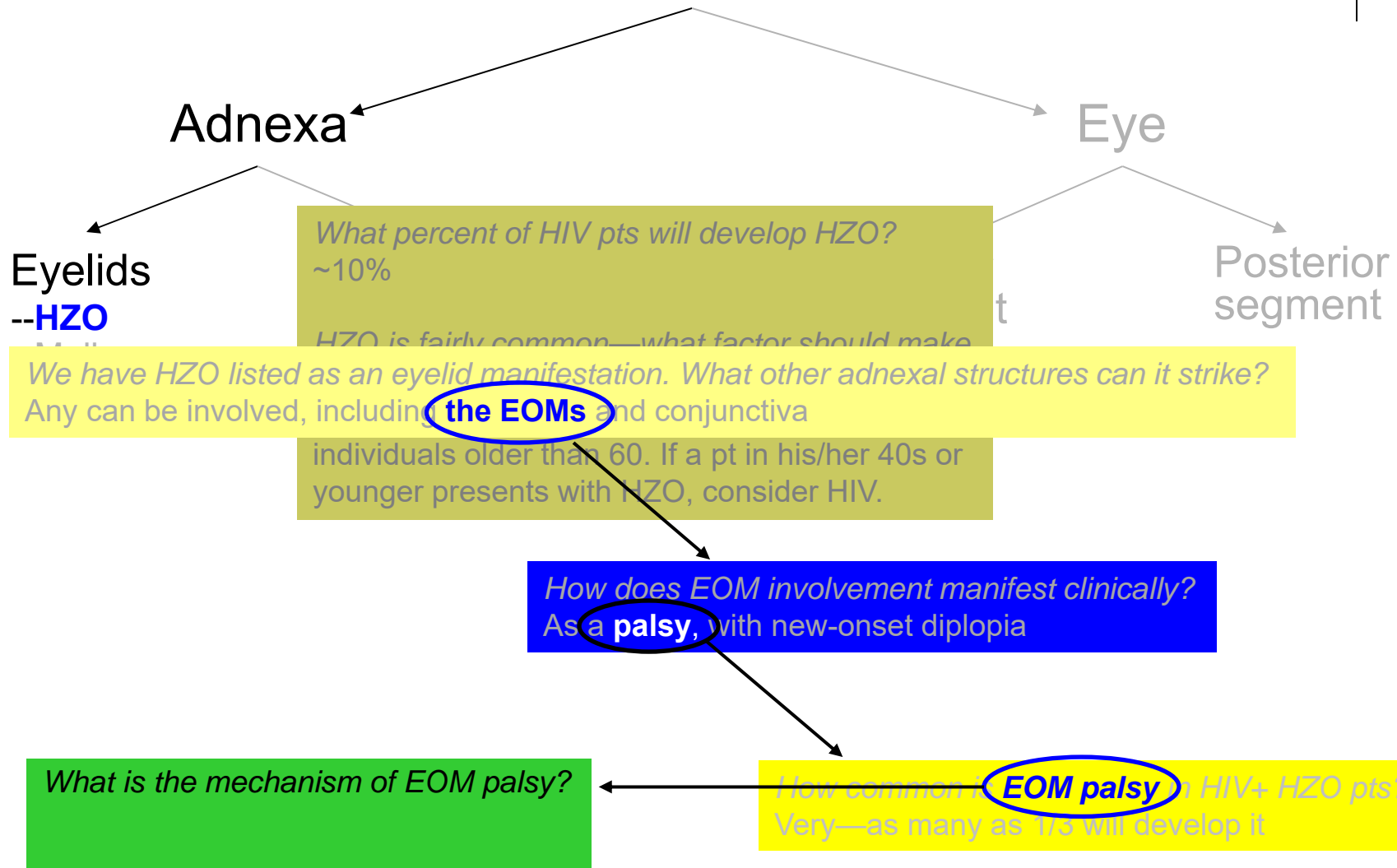
Ophthalmic HIV manifestations

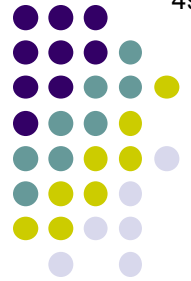




HIV and the Eye

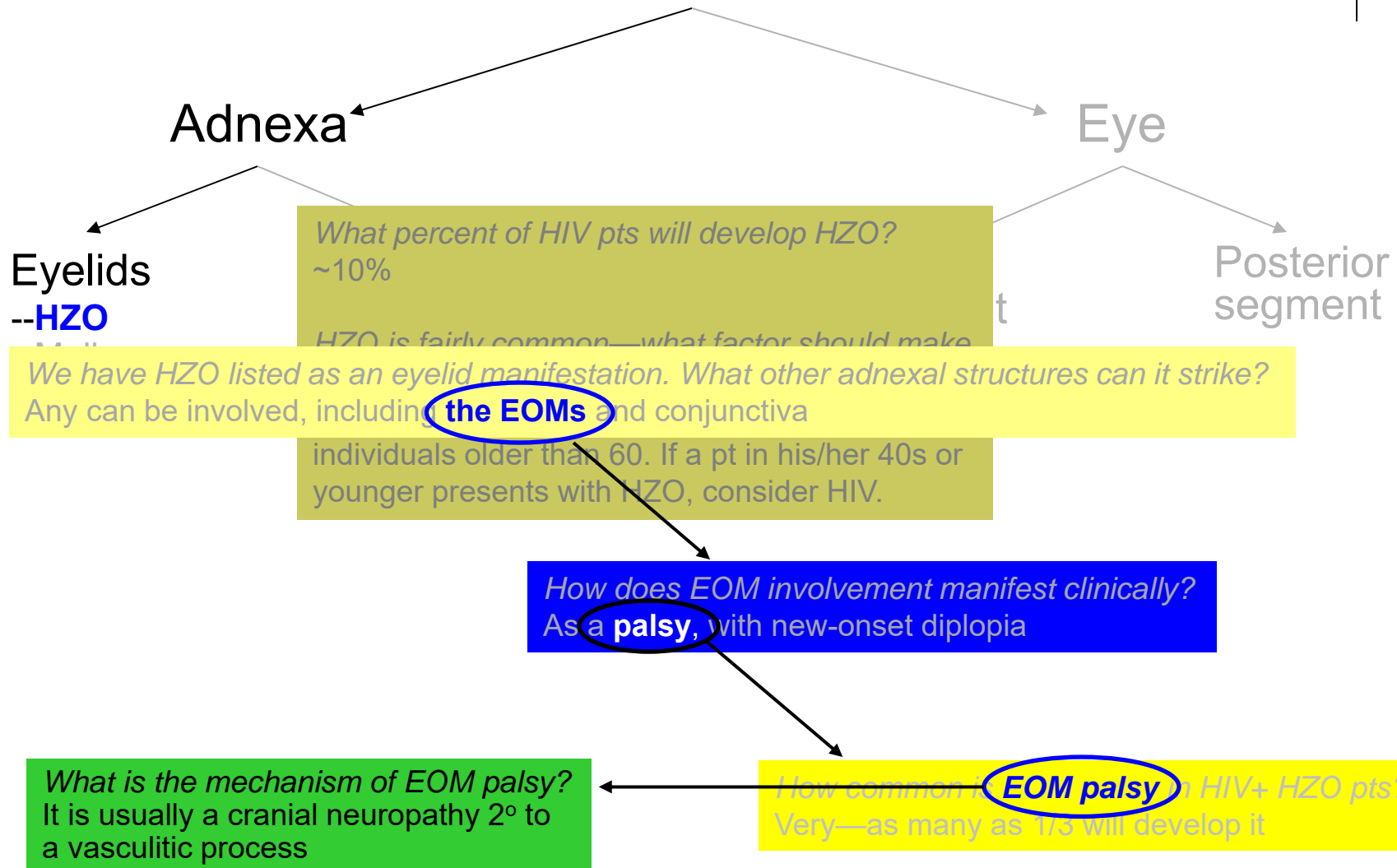
Ophthalmic HIV manifestations

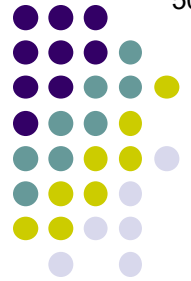




HIV and the Eye

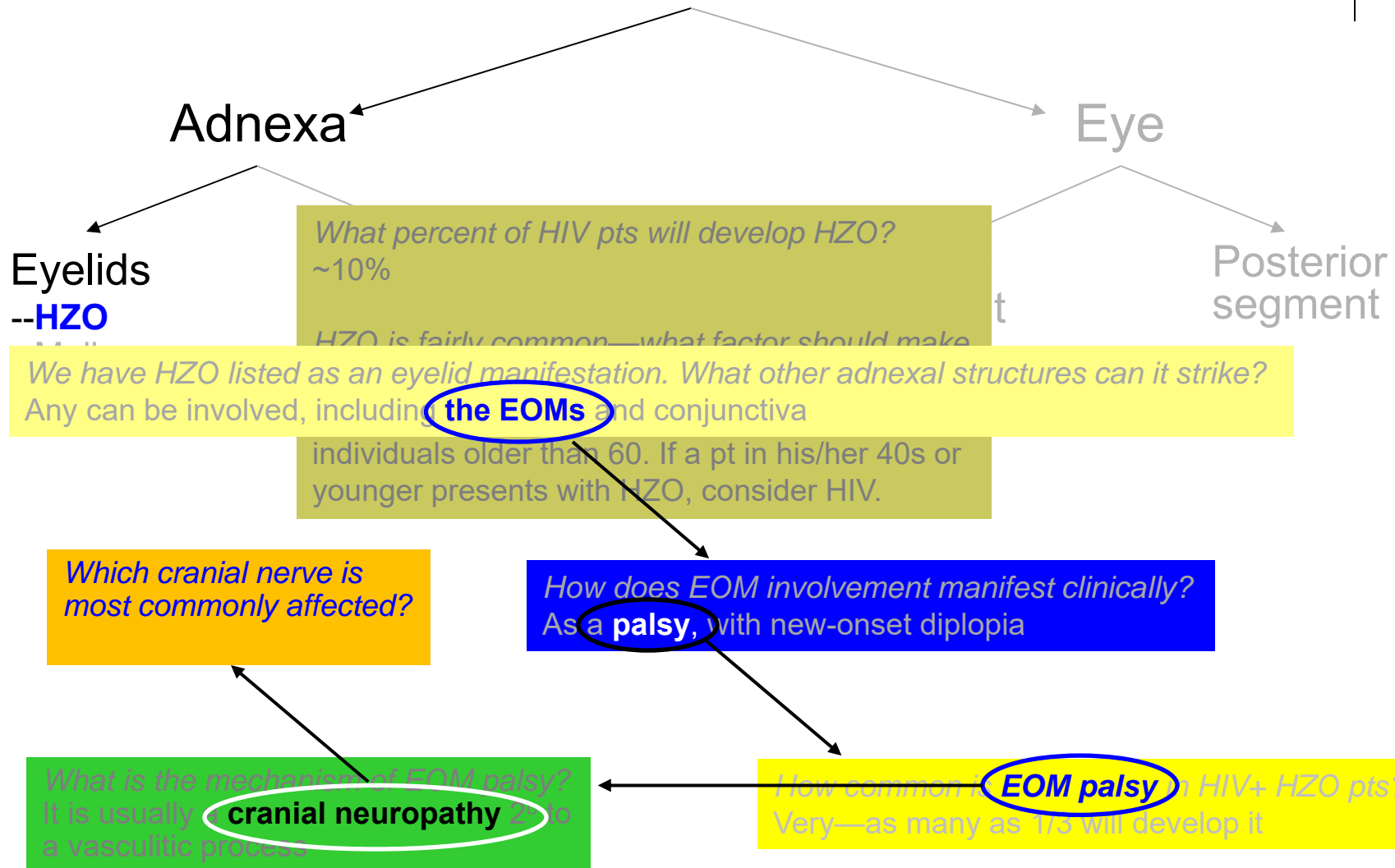
Ophthalmic HIV manifestations





HIV and the Eye

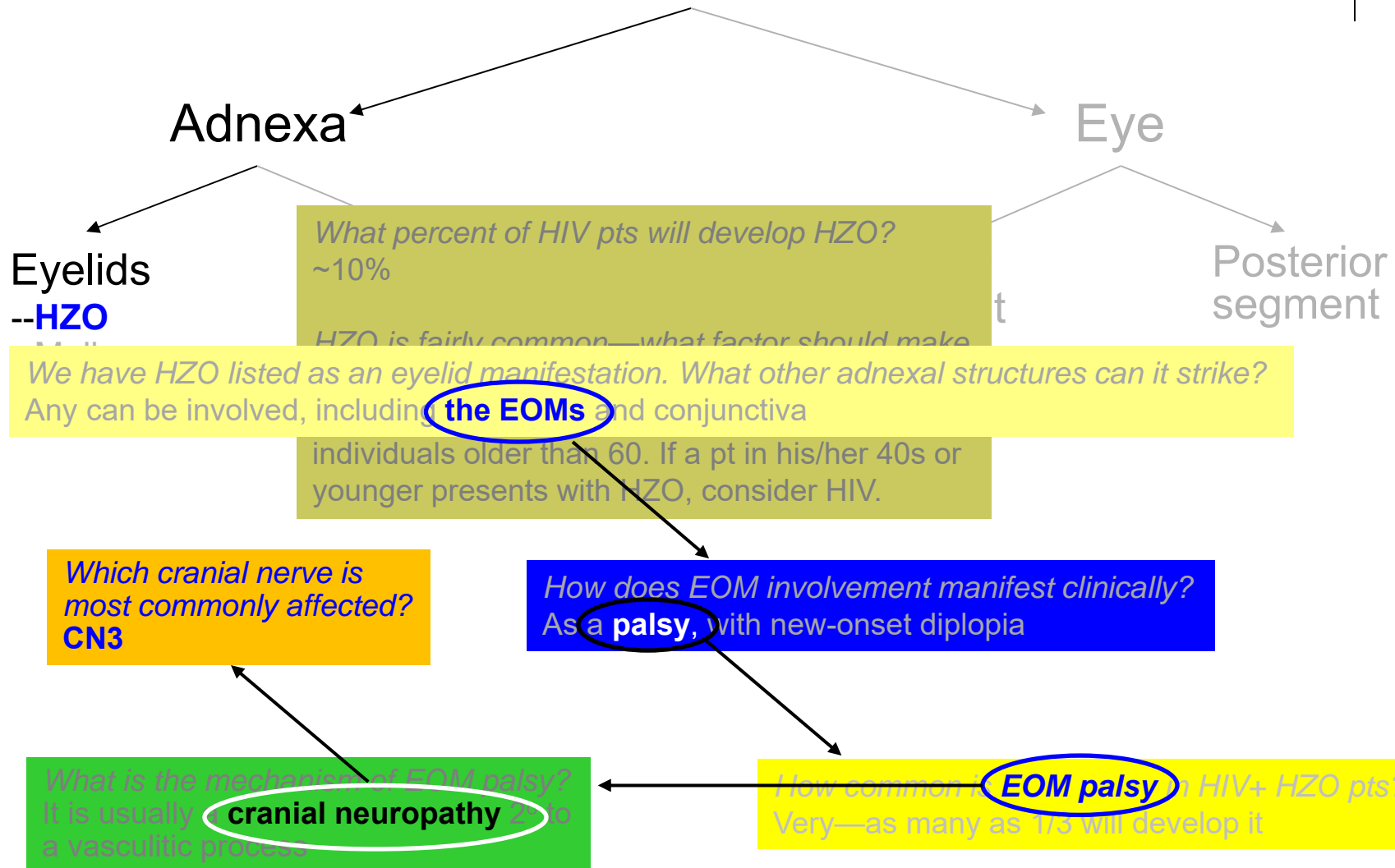
Ophthalmic HIV manifestations





HIV and the Eye

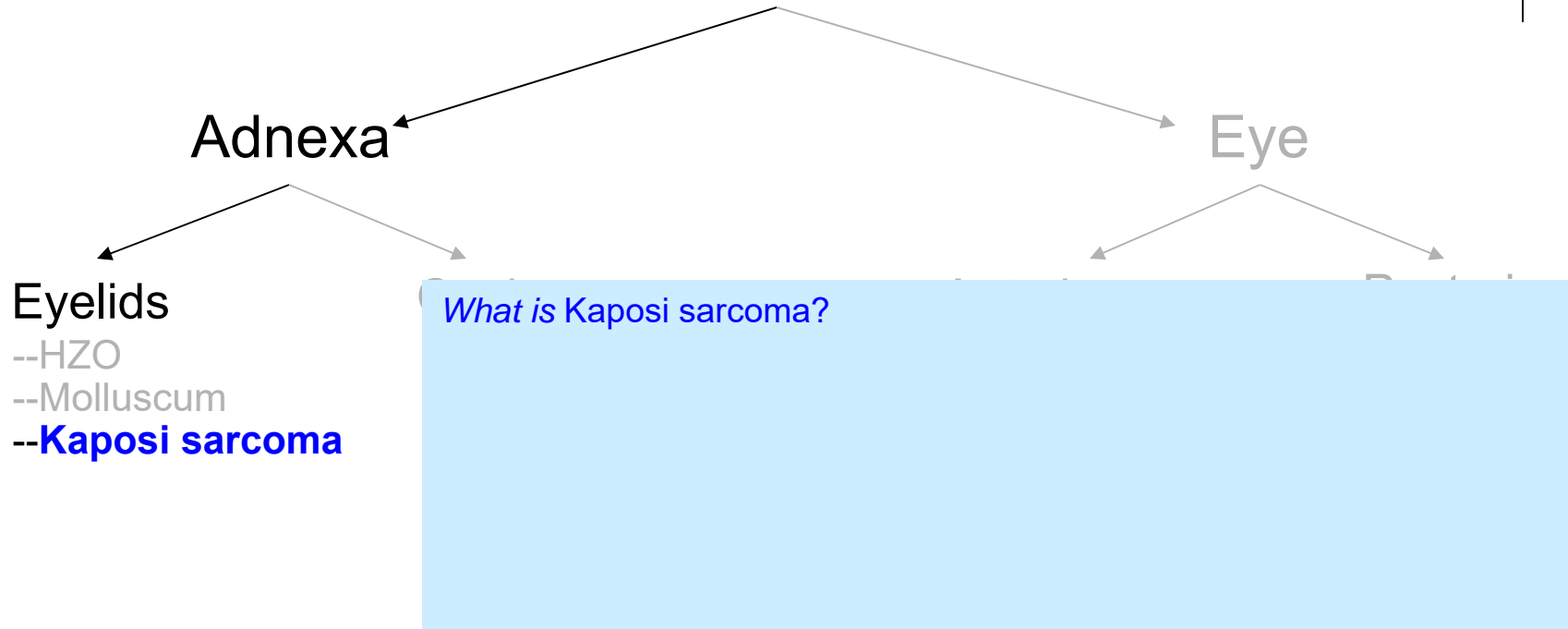
Ophthalmic HIV manifestations

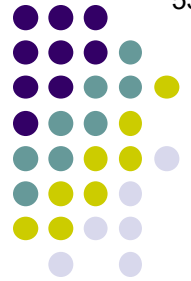




HIV and the Eye

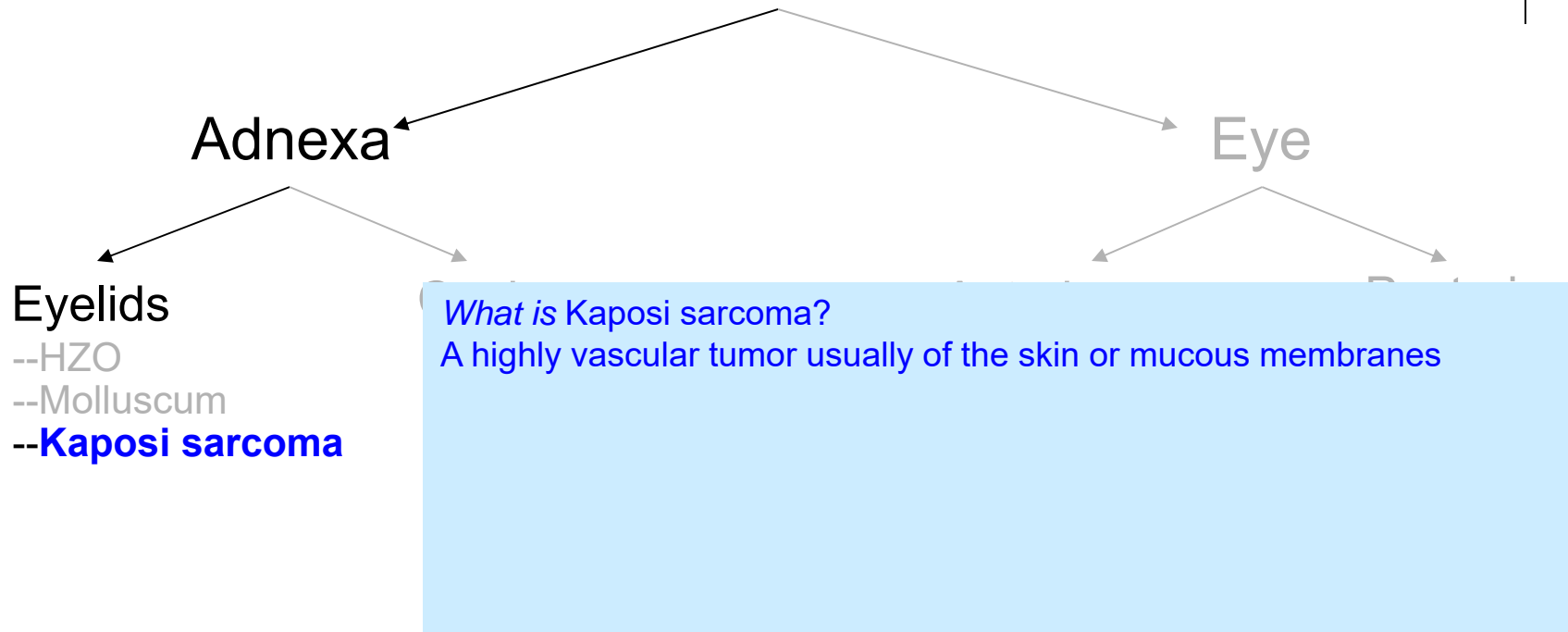
Ophthalmic HIV manifestations

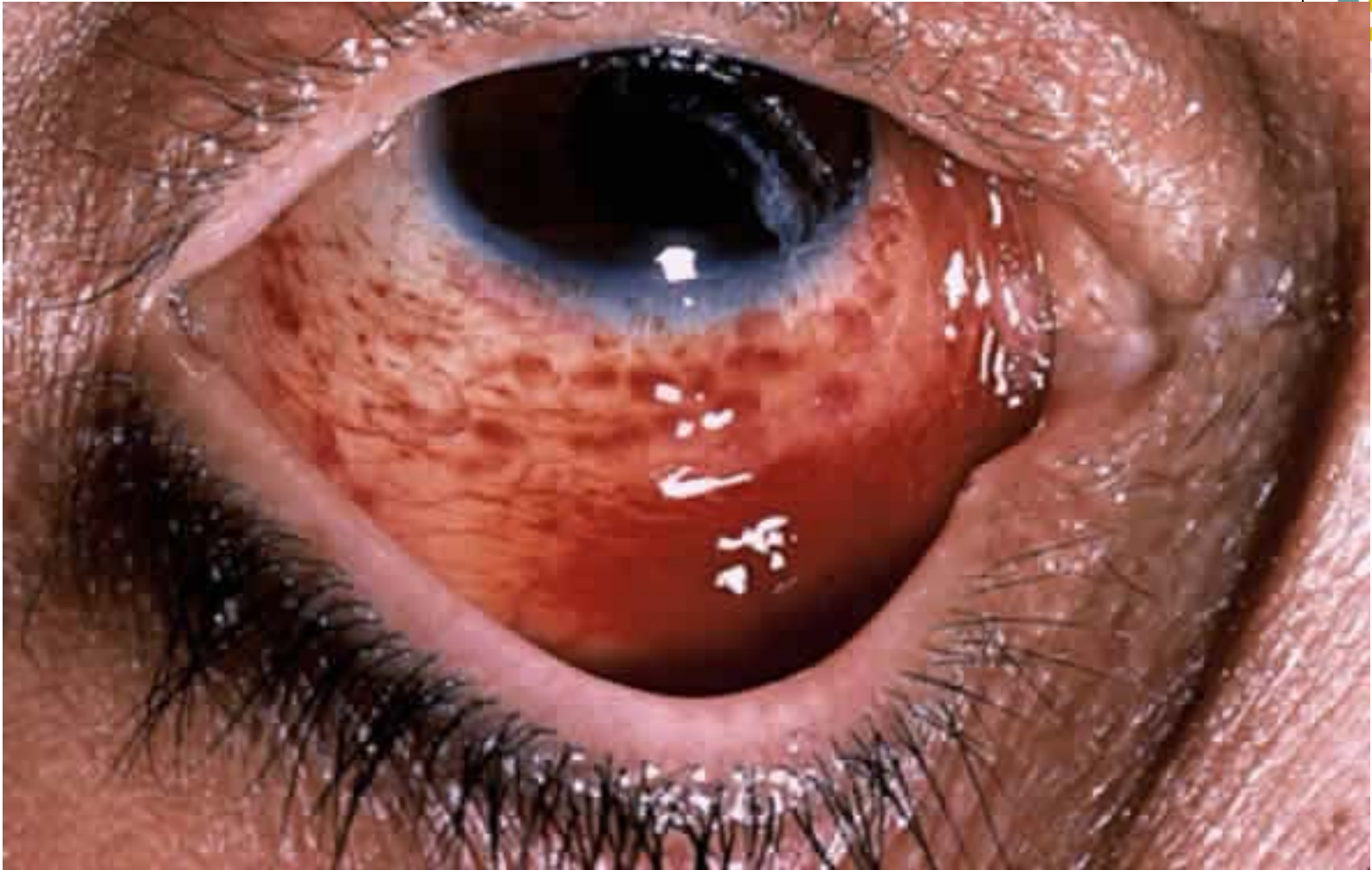




HIV and the Eye

Ophthalmic HIV manifestations

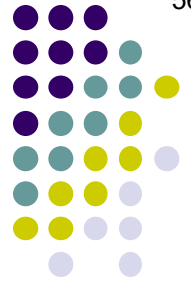




Kaposi's sarcoma in AIDS pt

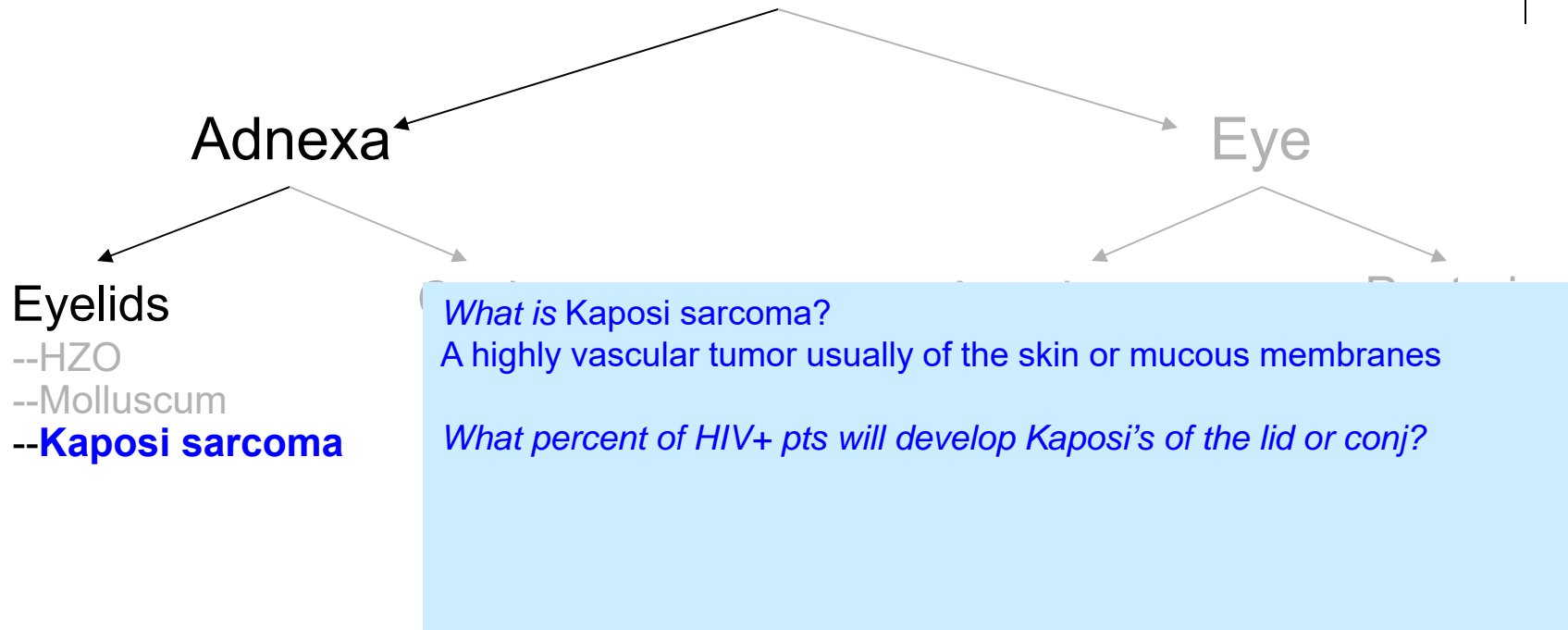


Kaposi's sarcoma in AIDS pt



HIV and the Eye

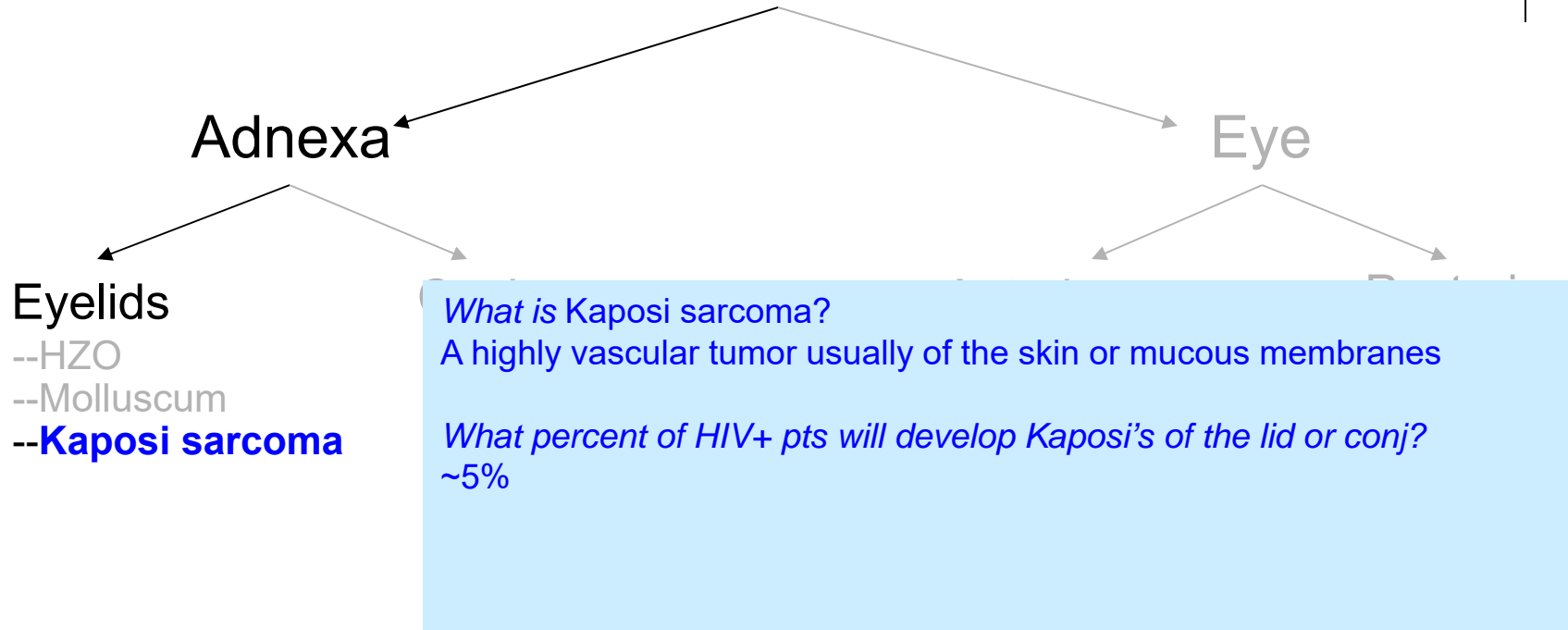
Ophthalmic HIV manifestations





HIV and the Eye

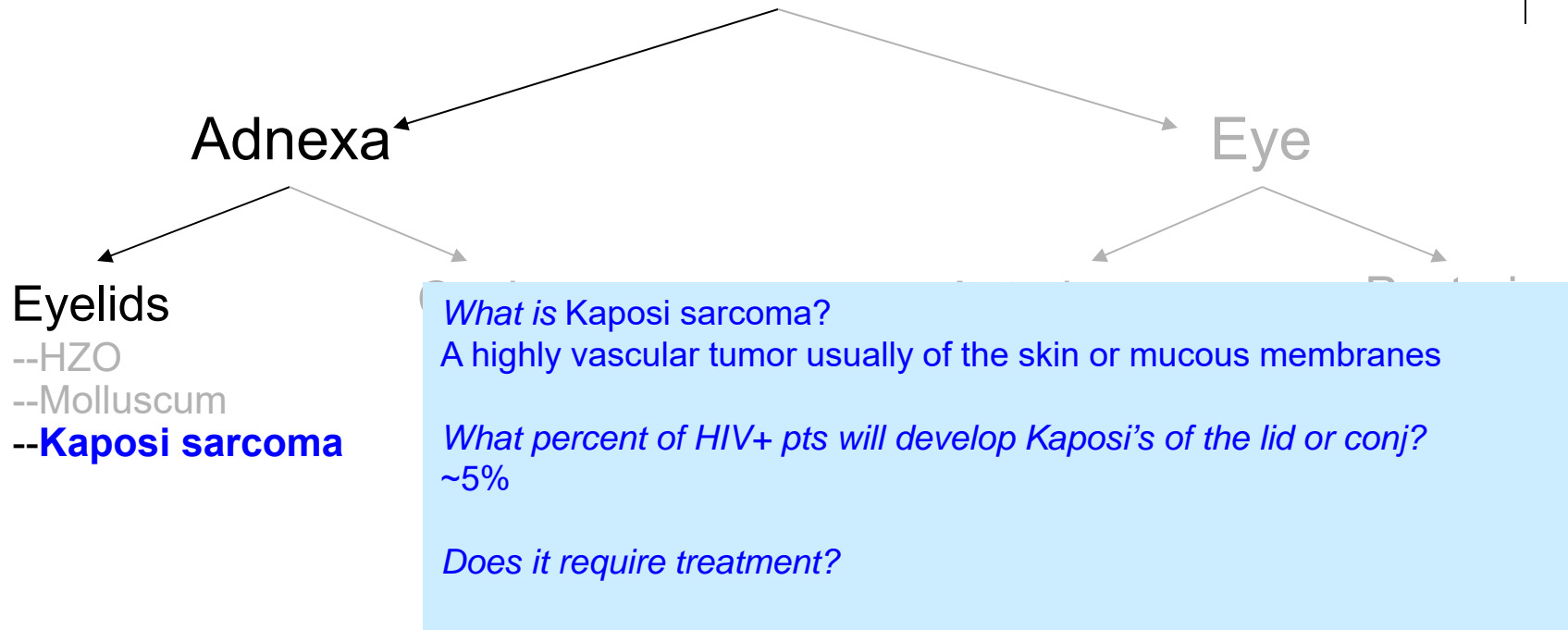
Ophthalmic HIV manifestations





HIV and the Eye

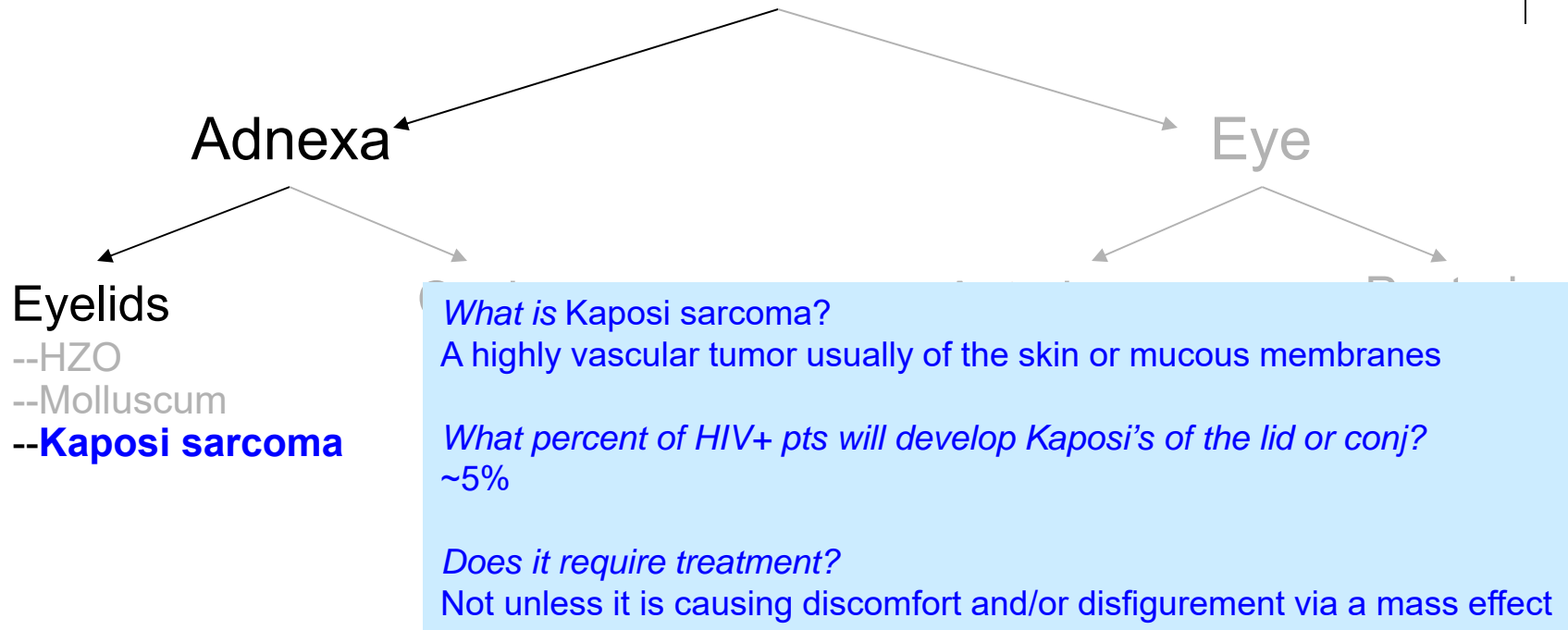
Ophthalmic HIV manifestations





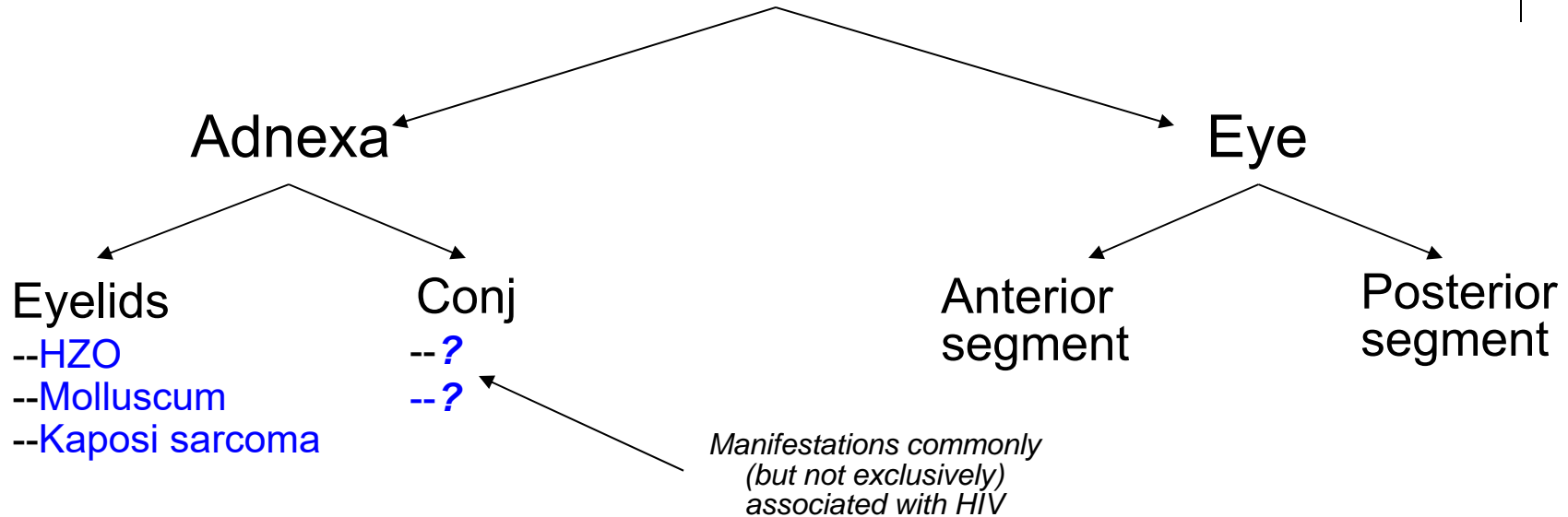
HIV and the Eye

Ophthalmic HIV manifestations



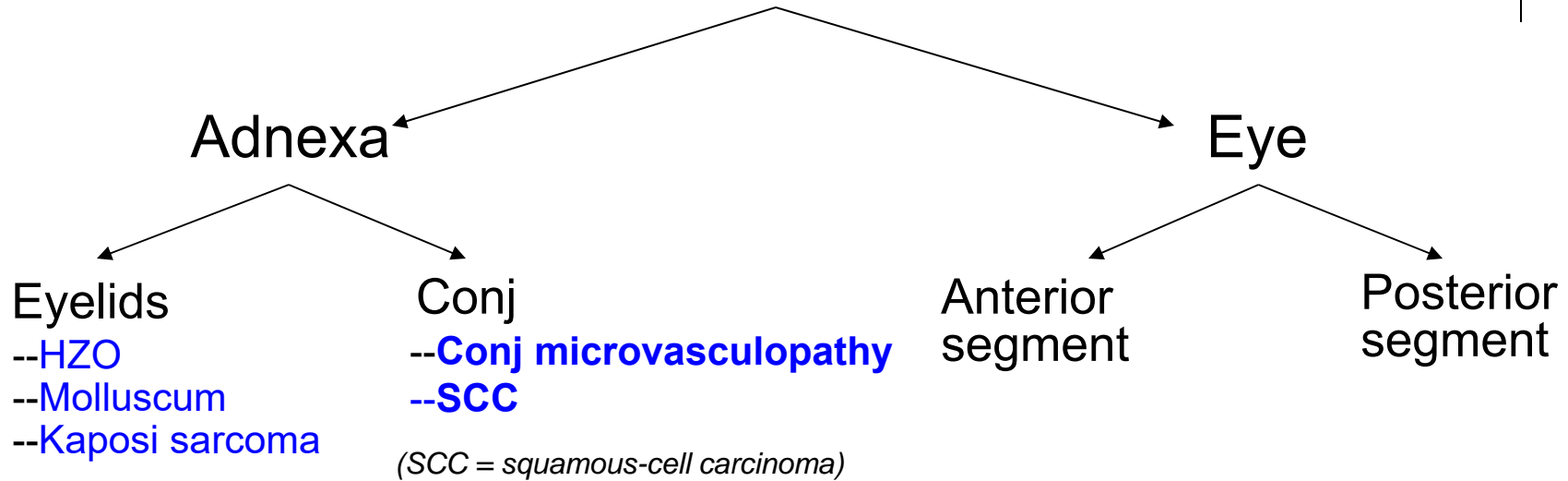
HIV and the Eye

Ophthalmic HIV manifestations



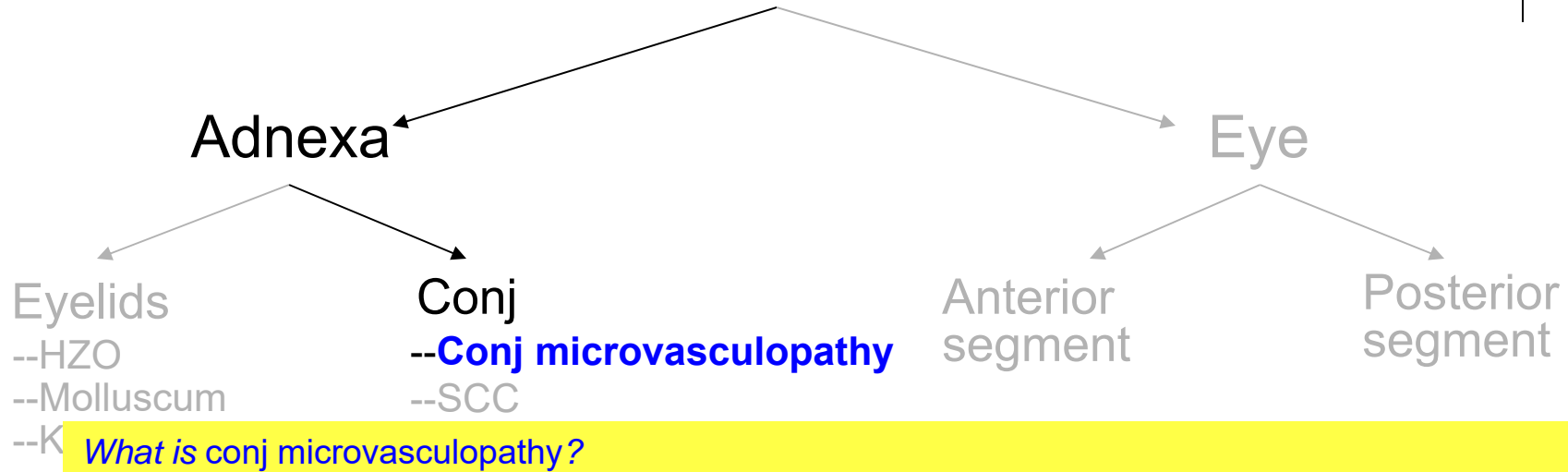
HIV and the Eye

Ophthalmic HIV manifestations



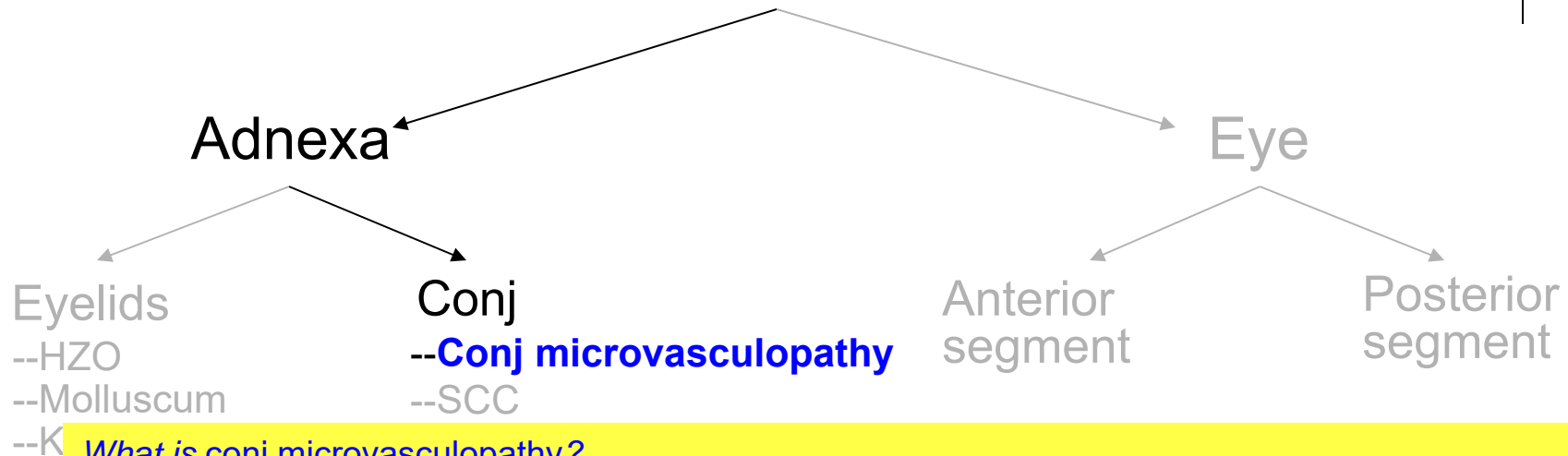
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations



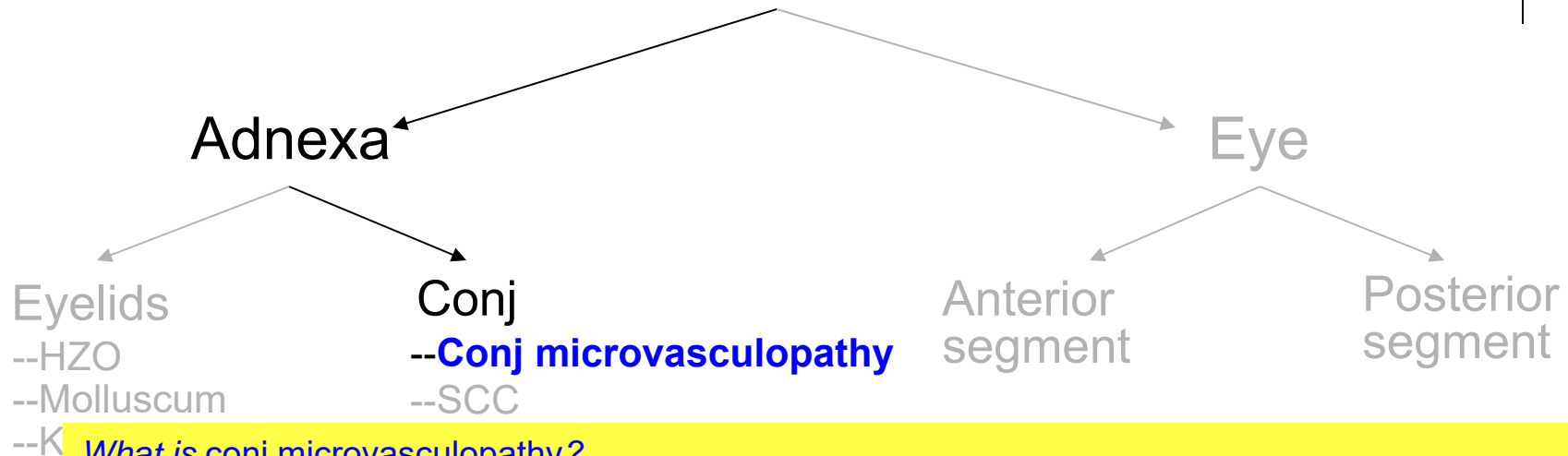
What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals



HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

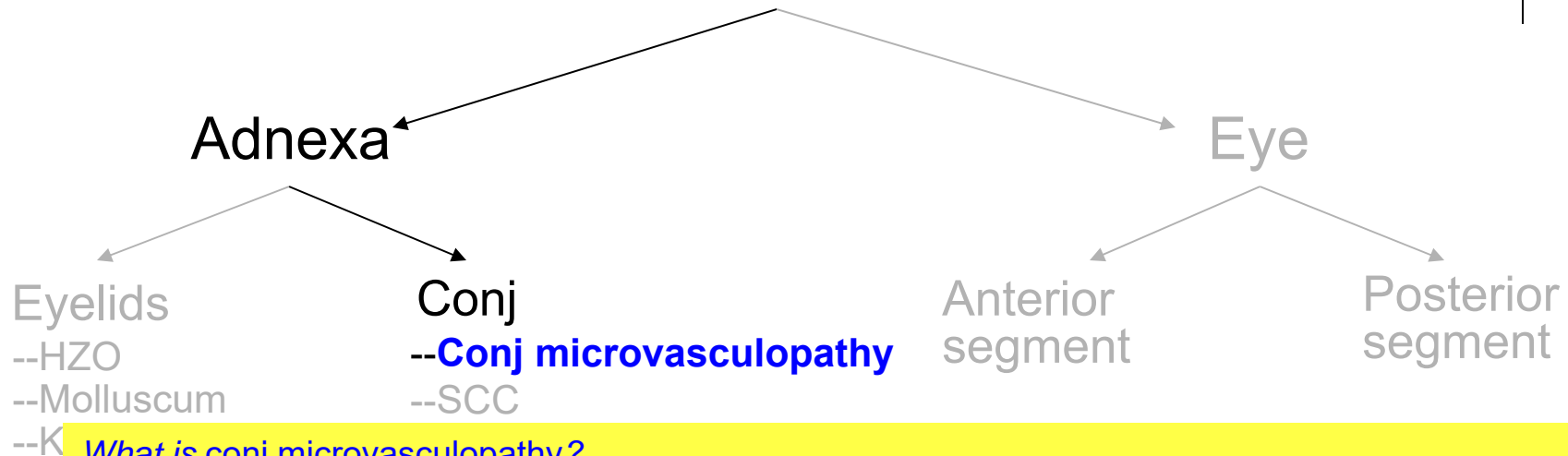
A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?



HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

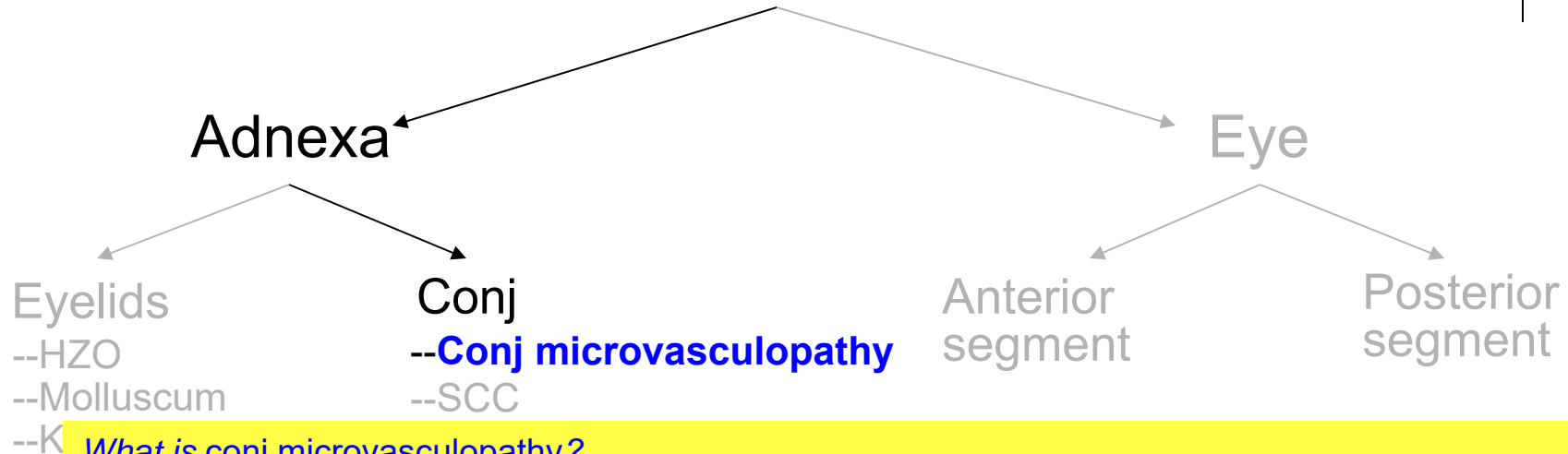
Is it common?

Very—it is found in up to 80% of HIV+ individuals



HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

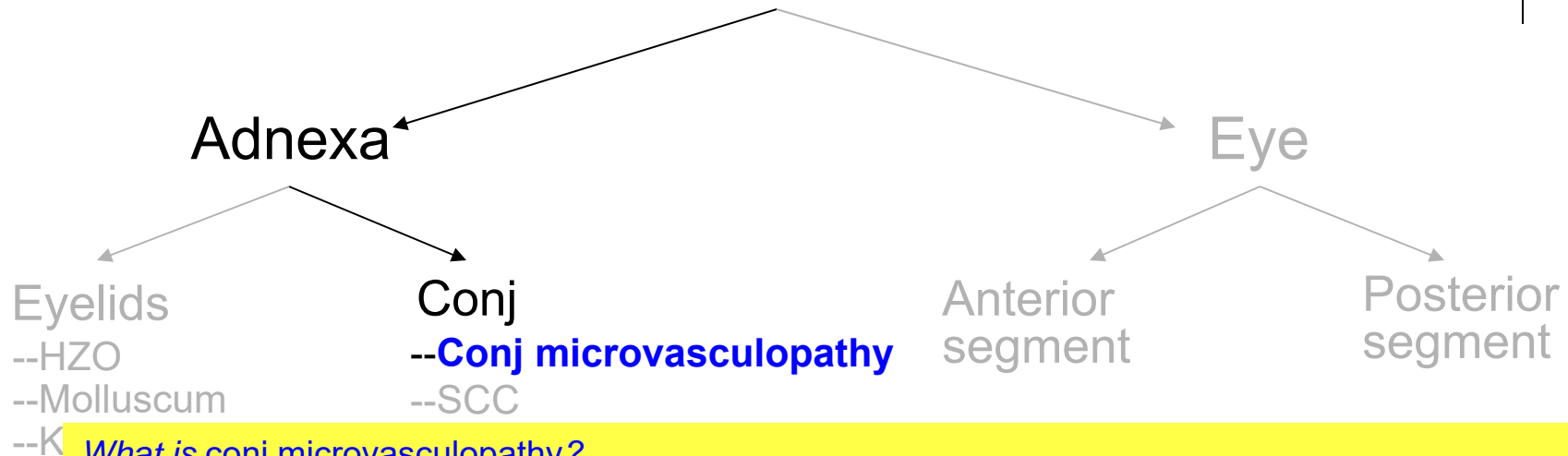
What sorts of changes comprise conj microvasculopathy?

--
--
--



HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

What sorts of changes comprise conj microvasculopathy?

--Changes in vessel caliber (ie, dilation and constriction)

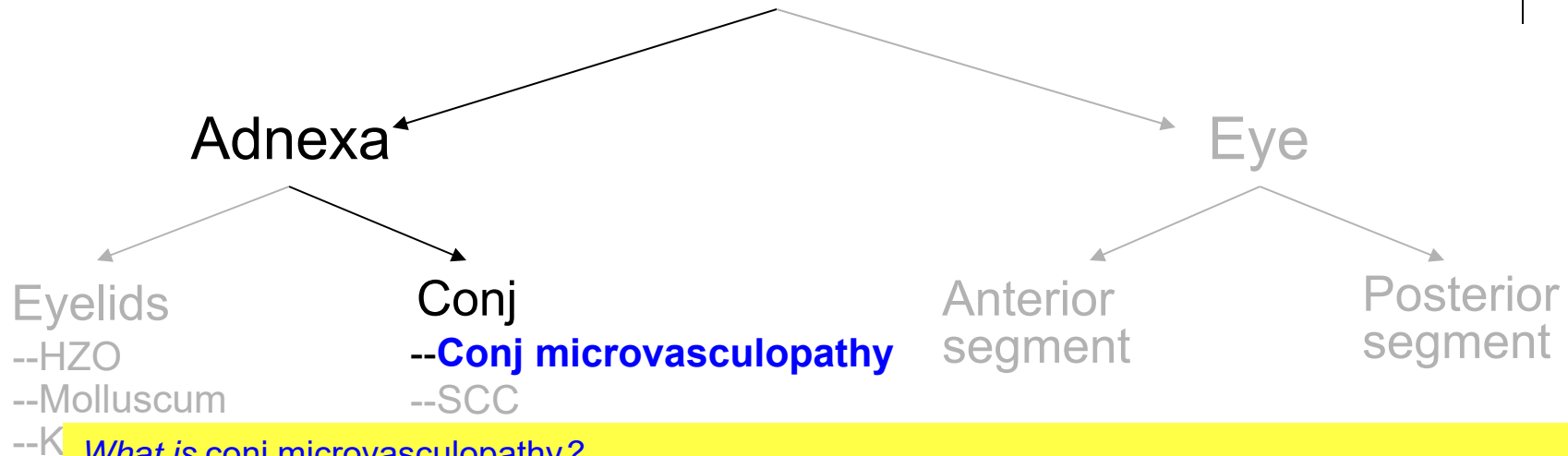
--Microaneurysms

--Comma sign



HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

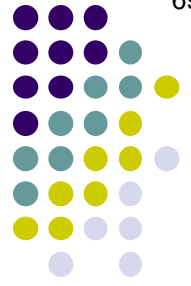
What sorts of changes comprise conj microvasculopathy?

--Changes in vessel caliber (ie, dilation and constriction)

--Microaneurysms

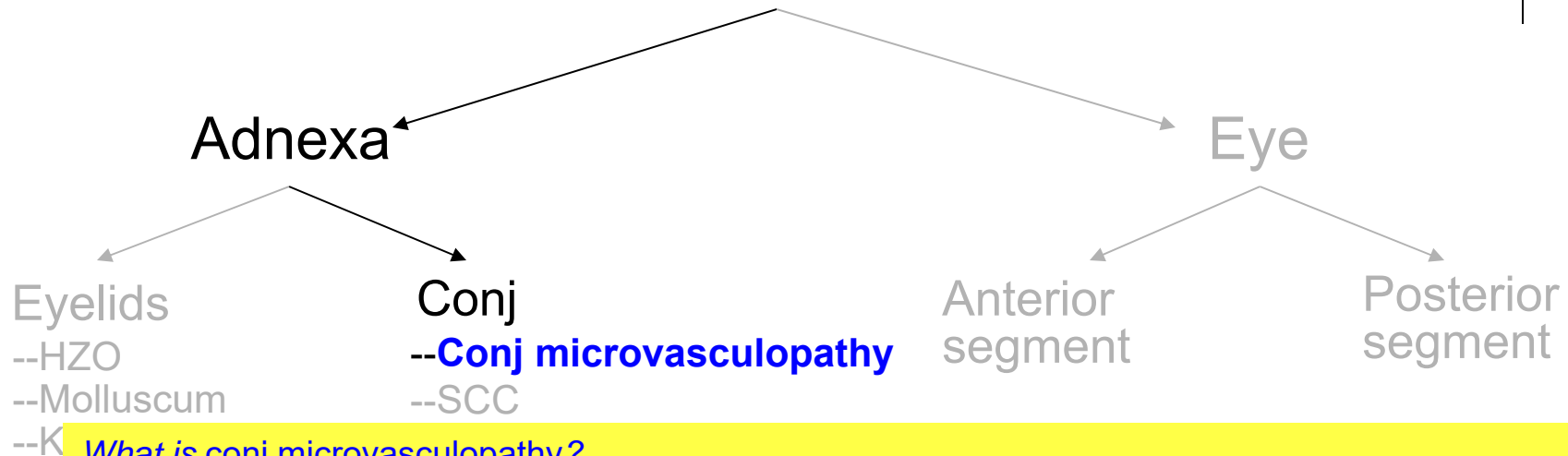
--**Comma sign**

What is comma sign?



HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

What sorts of changes comprise conj microvasculopathy?

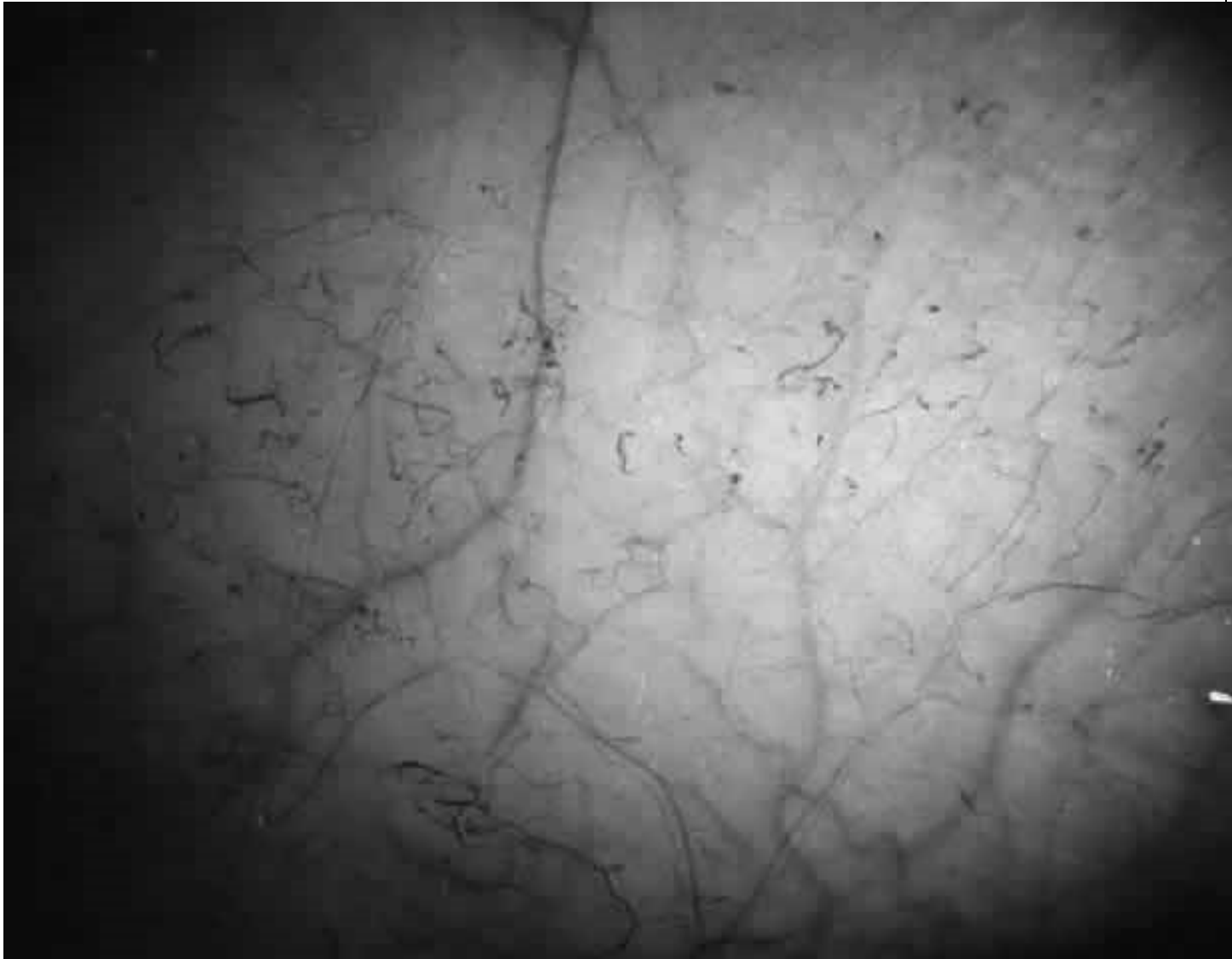
--Changes in vessel caliber (ie, dilation and constriction)

--Microaneurysms

--**Comma sign**

What is comma sign?

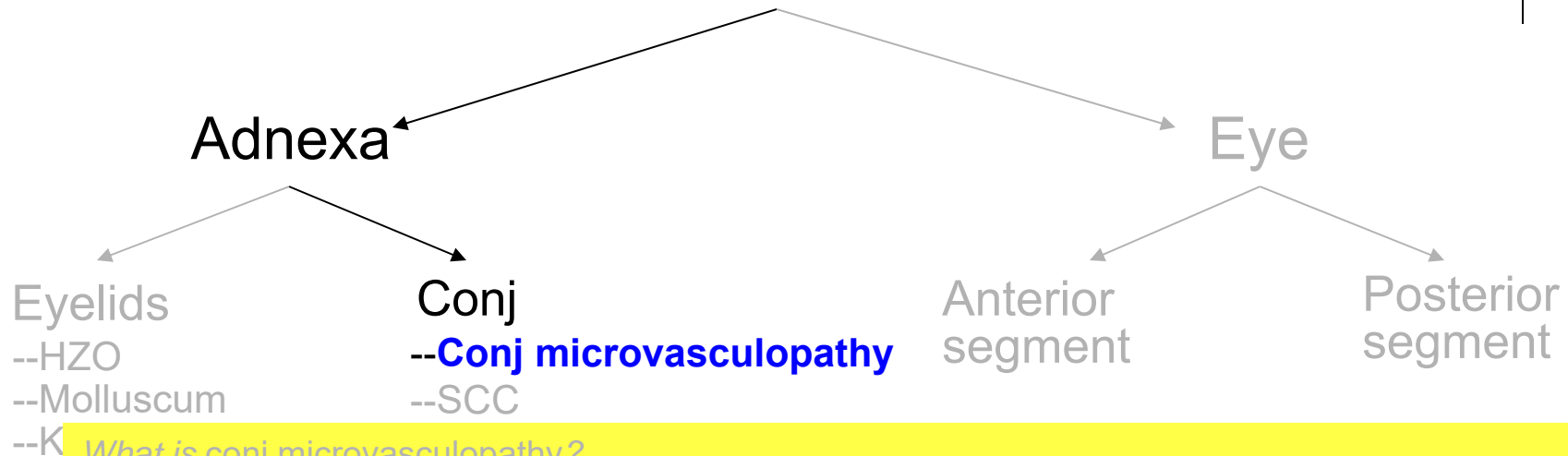
Discrete short segments of perfused venules; their curved configuration is reminiscent of a comma



Conjunctival microvasculopathy in AIDS pt: Comma sign

HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

What sorts of changes comprise conj microvasculopathy?

- Changes in vessel caliber (ie, c
- Microaneurysms
- Comma sign

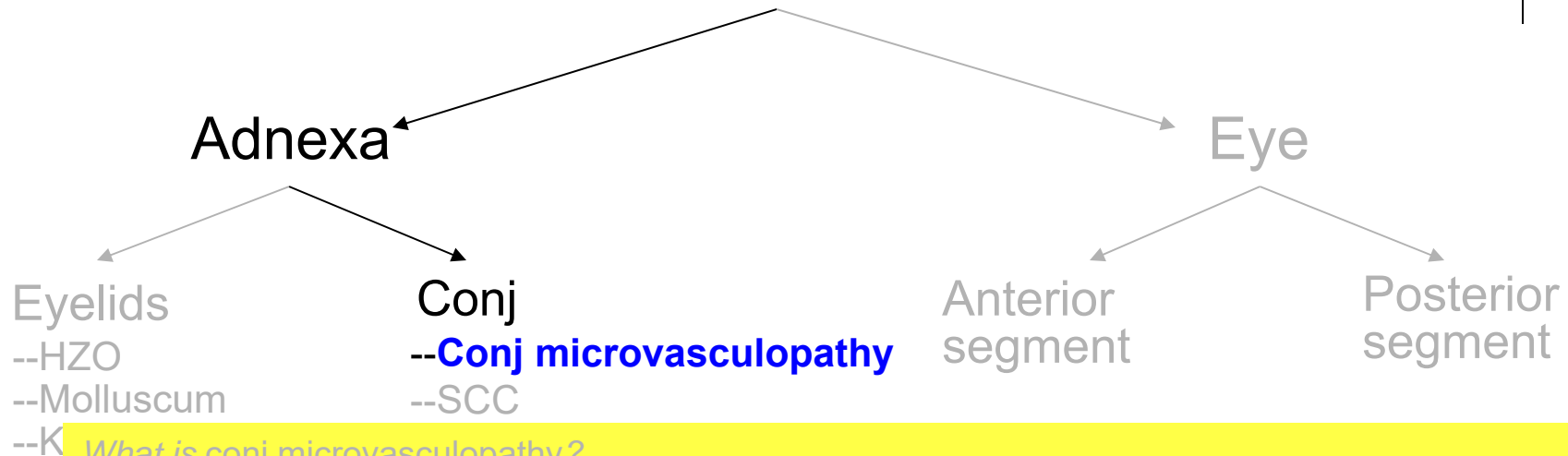
With what other disease is comma sign a well-known finding?

What is comma sign?

Discrete short segments of perfused venules, their curved configuration is reminiscent of a comma

HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

What sorts of changes comprise conj microvasculopathy?

- Changes in vessel caliber (ie, c
- Microaneurysms
- Comma sign

With what other disease is comma sign a well-known finding?

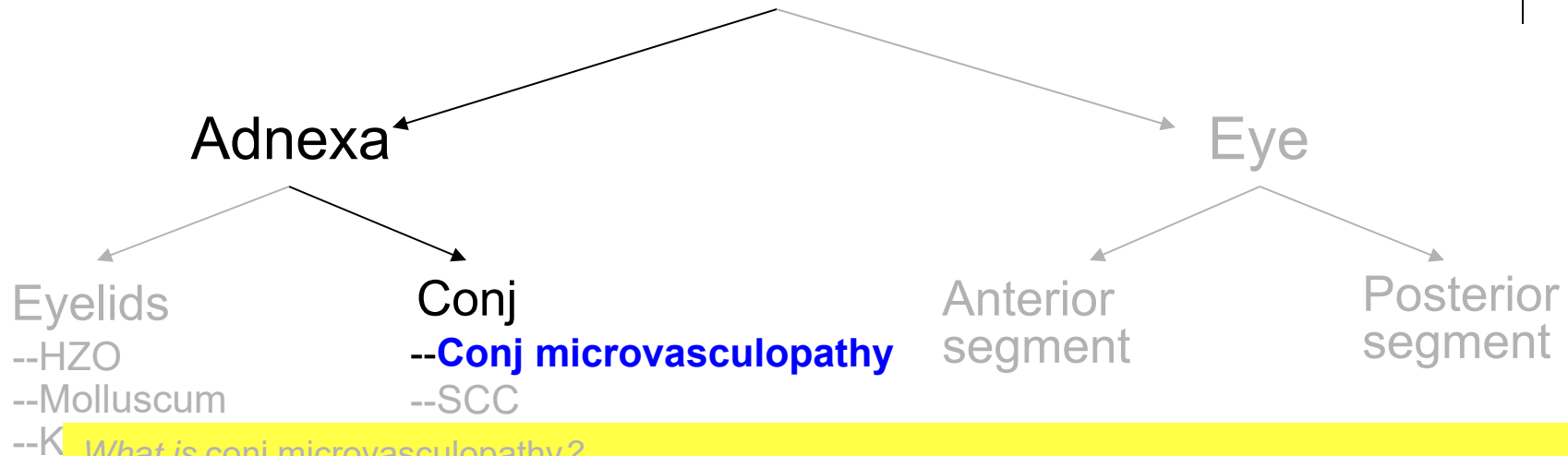
Sickle cell

What is comma sign?

Discrete short segments of perfused venules, their curved configuration is reminiscent of a comma

HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

What sorts of changes comprise conj microvasculopathy?

- Changes in vessel caliber (ie, c
- Microaneurysms
- Comma sign

With what other disease is comma sign a well-known finding?

Sickle cell

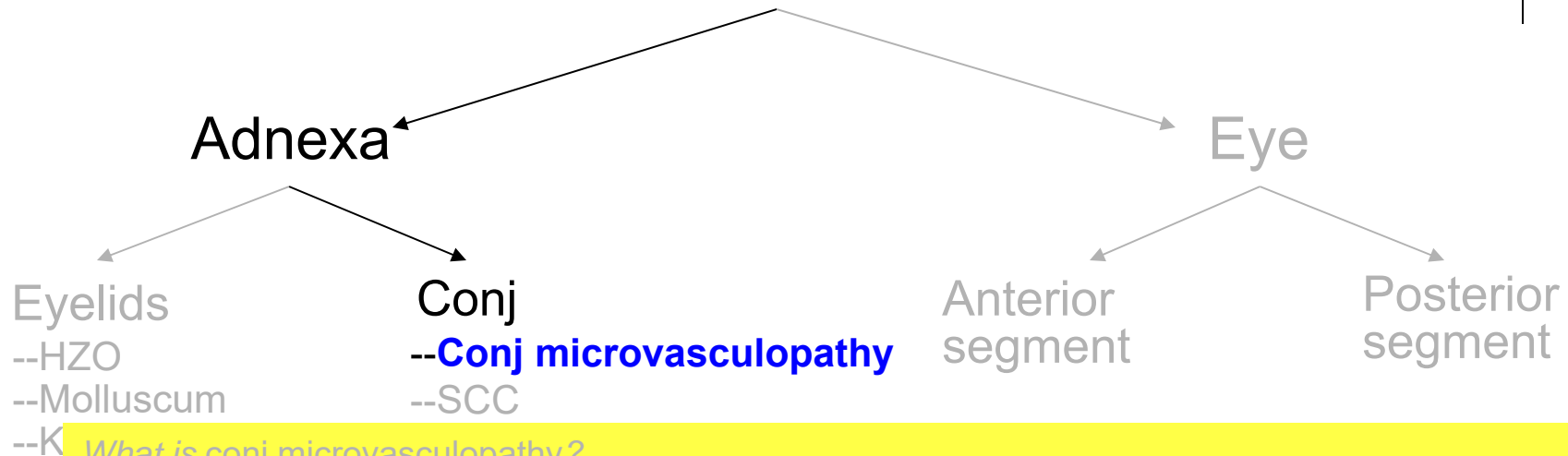
Are conj microaneurysms and caliber changes found in sickle dz too?

*What is **comma sign**?*

Discrete short segments of perfused venules, their curved configuration is reminiscent of a comma

HIV and the Eye

Ophthalmic HIV manifestations



What is conj microvasculopathy?

A general term for a constellation of changes commonly seen in the conj vasculature of HIV+ individuals

Is it common?

Very—it is found in up to 80% of HIV+ individuals

What sorts of changes comprise conj microvasculopathy?

- Changes in vessel caliber (ie, c
- Microaneurysms
- Comma sign

With what other disease is comma sign a well-known finding?

Sickle cell

Are conj microaneurysms and caliber changes found in sickle dz too?

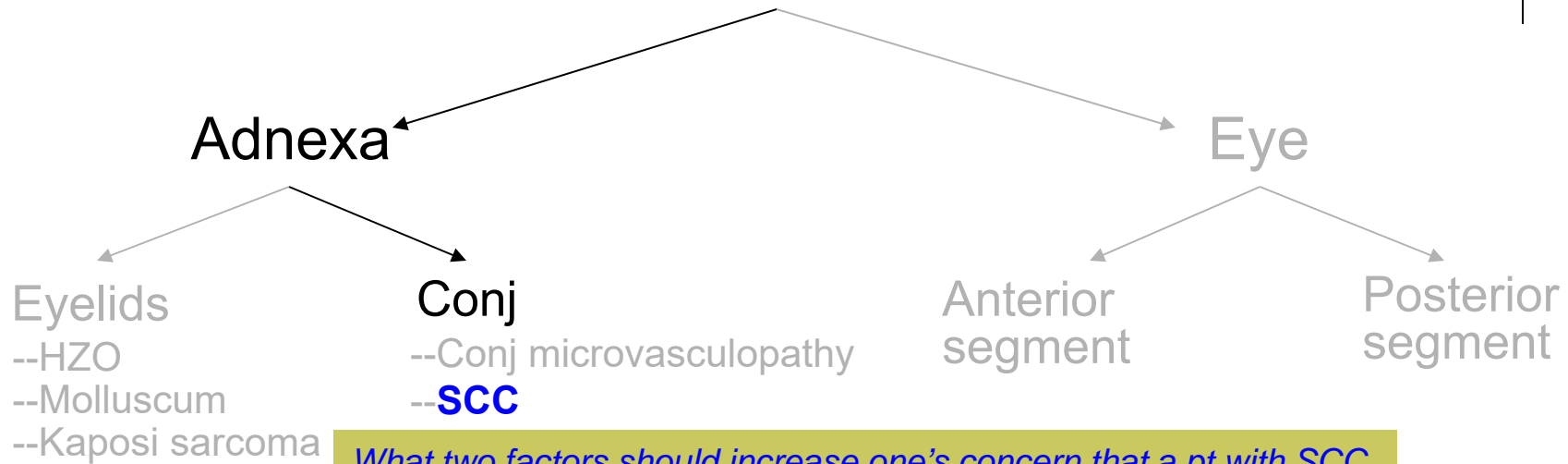
Yes

What is **comma sign**?

Discrete short segments of perfused venules, their curved configuration is reminiscent of a comma

HIV and the Eye

Ophthalmic HIV manifestations



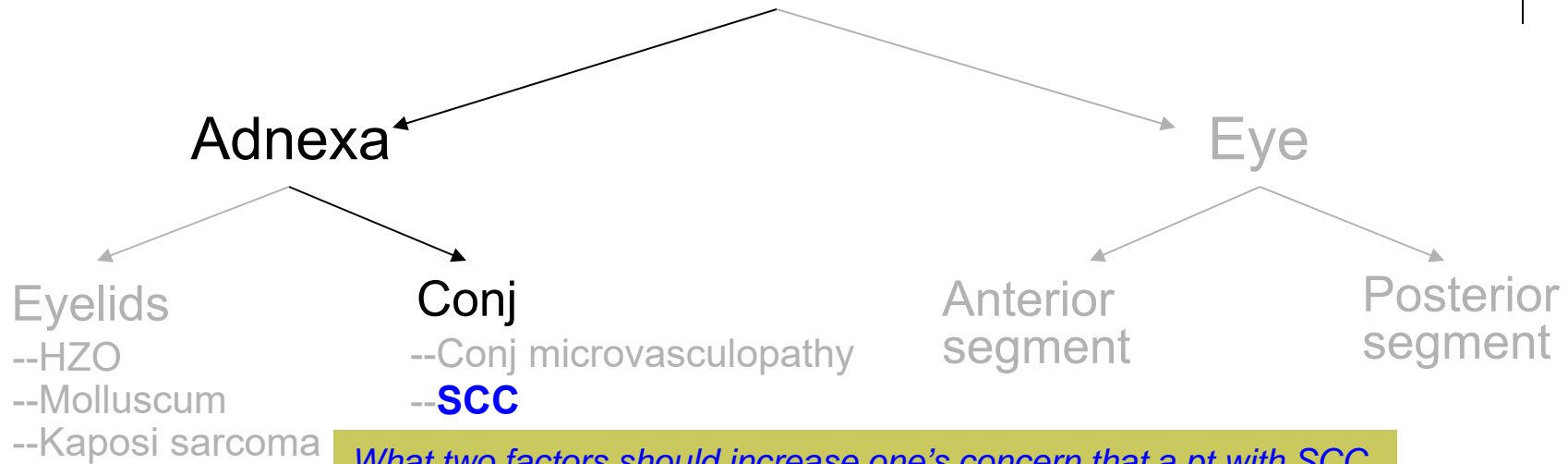
What two factors should increase one's concern that a pt with SCC of the conj might also have AIDS?

--
--



HIV and the Eye

Ophthalmic HIV manifestations



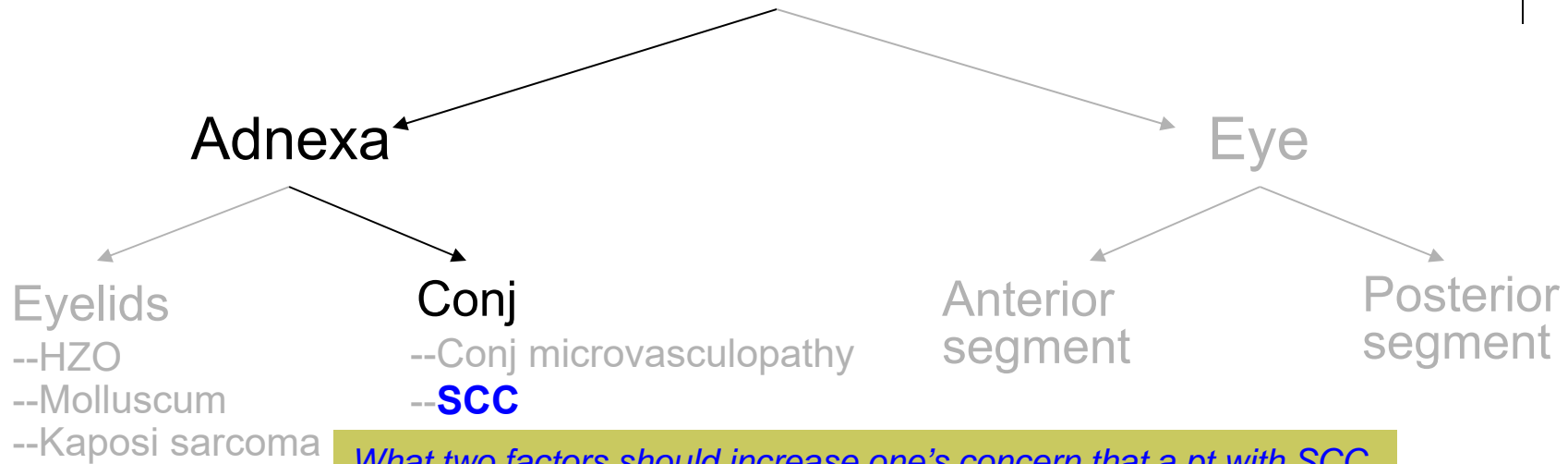
What two factors should increase one's concern that a pt with SCC of the conj might also have AIDS?

--If the individual is from region of a continent

--If the individual is less than age

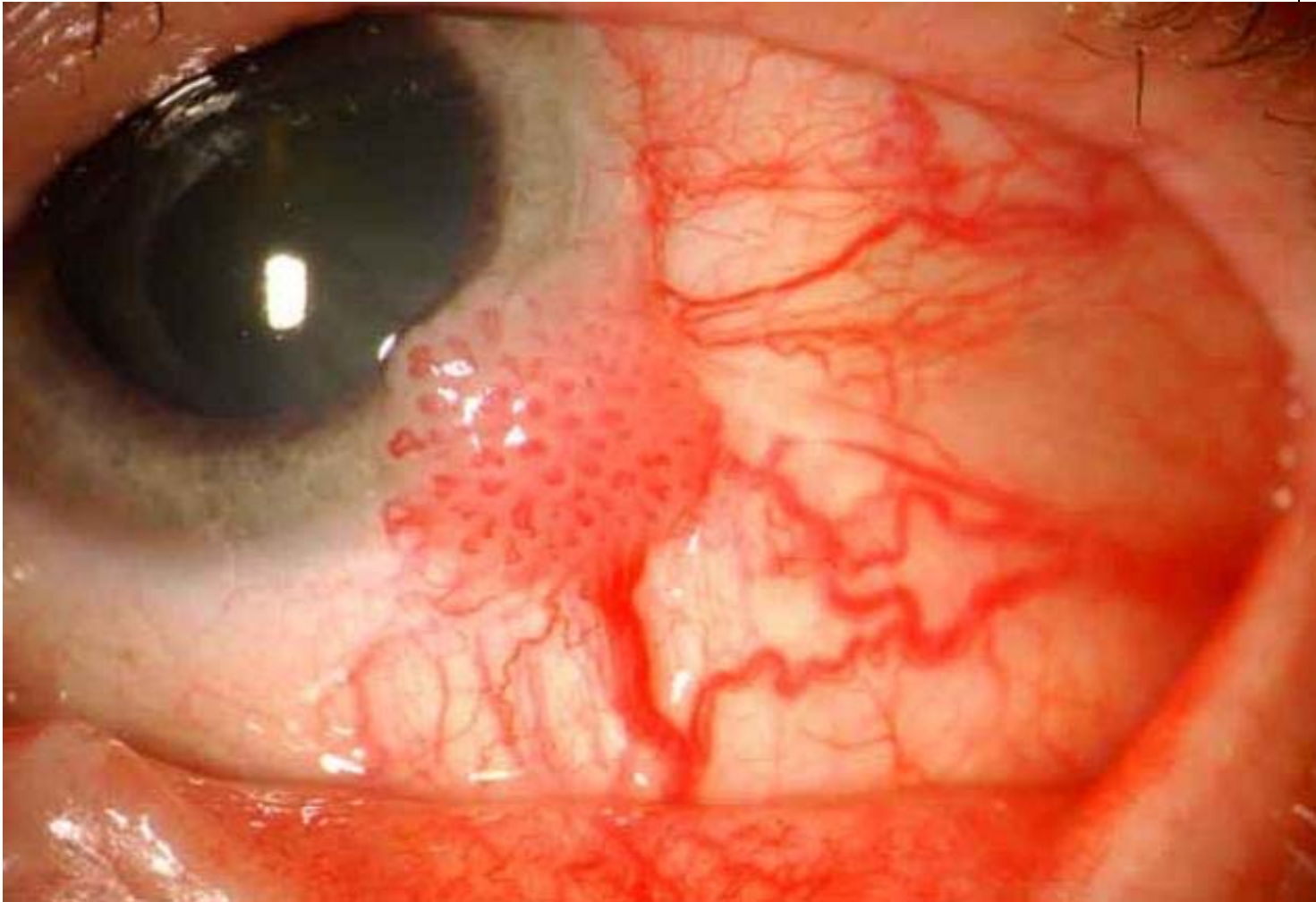
HIV and the Eye

Ophthalmic HIV manifestations



What two factors should increase one's concern that a pt with SCC of the conj might also have AIDS?

