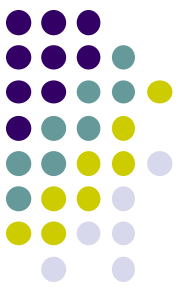


Before you begin: This is a big topic, and big topics beget big slide-sets. There's a natural break around slide 210; I placed a *break time!* slide at that point.

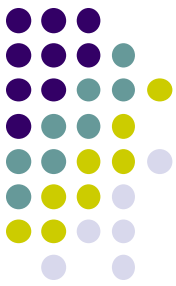
# Uveitis

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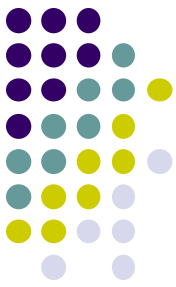
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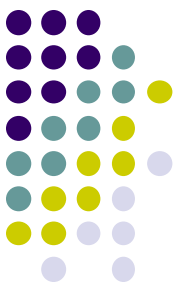
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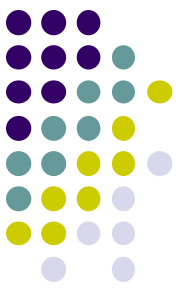
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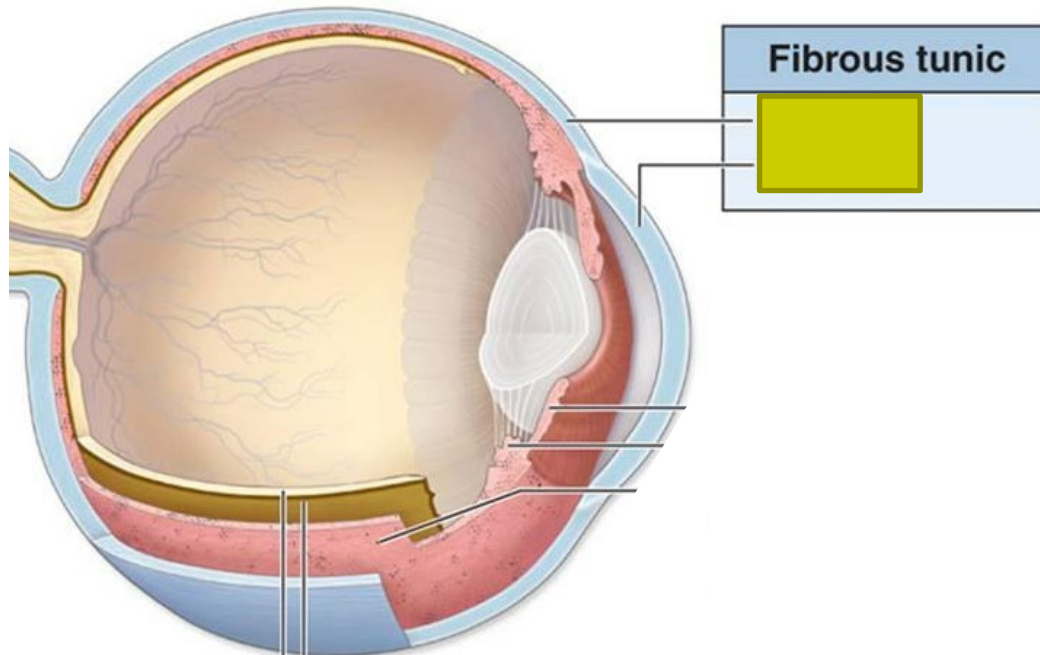
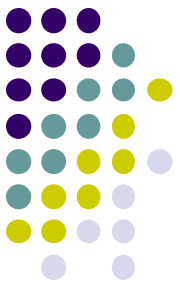


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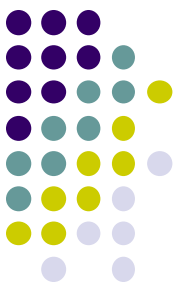
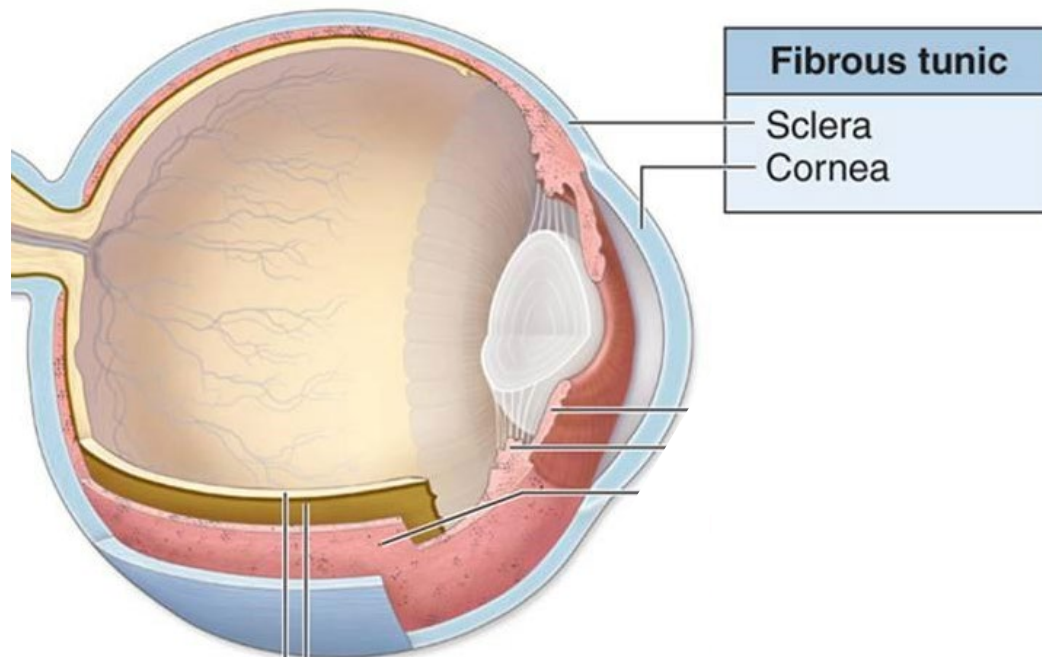
# Uveitis



Think of the eye as being composed of three layers or 'tunics.' The   and   comprise the tough, outer tunic.

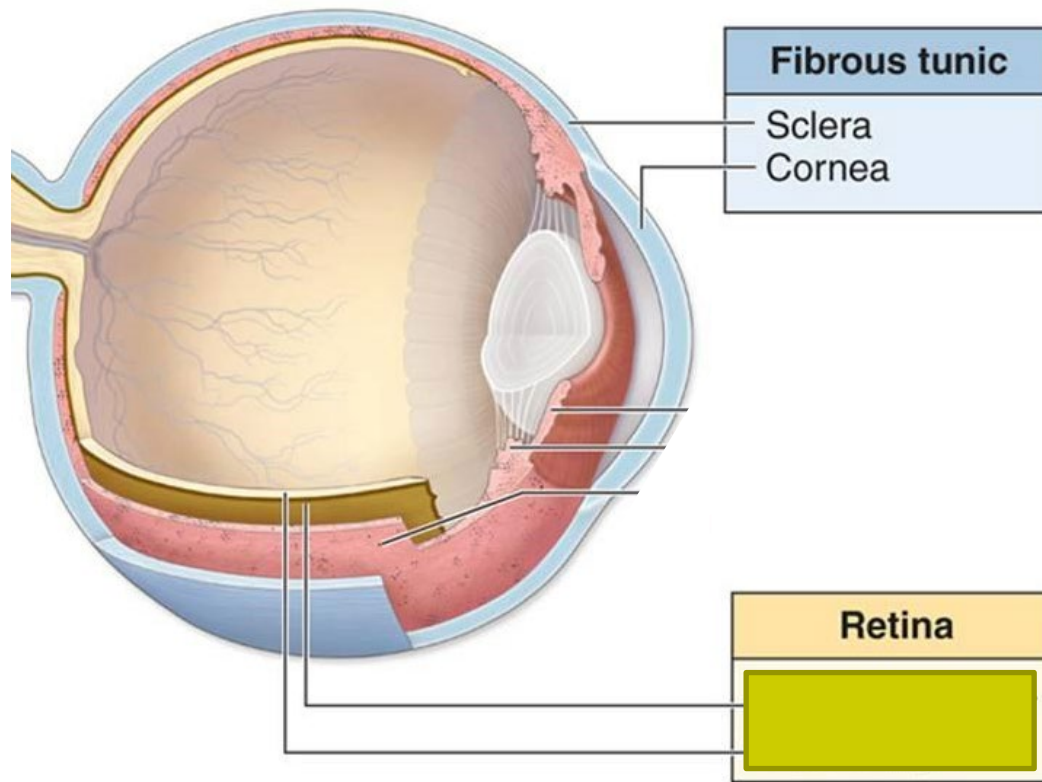
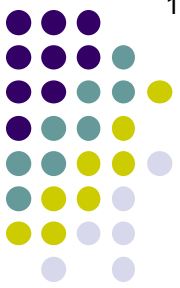


# Uveitis



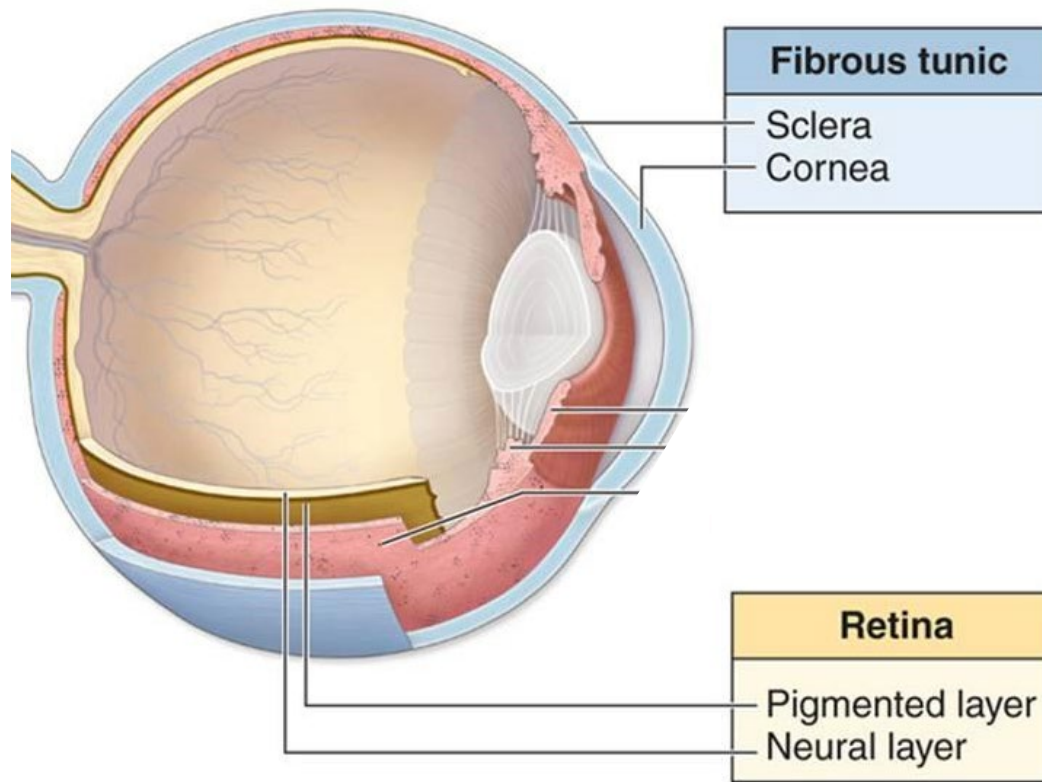
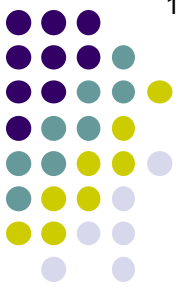
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# Uveitis



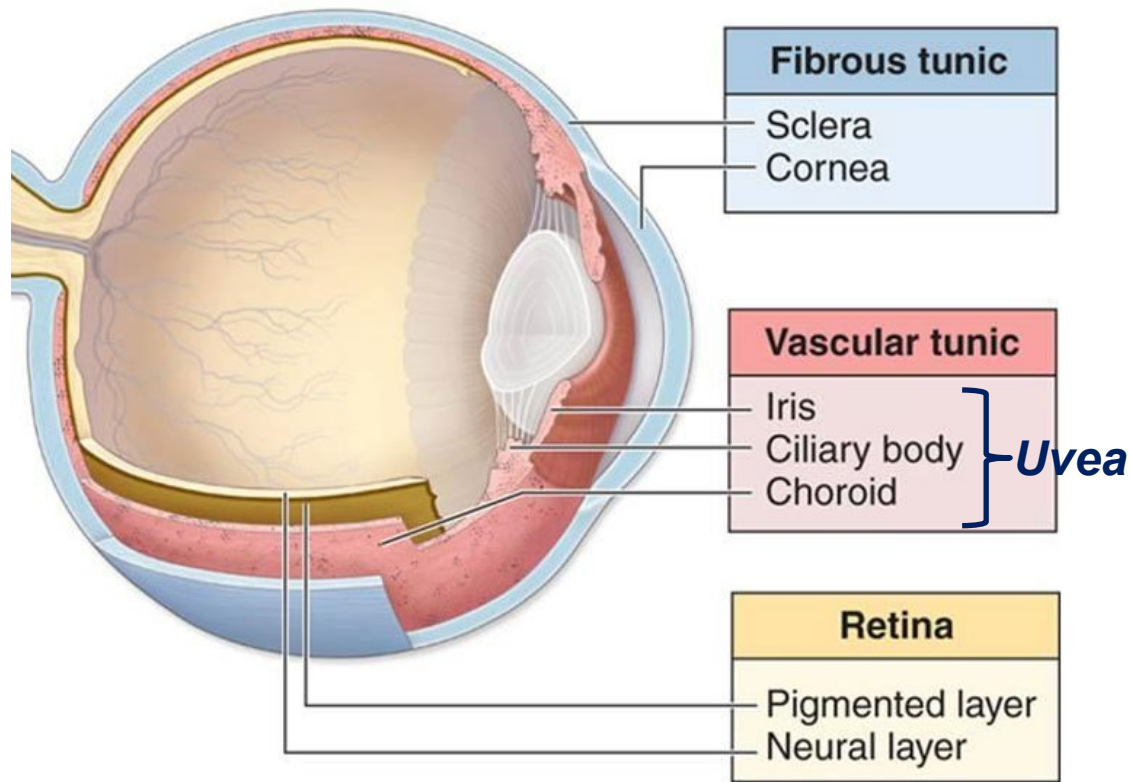
Think of the eye as being composed of three layers or 'tunics.' The sclera and cornea comprise the tough, outer tunic. The [abb.] and [two words] comprise the innermost [ ] tunic.

# Uveitis



*Think of the eye as being composed of three layers or 'tunics.'* The sclera and cornea comprise the tough, outer tunic. The RPE and neurosensory retina comprise the innermost 'retinal' tunic.

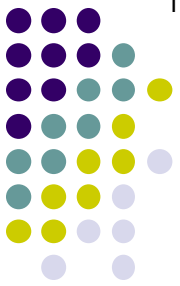
# Uveitis



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




# Uveitis



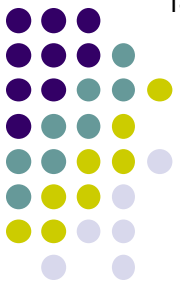
Uveal tissue. Note the deep purple hue

# Uveitis



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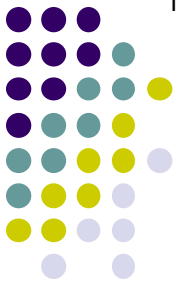


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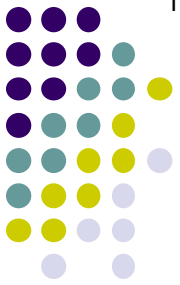
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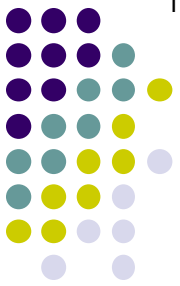
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# Uveitis



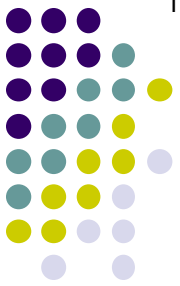
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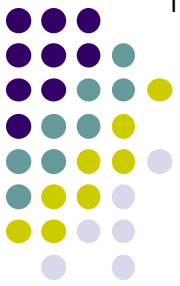
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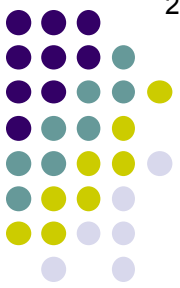
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Because of this, learning how

Other important demographic factors include:

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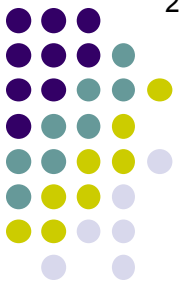
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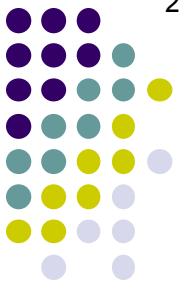
- Geographic history, ie, where they have lived or visited
- Social history (eg, sexual behaviors; dietary habits; IVU)
- Vocational/avocational activities (eg, exposure to farm animals)

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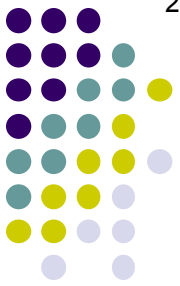
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Because of this, a thorough review of systems and physical exam are absolutely essential in uveitis management. Because nonocular manifestations are so important in identifying the underlying cause of a uveitis, a thorough review of systems and physical exam are absolutely essential in uveitis management.

Identifying a uveitis is not random, rather, they select their victims based on patient demographics. Likewise, the nonocular manifestations of those tend to a systemic condition tend to follow specific patterns as well. Each tends to affect the eye in a characteristic manner.