- If the individual is from sub-Saharan Africa
- If the individual is less than 50 years old

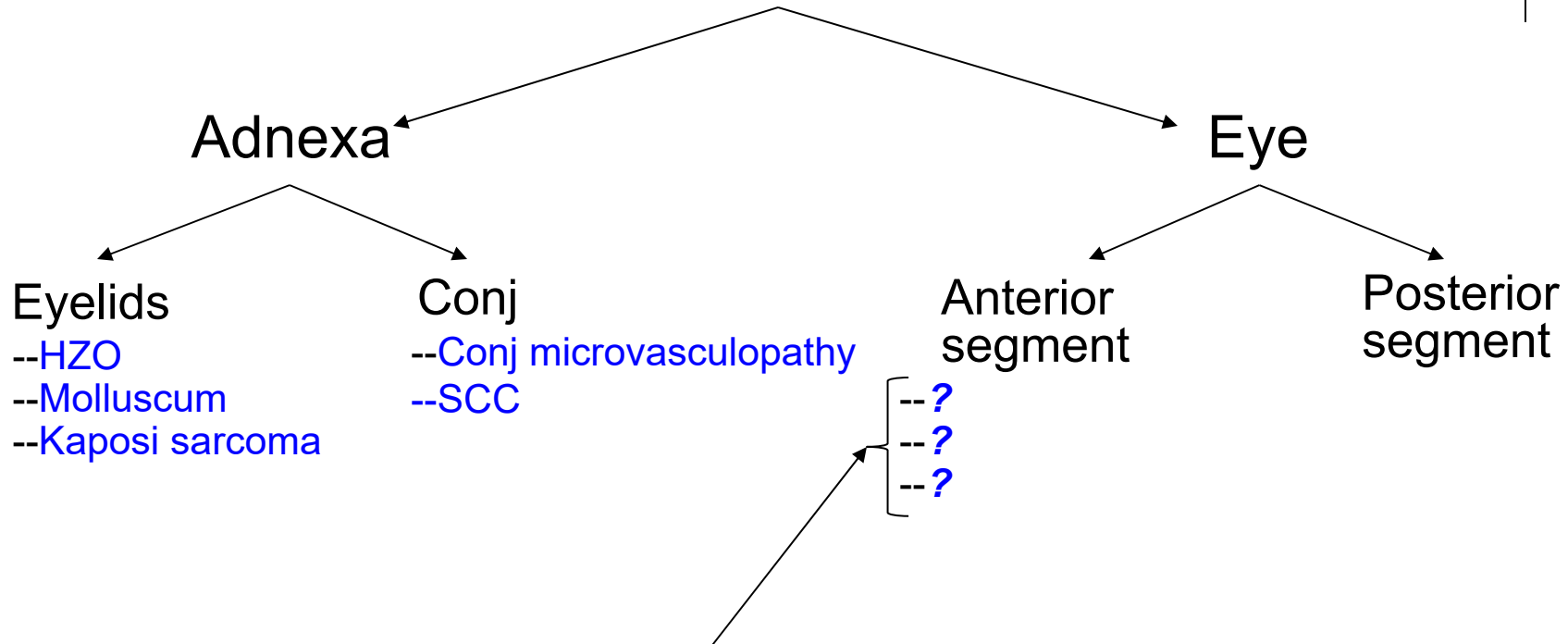


Squamous cell carcinoma of conj



HIV and the Eye

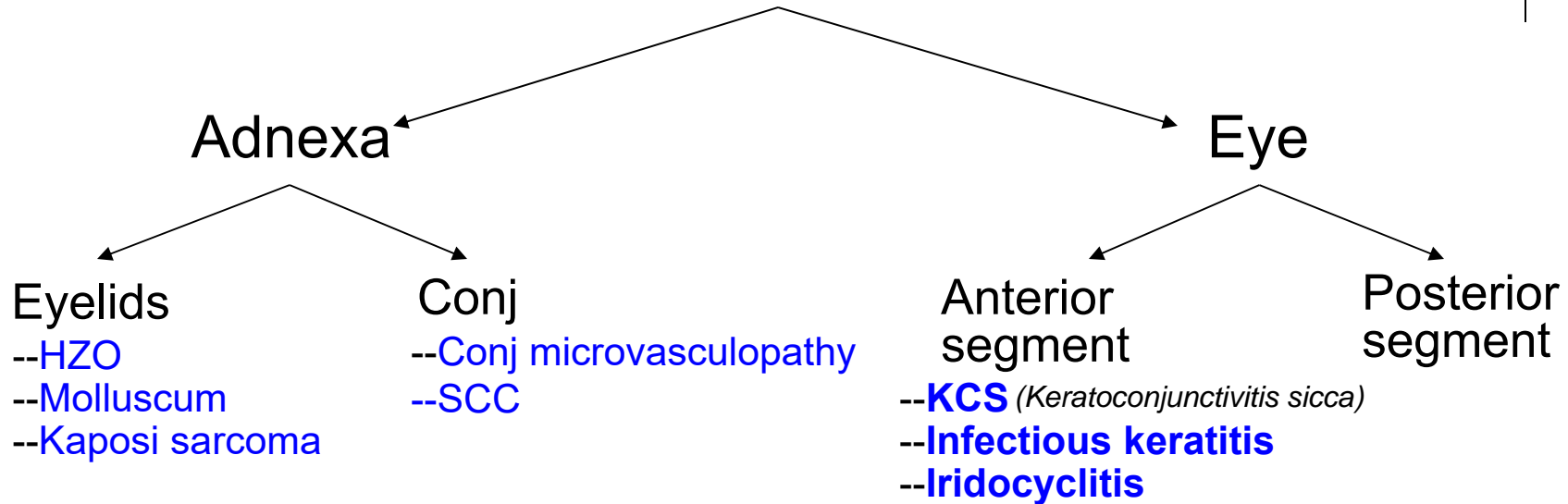
Ophthalmic HIV manifestations



What manifestations are these?

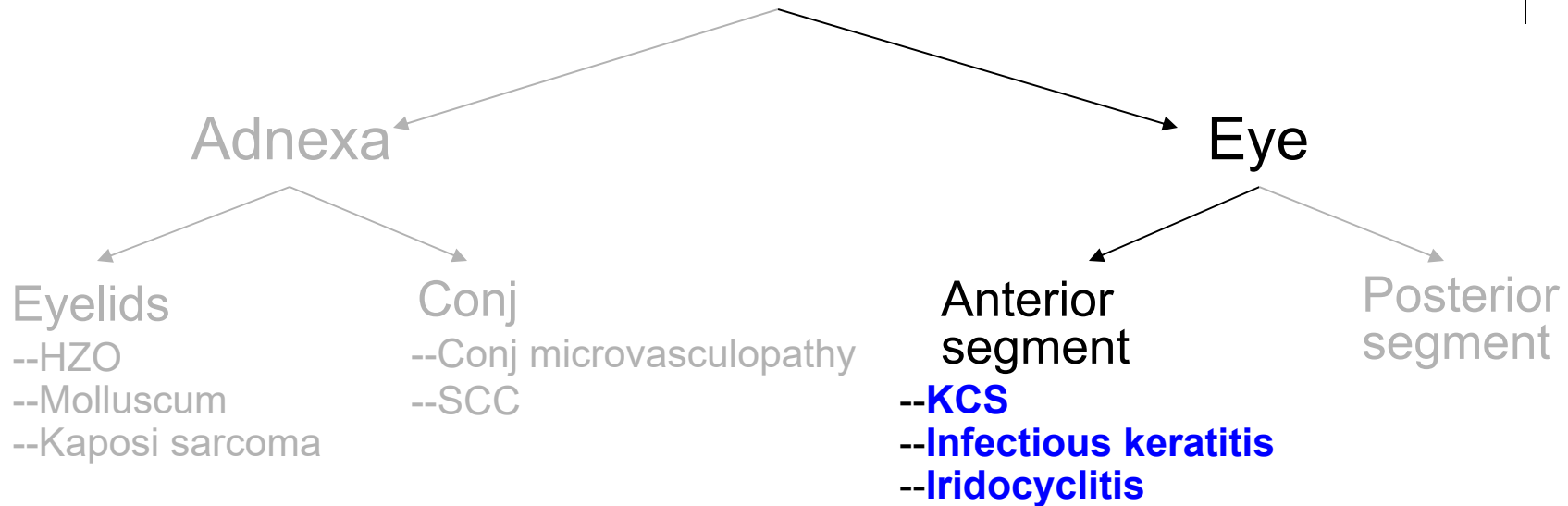
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

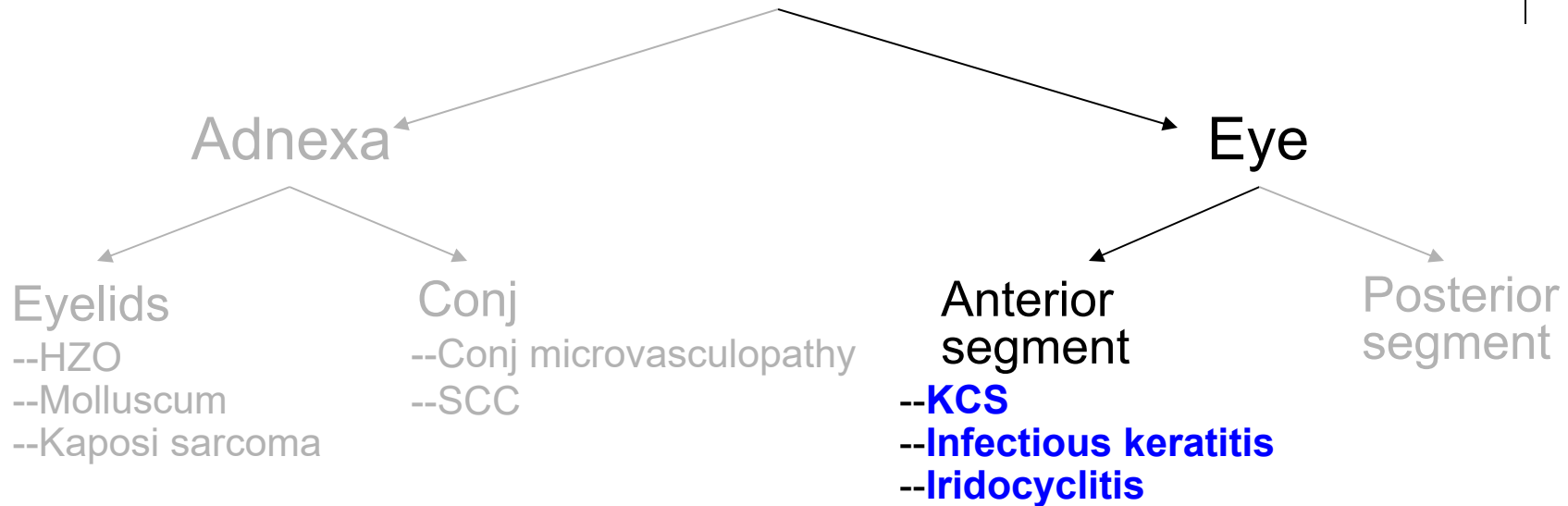
Ophthalmic HIV manifestations



How common are anterior segment manifestations in HIV?

HIV and the Eye

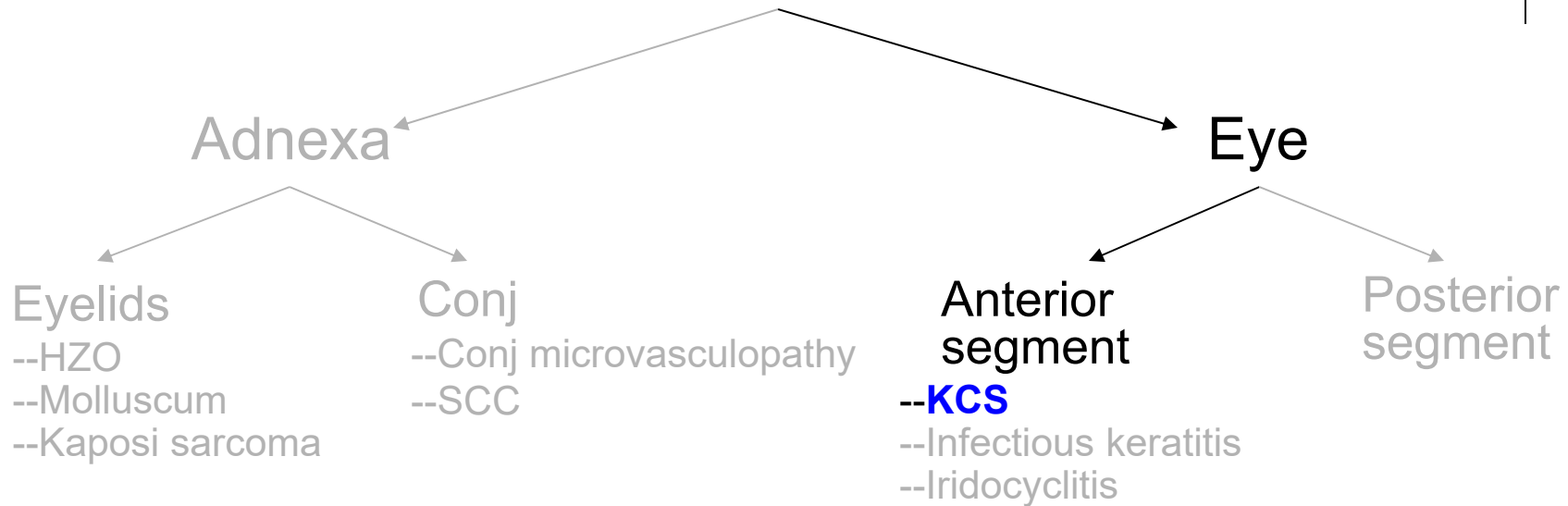
Ophthalmic HIV manifestations



How common are anterior segment manifestations in HIV?
They are present in about 1/2 of cases

HIV and the Eye

Ophthalmic HIV manifestations

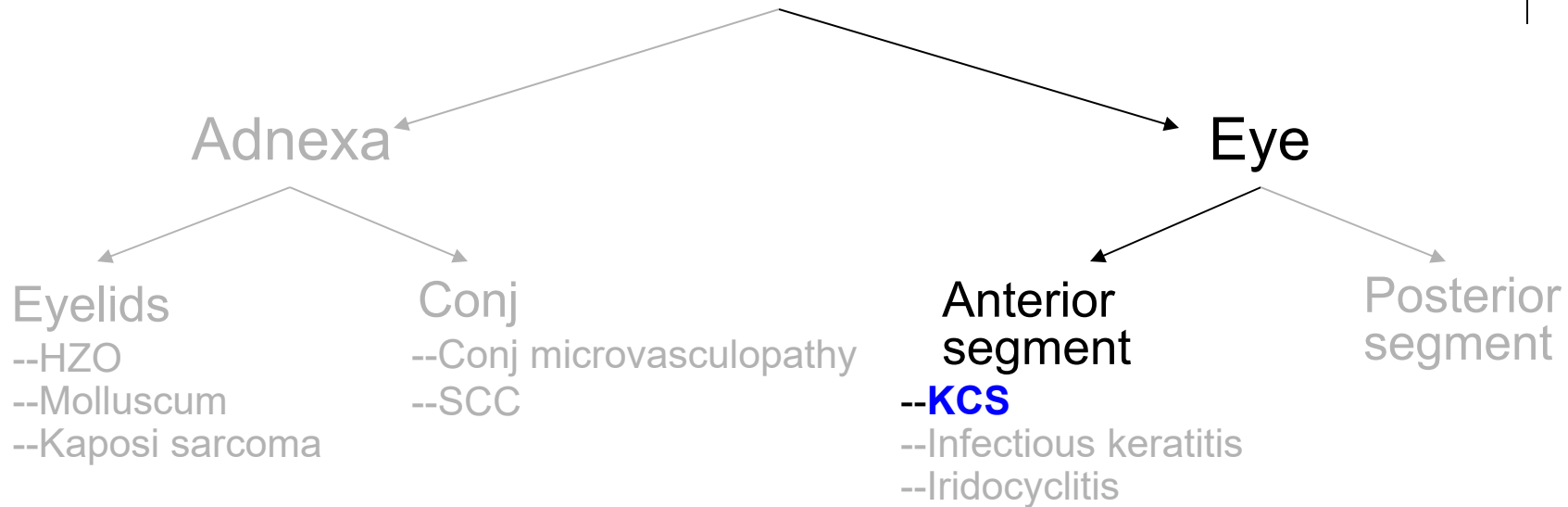


What percent of HIV+ individuals will develop keratoconjunctivitis sicca?



HIV and the Eye

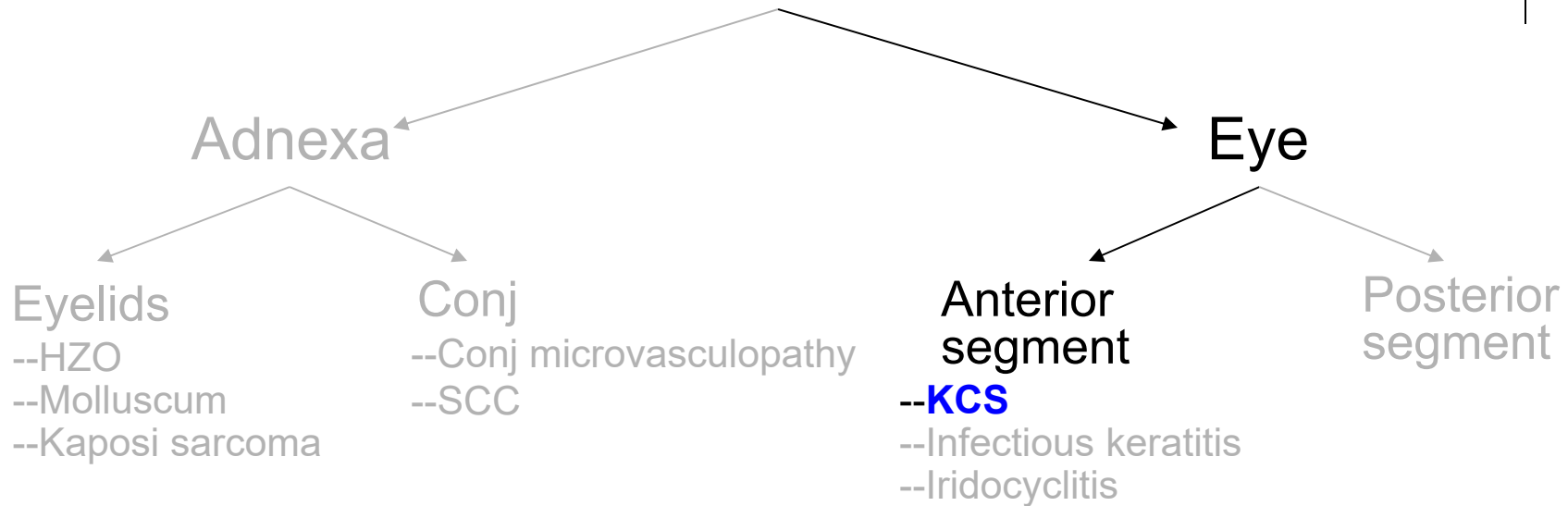
Ophthalmic HIV manifestations



What percent of HIV+ individuals will develop keratoconjunctivitis sicca?
~20

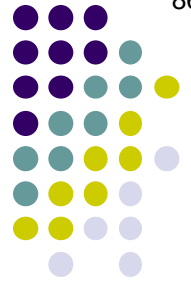
HIV and the Eye

Ophthalmic HIV manifestations



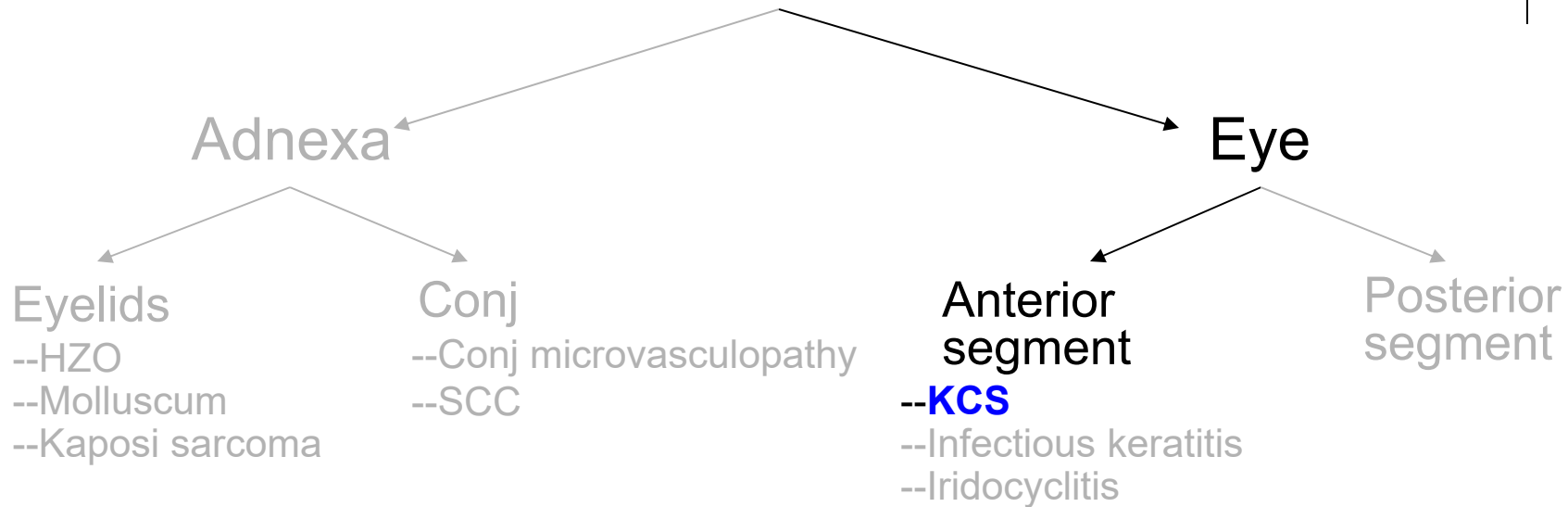
What percent of HIV+ individuals will develop keratoconjunctivitis sicca?
~20

What is the underlying problem?



HIV and the Eye

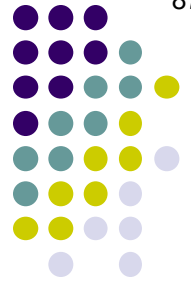
Ophthalmic HIV manifestations



What percent of HIV+ individuals will develop keratoconjunctivitis sicca?
~20

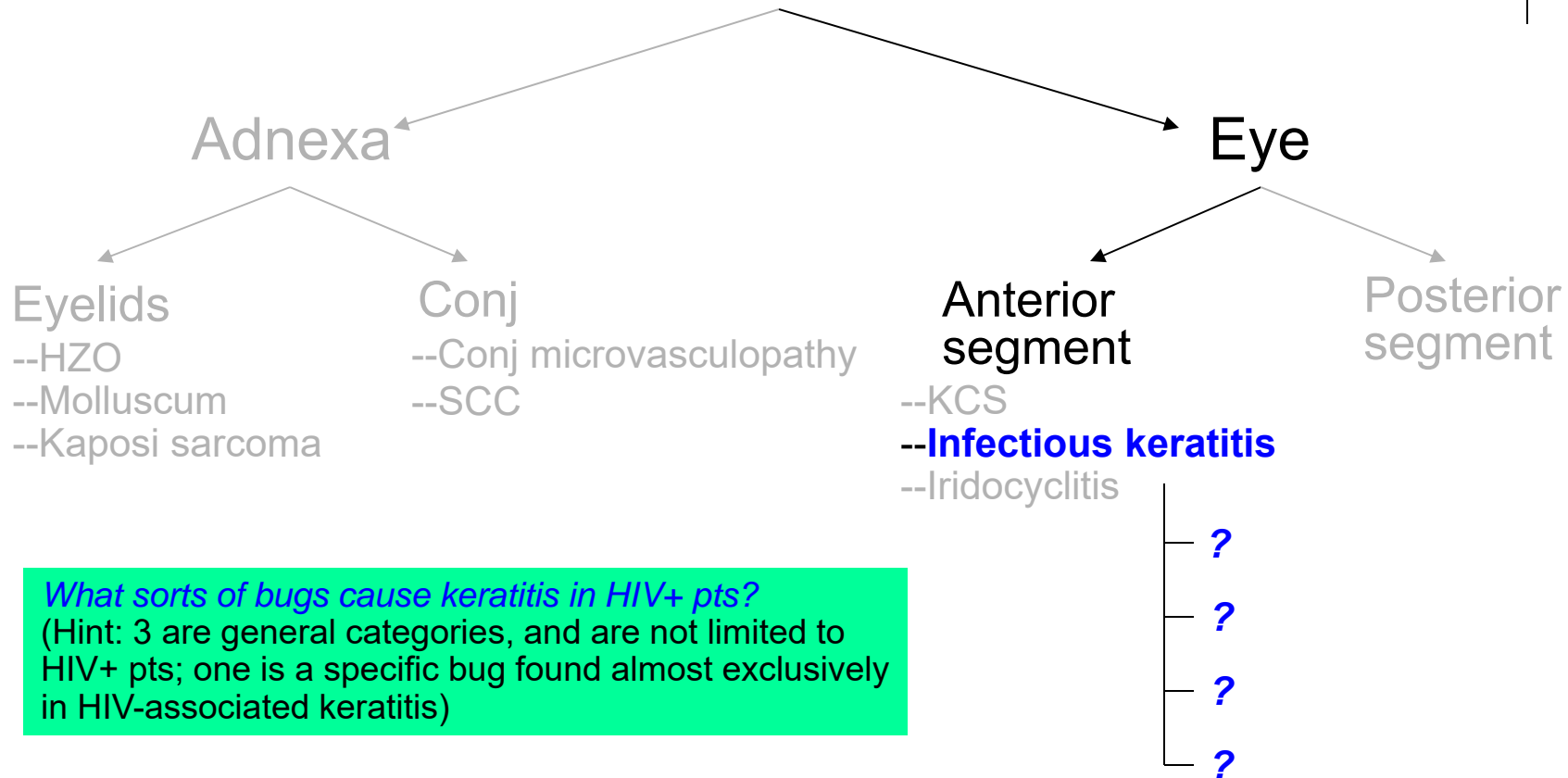
What is the underlying problem?

Aqueous-phase deficiency secondary to inflammatory damage to the lacrimal glands



HIV and the Eye

Ophthalmic HIV manifestations

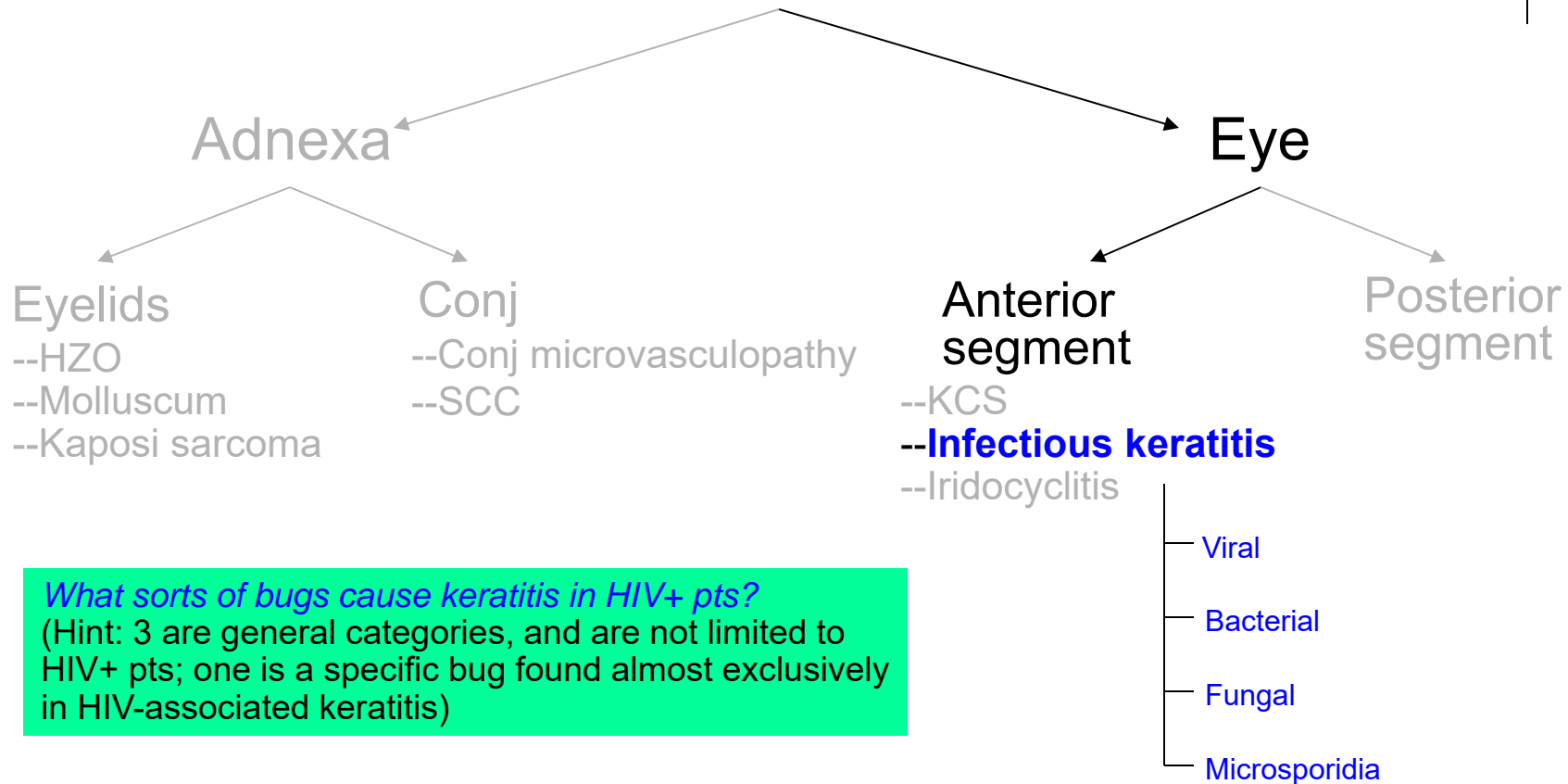


What sorts of bugs cause keratitis in HIV+ pts?

(Hint: 3 are general categories, and are not limited to HIV+ pts; one is a specific bug found almost exclusively in HIV-associated keratitis)

HIV and the Eye

Ophthalmic HIV manifestations



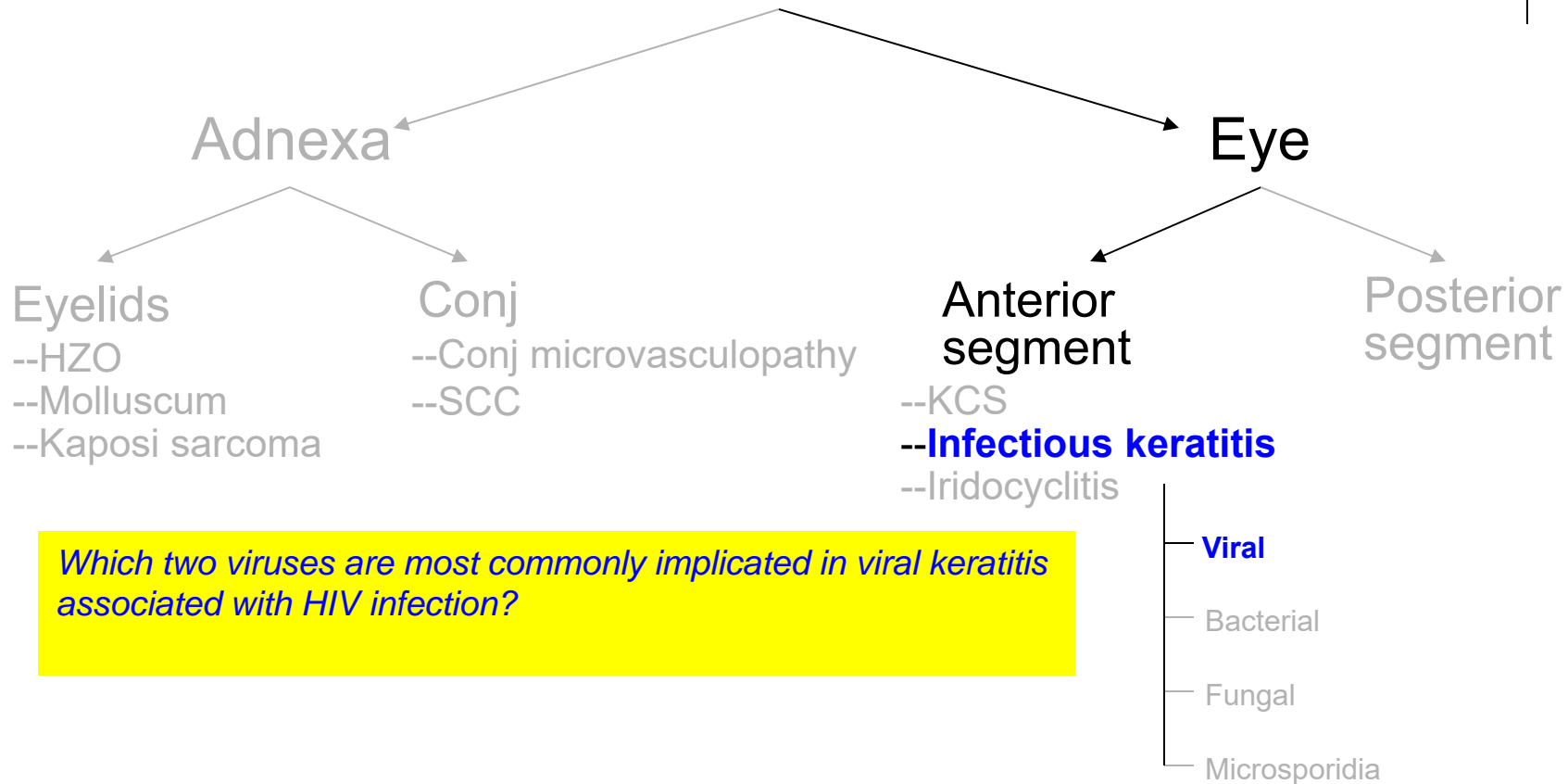
What sorts of bugs cause keratitis in HIV+ pts?

(Hint: 3 are general categories, and are not limited to HIV+ pts; one is a specific bug found almost exclusively in HIV-associated keratitis)



HIV and the Eye

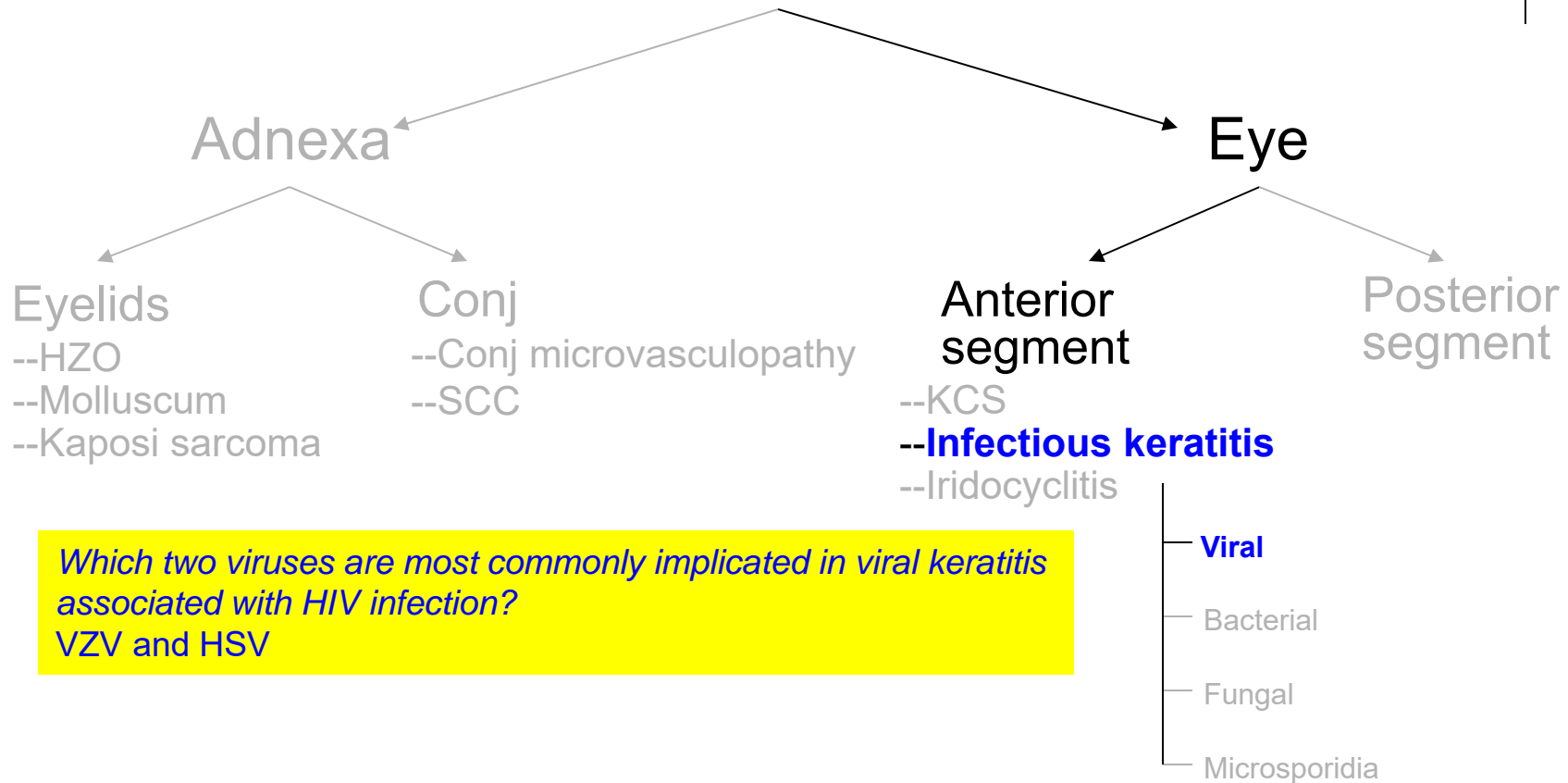
Ophthalmic HIV manifestations



Which two viruses are most commonly implicated in viral keratitis associated with HIV infection?

HIV and the Eye

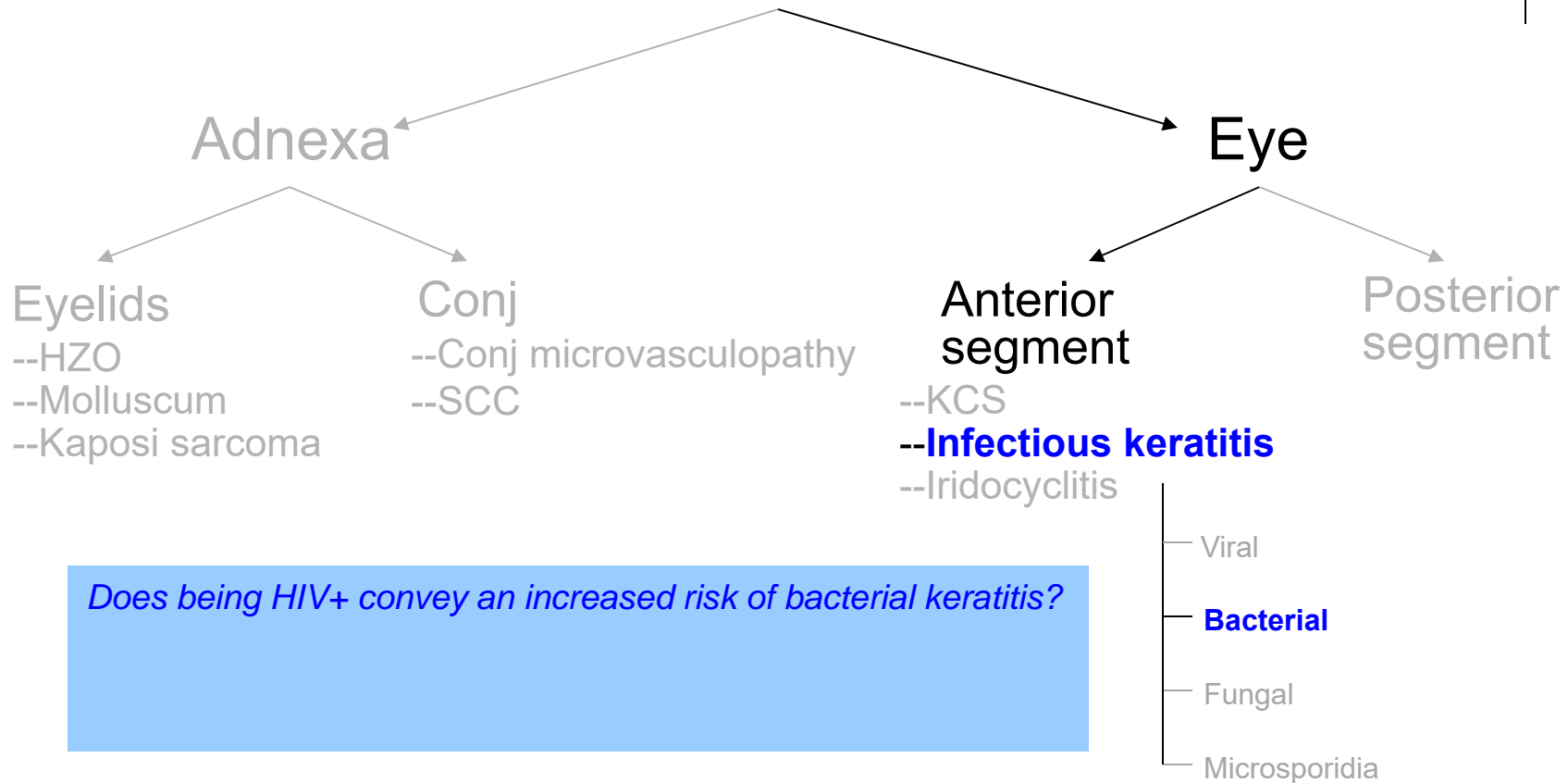
Ophthalmic HIV manifestations



Which two viruses are most commonly implicated in viral keratitis associated with HIV infection?
VZV and HSV

HIV and the Eye

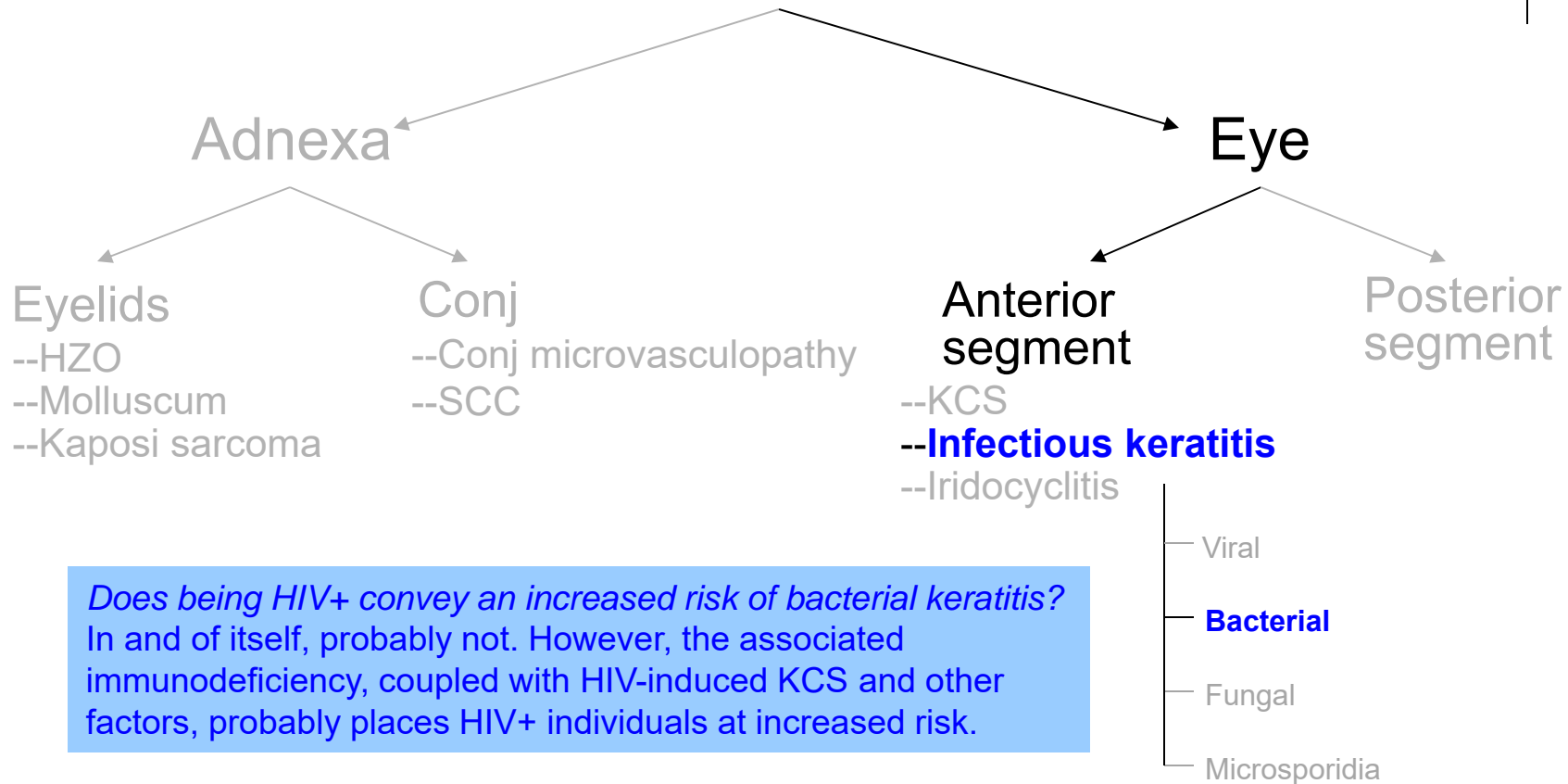
Ophthalmic HIV manifestations



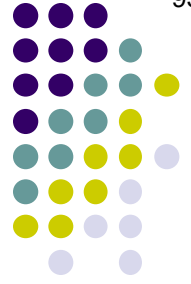


HIV and the Eye

Ophthalmic HIV manifestations

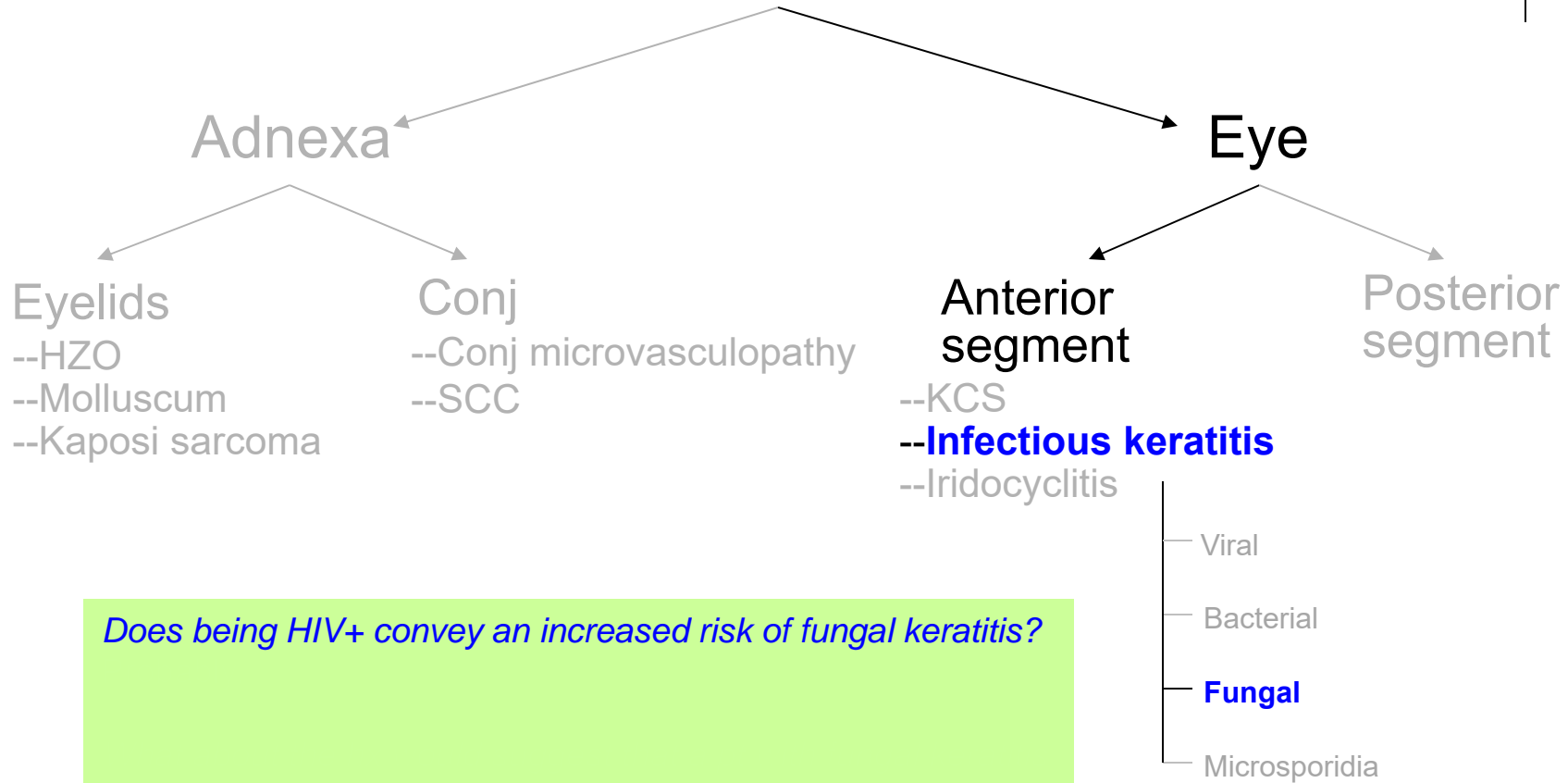


Does being HIV+ convey an increased risk of bacterial keratitis?
 In and of itself, probably not. However, the associated immunodeficiency, coupled with HIV-induced KCS and other factors, probably places HIV+ individuals at increased risk.

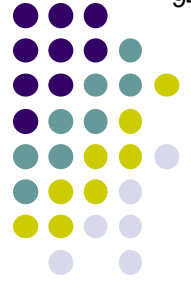


HIV and the Eye

Ophthalmic HIV manifestations

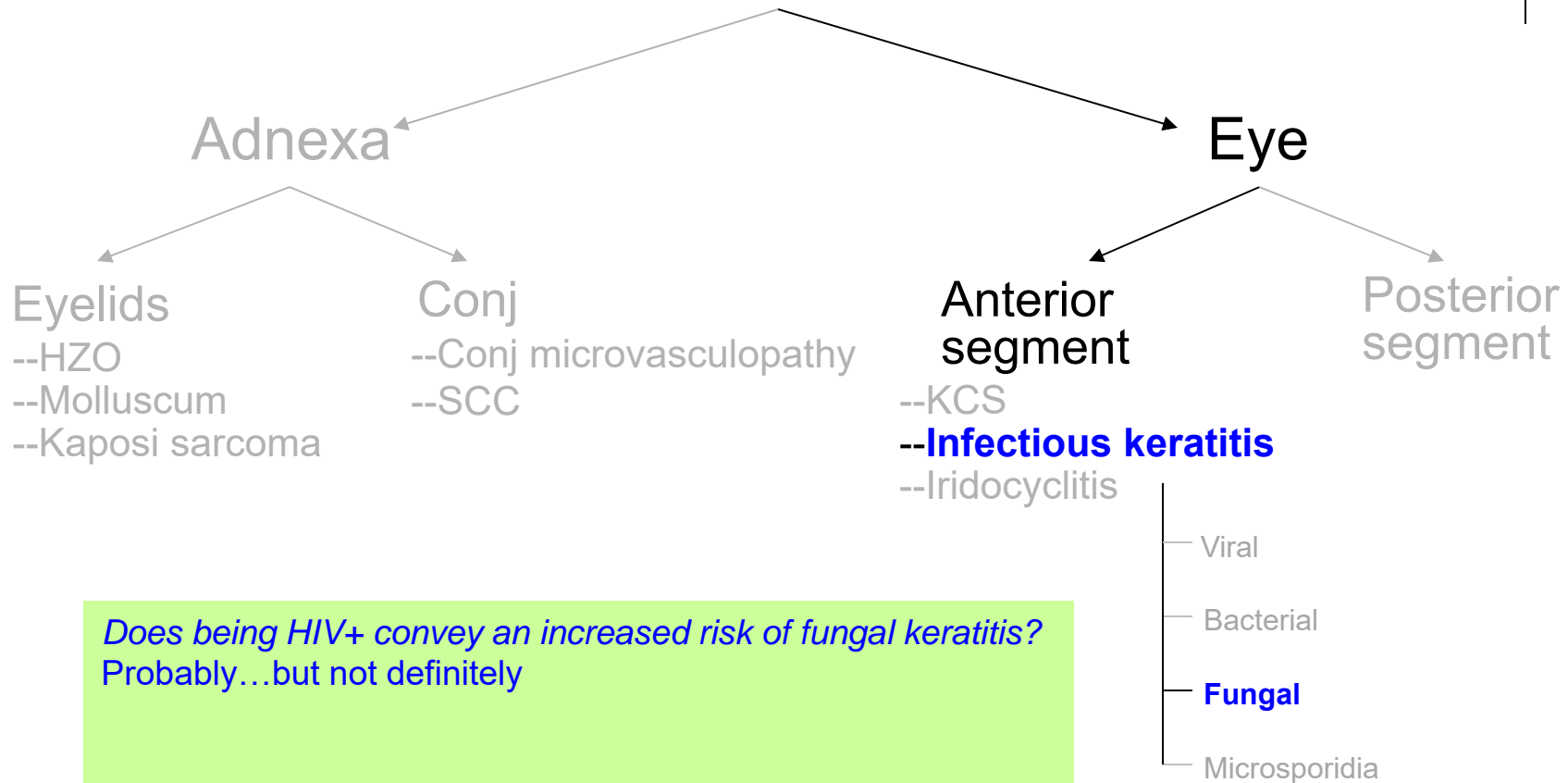


Does being HIV+ convey an increased risk of fungal keratitis?



HIV and the Eye

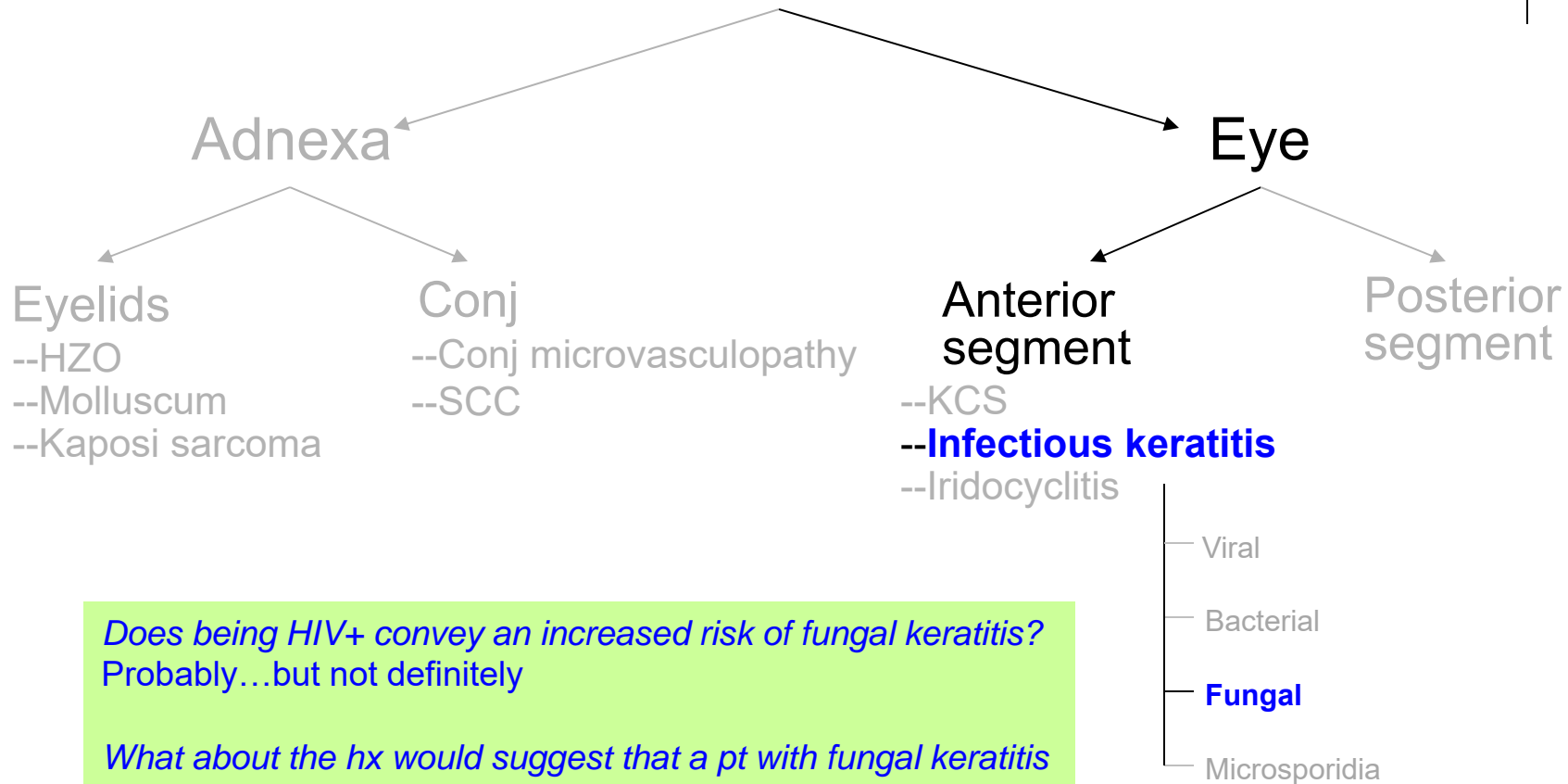
Ophthalmic HIV manifestations



*Does being HIV+ convey an increased risk of fungal keratitis?
Probably...but not definitely*

HIV and the Eye

Ophthalmic HIV manifestations



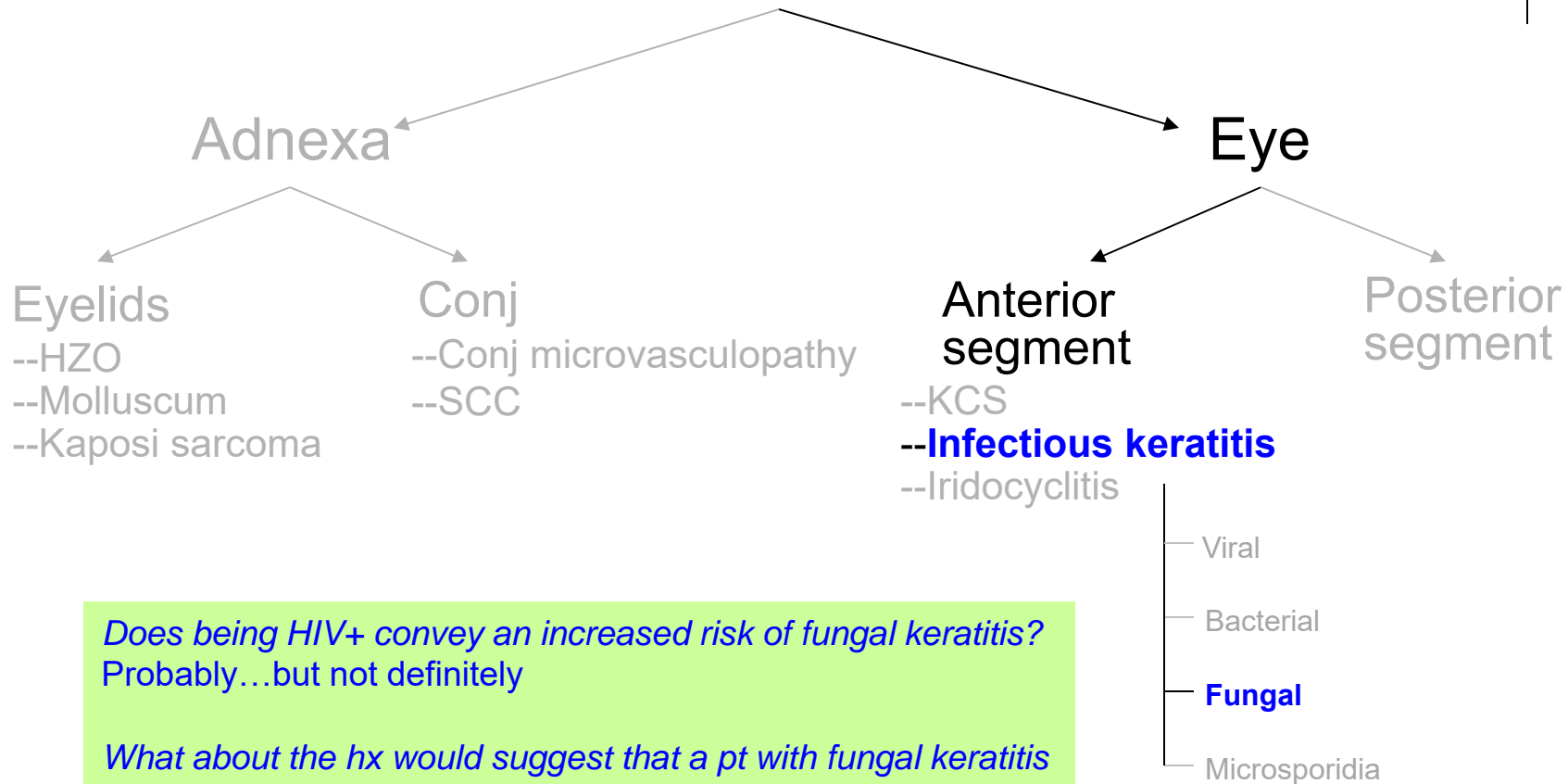
*Does being HIV+ convey an increased risk of fungal keratitis?
Probably...but not definitely*

*What about the hx would suggest that a pt with fungal keratitis
might have an underlying HIV infection?*



HIV and the Eye

Ophthalmic HIV manifestations



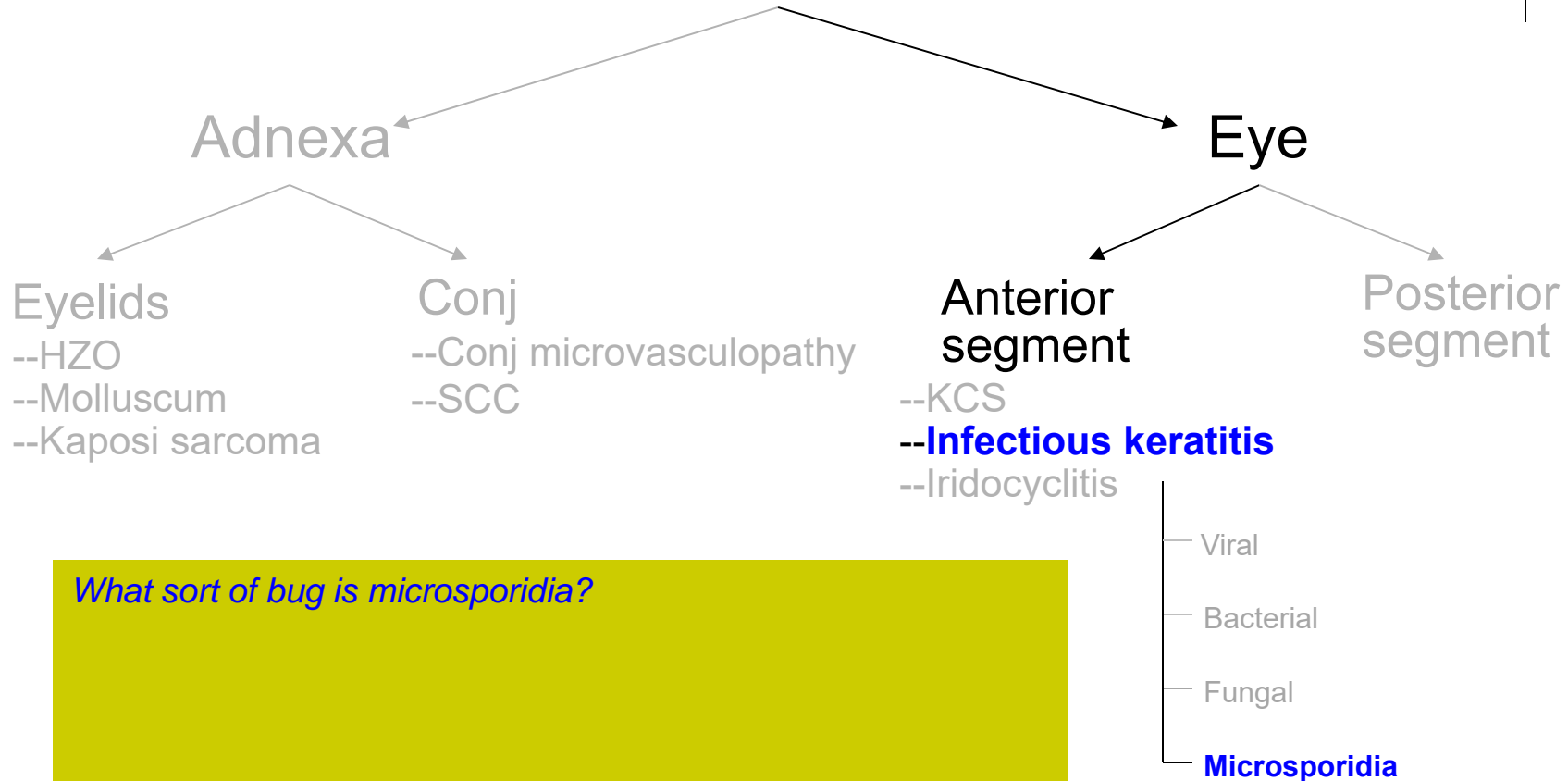
*Does being HIV+ convey an increased risk of fungal keratitis?
Probably...but not definitely*

*What about the hx would suggest that a pt with fungal keratitis
might have an underlying HIV infection?
Absence of the 'usual' risk factors for fungal keratitis—trauma
(typically involving vegetative material) or topical steroid use*



HIV and the Eye

Ophthalmic HIV manifestations

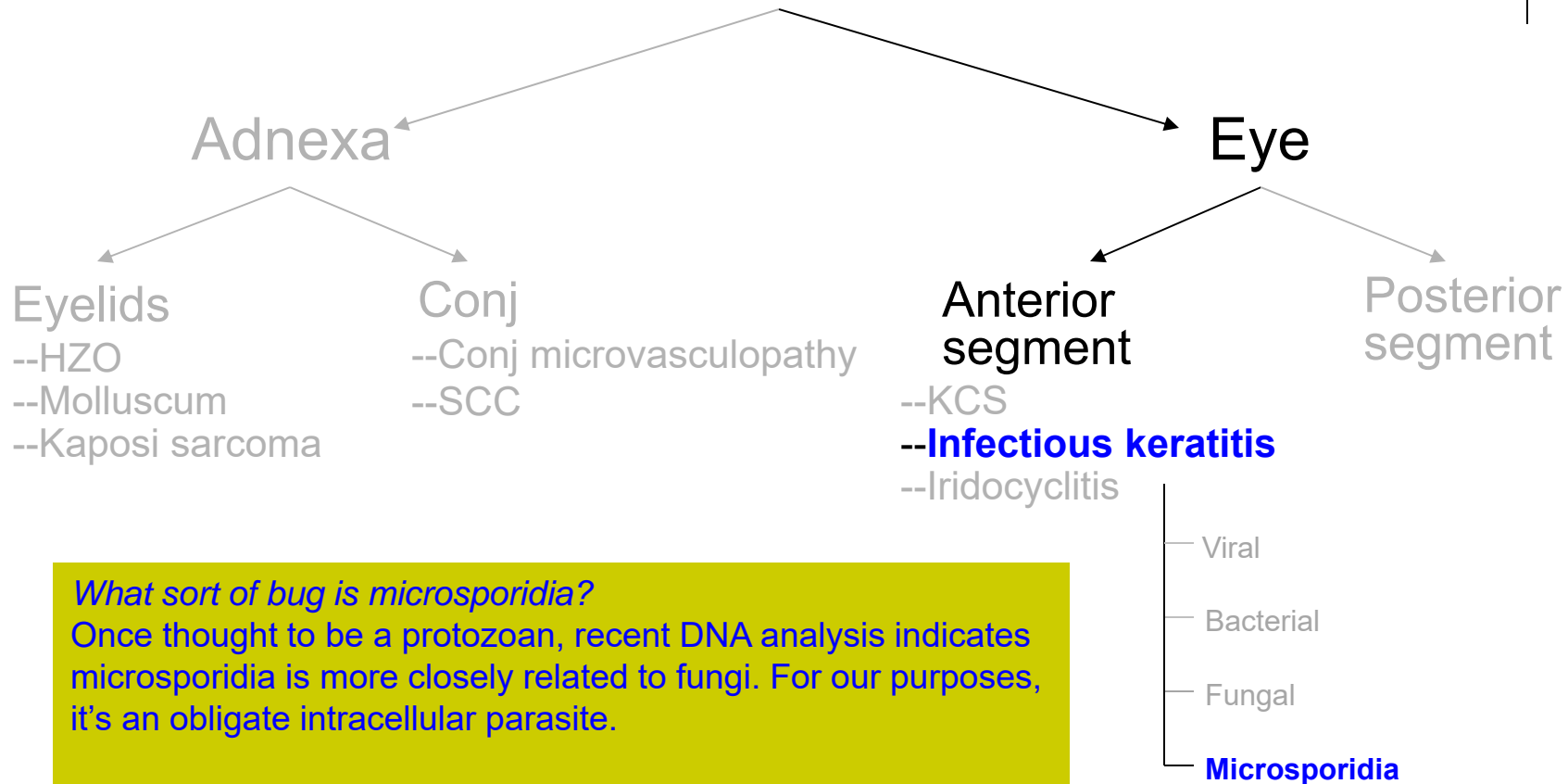


What sort of bug is microsporidia?



HIV and the Eye

Ophthalmic HIV manifestations

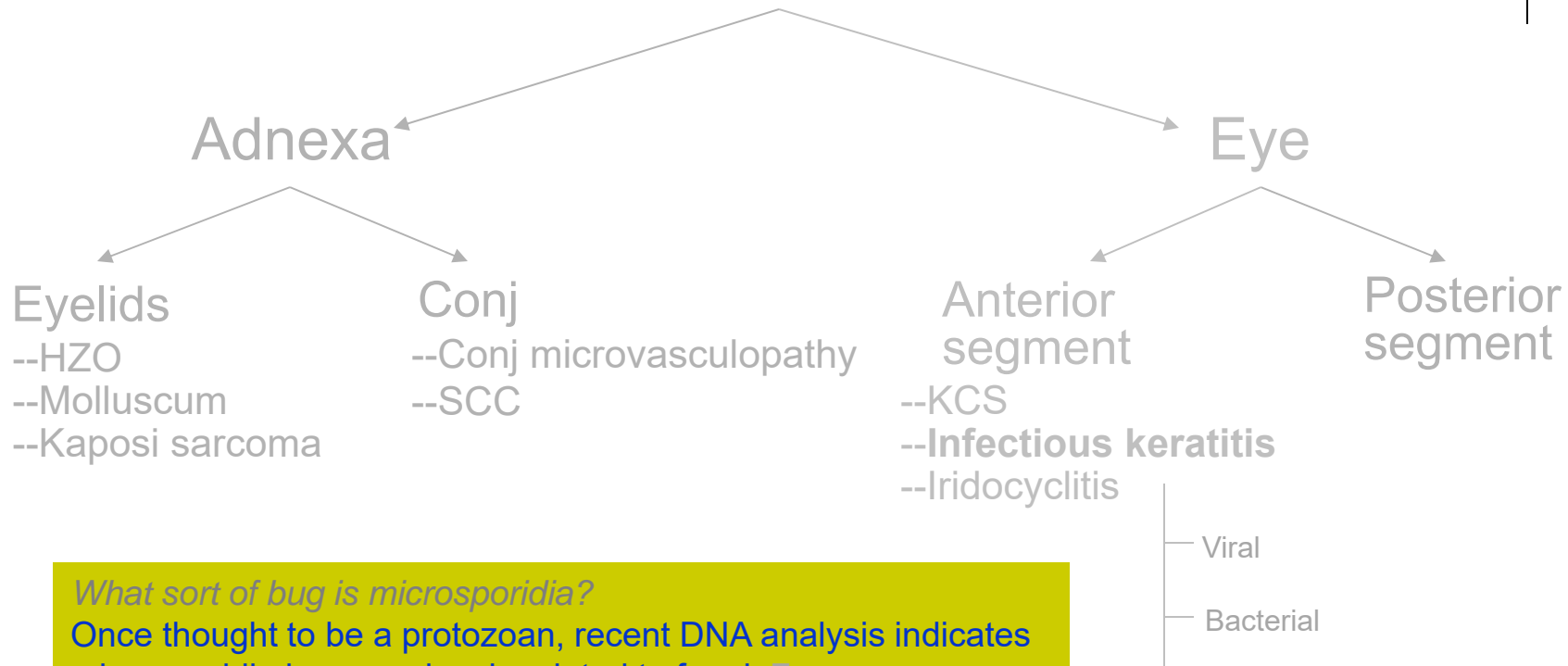


What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For our purposes, it's an obligate intracellular parasite.

HIV and the Eye

Ophthalmic HIV manifestations



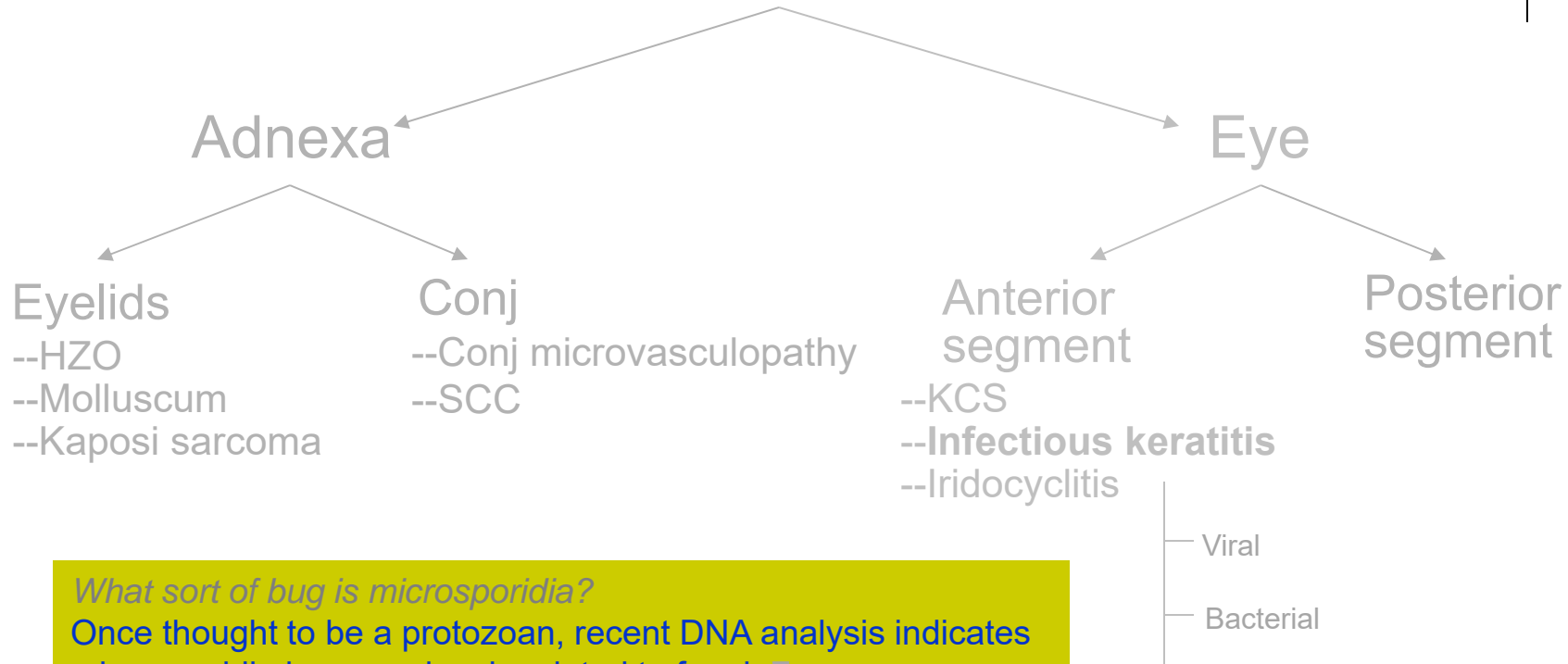
What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic fungus was previously (mis)classified as a protozoan?

HIV and the Eye

Ophthalmic HIV manifestations



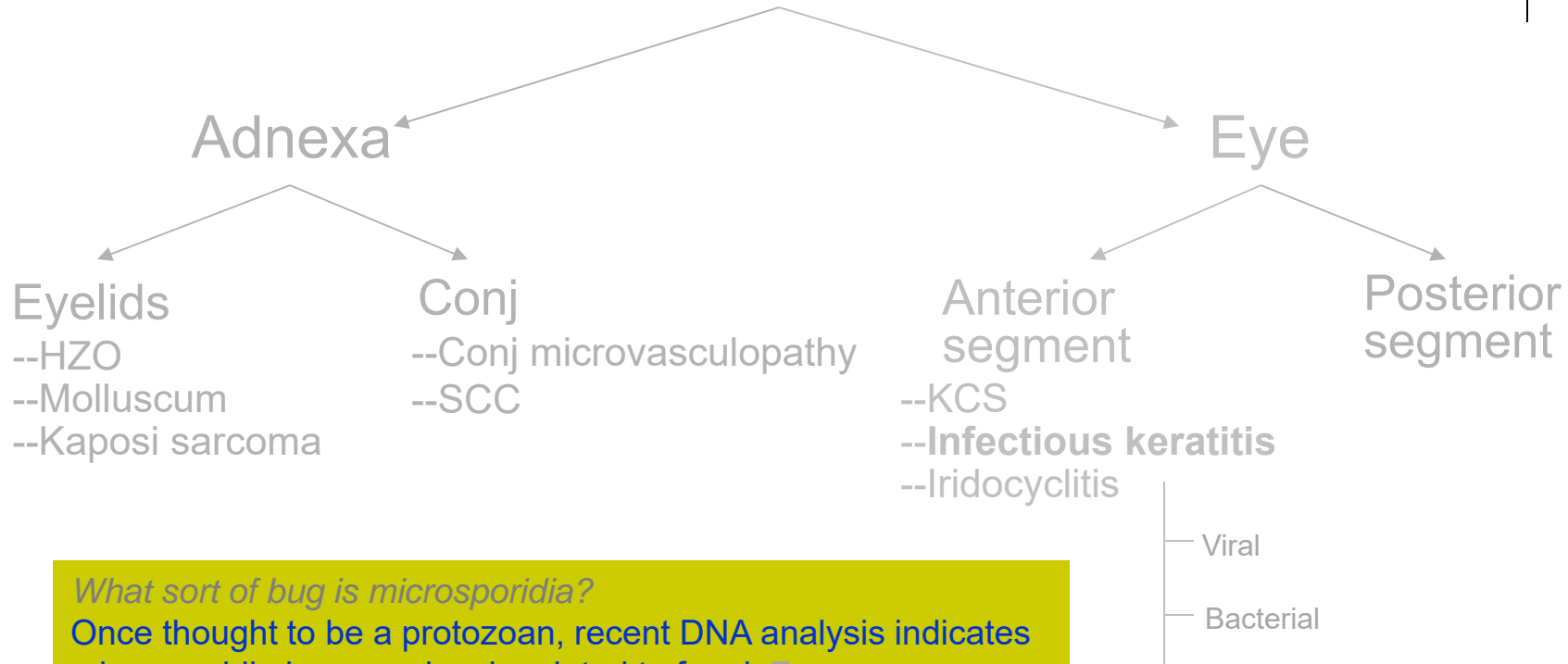
What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic fungus was previously (mis)classified as a protozoan?
Pneumocystis

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

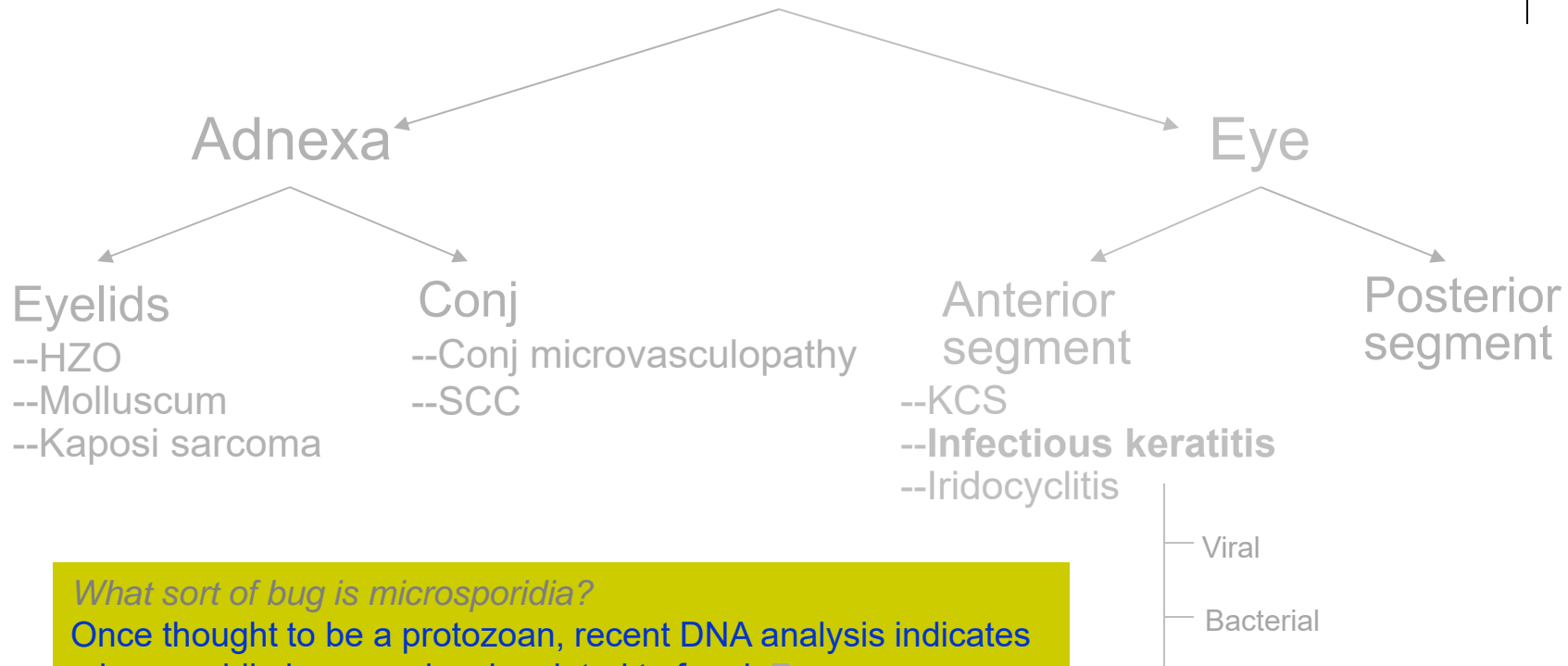
Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic fungus was previously (mis)classified as a protozoan?
Pneumocystis

Pneumocystis is notorious for causing pneumonia in AIDS pts. Is it a known ocular pathogen as well?

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

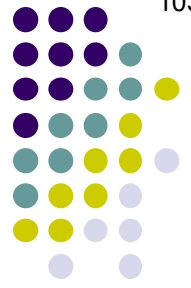
Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic fungus was previously (mis)classified as a protozoan?
Pneumocystis

Pneumocystis is notorious for causing pneumonia in AIDS pts. Is it a known ocular pathogen as well?
Yes—it causes choroiditis

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic infections have you previously (mis)heard of?

Pneumocystis

Pneumocystis is a common cause of pneumonia in AIDS. It is also an ocular pathogen. Yes—it causes c

What is the full name of this species?

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic infections have been previously (mis)classified as fungi?

Pneumocystis

Pneumocystis is a common cause of pneumonia in AIDS patients. It is also an ocular pathogen. Yes—it causes c

What is the full name of this species?

Pneumocystis jiroveci (or jirovecii)

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic infections have you previously (mis)identified?

Pneumocystis

Pneumocystis is a common cause of pneumonia in AIDS patients. It is also an ocular pathogen. Yes—it causes c

What is the full name of this species?

Pneumocystis jiroveci (or jirovecii)

P jiroveci? I thought it was P carinii. What gives?

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For example, it's an obligate intracellular parasite.

What other opportunistic infections have been previously (mis)named?

Pneumocystis

Pneumocystis is a common opportunistic infection in AIDS. It causes pneumonia in AIDS patients. It is an ocular pathogen. Yes—it causes cataracts.

What is the full name of this species?

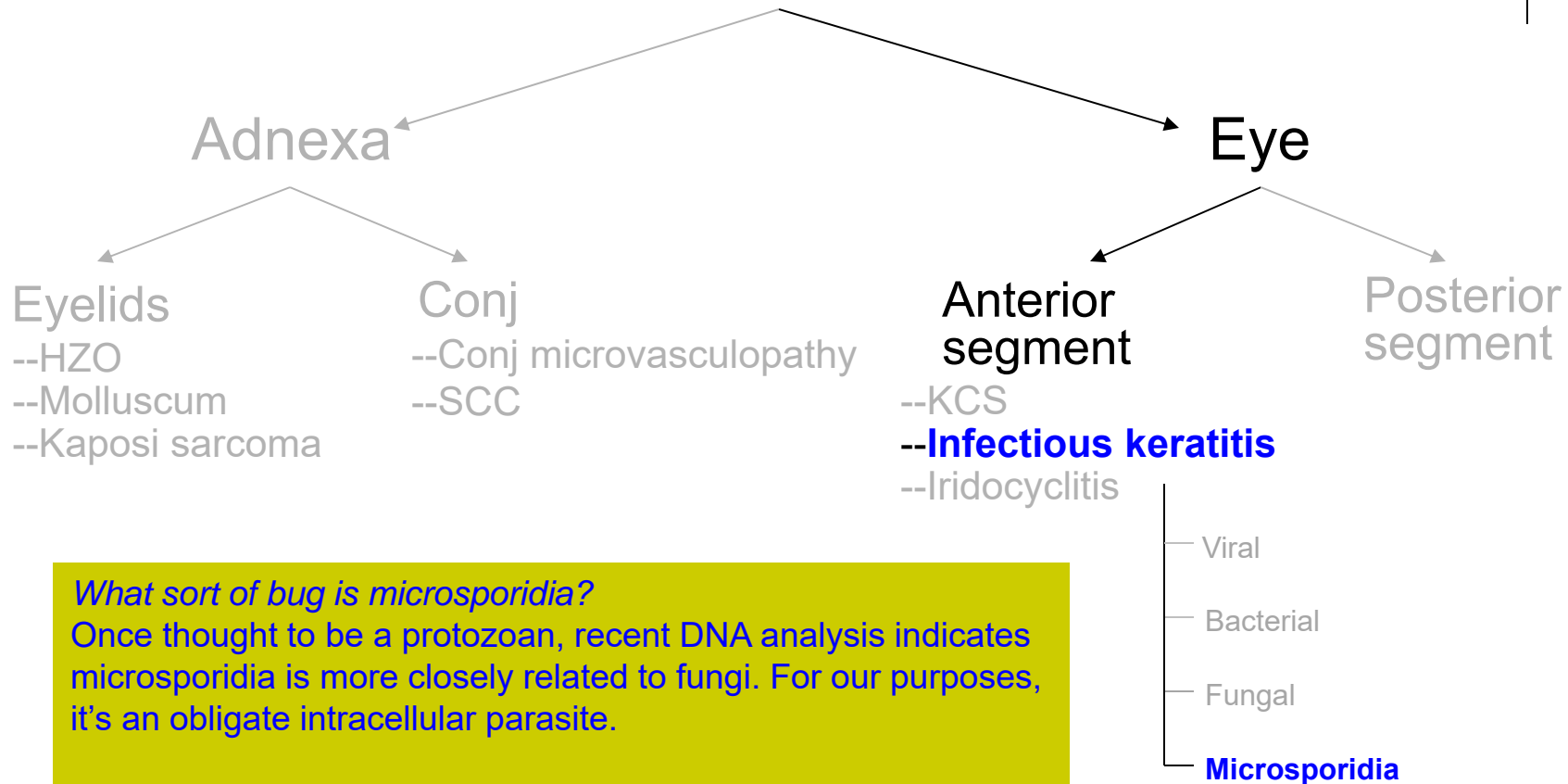
Pneumocystis jiroveci (or jirovecii)

P jiroveci? I thought it was P carinii. What gives?

This is a common mistake. *P. carinii* was used until researchers realized that different species had different hosts. *P. jiroveci* infects humans, whereas *P. carinii* infects rats.