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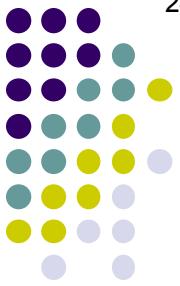
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# Uveitis



Technically speaking, the term *uveitis* refers to inflammation of one or more components of the *uvea*. Three structures comprise the uvea: The choroid, ciliary body, and iris. The etiology of uveitis is by no means complete:

- Constitutional: Fever; night sweats; weight loss
- Neuro: HA; cranial neuropathies; hearing loss; cognitive changes
- ENT: Oral ulcers; sinusitis; ear or nose deformities
- Skin: Rashes; poliosis, madarosis; vitiligo; erythema nodosum
- Pulmonary: SOB/DOE; cough; hemoptysis
- Cardiac: Arrhythmias; pericarditis symptoms
- GI: Diarrhea; ulcers
- GU; Genital lesions; discharge; nephritis symptoms
- Musculoskeletal: Arthralgias; low back pain

management is distinguishing between ocular-only and systemic cases, as the two require different approaches.

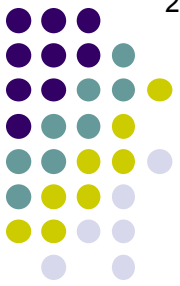
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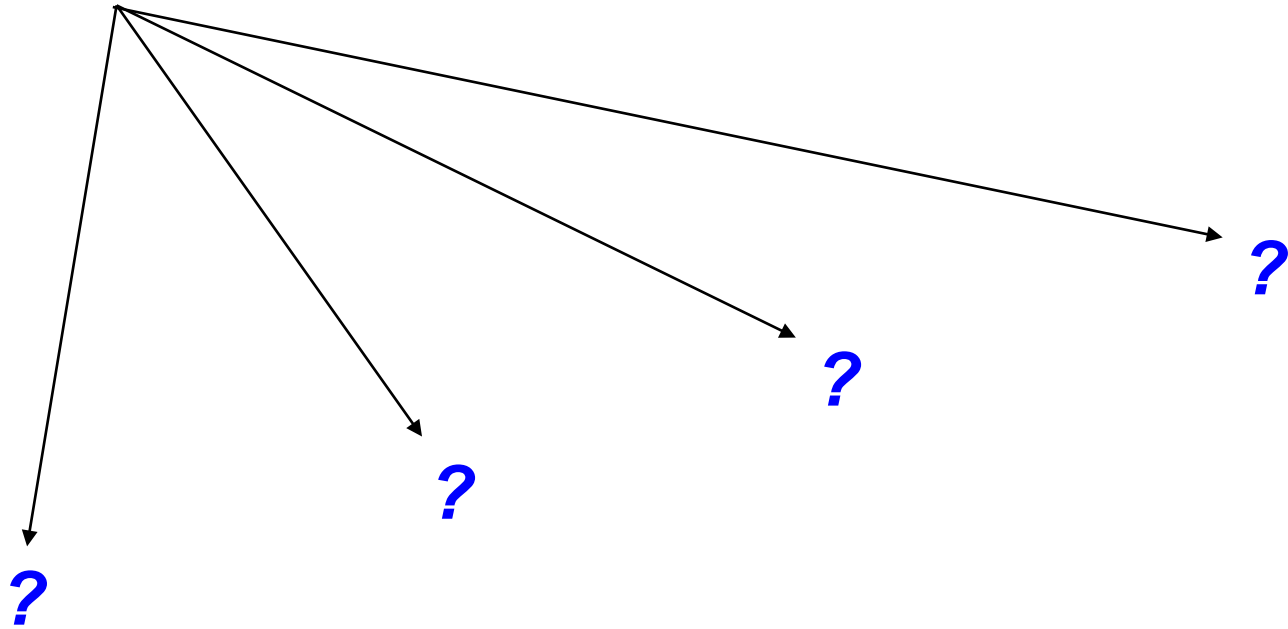
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***Let's drill down on the different ways uveitis manifests within the eye. One very important manifestation issue is location, ie, the portion or segment of the eye that's involved.***

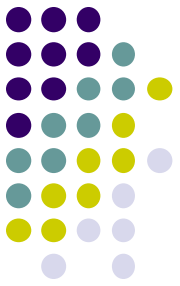
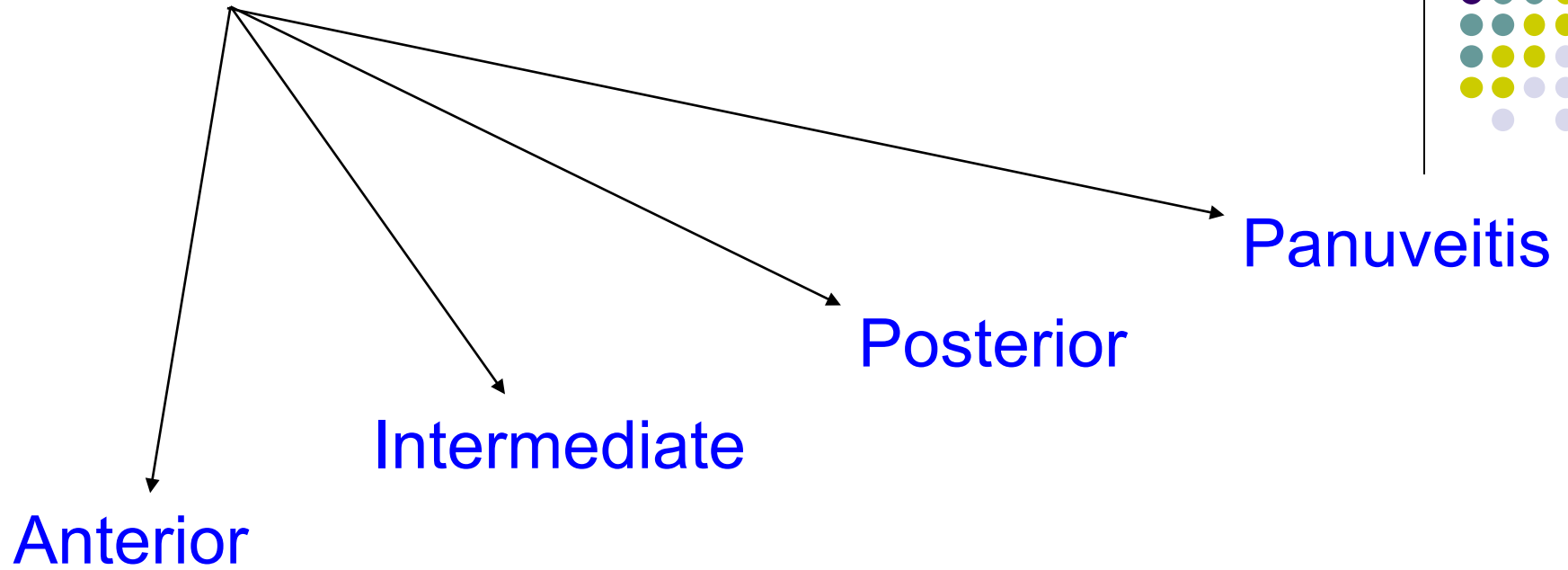
pt demographics. Likewise, the nonocular manifestations of those who do have a systemic condition tend to follow specific patterns as well. Each tends to affect the eye in a characteristic manner.

# Uveitis



*What are the four basic anatomic locations for uveitis?*

# Uveitis



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# Uveitis

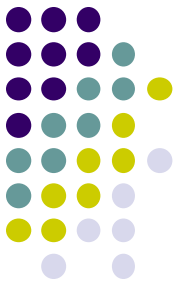
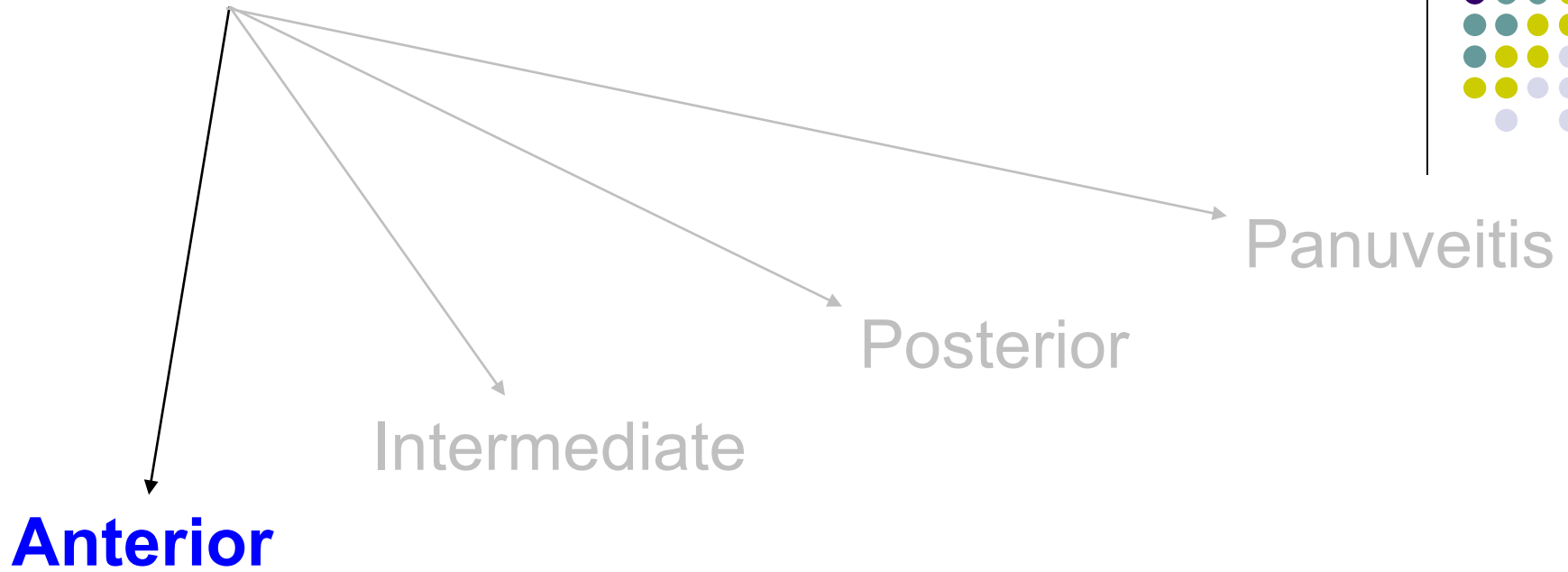


In **anterior uveitis**, the primary location of inflammation is the  and/or

two words

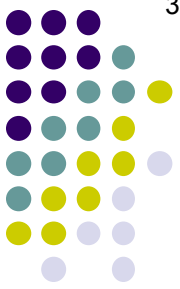
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# Uveitis



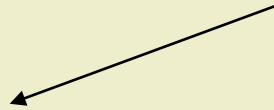
In **anterior uveitis**, the primary location of inflammation is the anterior chamber and/or anterior vitreous

# Uveitis



## Anterior uveitis

*If cell is located...*



Exclusively  
in the AC



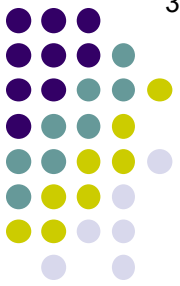
*It is called:*



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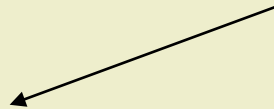
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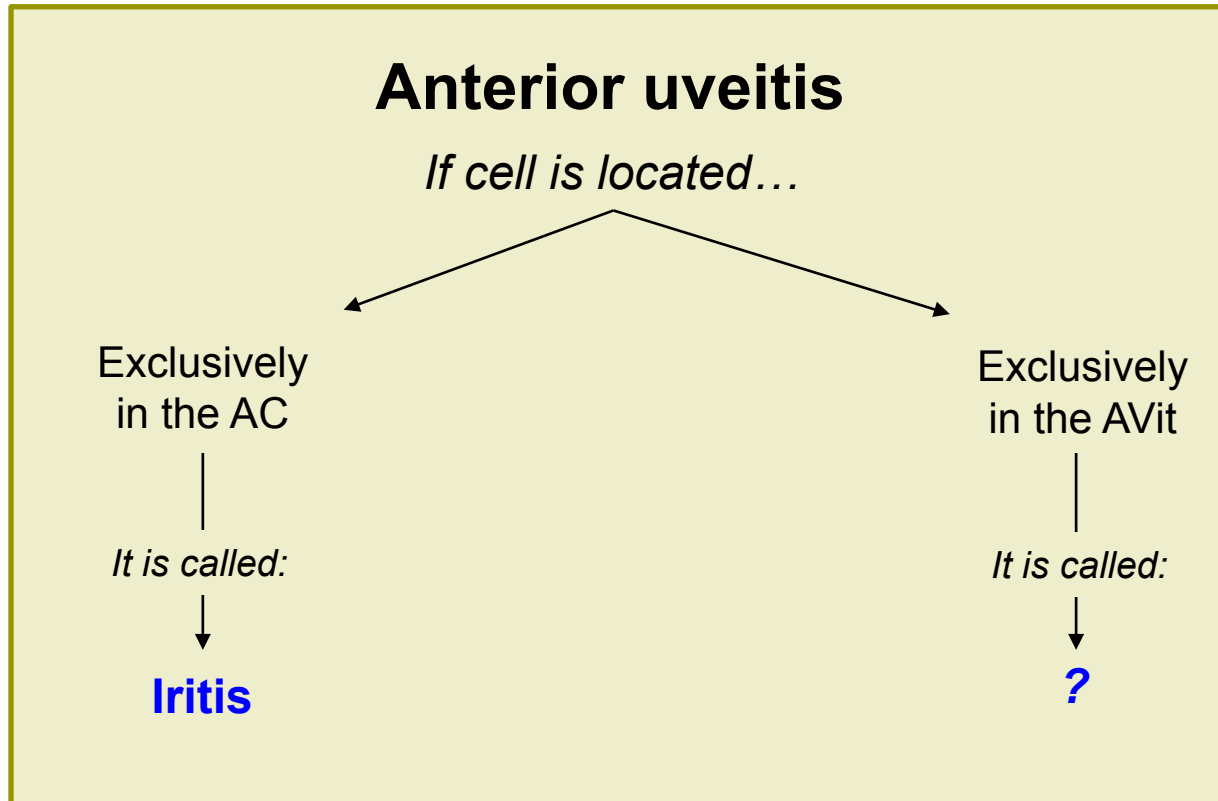
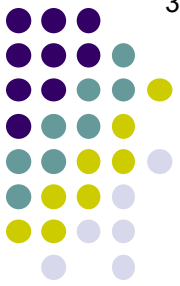
*It is called:*



**Iritis**

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

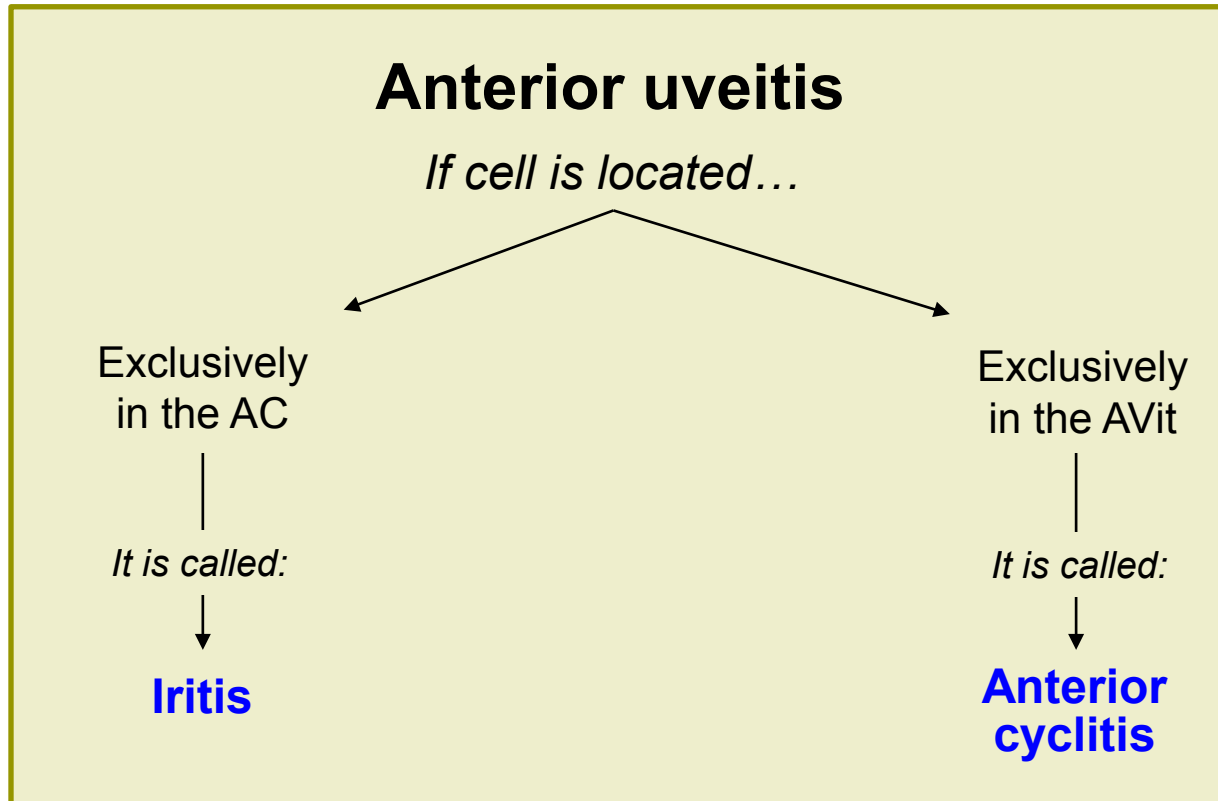
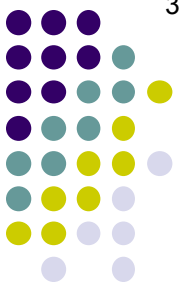
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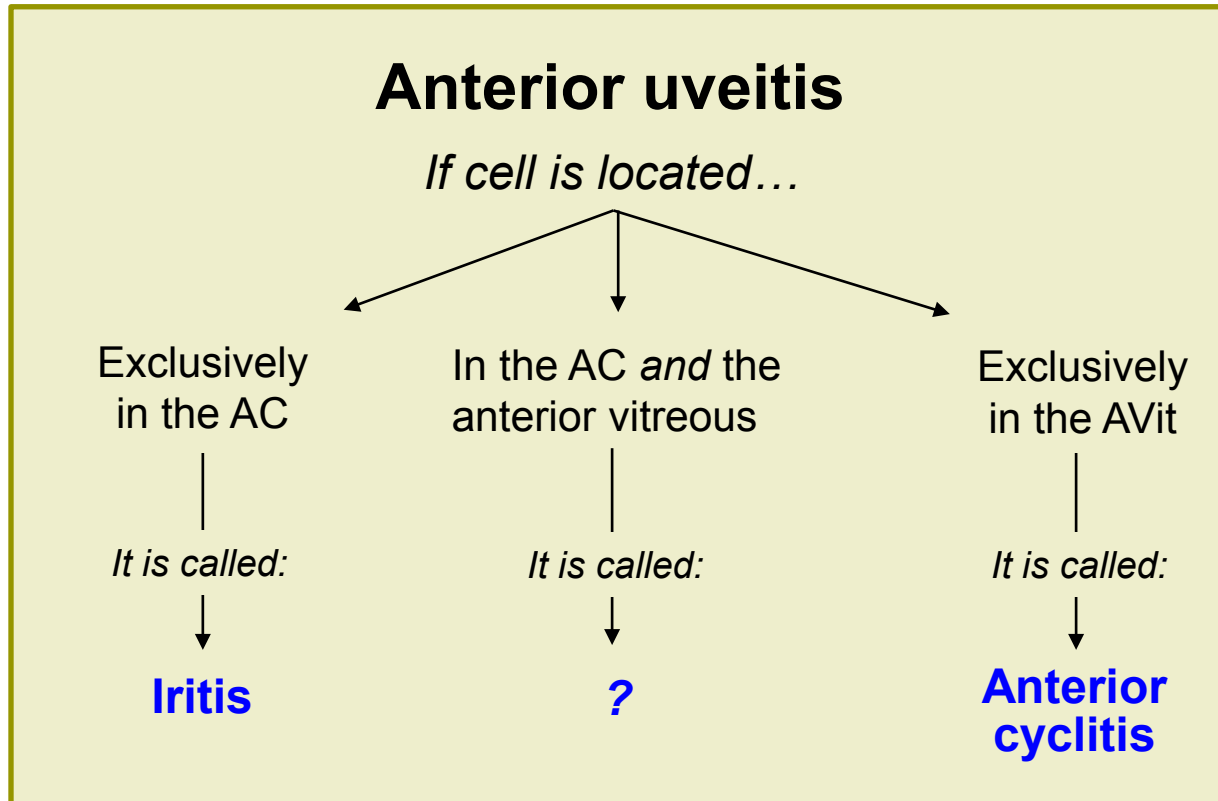
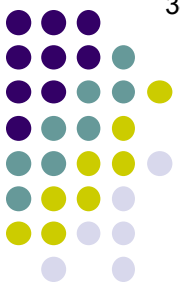