HIV and the Eye

Ophthalmic HIV manifestations



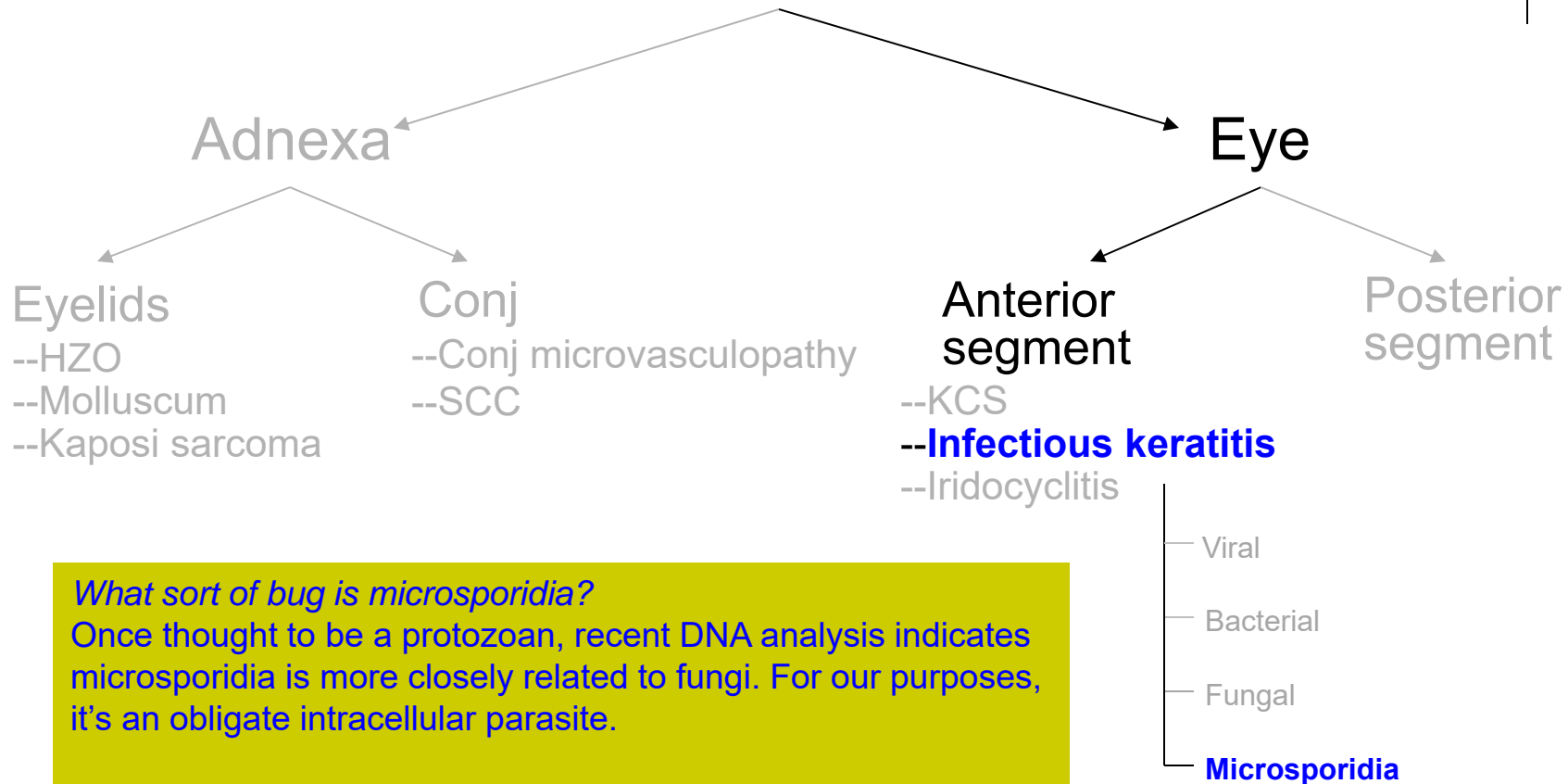
What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For our purposes, it's an obligate intracellular parasite.

What is the typical presentation in HIV+ pts?

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

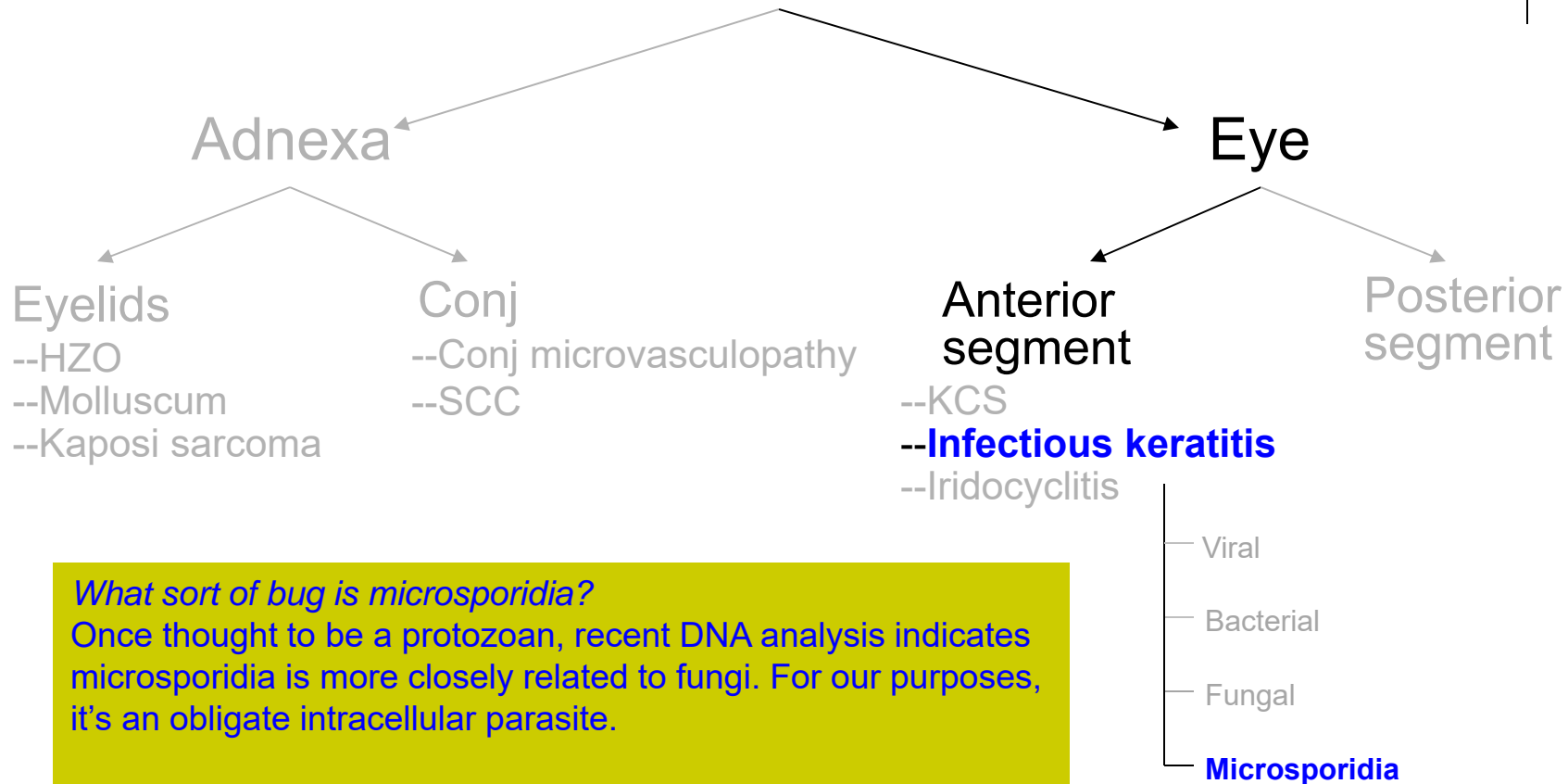
Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For our purposes, it's an obligate intracellular parasite.

What is the typical presentation in HIV+ pts?

An epithelial keratopathy

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For our purposes, it's an obligate intracellular parasite.

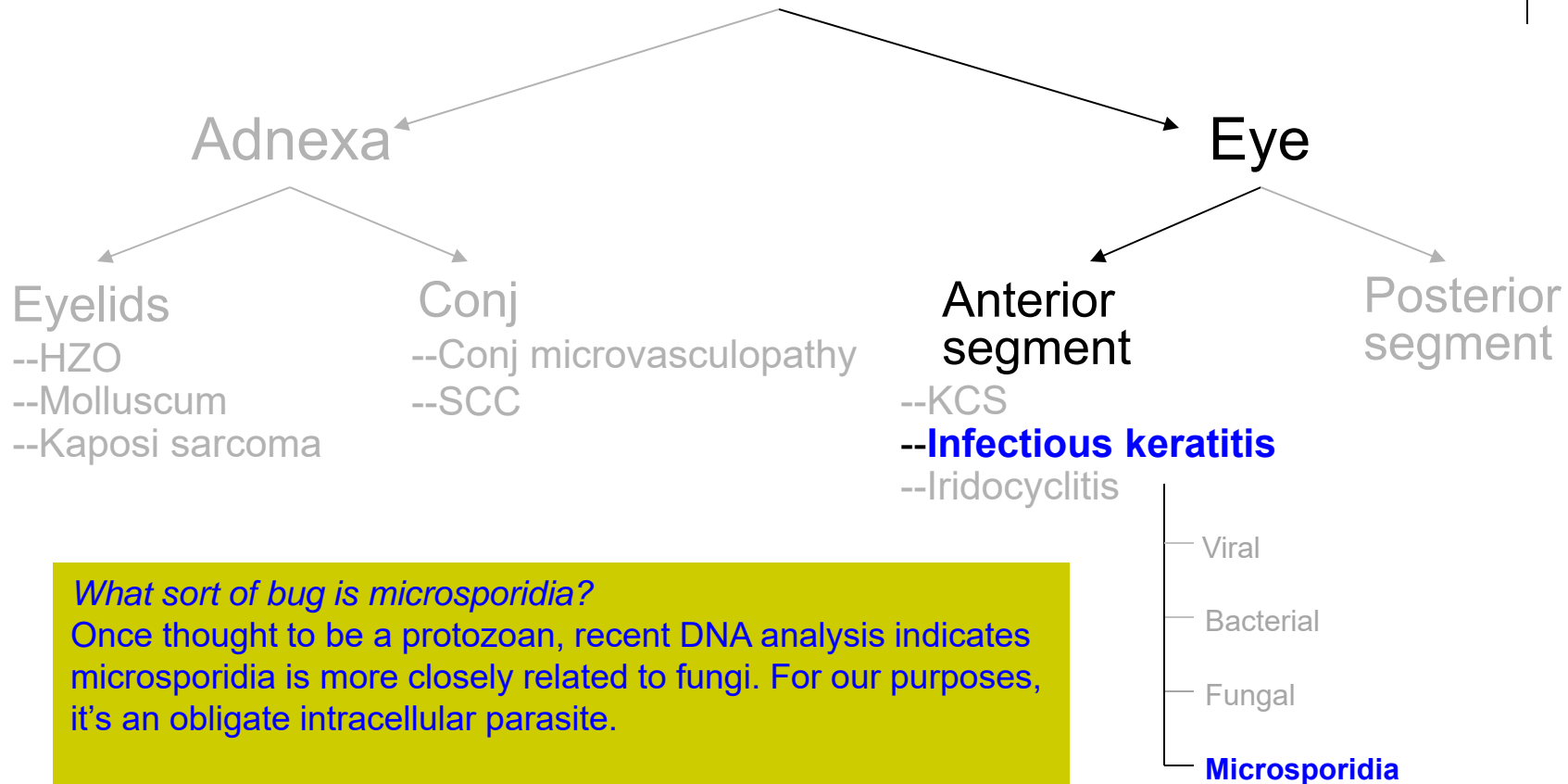
What is the typical presentation in HIV+ pts?

An epithelial keratopathy

What is the treatment?

HIV and the Eye

Ophthalmic HIV manifestations



What sort of bug is microsporidia?

Once thought to be a protozoan, recent DNA analysis indicates microsporidia is more closely related to fungi. For our purposes, it's an obligate intracellular parasite.

What is the typical presentation in HIV+ pts?

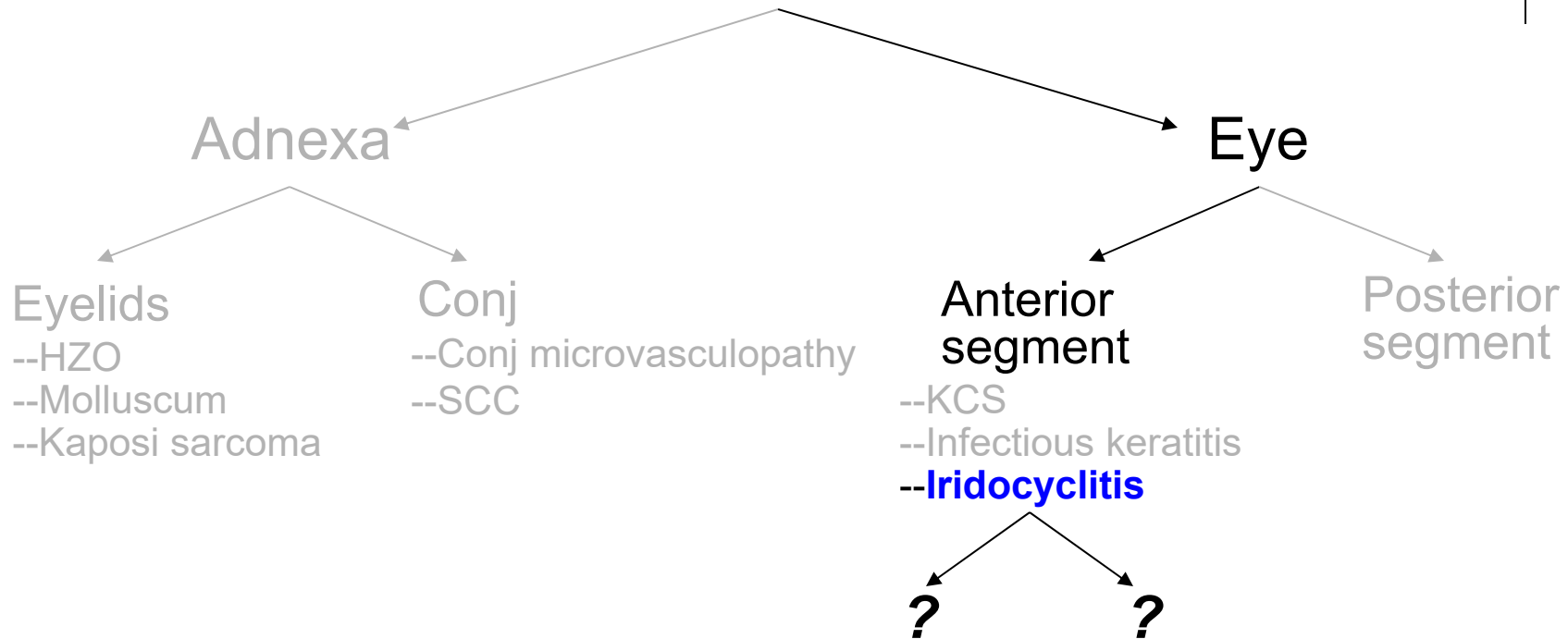
An epithelial keratopathy

What is the treatment?

Topical fumagillin

HIV and the Eye

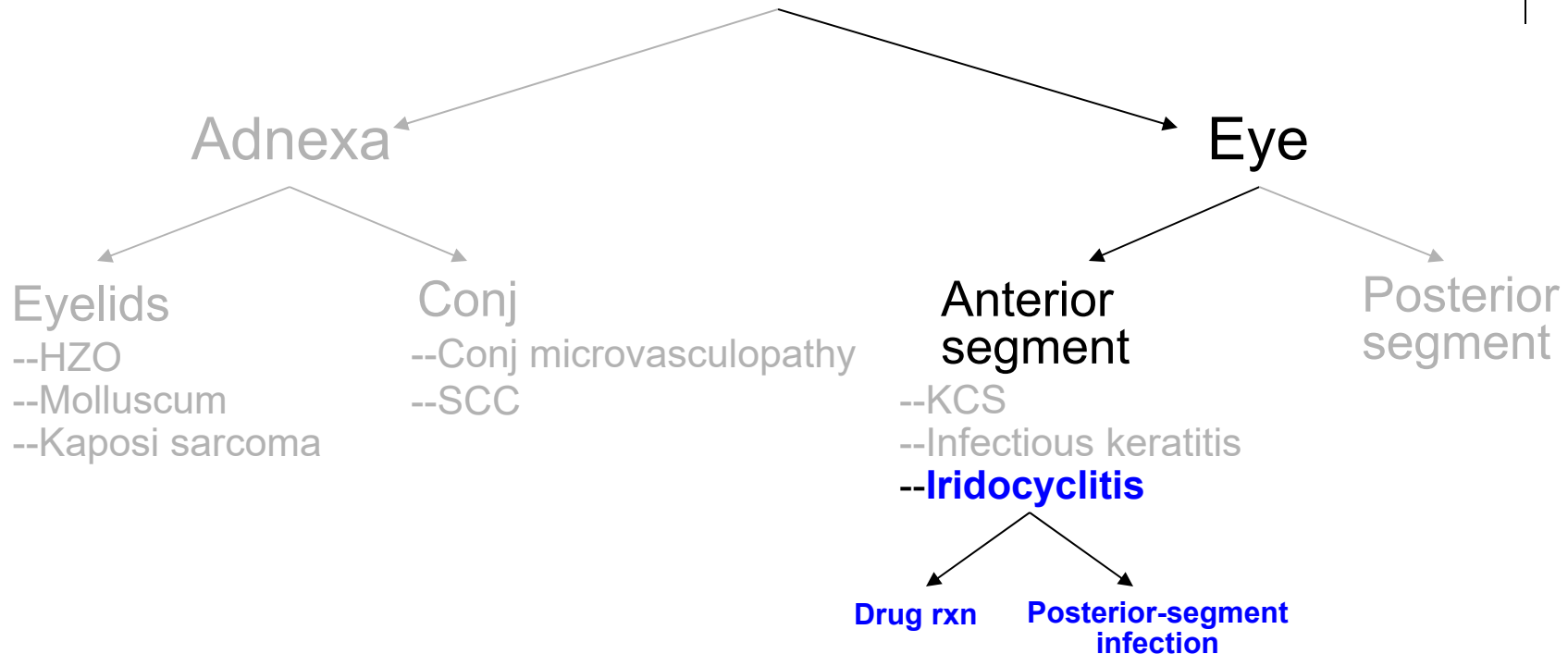
Ophthalmic HIV manifestations



In general, iridocyclitis in HIV is secondary to one of two sorts of events. What are they?

HIV and the Eye

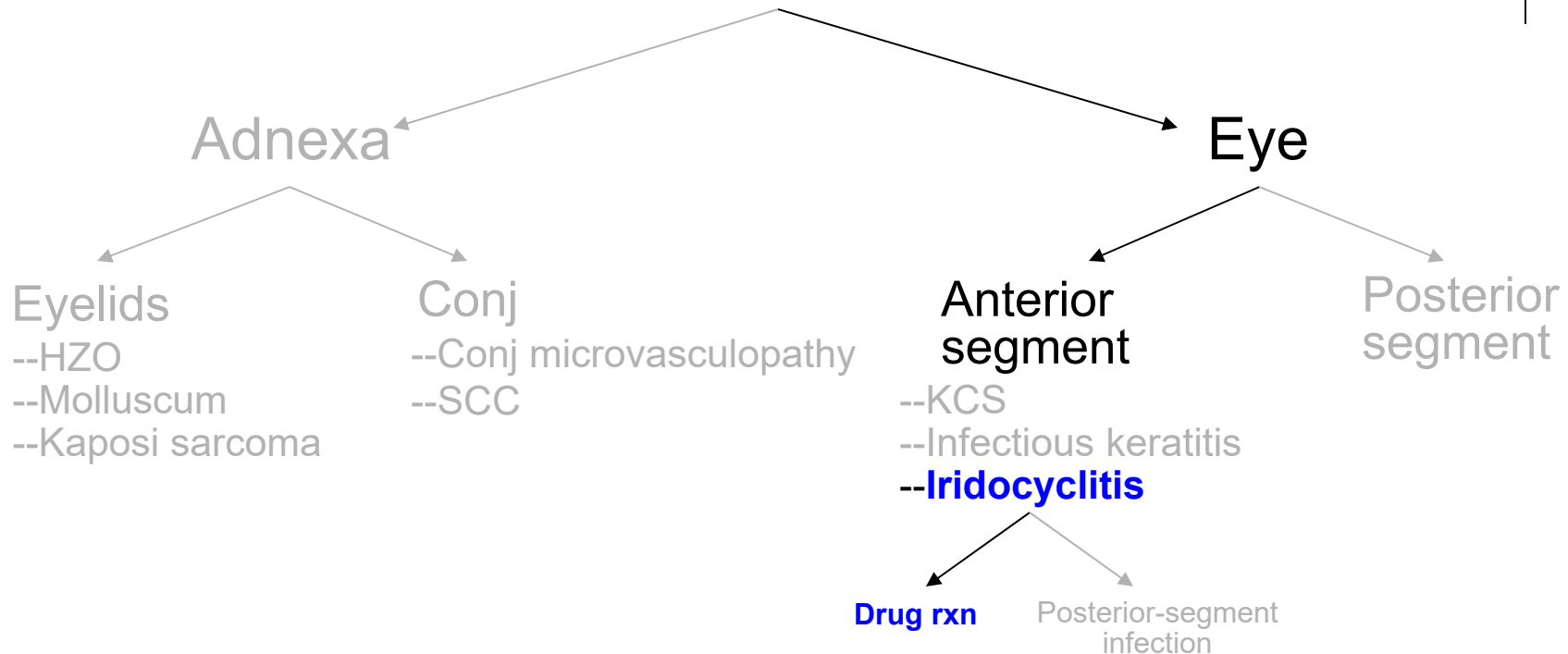
Ophthalmic HIV manifestations



In general, iridocyclitis in HIV is secondary to one of two sorts of events. What are they?

HIV and the Eye

Ophthalmic HIV manifestations

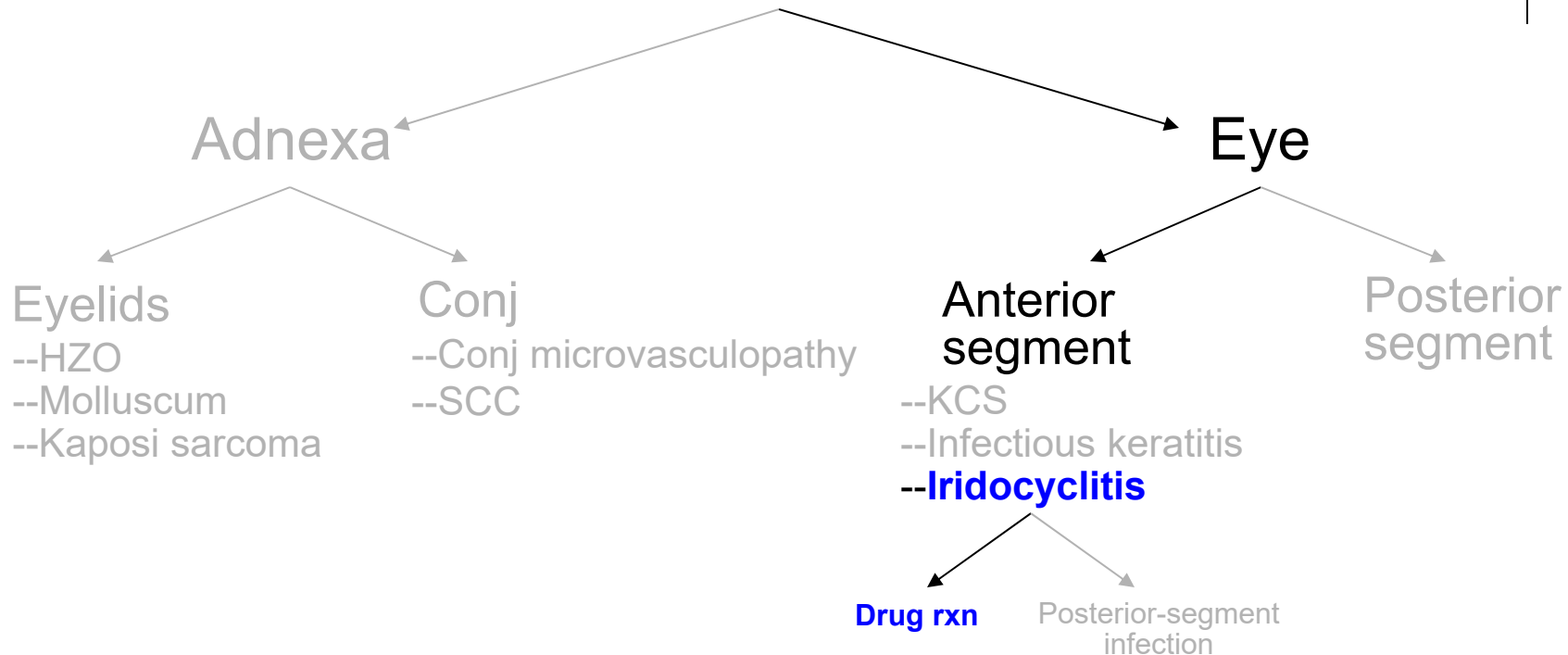


Two meds commonly taken by HIV pts are notorious for causing uveitis in 1/4-1/3 of cases. What are they?

--
--

HIV and the Eye

Ophthalmic HIV manifestations

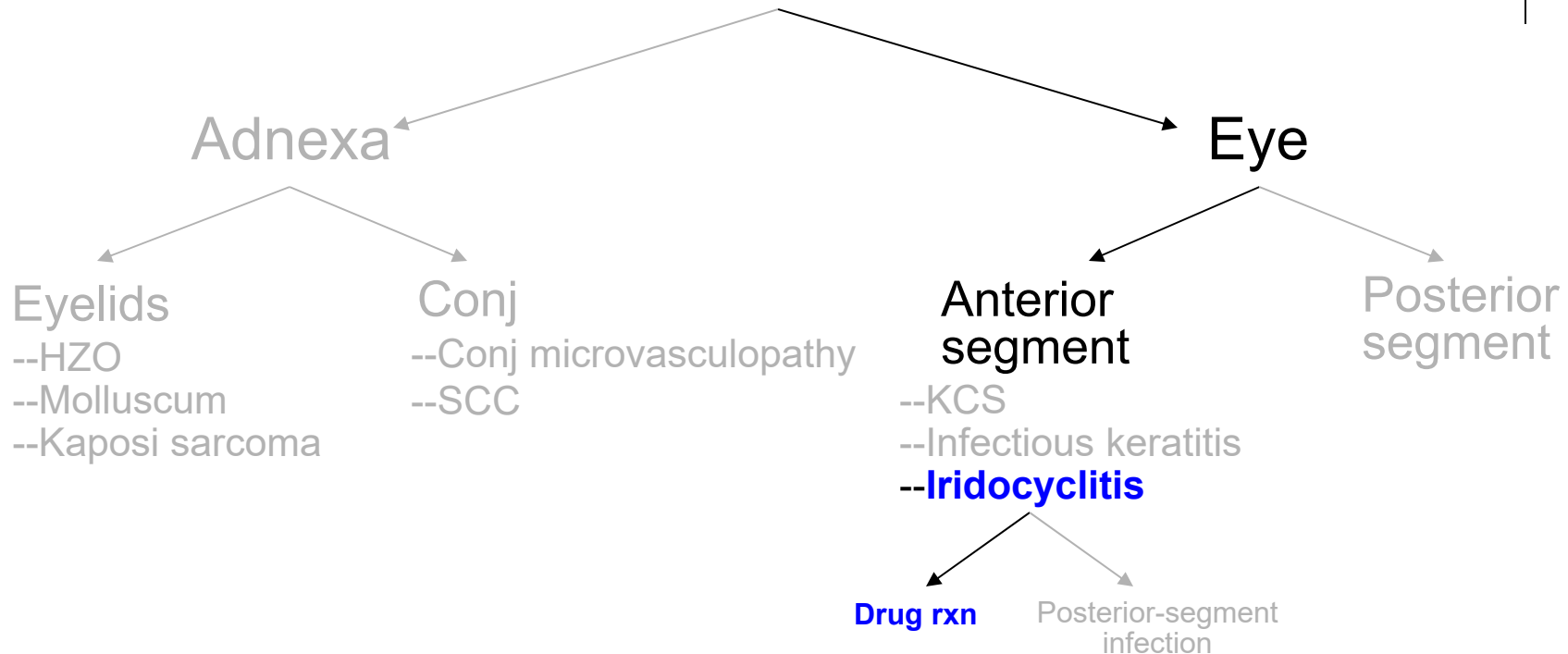


Two meds commonly taken by HIV pts are notorious for causing uveitis in 1/4-1/3 of cases. What are they?

- Rifabutin
- Cidofovir

HIV and the Eye

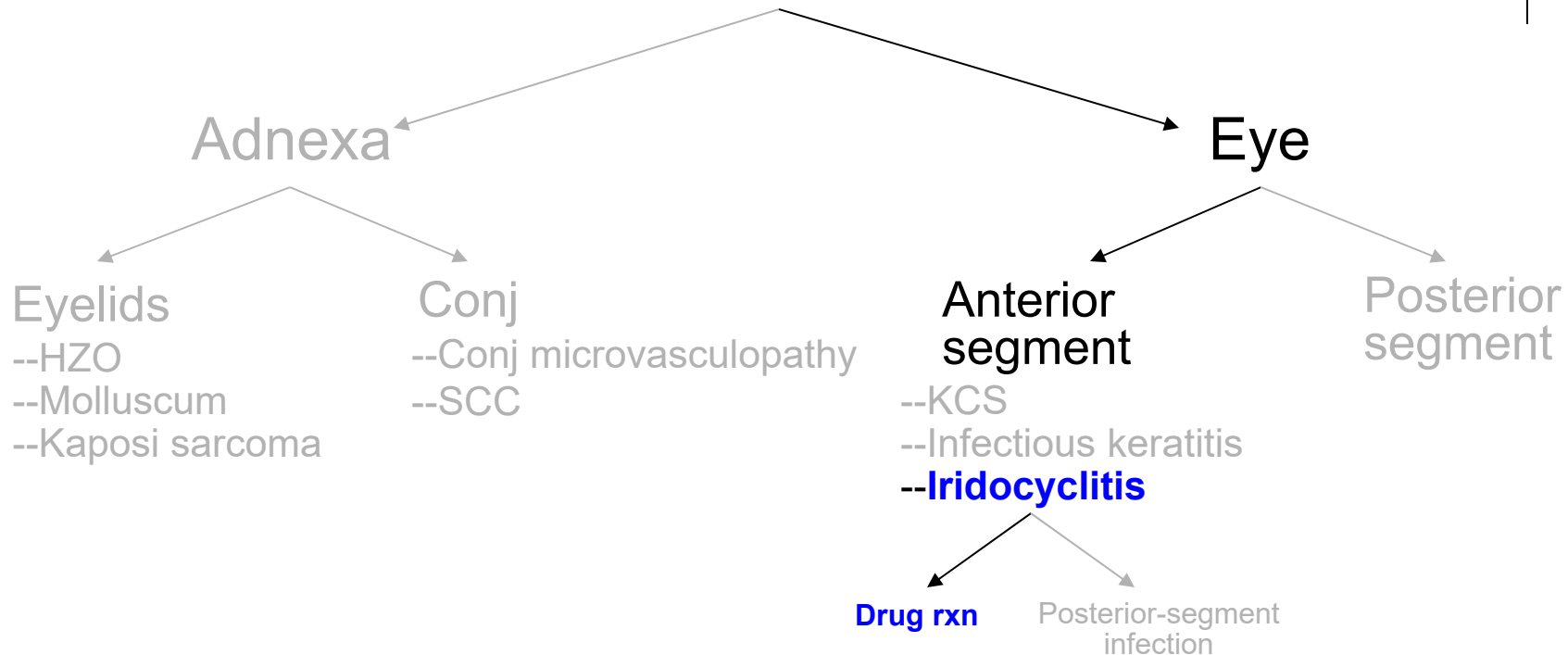
Ophthalmic HIV manifestations



Two meds can cause Rifabutin-induced uveitis is more likely if another class of med is being taken concurrently.
 --Rifabutin What is it?
 --Cidofovir

HIV and the Eye

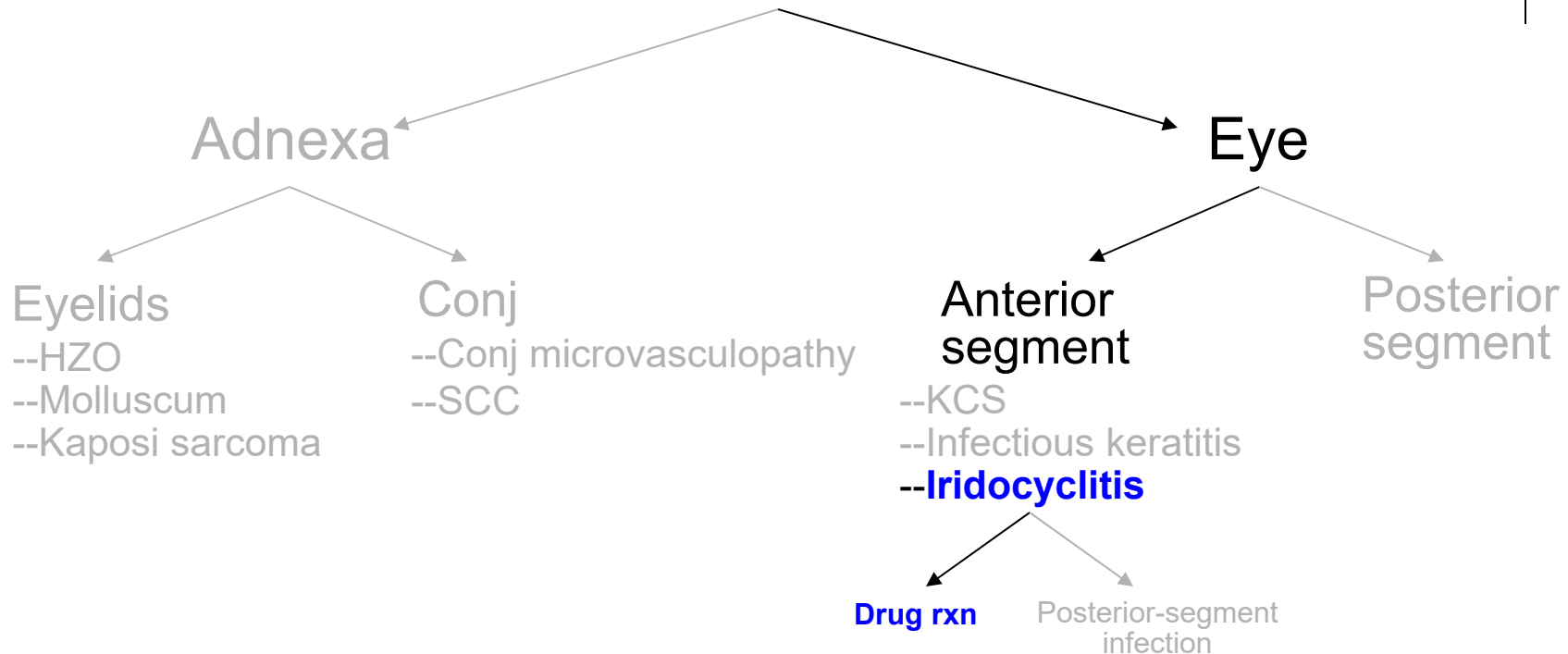
Ophthalmic HIV manifestations



Two meds can cause Rifabutin-induced uveitis is more likely if another class of med is being taken concurrently.
 --Rifabutin What is it?
 --Cidofovir An azole antifungal

HIV and the Eye

Ophthalmic HIV manifestations



Cidofovir has another ocular side effect (not necessarily a bad thing) in about 10% of cases—what is it?

Two meds common

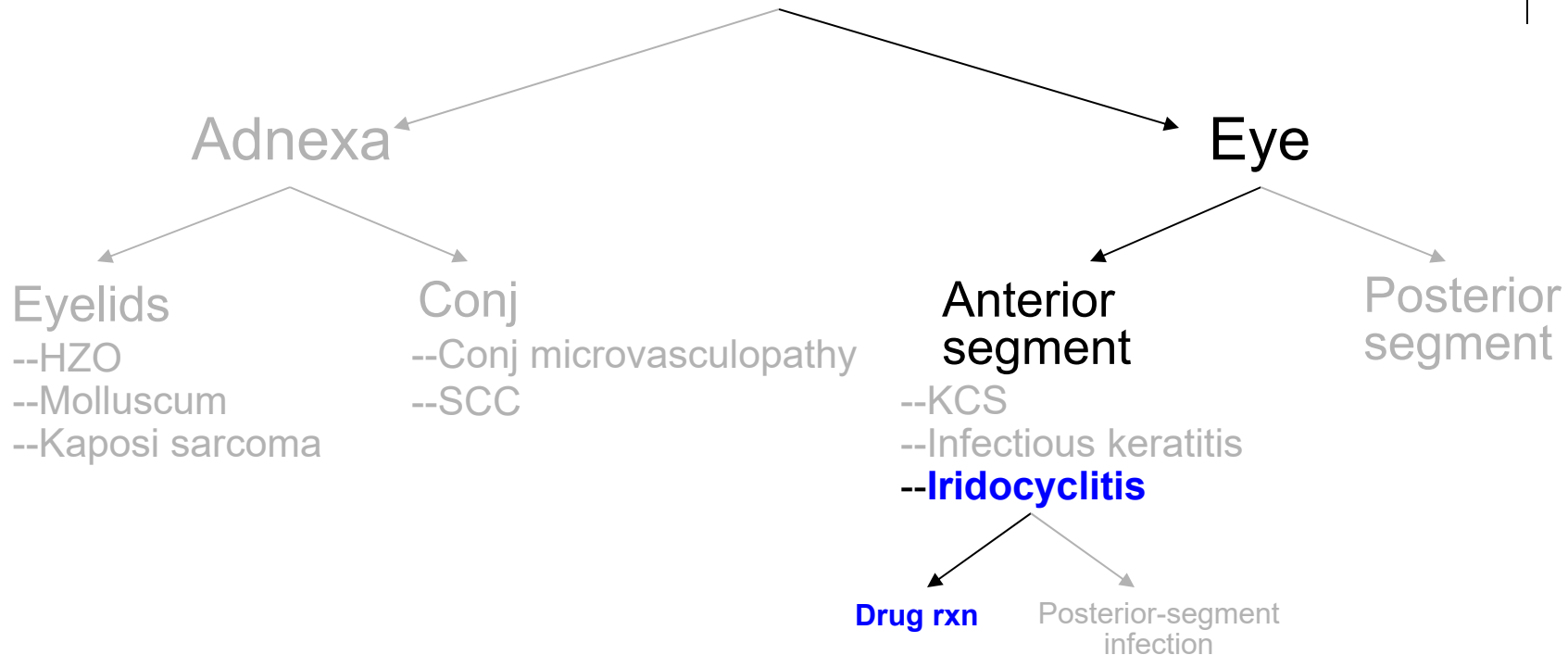
--Rifabutin

--Cidofovir

ey?

HIV and the Eye

Ophthalmic HIV manifestations



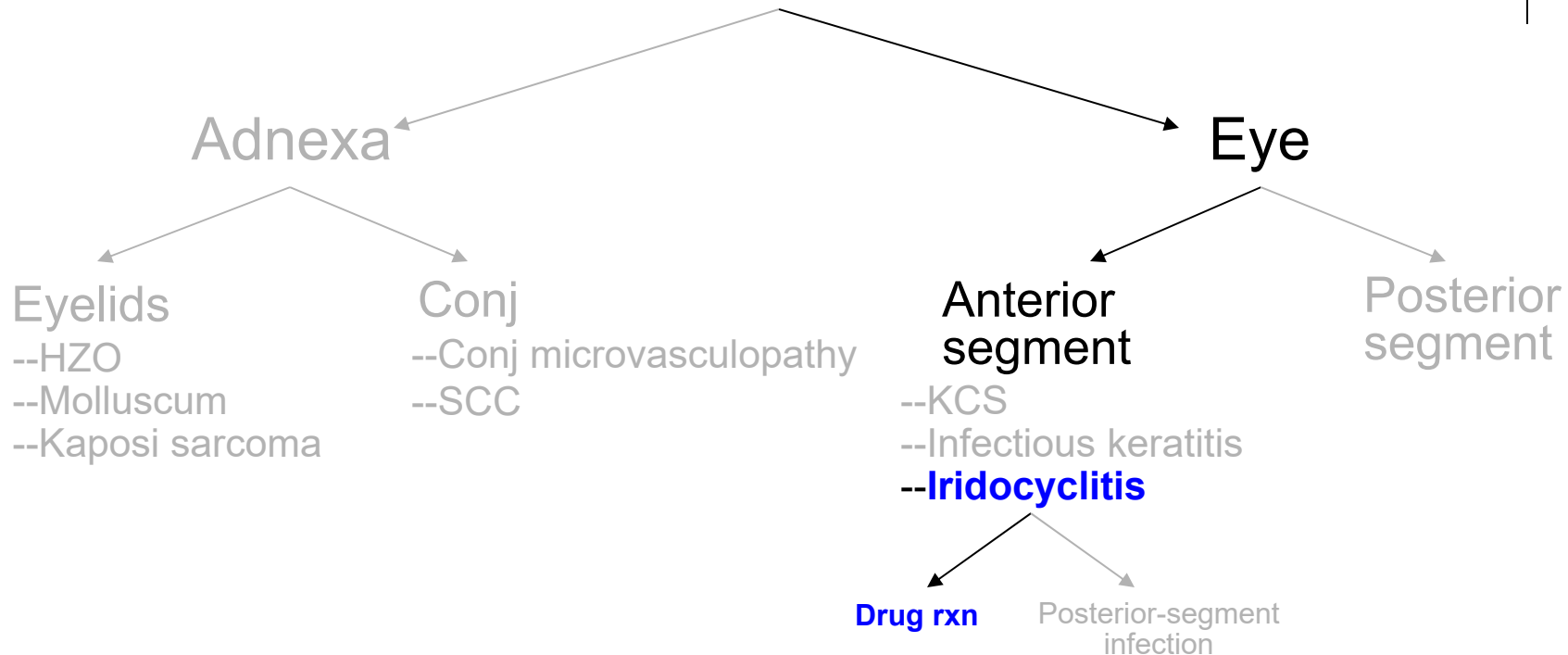
Two meds common
 --Rifabutin
 --Cidofovir

Cidofovir has another ocular side effect (not necessarily a bad thing) in about 10% of cases—what is it?
It lowers IOP

ey?

HIV and the Eye

Ophthalmic HIV manifestations



Two meds common
 --Rifabutin
 --Cidofovir

Cidofovir has another ocular side effect (not necessarily a bad thing) in about 10% of cases—what is it?

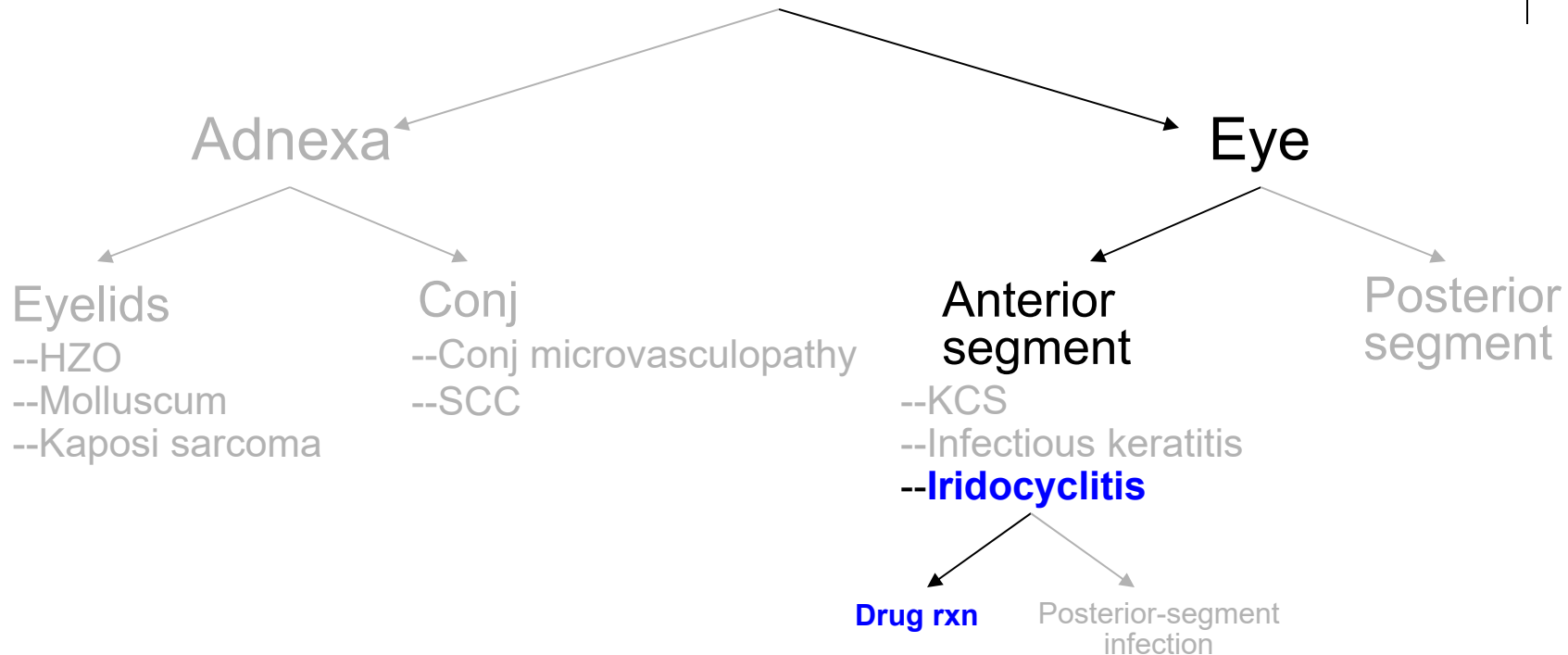
It lowers IOP

*Under what circumstances **would** it be a bad thing?*

ey?

HIV and the Eye

Ophthalmic HIV manifestations



Two meds common
 --Rifabutin
 --Cidofovir

Cidofovir has another ocular side effect (not necessarily a bad thing) in about 10% of cases—what is it?

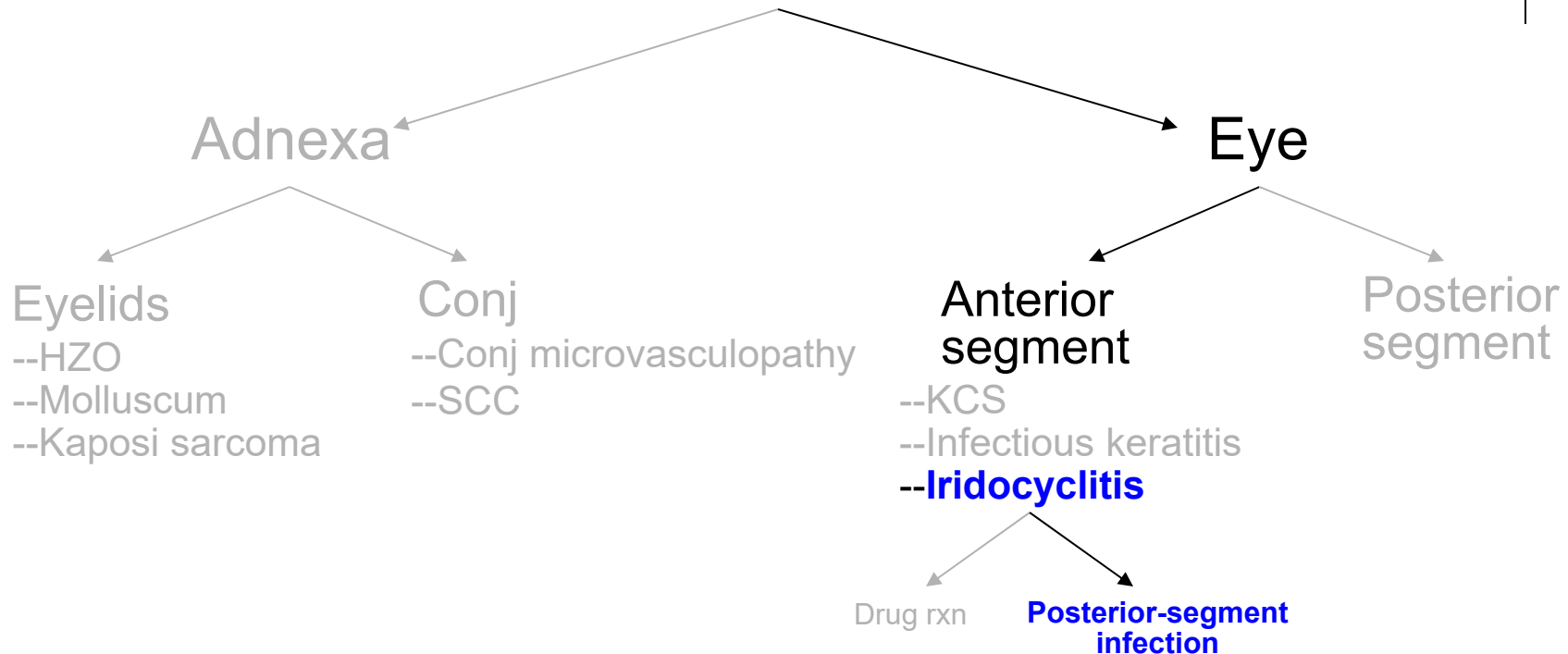
It lowers IOP

*Under what circumstances **would** it be a bad thing?*

If the combination of (Cidofovir-induced) uveitis + ocular hypotension led to **hypotony maculopathy**

HIV and the Eye

Ophthalmic HIV manifestations

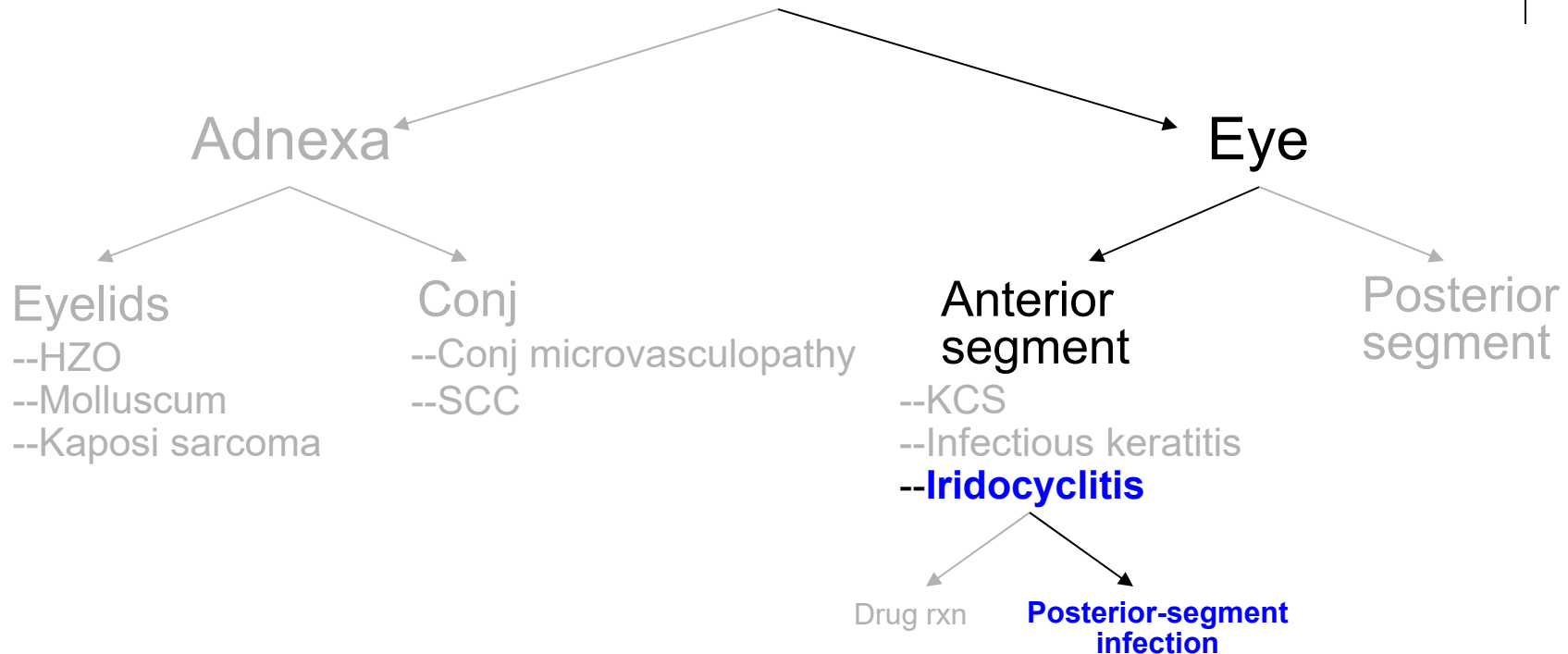


*With which posterior-segment infections is a **mild** iridocyclitis commonly associated in HIV+ pts?*

--
--

HIV and the Eye

Ophthalmic HIV manifestations



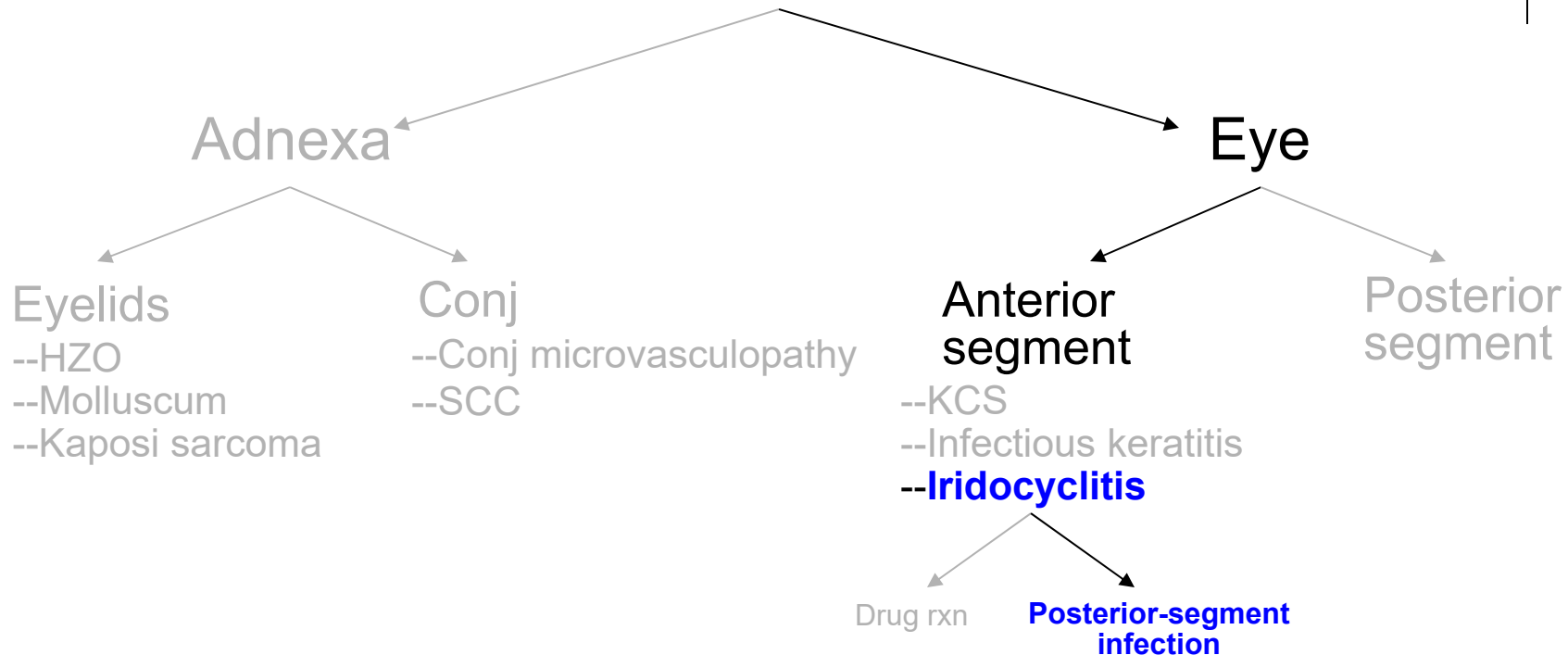
*With which posterior-segment infections is a **mild** iridocyclitis commonly associated in HIV+ pts?*

--**CMV**

--**VZV**

HIV and the Eye

Ophthalmic HIV manifestations



*With which posterior-segment infections is a **mild** iridocyclitis commonly associated in HIV+ pts?*

--**CMV**

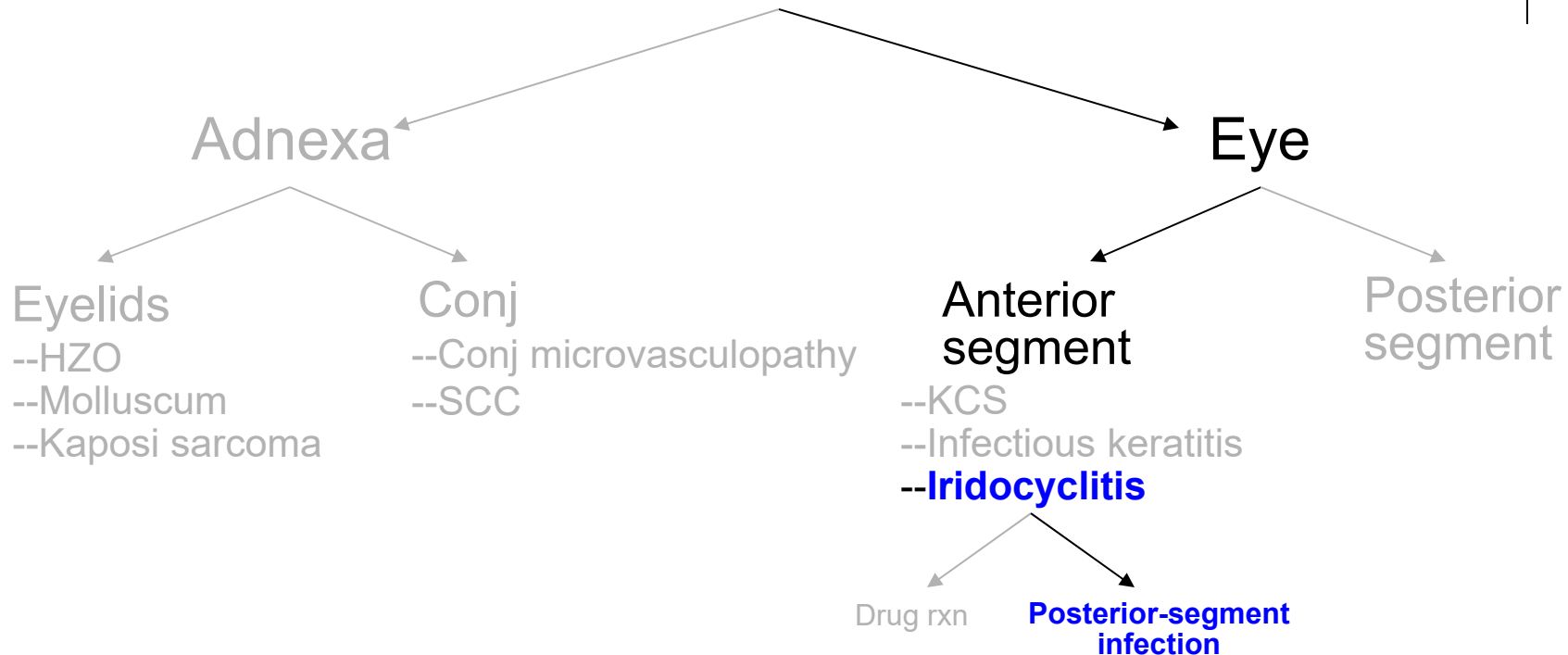
--**VZV**

*With which posterior-segment infections is a **severe** iridocyclitis commonly associated in HIV+ pts?*

--
--
--

HIV and the Eye

Ophthalmic HIV manifestations



*With which posterior-segment infections is a **mild** iridocyclitis commonly associated in HIV+ pts?*

--**CMV**

--**VZV**

*With which posterior-segment infections is a **severe** iridocyclitis commonly associated in HIV+ pts?*

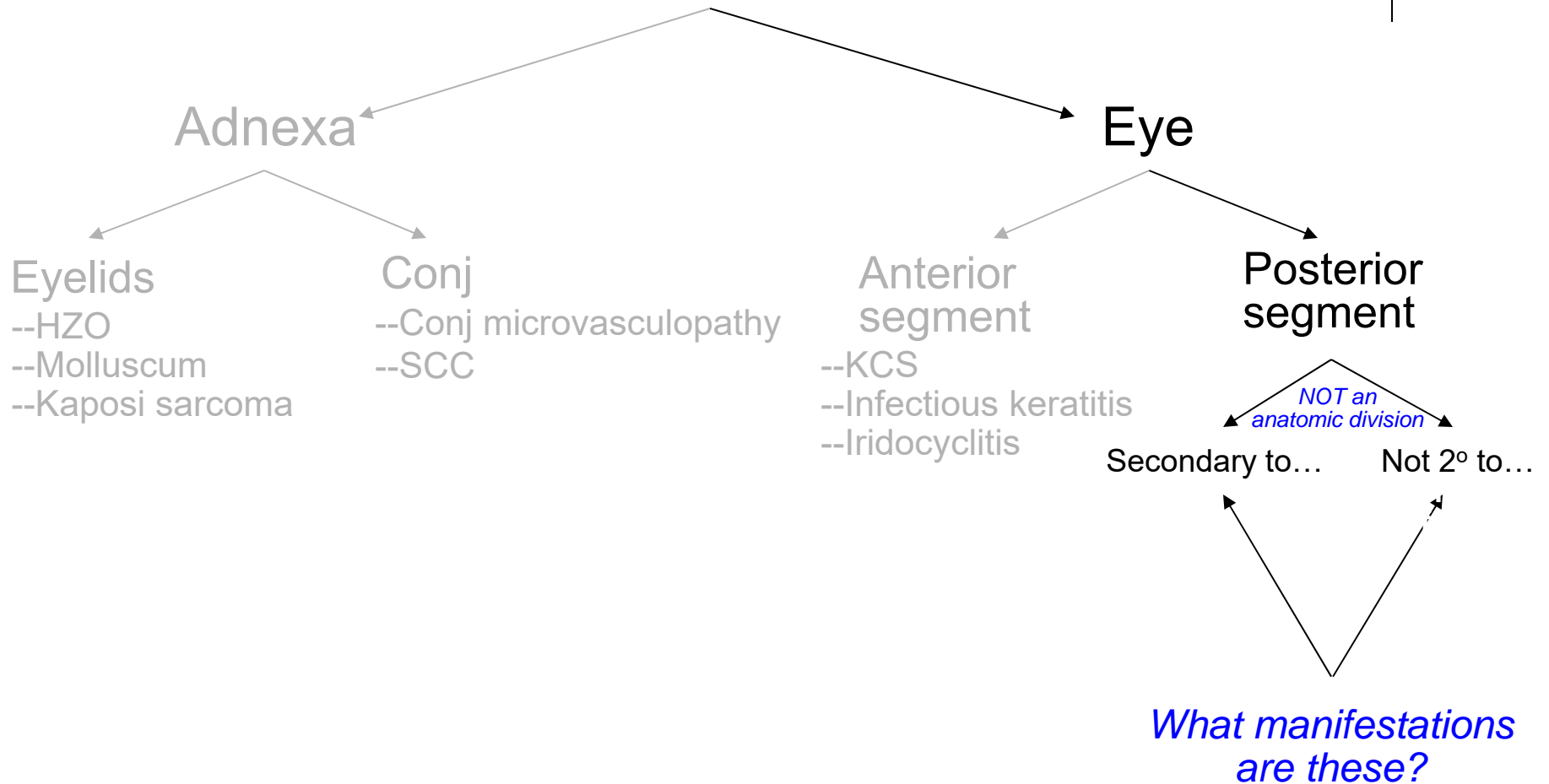
--**Toxoplasmosis**

--**TB**

--**Syphilis**

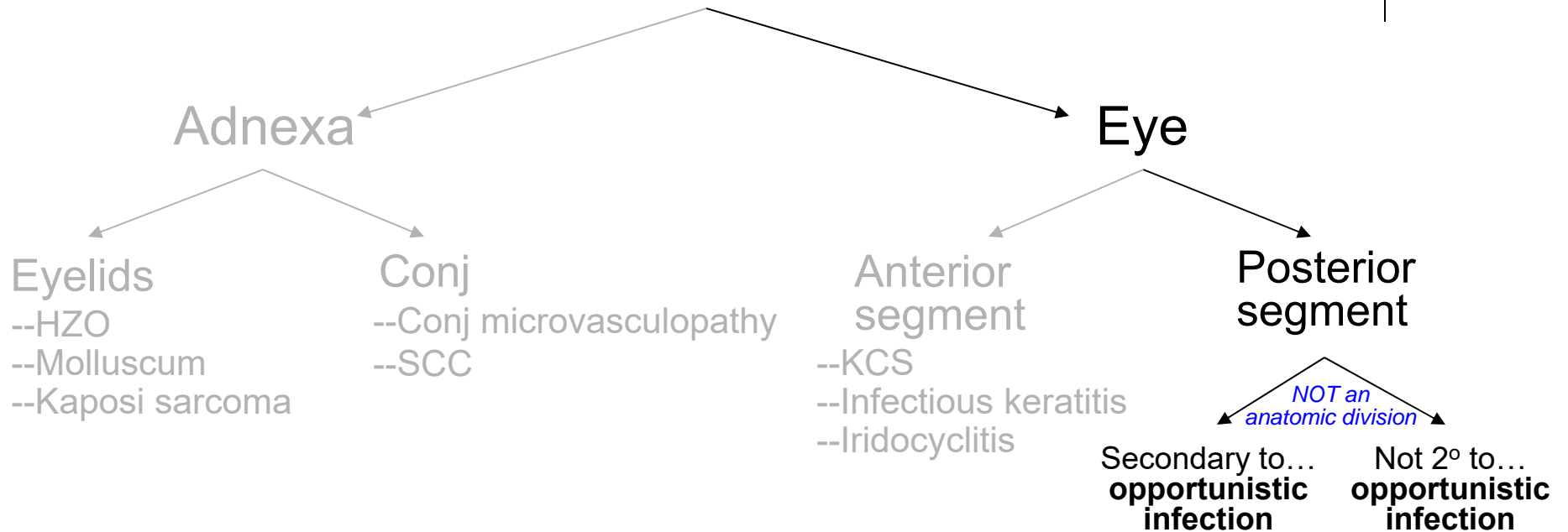
HIV and the Eye

Ophthalmic HIV manifestations



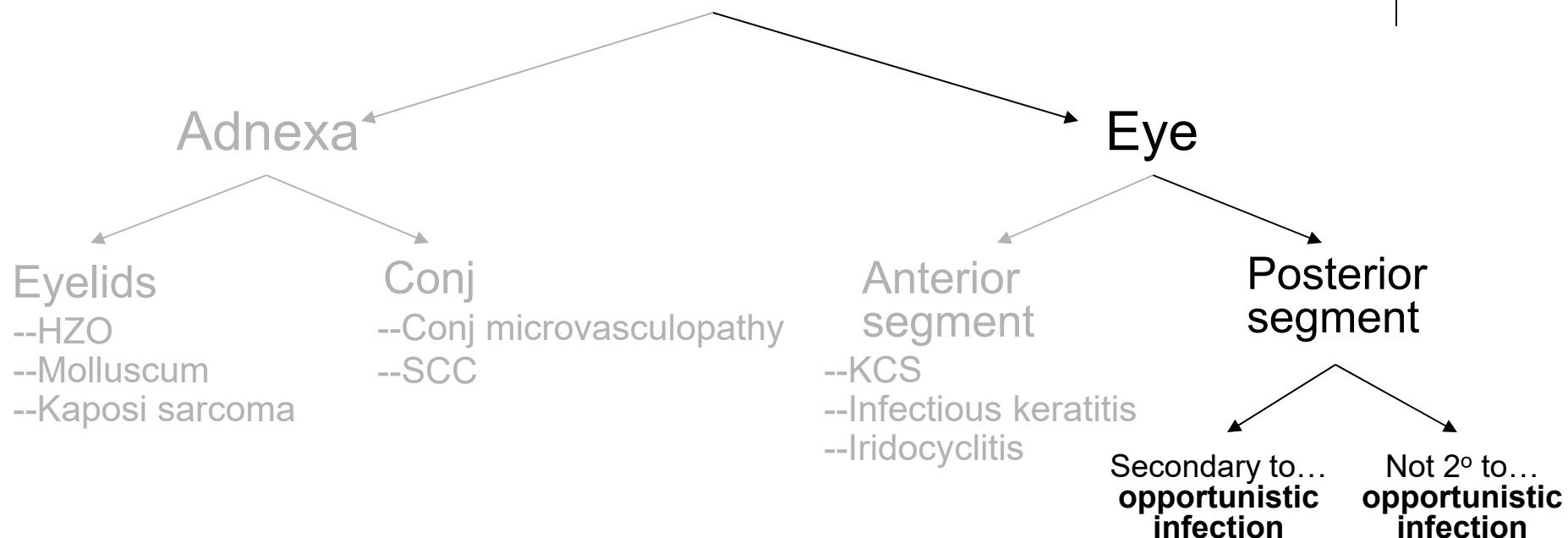
HIV and the Eye

Ophthalmic HIV manifestations





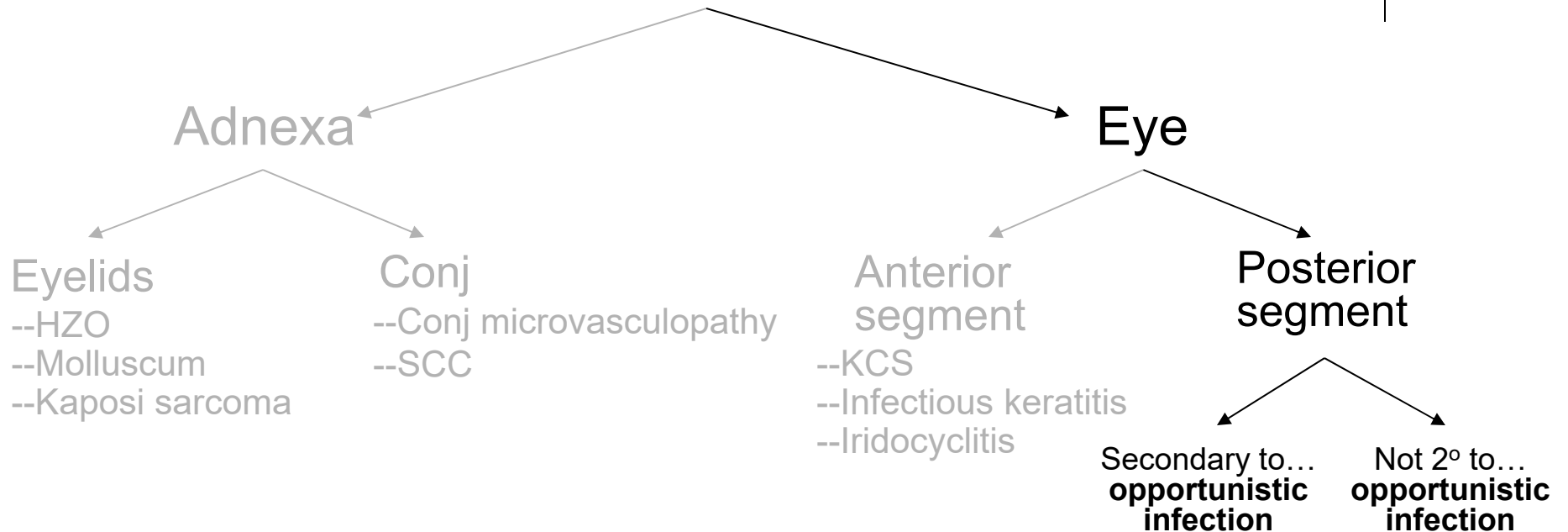
Ophthalmic HIV manifestations



How common are posterior segment manifestations in HIV?

HIV and the Eye

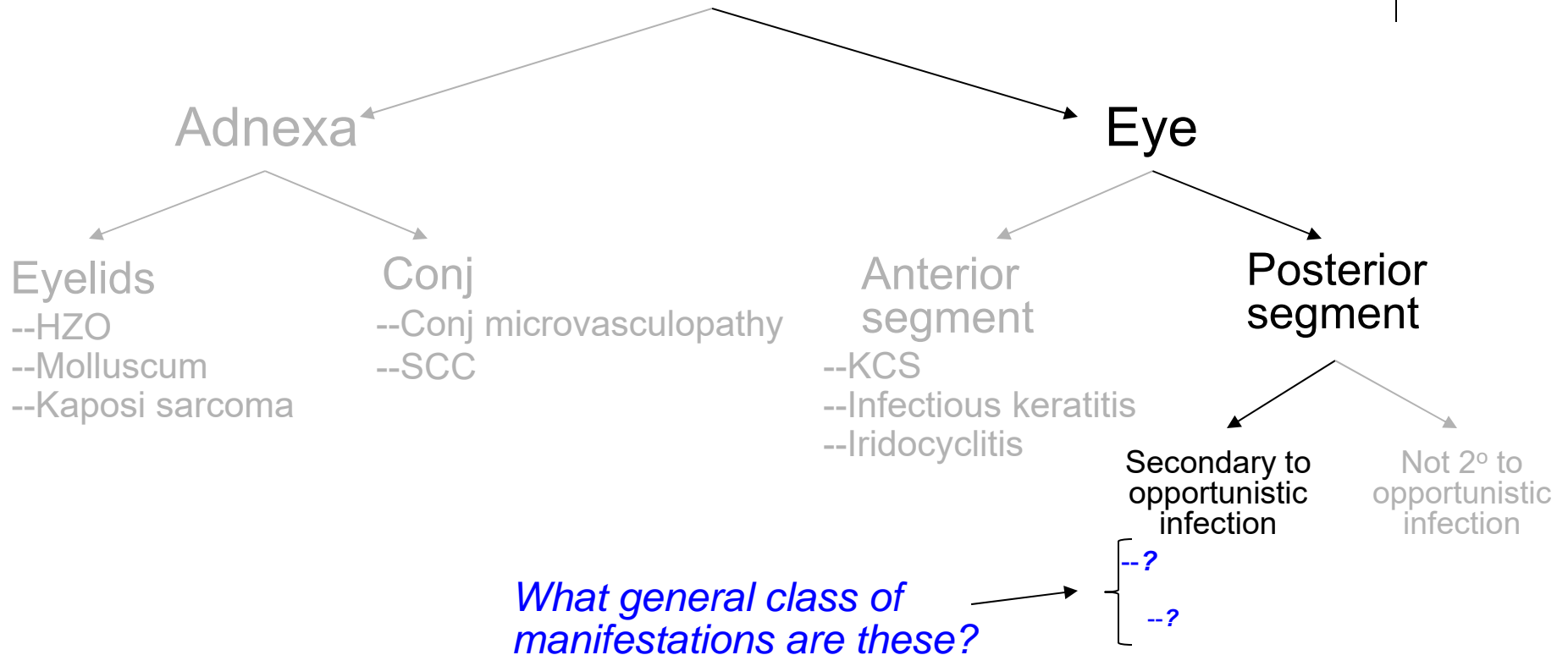
Ophthalmic HIV manifestations



How common are posterior segment manifestations in HIV?
They are present in at least 1/2 of cases

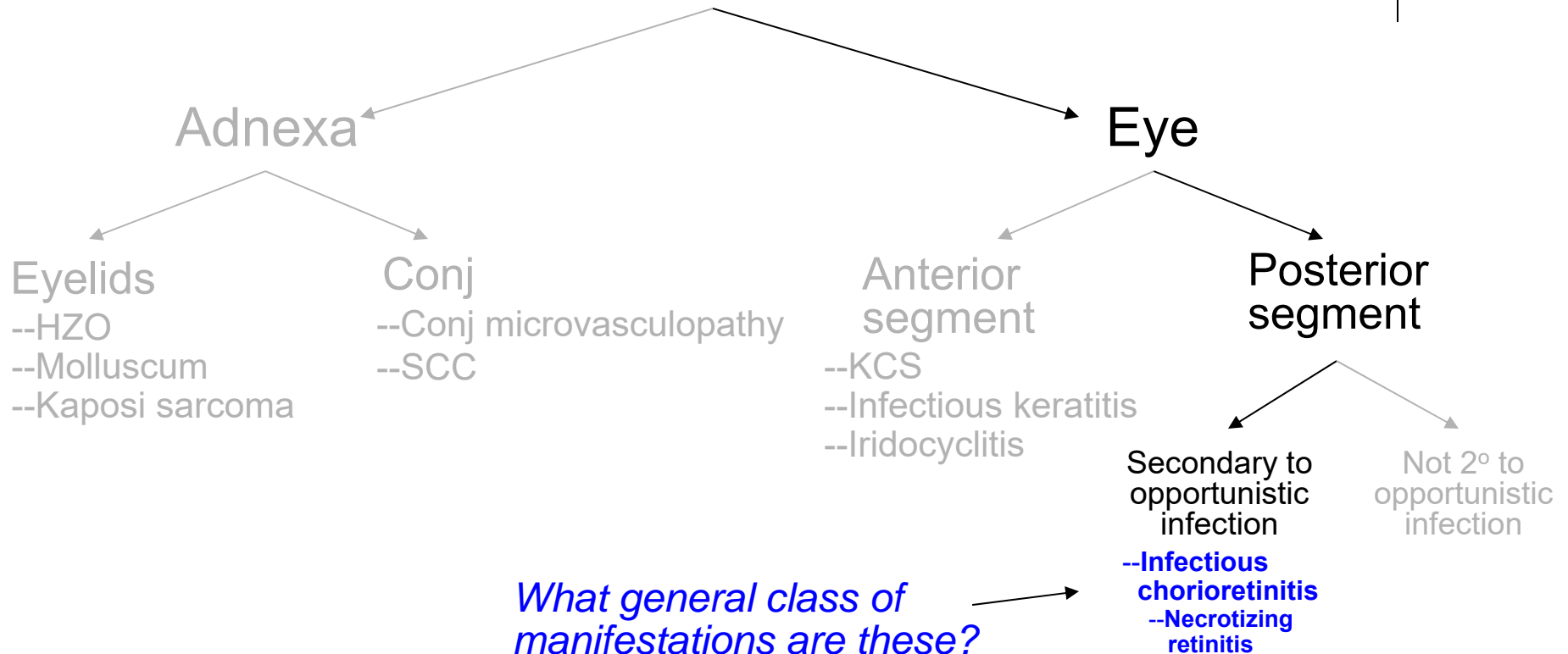
HIV and the Eye

Ophthalmic HIV manifestations



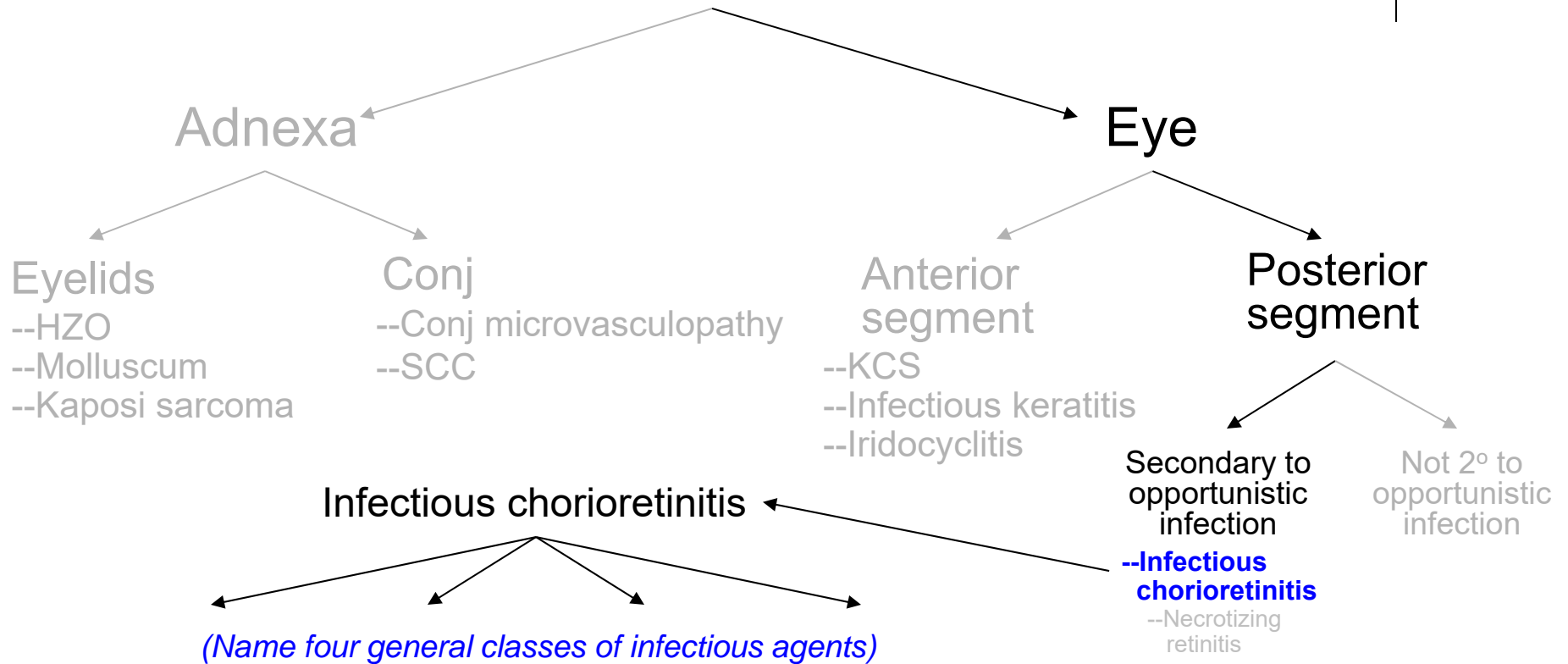
HIV and the Eye

Ophthalmic HIV manifestations



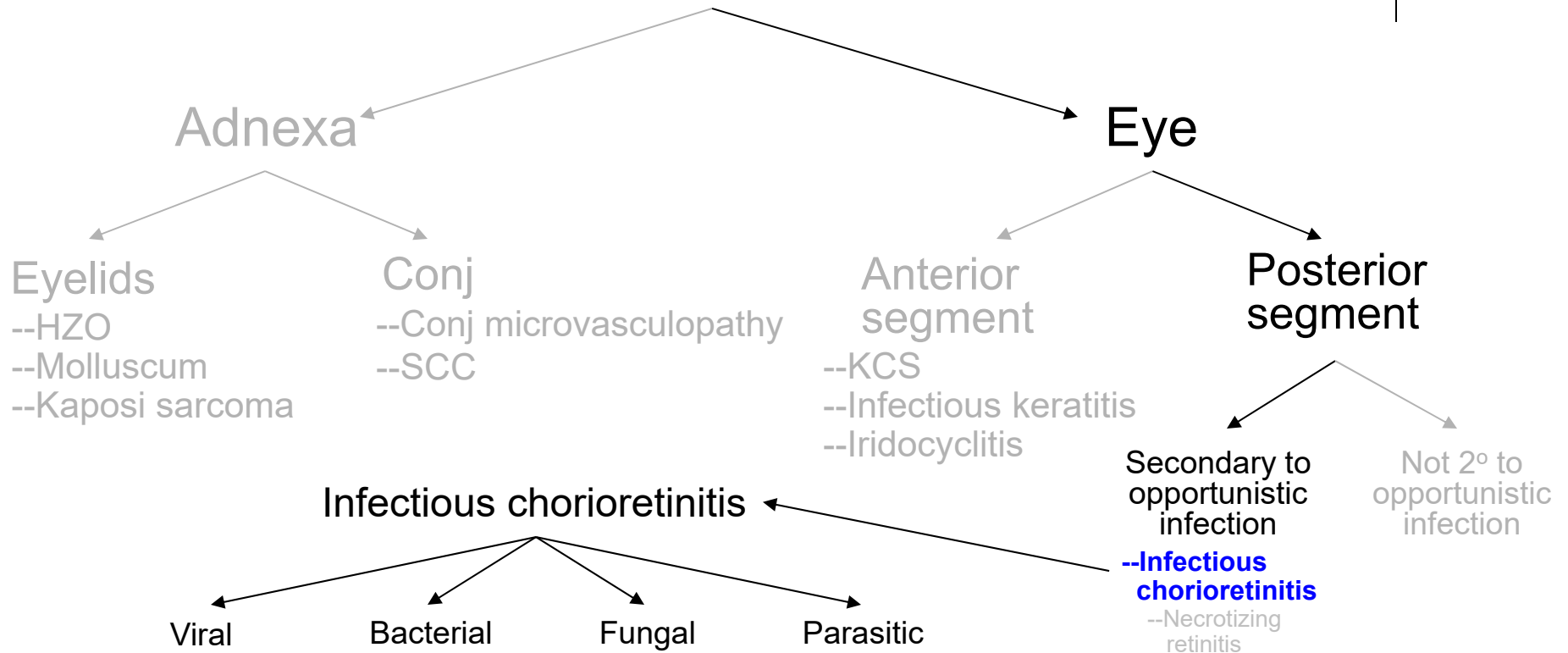
HIV and the Eye

Ophthalmic HIV manifestations



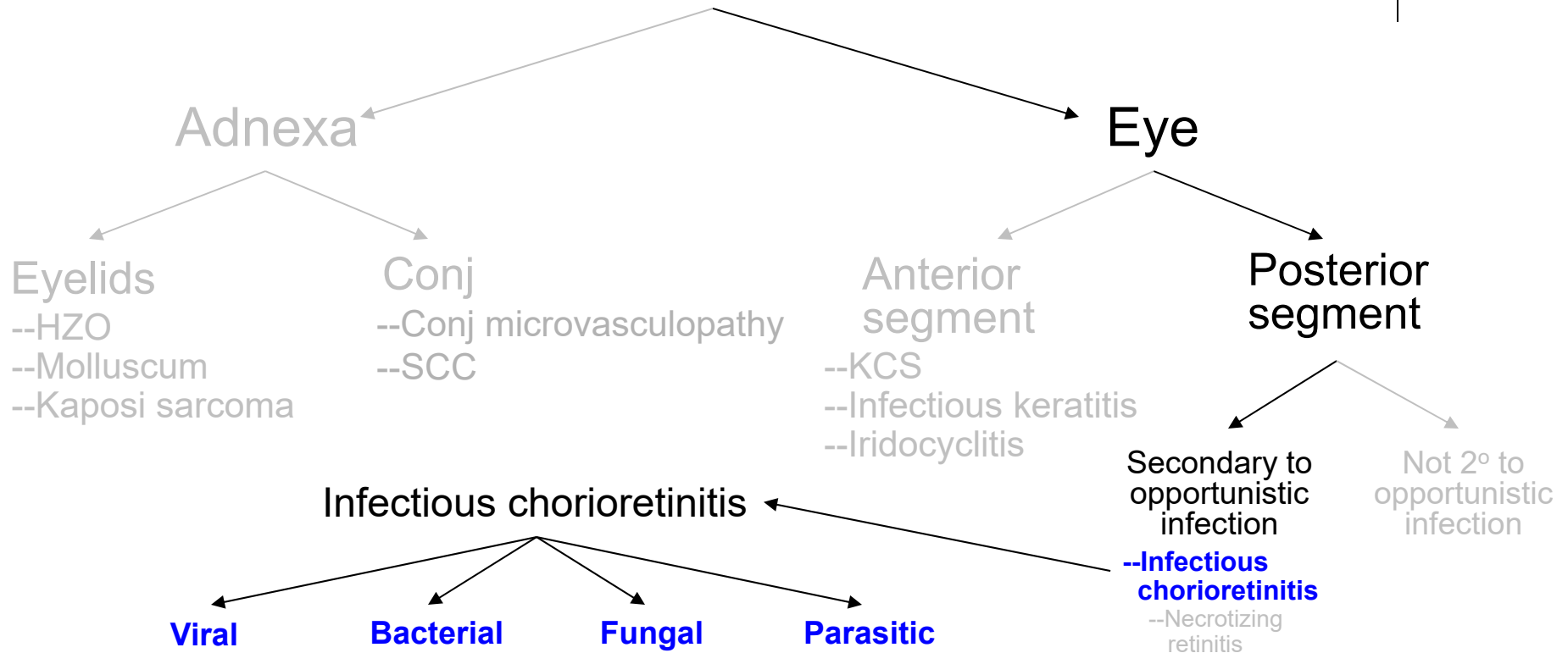
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

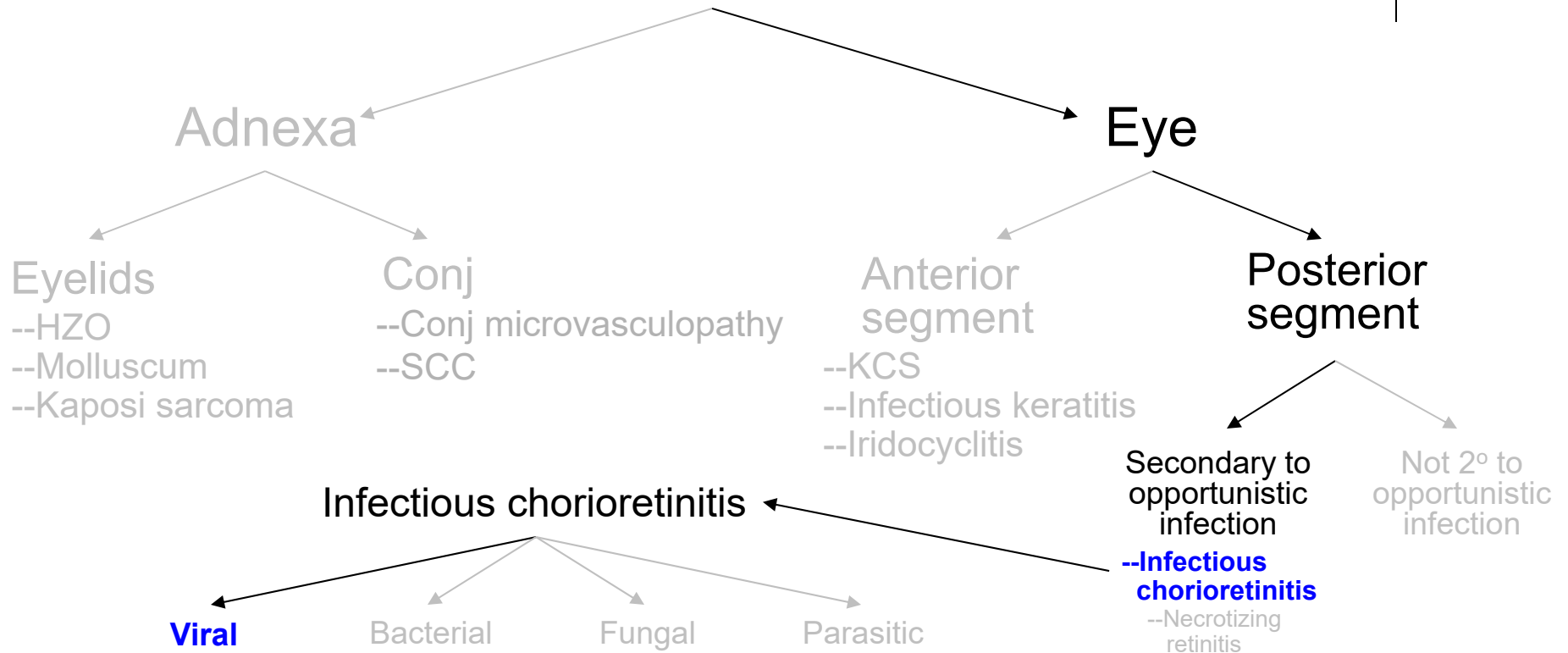
Ophthalmic HIV manifestations



Which of these is the most common cause of infectious retinitis/choroiditis in AIDS pts?

HIV and the Eye

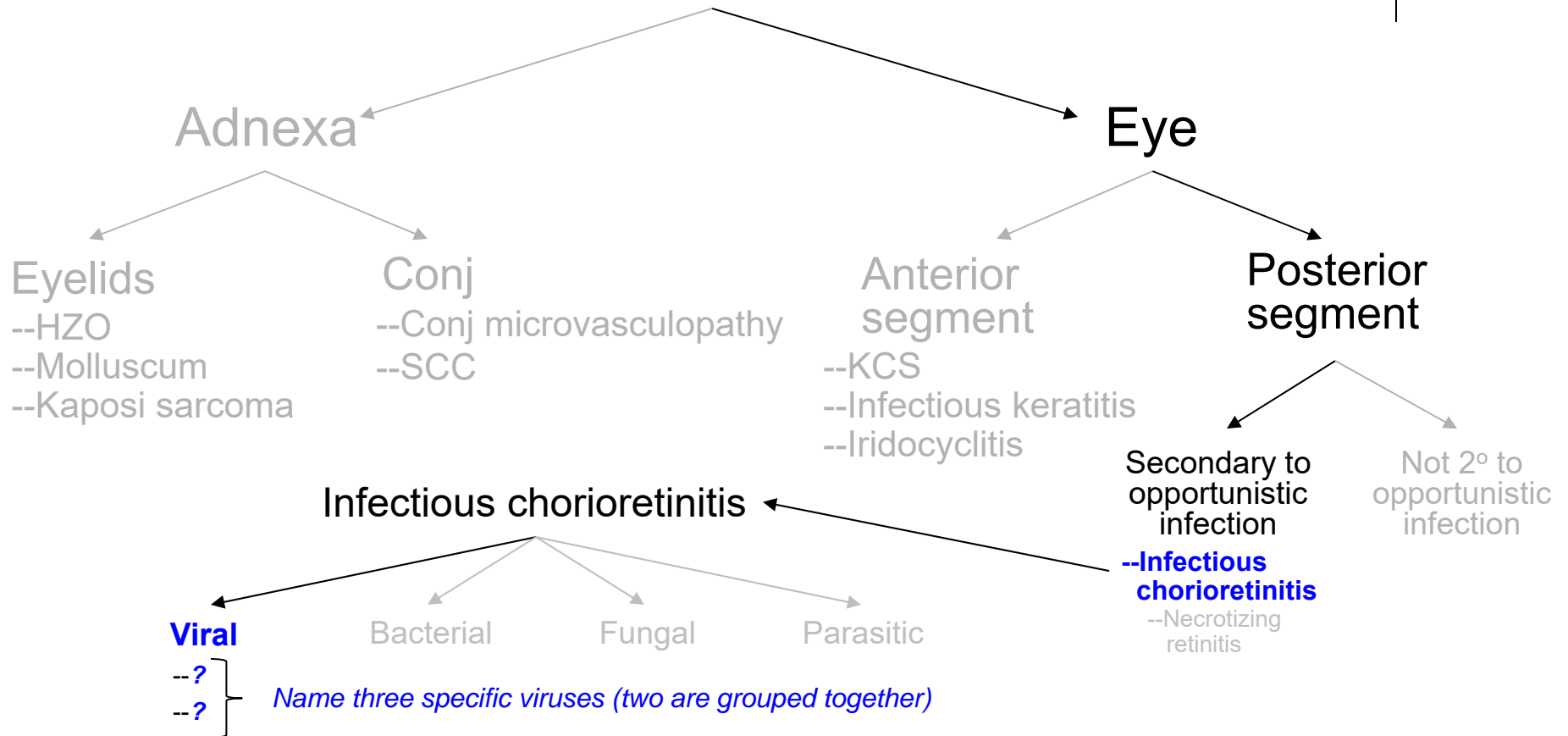
Ophthalmic HIV manifestations



Which of these is the most common cause of infectious retinitis/choroiditis in AIDS pts?
Viral pathogens

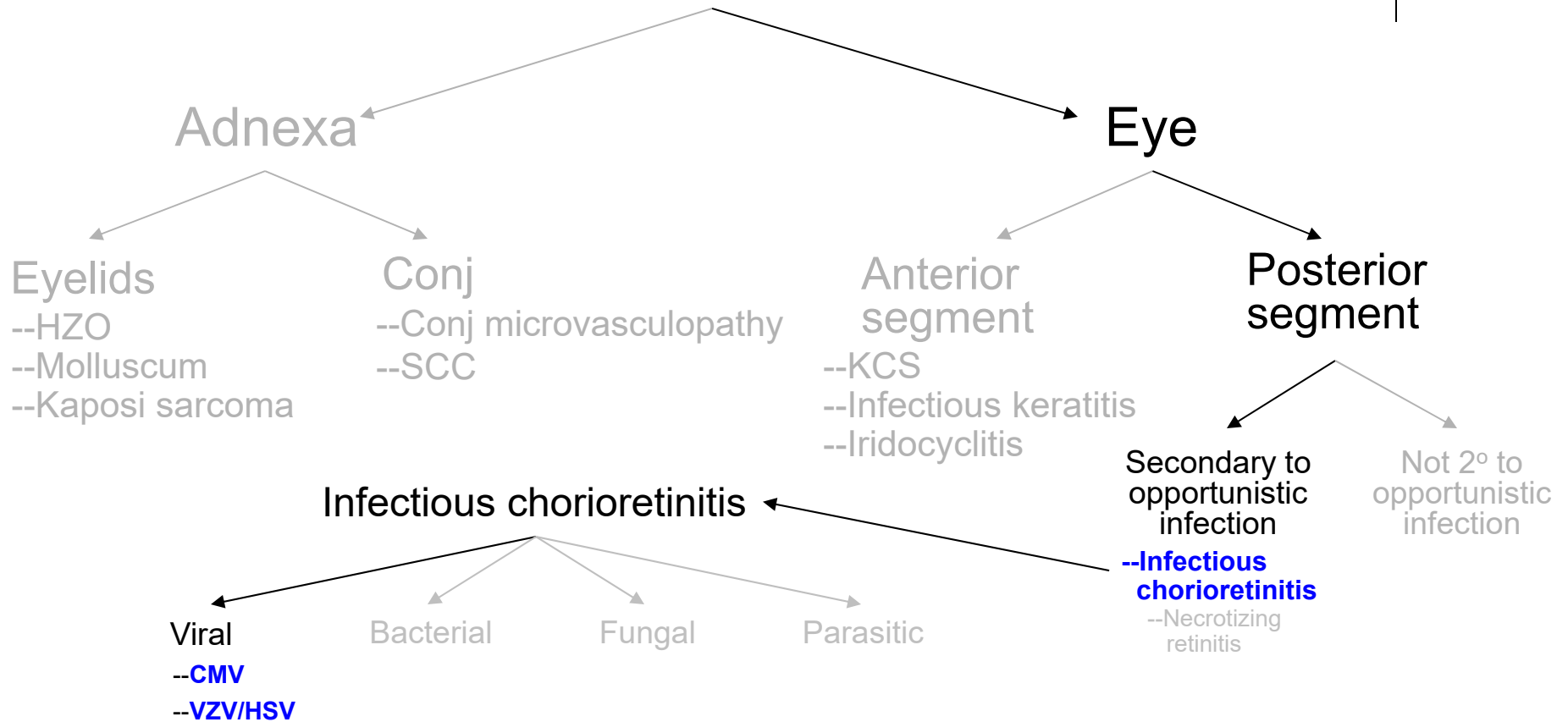
HIV and the Eye

Ophthalmic HIV manifestations



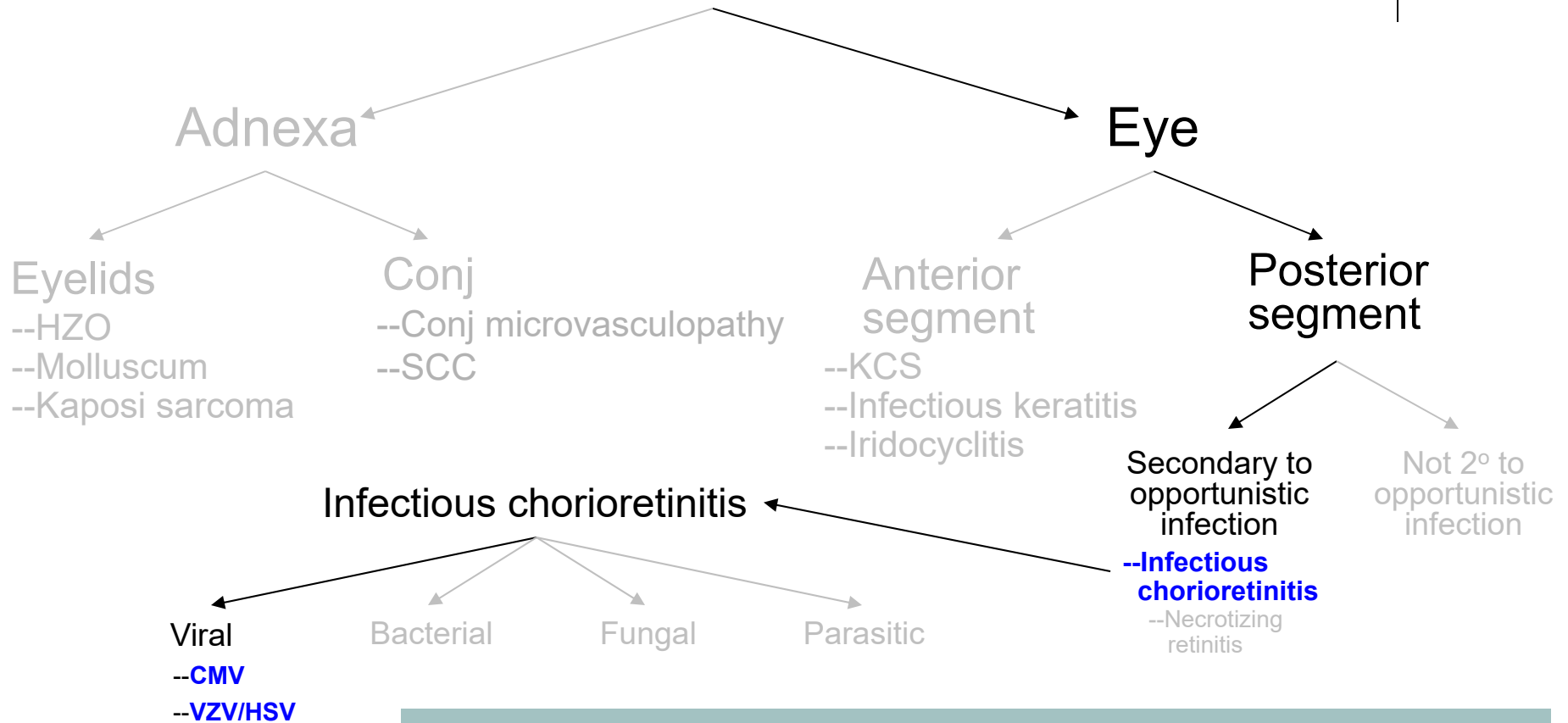
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

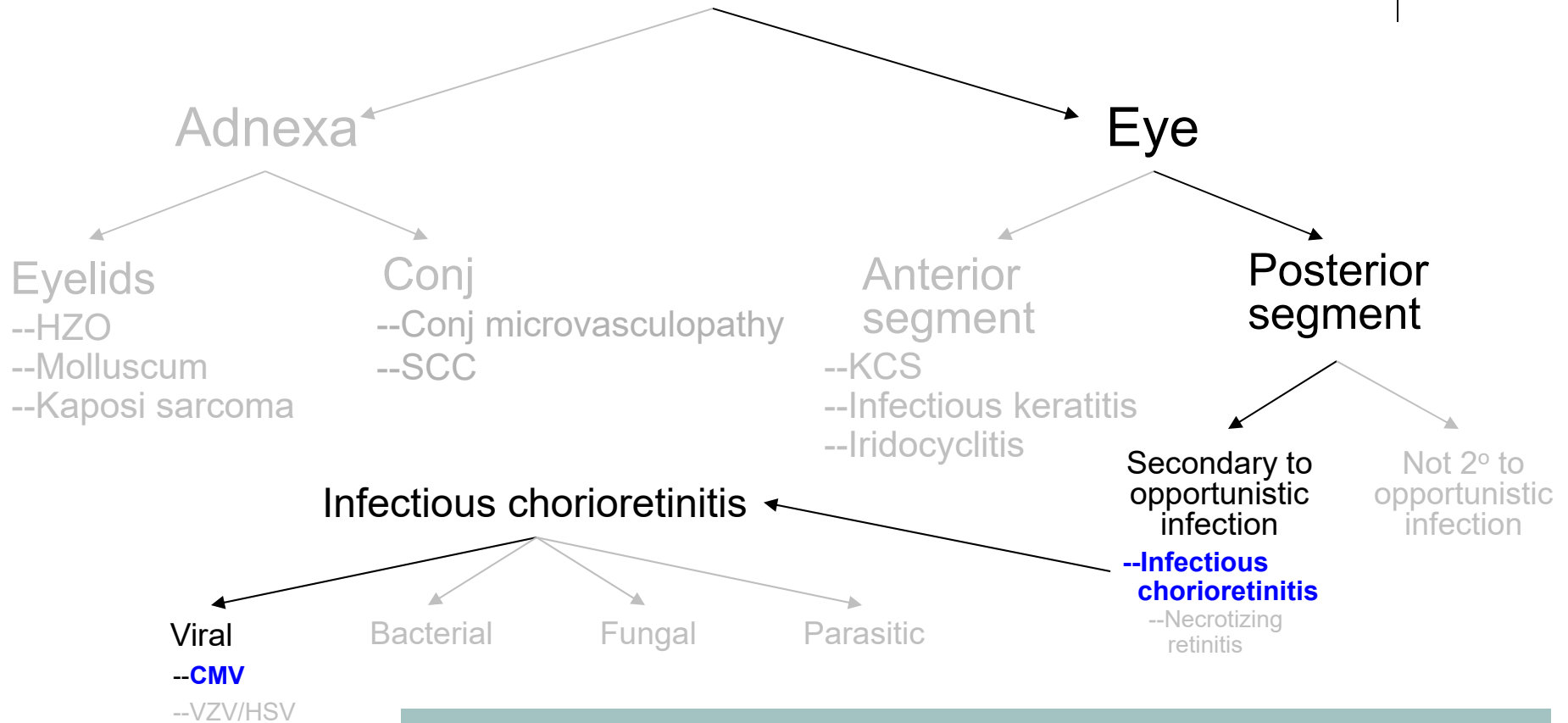
Ophthalmic HIV manifestations



Which is the most common viral cause (and #1 cause overall)?

HIV and the Eye

Ophthalmic HIV manifestations

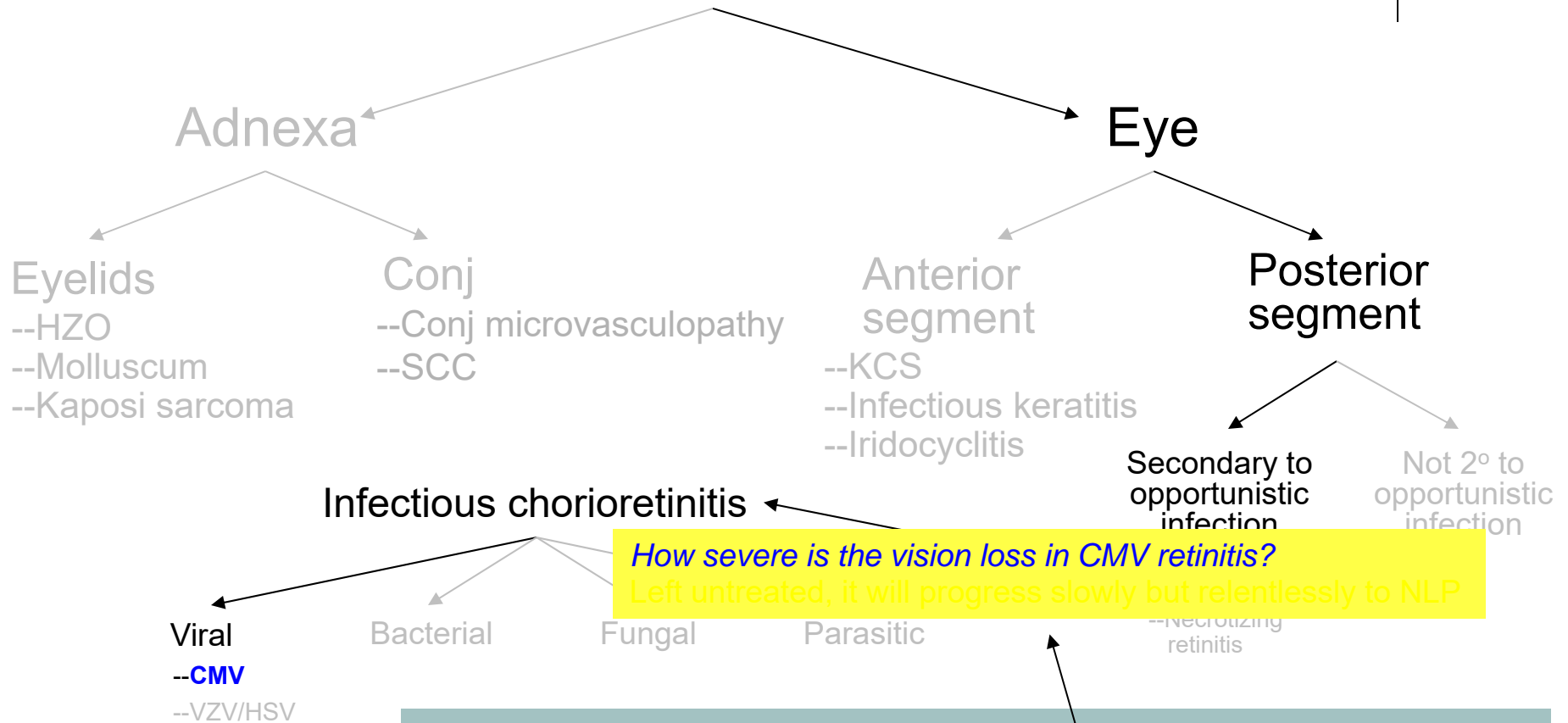


Which is the most common viral cause (and #1 cause overall)?

CMV retinitis is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

HIV and the Eye

Ophthalmic HIV manifestations



How severe is the vision loss in CMV retinitis?

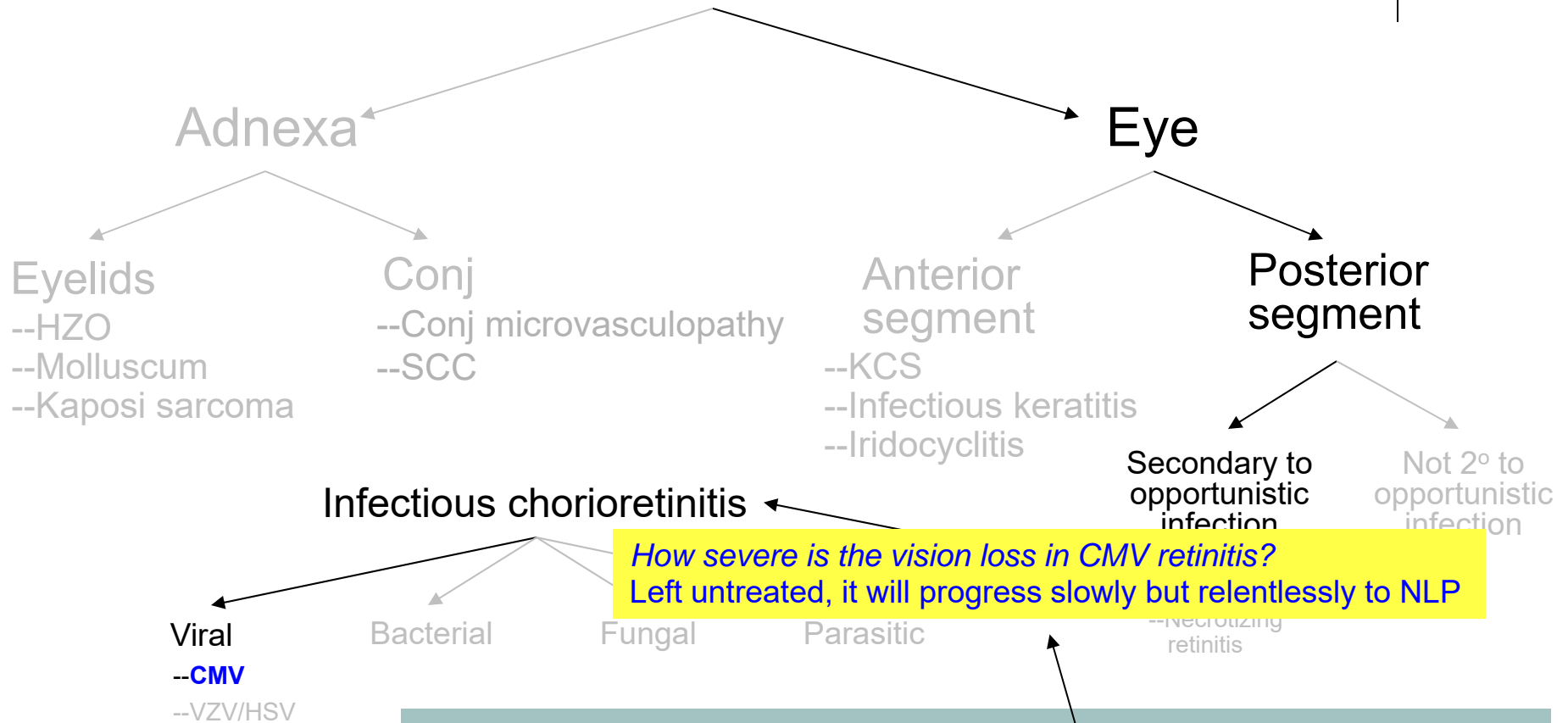
Left untreated, it will progress slowly but relentlessly to NLP

Which is the most common viral cause (and #1 cause overall)?

CMV retinitis is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

HIV and the Eye

Ophthalmic HIV manifestations

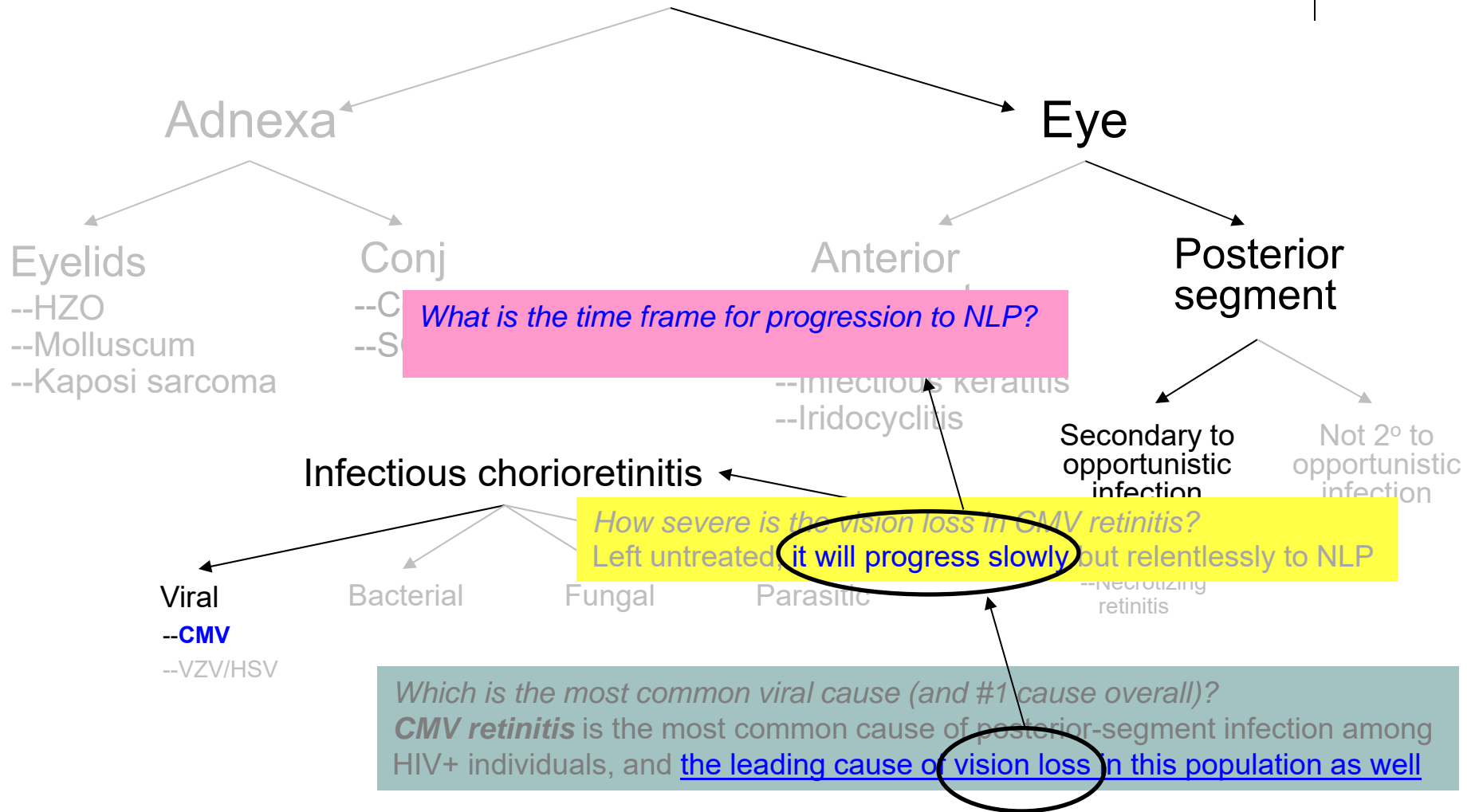


How severe is the vision loss in CMV retinitis?
 Left untreated, it will progress slowly but relentlessly to NLP

Which is the most common viral cause (and #1 cause overall)?
CMV retinitis is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

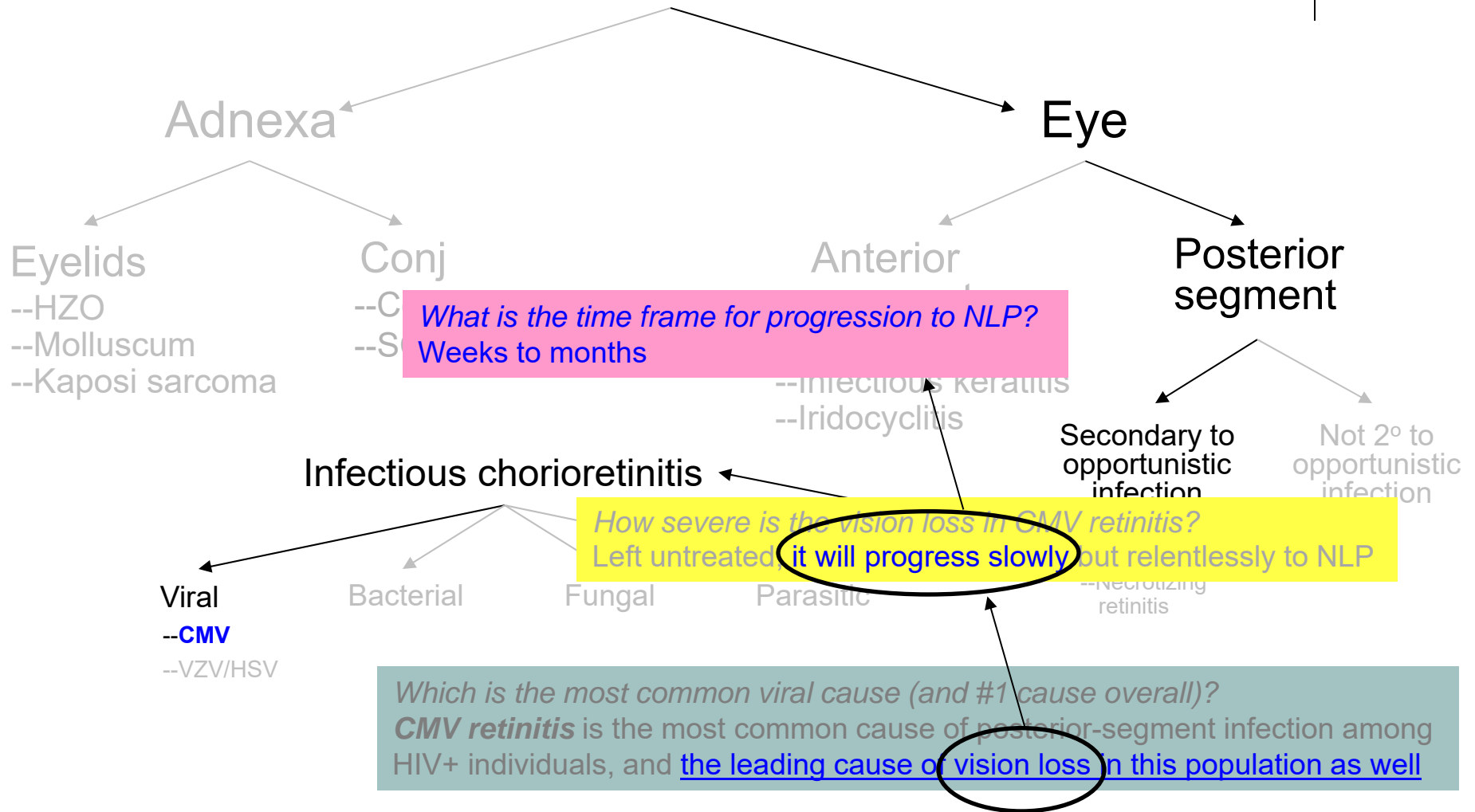
HIV and the Eye

Ophthalmic HIV manifestations

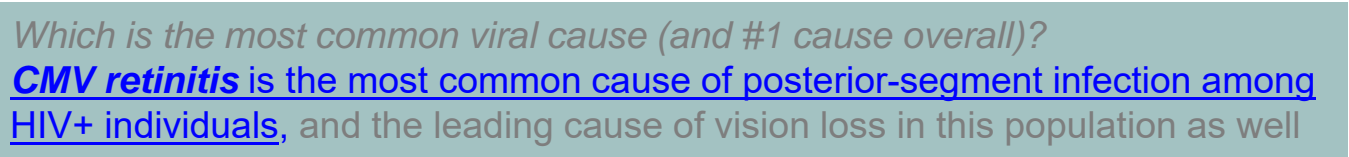


HIV and the Eye

Ophthalmic HIV manifestations

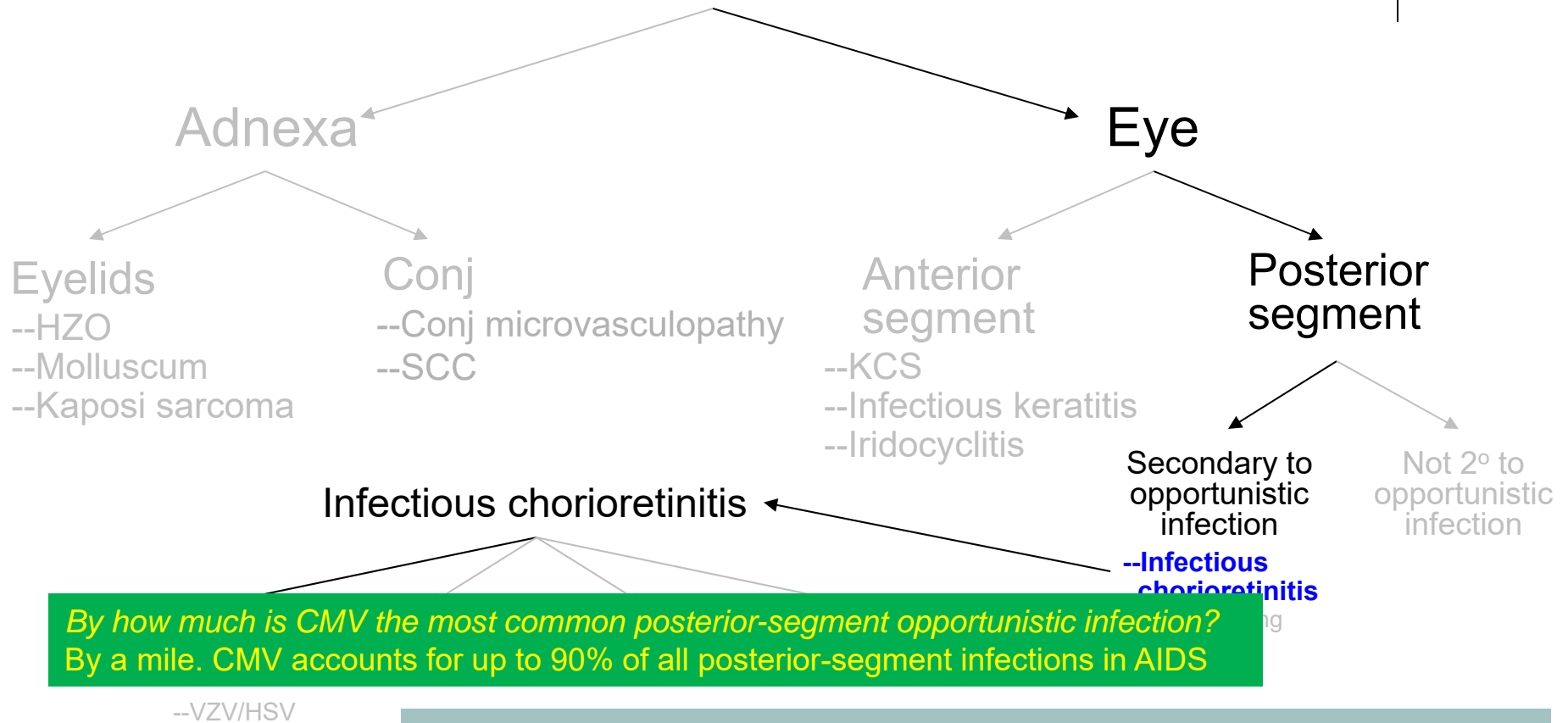


Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations



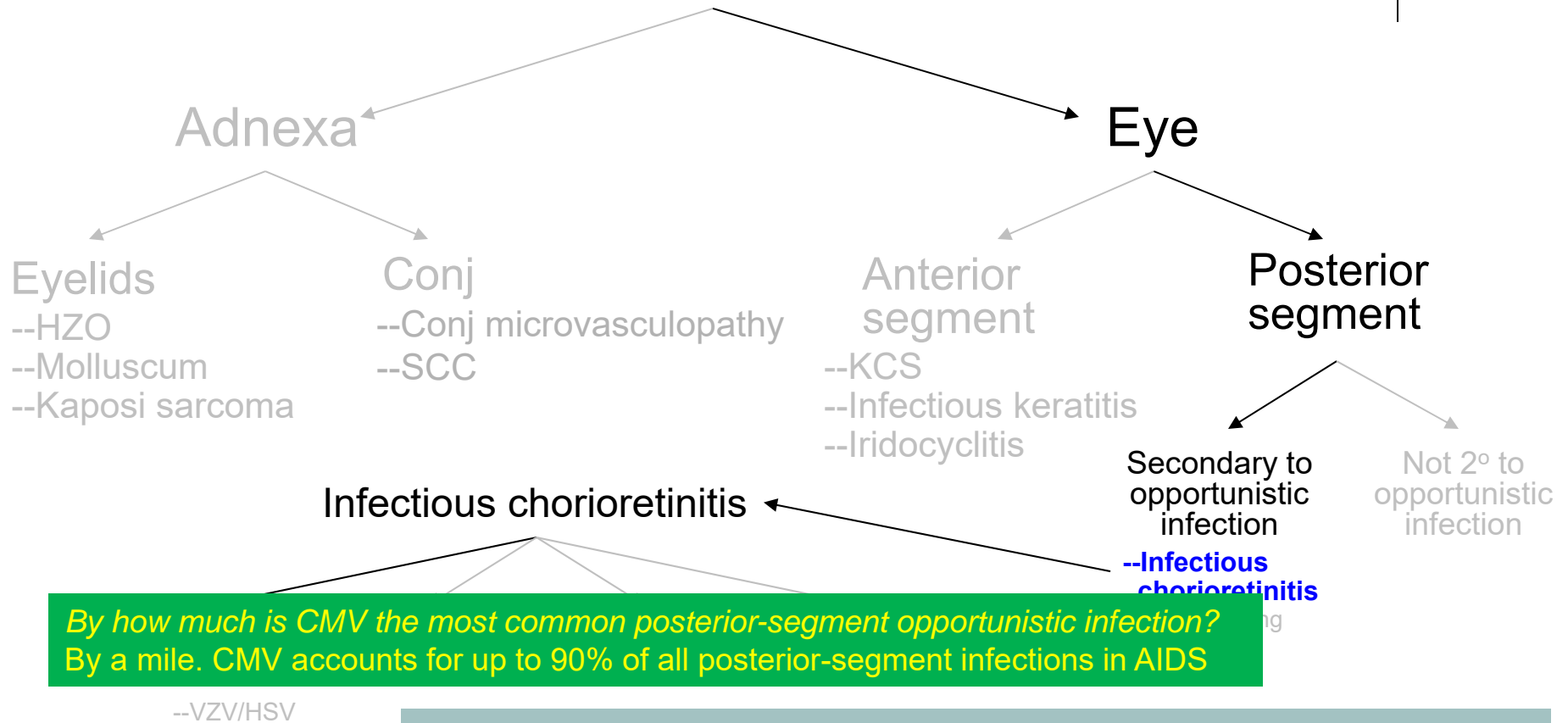
By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

Which is the most common viral cause (and #1 cause overall)?

CMV retinitis is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

HIV and the Eye

Ophthalmic HIV manifestations



By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

--VZV/HSV

Which is the most common viral cause (and #1 cause overall)?

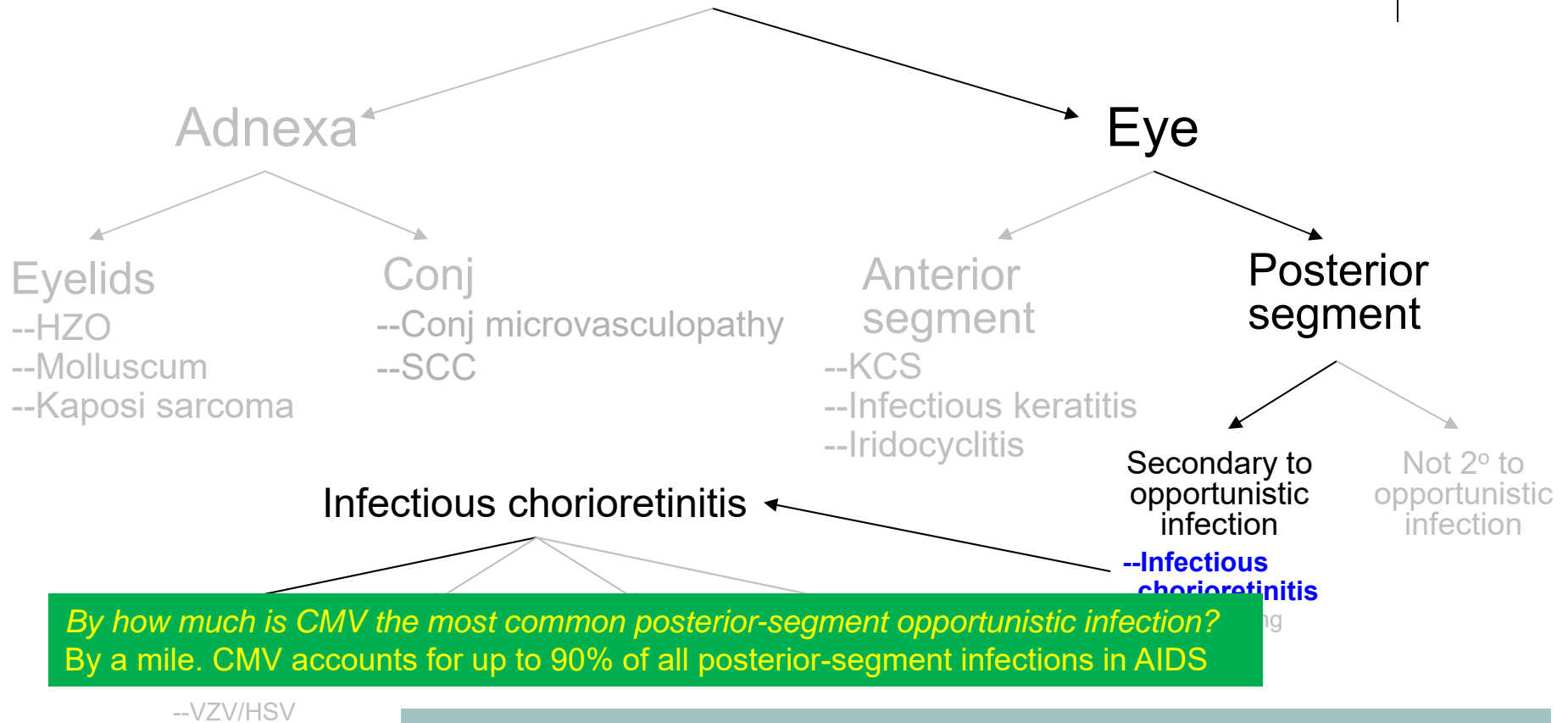
CMV retinitis is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?

It will arise in about 1/3 of these pts

HIV and the Eye

Ophthalmic HIV manifestations



*By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS*

--VZV/HSV

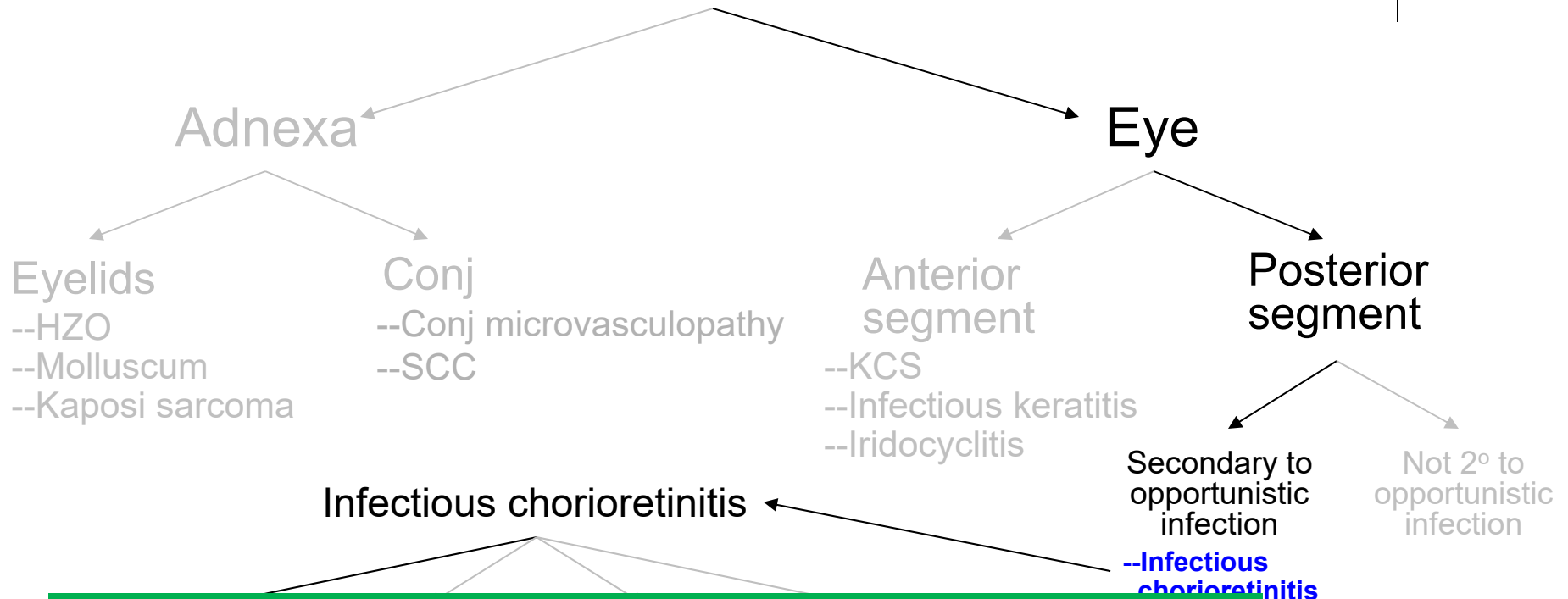
Which is the most common viral cause (and #1 cause overall)?

CMV retinitis is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

*How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts*

HIV and the Eye

Ophthalmic HIV manifestations



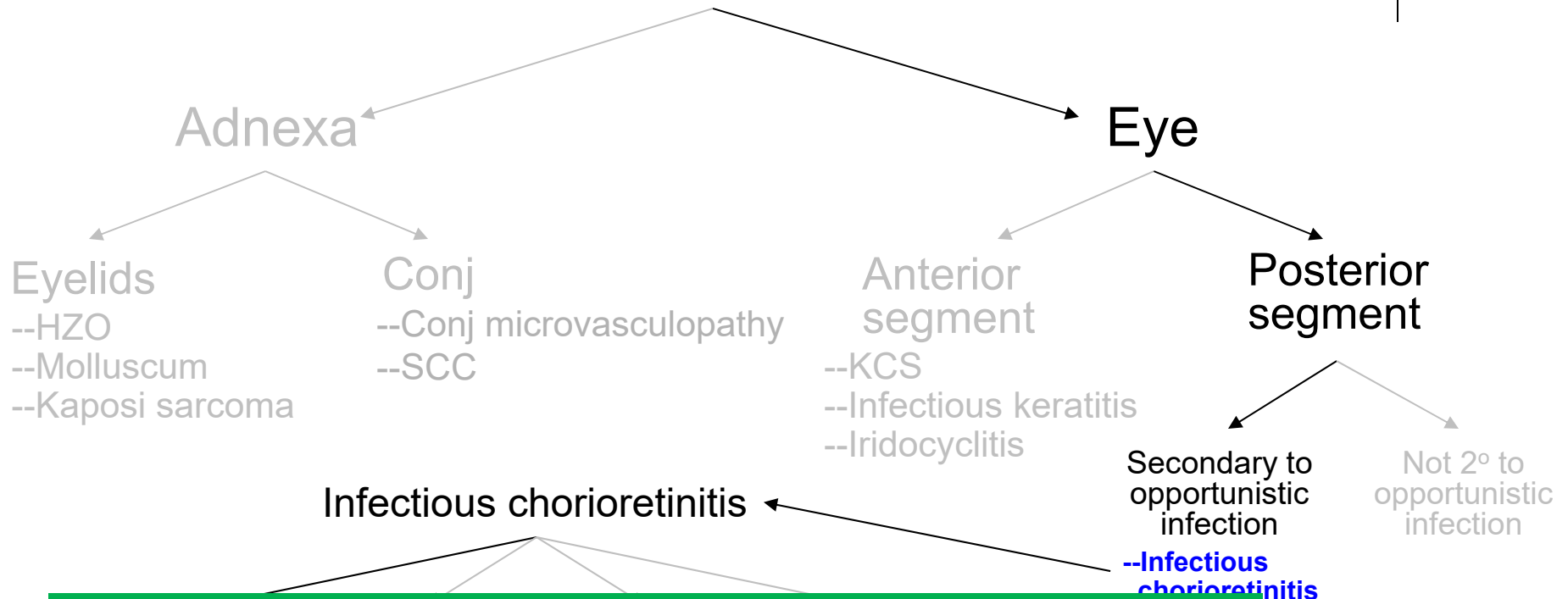
By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?
Cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

Ophthalmic HIV manifestations



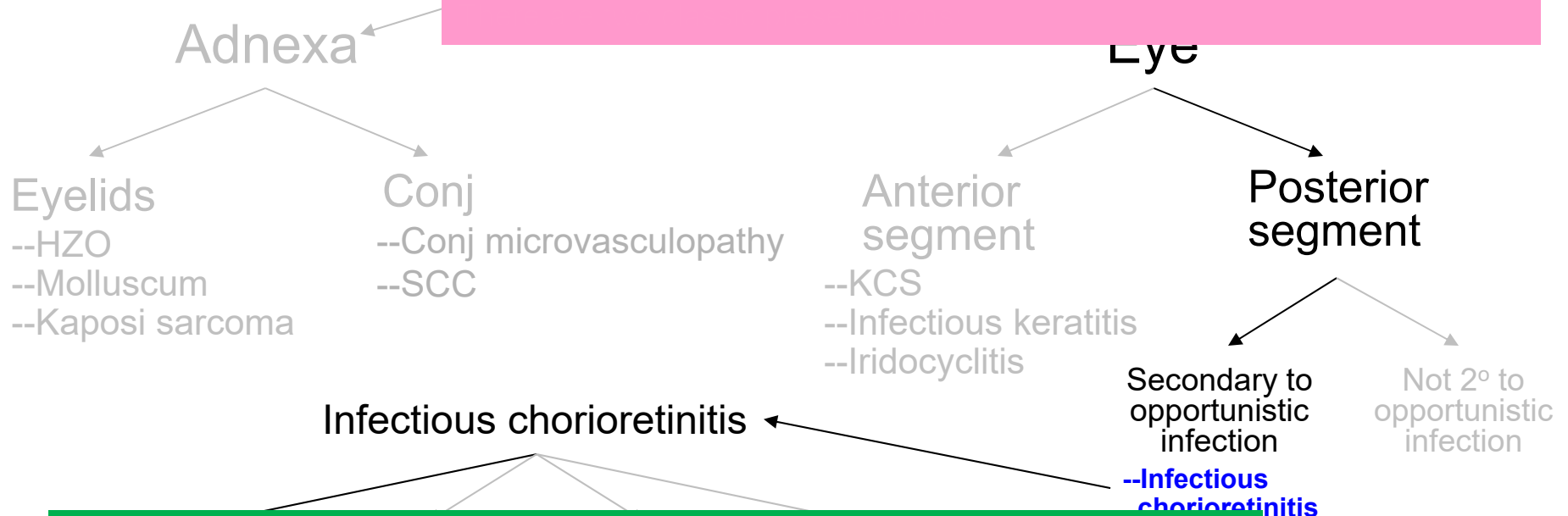
By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?
Very—estimates range from 40-100%
cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?



By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

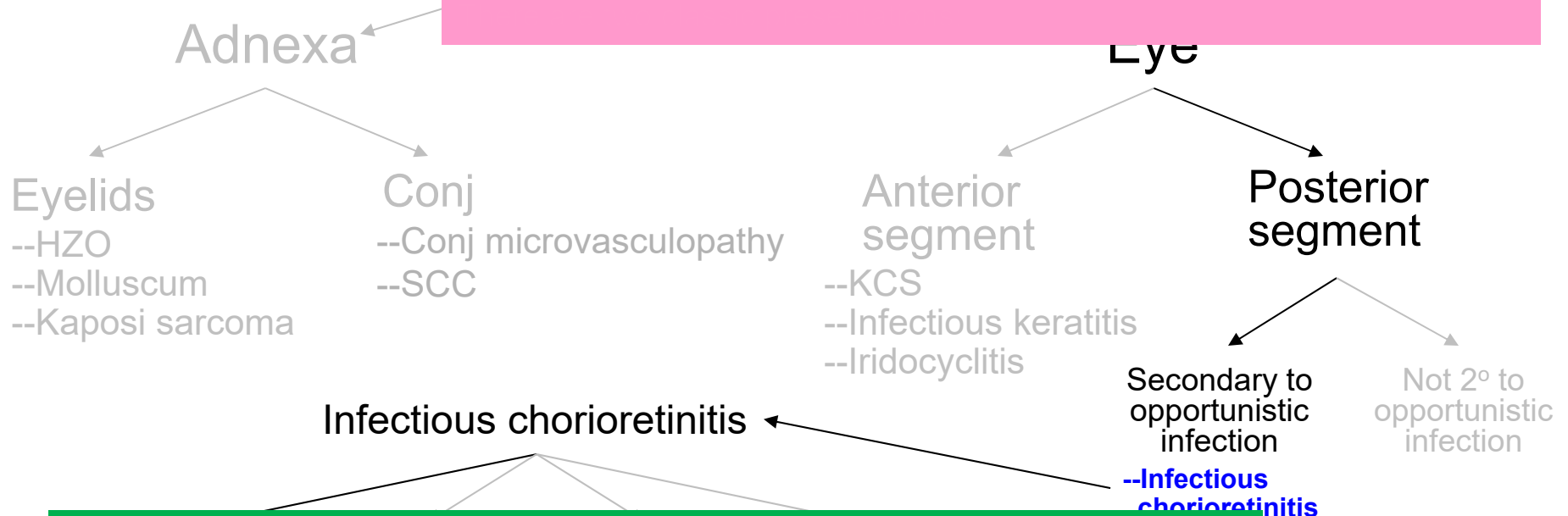
cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.



By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

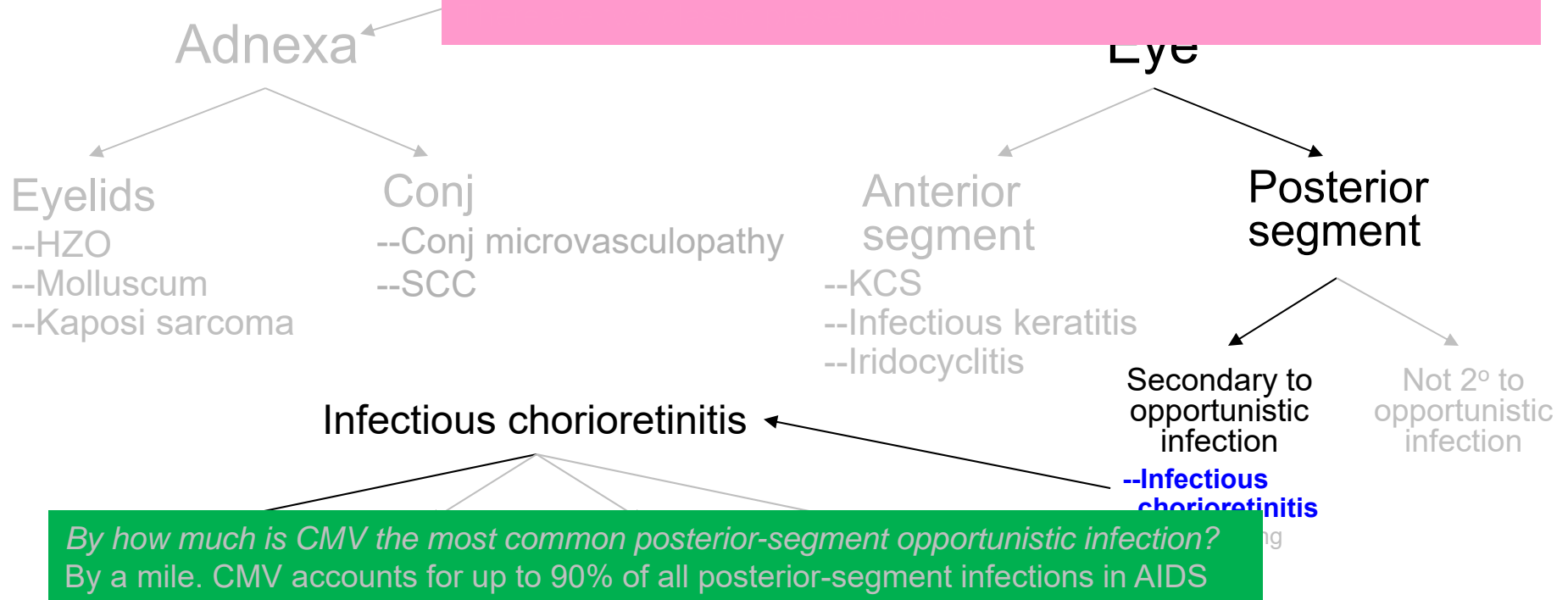
How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?



How common is latent CMV infection in the population at large?

Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the #1 cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | | LEVEL | |
|---|-----------|------------|--------------|
| | | [One type] | [Other type] |
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Cornea | | |
| | --Co | | |
| | --SC | | |
| | Infection | | |

By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?

Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | | Posterior Type | Peripheral Type |
|---|-------------|----------------|-----------------|
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Conjunctiva | | |
| | Cornea | | |
| | Sclera | | |
| | Intraocular | | |

By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?
Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the leading cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| <p>Adnexa</p> <ul style="list-style-type: none"> Eyelids <ul style="list-style-type: none"> --HZO --Molluscum --Kaposi sarcoma Cornia <ul style="list-style-type: none"> --Co --SC <p>Infection</p> | | Posterior Type | Peripheral Type |
|--|----------|----------------|-----------------|
| | Location | ? | ? |
| | | | |
| | | | |
| | | | |

By how much is CMV the most common posterior-segment opportunistic infection?

By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?

Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the leading cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?

It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| <p>Adnexa</p> <ul style="list-style-type: none"> Eyelids <ul style="list-style-type: none"> --HZO --Molluscum --Kaposi sarcoma Cornia <ul style="list-style-type: none"> --Co --SC <p>Infection</p> | | Posterior Type | Peripheral Type |
|--|----------|----------------|-----------------|
| | Location | Macula | Periphery |
| | | | |
| | | | |

By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?
Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the leading cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| <p>Adnexa</p> <ul style="list-style-type: none"> Eyelids <ul style="list-style-type: none"> --HZO --Molluscum --Kaposi sarcoma Cornia <ul style="list-style-type: none"> --Co --SC <p>Infection</p> | | Posterior Type | Peripheral Type |
|--|----------------------|----------------|-----------------|
| | Location | Macula | Periphery |
| | Hemorrhages present? | ? | ? |
| | | | |

By how much is CMV the most common posterior-segment opportunistic infection?

By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?

Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?

It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | CMV Retinitis | |
|---|----------------------|-----------------|
| | Posterior Type | Peripheral Type |
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Location | Macula |
| | Hemorrhages present? | Yes |
| Infection --Co --Co --SC | | No |
| | | |
| | | |

By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | CMV | |
|---|----------------------|------------------|
| | Posterior Type | Peripheral Type |
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Location | Macula |
| | Hemorrhages present? | Yes |
| | Pattern of spread? | ? |
| | Infection | Choriorretinitis |

By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | CMV | |
|---|-----------------------------|--------------------------------|
| | Posterior Type | Peripheral Type |
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Location | Macula |
| | Hemorrhages present? | Yes |
| | Pattern of spread? | Along major vessels |
| | Infection | A slowly advancing 'fire line' |

By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?
Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| <p>Adnexa</p> <p>←</p> <p>←</p> <p>Eyelids</p> <p>--HZO</p> <p>--Molluscum</p> <p>--Kaposi sarcoma</p> <p>Co</p> <p>--Co</p> <p>--SC</p> <p>Infection</p> | | Posterior Type | Peripheral Type |
|---|----------------------|---------------------|--------------------------------|
| | Location | Macula | Periphery |
| | Hemorrhages present? | Yes | No |
| | Pattern of spread? | Along major vessels | A slowly advancing 'fire line' |
| | Classic description | ? | ? |

By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large?
Very—estimates range from 40-100%

(and #1 cause overall)?

cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| <p>Adnexa</p> <ul style="list-style-type: none"> Eyelids <ul style="list-style-type: none"> --HZO --Molluscum --Kaposi sarcoma Cornia <ul style="list-style-type: none"> --Co --SC <p>Infection</p> | | Posterior Type | Peripheral Type |
|--|----------------------|-------------------------------|--------------------------------|
| | Location | Macula | Periphery |
| | Hemorrhages present? | Yes | No |
| | Pattern of spread? | Along major vessels | A slowly advancing 'fire line' |
| | Classic description | 'Crumbled cheese and ketchup' | 'Brushfire' |

By how much is CMV the most common posterior-segment opportunistic infection?
By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | | Posterior Type | Peripheral Type |
|---|----------------------|--------------------------------------|------------------------------|
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Location | Macula | Periphery |
| | Hemorrhages present? | | No |
| | Pattern of spread | | slowly advancing 'fire line' |
| | Classic description | 'Crumbled cheese and ketchup' | 'Brushfire' |

AKA:

'Cottage cheese and ketchup'

'Scrambled eggs and ketchup'

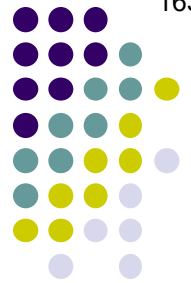
By how much is CMV the most common posterior-segment opportunistic infection?
 By a mile. CMV accounts for up to 90% of all posterior-segment infections in AIDS

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts



CMV retinitis: *Crumbled cheese
and ketchup*



CMV retinitis: *Brushfire*

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

| Adnexa | | Posterior Type | Peripheral Type |
|---|----------------------|-----------------------------|--------------------------------|
| Eyelids --HZO --Molluscum --Kaposi sarcoma | Location | Macula | Periphery |
| | Hemorrhages present? | Yes | No |
| | Pattern of spread | | A slowly advancing 'fire line' |
| | Classic description | Crumbled cheese and ketchup | 'Brushfire' |
| | Pain? | ? | ? |
| Infection | | | |

Does either type present with pain?

By how much is CMV the most common cause of vision loss in HIV+ individuals?
 By a mile. CMV accounts for up to 50% of all posterior segment infections in AIDS.

How common is latent CMV infection in the population at large?
Very—estimates range from 40-100%

(and #1 cause overall)?

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well.

How common is CMV retinitis among AIDS pts?
 It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

Adnexa

Eyelids

--HZO

--Molluscum

--Kaposi sarcoma

Conjunctiva

--CMV

--SC

Infection

| | Posterior Type | Peripheral Type |
|----------------------|-----------------------------|--------------------------------|
| Location | Macula | Periphery |
| Hemorrhages present? | Yes | No |
| Pattern of spread | | A slowly advancing 'fire line' |
| Classic description | Crumbled cheese and ketchup | 'Brushfire' |
| Pain? | NO | NO |

Does either type present with pain?
NO

By how much is CMV the most common cause of vision loss in AIDS?
By a mile. CMV accounts for up to 50% of all posterior segment infections in AIDS.

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well.

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

Adnexa

Eyelids

--HZO

--Molluscum

--Kaposi sarcoma

Conjunctiva

--CMV

--SC

Infection

By how much is CMV the most common cause of posterior-segment infection among HIV+ individuals?
By a mile. CMV accounts for 80-90% of posterior-segment infections in this population.

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

| | Posterior Type | Peripheral Type |
|----------------------|-----------------------------|--------------------------------|
| Location | Macula | Periphery |
| Hemorrhages present? | Yes | No |
| Pattern of spread | | A slowly advancing 'hazy line' |
| Classic description | Crumbled cheese and ketchup | 'Brushfire' |
| Pain? | NO | NO |
| Red eye? | ? | ? |

Does either type present with a red eye?

HIV and the Eye

How does CMV retinitis present?

If the initial lesion is macular or affects the ONH, the pt might c/o decreased vision. However, if the lesion is peripheral, the pt might note only floaters, or be asymptomatic.

What about its appearance on DFE?

There are two classic presentations:

Adnexa

Eyelids

--HZO

--Molluscum

--Kaposi sarcoma

Conjunctiva

--CMV

--SC

Infection

By how much is CMV the most common cause of posterior-segment infection among HIV+ individuals?
By a mile. CMV accounts for 80-90% of posterior-segment infections in this population.

How common is latent CMV infection in the population at large? (and #1 cause overall)?

Very—estimates range from 40-100%

CMV is the most common cause of posterior-segment infection among HIV+ individuals, and the leading cause of vision loss in this population as well

How common is CMV retinitis among AIDS pts?
It will arise in about 1/3 of these pts

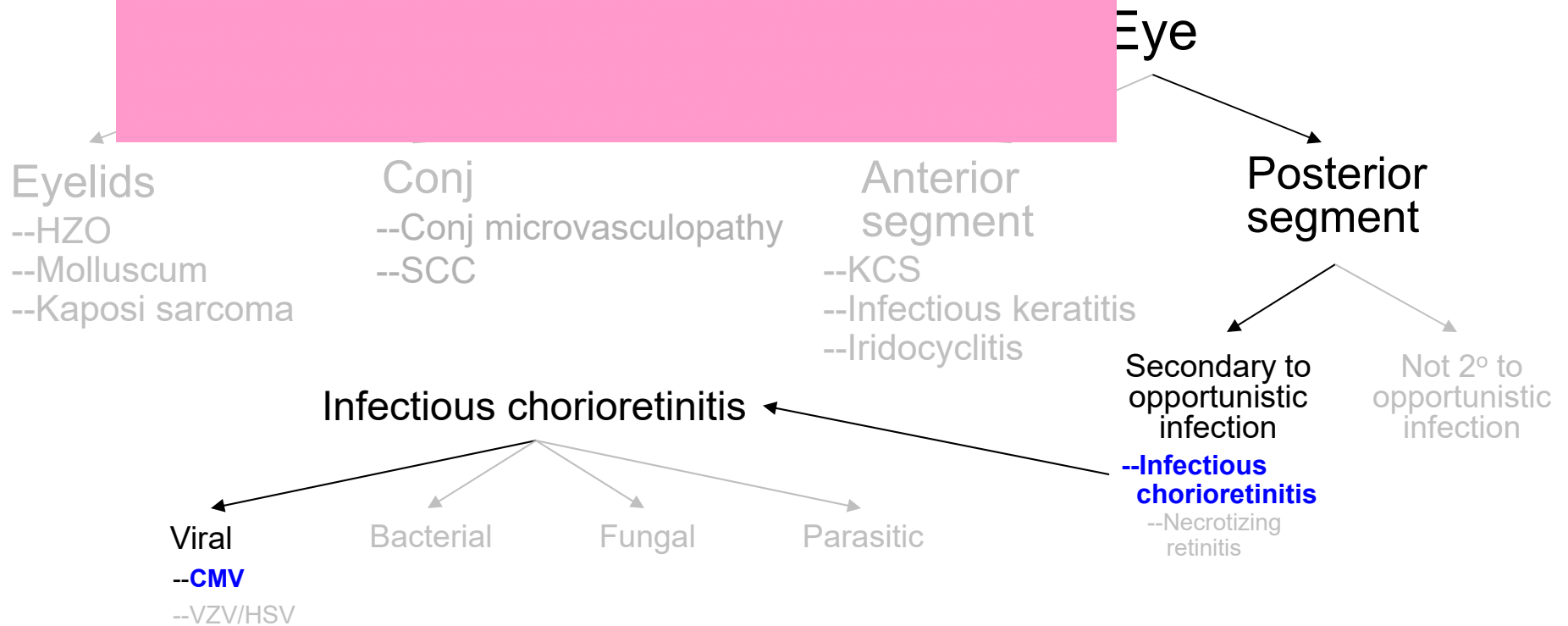
| | Posterior Type | Peripheral Type |
|----------------------|-----------------------------|--------------------------------|
| Location | Macula | Periphery |
| Hemorrhages present? | Yes | No |
| Pattern of spread | | A slowly advancing 'hazy line' |
| Classic description | Crumbled cheese and ketchup | 'Brushfire' |
| Pain? | NO | NO |
| Red eye? | NO | NO |

Does either type present with a red eye?
NO

Chorioretinitis

HIV and the Eye

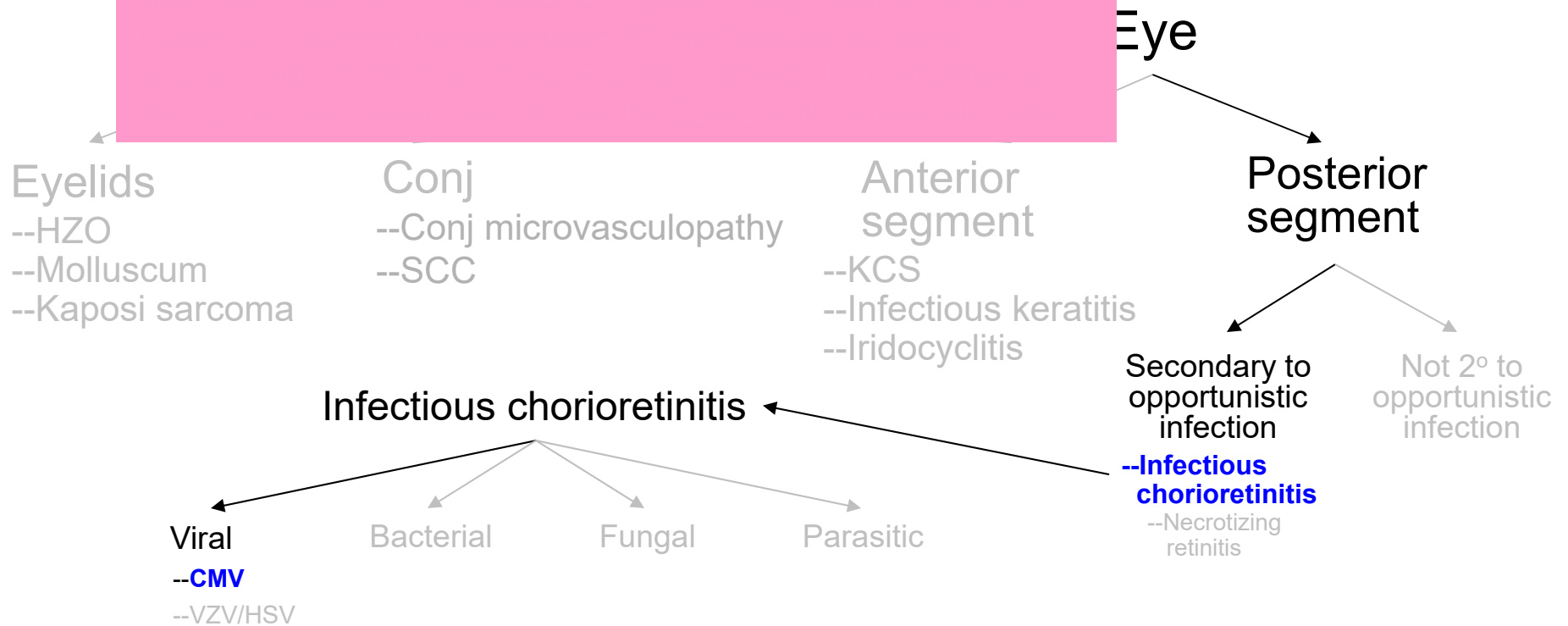
How is CMV retinitis managed?



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

???

(Two route categories)

???

--HZO
--Molluscum
--Kaposi sarcoma

--Conj microvasculopathy
--SCC

Anterior
segment

--KCS
--Infectious keratitis
--Iridocyclitis

Posterior
segment

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

Infectious chorioretinitis

--**Infectious
chorioretinitis**
--Necrotizing
retinitis

Viral

--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

Local:

(Two route categories)

--HZO
--Molluscum
--Kaposi sarcoma

--Conj microvasculopathy
--SCC

Anterior
segment

--KCS
--Infectious keratitis
--Iridocyclitis

Posterior
segment

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

Infectious chorioretinitis

--**Infectious
chorioretinitis**
--Necrotizing
retinitis

Viral

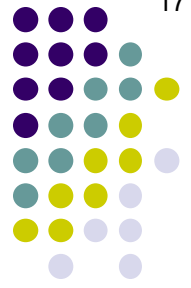
--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

1)

2)

Local:

--HZO
--Molluscum
--Kaposi sarcoma

--Conj microvasculopathy
--SCC

Anterior
segment

--KCS
--Infectious keratitis
--Iridocyclitis

Posterior
segment

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**
--Necrotizing
retinitis

Infectious chorioretinitis

Viral

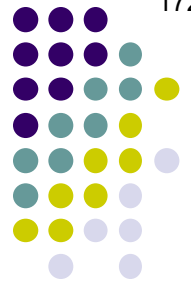
--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

--HZO
--Molluscum
--Kaposi sarcoma

--Conj microvasculopathy
--SCC

Anterior
segment

--KCS
--Infectious keratitis
--Iridocyclitis

Posterior
segment

Secondary to
opportunistic
infection

--**Infectious
chorioretinitis**
--Necrotizing
retinitis

Not 2° to
opportunistic
infection

Infectious chorioretinitis

Viral

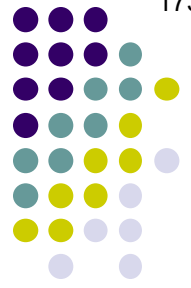
--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3)
- 4)

--HZO

--Molluscum

--Kaposi sarcoma

--Conj microvasculopathy

--SCC

Anterior segment

--KCS

--Infectious keratitis

--Iridocyclitis

Posterior segment

Secondary to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Not 2° to opportunistic infection

Infectious chorioretinitis

Viral

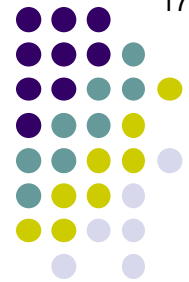
--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

--HZO

--Molluscum

--Kaposi sarcoma

--Conj microvasculopathy

--SCC

Anterior segment

--KCS

--Infectious keratitis

--Iridocyclitis

Posterior segment

Secondary to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Not 2° to opportunistic infection

Infectious chorioretinitis

Viral

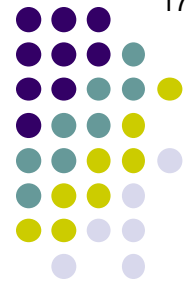
--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and

What are the advantages of systemic therapy?

- 1)
- 2)

For what routes of administration is ganciclovir

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

--HZO

--Molluscum

--Kaposi sarcoma

--Conj microvasculopathy

--SCC

Anterior
segment

--KCS

--Infectious keratitis

--Iridocyclitis

Posterior
segment

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

Infectious chorioretinitis

Viral

--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and

What are the advantages of systemic therapy?

- 1) Provides treatment for both eyes
- 2) Covers systemic involvement

For what routes of administration is ganciclovir used?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

--HZO

--Molluscum

--Kaposi sarcoma

--Conj microvasculopathy

--SCC

Anterior segment

--KCS

--Infectious keratitis

--Iridocyclitis

Posterior segment

Secondary to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Not 2° to opportunistic infection

Infectious chorioretinitis

Viral

--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and

What are the advantages of systemic therapy?

- 1) Provides treatment for both eyes
- 2) Covers systemic involvement

For what routes of administration is ganciclovir used?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

What are the **disadvantages** of systemic therapy?

- 1)
- 2)

Anterior
segment

- KCS
- Infectious keratitis
- Iridocyclitis

Posterior
segment

Secondary to
opportunistic
infection

- Infectious
chorioretinitis**
- Necrotizing
retinitis

Not 2° to
opportunistic
infection

Infectious chorioretinitis

Viral

- CMV**
- VZV/HSV

Bacterial

Fungal

Parasitic

- HZO
- Molluscum
- Kaposi sarcoma
- Conj microvasculopathy
- SCC

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and

What are the advantages of systemic therapy?

- 1) Provides treatment for both eyes
- 2) Covers systemic involvement

For what routes of administration is ganciclovir used?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

What are the **disadvantages** of systemic therapy?

- 1) Takes longer to reach therapeutic intraocular levels
- 2) Risk of systemic toxicity

Anterior segment

- KCS
- Infectious keratitis
- Iridocyclitis

Posterior segment

Secondary to opportunistic infection

--**Infectious chorioretinitis**

- Necrotizing retinitis

Not 2° to opportunistic infection

Infectious chorioretinitis

Viral

--**CMV**

--VZV/HSV

Bacterial

Fungal

Parasitic

--Conj microvasculopathy

--SCC

--HZO

--Molluscum

--Kaposi sarcoma

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

Eye

Anterior

Posterior

What are the advantages of local therapy?

- 1)
- 2)

--HZO
--Molluscum
--Kaposi sarcoma
--Conj microvascul
--SCC

Infectious chorioretinitis

Viral

--CMV

--VZV/HSV

Bacterial

Fungal

Parasitic

--Necrotizing
retinitis

2° to
tunistic
ction

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

Eye

Anterior

Posterior

What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

Infectious chorioretinitis

Viral

--CMV

--VZV/HSV

Bacterial

Fungal

Parasitic

--Necrotizing
retinitis

2° to
tuberculous
infection

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

Eye

Anterior

Posterior

- HZO
- Molluscum
- Kaposi sarcoma
- Conj microvascul
- SCC

What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

What are the **disadvantages** of local therapy?

- 1)
- 2)
- 3)

Infectious chorioretinitis

Viral

--CMV

--VZV/HSV

Bacterial

Fungal

Parasitic

--Necrotizing
retinitis

2° to
tunistic
ction

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

Eye

Anterior

Posterior

What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

What are the **disadvantages** of local therapy?

- 1) Risks associated with intraocular injection/surgery
- 2) No coverage for fellow eye
- 3) No systemic treatment effects

Infectious chorioretinitis

Viral

--CMV

--VZV/HSV

Bacterial

Fungal

Parasitic

--Necrotizing
retinitis

2° to
tuberculous
infection

HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

- HZO
- Molluscum
- Kaposi sarcoma
- Conj microvascul
- SCC

Infectious chorioretinitis

Viral

- CMV
- VZV/HSV

Bacterial

Fungal

Parasitic

- Necrotizing retinitis

What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

What are the **disadvantages** of local therapy?

- 1) **Risks associated with intraocular injection/surgery**
- 2) No coverage for fellow eye
- 3) No systemic treatment effects

What are the risks associated with injections and/or surgery?



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

- HZO
- Molluscum
- Kaposi sarcoma
- Conj microvascul
- SCC

Infectious chorioretinitis

Viral

- CMV
- VZV/HSV

Bacterial

Fungal

Parasitic

- Necrotizing retinitis

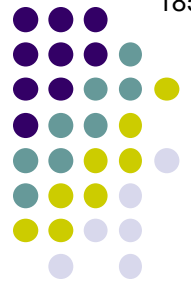
What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

What are the **disadvantages** of local therapy?

- 1) **Risks associated with intraocular injection/surgery**
- 2) No coverage for fellow eye
- 3) No systemic treatment effects

What are the risks associated with injections and/or surgery?
The usual suspects—endophthalmitis, RD, vitreous hemorrhage



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

- HZO
- Molluscum
- Kaposi sarcoma
- Conj microvascul
- SCC

Infectious chorioretinitis

Viral

--CMV

--VZV/HSV

Bacterial

Fungal

Parasitic

What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

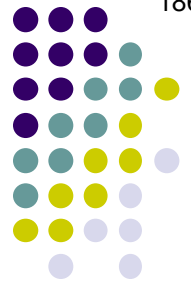
What are the **disadvantages** of local therapy?

- 1) Risks associated with intraocular injection/surgery
- 2) **No coverage for fellow eye**
- 3) No systemic treatment effects

--Necrotizing retinitis

2° to
tunistic
ction

What is the risk of developing CMV retinitis in the untreated fellow eye?



HIV and the Eye

How is CMV retinitis managed?

With **ganciclovir** (in various forms) and/or foscarnet

For what routes of administration is ganciclovir available?

Systemic:

- 1) Intravenous
- 2) PO (as valganciclovir)

Local:

- 3) Intravitreal injection
- 4) Intravitreal implant

- HZO
- Molluscum
- Kaposi sarcoma
- Conj microvascul
- SCC

Infectious chorioretinitis

Viral

--CMV

--VZV/HSV

Bacterial

Fungal

Parasitic

Eye

Anterior

Posterior

What are the advantages of local therapy?

- 1) Therapeutic drug levels obtained immediately
- 2) No risk of systemic toxicity

What are the **disadvantages** of local therapy?

- 1) Risks associated with intraocular injection/surgery
- 2) **No coverage for fellow eye**
- 3) No systemic treatment effects

2° to
tunistic
ction

--Necrotizing
retinitis

What is the risk of developing CMV retinitis in the untreated fellow eye?

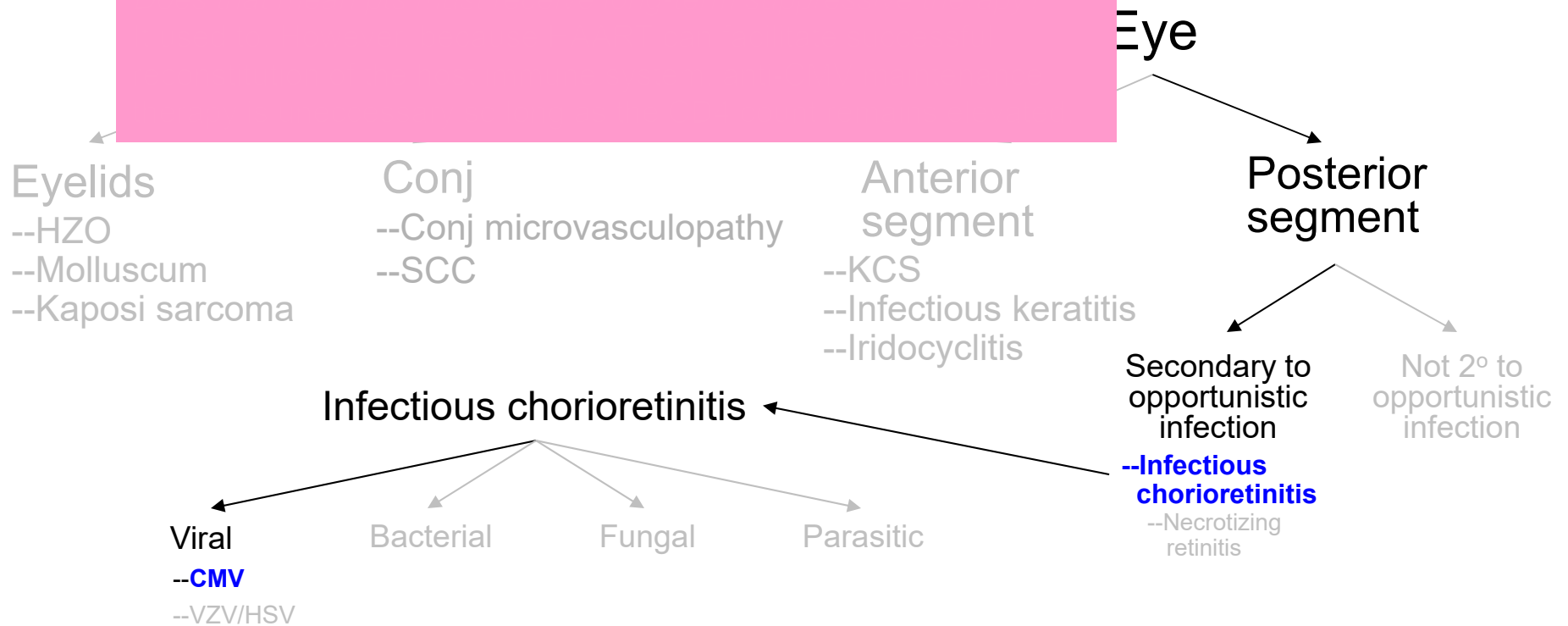
Very high. In one study of the ganciclovir implant, 50% of pts developed CMV retinitis in the fellow eye within 6 months, whereas the risk was only ~10% for pts receiving intravenous treatment

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?



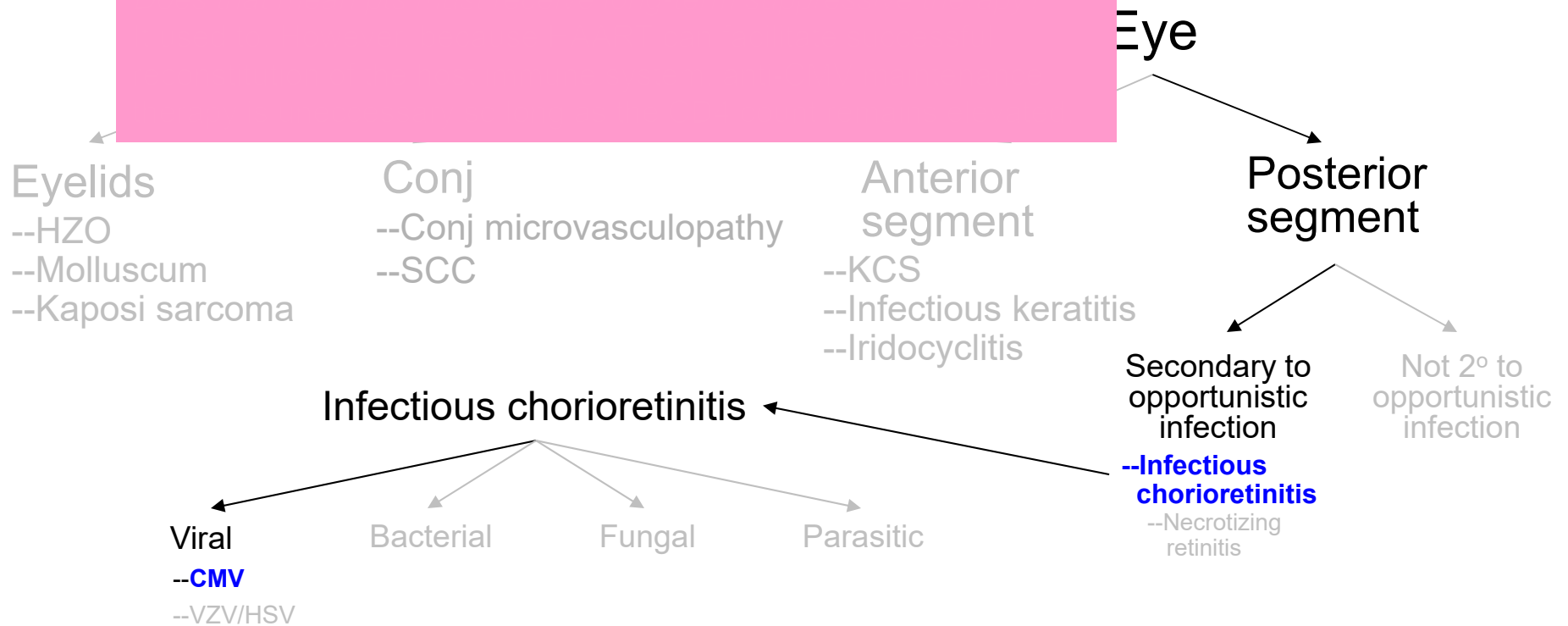
HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection



HIV and the Eye

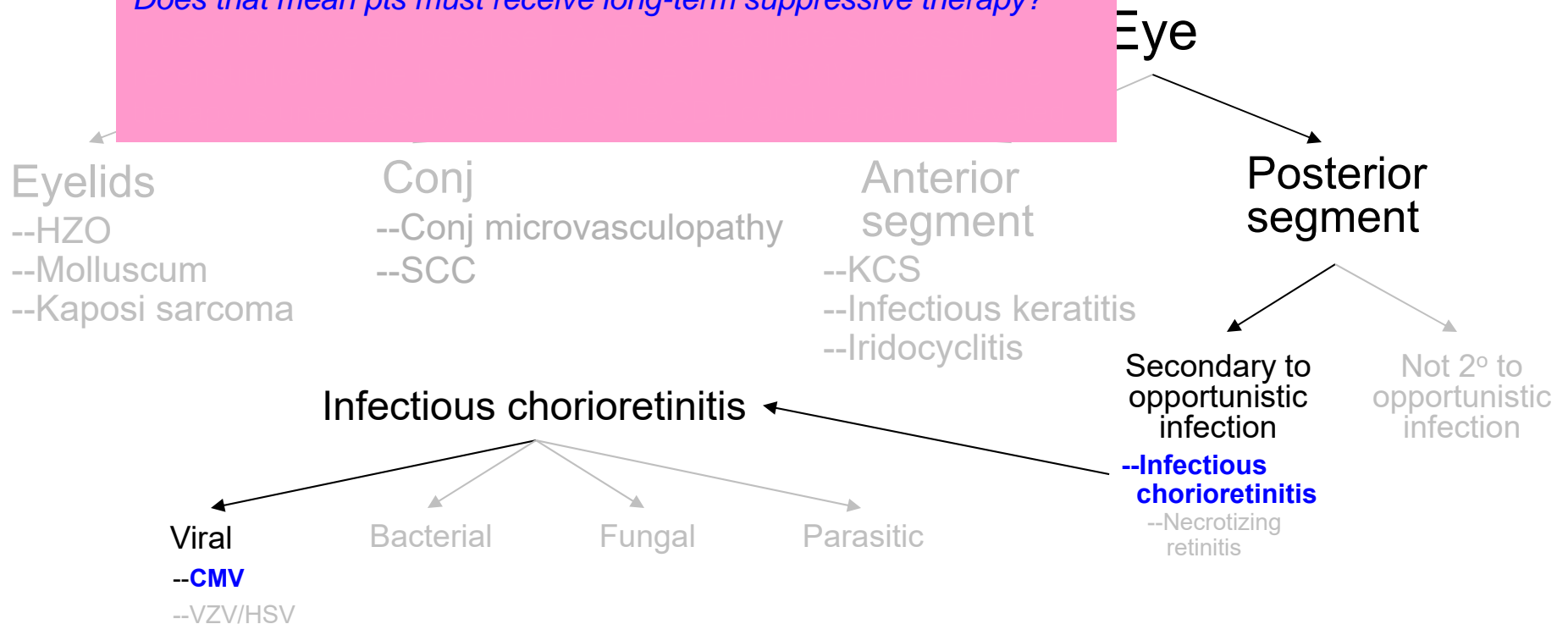
How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?