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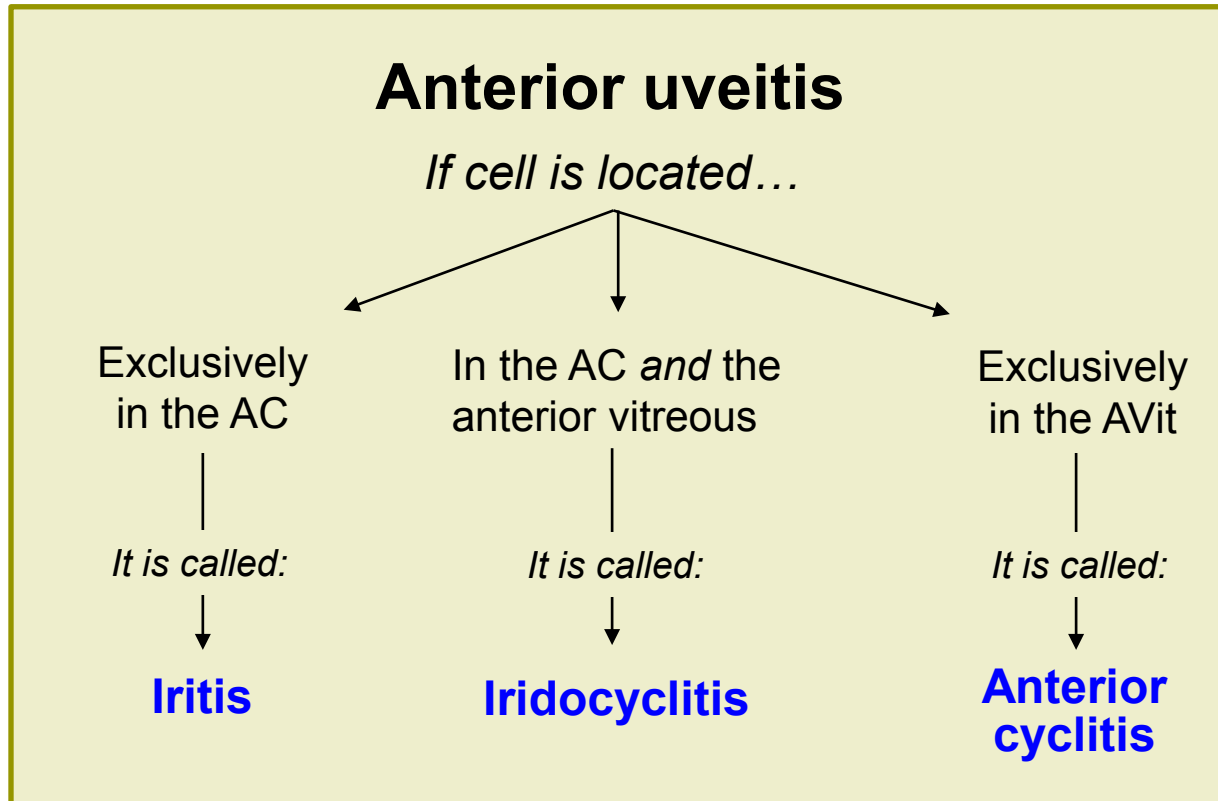
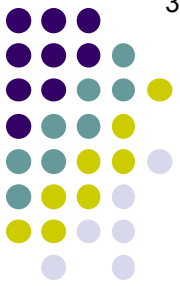
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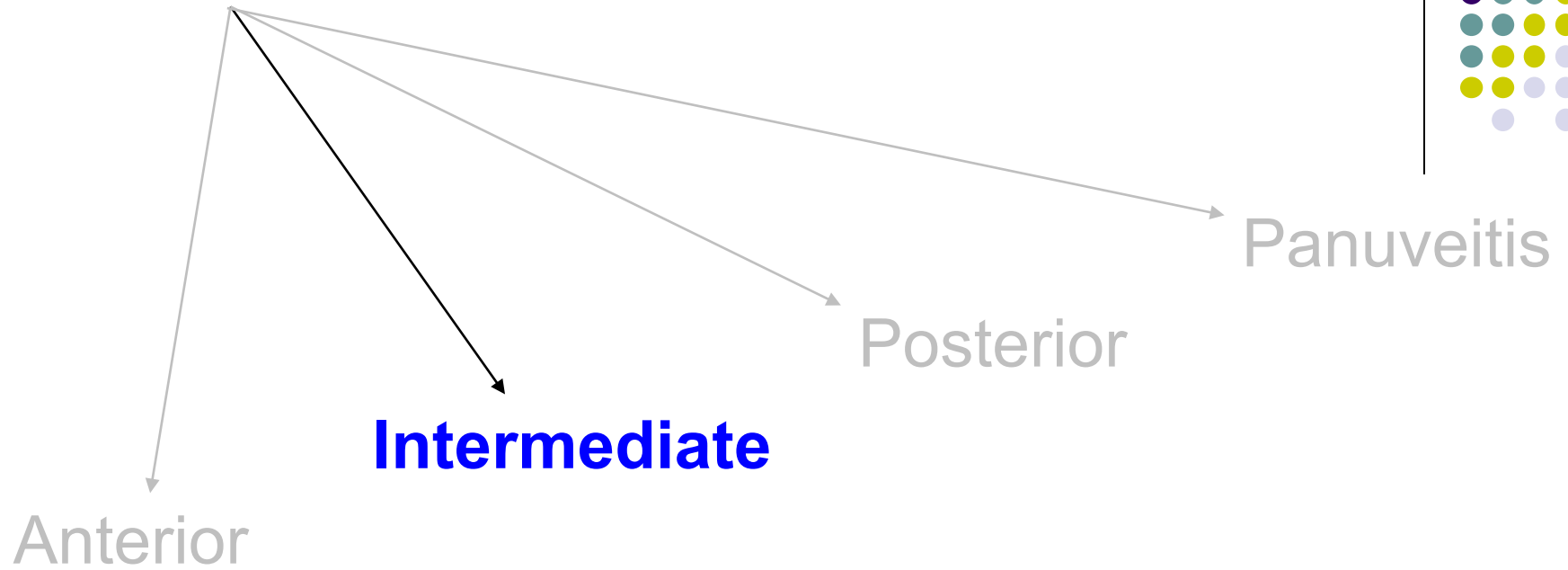
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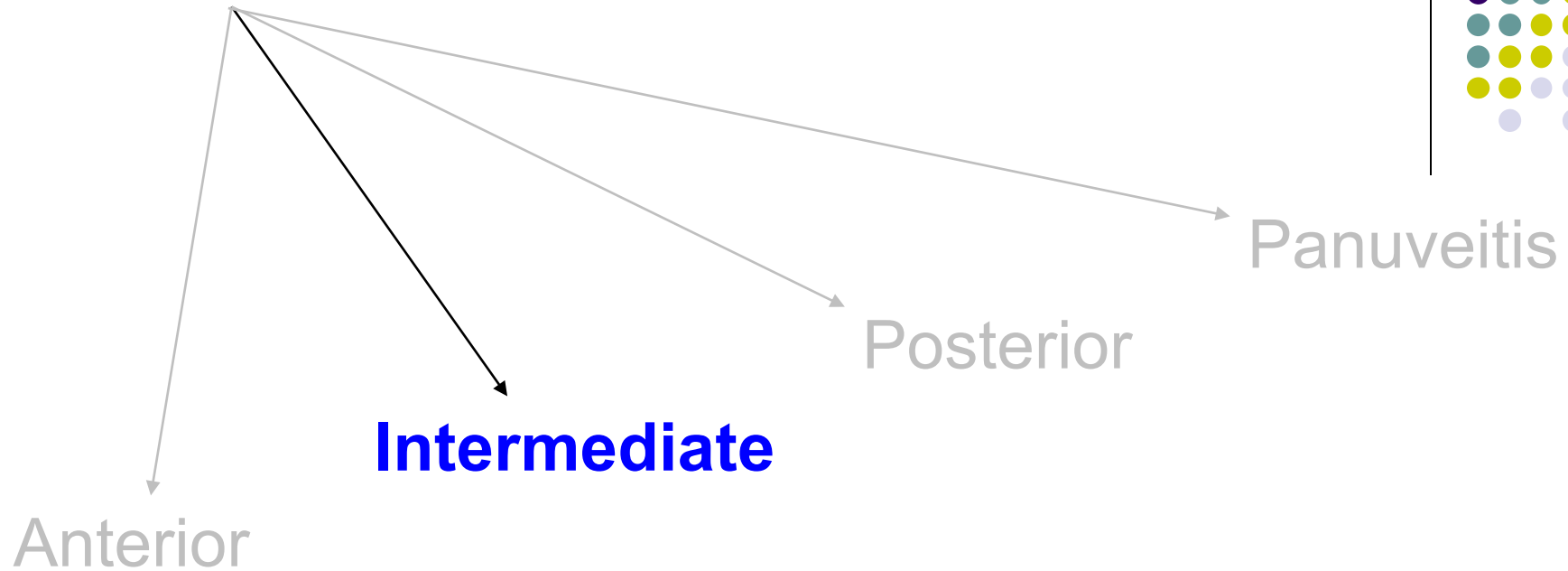
In **anterior uveitis**, the primary location of inflammation is the anterior chamber and/or anterior vitreous

# Uveitis



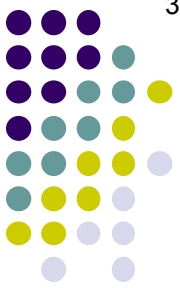
In **intermediate uveitis**, the primary location of inflammation is the three words +/- the two words

# Uveitis



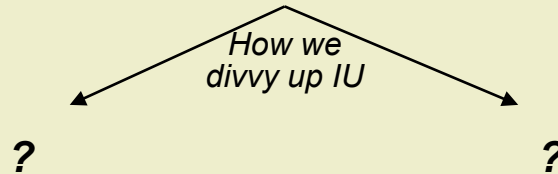
**In intermediate uveitis, the primary location of inflammation is the main vitreous cavity , +/- the peripheral retina**

# Uveitis



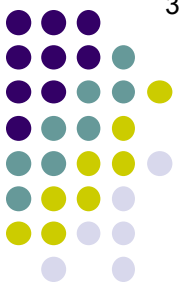
## Intermediate uveitis

*If condition is...*



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

# Uveitis



## Intermediate uveitis

*If condition is...*

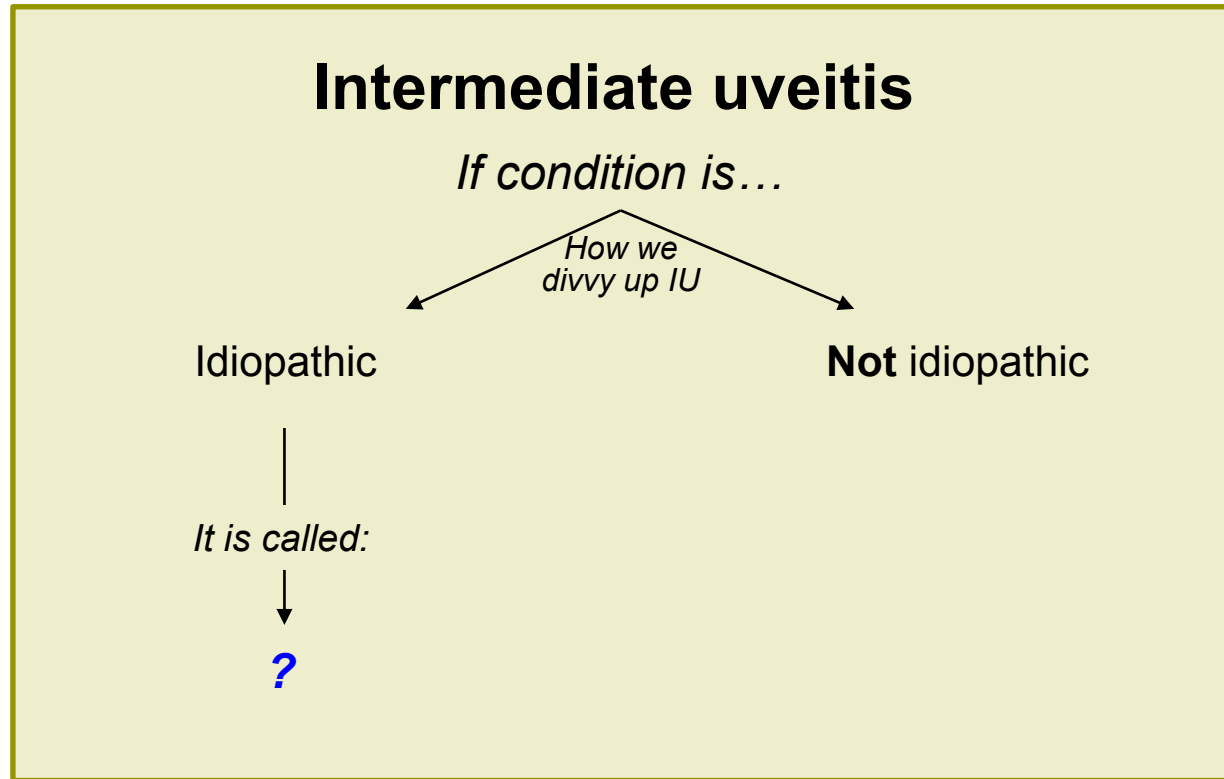
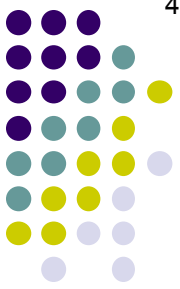
*How we  
divvy up IU*