HIV and the Eye

How is CMV retinitis managed?

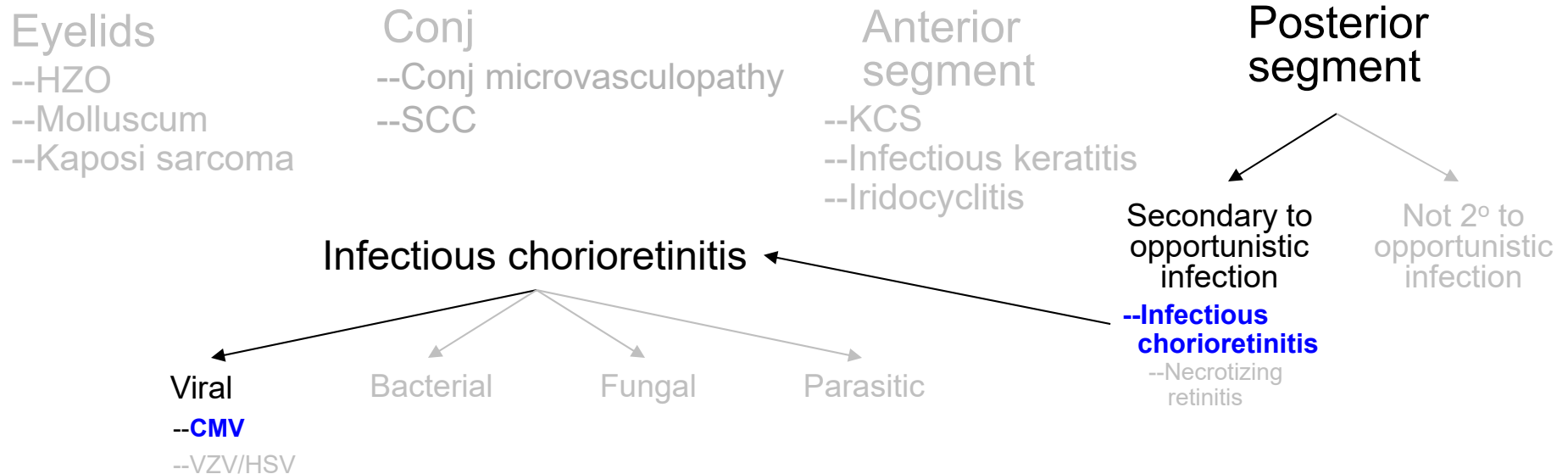
With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful reconstitution of the host immune system, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

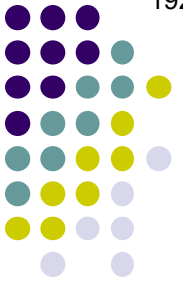
No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

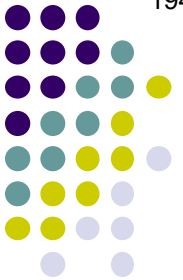
Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

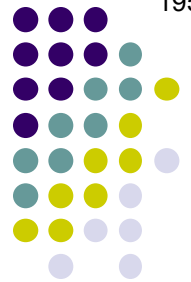
It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

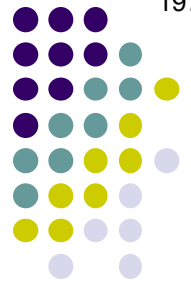
Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with decreased vision



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

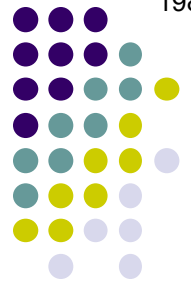
What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with decreased vision

How common is it?



to
inistic
tion

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

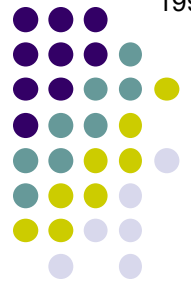
For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

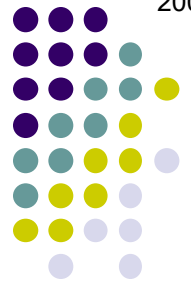
As an anterior and/or intermediate uveitis with decreased vision

How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it



to
inistic
tion



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis (IRU)**

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with decreased vision

How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

What factors place a pt at greater risk of developing IRU?

--
--
--

to
inistic
tion



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with decreased vision

How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

What factors place a pt at greater risk of developing IRU?

--Experiencing an increase in their CD4 count of at least # , with the total surpassing #

--Hx of one word CMV retinitis (an elaboration on the point made by that one word)

--Hx of drug use

HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis (IRU)**

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

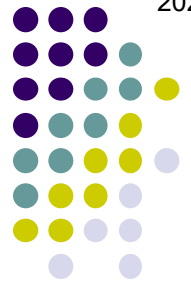
As an anterior and/or intermediate uveitis with decreased vision

How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

What factors place a pt at greater risk of developing IRU?

- Experiencing an increase in their CD4 count of at least 50 , with the total surpassing 100
- Hx of extensive CMV retinitis (the greater the retinal area infected, the greater the risk)
- Hx of cidofovir use



to
inistic
tion



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

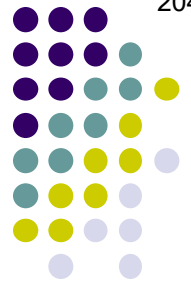
As an anterior and/or intermediate uveitis with **decreased vision**

How common **What is the cause of the decreased vision?**

~10% of CMV

What factors p

- Experiencing
- Hx of extensi
- Hx of cidofov



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common? What is the cause of the decreased vision?

~10% of CMV CME +/- an ERM

What factors p

- Experiencing
- Hx of extens
- Hx of cidofov



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common? What is the cause of the decreased vision?

~10% of CMV CME +/- an ERM

What factors predict response? Does the CME respond well to topical or sub-Tenon's steroids?

- Experiencing
- Hx of extens
- Hx of cidofov



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common? What is the cause of the decreased vision?

~10% of CMV CME +/- an ERM

What factors predict response? Does the CME respond well to topical or sub-Tenon's steroids?

--Experiencing
--Hx of extensive
--Hx of cidofovir

No



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common? What is the cause of the decreased vision?

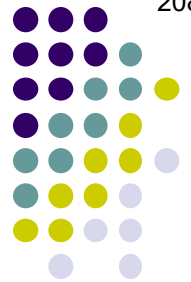
~10% of CMV CME +/- an ERM

What factors predict response? Does the CME respond well to topical or sub-Tenon's steroids?

--Experiencing No

--Hx of extensive

--Hx of cidofovir *How about intravitreal steroids?*



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful **reconstitution of the host immune system**, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated.

Eye

Speaking of reconstituting the host immune system in a pt with a hx of CMV retinitis, what problem can result?
So-called **immune recovery uveitis** (IRU)

What is the relationship between IRU and CMV retinitis?

For some reason, only eyes that have or had CMV retinitis can develop IRU

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common? What is the cause of the decreased vision?

~10% of CMV CME +/- an ERM

What factors predict response? Does the CME respond well to topical or sub-Tenon's steroids?

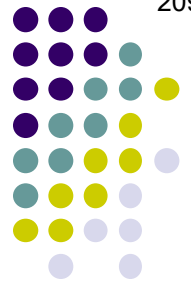
--Experiencing No

--Hx of extensive

--Hx of cidofovir

How about intravitreal steroids?

Dunno, because those are absolutely contraindicated in eyes with a hx of CMV retinitis!



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful reconstitution of the host immune system, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated

Eye

What is another cause of decreased vision in CMV retinitis?

Speaking of
So-called in

What is the
For some r

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common is it?

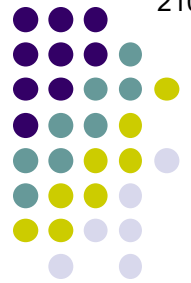
~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

What factors place a pt at greater risk of developing IRU?

- Experiencing an increase in their CD4 count of at least 50 , with the total surpassing 100
- Hx of extensive CMV retinitis (the greater the retinal area infected, the greater the risk)
- Hx of cidofovir use

result?

to
inistic
tion



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful reconstitution of the host immune system, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated

Eye

What is another cause of decreased vision in CMV retinitis?

Rhegmatogenous retinal detachment secondary to infection-induced retinal breaks

Speaking of
So-called in

What is the
For some r

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

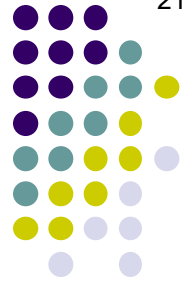
How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

What factors place a pt at greater risk of developing IRU?

- Experiencing an increase in their CD4 count of at least 50 , with the total surpassing 100
- Hx of extensive CMV retinitis (the greater the retinal area infected, the greater the risk)
- Hx of cidofovir use

to
inistic
tion



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful reconstitution of the host immune system, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated

Eye

What is another cause of decreased vision in CMV retinitis?

Rhegmatogenous retinal detachment secondary to infection-induced retinal breaks

Is RD common in CMV retinitis pts?

Speaking of
So-called in

What is the
For some r

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

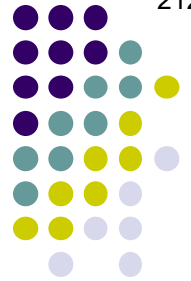
How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

What factors place a pt at greater risk of developing IRU?

- Experiencing an increase in their CD4 count of at least 50 , with the total surpassing 100
- Hx of extensive CMV retinitis (the greater the retinal area infected, the greater the risk)
- Hx of cidofovir use

to
inistic
tion



HIV and the Eye

How is CMV retinitis managed?

With ganciclovir (in various forms) and/or foscarnet

Are these meds curative?

No—they suppress viral replication, but do not eliminate the infection

Does that mean pts must receive long-term suppressive therapy?

It used to. However, because HAART can facilitate successful reconstitution of the host immune system, anti-CMV maintenance therapy is unnecessary so long as the CD4 count remains elevated

Eye

What is another cause of decreased vision in CMV retinitis?

Rhegmatogenous retinal detachment secondary to infection-induced retinal breaks

Is RD common in CMV retinitis pts?

Pre-HAART it was--estimates ran as high as 50%. It is vastly lower in pts treated with HAART and anti-CMV meds, however.

Speaking of
So-called in

What is the
For some r

How does it present?

As an anterior and/or intermediate uveitis with **decreased vision**

How common is it?

~10% of CMV retinitis pts who successfully undergo immune-system reconstitution will experience it

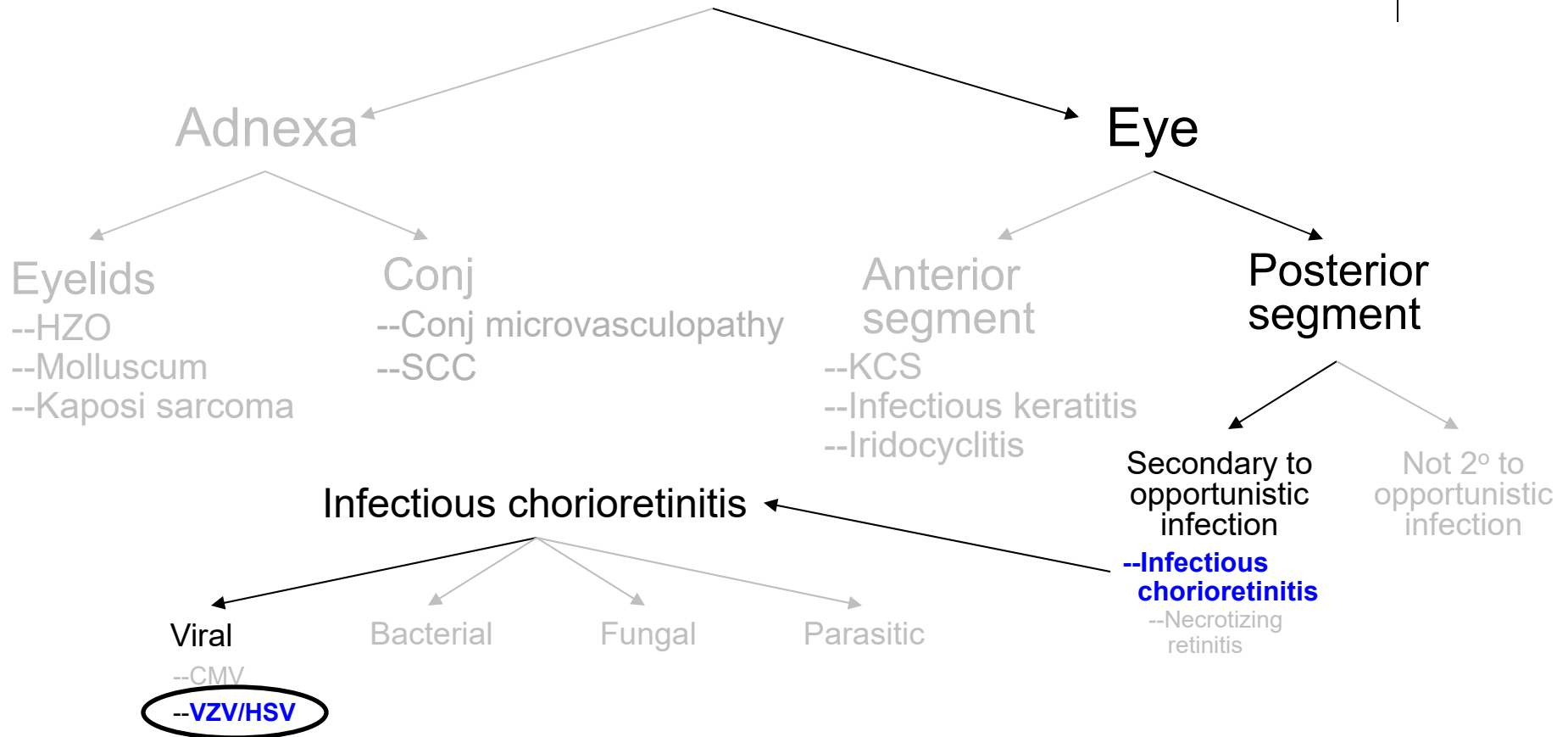
What factors place a pt at greater risk of developing IRU?

- Experiencing an increase in their CD4 count of at least 50 , with the total surpassing 100
- Hx of extensive CMV retinitis (the greater the retinal area infected, the greater the risk)
- Hx of cidofovir use

to
inistic
tion

HIV and the Eye

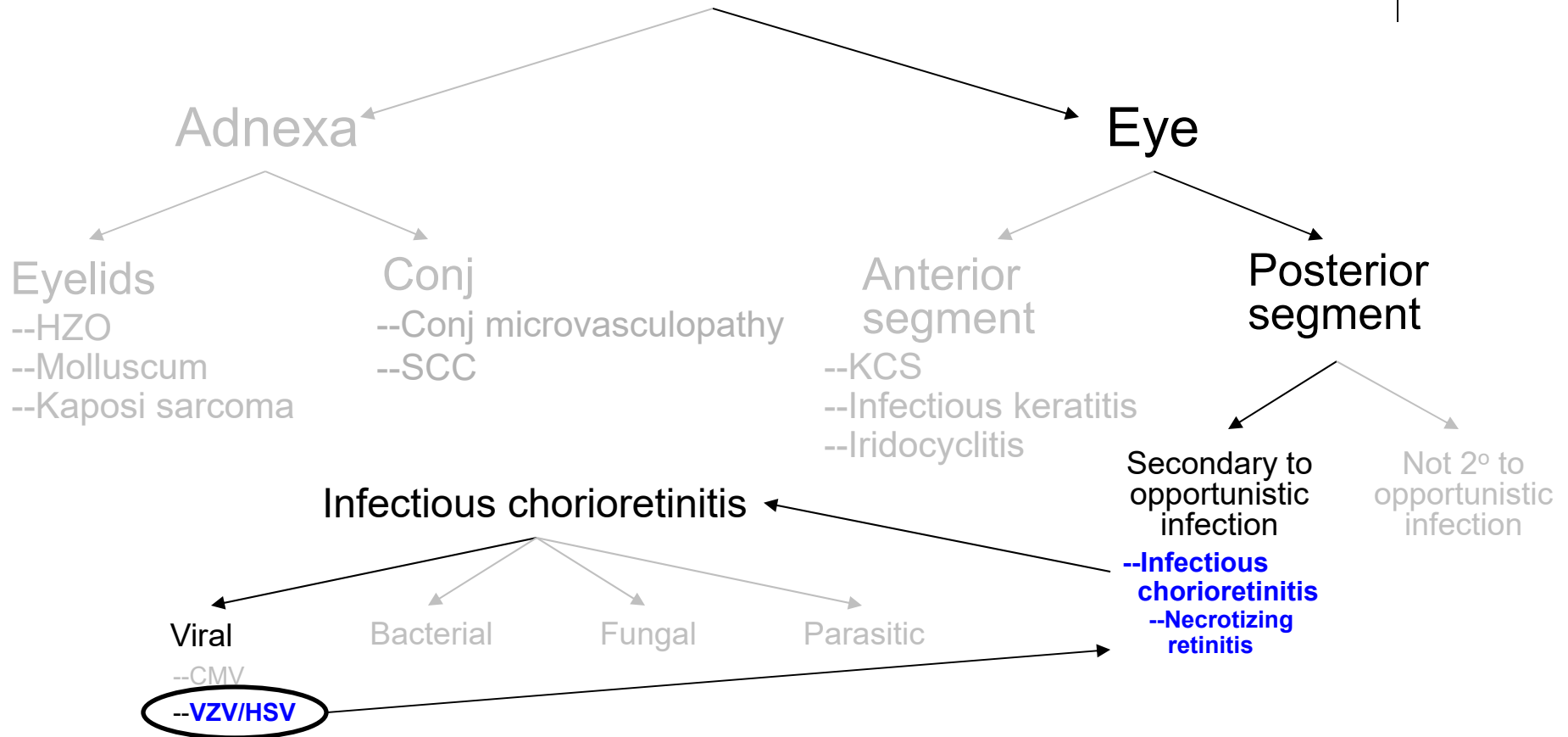
Ophthalmic HIV manifestations



With what dreaded condition is posterior-segment VZV/HSV infection associated?

HIV and the Eye

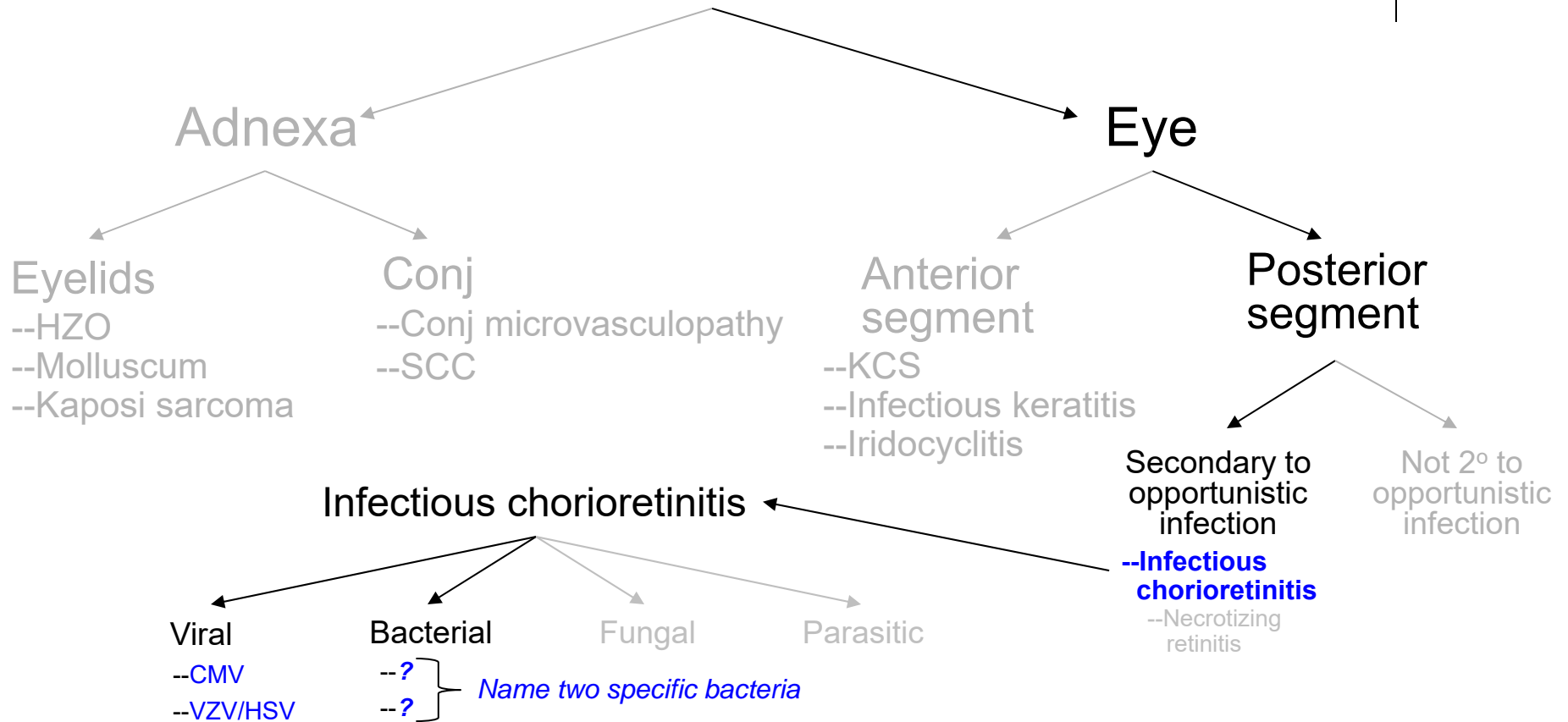
Ophthalmic HIV manifestations

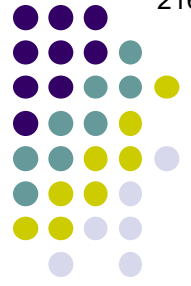


With what dreaded condition is posterior-segment VZV/HSV infection associated?
Necrotizing retinitis, a subject we will address in detail shortly

HIV and the Eye

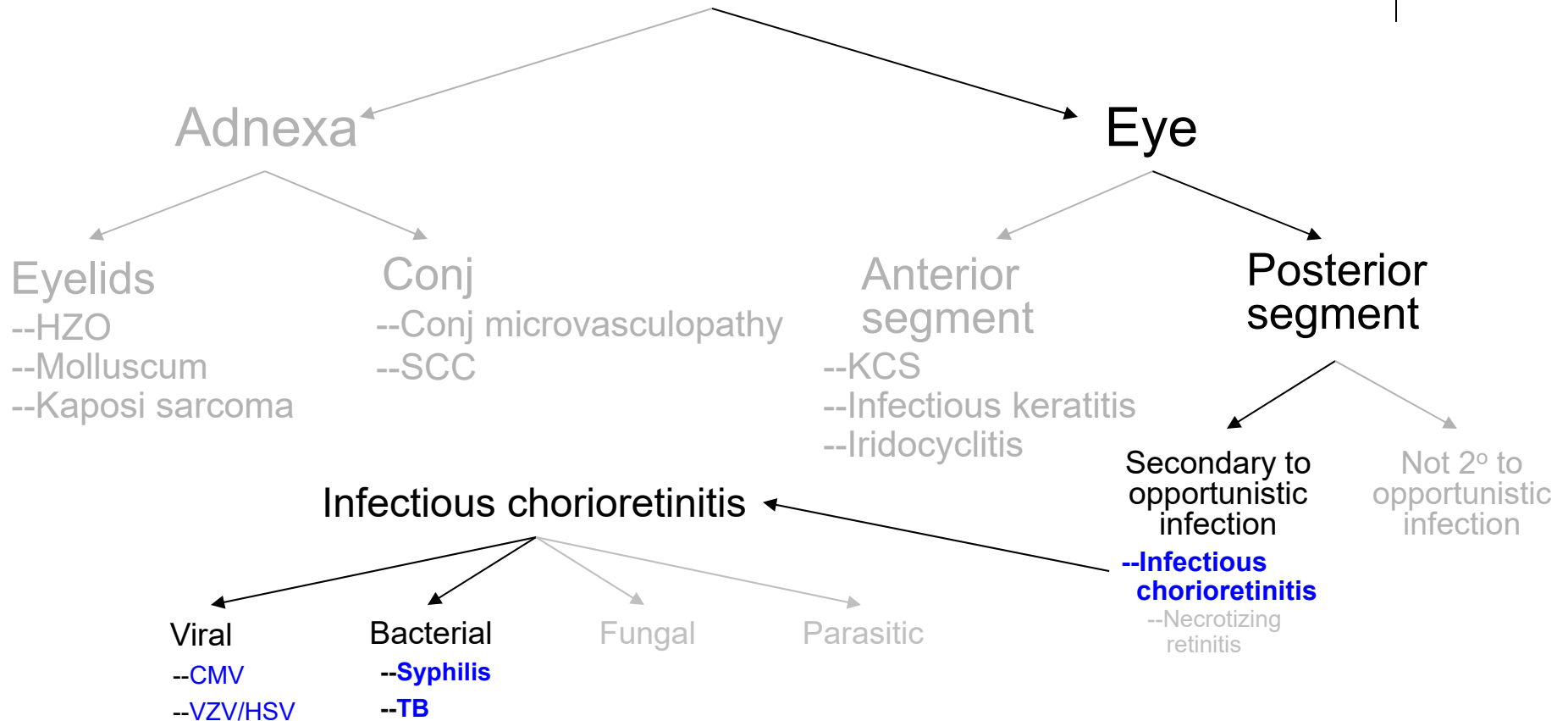
Ophthalmic HIV manifestations





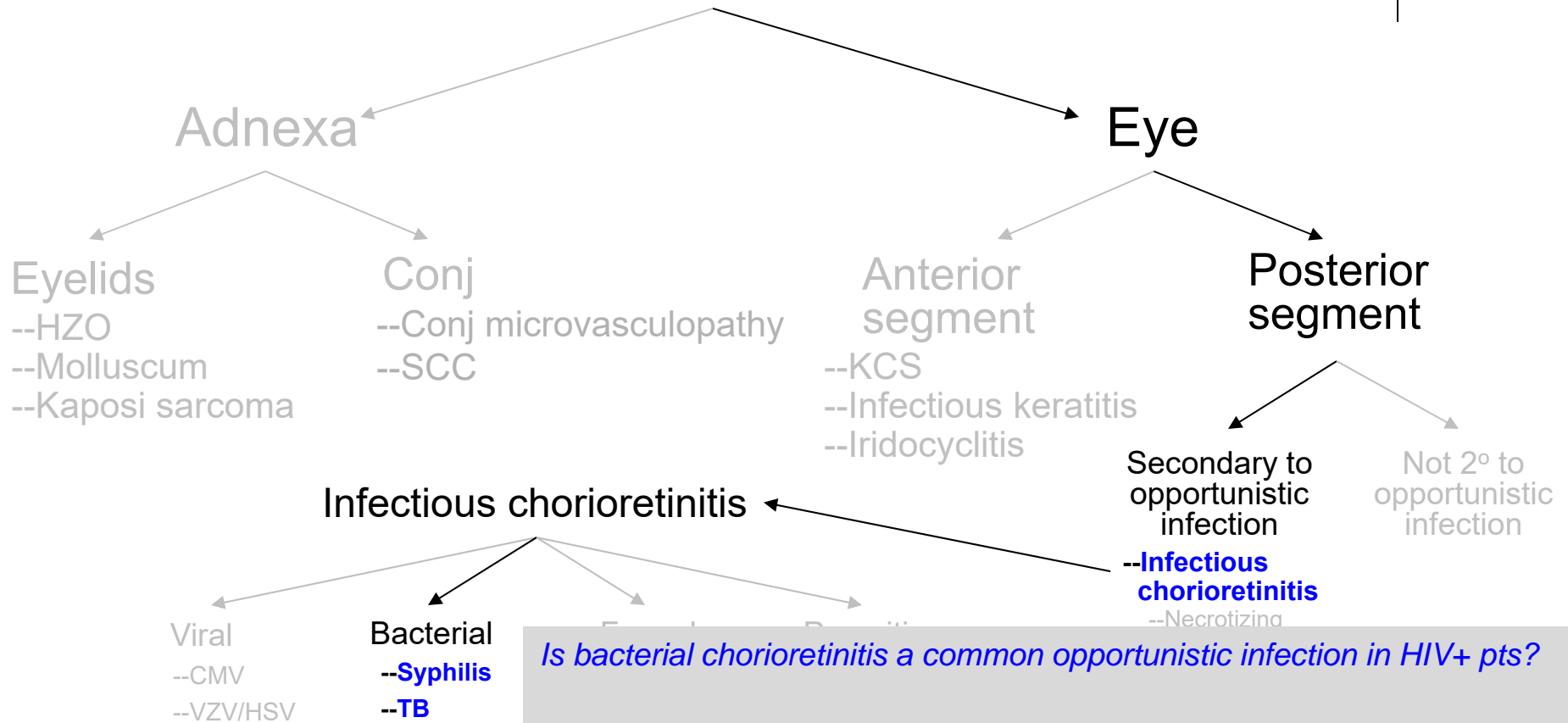
HIV and the Eye

Ophthalmic HIV manifestations



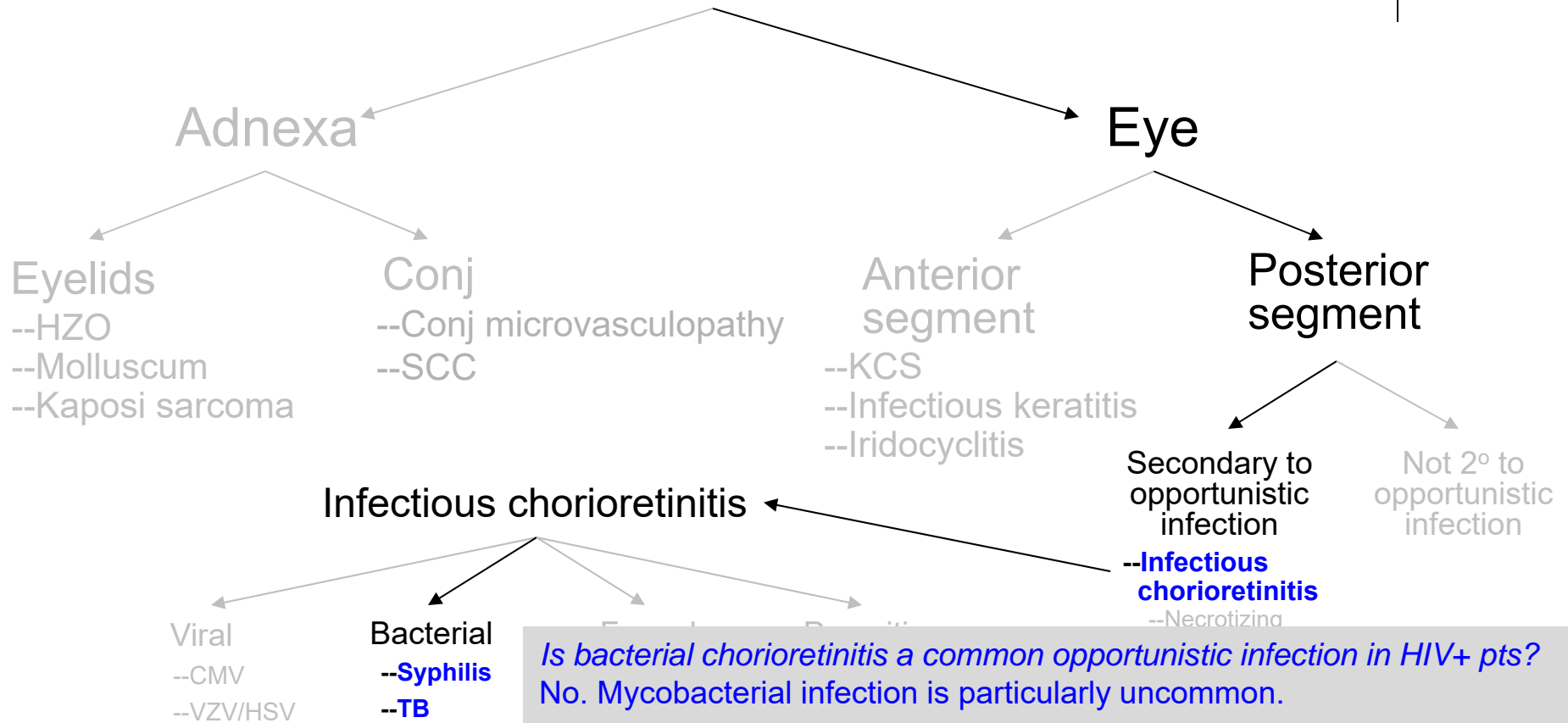
HIV and the Eye

Ophthalmic HIV manifestations



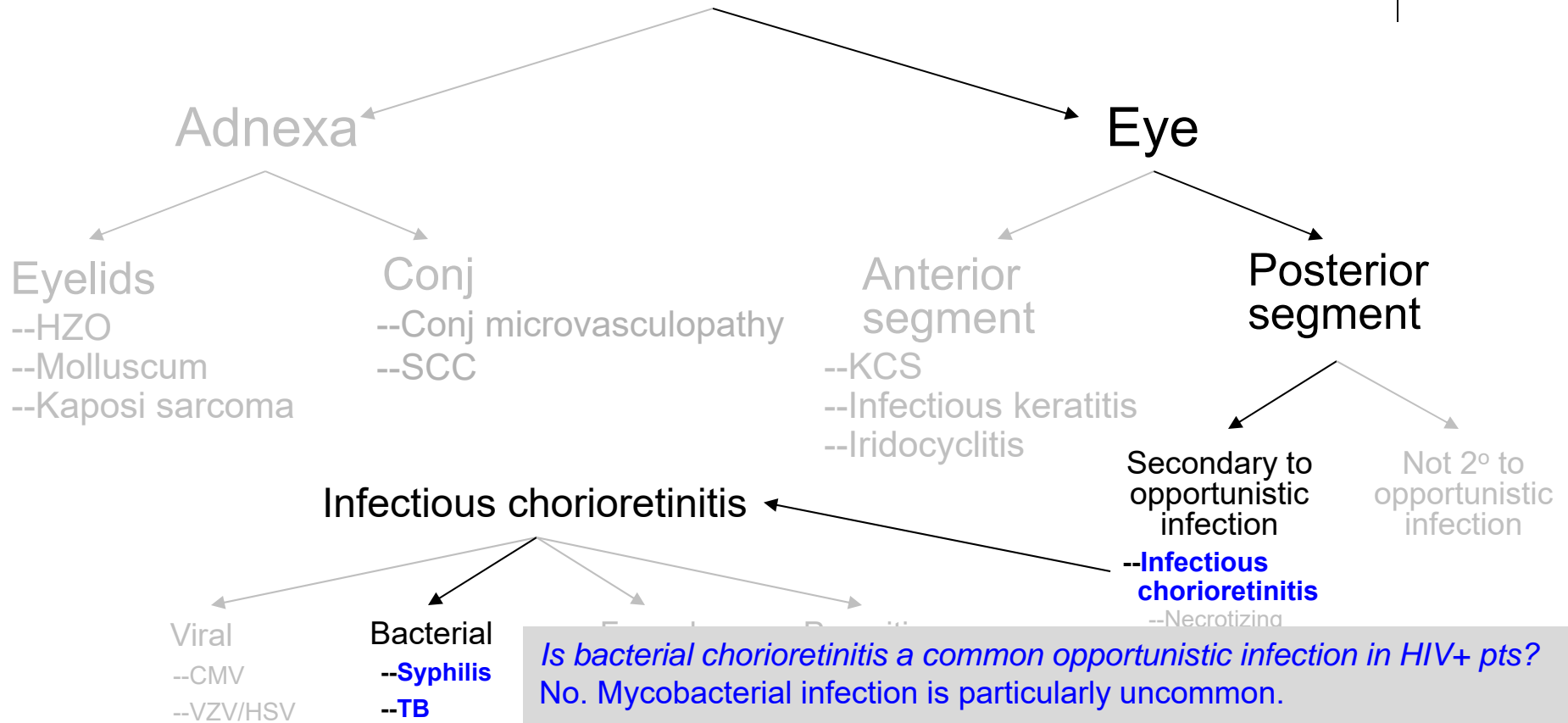
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations

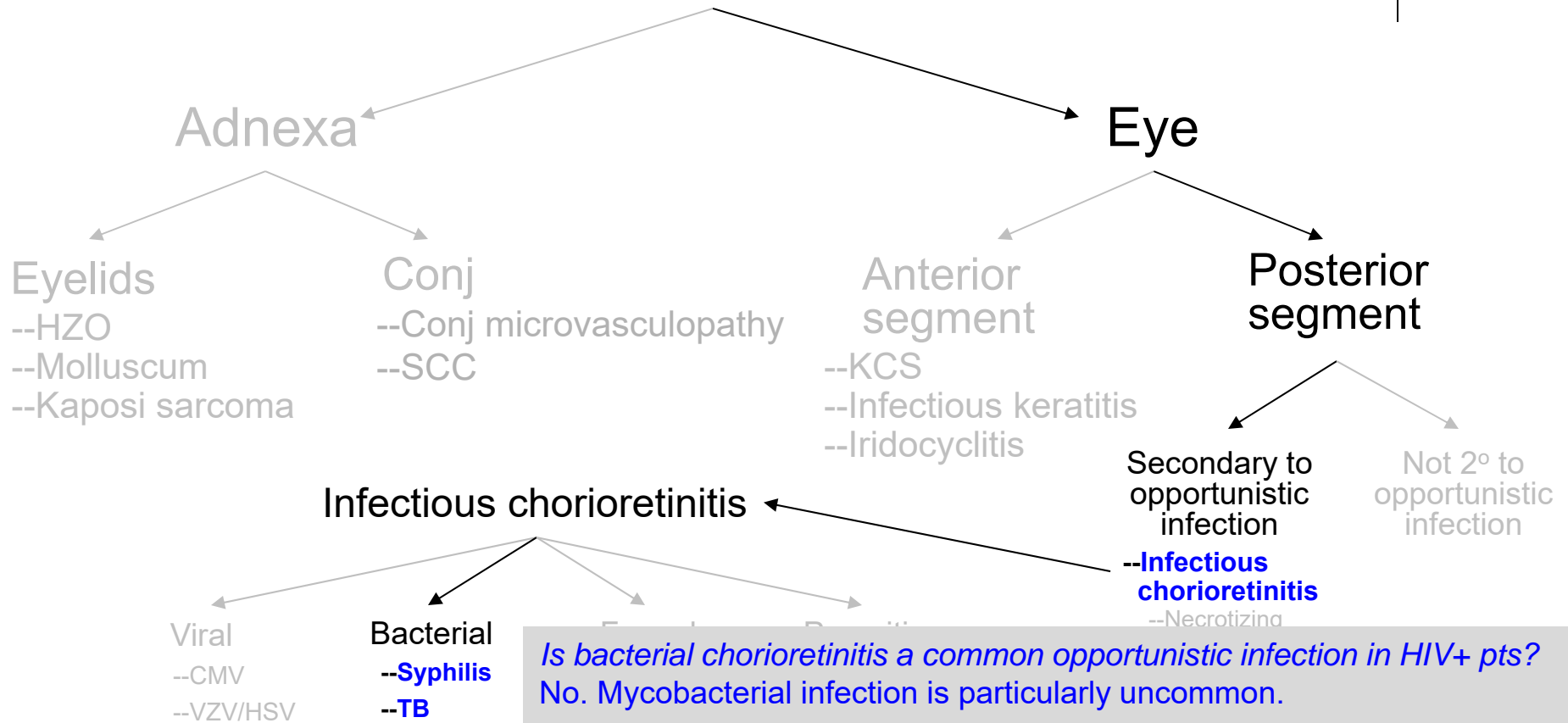


*Is bacterial chorioretinitis a common opportunistic infection in HIV+ pts?
No. Mycobacterial infection is particularly uncommon.*

What aspect of the presentation should make you suspect a chorioretinitis is bacterial?

HIV and the Eye

Ophthalmic HIV manifestations



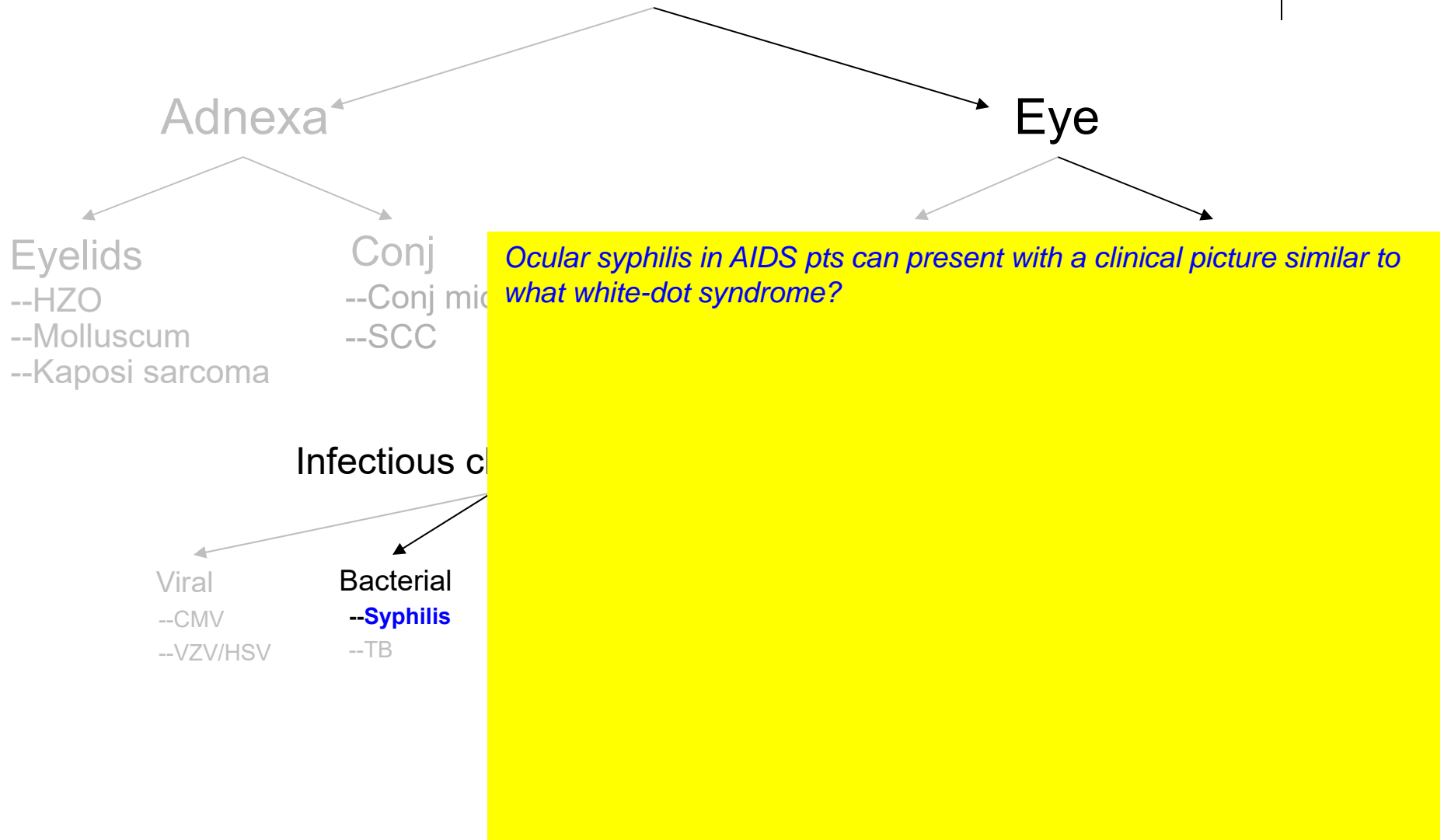
Is bacterial chorioretinitis a common opportunistic infection in HIV+ pts?
No. Mycobacterial infection is particularly uncommon.

What aspect of the presentation should make you suspect a chorioretinitis is bacterial?

If it is unresponsive to appropriate antiviral/fungal/parasitic therapy

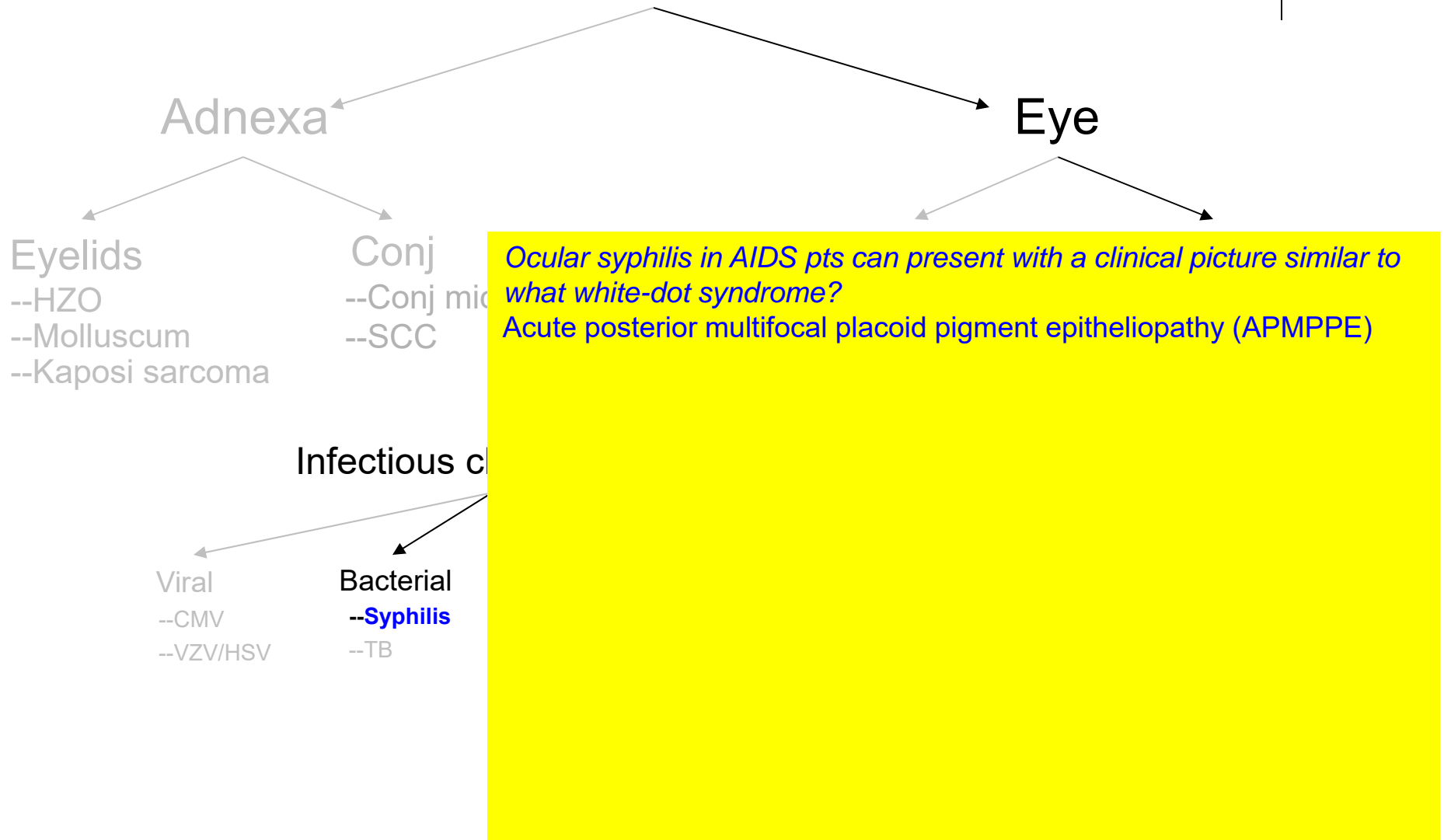
HIV and the Eye

Ophthalmic HIV manifestations



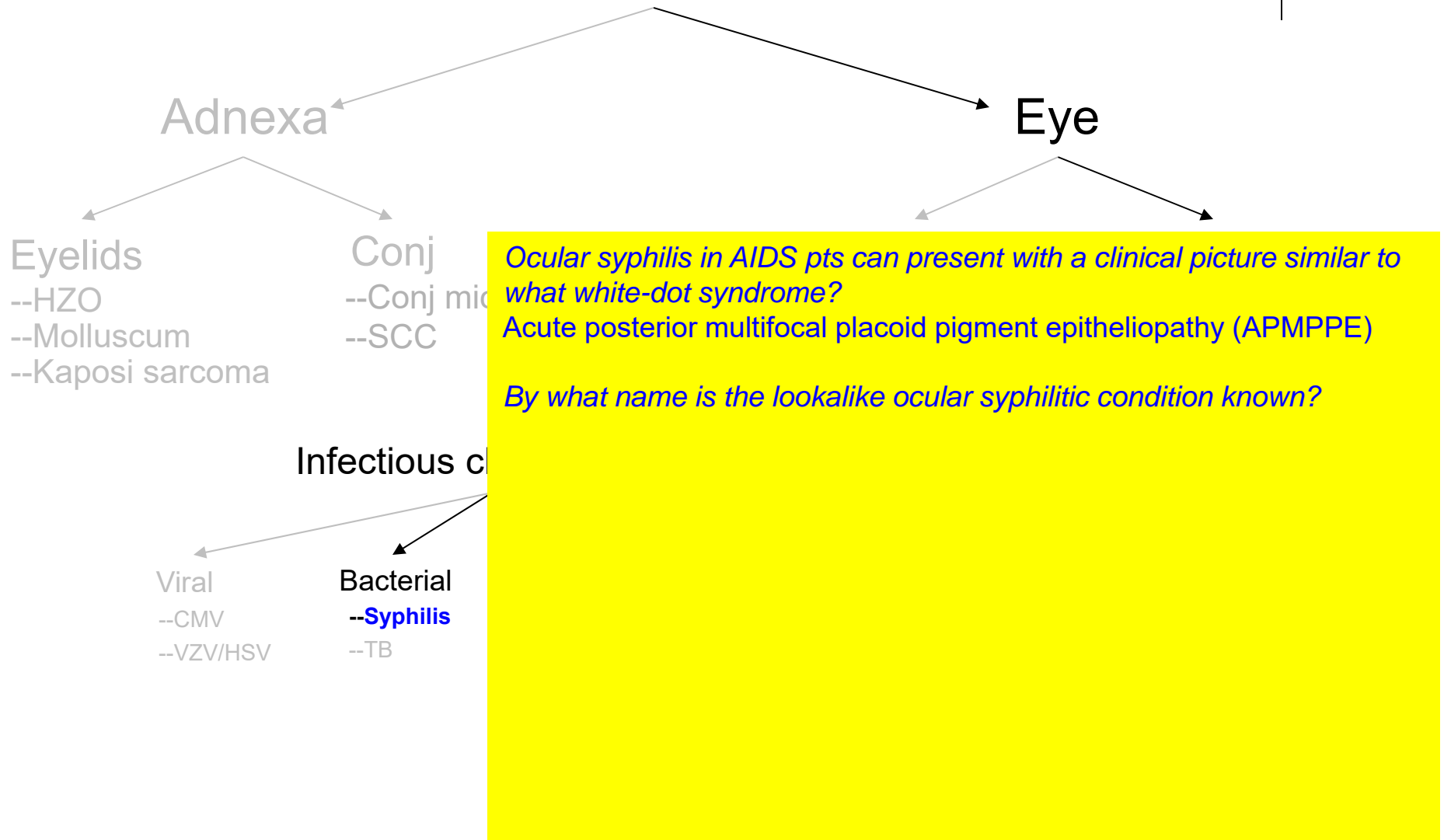
HIV and the Eye

Ophthalmic HIV manifestations



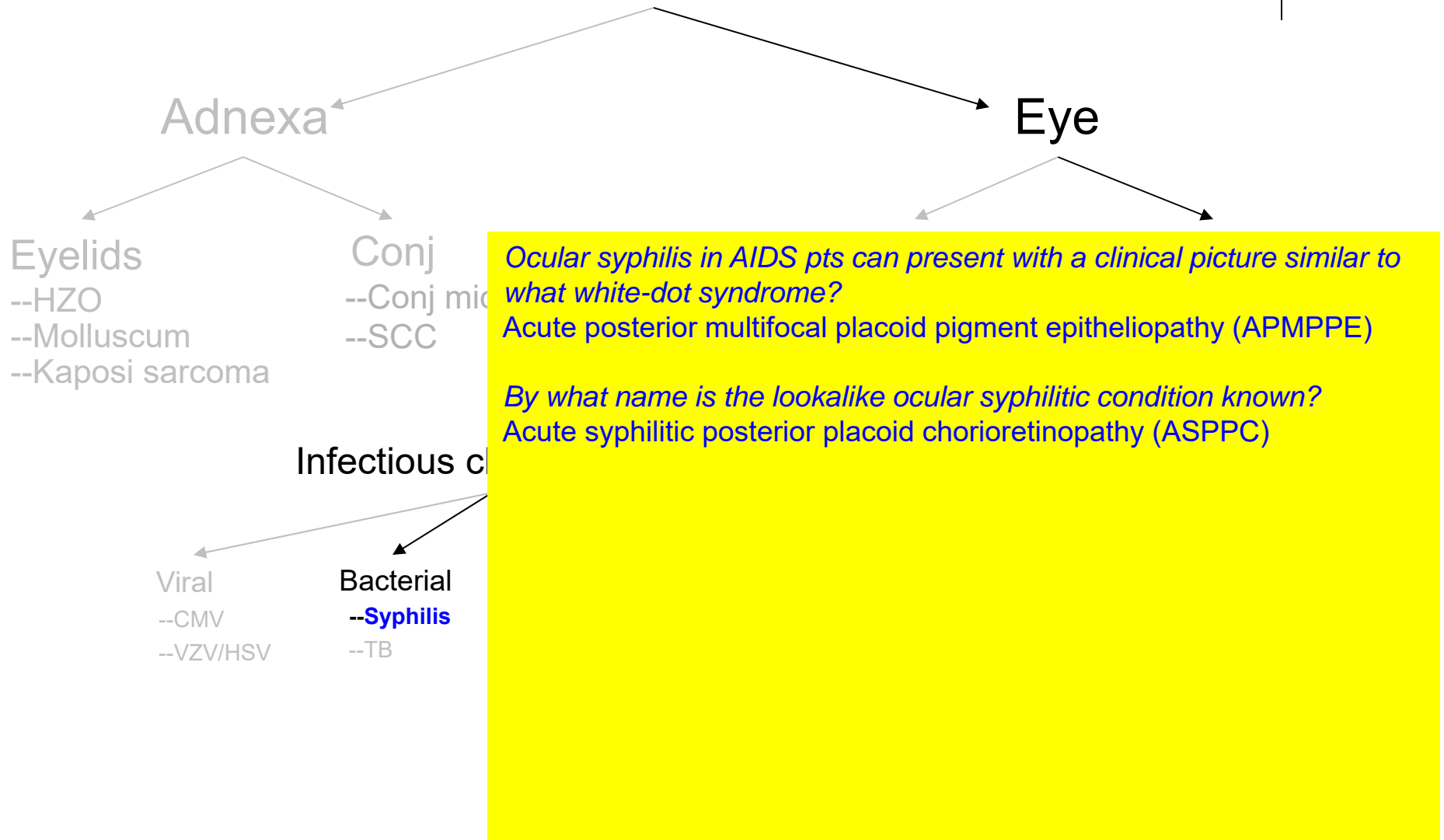
HIV and the Eye

Ophthalmic HIV manifestations



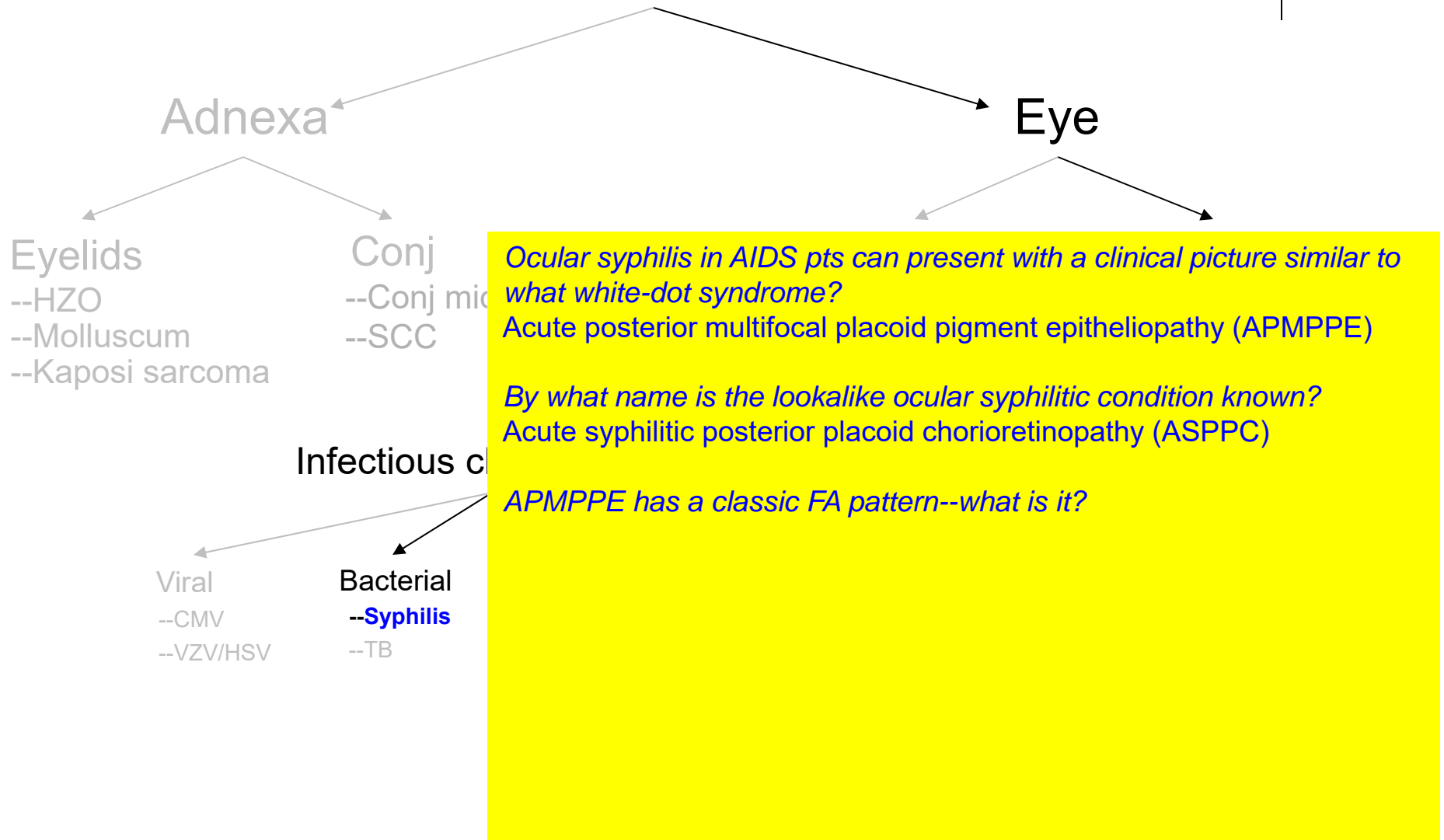
HIV and the Eye

Ophthalmic HIV manifestations



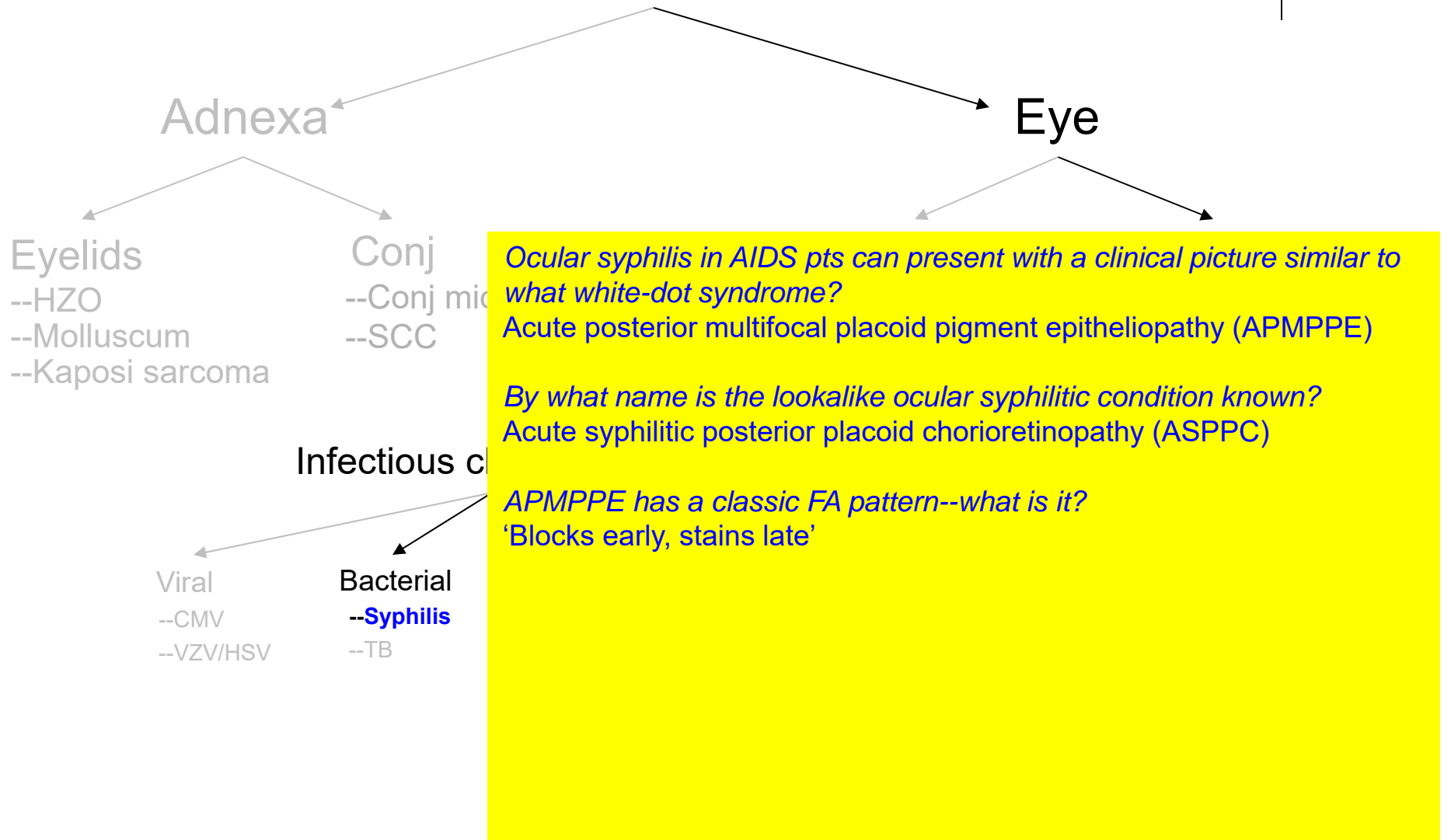
HIV and the Eye

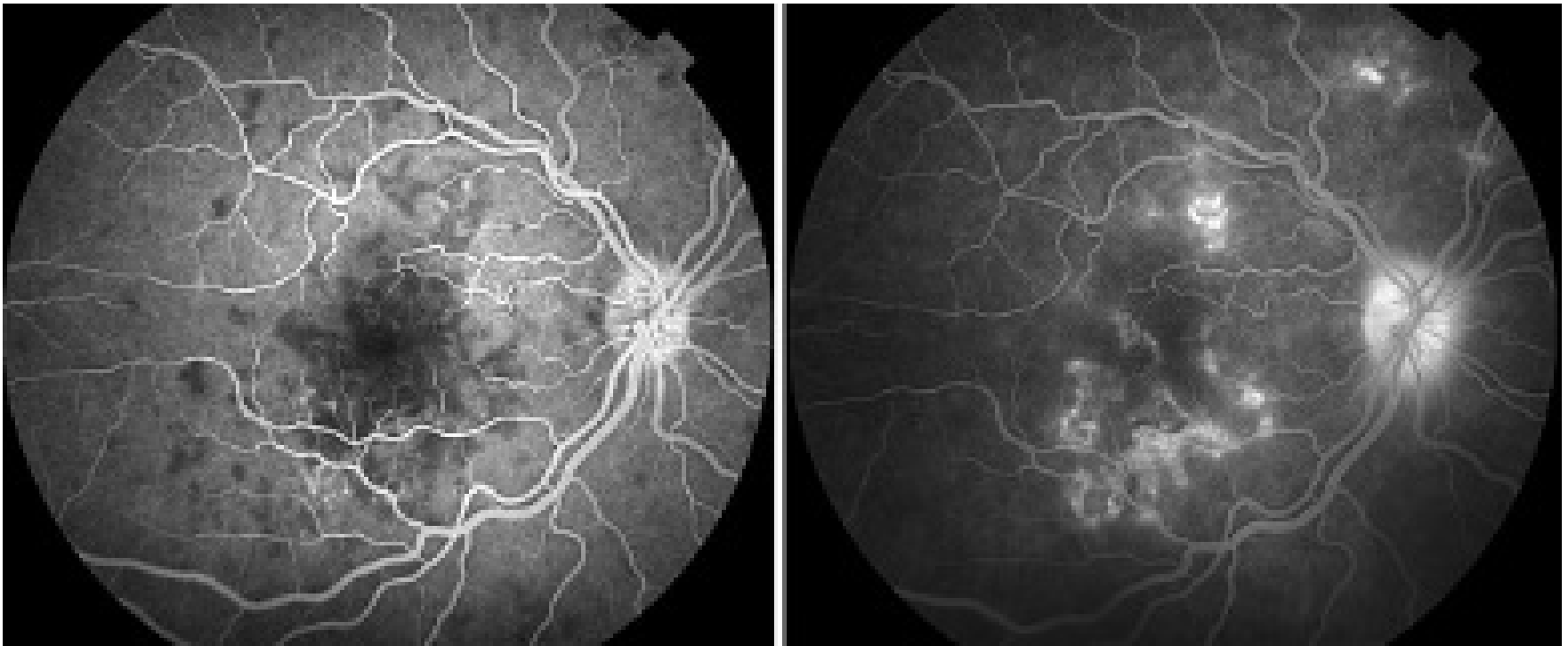
Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations

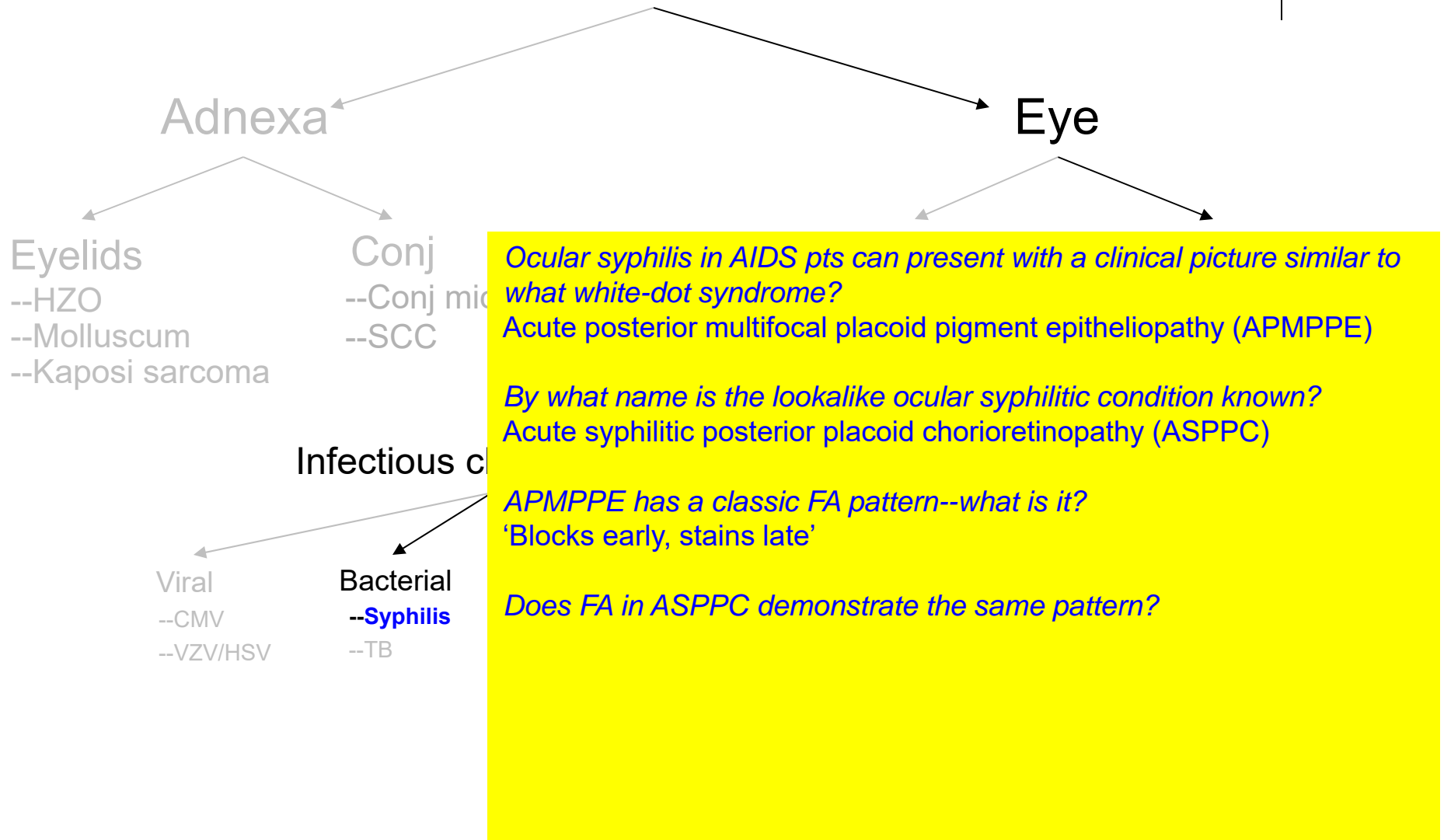




FA in APMPPE: 'Blocks early, stains late'

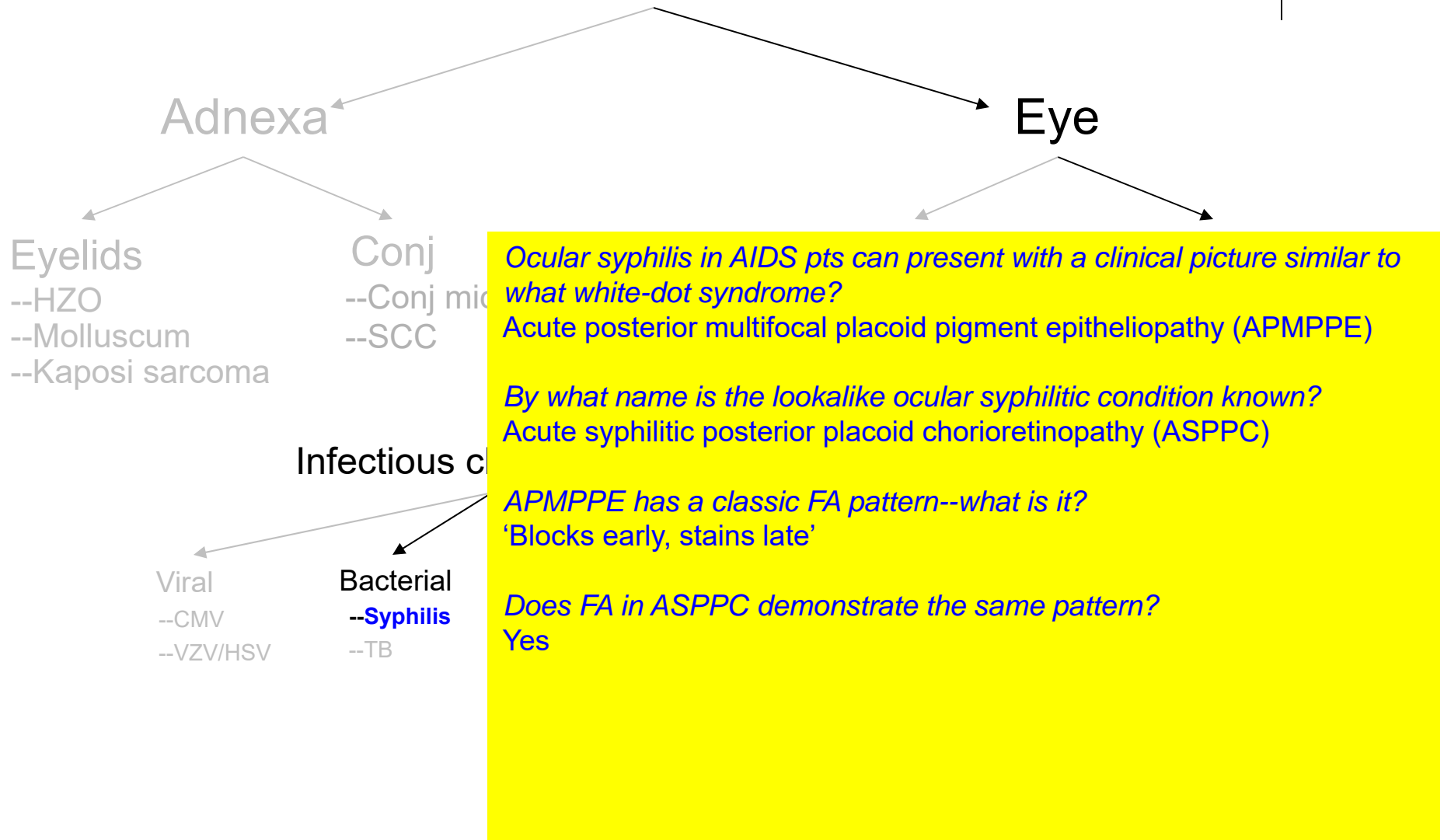
HIV and the Eye

Ophthalmic HIV manifestations



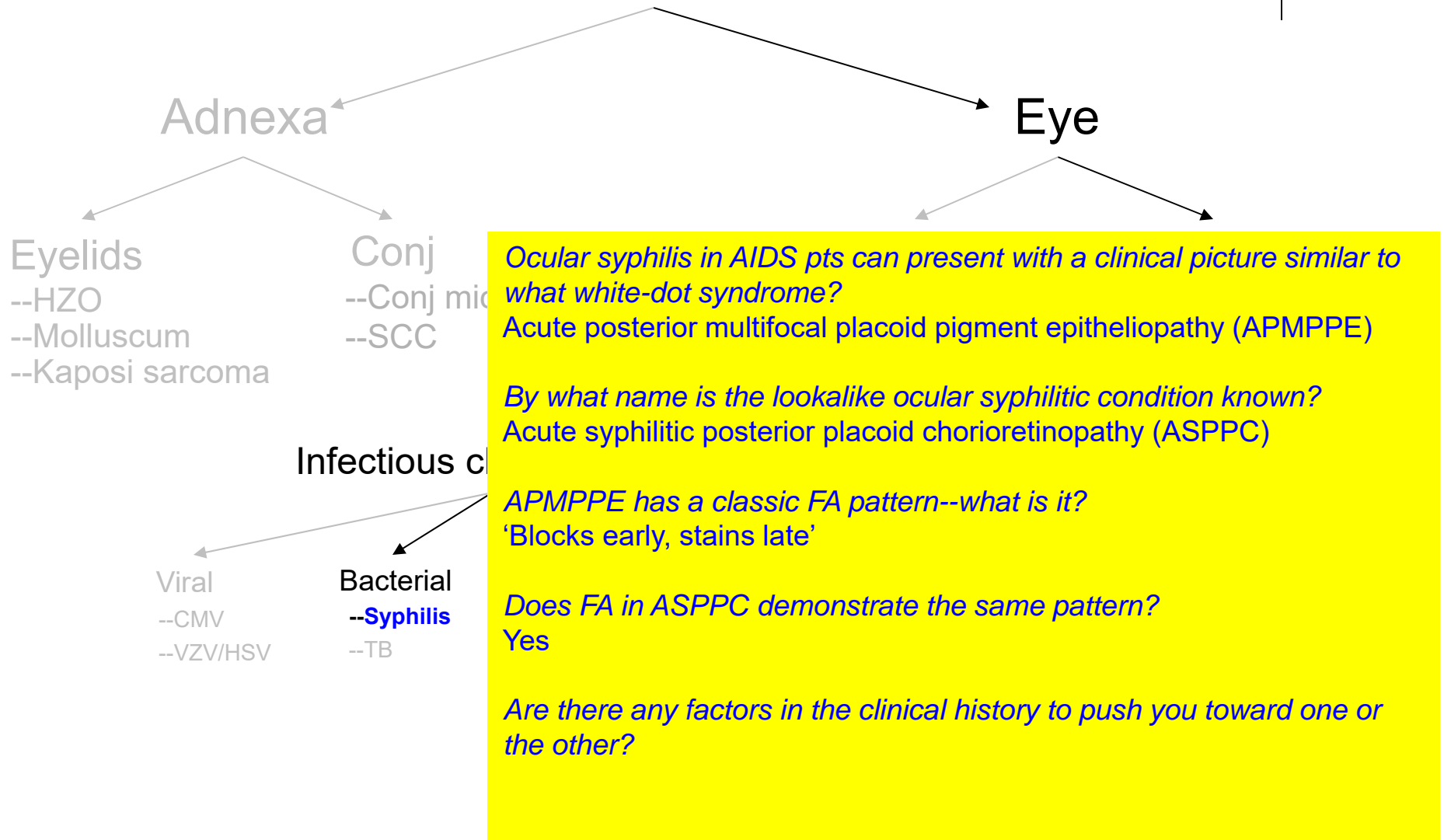
HIV and the Eye

Ophthalmic HIV manifestations



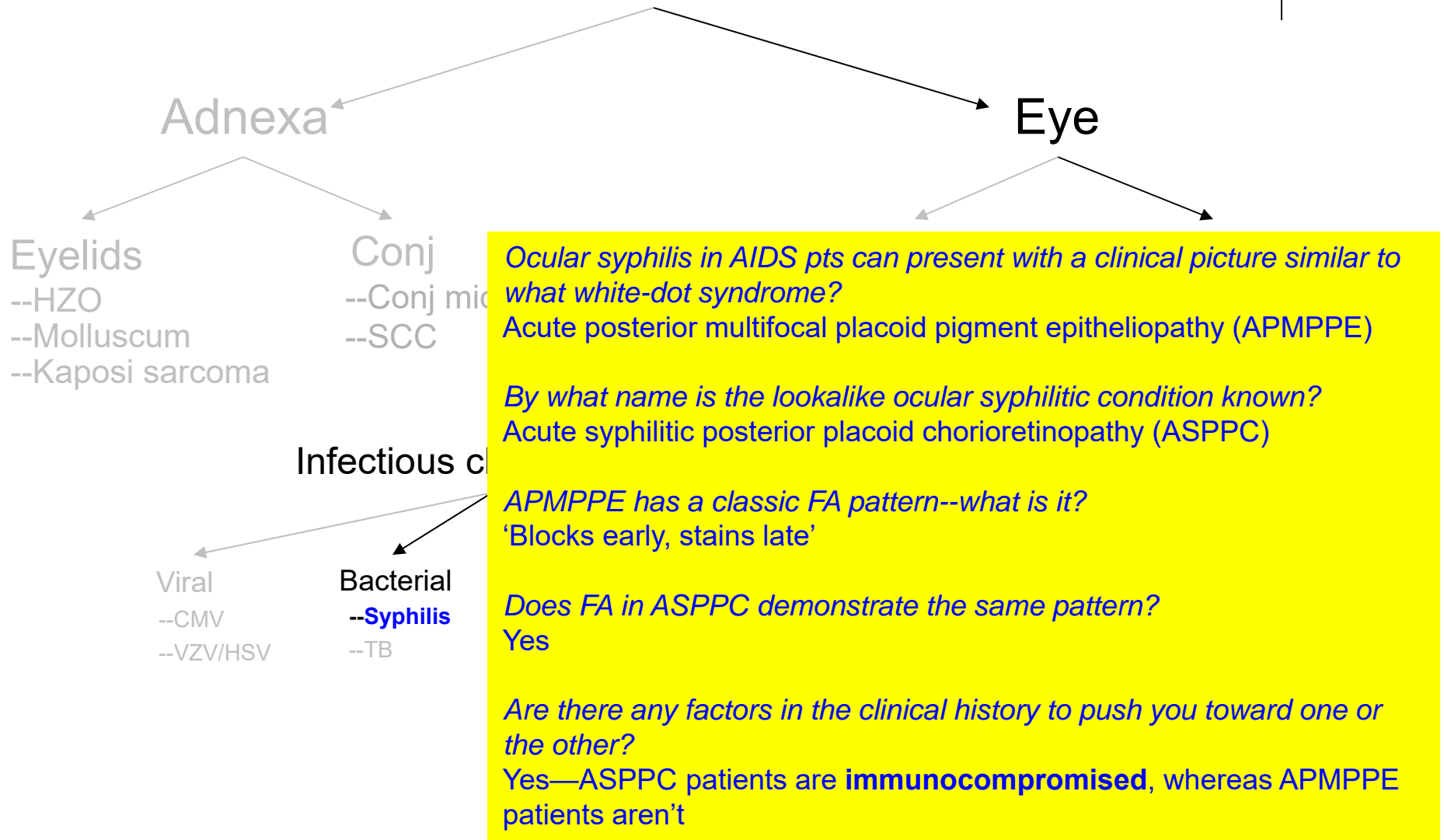
HIV and the Eye

Ophthalmic HIV manifestations



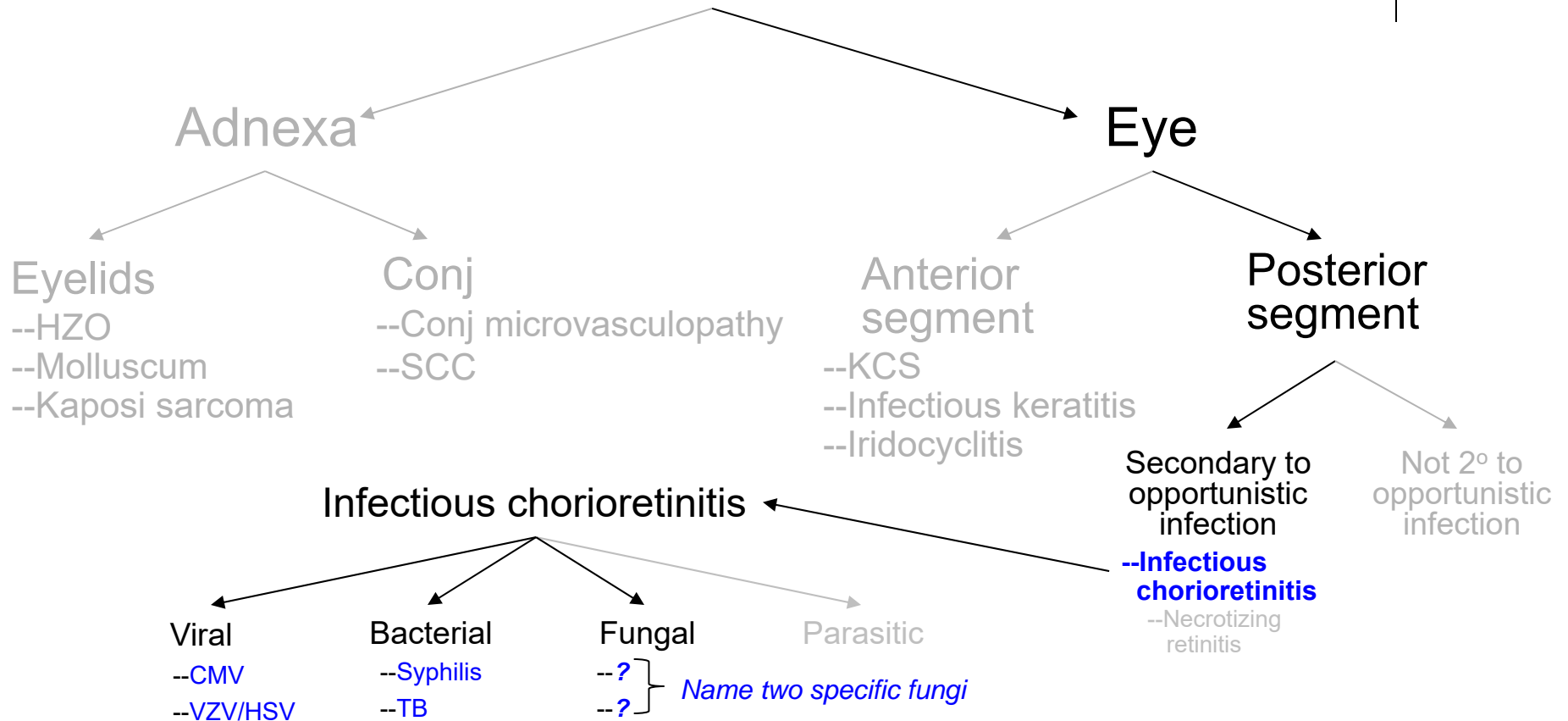
HIV and the Eye

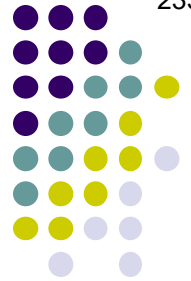
Ophthalmic HIV manifestations



HIV and the Eye

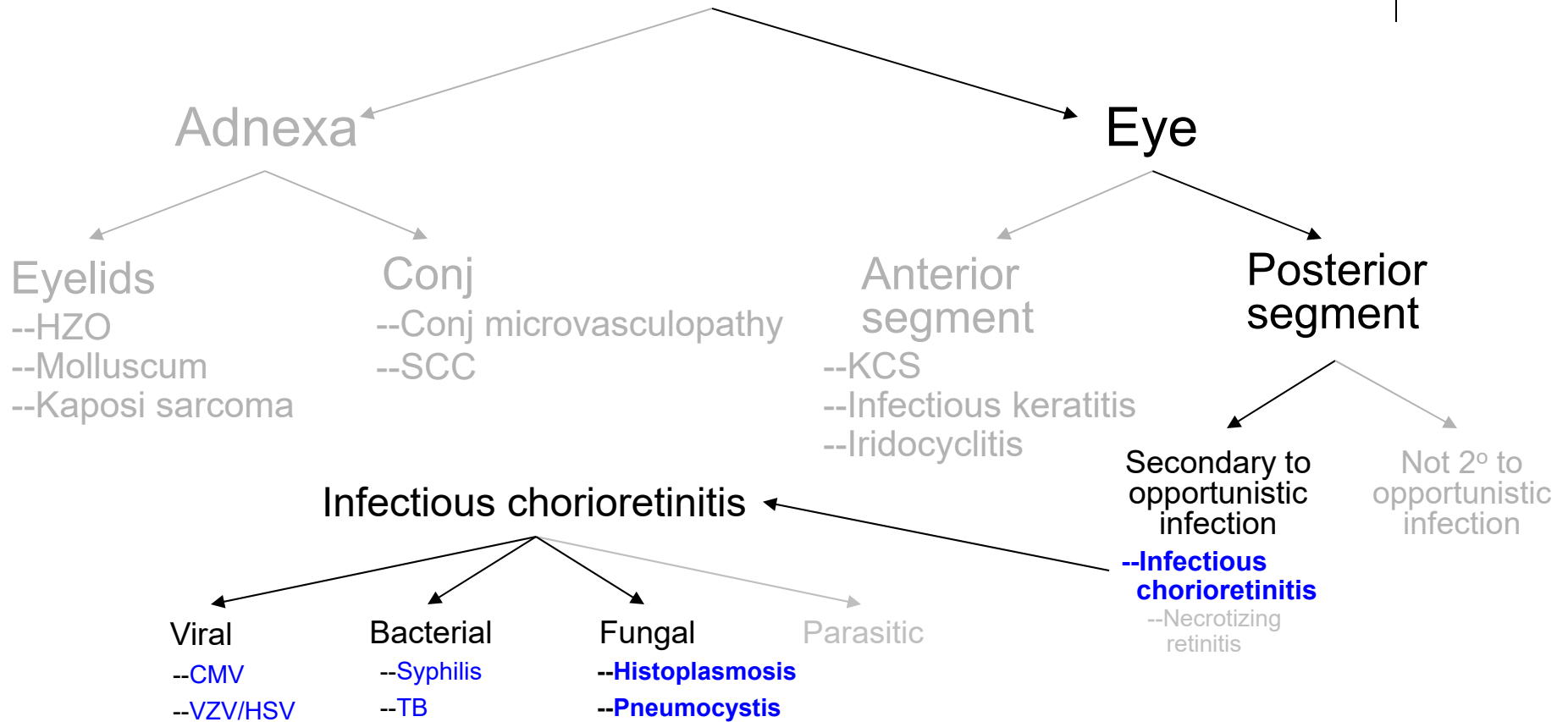
Ophthalmic HIV manifestations





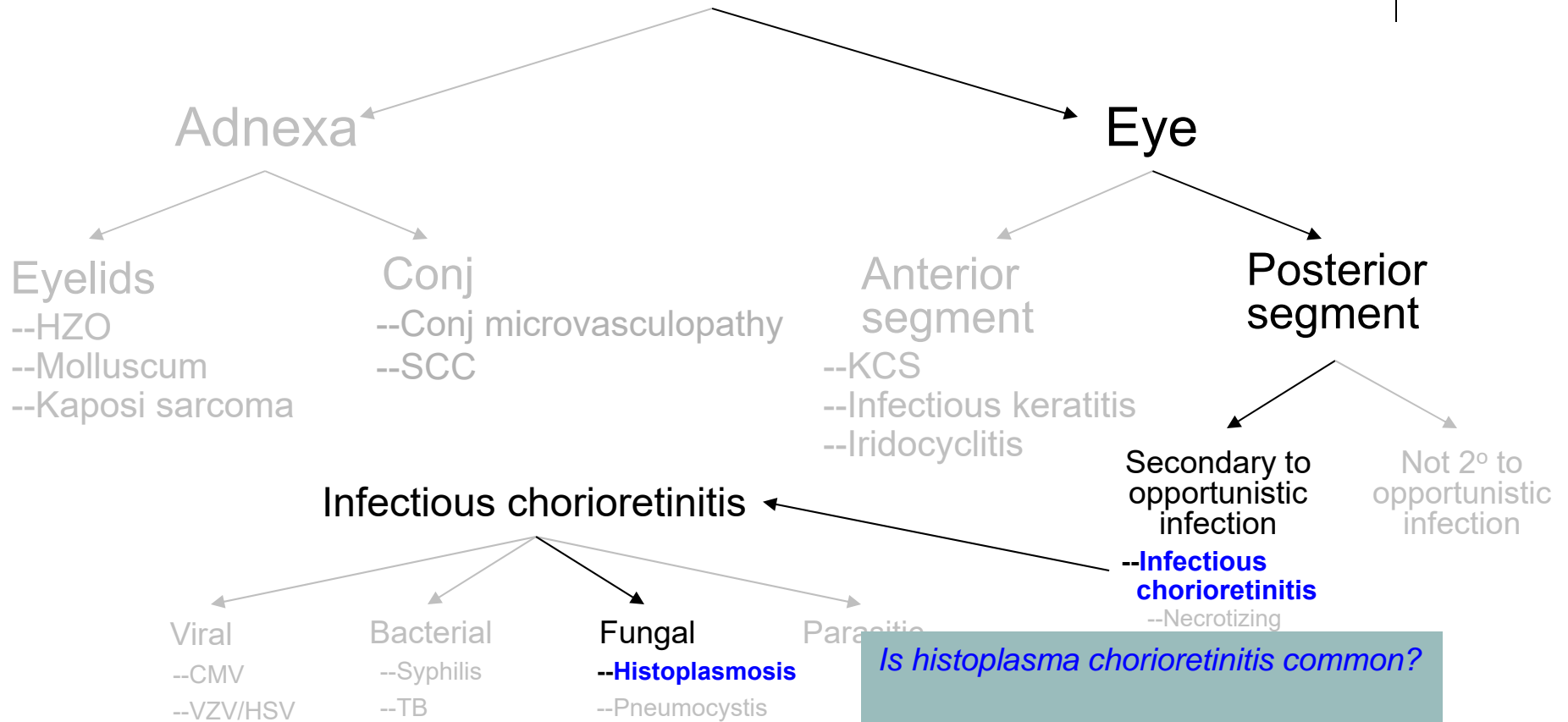
HIV and the Eye

Ophthalmic HIV manifestations



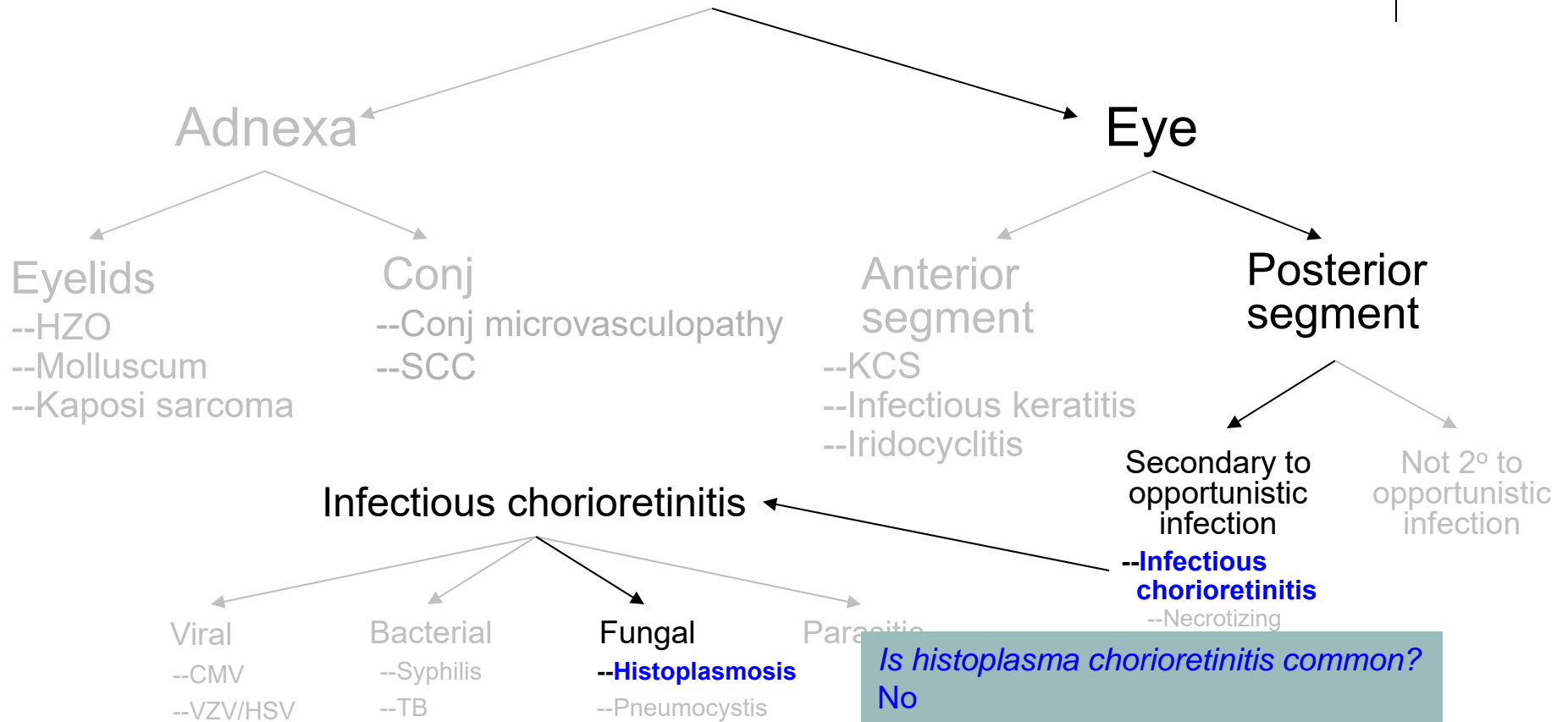
HIV and the Eye

Ophthalmic HIV manifestations



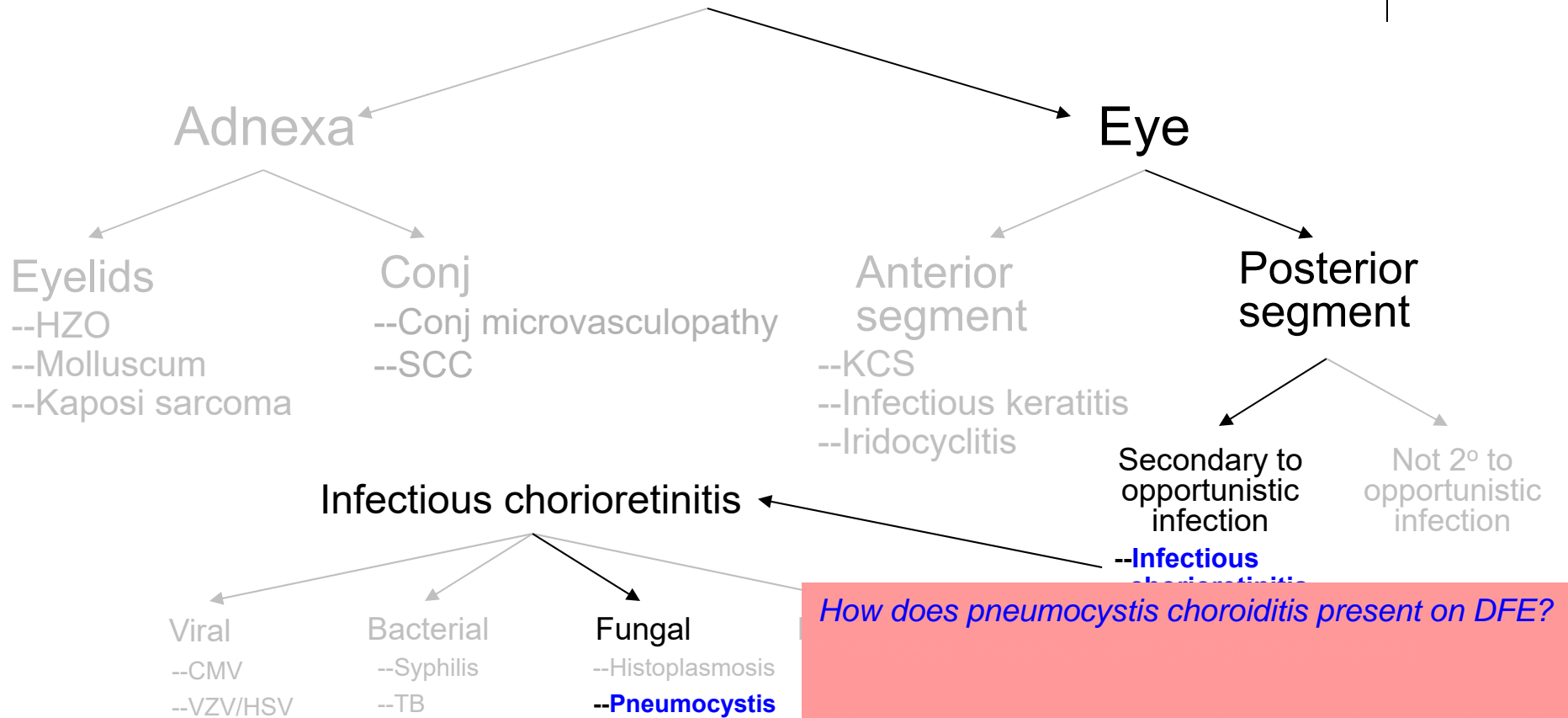
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

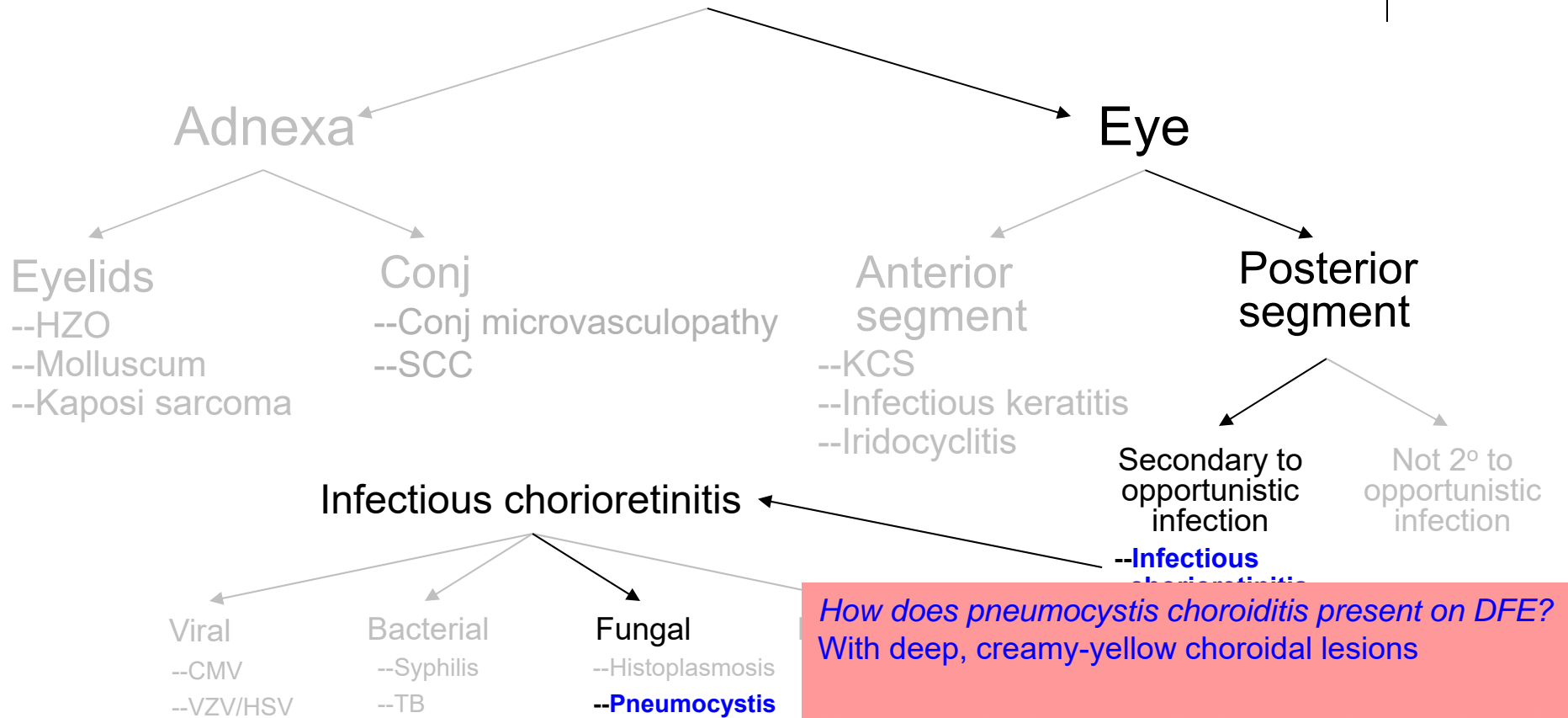
Ophthalmic HIV manifestations



How does pneumocystis choroiditis present on DFE?

HIV and the Eye

Ophthalmic HIV manifestations



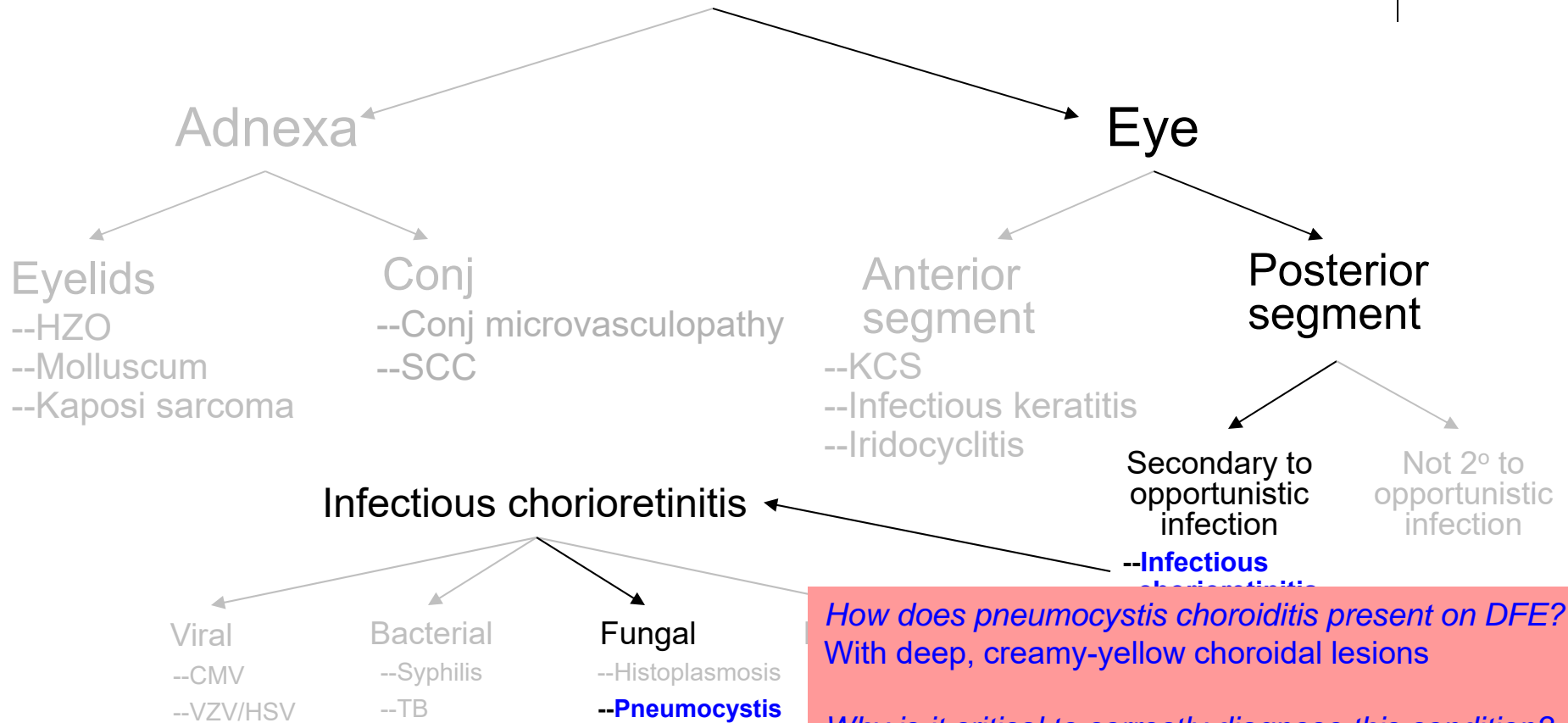
How does pneumocystis choroiditis present on DFE?
With deep, creamy-yellow choroidal lesions



Pneumocystis choroiditis in AIDS

HIV and the Eye

Ophthalmic HIV manifestations

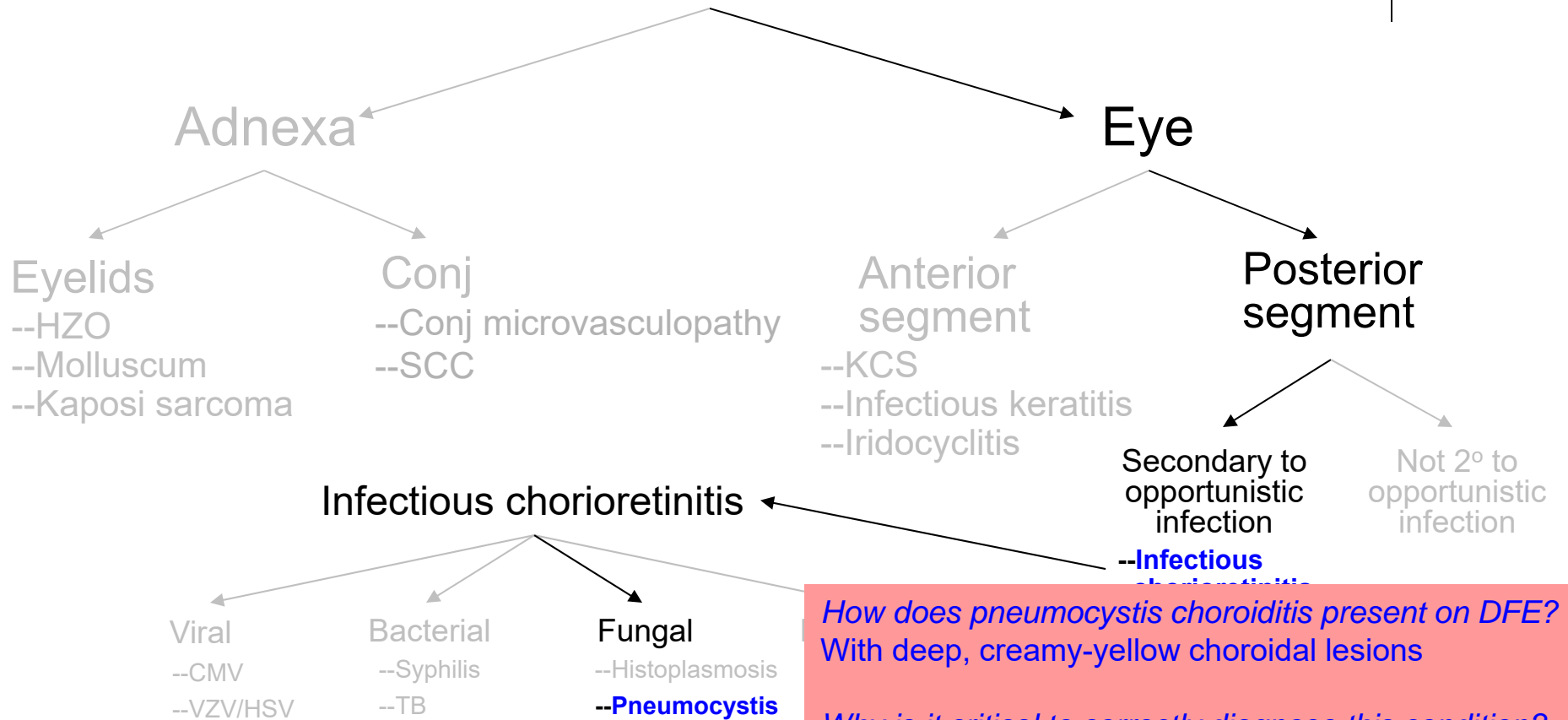


*How does pneumocystis choroiditis present on DFE?
With deep, creamy-yellow choroidal lesions*

Why is it critical to correctly diagnose this condition?

HIV and the Eye

Ophthalmic HIV manifestations

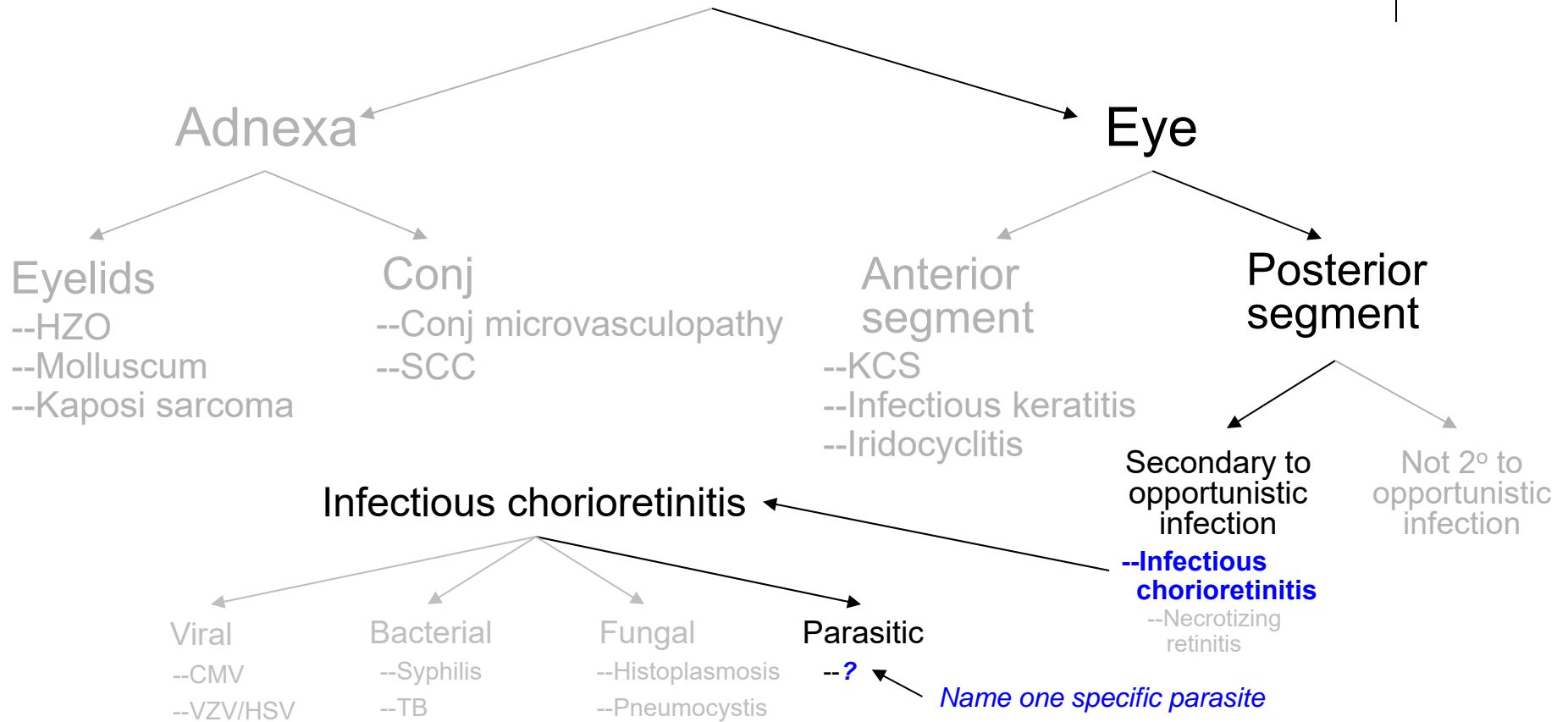


How does pneumocystis choroiditis present on DFE?
With deep, creamy-yellow choroidal lesions

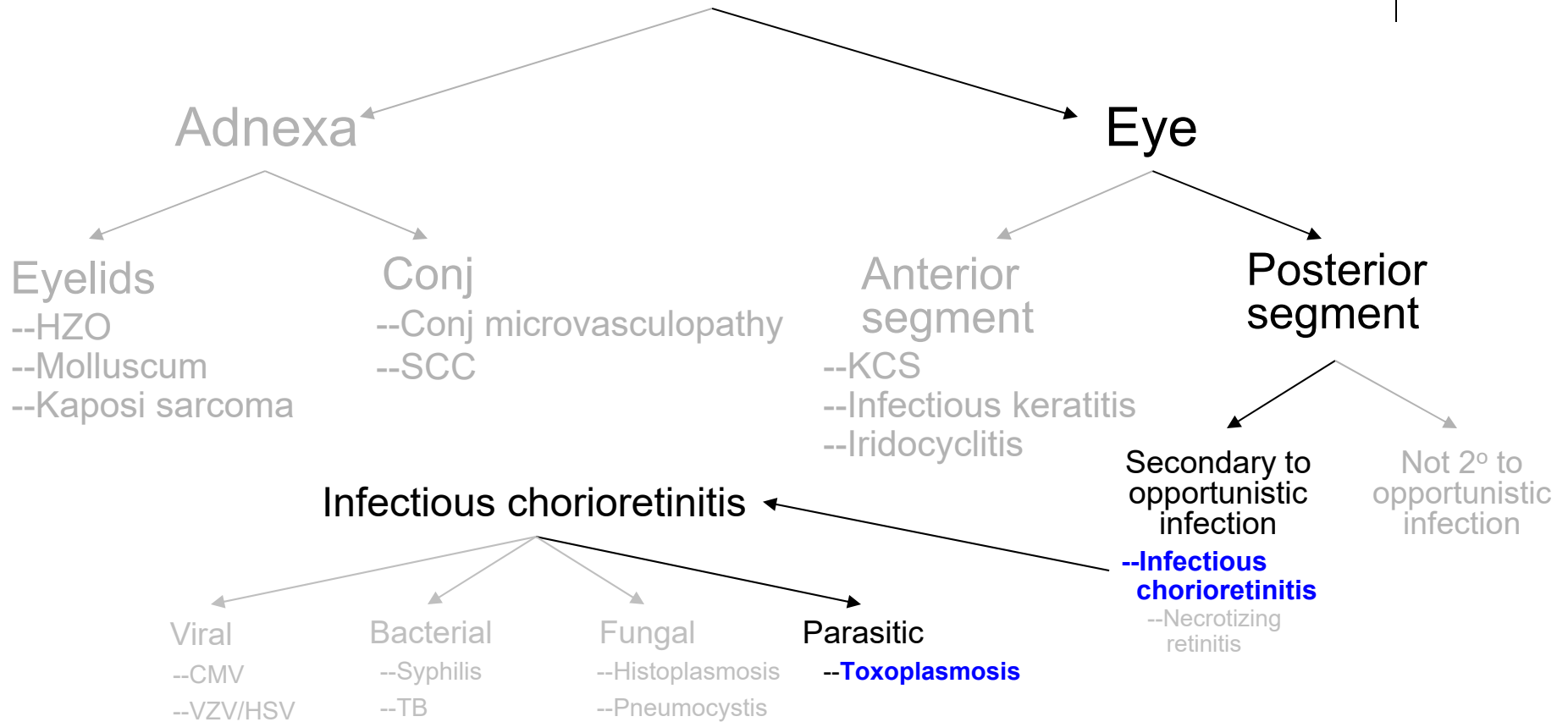
Why is it critical to correctly diagnose this condition?
Ocular dz is indicative of systemic infection, which is potentially life-threatening

HIV and the Eye

Ophthalmic HIV manifestations

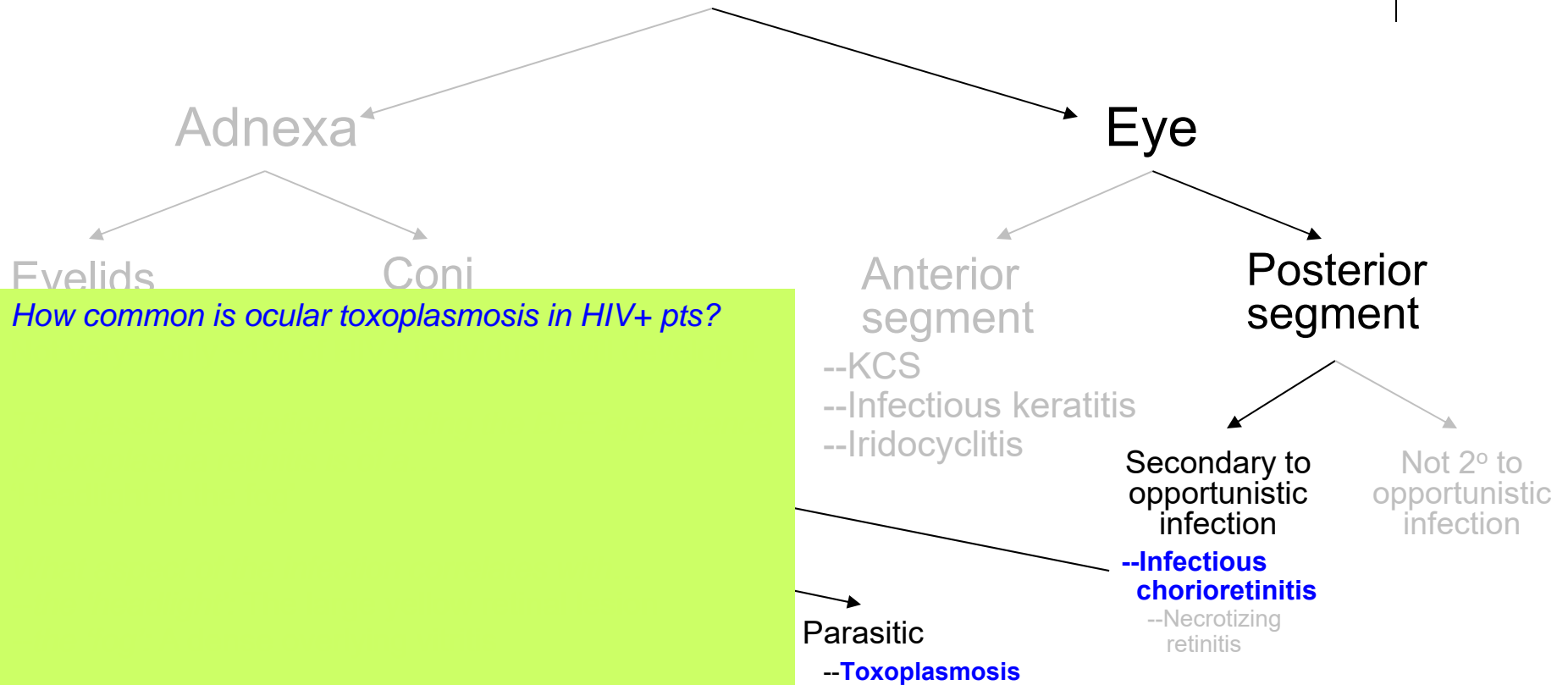
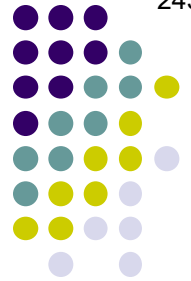


Ophthalmic HIV manifestations



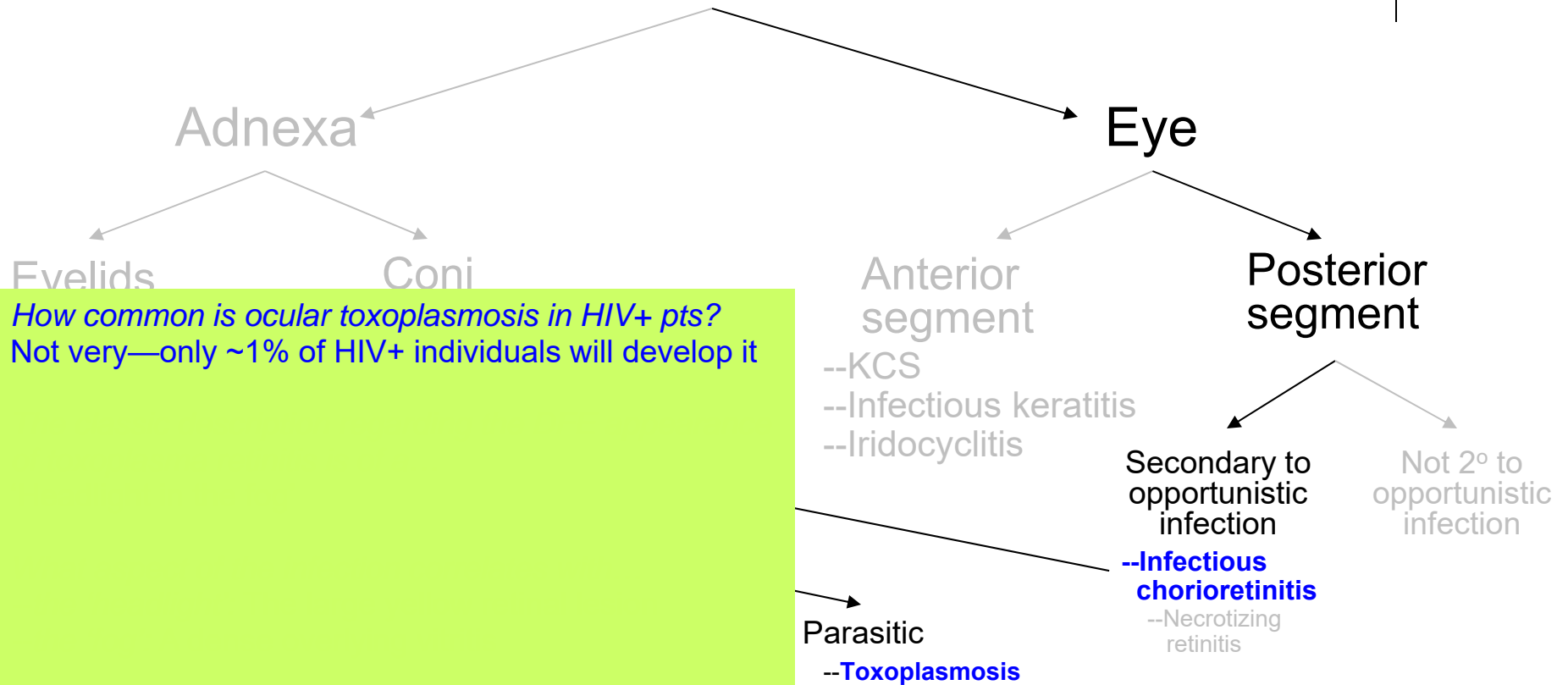
HIV and the Eye

Ophthalmic HIV manifestations



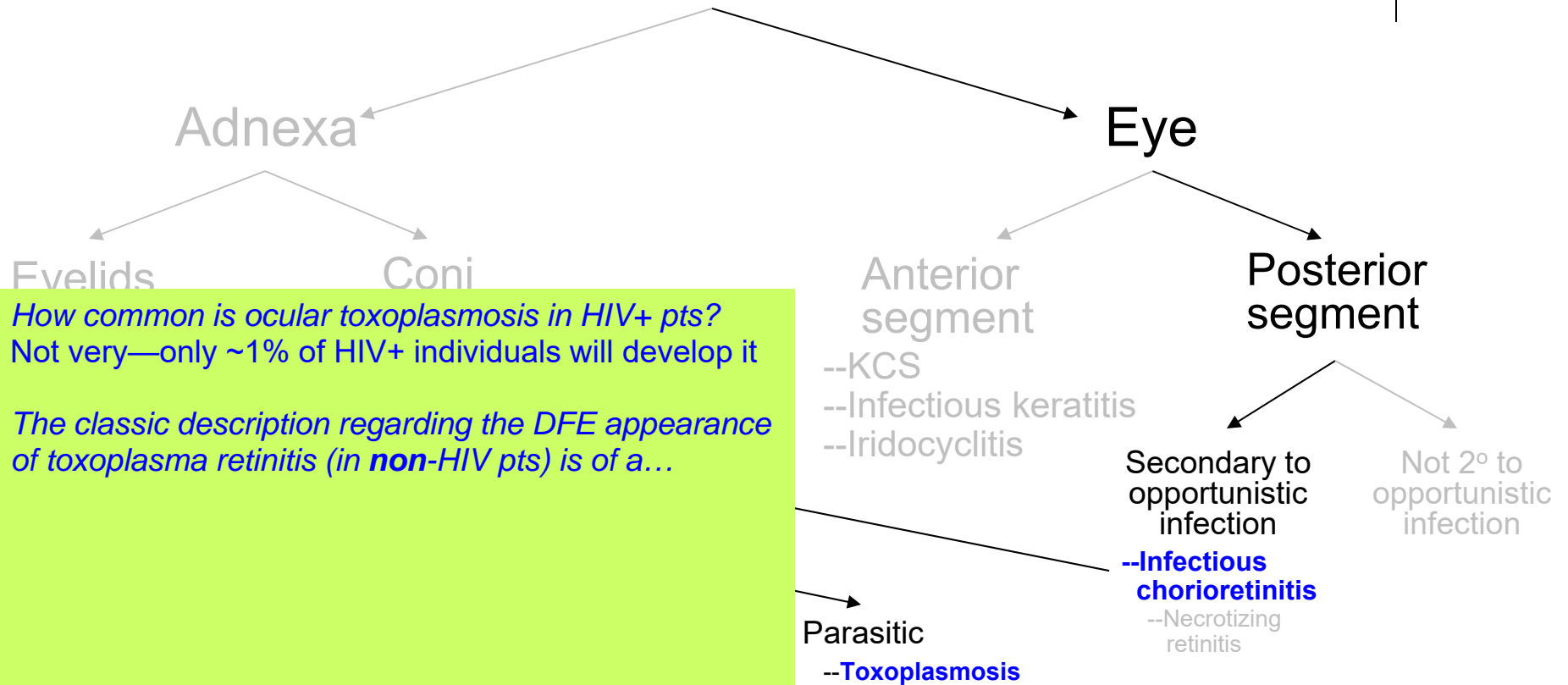
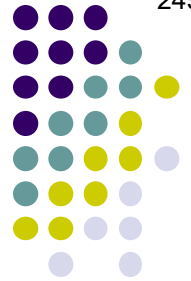
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations

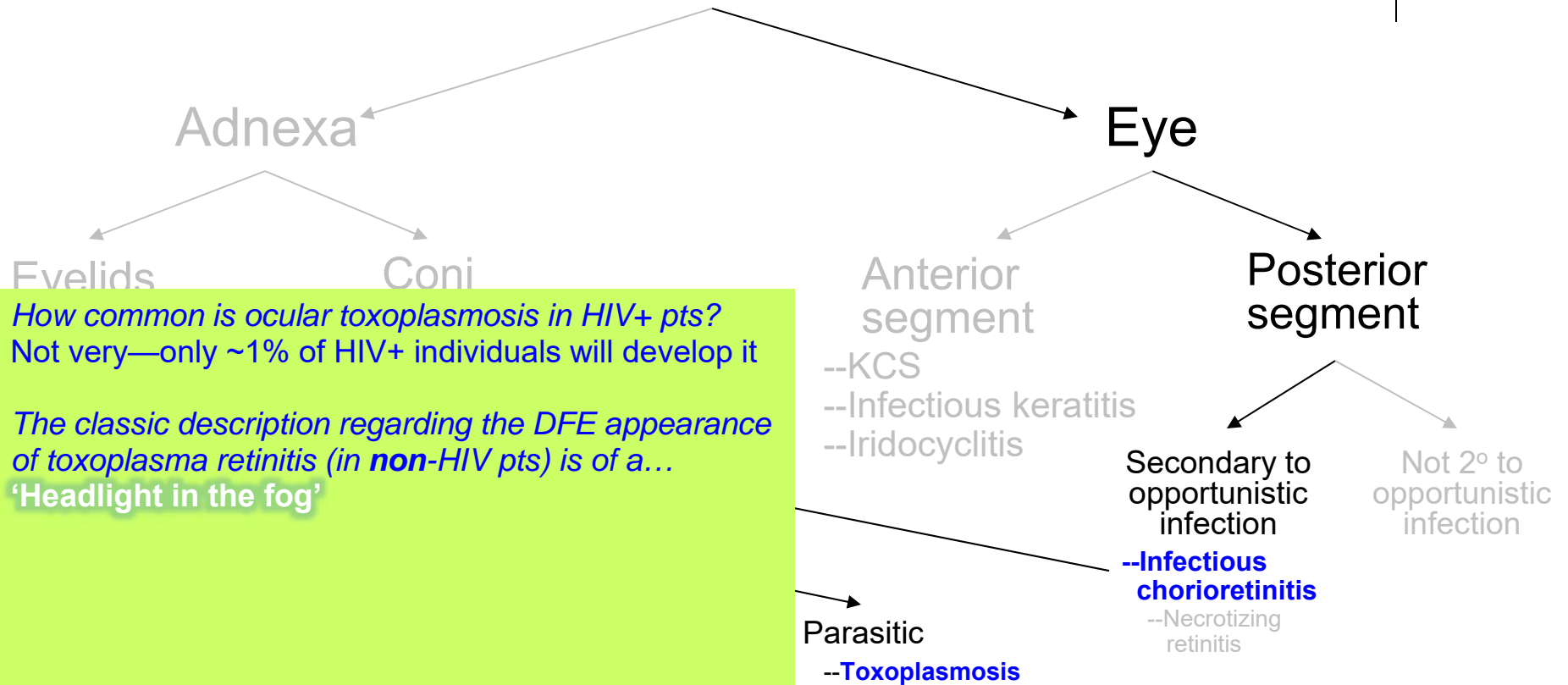


How common is ocular toxoplasmosis in HIV+ pts?
 Not very—only ~1% of HIV+ individuals will develop it

*The classic description regarding the DFE appearance of toxoplasma retinitis (in **non-HIV** pts) is of a...*

HIV and the Eye

Ophthalmic HIV manifestations



How common is ocular toxoplasmosis in HIV+ pts?
 Not very—only ~1% of HIV+ individuals will develop it

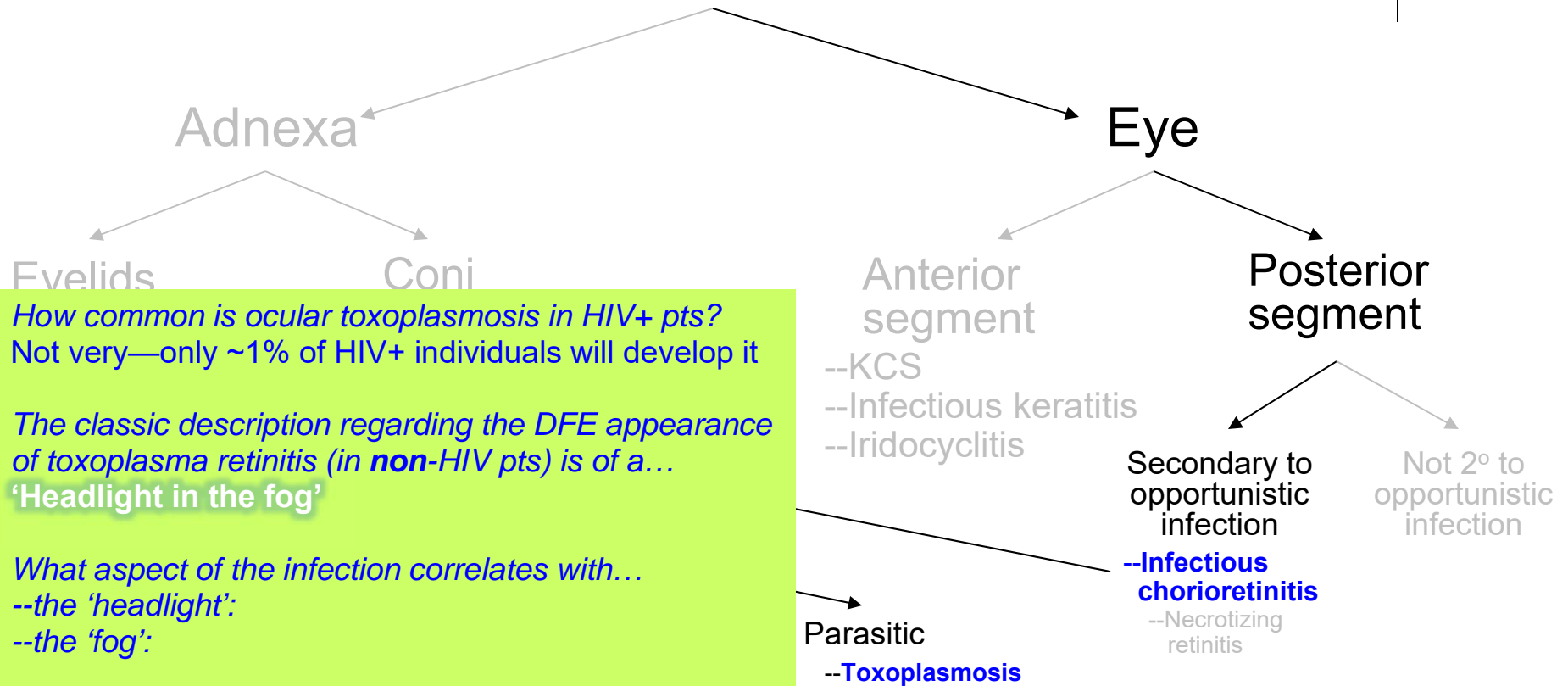
*The classic description regarding the DFE appearance of toxoplasma retinitis (in **non-HIV** pts) is of a...
 'Headlight in the fog'*



Toxoplasma chorioretinitis in immunocompetent host

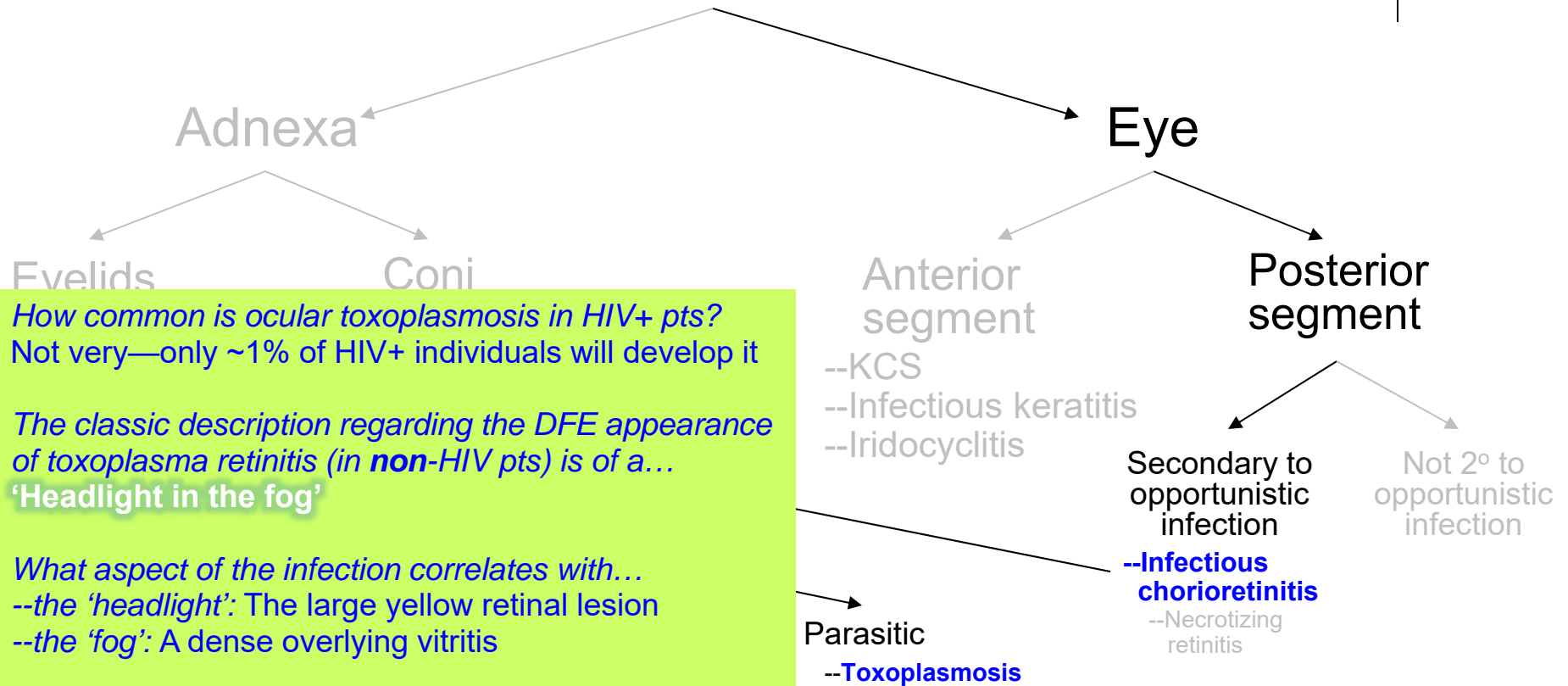
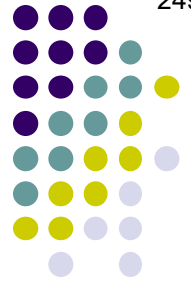
HIV and the Eye

Ophthalmic HIV manifestations



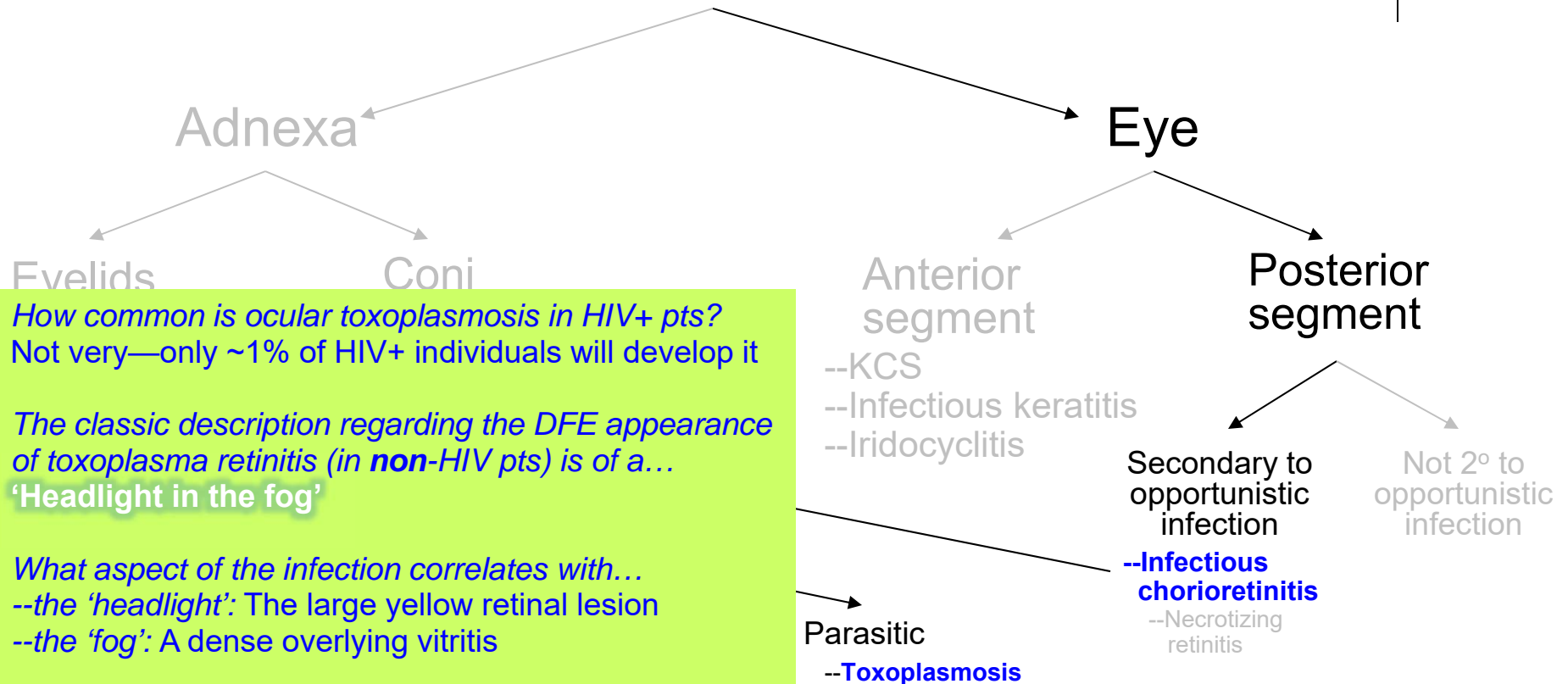
HIV and the Eye

Ophthalmic HIV manifestations



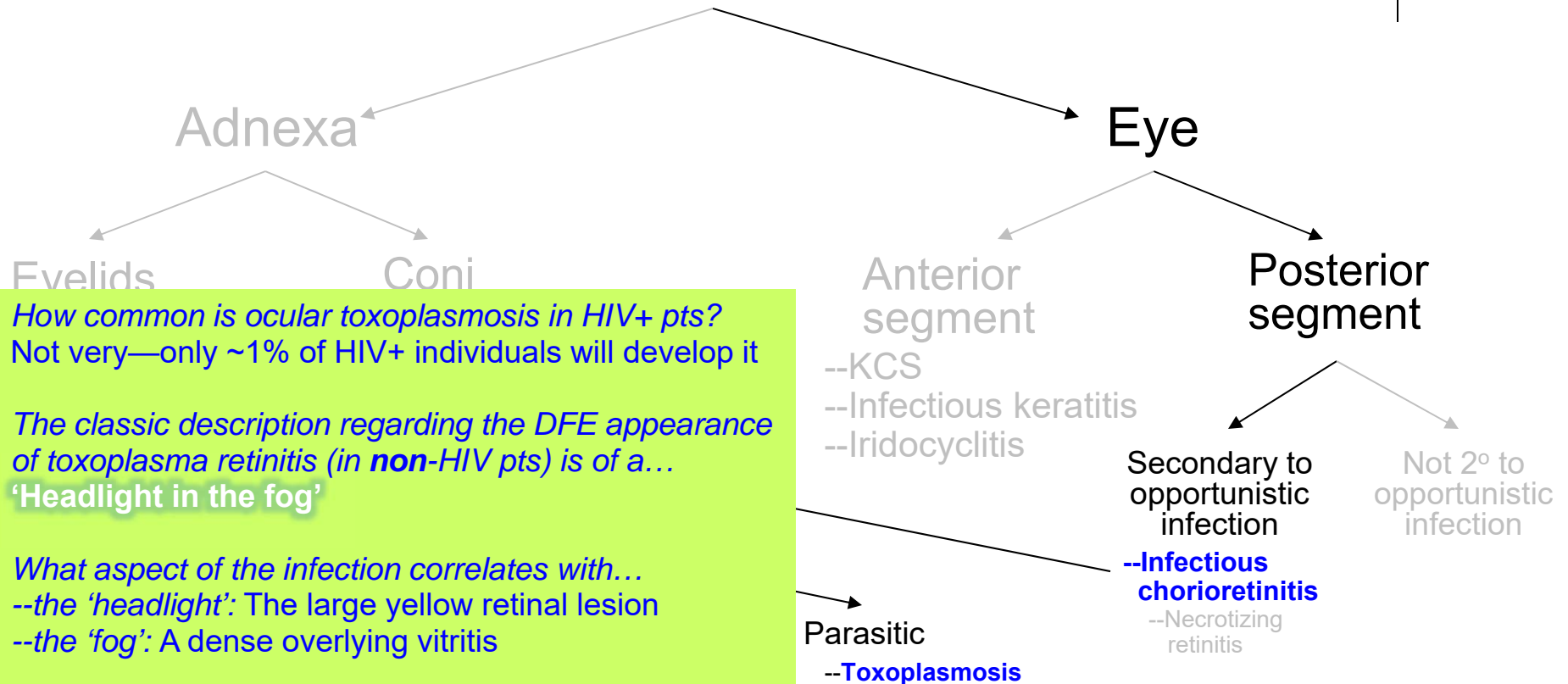
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations



How common is ocular toxoplasmosis in HIV+ pts?
Not very—only ~1% of HIV+ individuals will develop it

*The classic description regarding the DFE appearance of toxoplasma retinitis (in **non-HIV** pts) is of a... 'Headlight in the fog'*

What aspect of the infection correlates with...
--the 'headlight': The large yellow retinal lesion
--the 'fog': A dense overlying vitritis

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?
By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis



Toxoplasma chorioretinitis in AIDS pt

HIV and the Eye

Ophthalmic HIV manifestations

In what ways does the management of toxo retinitis differ in the immunocompromised population?

--In immunocompetent pts, toxo retinitis needs treatment only if the lesion is threatening the

abb.

or a

two words

, or in cases of

two words

Even

How common is toxo retinitis in HIV+ pts?
Not very—only ~1% of HIV+ individuals will develop it

The classic description regarding the DFE appearance of toxoplasmosis
'Headlight' *Speaking of comparing/contrasting toxo retinitis in immunocompetent vs -compromised hosts...*

What aspect of the infection correlates with...
--the 'headlight': The large yellow retinal lesion
--the 'fog': A dense overlying vitritis

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis

--KCS

--Infectious keratitis

--Iridocyclitis

Secondary to opportunistic infection

Not 2° to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Parasitic

--**Toxoplasmosis**

HIV and the Eye

Ophthalmic HIV manifestations

In what ways does the management of toxo retinitis differ in the immunocompromised population?

--In immunocompetent pts, toxo retinitis needs treatment only if the lesion is threatening the macula, ONH or a major vessel, or in cases of severe vitritis;

Speaking of comparing/contrasting toxo retinitis in immunocompetent vs -compromised hosts...

What aspect of the infection correlates with...
--the 'headlight': The large yellow retinal lesion
--the 'fog': A dense overlying vitritis

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis

--KCS

--Infectious keratitis

--Iridocyclitis

Secondary to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Not 2° to opportunistic infection

Parasitic

--**Toxoplasmosis**

HIV and the Eye

Ophthalmic HIV manifestations

In what ways does the management of toxo retinitis differ in the immunocompromised population?
 --In immunocompetent pts, toxo retinitis needs treatment only if the lesion is threatening the macula, ONH or a major vessel, or in cases of severe vitritis; whereas in immunocompromised pts, lesions are treated

seven words

Even

How common is toxo retinitis in HIV+ pts?
 Not very—only ~1% of HIV+ individuals will develop it

The classic description regarding the DFE appearance of toxoplasmosis
 'Headlight' Speaking of comparing/contrasting toxo retinitis in immunocompetent vs -compromised hosts...

What aspect of the infection correlates with...
 --the 'headlight': The large yellow retinal lesion
 --the 'fog': A dense overlying vitritis

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis

--KCS

--Infectious keratitis

--Iridocyclitis

Secondary to opportunistic infection

Not 2° to opportunistic infection

--Infectious chorioretinitis

--Necrotizing retinitis

Parasitic

--Toxoplasmosis

HIV and the Eye

Ophthalmic HIV manifestations

In what ways does the management of toxo retinitis differ in the immunocompromised population?
 --In immunocompetent pts, toxo retinitis needs treatment only if the lesion is threatening the macula, ONH or a major vessel, or in cases of severe vitritis; whereas in immunocompromised pts, lesions are treated regardless of location, or severity of vitritis

Even

How common is toxo retinitis in HIV+ pts?
 Not very—only ~1% of HIV+ individuals will develop it

The classic description regarding the DFE appearance of toxoplasmosis
 'Headlight' Speaking of comparing/contrasting toxo retinitis in immunocompetent vs -compromised hosts...

What aspect of the infection correlates with...
 --the 'headlight': The large yellow retinal lesion
 --the 'fog': A dense overlying vitritis

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis

--KCS

--Infectious keratitis

--Iridocyclitis

Secondary to opportunistic infection

Not 2° to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Parasitic

--**Toxoplasmosis**

HIV and the Eye

Ophthalmic HIV manifestations

In what ways does the management of toxo retinitis differ in the immunocompromised population?

--In immunocompetent pts, toxo retinitis needs treatment only if the lesion is threatening the macula, ONH or a major vessel, or in cases of severe vitritis; whereas in immunocompromised pts, lesions are treated regardless of location, or severity of vitritis

--In immunocompetent pts, toxo retinitis does not prompt imaging; whereas in immunocompromised pts, a finding of toxo retinitis should prompt

Speaking of comparing/contrasting toxo retinitis in immunocompetent vs -compromised hosts...

--KCS

--Infectious keratitis

--Iridocyclitis

Secondary to opportunistic infection

Not 2° to opportunistic infection

--Infectious chorioretinitis

--Necrotizing retinitis

Parasitic

--Toxoplasmosis

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis

HIV and the Eye

Ophthalmic HIV manifestations

In what ways does the management of toxo retinitis differ in the immunocompromised population?

--In immunocompetent pts, toxo retinitis needs treatment only if the lesion is threatening the macula, ONH or a major vessel, or in cases of severe vitritis; whereas in immunocompromised pts, lesions are treated regardless of location, or severity of vitritis

--In immunocompetent pts, toxo retinitis does not prompt imaging; whereas in immunocompromised pts, a finding of toxo retinitis should prompt MR imaging of the brain

Speaking of comparing/contrasting toxo retinitis in immunocompetent vs -compromised hosts...

--KCS

--Infectious keratitis

--Iridocyclitis

Secondary to opportunistic infection

Not 2° to opportunistic infection

--**Infectious chorioretinitis**

--Necrotizing retinitis

Parasitic

--**Toxoplasmosis**

In what way might the presentation of toxo retinitis in an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly immunocompromised might be unable to generate a significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

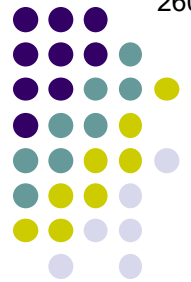
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

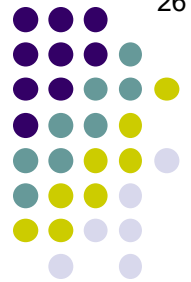
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

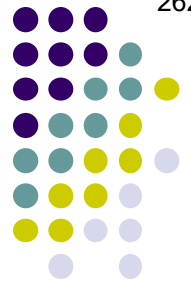
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?
Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

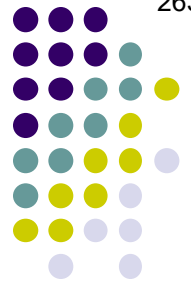
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?

Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

Is contrast needed?

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

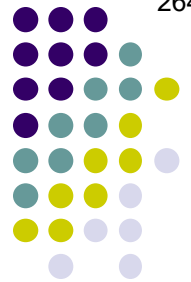
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?

Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

Is contrast needed?

Yes

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

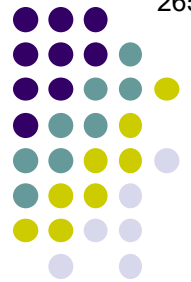
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?
Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

Is contrast needed?
Yes

What is the classic neuroimaging finding?

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?
Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

Is contrast needed?
Yes

What is the classic neuroimaging finding?
'Ring-enhancing lesions'

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

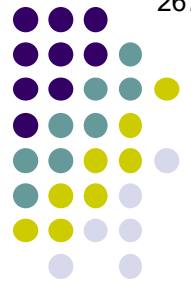
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?
Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

Is contrast needed?
Yes

What is the classic neuroimaging finding?
'Ring-enhancing lesions'

Will the lesions show up on CT with contrast?

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

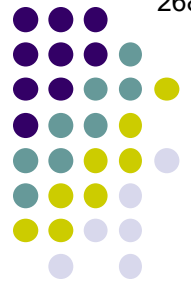
Parasitic

--**Toxoplasmosis**

Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis



Why do immunocompromised pts with toxo retinitis need brain imaging?
To assess for CNS involvement

Is there a strong correlation between ocular and CNS toxo?
Yes—up to 50% of toxo retinitis pts will be found to have CNS involvement

Is contrast needed?
Yes

What is the classic neuroimaging finding?
'Ring-enhancing lesions'

Will the lesions show up on CT with contrast?
Yes, but MR is the preferred modality

MR imaging of the brain

--KCS
--Infectious keratitis
--Iridocyclitis

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

--**Infectious
chorioretinitis**

--Necrotizing
retinitis

Parasitic

--**Toxoplasmosis**

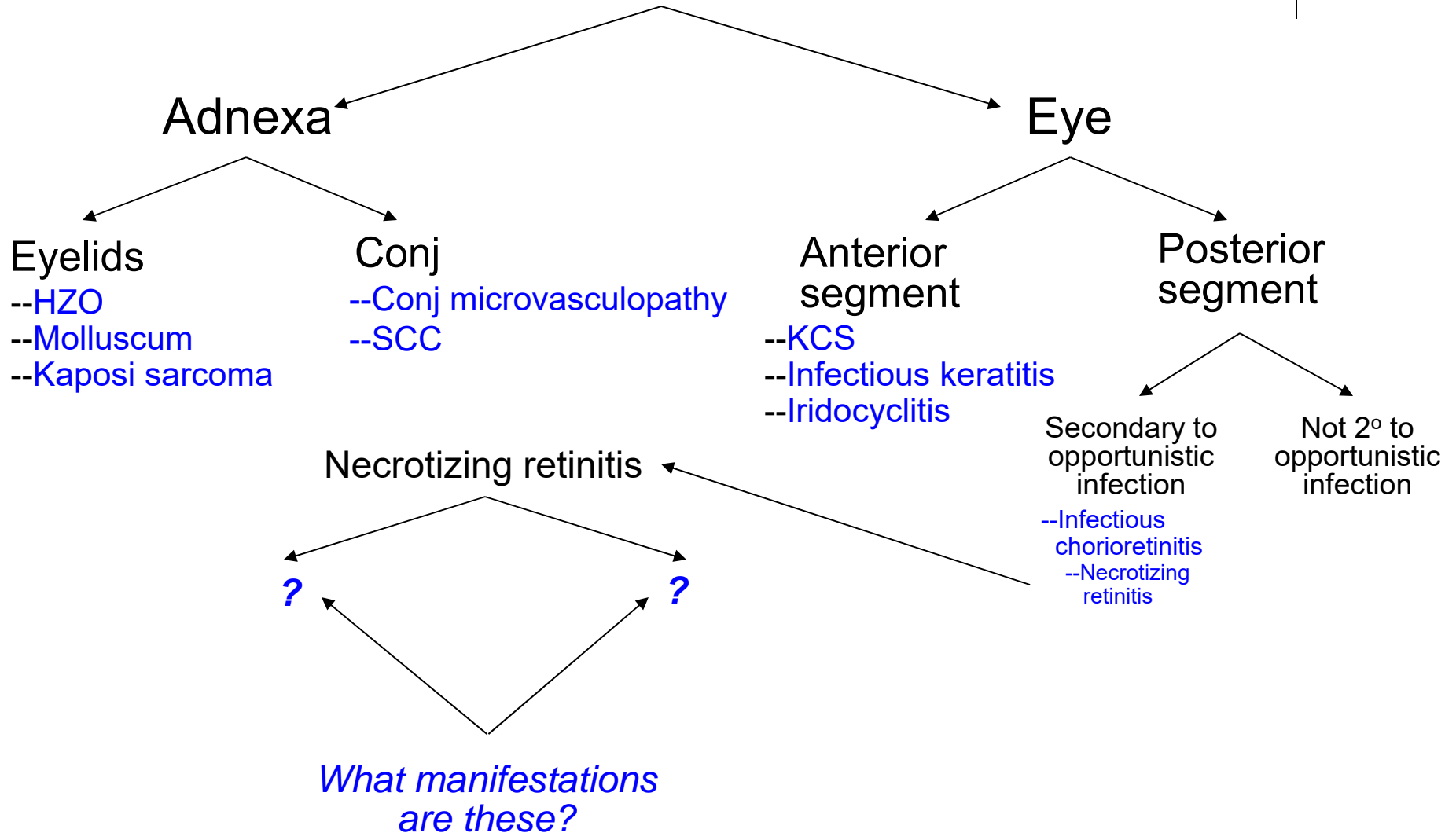
Speaking of comparing/contrasting toxo retinitis
in immunocompetent vs -compromised hosts...

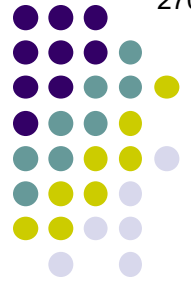
In what way might the presentation of toxo retinitis in
an HIV+ pt deviate from the classic description?

By the absence of 'fog'—a pt who is profoundly
immunocompromised might be unable to generate a
significant vitritis

HIV and the Eye

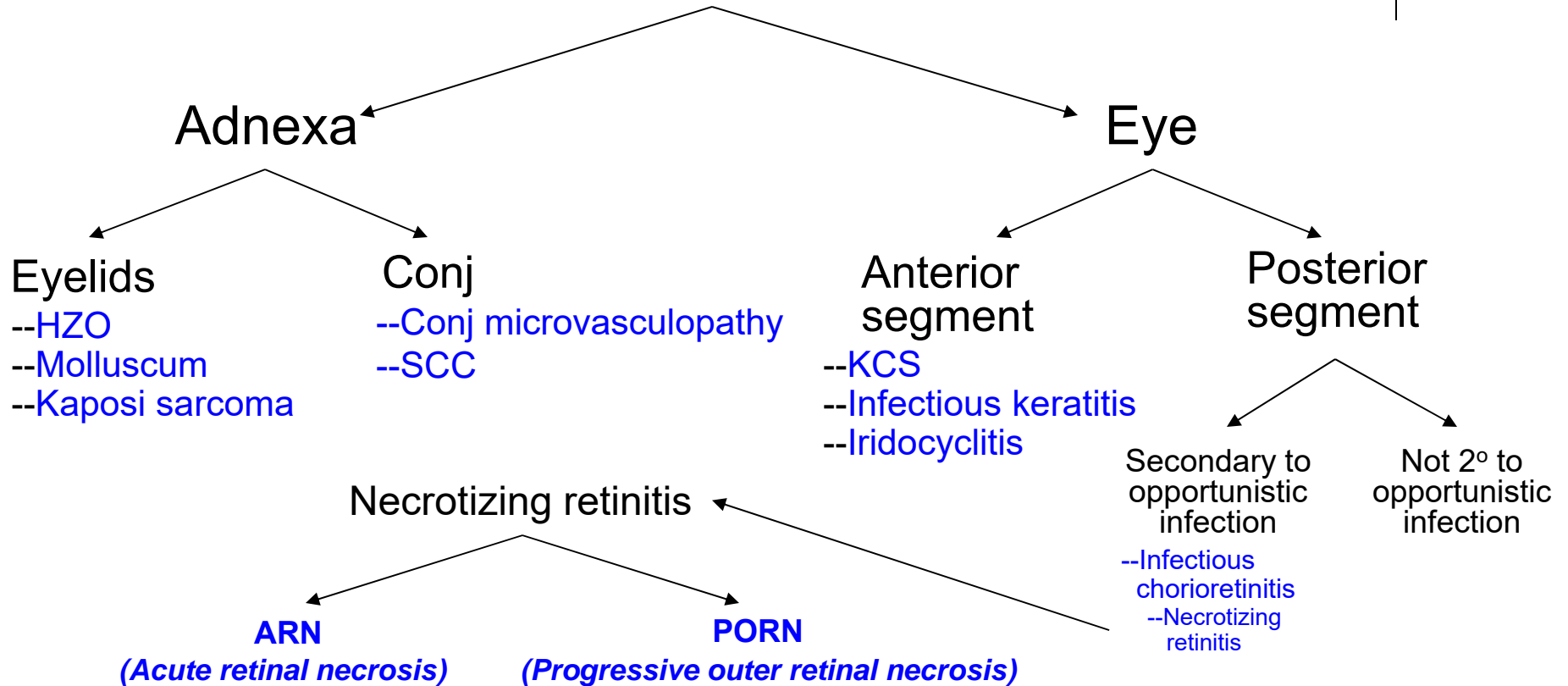
Ophthalmic HIV manifestations





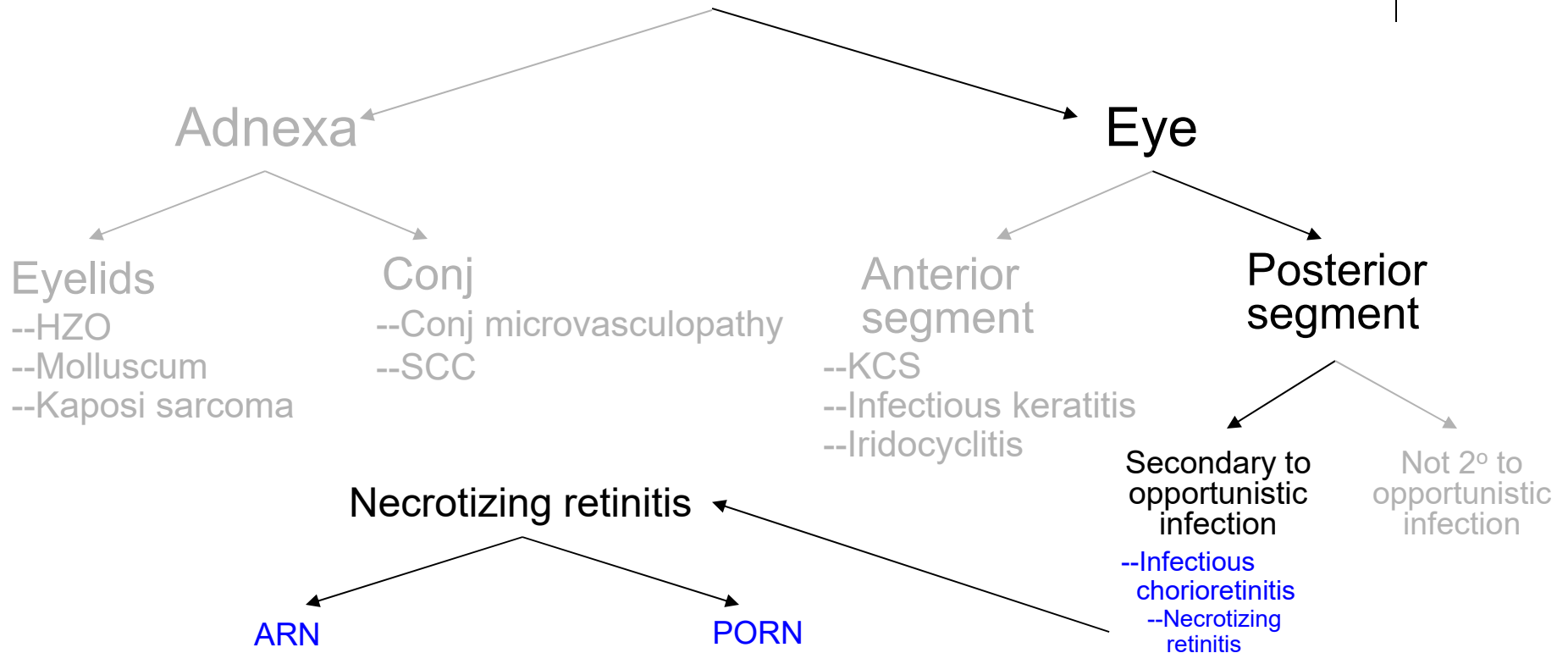
HIV and the Eye

Ophthalmic HIV manifestations

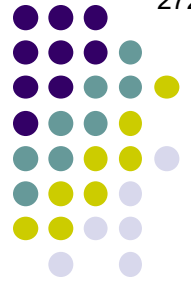


HIV and the Eye

Ophthalmic HIV manifestations

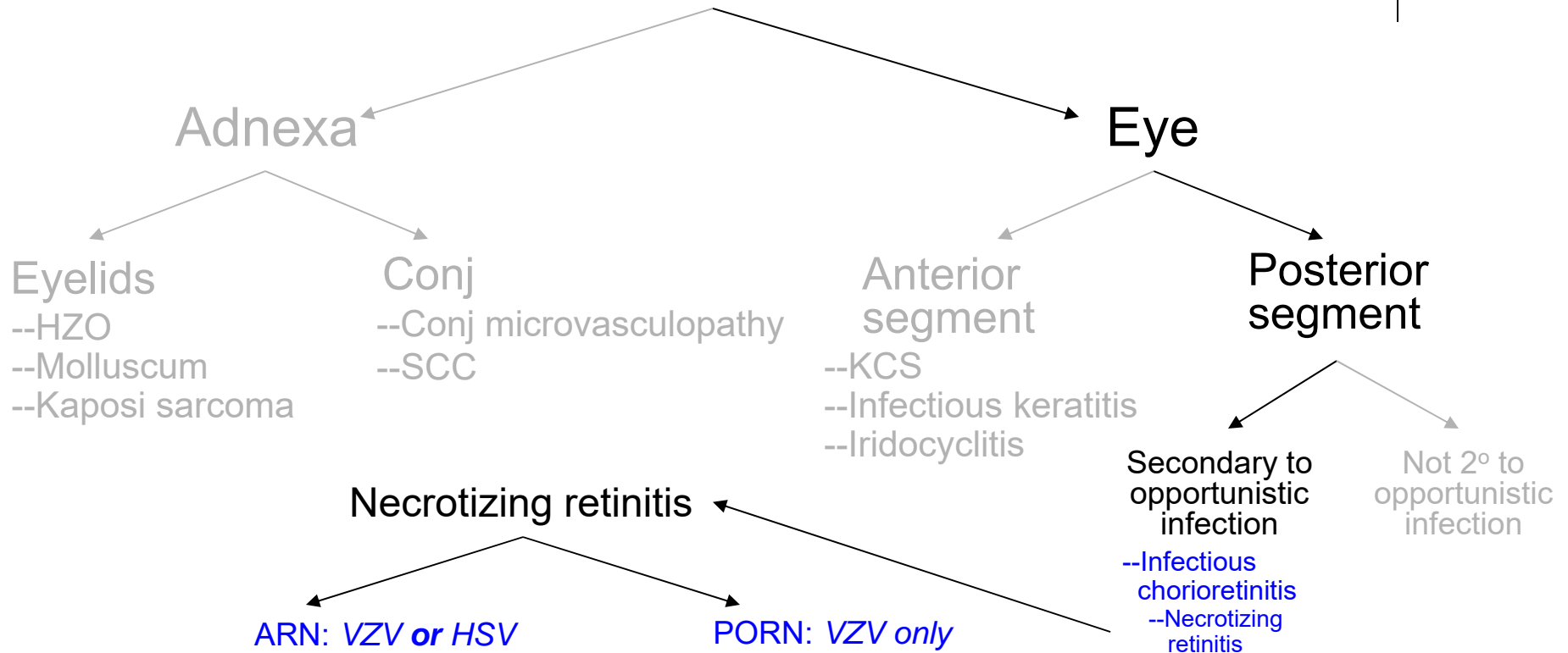


How, specifically, are HSV and VZV causally related to ARN and PORN?



HIV and the Eye

Ophthalmic HIV manifestations



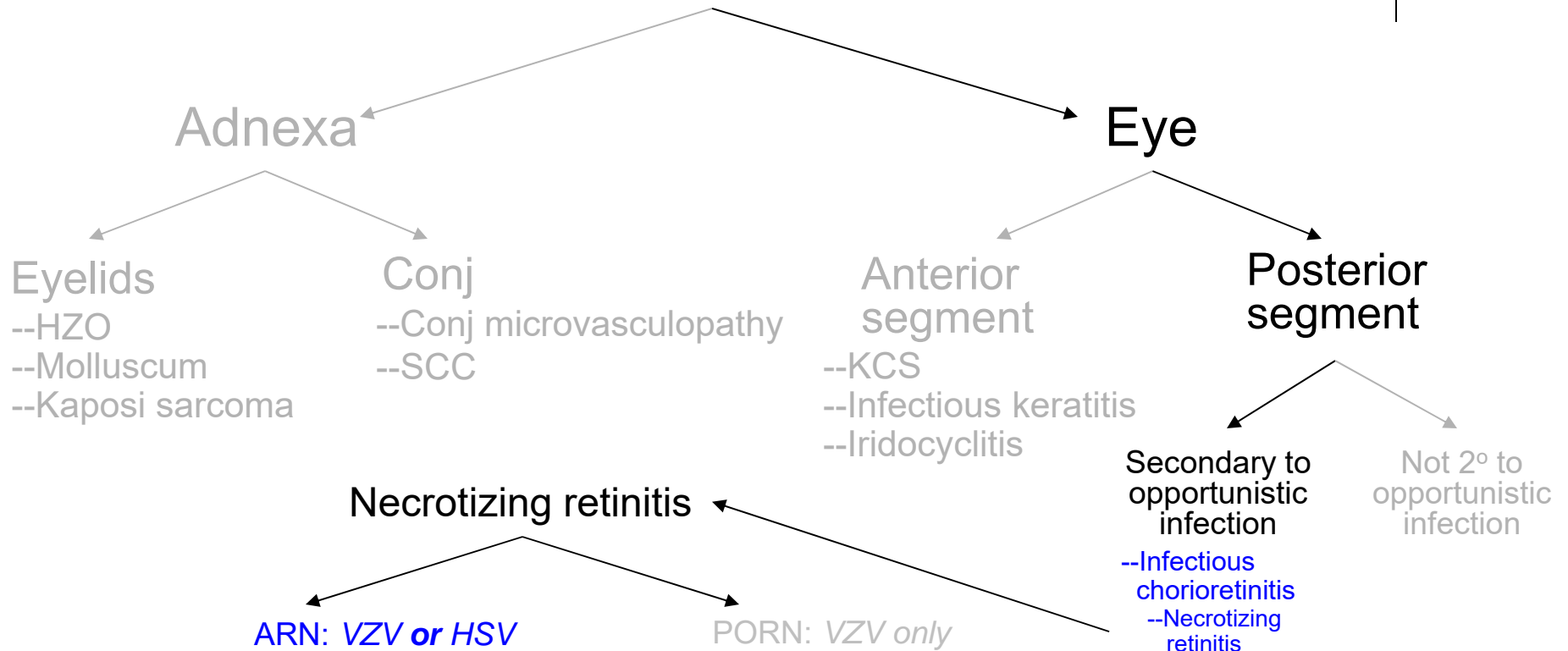
How, specifically, are HSV and VZV causally related to ARN and PORN?

PORN is causally related to VZV, whereas ARN has been linked to both VZV **and** HSV.



HIV and the Eye

Ophthalmic HIV manifestations



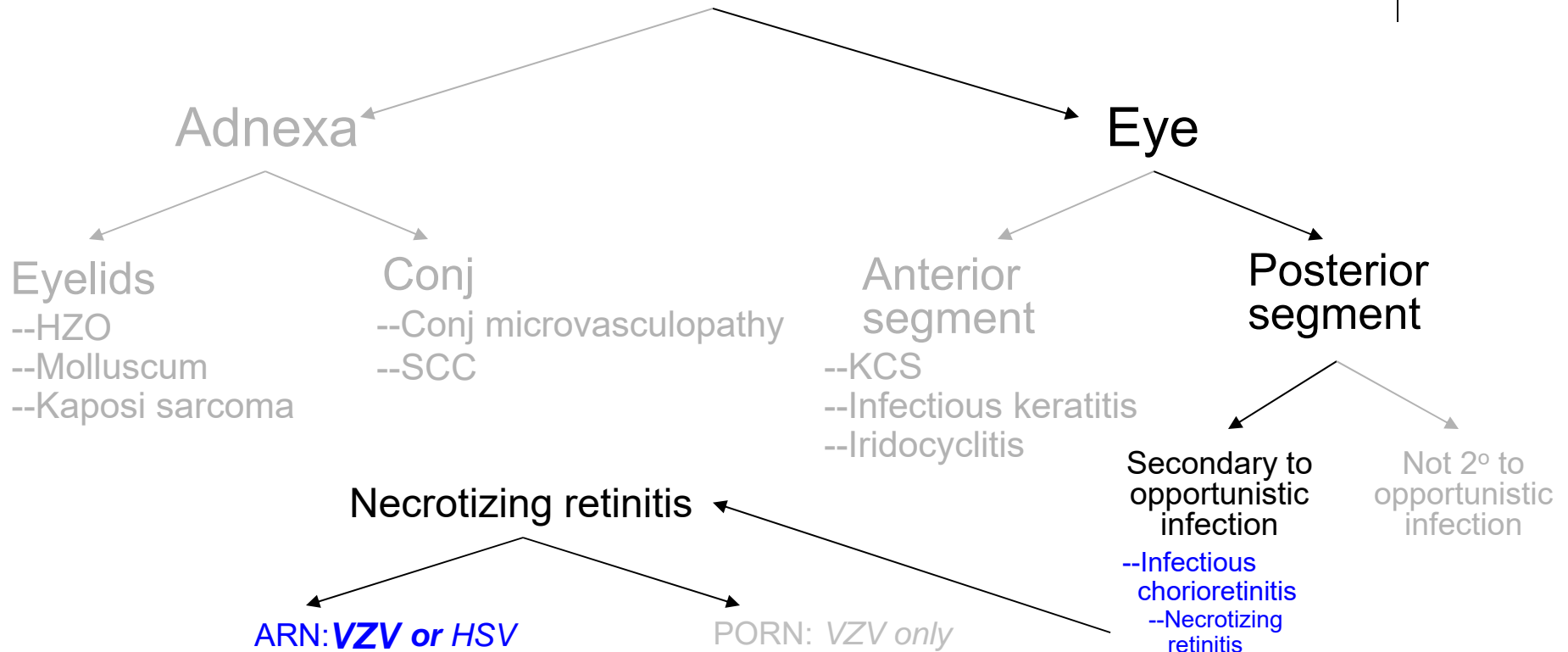
How, specifically, are HSV and VZV causally related to ARN and PORN?

PORN is causally related to VZV, whereas ARN has been linked to both VZV and HSV.

With which is ARN more likely to be associated?

HIV and the Eye

Ophthalmic HIV manifestations



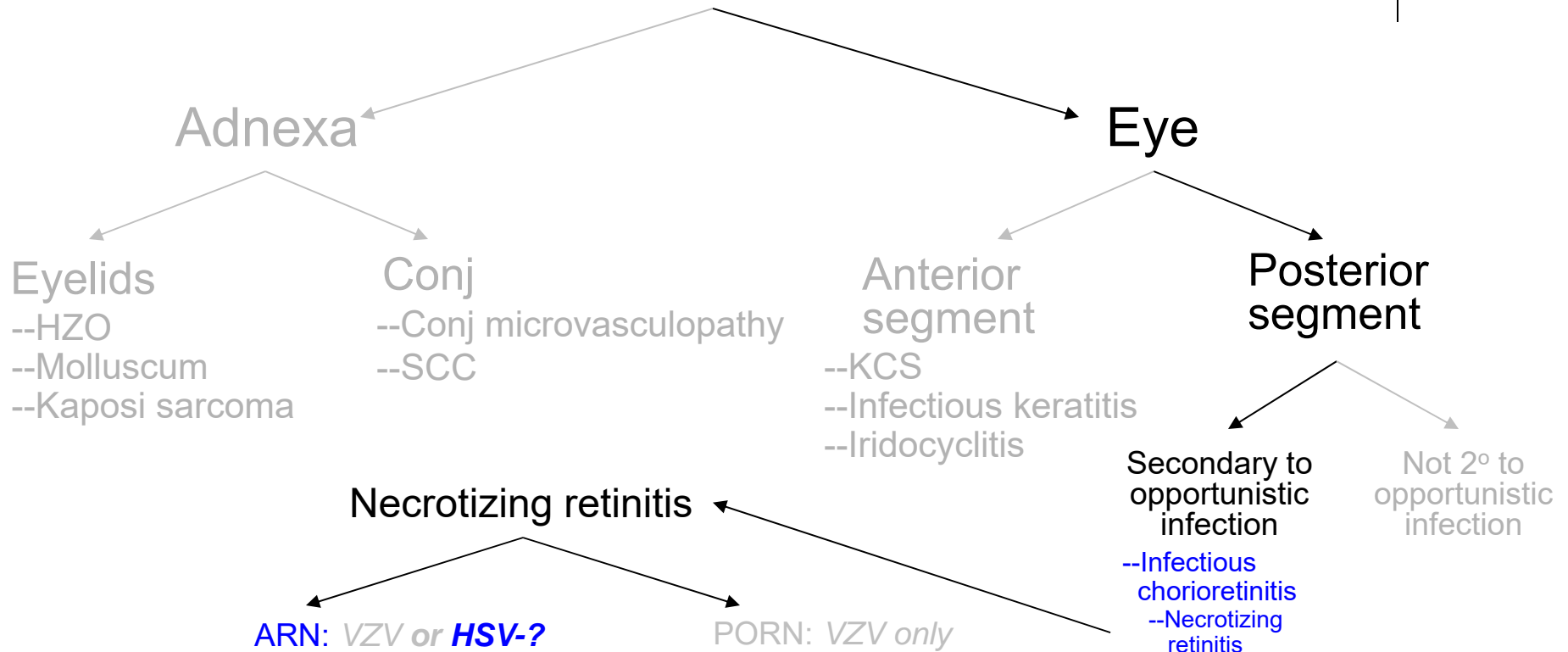
How, specifically, are HSV and VZV causally related to ARN and PORN?