Idiopathic

**Not** idiopathic

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

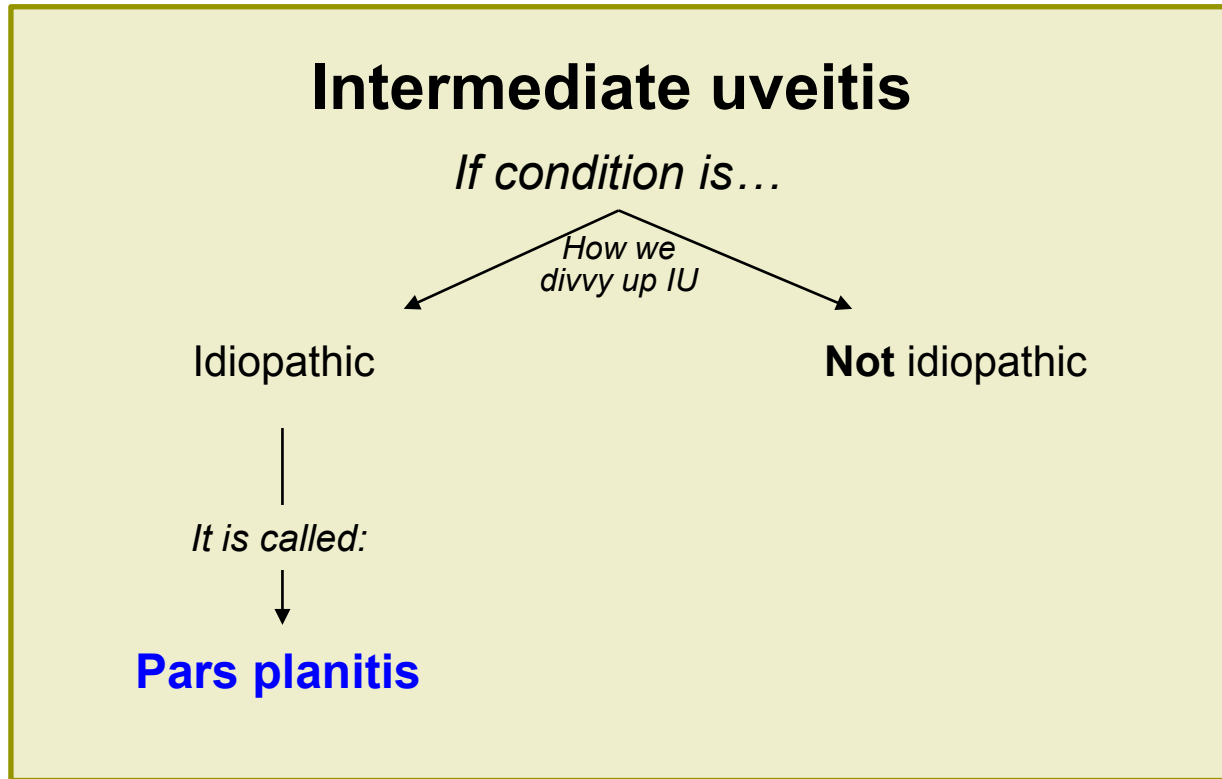
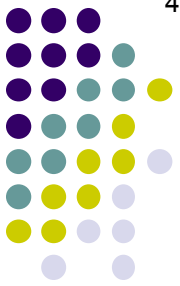
# Uveitis



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

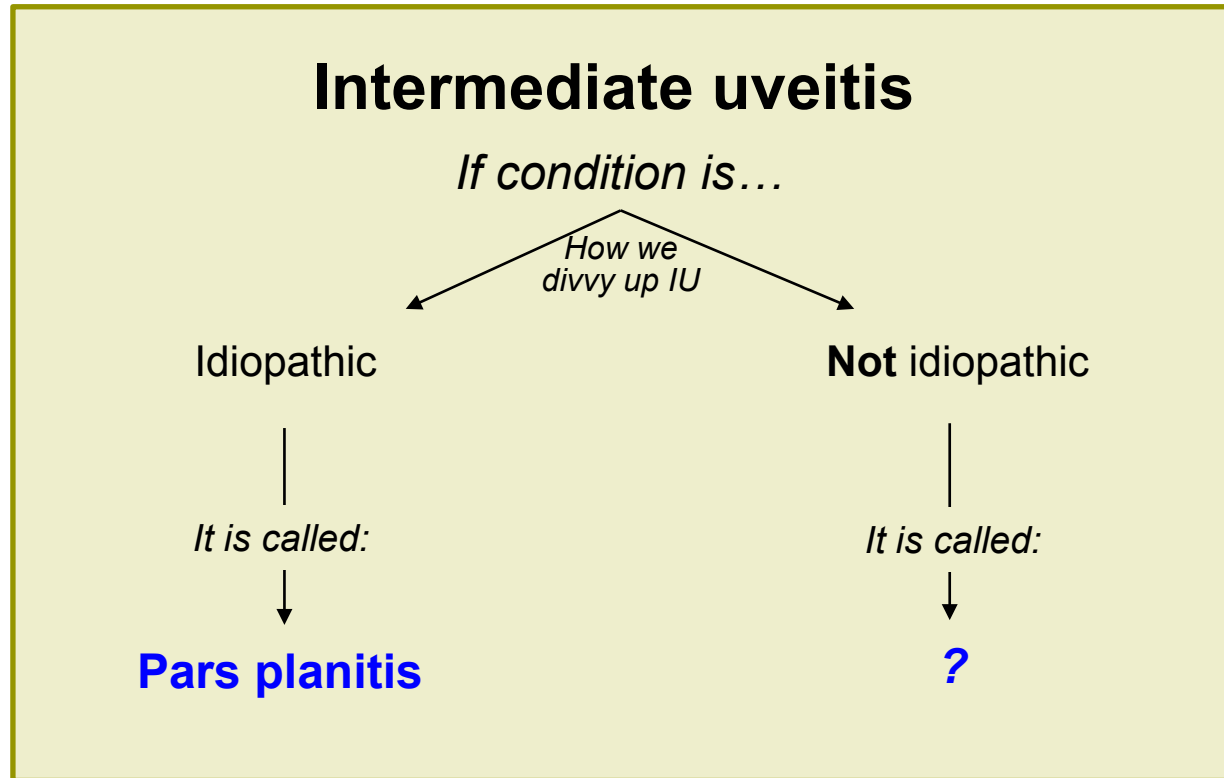
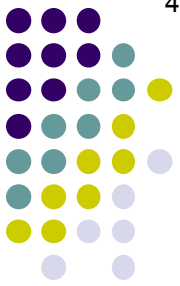