PORN is causally related to VZV, whereas ARN has been linked to both VZV and HSV.

With which is ARN more likely to be associated? VZV

HIV and the Eye

Ophthalmic HIV manifestations



How, specifically, are HSV and VZV causally related to ARN and PORN?

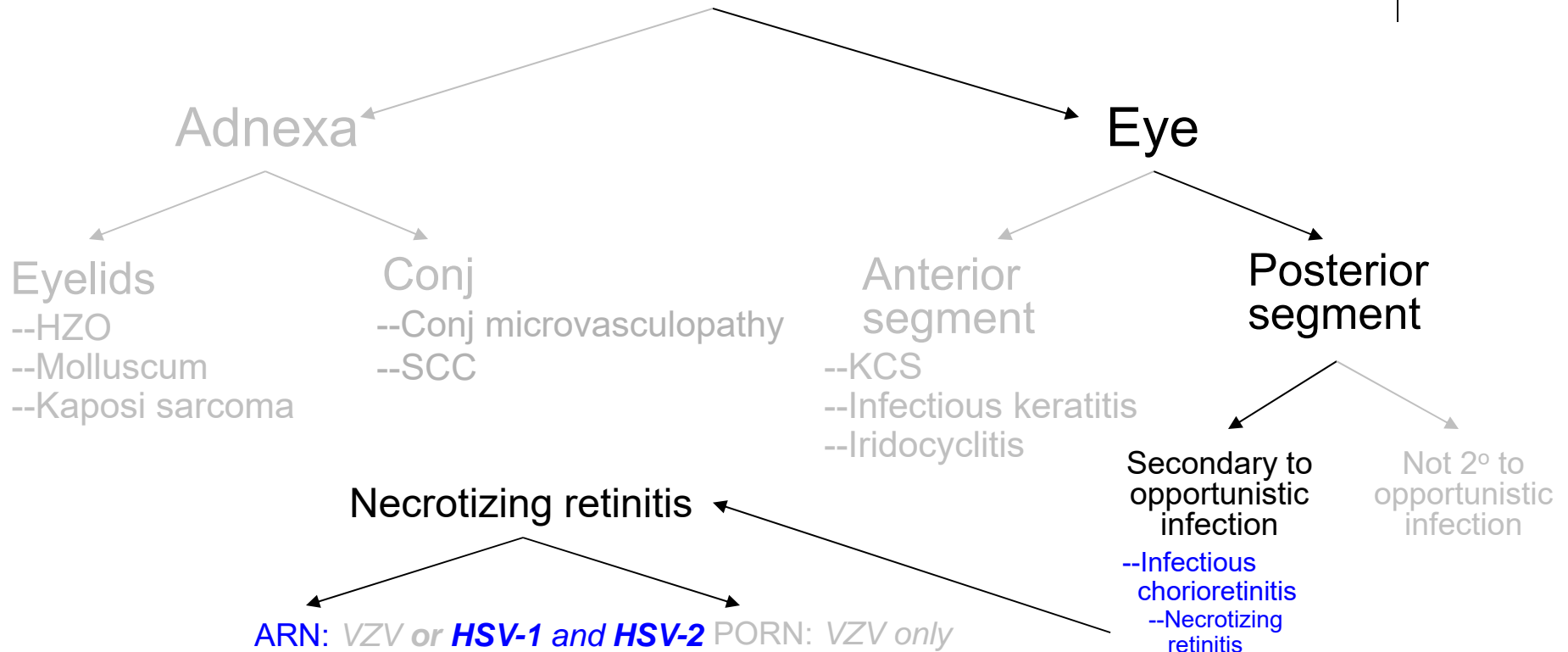
PORN is causally related to VZV, whereas ARN has been linked to both VZV and **HSV**.

HSV-1, -2, or both?

With which is ARN more likely to be associated? **VZV**

HIV and the Eye

Ophthalmic HIV manifestations



How, specifically, are HSV and VZV causally related to ARN and PORN?

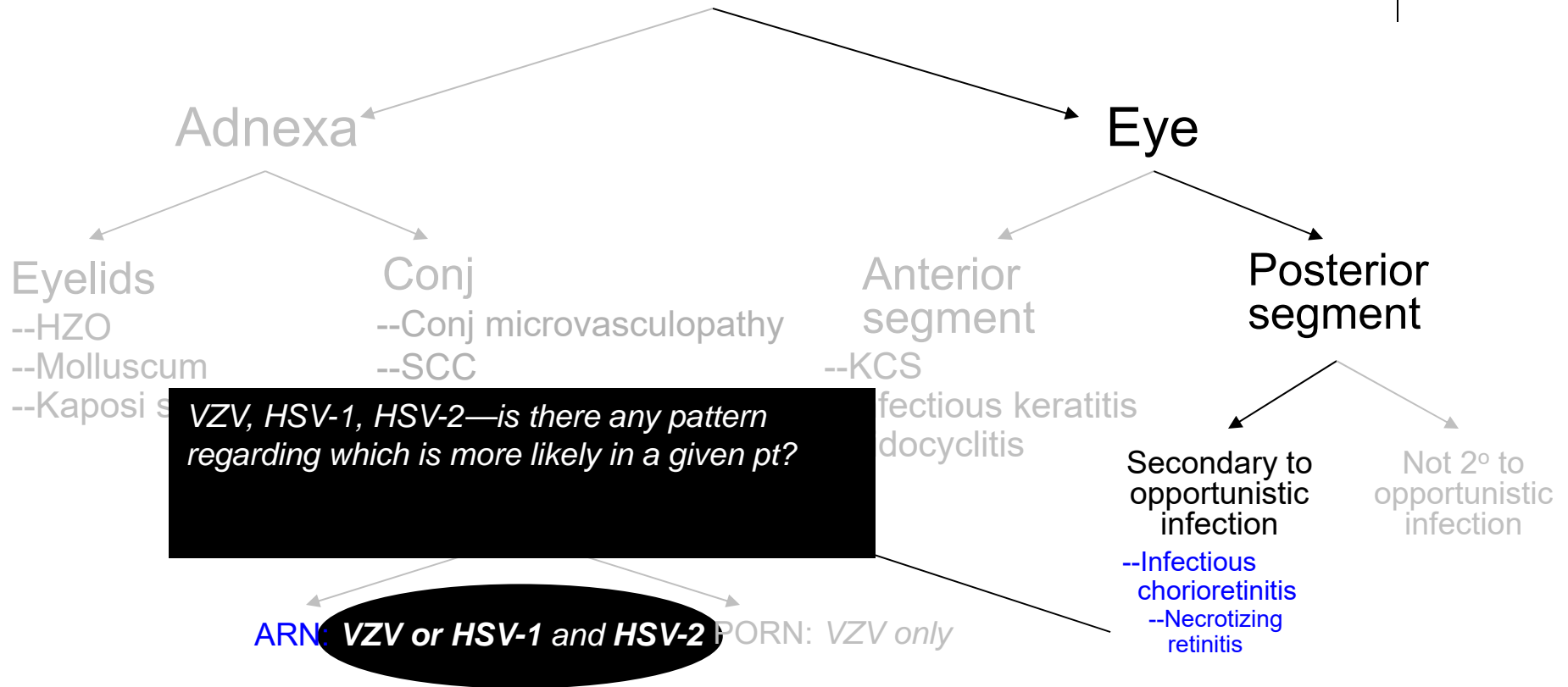
PORN is causally related to VZV, whereas ARN has been linked to both VZV and **HSV**.

HSV-1, -2, or both?
Both

With which is ARN more likely to be associated? **VZV**

HIV and the Eye

Ophthalmic HIV manifestations

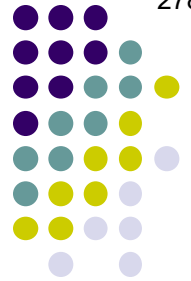


How, specifically, are HSV and VZV causally related to ARN and PORN?

PORN is causally related to VZV, whereas ARN has been linked to both VZV and HSV.

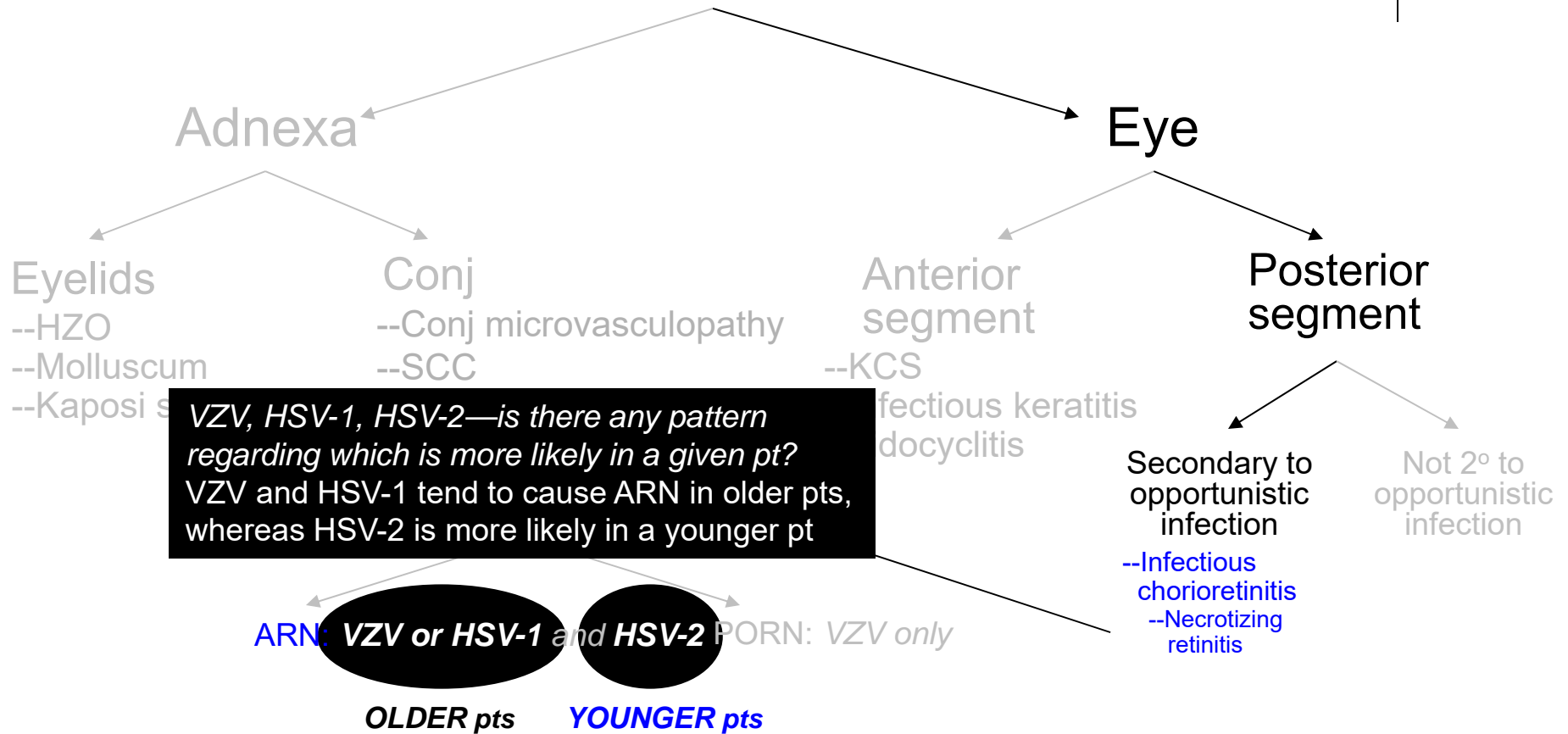
HSV-1, -2, or both?
Both

With which is ARN more likely to be associated? VZV



HIV and the Eye

Ophthalmic HIV manifestations



How, specifically, are HSV and VZV causally related to ARN and PORN?

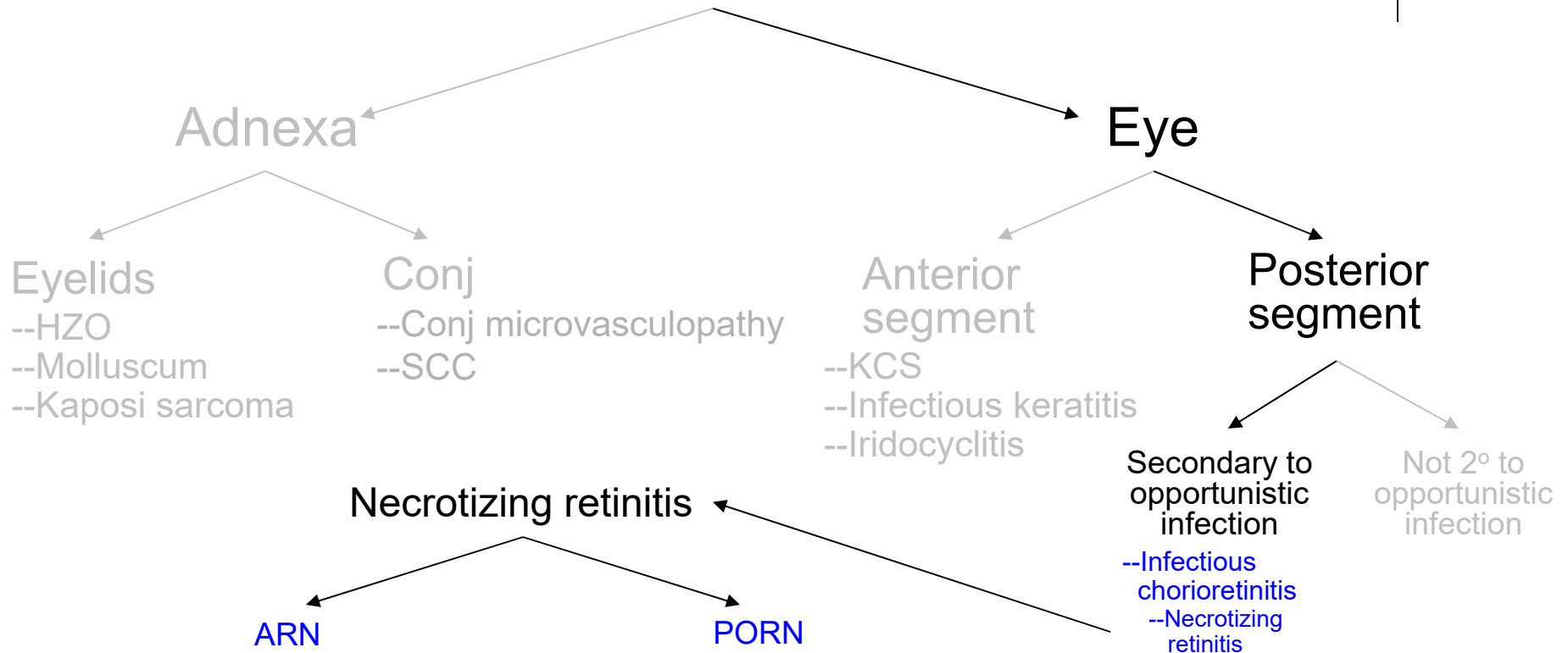
PORN is causally related to VZV, whereas ARN has been linked to both VZV and HSV.

HSV-1, -2, or both?
Both

With which is ARN more likely to be associated? VZV

HIV and the Eye

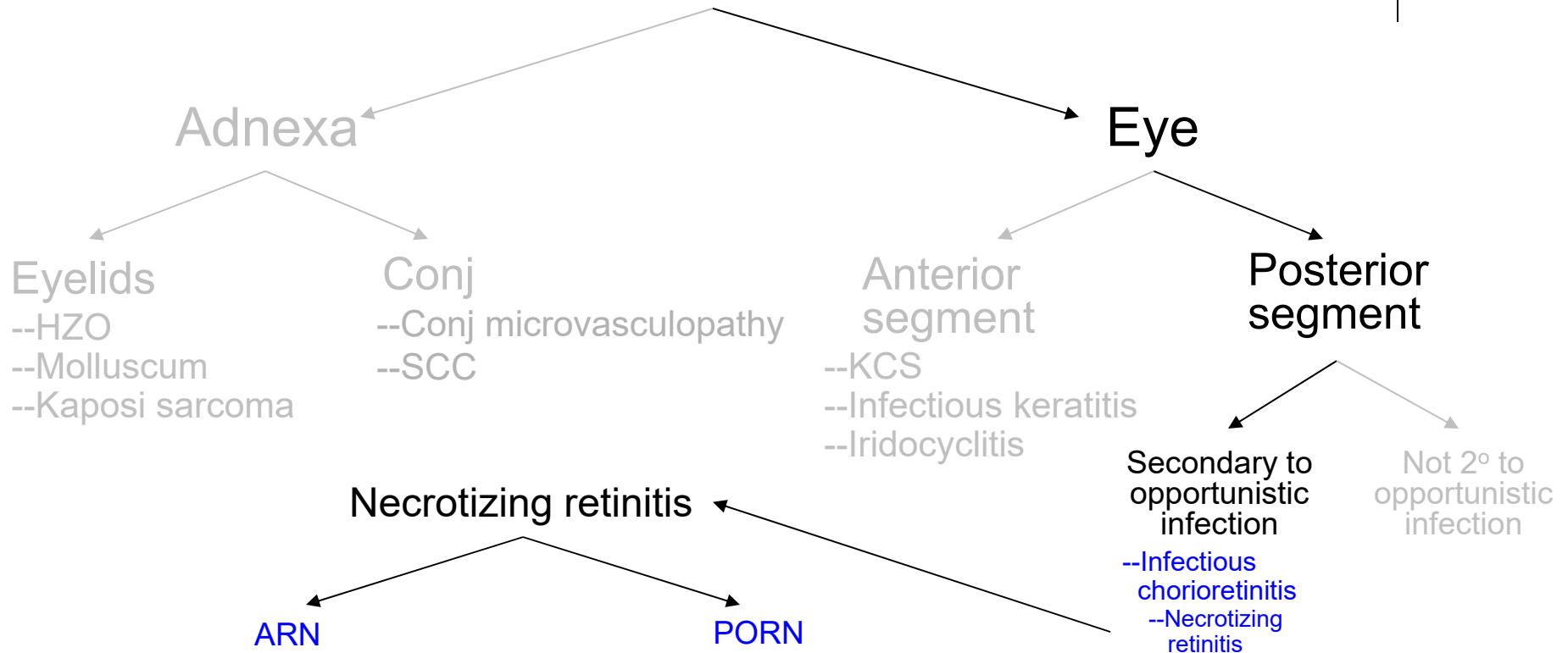
Ophthalmic HIV manifestations



Both conditions present with a necrotizing retinitis. In what key way do the presentations differ?

HIV and the Eye

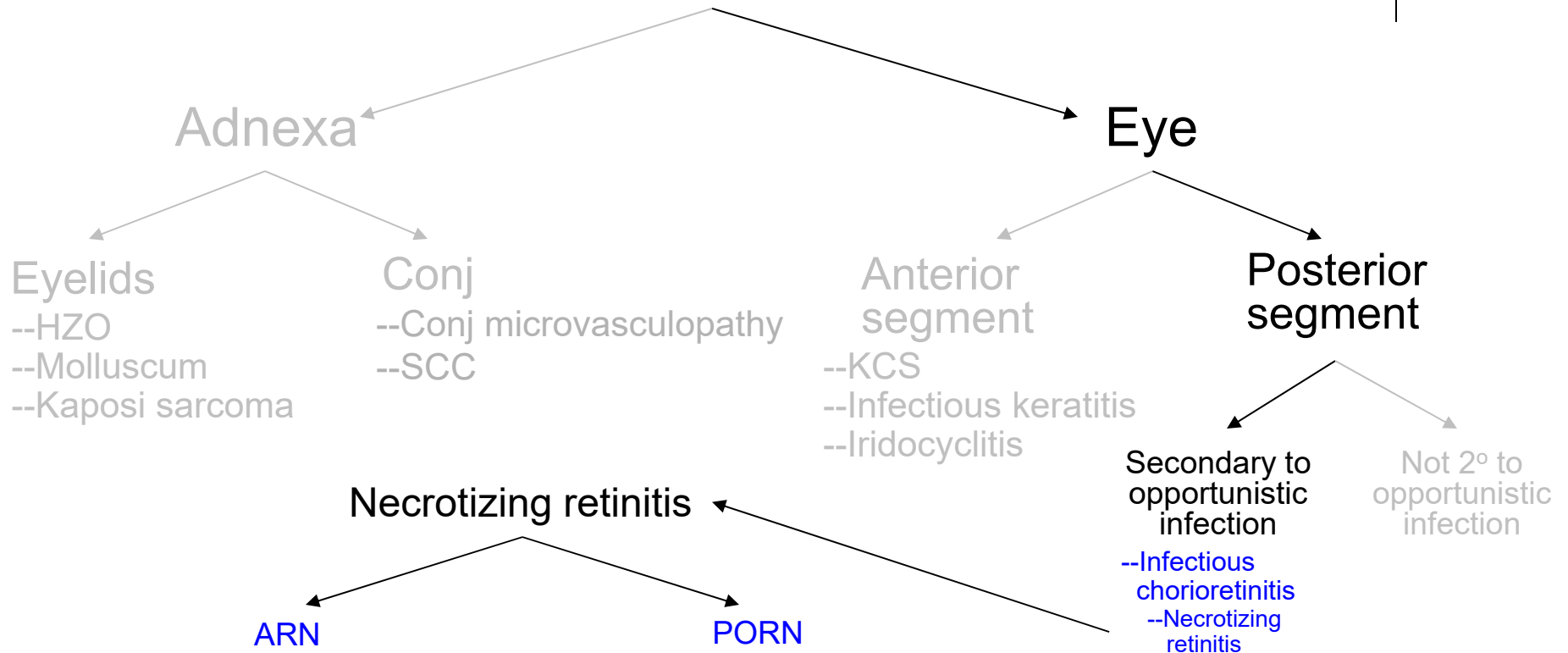
Ophthalmic HIV manifestations



Both conditions present with a necrotizing retinitis. In what key way do the presentations differ?
 ARN is a **panuveitis**, and thus presents with a severe AC reaction and dense vitritis. In contrast, PORN demonstrates little (or no) AC and/or vitreous cell.

HIV and the Eye

Ophthalmic HIV manifestations



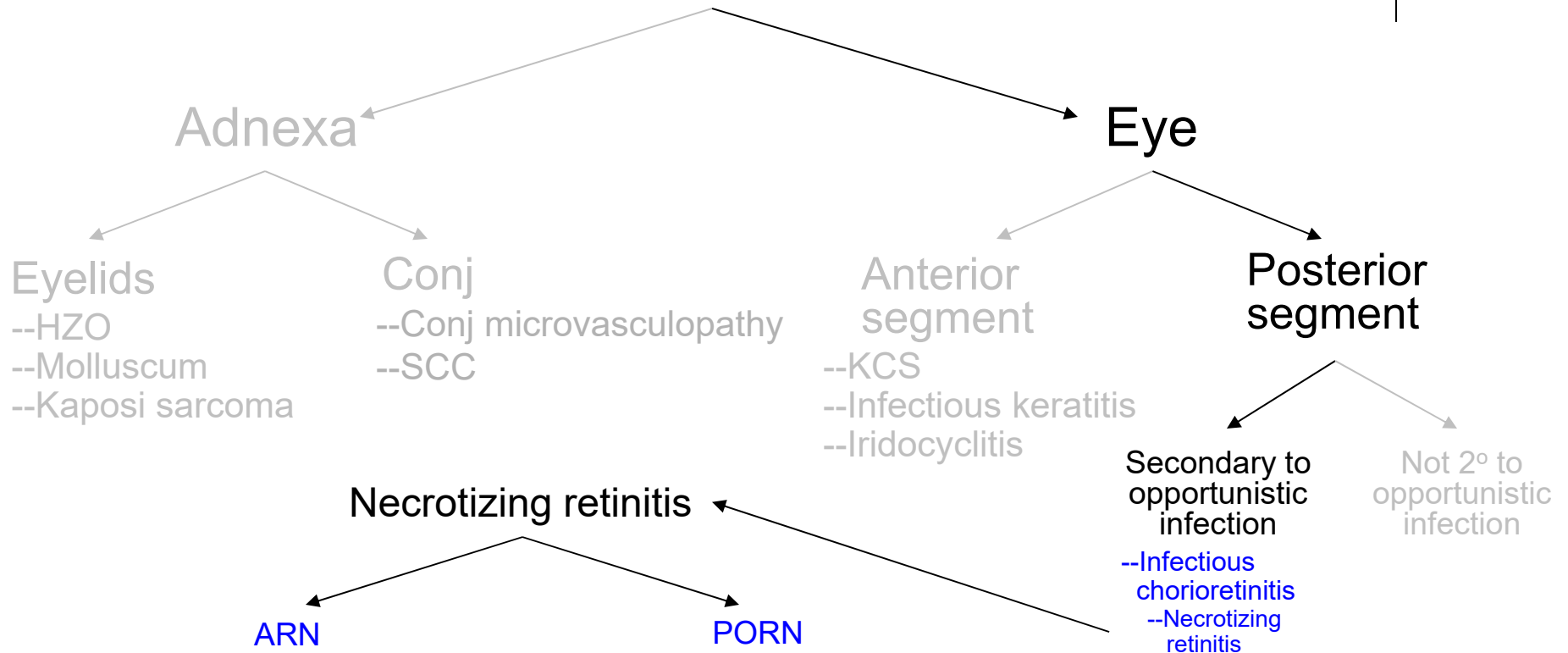
Both conditions present with a necrotizing retinitis. In what key way do the presentations differ?

ARN is a **panuveitis**, and thus presents with a **severe AC reaction** and **dense vitritis**. In contrast, PORN demonstrates li

Other reported findings in ARN include vasculitis, choroiditis and papillitis

HIV and the Eye

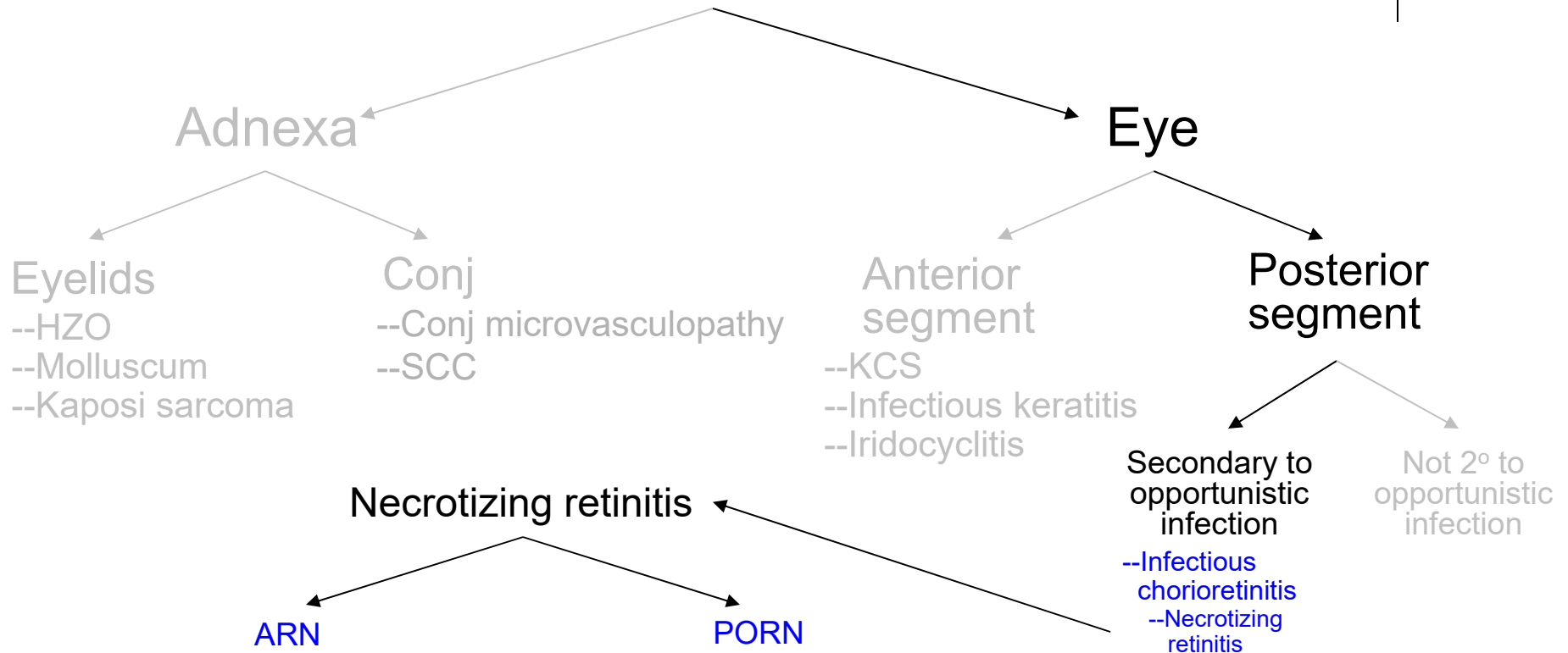
Ophthalmic HIV manifestations



How do ARN and PORN present ophthalmoscopically?

HIV and the Eye

Ophthalmic HIV manifestations



How do ARN and PORN present ophthalmoscopically?

Both present in a broadly similar fashion. In early stages, focal areas of inflamed retina can be seen. In short time, these areas expand and coalesce into large areas of necrotic retina. Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.



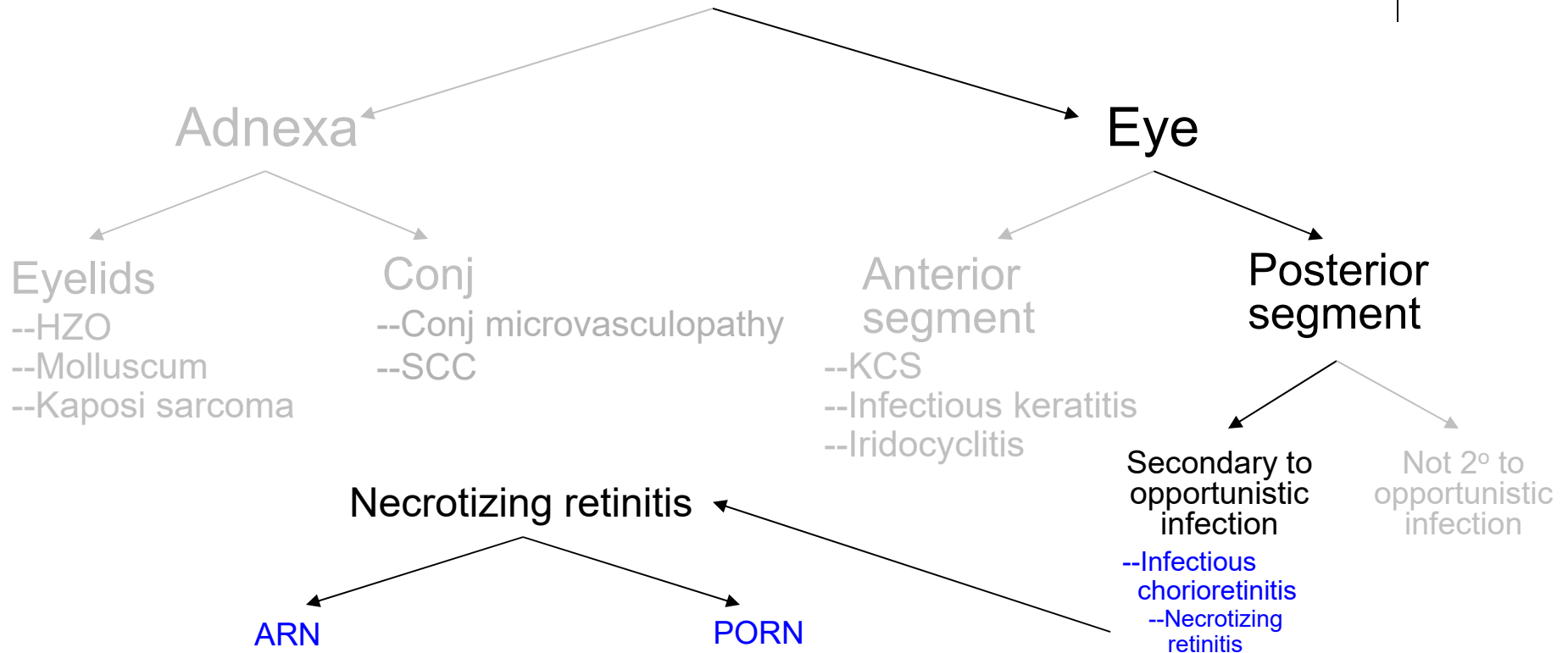
Acute retinal necrosis



Progressive outer retinal necrosis

HIV and the Eye

Ophthalmic HIV manifestations

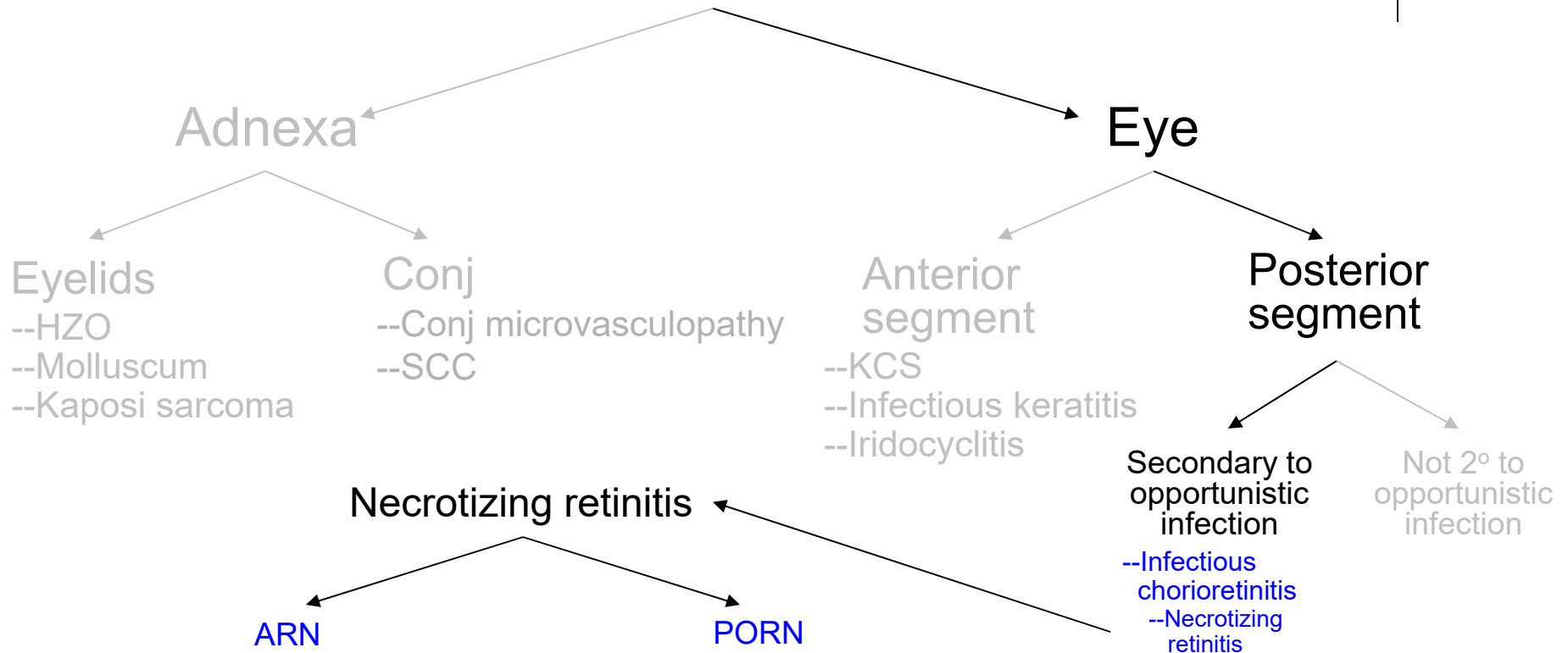


In what fundamental way do the early-stage lesions in ARN and PORN differ?

Yes, **focal areas of inflamed retina** can
 evolve into large areas of necrotic retina.
 Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

HIV and the Eye

Ophthalmic HIV manifestations



In what fundamental way do the early-stage lesions in ARN and PORN differ?

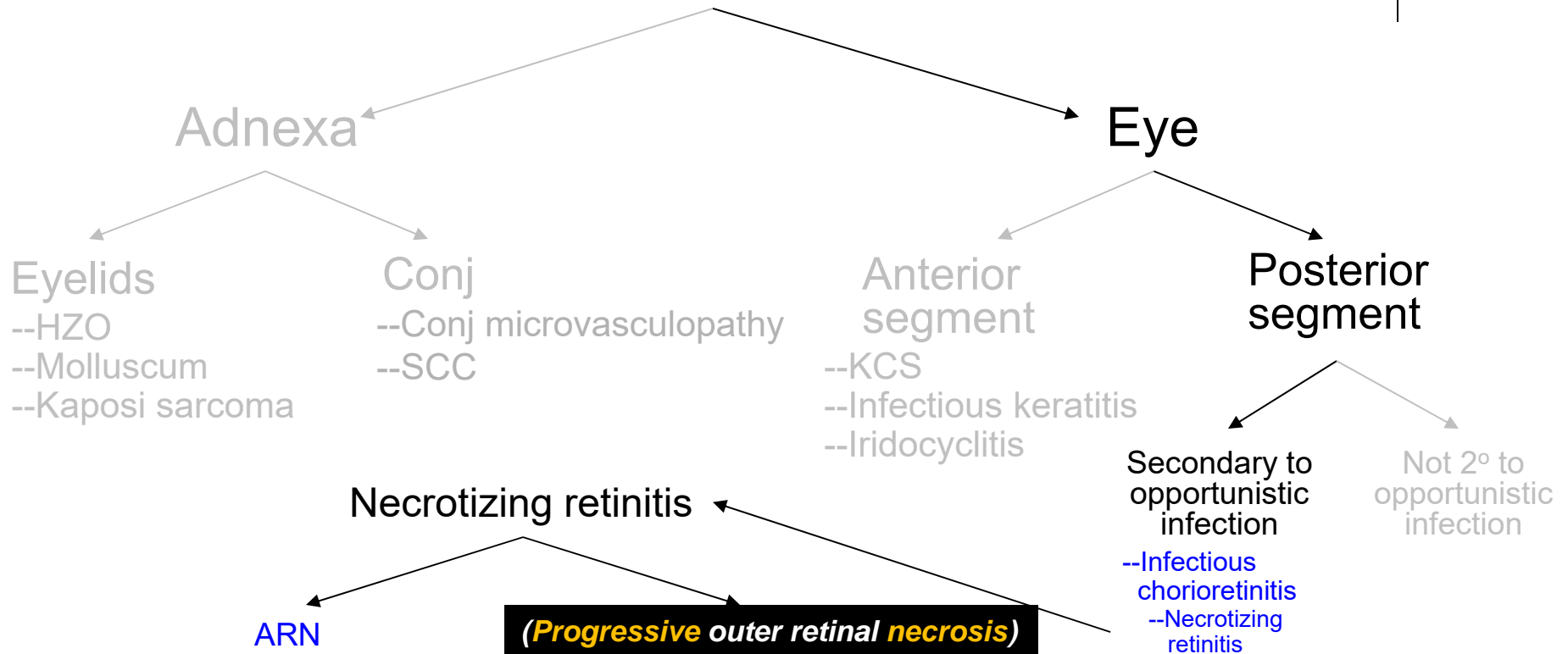
Early retinal lesions in ARN are full-thickness, whereas early lesions in PORN involve the outer retina only—the inner retina is spared until late in the disease process.

Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

Yes, **focal areas of inflamed retina** can
 evolve into large areas of necrotic retina.

HIV and the Eye

Ophthalmic HIV manifestations



In what fundamental way do the early stage lesions in ARN and PORN differ?

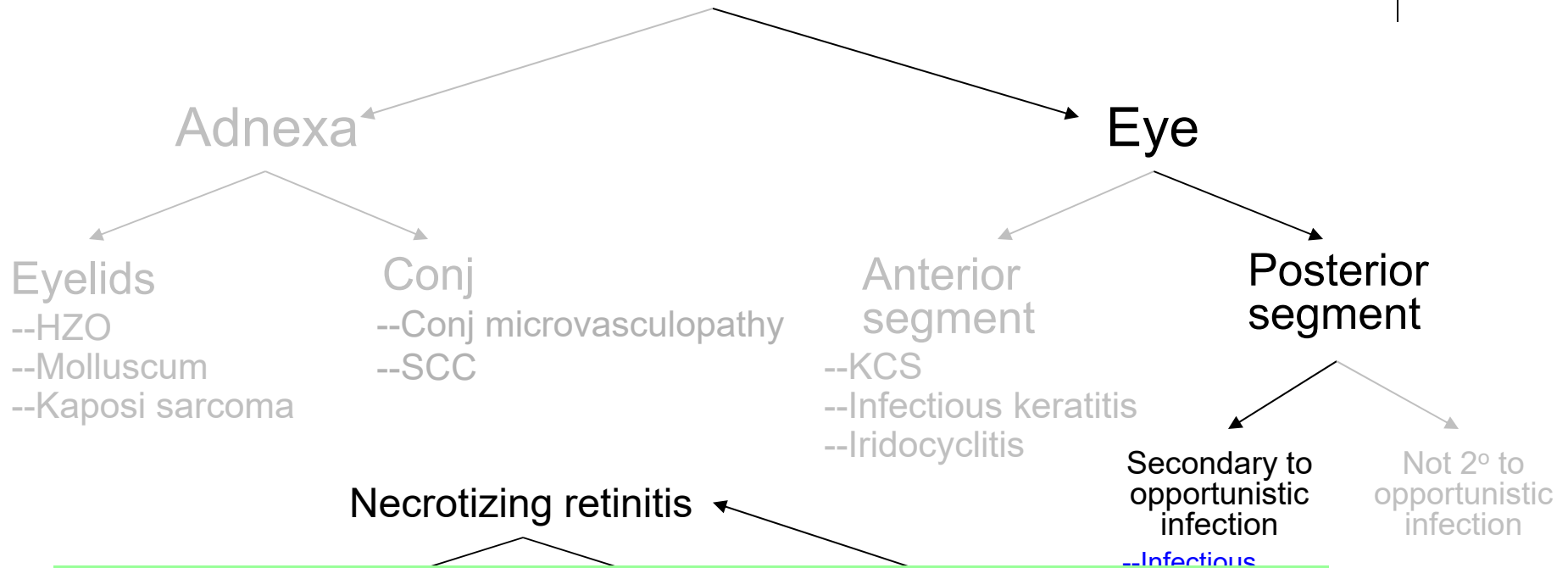
Early retinal lesions in ARN are full-thickness, whereas early lesions in PORN involve the **outer retina** only—the inner retina is spared until late in the disease process.

Hence the name...

Yes, **focal areas of inflamed retina** can evolve into large areas of necrotic retina. In addition, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

HIV and the Eye

Ophthalmic HIV manifestations



In differentiating between ARN and PORN clinically, this distinction is not terribly useful. What are some clues to help distinguish between the two?

--
--

ARN and PORN differ:

Early retinal lesions in ARN are full-thickness, whereas early lesions in PORN involve the **outer retina** only—the inner retina is spared until late in the disease process.

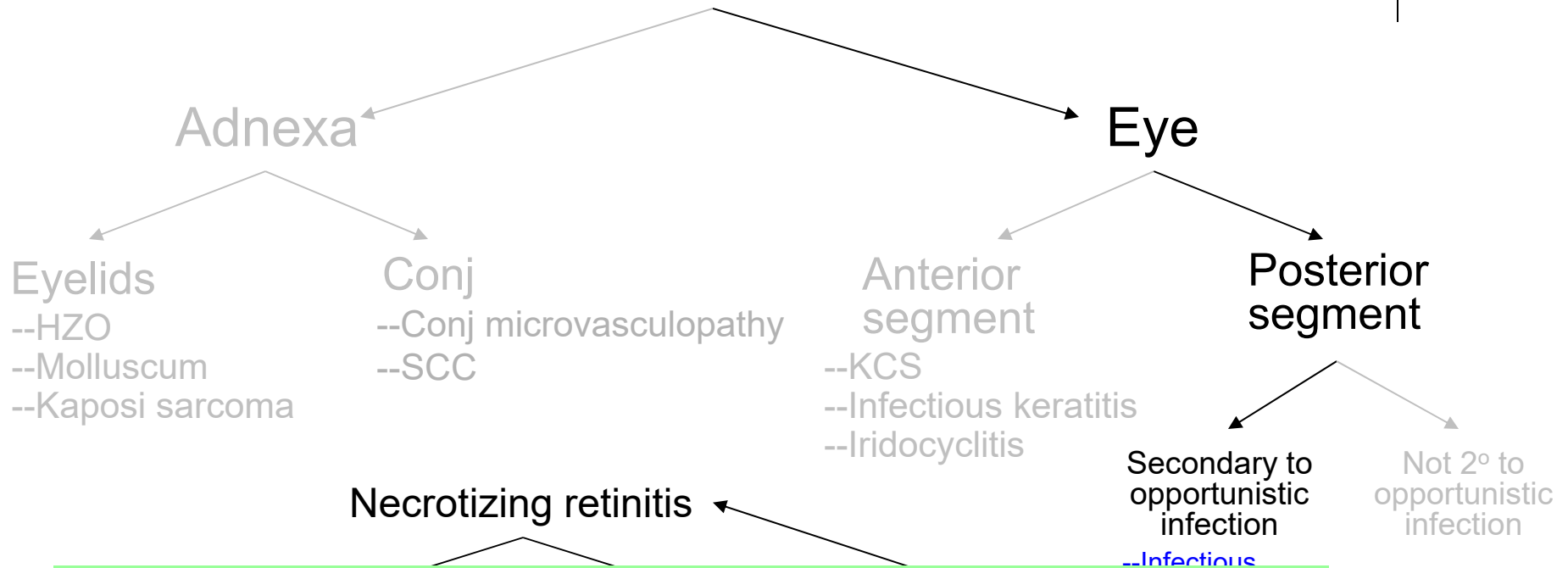
Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

?

Yes, **focal areas of inflamed retina** can evolve into large areas of necrotic retina.

HIV and the Eye

Ophthalmic HIV manifestations



In differentiating between ARN and PORN clinically, this distinction is not terribly useful. What are some clues to help distinguish between the two?

- ARN is much more likely to be associated with an overlying [redacted]
- ARN is more likely to involve the retinal [redacted], whereas PORN tends to spare them

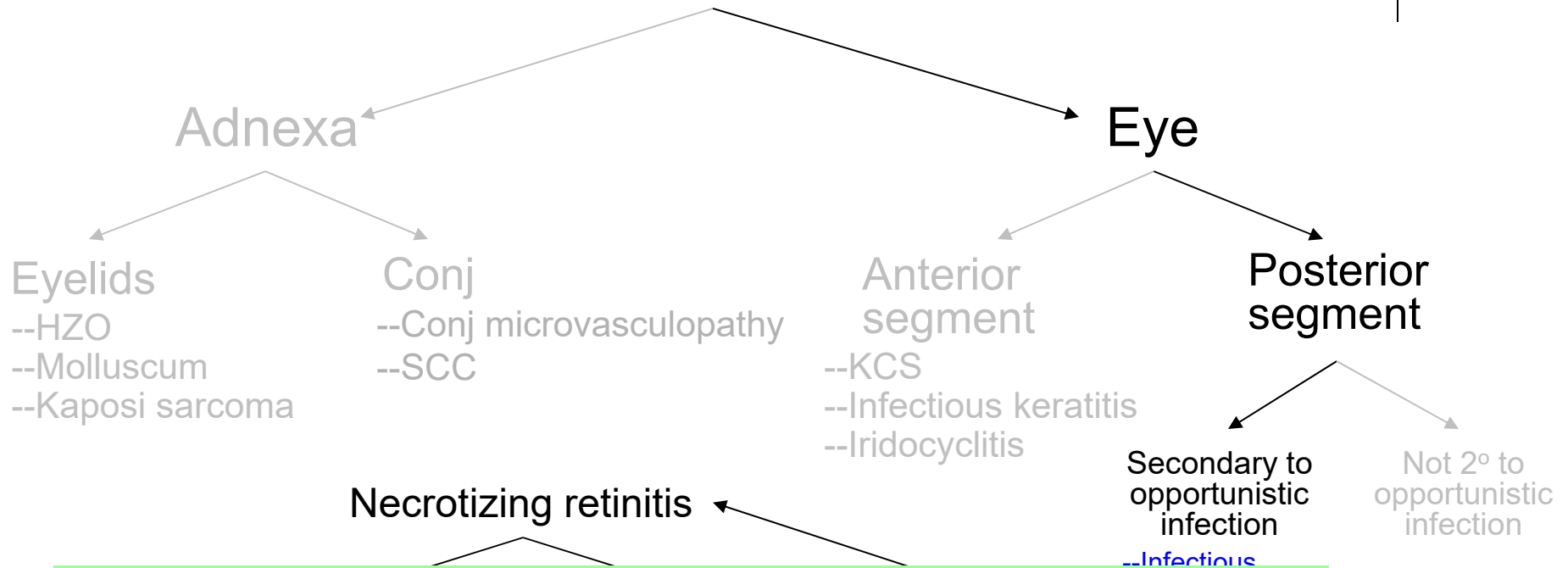
Early retinal lesions in ARN are full-thickness, whereas early lesions in PORN involve the **outer retina** only—the inner retina is spared until late in the disease process.

Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

Yes, **focal areas of inflamed retina** can [redacted] into large areas of necrotic retina.

HIV and the Eye

Ophthalmic HIV manifestations



In differentiating between ARN and PORN clinically, this distinction is not terribly useful. What are some clues to help distinguish between the two?

--ARN is much more likely to be associated with an overlying **vitritis**

--ARN is more likely to involve the retinal **vessels**, whereas PORN tends to spare them

Early retinal lesions in ARN are full-thickness, whereas early lesions in PORN involve the **outer retina** only—the inner retina is spared until late in the disease process.

Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

Yes, **focal areas of inflamed retina** can evolve into large areas of necrotic retina.



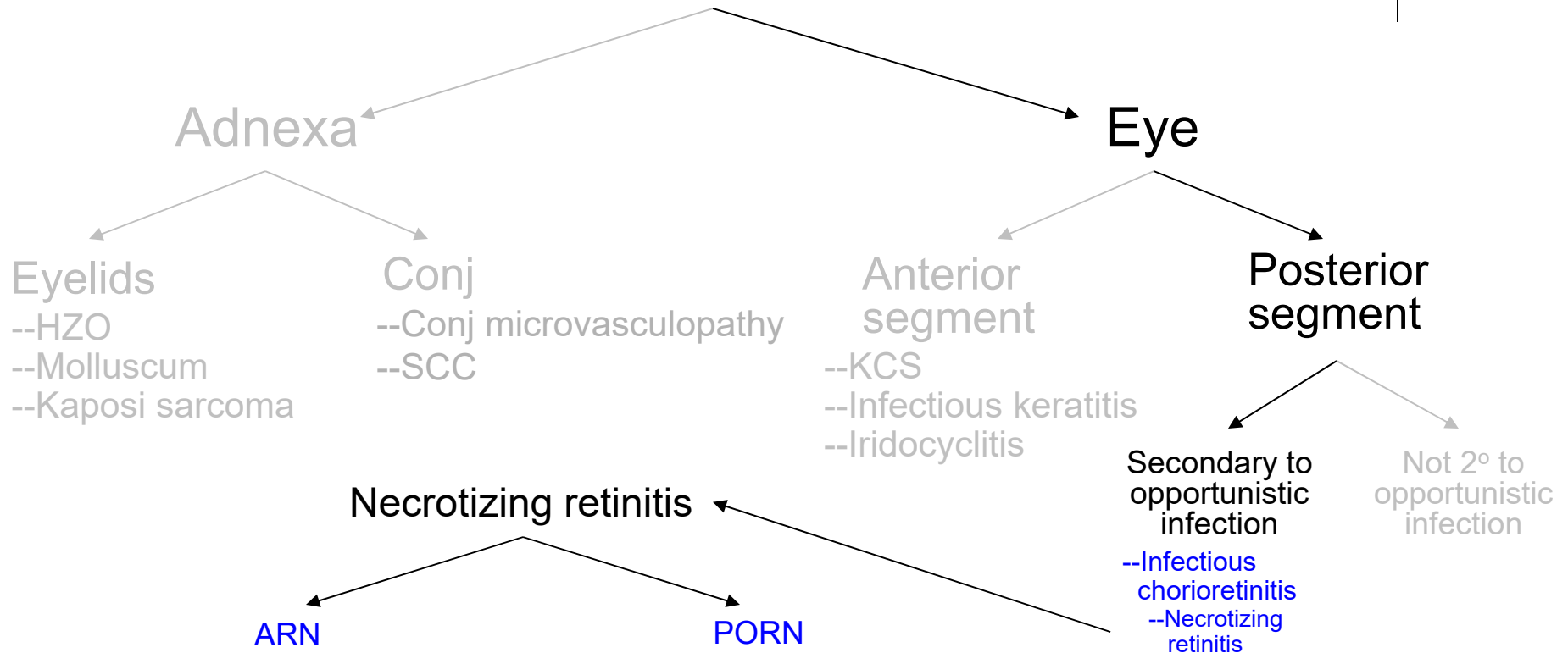
ARN



PORN

HIV and the Eye

Ophthalmic HIV manifestations



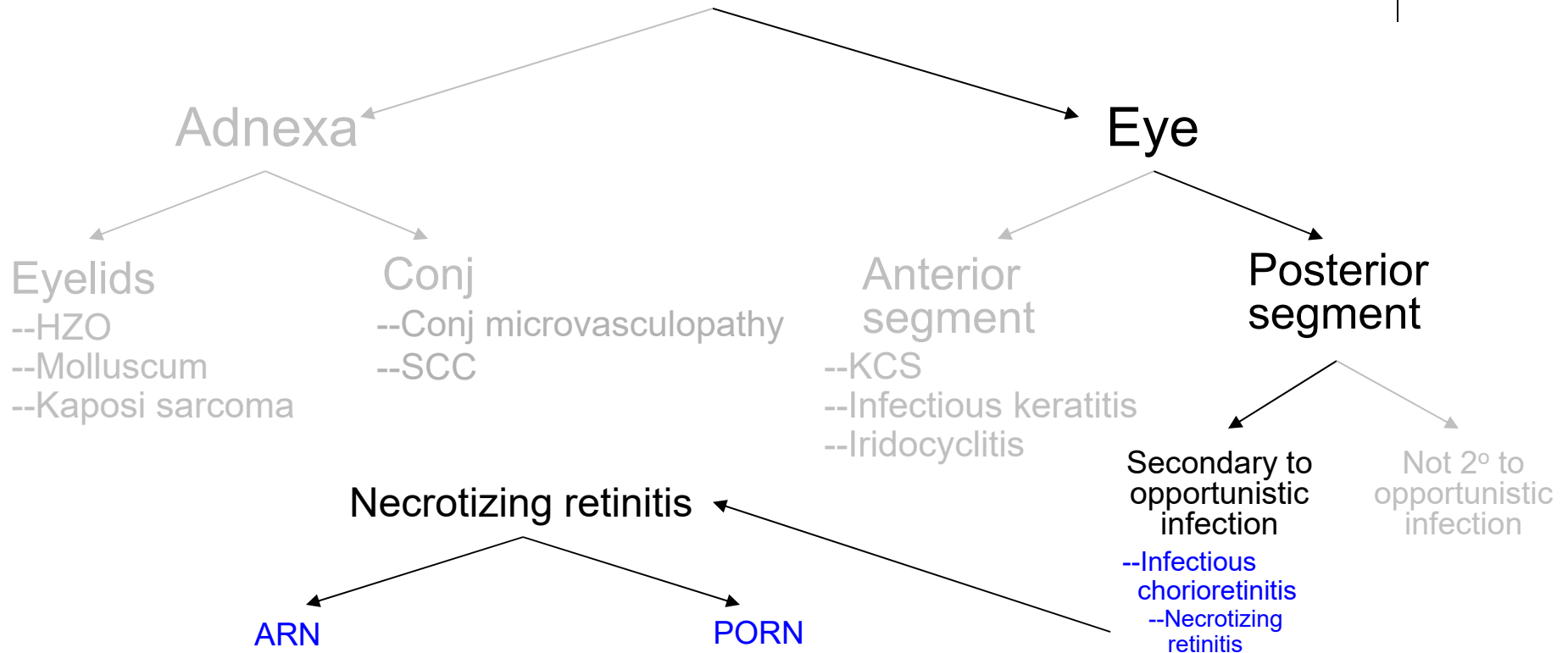
How do ARN and PORN develop? Is prophylactic laser retinopathy effective in reducing the risk of RD?

Both present in a bilateral, peripheral distribution. In short time, these areas expand and coalesce into large areas of necrotic retina.

Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

HIV and the Eye

Ophthalmic HIV manifestations



How do ARN and PORN

Both present in a bilateral

be seen. In short time, these areas expand and coalesce into large areas of necrotic retina.

Later, multiple posterior retinal breaks may develop, and rhegmatogenous RD soon follows.

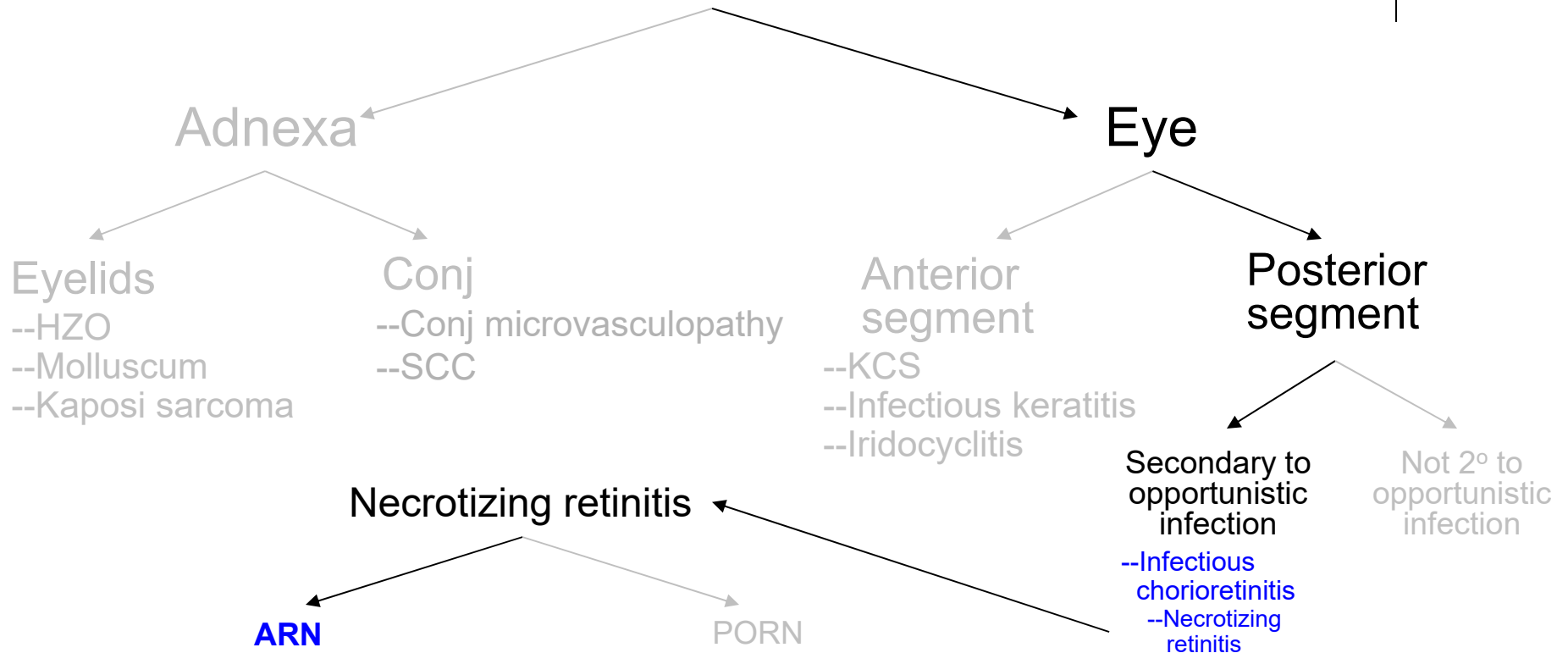
Is prophylactic laser retinopexy effective in reducing the risk of RD?

Generally no



HIV and the Eye

Ophthalmic HIV manifestations

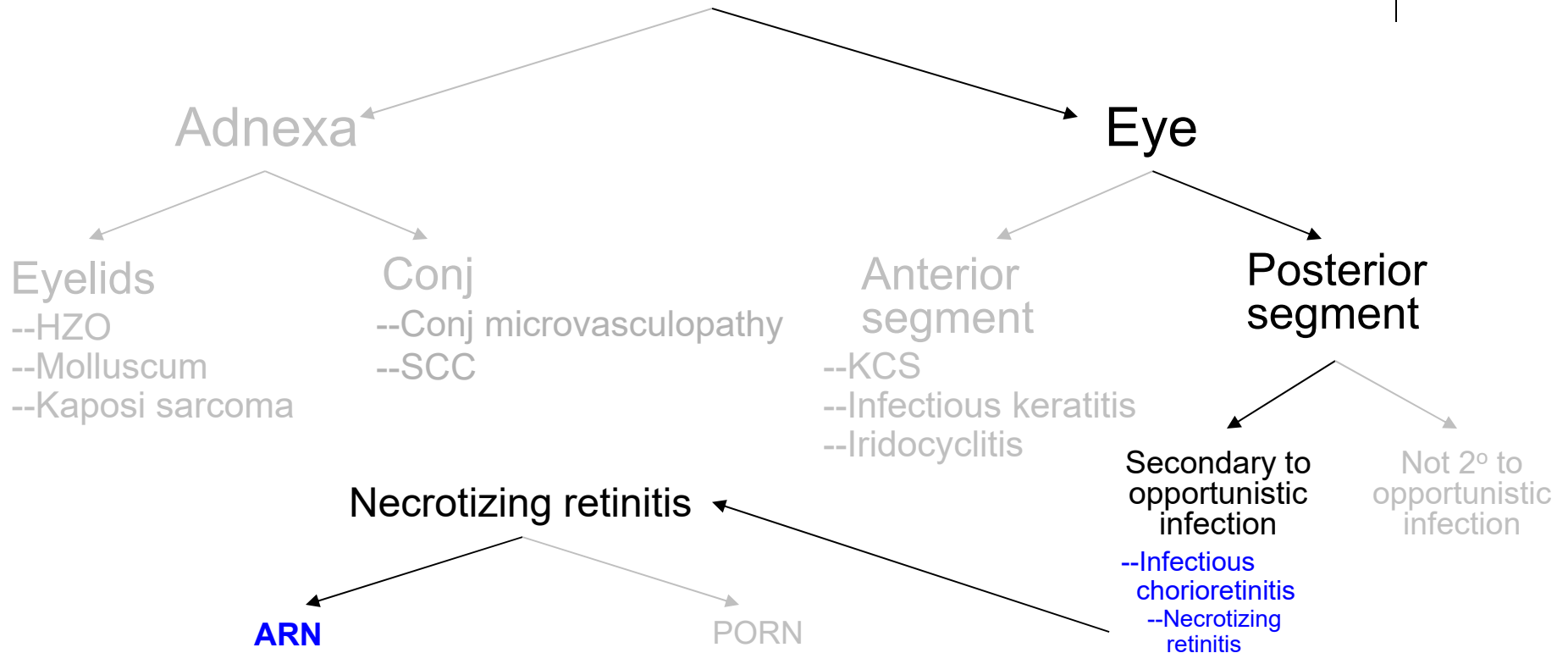


What is the treatment for ARN?

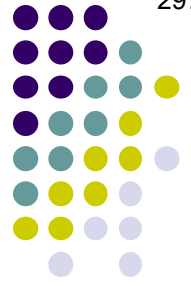


HIV and the Eye

Ophthalmic HIV manifestations

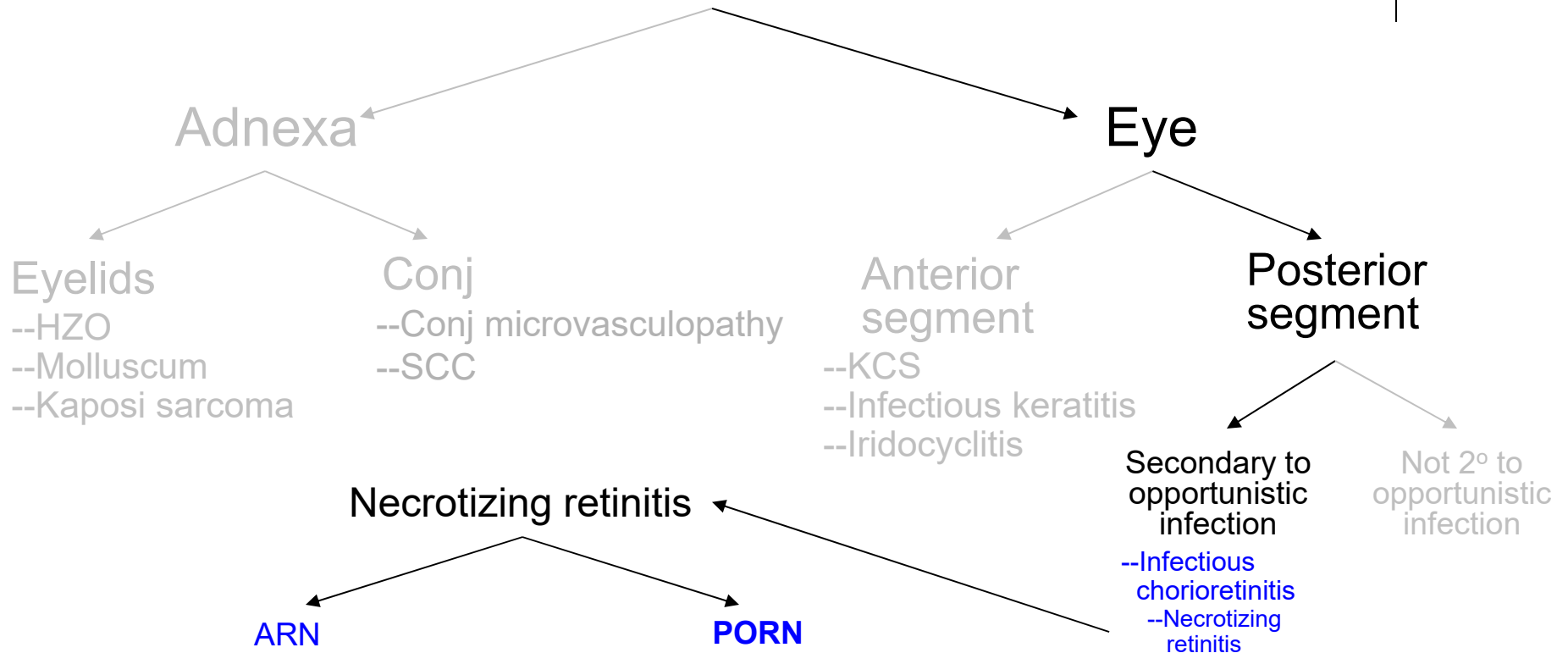


What is the treatment for ARN?
Intravenous acyclovir



HIV and the Eye

Ophthalmic HIV manifestations

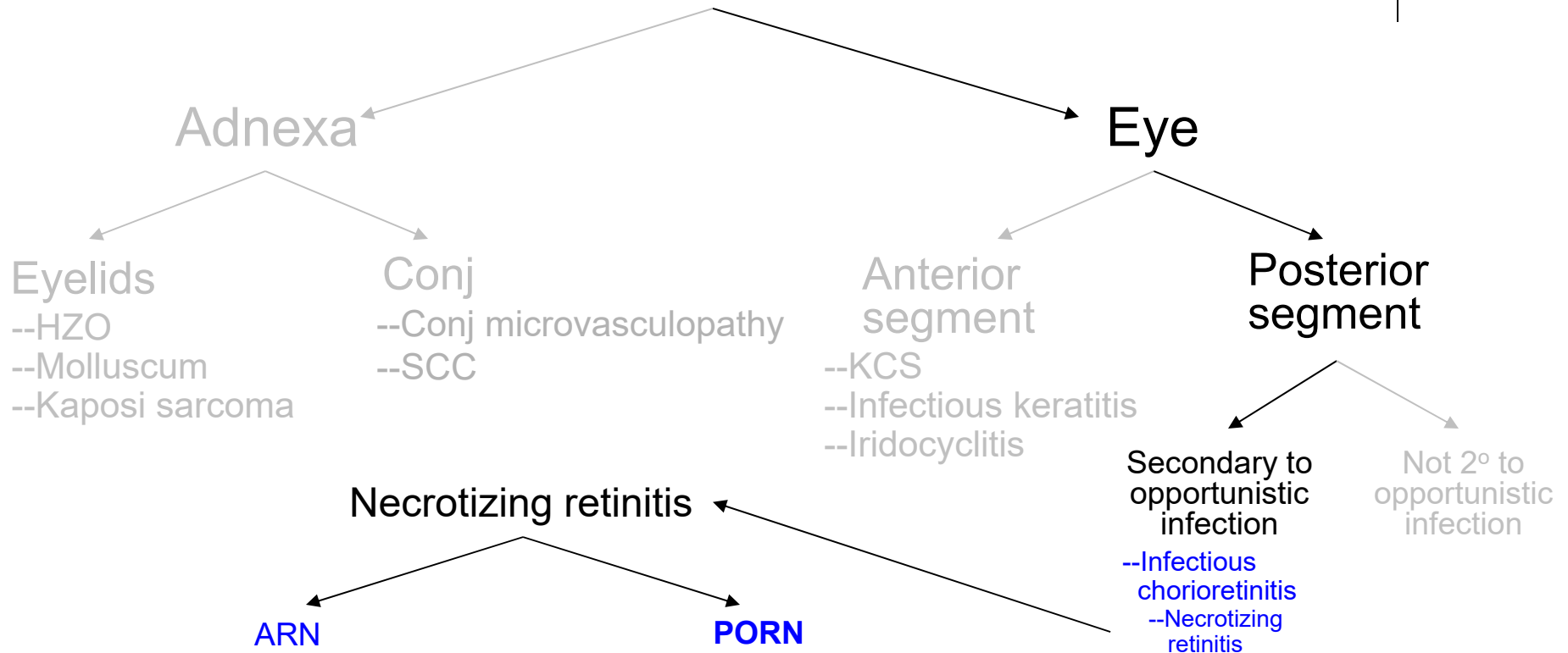


What is the treatment for ARN?
Intravenous acyclovir

What is the treatment for PORN?

HIV and the Eye

Ophthalmic HIV manifestations



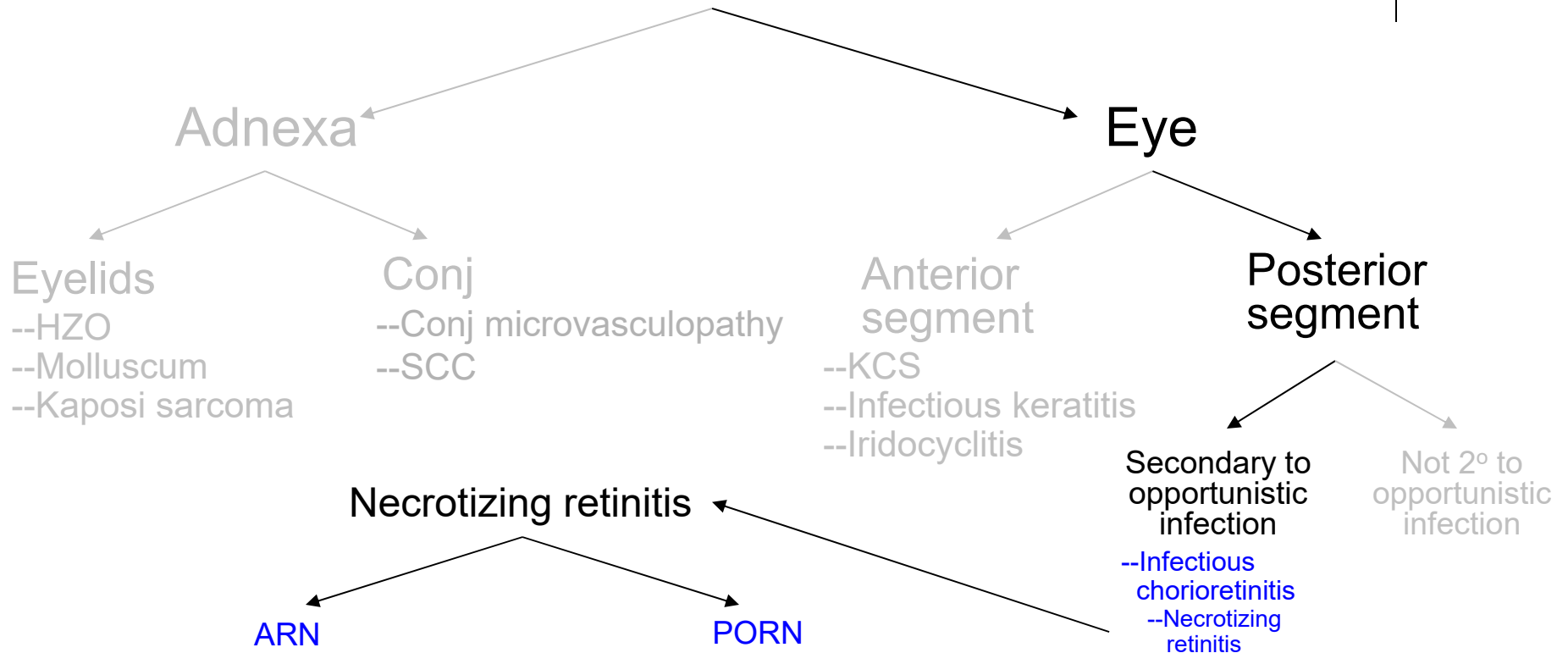
What is the treatment for ARN?
Intravenous acyclovir

What is the treatment for PORN?

PORN is notoriously treatment-resistant. High-dose IV acyclovir + intravitreal ganciclovir is one option. Progression to NLP is a common outcome. Bilateral involvement is the rule, even in the face of attempted maintenance therapy.

HIV and the Eye

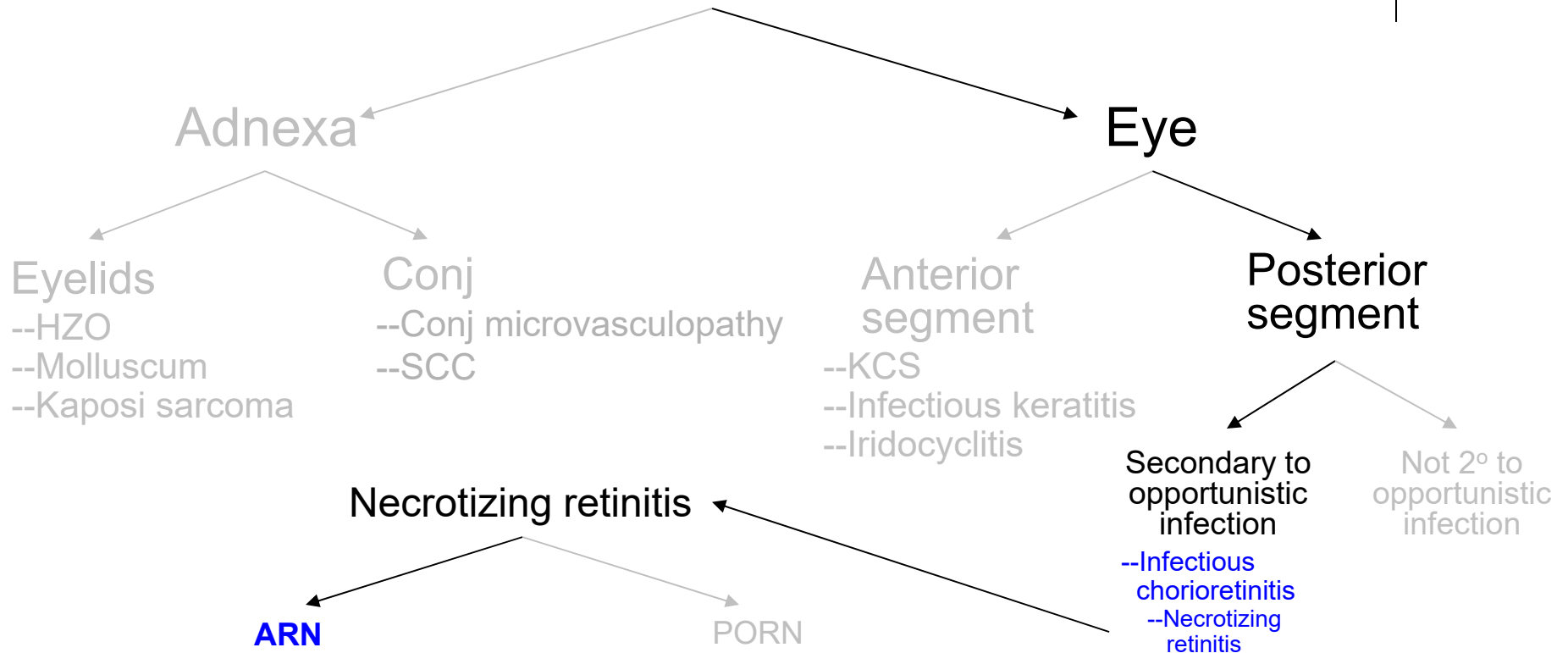
Ophthalmic HIV manifestations



Which of these diseases can occur in immunocompetent pts?

HIV and the Eye

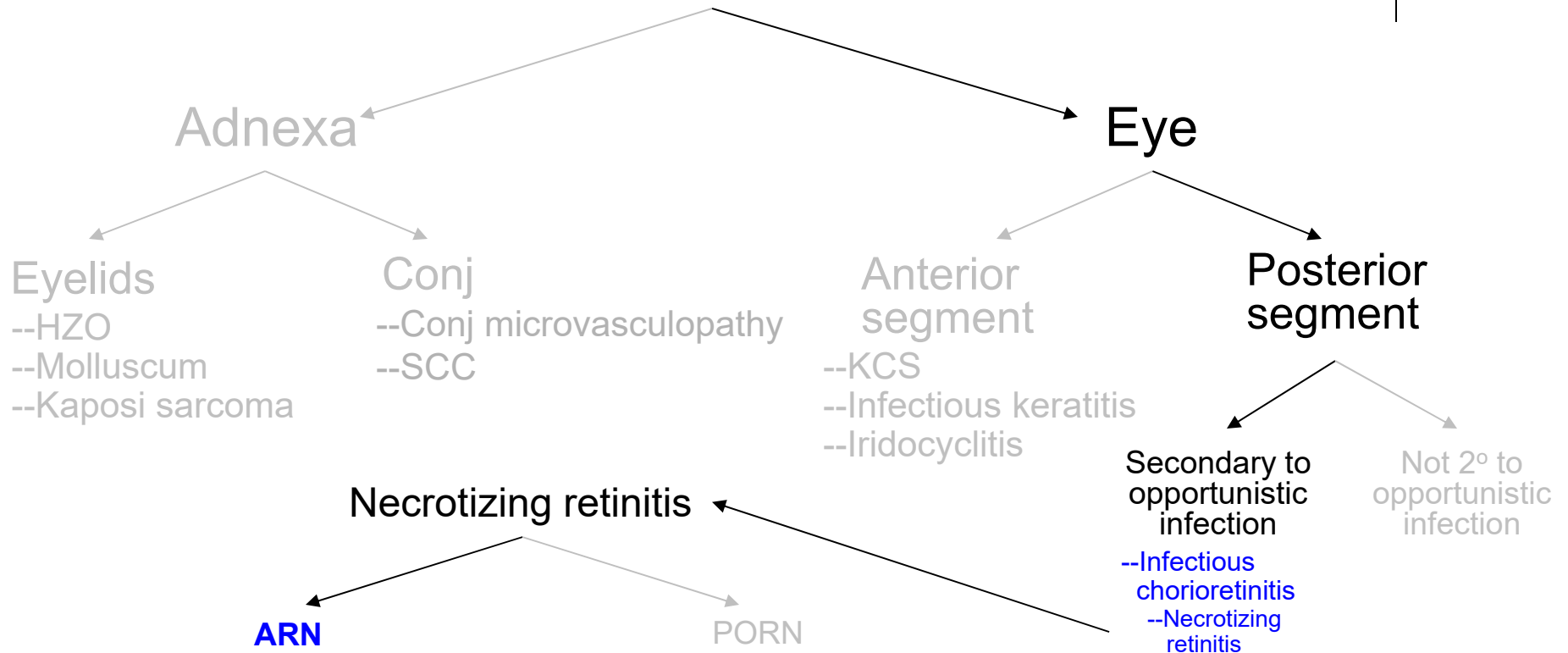
Ophthalmic HIV manifestations



Which of these diseases can occur in immunocompetent pts?
ARN

HIV and the Eye

Ophthalmic HIV manifestations



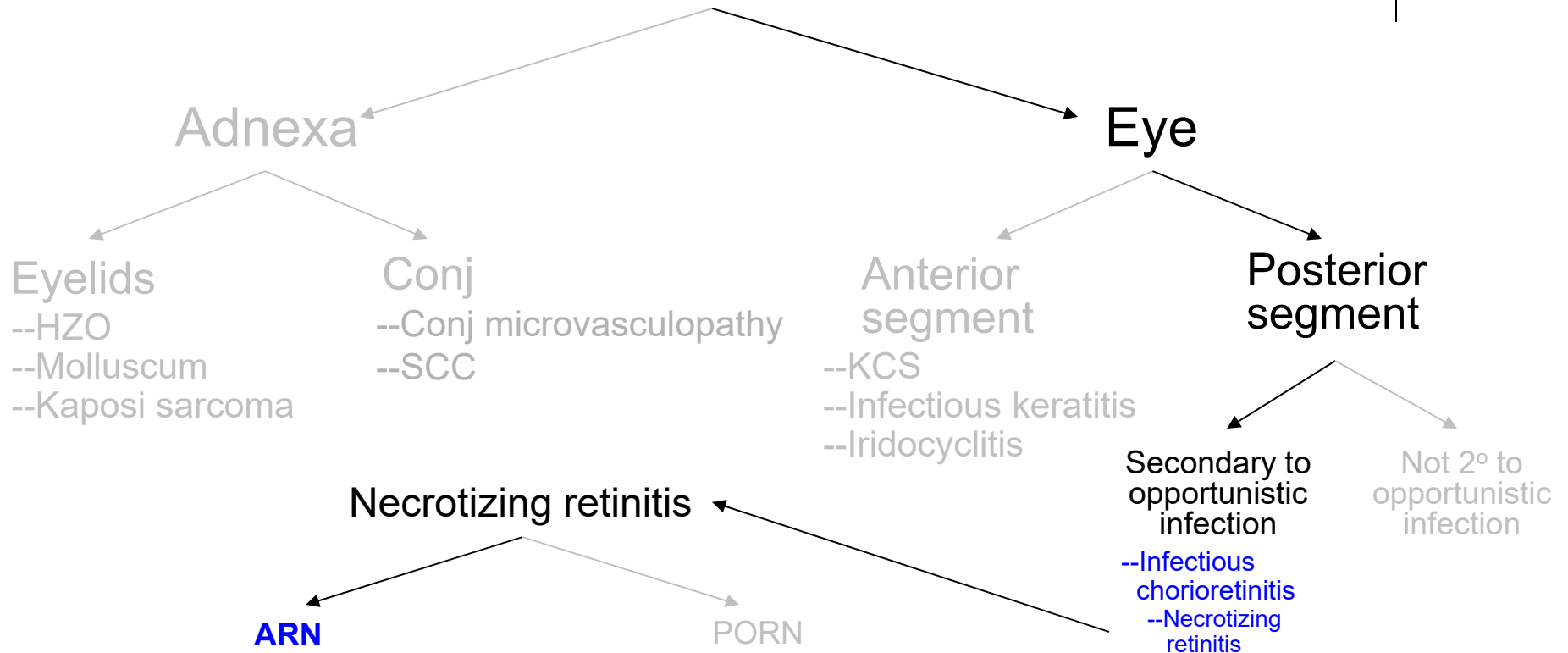
Which of these diseases can occur in immunocompetent pts?

ARN

Who is the typical immunocompetent ARN pt?

HIV and the Eye

Ophthalmic HIV manifestations



Which of these diseases can occur in immunocompetent pts?

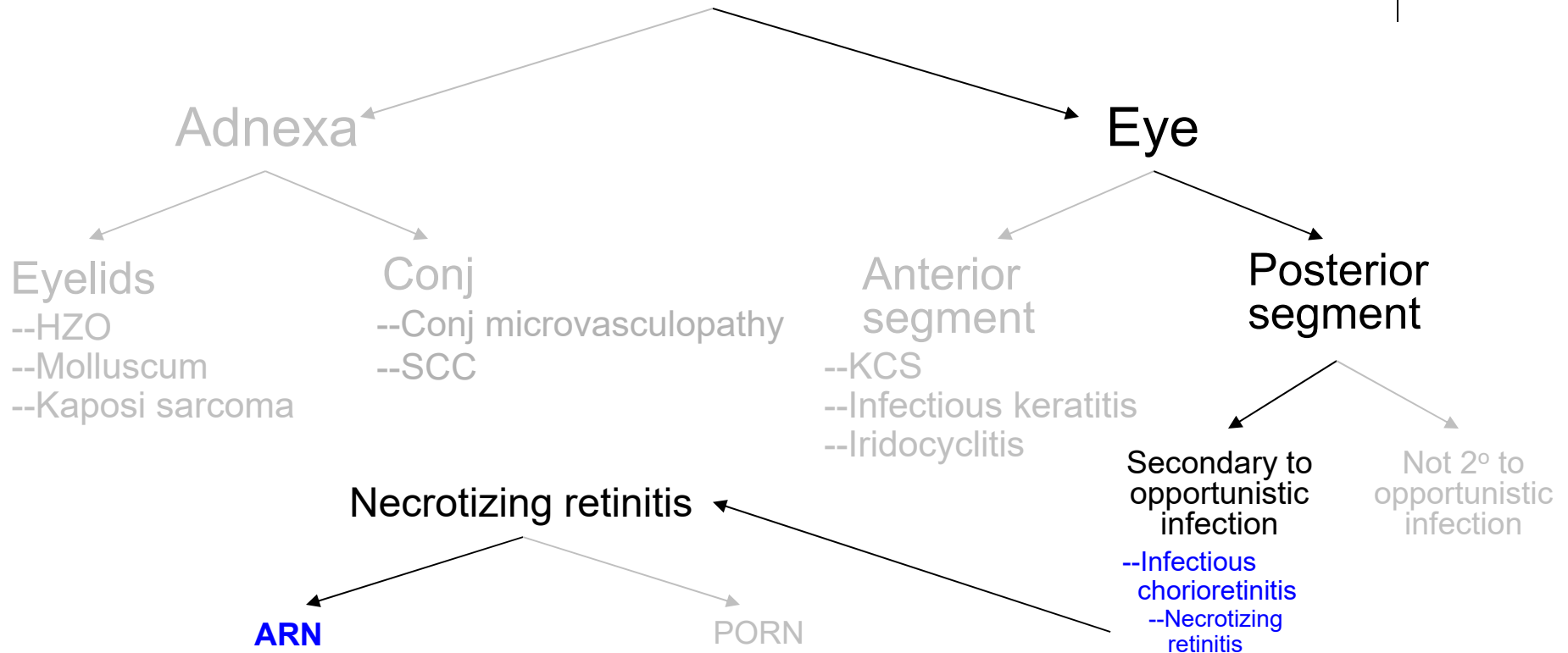
ARN

Who is the typical immunocompetent ARN pt?

An otherwise healthy older adult

HIV and the Eye

Ophthalmic HIV manifestations



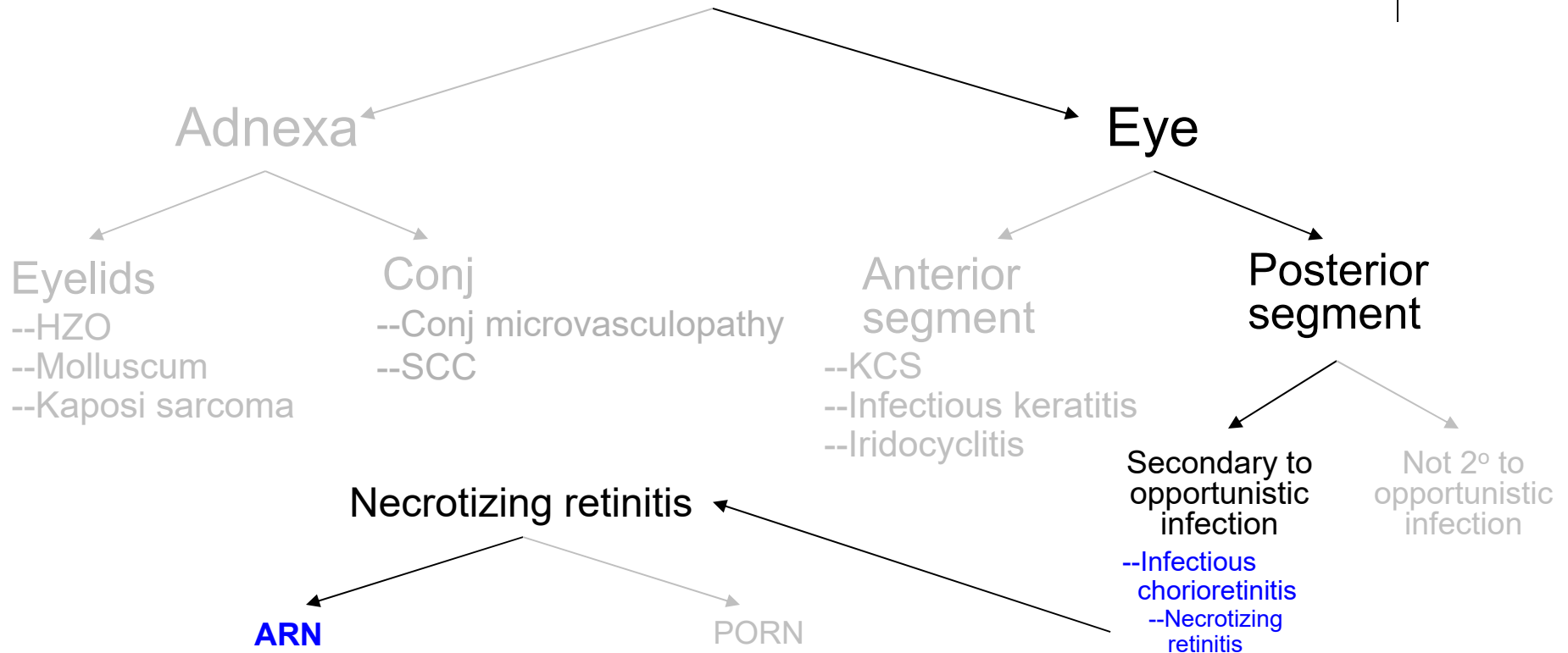
Which of these diseases can occur in immunocompetent individuals?
ARN

Who is the typical immunocompetent ARN patient?
An otherwise healthy older adult

How does the presentation of ARN differ between the immunocompetent and immunocompromised populations?

HIV and the Eye

Ophthalmic HIV manifestations



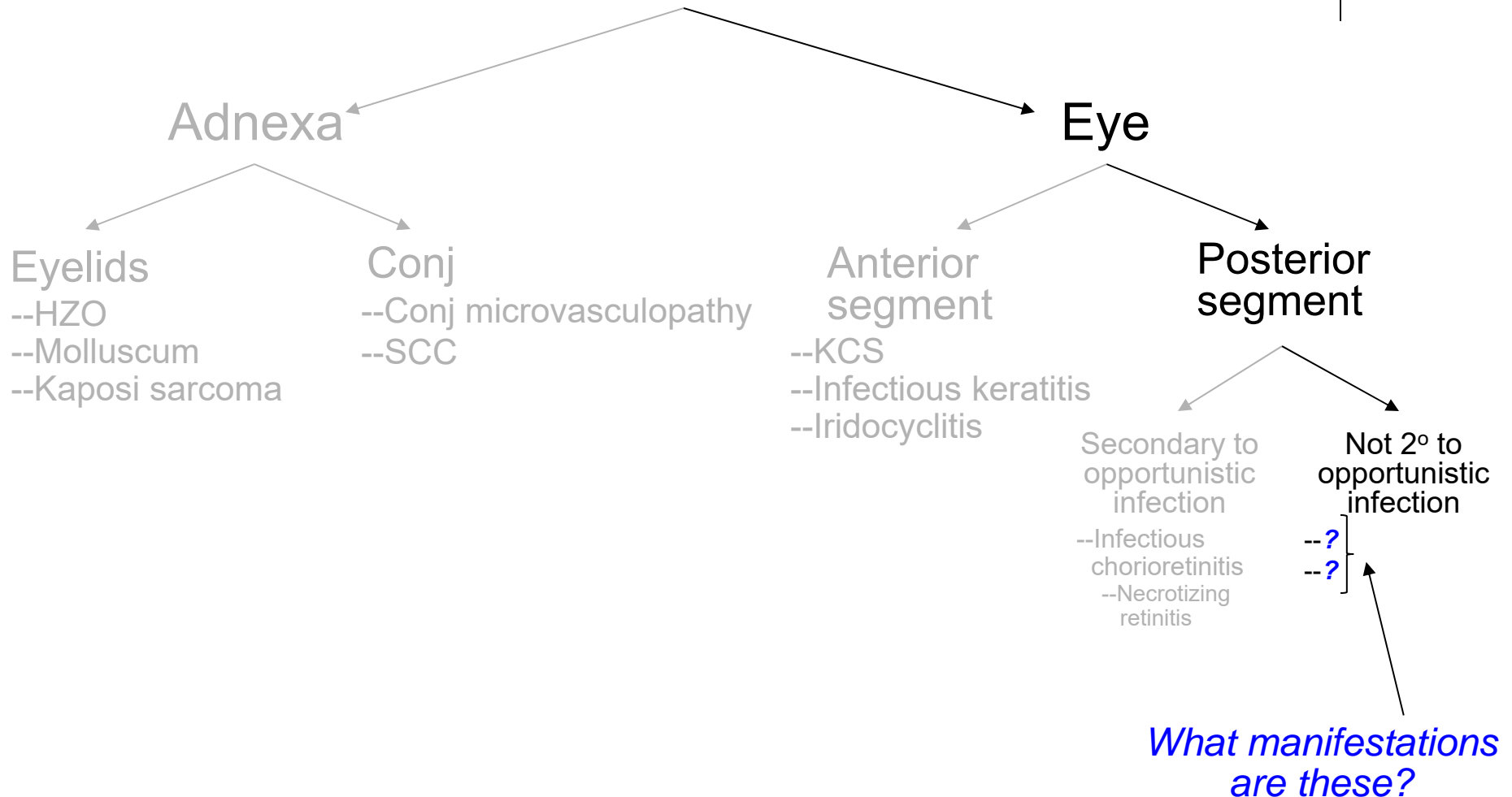
Which of these diseases can occur in immunocompetent patients?
ARN

Who is the typical immunocompetent ARN patient?
An otherwise healthy older adult

How does the presentation of ARN differ between the immunocompetent and immunocompromised populations?
In brief: It tends to be worse in **immunocompromised** pts:
--More likely to be **bilateral**
--Tends to be **more severe**
--Tends to have a **less robust response to treatment**

HIV and the Eye

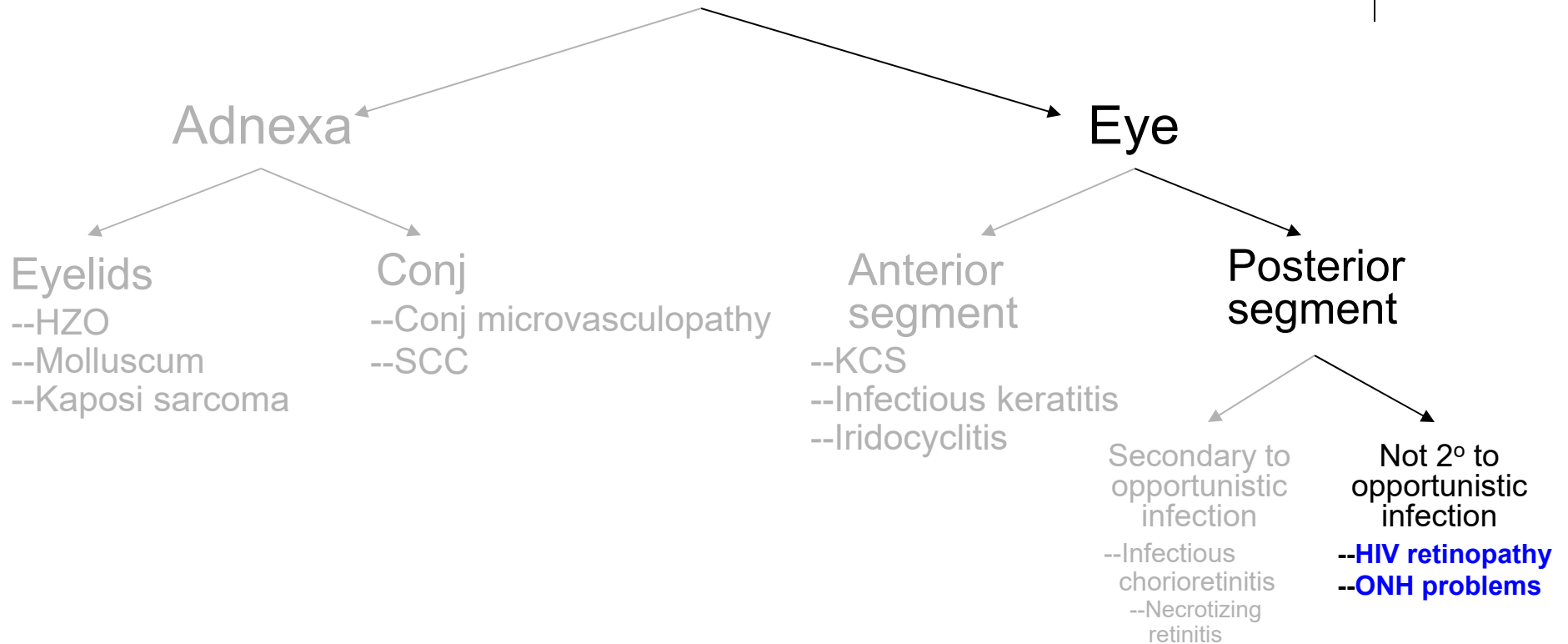
Ophthalmic HIV manifestations





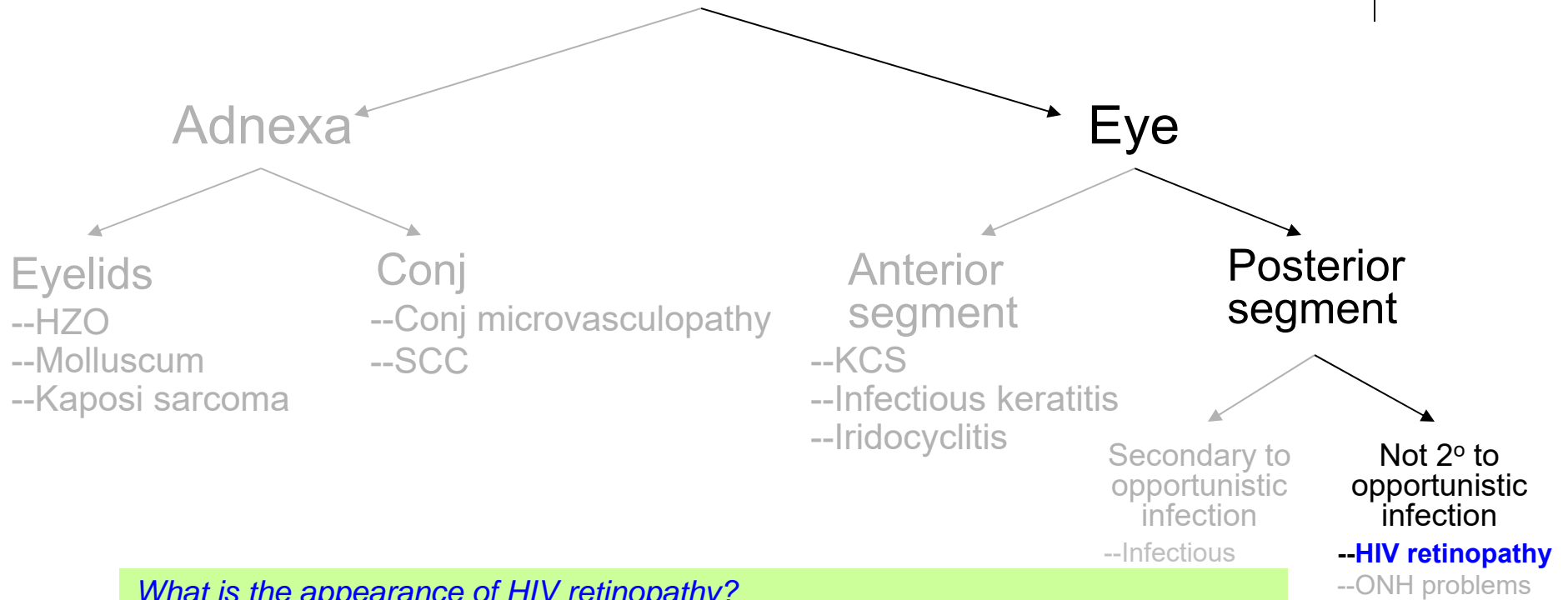
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

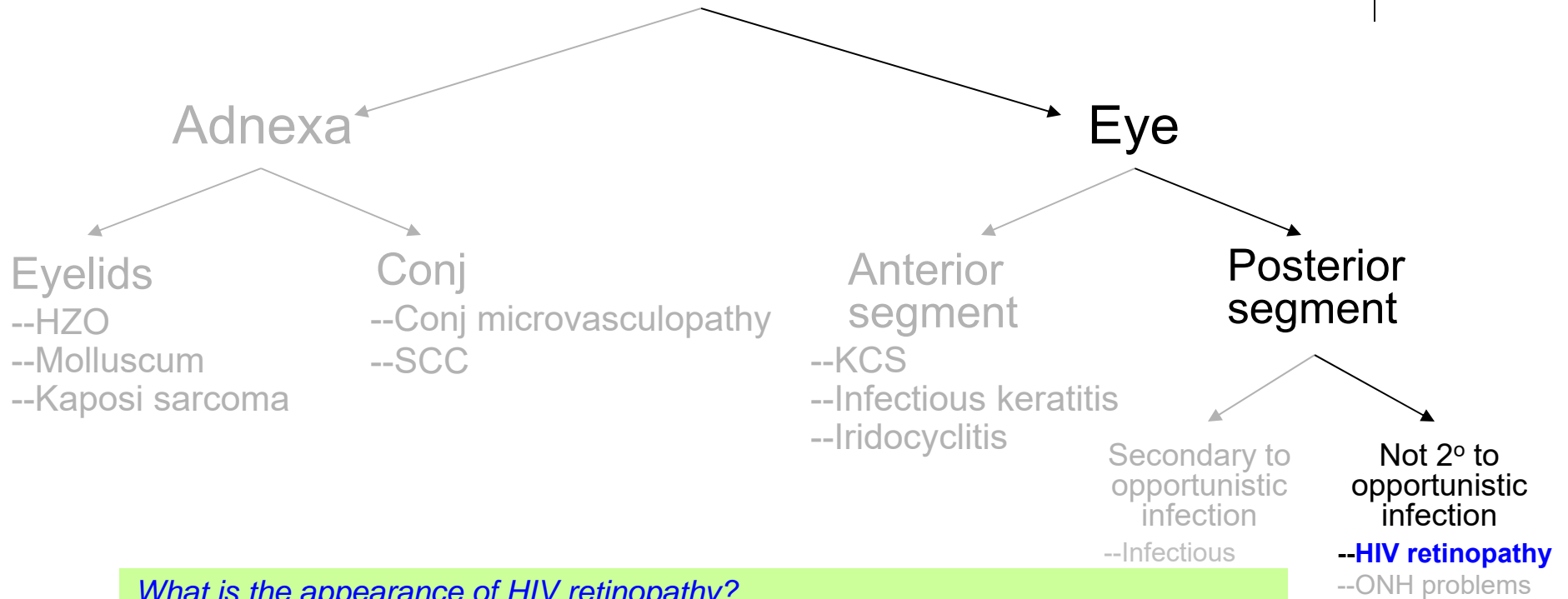
Ophthalmic HIV manifestations



What is the appearance of HIV retinopathy?

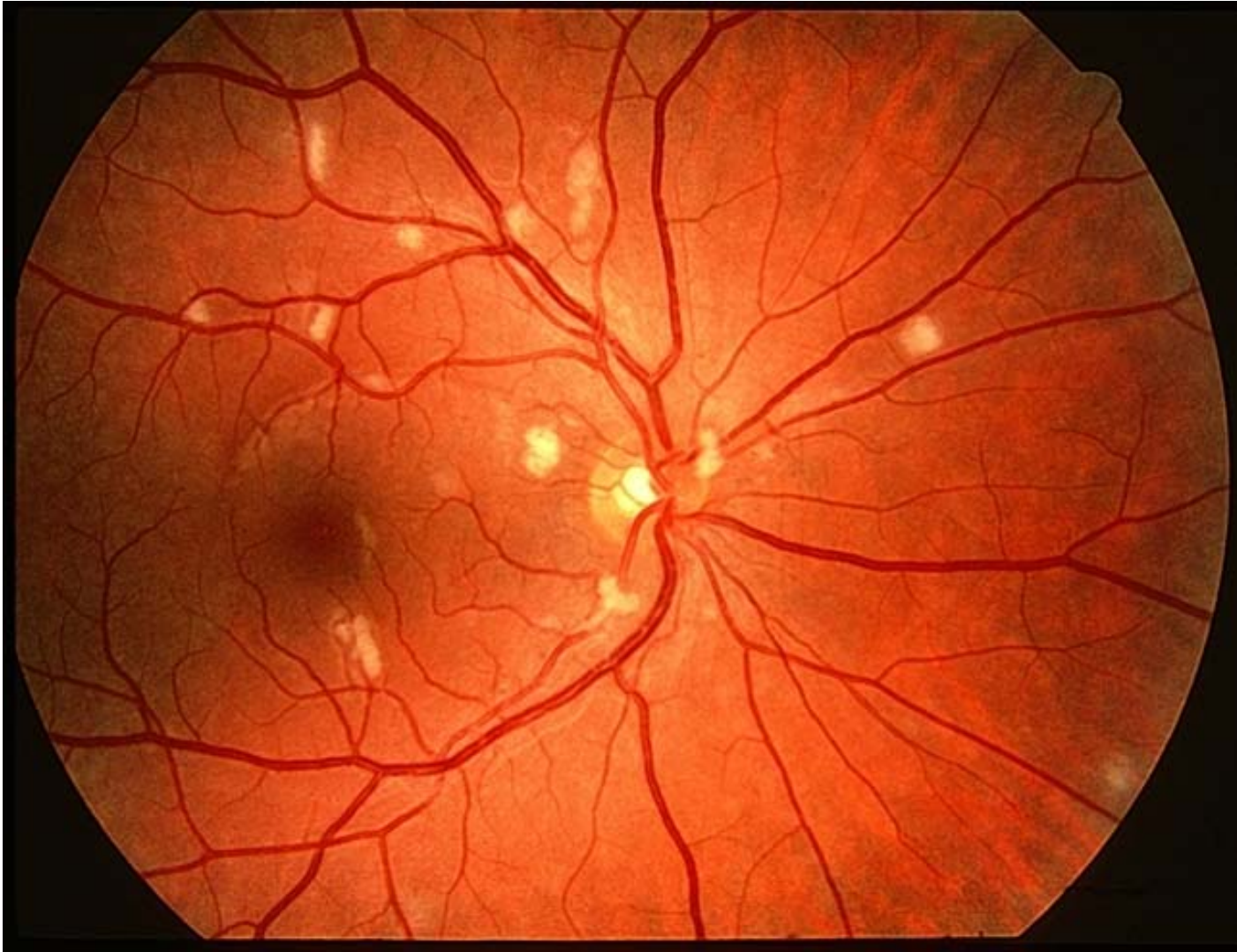
HIV and the Eye

Ophthalmic HIV manifestations

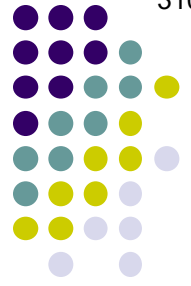


What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

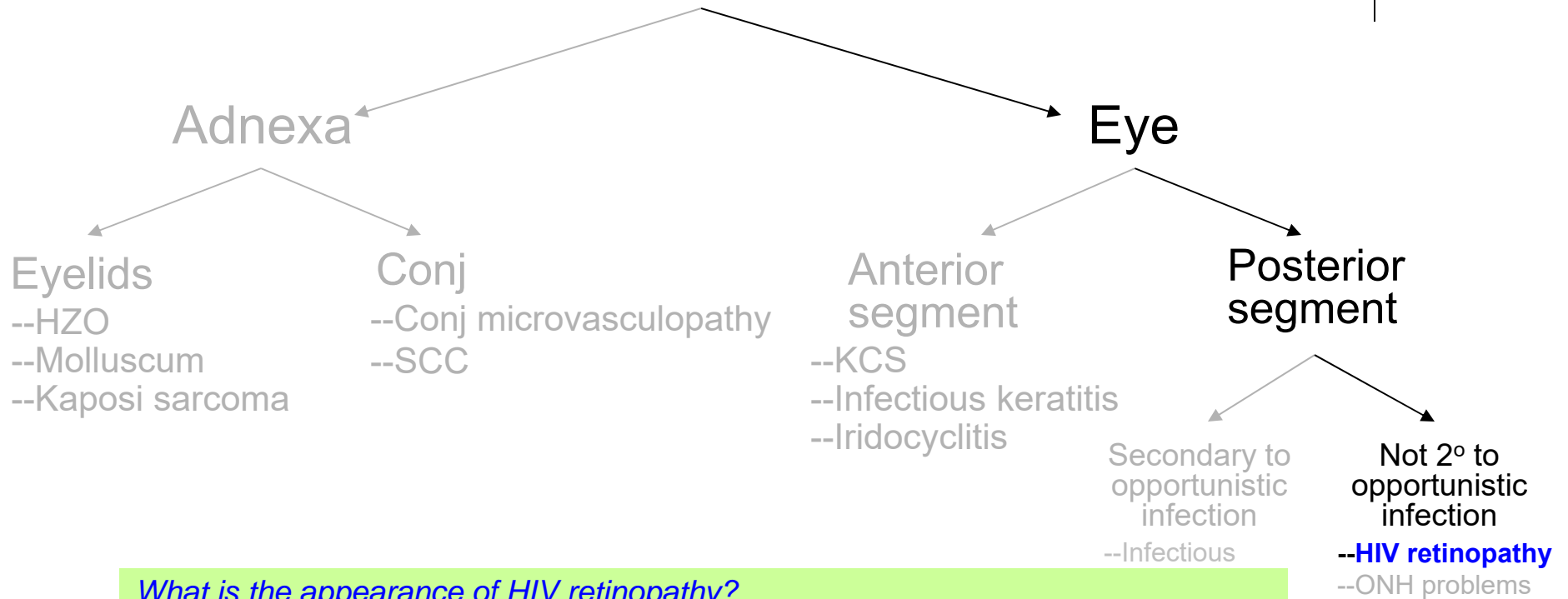


HIV retinopathy



HIV and the Eye

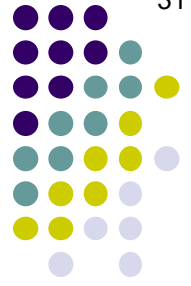
Ophthalmic HIV manifestations



What is the appearance of HIV retinopathy?

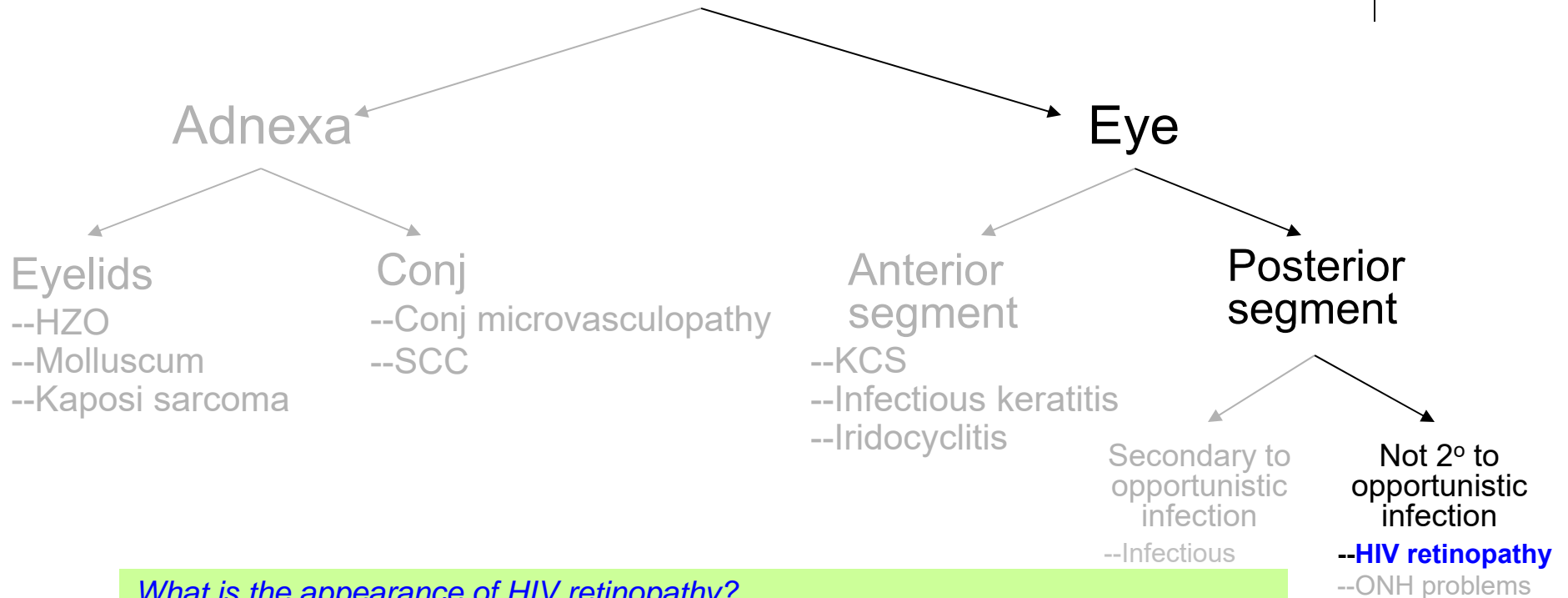
Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

How common is it?



HIV and the Eye

Ophthalmic HIV manifestations



What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

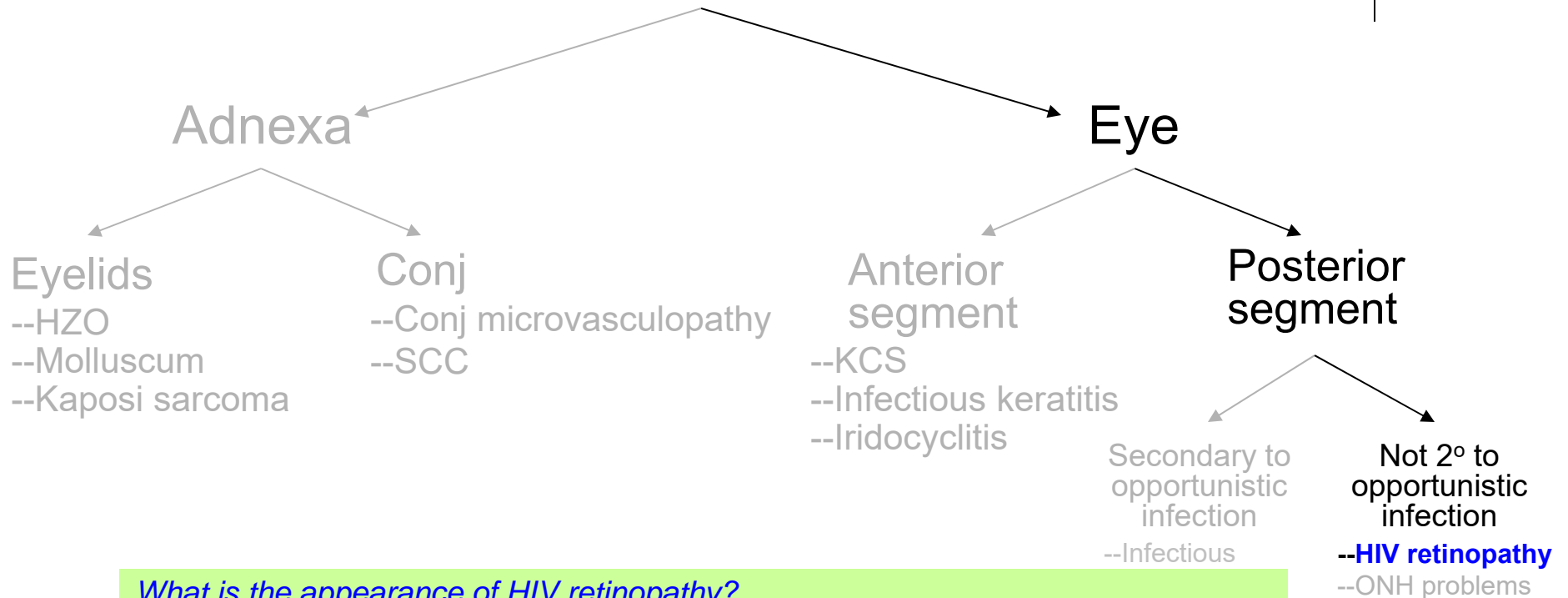
How common is it?

Prior to HAART, it was very common (50-75% of HIV+ pts). It is less common now.



HIV and the Eye

Ophthalmic HIV manifestations



What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

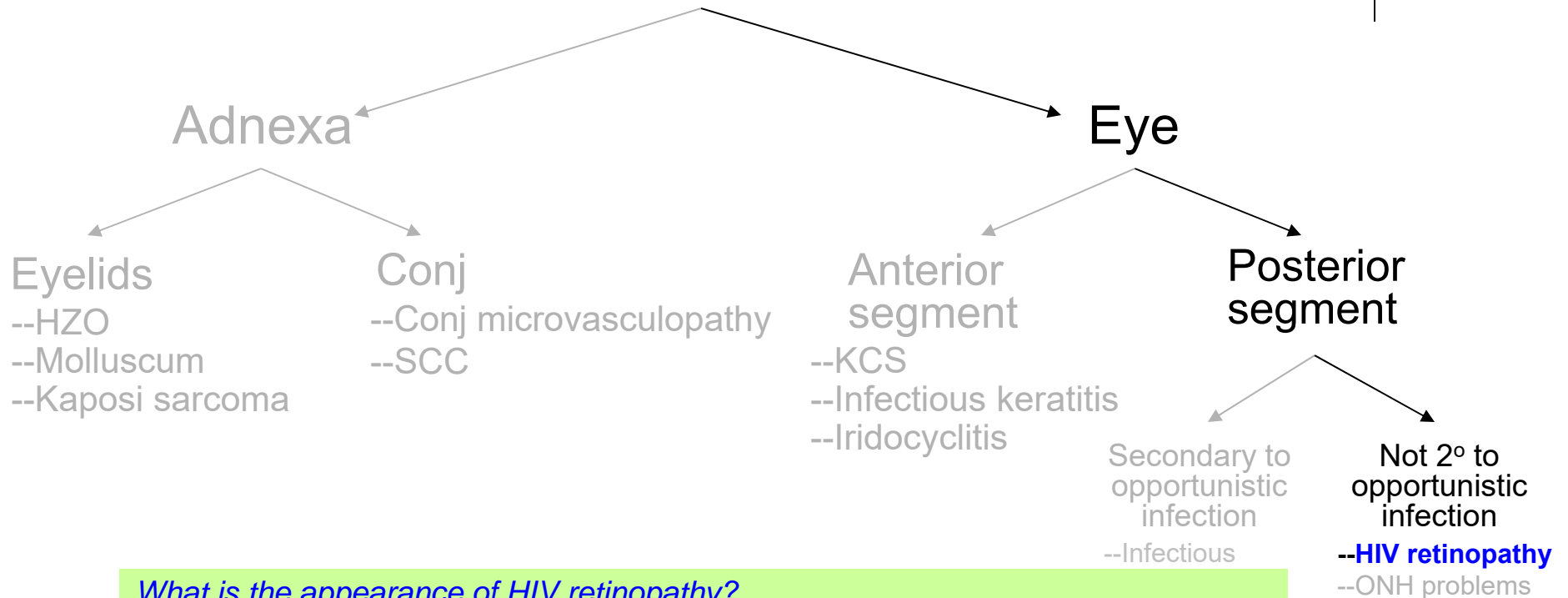
How common is it?

Prior to HAART, it was very common (50-75% of HIV+ pts). It is less common now.

What is the pathophysiology?

HIV and the Eye

Ophthalmic HIV manifestations



What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

How common is it?

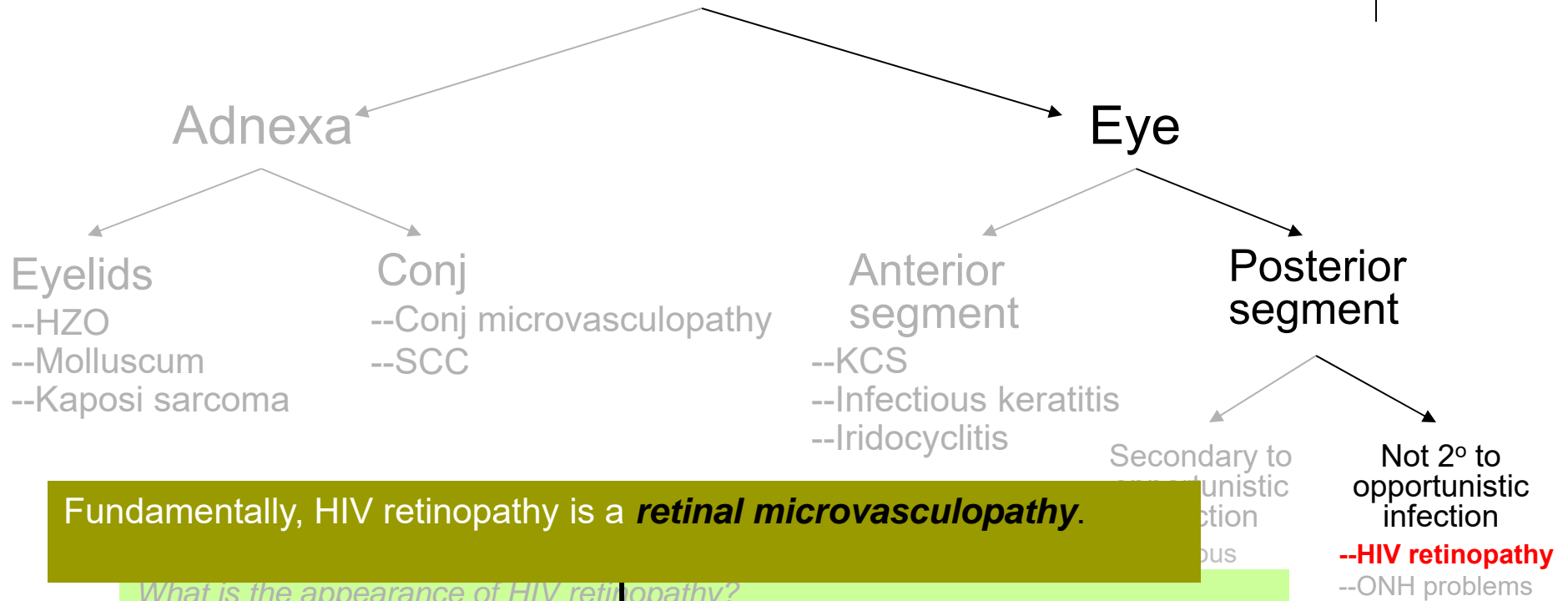
Prior to HAART, it was very common (50-75% of HIV+ pts). It is less common now.

What is the pathophysiology?

Arteriolar occlusion → focal ischemia → disruption of axoplasmic flow → CWS

HIV and the Eye

Ophthalmic HIV manifestations



Fundamentally, HIV retinopathy is a **retinal microvasculopathy**.

What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

How common is it?

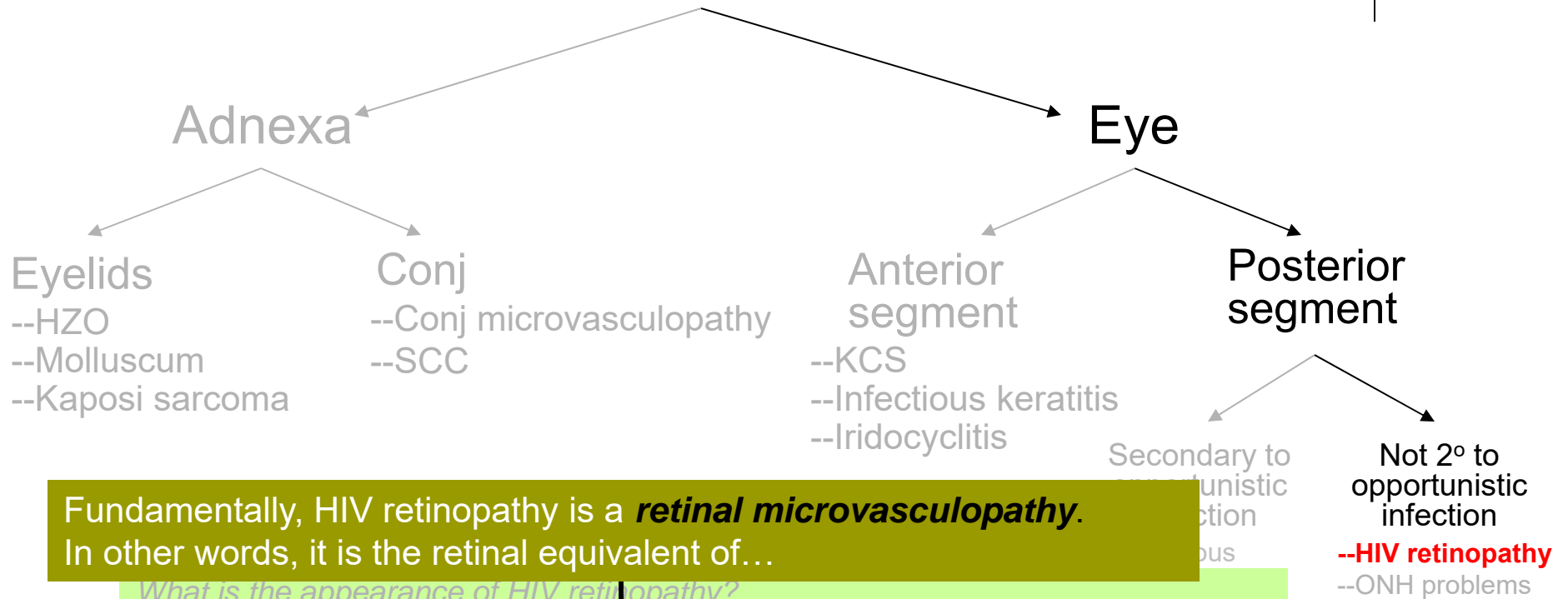
Prior to HAART, it was very common (50-75% of HIV+ pts). It is less common now.

What is the pathophysiology?

Arteriolar occlusion → focal ischemia → disruption of axoplasmic flow → CWS

HIV and the Eye

Ophthalmic HIV manifestations



Fundamentally, HIV retinopathy is a **retinal microvasculopathy**. In other words, it is the retinal equivalent of...

What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal heme is seen as well.

How common is it?

Prior to HAART, it was very common (50-75% of HIV+ pts). It is less common now.

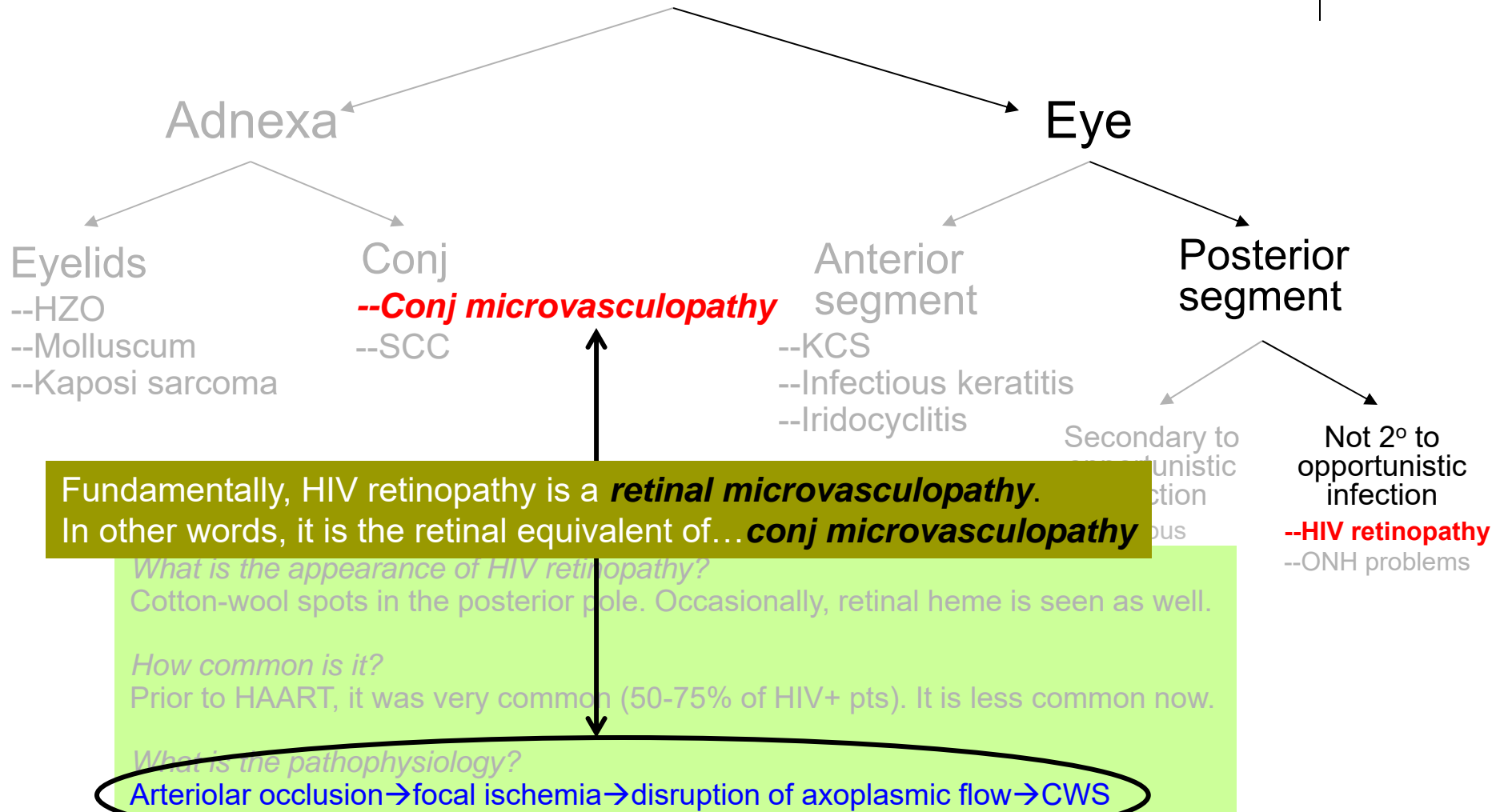
What is the pathophysiology?

Arteriolar occlusion → focal ischemia → disruption of axoplasmic flow → CWS



HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations

To aid in remembering this fundamental similarity, note that HIV retinopathy is also known as **HIV-Related Retinal Microvasculopathy**

Eyelids
--HZO
--Molluscum
--Kaposi sarcoma

Conj
--**Conj microvasculopathy**
--SCC

Anterior segment
--KCS
--Infectious keratitis
--Iridocyclitis

Posterior segment

Secondary to
opportunistic
infection

Not 2° to
opportunistic
infection

~~HIV retinopathy~~

**HIV-Related Retinal
microvasculopathy**

Fundamentally, HIV retinopathy is a **retinal microvasculopathy**.
In other words, it is the retinal equivalent of... **conj microvasculopathy**

What is the appearance of HIV retinopathy?

Cotton-wool spots in the posterior pole. Occasionally, retinal hemorrhage is seen as well.

How common is it?

Prior to HAART, it was very common (50-75% of HIV+ pts). It is less common now.

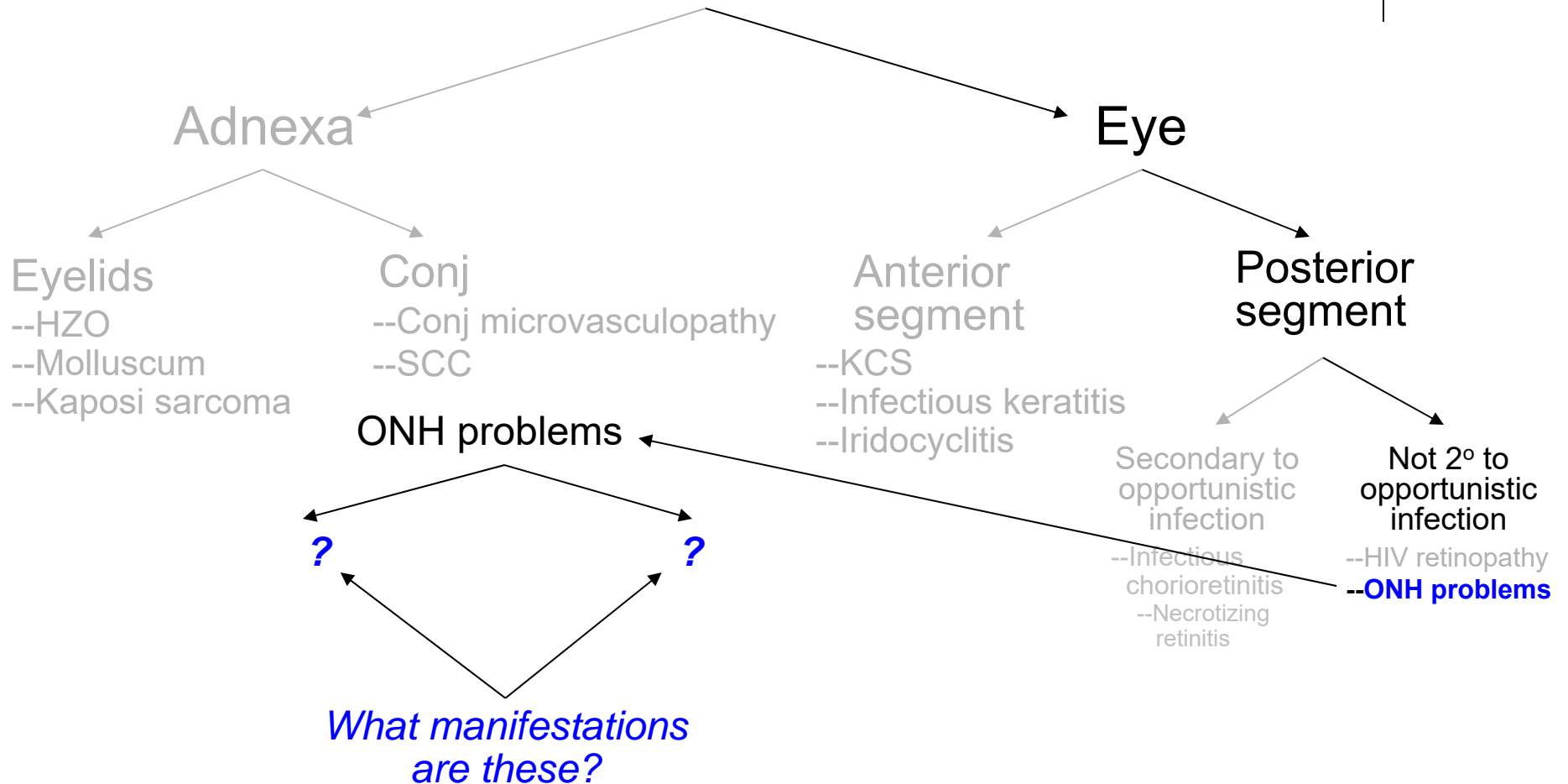
What is the pathophysiology?

Arteriolar occlusion → focal ischemia → disruption of axoplasmic flow → CWS



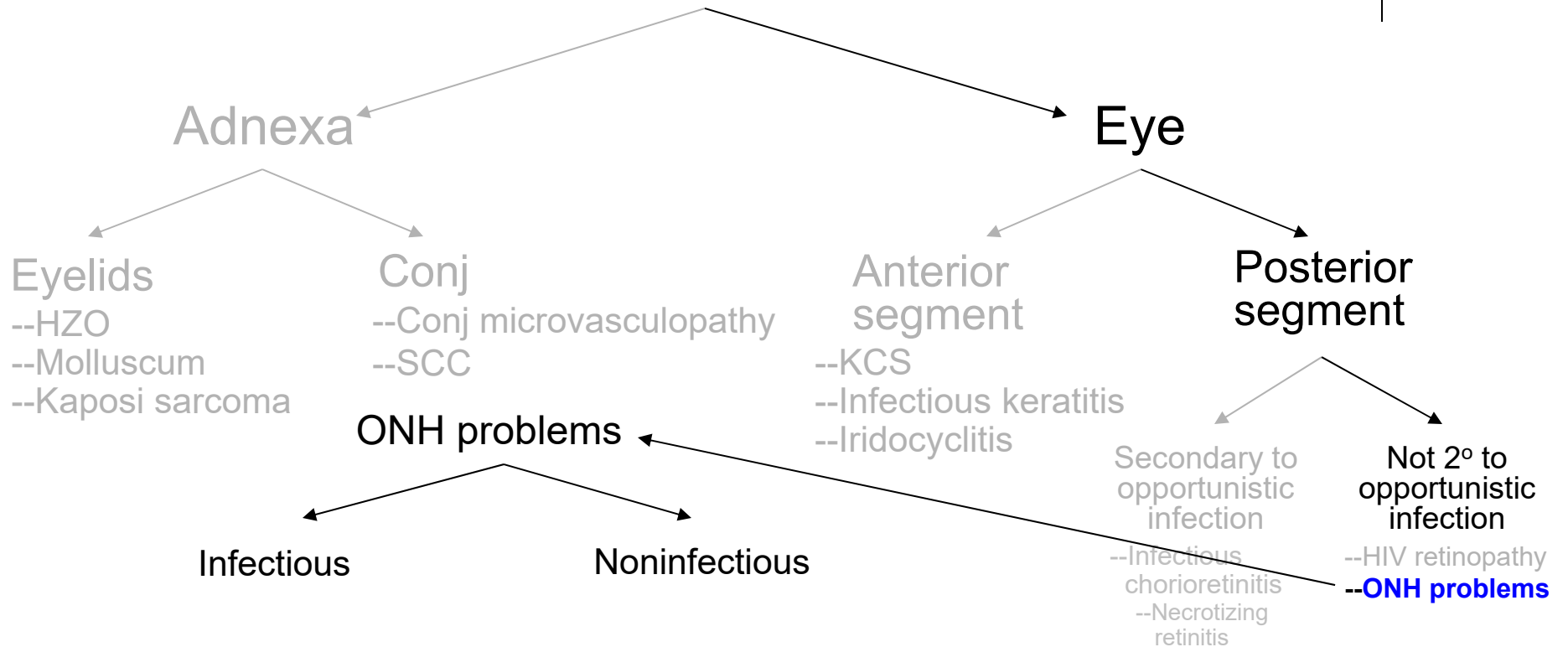
HIV and the Eye

Ophthalmic HIV manifestations



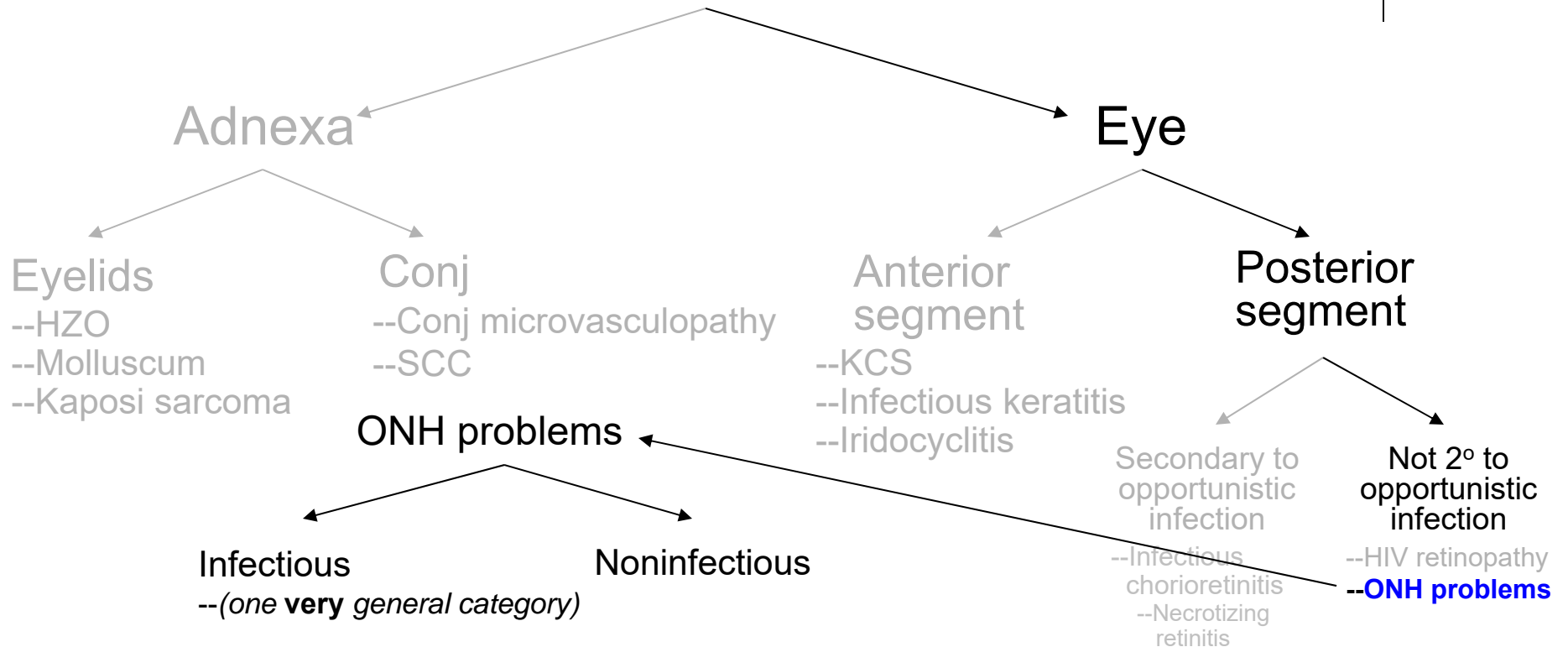
HIV and the Eye

Ophthalmic HIV manifestations



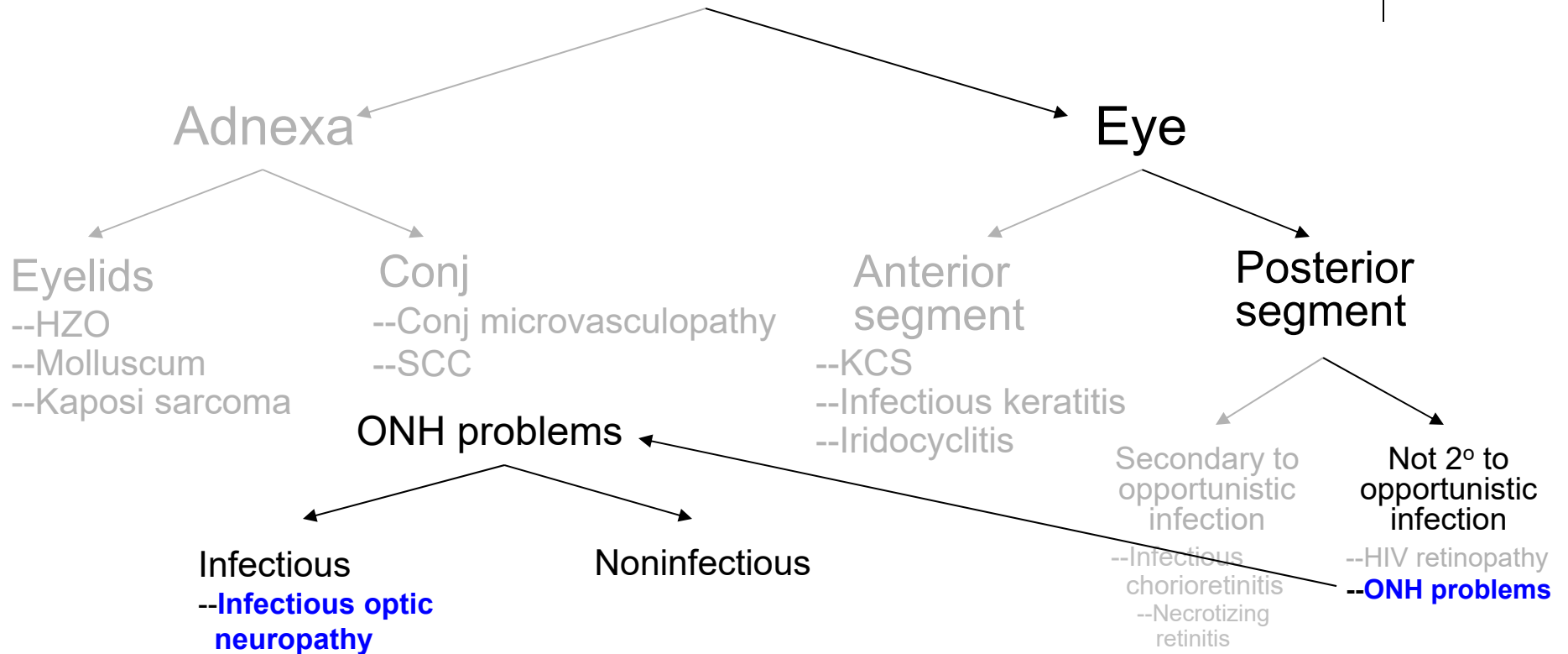
HIV and the Eye

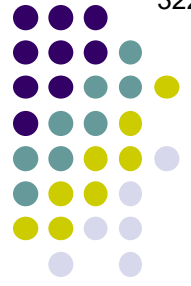
Ophthalmic HIV manifestations



HIV and the Eye

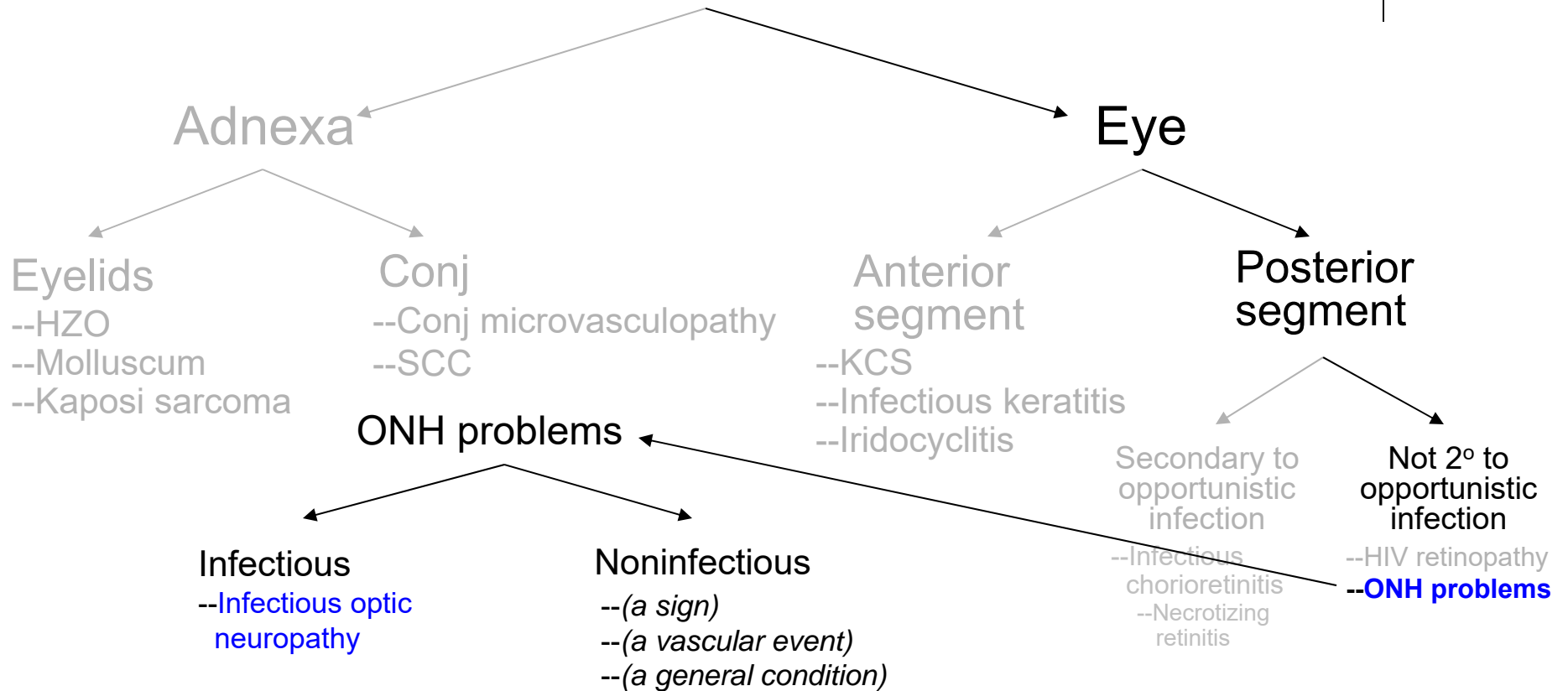
Ophthalmic HIV manifestations





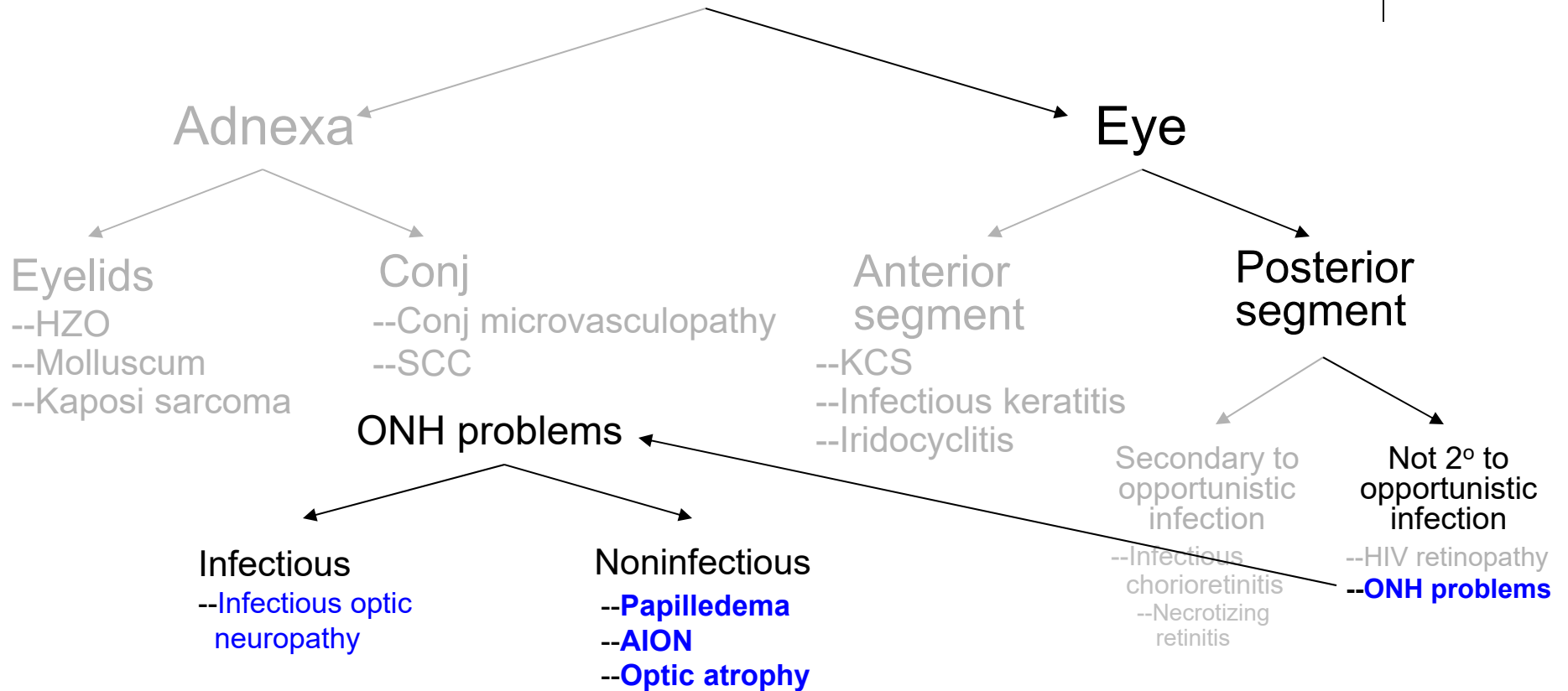
HIV and the Eye

Ophthalmic HIV manifestations



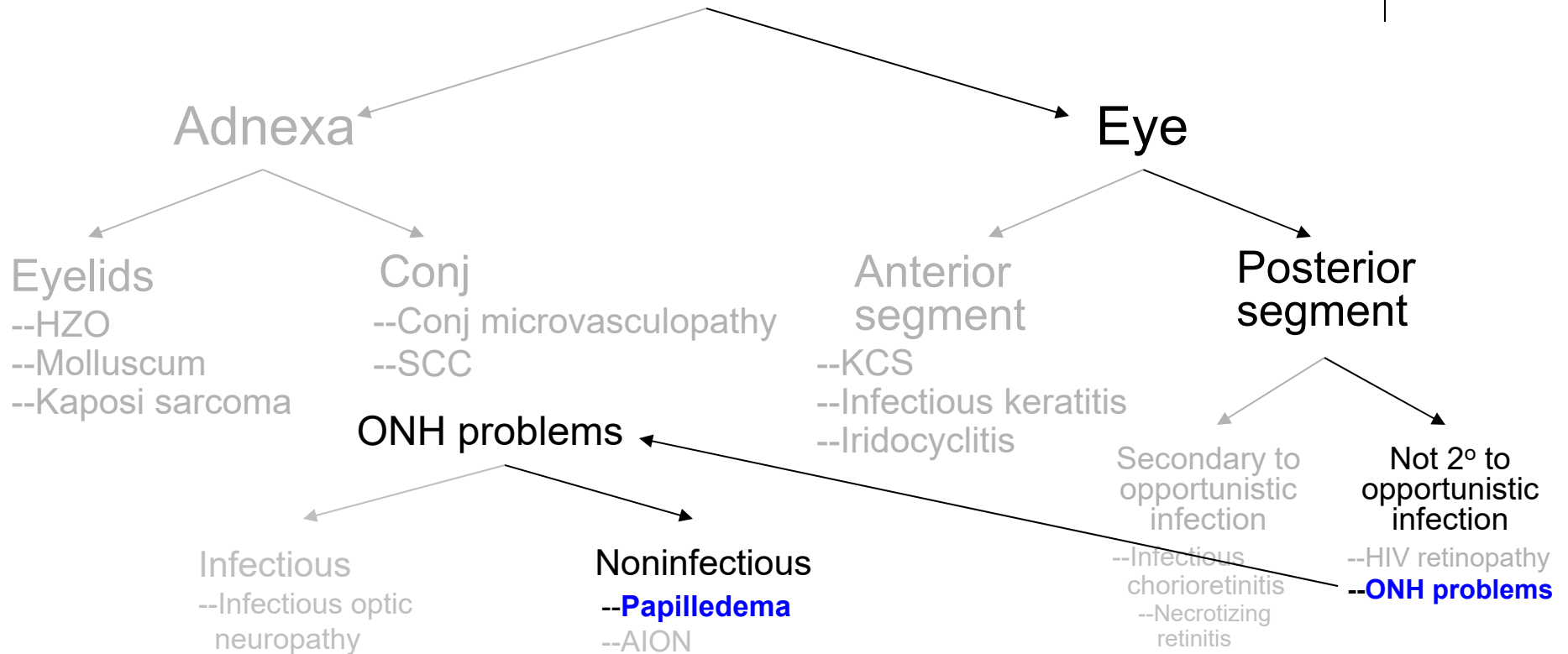
HIV and the Eye

Ophthalmic HIV manifestations



HIV and the Eye

Ophthalmic HIV manifestations

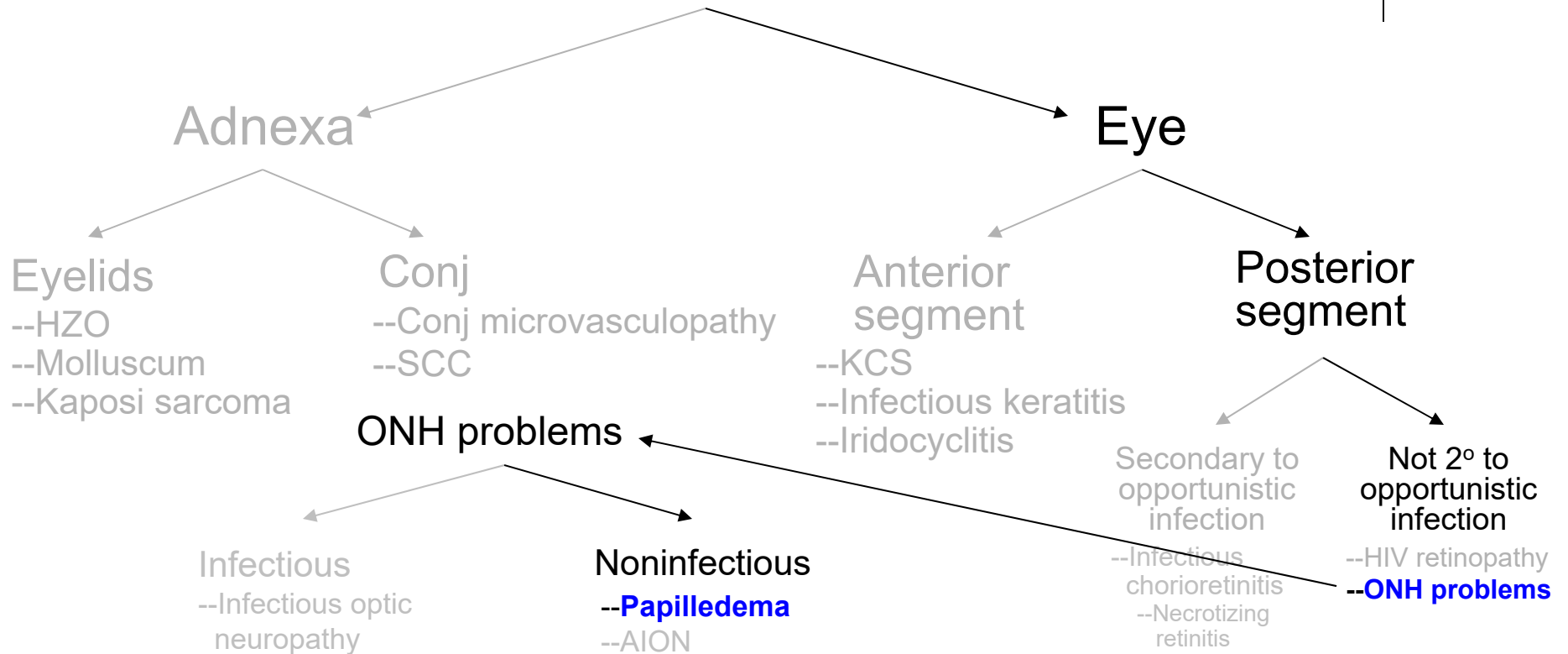


What are common causes of papilledema in HIV+ pts?

-- (Two broad categories)

HIV and the Eye

Ophthalmic HIV manifestations

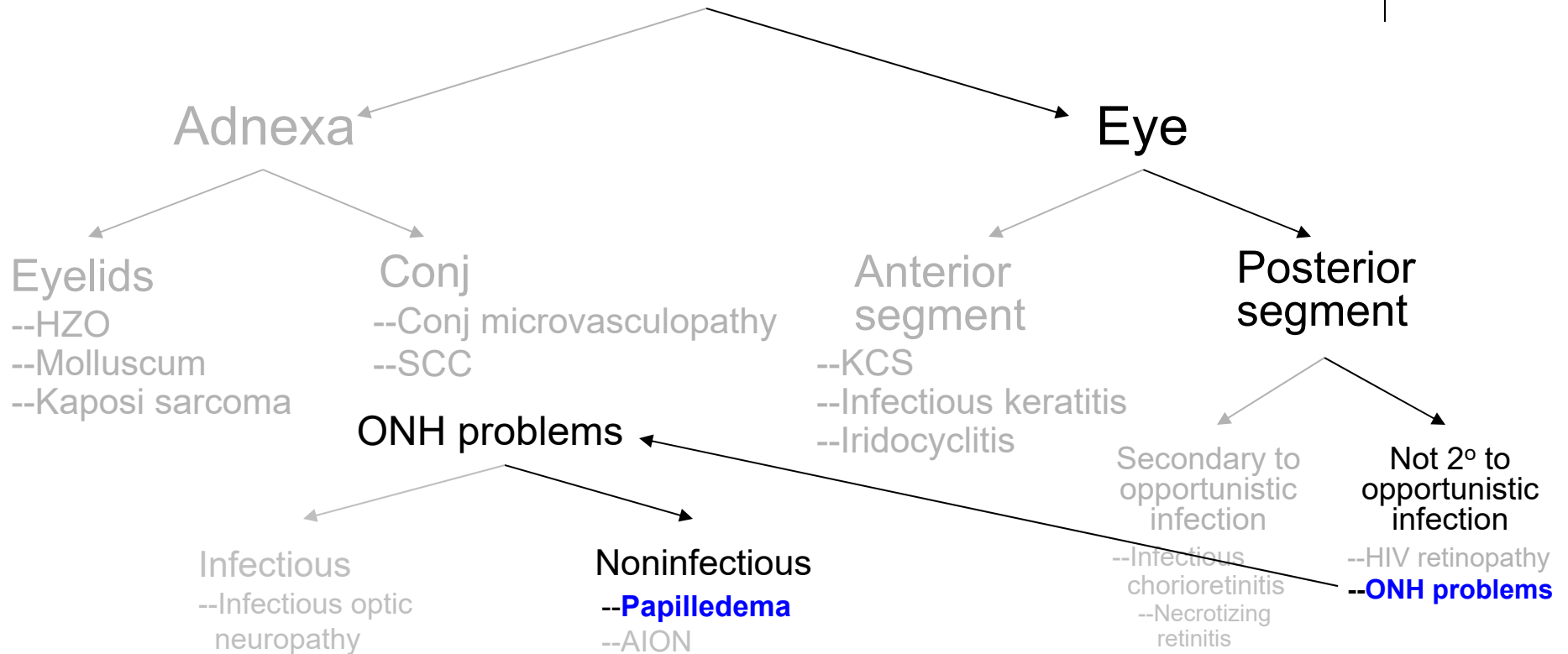


What are common causes of papilledema in HIV+ pts?

- Neoplasms
- Infectious processes

HIV and the Eye

Ophthalmic HIV manifestations

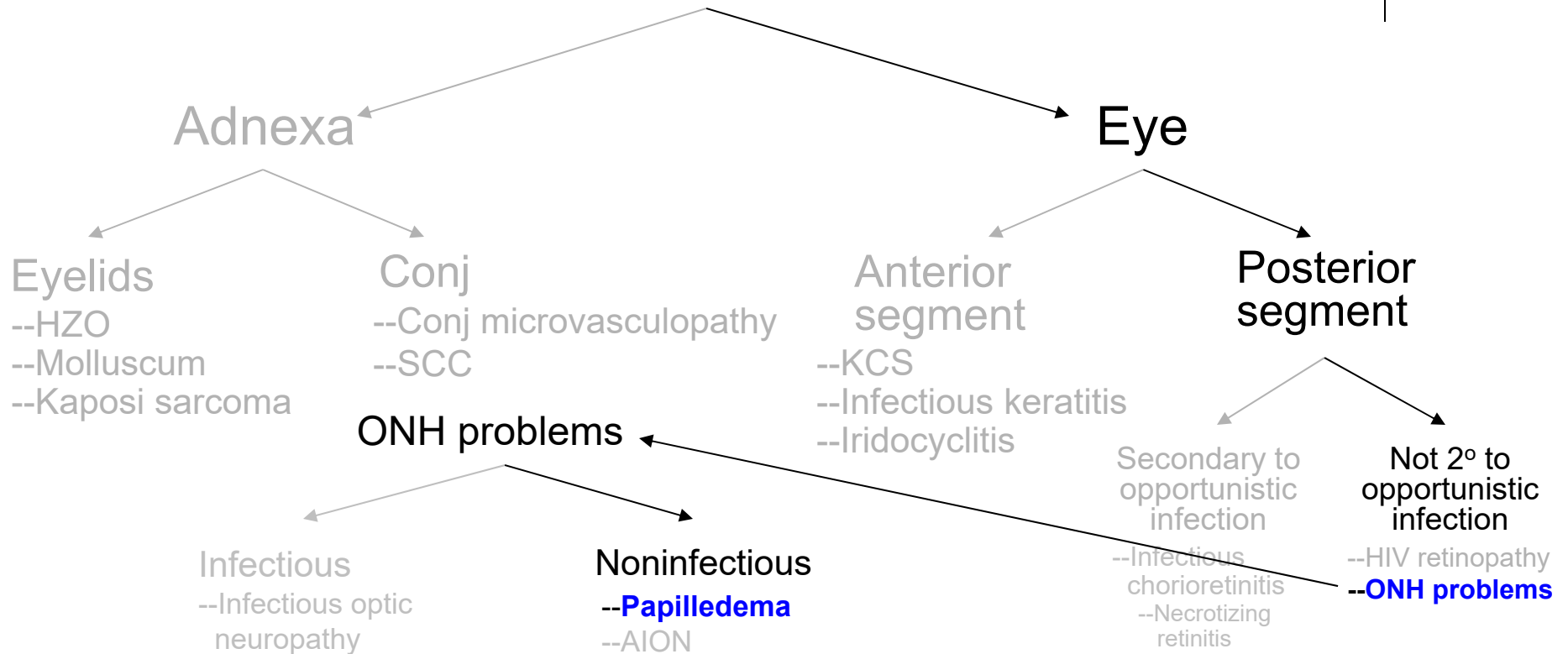


What are common causes of papilledema in HIV+ pts?

- Neoplasms (eg...)
- Infectious processes

HIV and the Eye

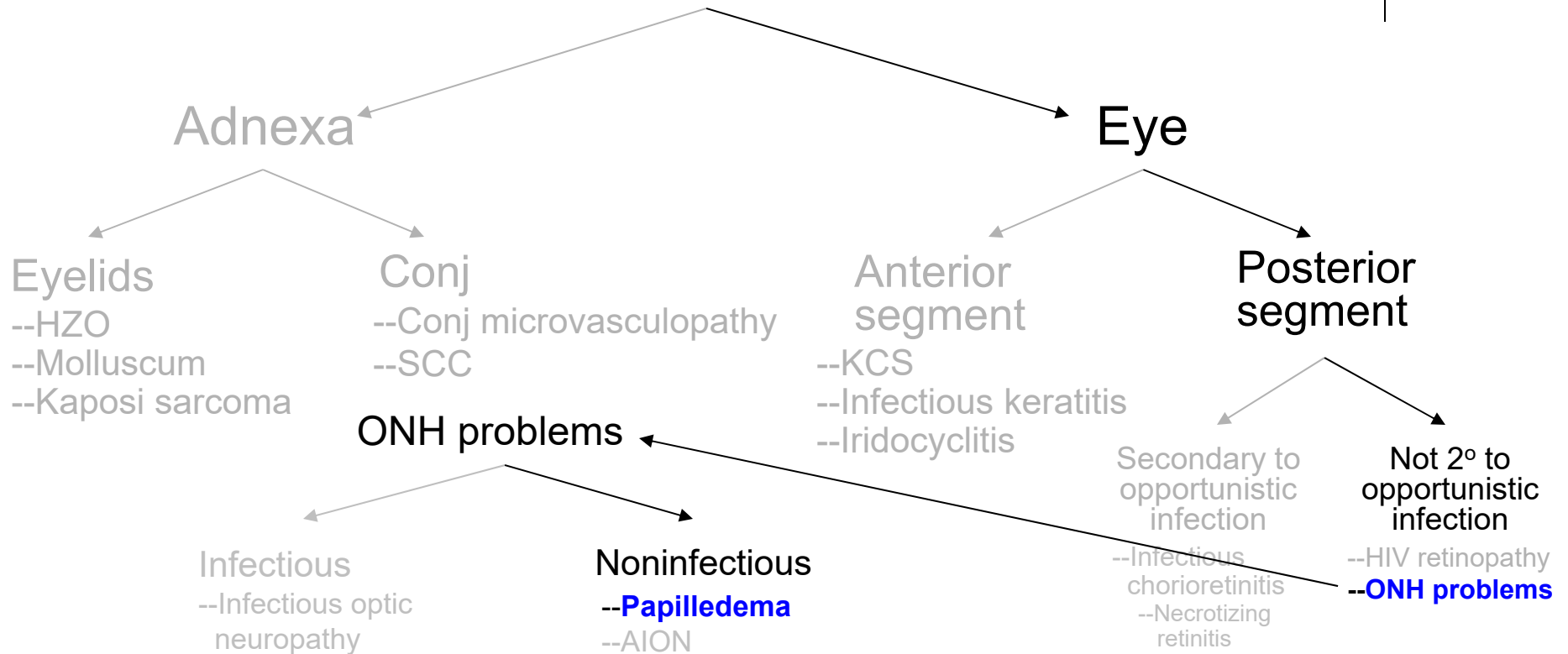
Ophthalmic HIV manifestations



What are common causes of papilledema in HIV+ pts?
 --Neoplasms (eg...**Primary CNS lymphoma, PCNSL**)
 --Infectious processes

HIV and the Eye

Ophthalmic HIV manifestations



What are common causes of papilledema in HIV+ pts?

--Neoplasms (eg...**Primary CNS lymphoma, PCNSL**)

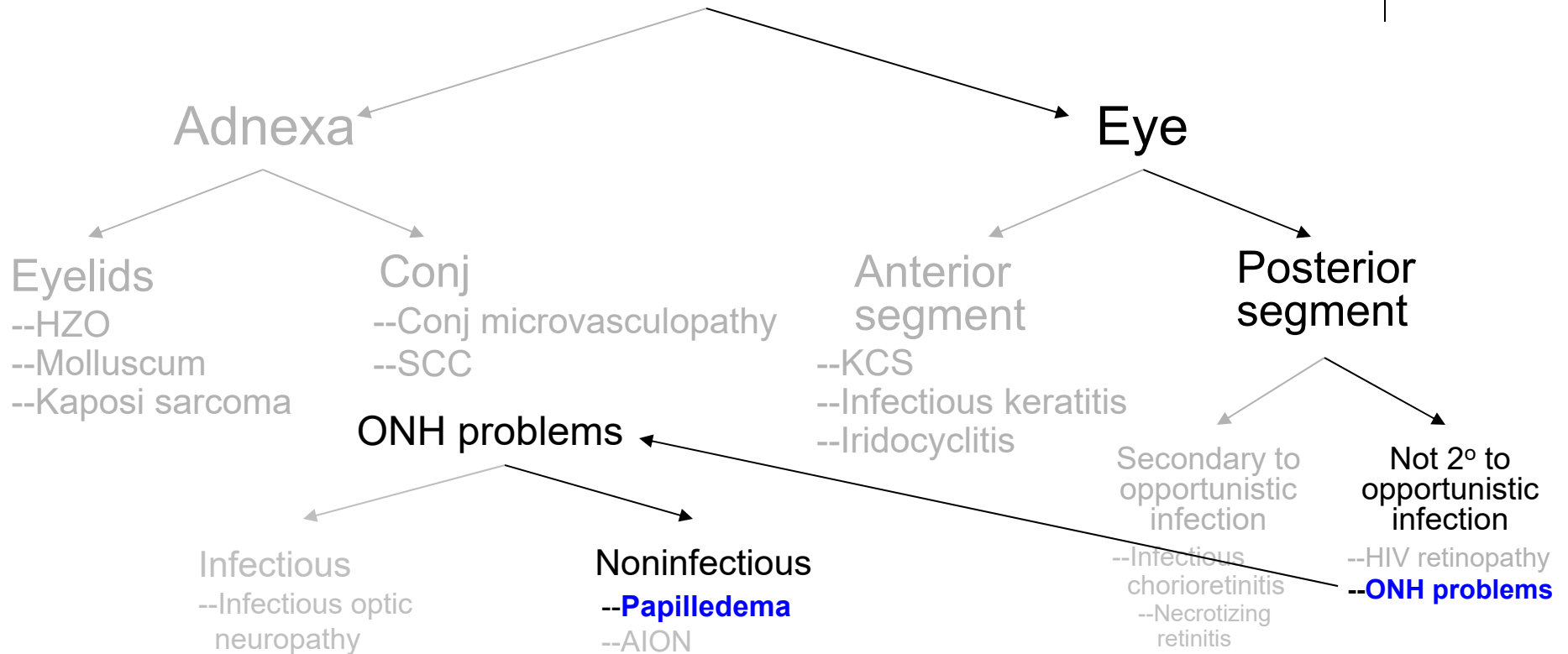
--Infectious processes, including

--

--

HIV and the Eye

Ophthalmic HIV manifestations



What are common causes of papilledema in HIV+ pts?

- Neoplasms (eg...**Primary CNS lymphoma, PCNSL**)
- Infectious processes, including
 - Toxoplasma encephalitis**
 - Cryptococcal meningitis**

HIV and the Eye

330



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| | <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|-----------------------------------|--|--------------------------------------|-------------------------------------|
| Kaposi sarcoma | ← (Start here and work your way down the list) | | |
| <i>Pneumocystis</i> choroiditis | | | |
| <i>Toxoplasma</i> chorioretinitis | | | |
| Conj microvasculopathy | | | |
| CMV retinitis | | | |
| <i>Microsporidia</i> keratitis | | | |
| PORN | | | |

HIV and the Eye

331



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| | <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|-----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| <i>Pneumocystis</i> choroiditis | | | |
| <i>Toxoplasma</i> chorioretinitis | | | |
| Conj microvasculopathy | | | |
| CMV retinitis | | | |
| <i>Microsporidia</i> keratitis | | | |
| PORN | | | |
| | | | Kaposi sarcoma |

HIV and the Eye

332



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| | <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|-----------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| <i>Toxoplasma</i> chorioretinitis | | | |
| Conj microvasculopathy | | | |
| CMV retinitis | | | |
| <i>Microsporidia</i> keratitis | | | |
| PORN | | | |
| | | <i>Pneumocystis</i> choroiditis | Kaposi sarcoma |

HIV and the Eye

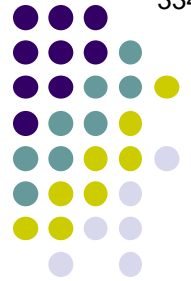
333



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| | <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|--------------------------------|-------------------------------------|--|-------------------------------------|
| Conj microvasculopathy | | | |
| CMV retinitis | | | |
| <i>Microsporidia</i> keratitis | | | |
| PORN | | | |
| | | <i>Pneumocystis</i> choroiditis <i>Toxoplasma</i> chorioretinitis | Kaposi sarcoma |

HIV and the Eye

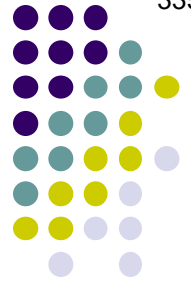


CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| | <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|--------------------------------|-------------------------------------|--|-------------------------------------|
| CMV retinitis | | | |
| <i>Microsporidia</i> keratitis | | | |
| PORN | | | |
| | Conj microvasculopathy | <i>Pneumocystis</i> choroiditis <i>Toxoplasma</i> chorioretinitis | Kaposi sarcoma |

HIV and the Eye

335



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|---|--|-------------------------------------|
| <i>Conj microvasculopathy</i> <i>CMV retinitis*</i> <i>Microsporidia keratitis</i> <i>PORN</i> | <i>Pneumocystis choroiditis</i> <i>Toxoplasma chorioretinitis</i> | <i>Kaposi sarcoma</i> |

*(CMV retinitis is uncommon if CD4 is >50)

HIV and the Eye

336



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

<100 cells/mm³

Conj microvasculopathy
CMV retinitis*
Microsporidia keratitis

< 250 cells/mm³

Pneumocystis choroiditis
Toxoplasma chorioretinitis

<500 cells/mm³

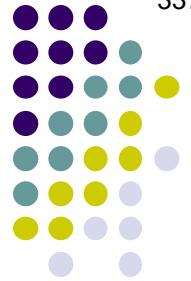
Kaposi sarcoma

PORN

*(CMV retinitis is uncommon if CD4 is >50)

HIV and the Eye

337



CD4+ T-cell count and HIV-related eye dz: Divvy the diseases up with respect to their typical CD4 thresholds for occurrence:

| <u><100 cells/mm³</u> | <u>< 250 cells/mm³</u> | <u><500 cells/mm³</u> |
|--|--|-------------------------------------|
| Conj microvasculopathy CMV retinitis* <i>Microsporidia</i> keratitis PORN | <i>Pneumocystis</i> choroiditis <i>Toxoplasma</i> chorioretinitis | Kaposi sarcoma |

*(CMV retinitis is uncommon if CD4 is >50)