# Uveitis



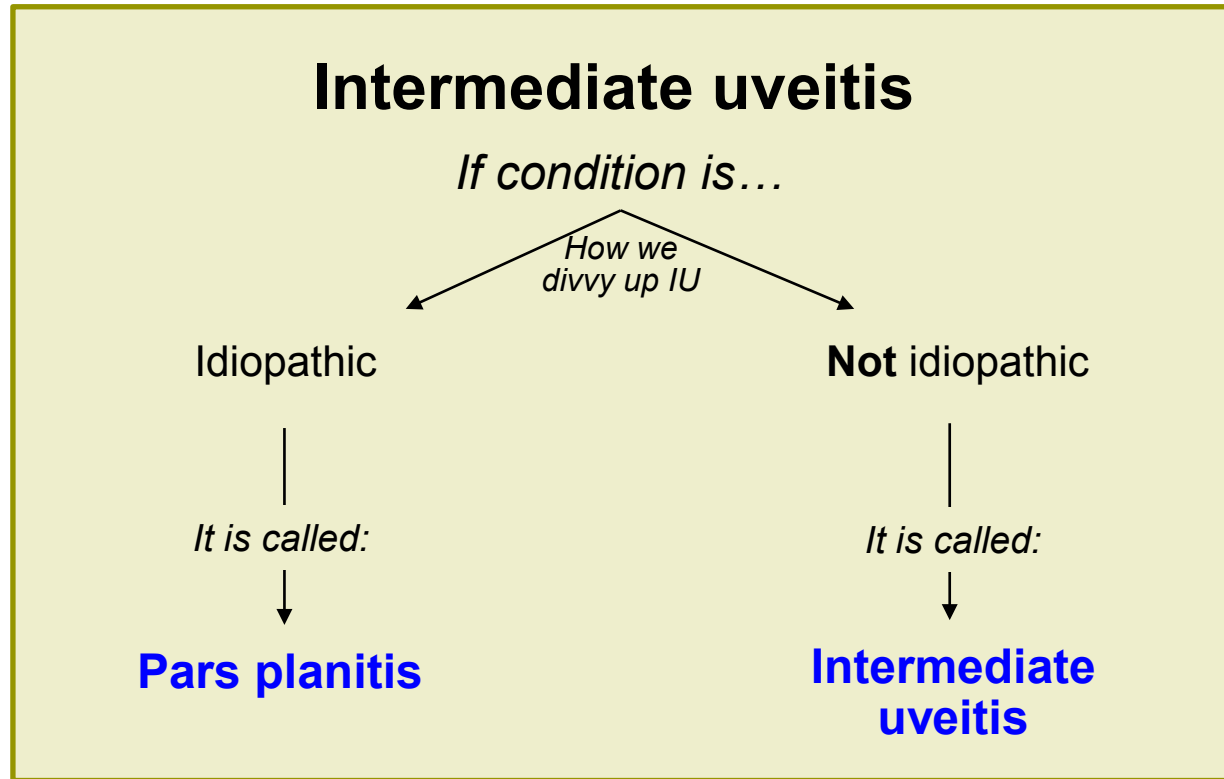
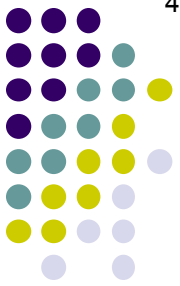
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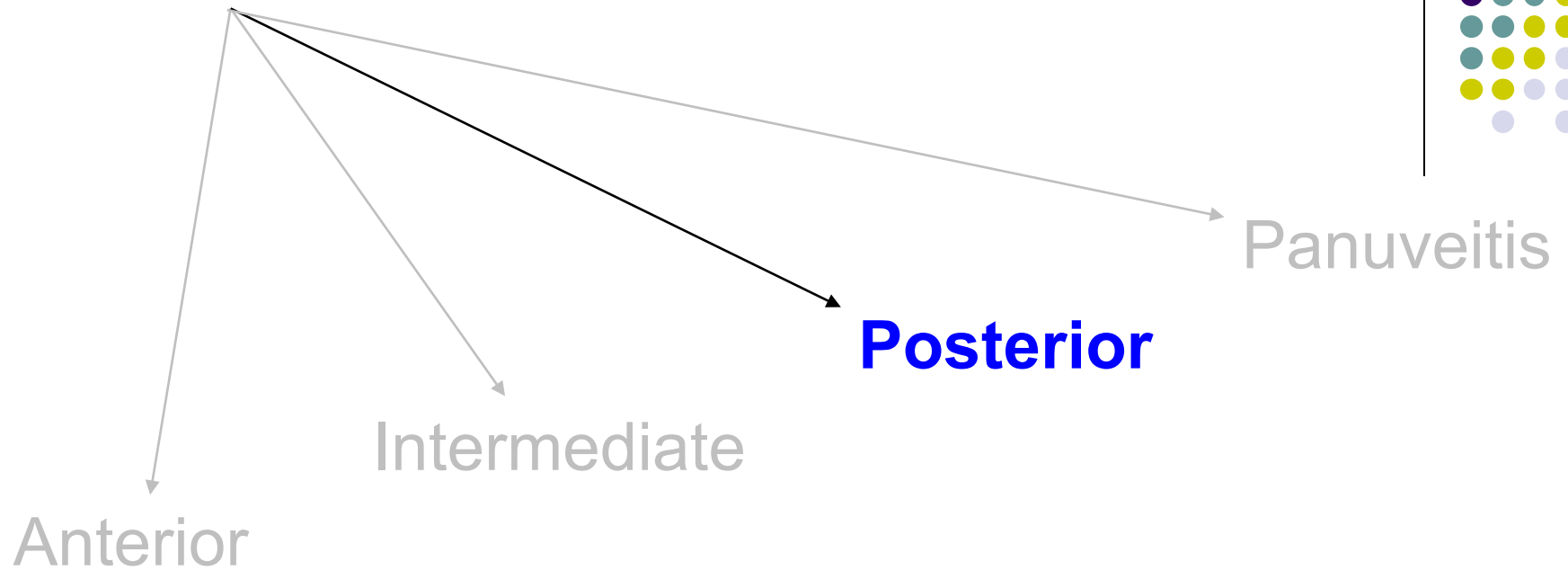
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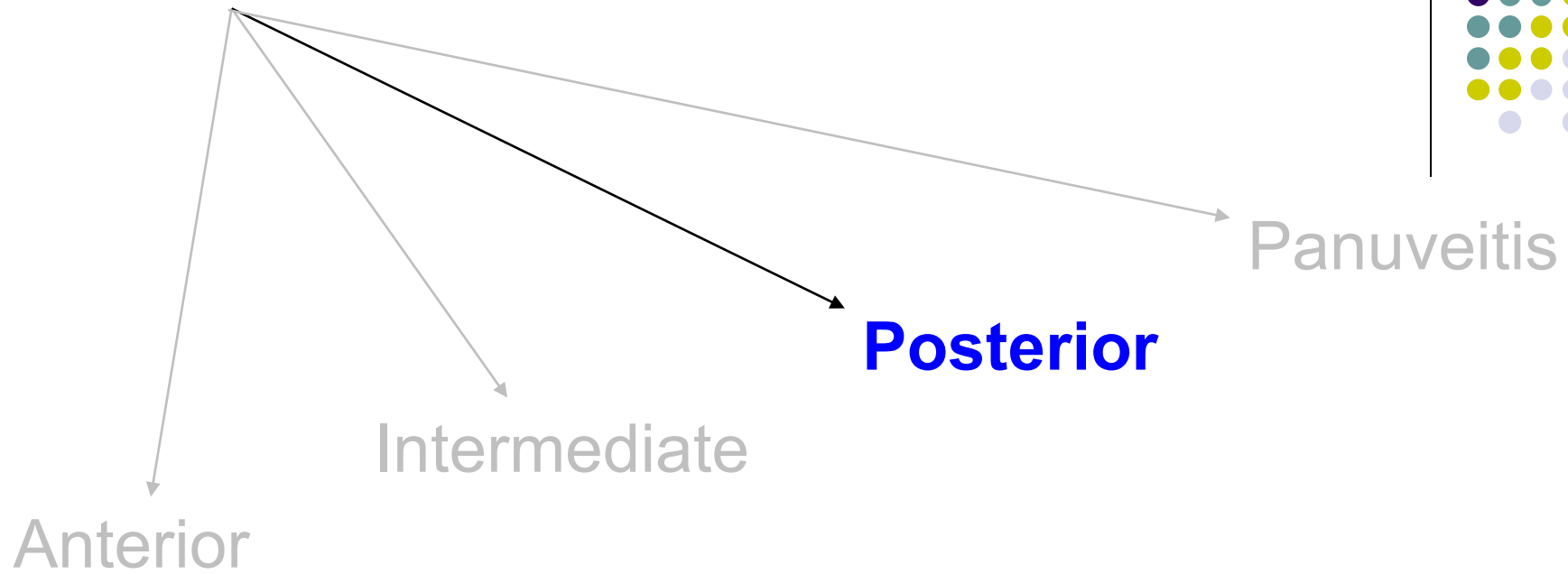
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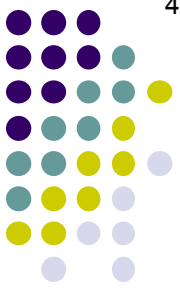
In **posterior uveitis**, the site of inflammation is the [ ]  
and/or [ ] (the [three words] can be involved too)

# Uveitis



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

# Uveitis



## Posterior uveitis

*If inflammation is located...*

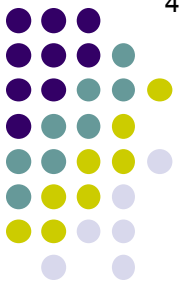
Exclusively in  
the choroid

*It is called:*

?

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

# Uveitis



## Posterior uveitis

*If inflammation is located...*

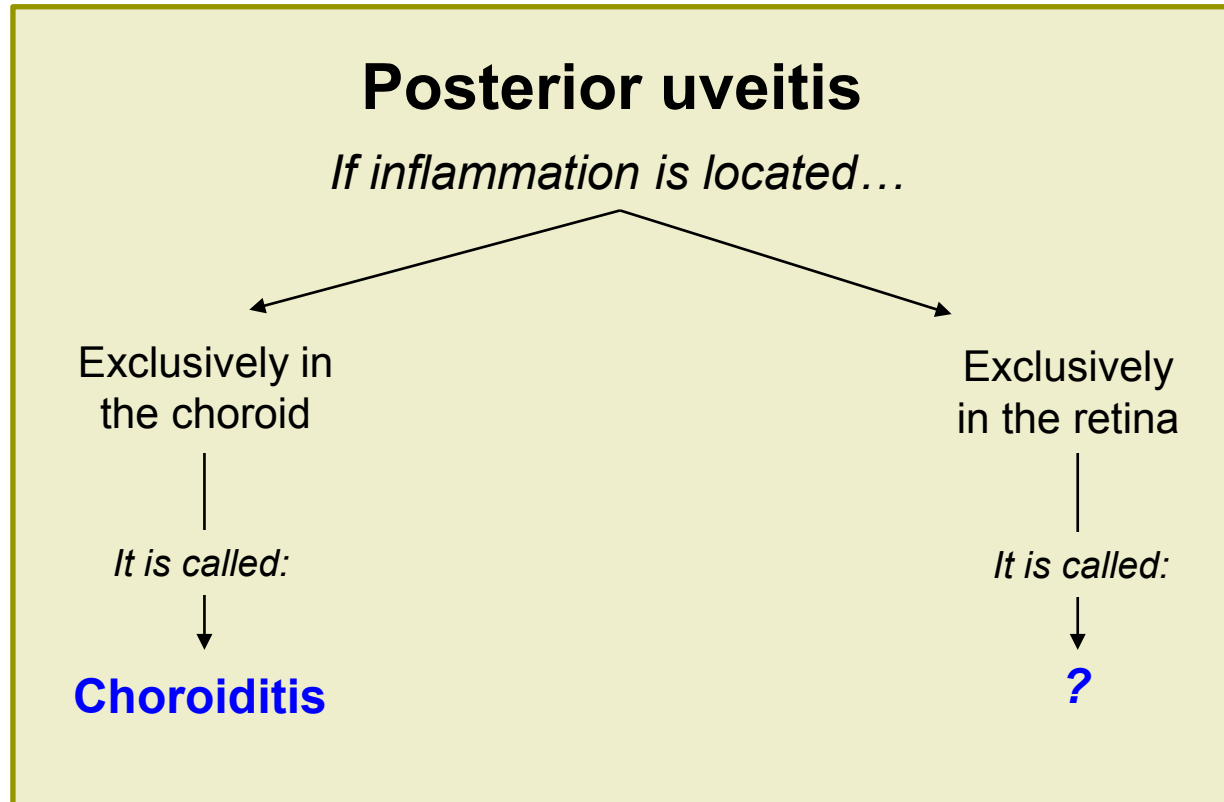
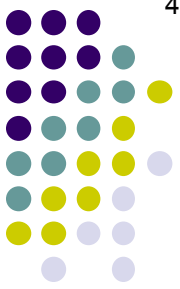
Exclusively in  
the choroid

*It is called:*

**Choroiditis**

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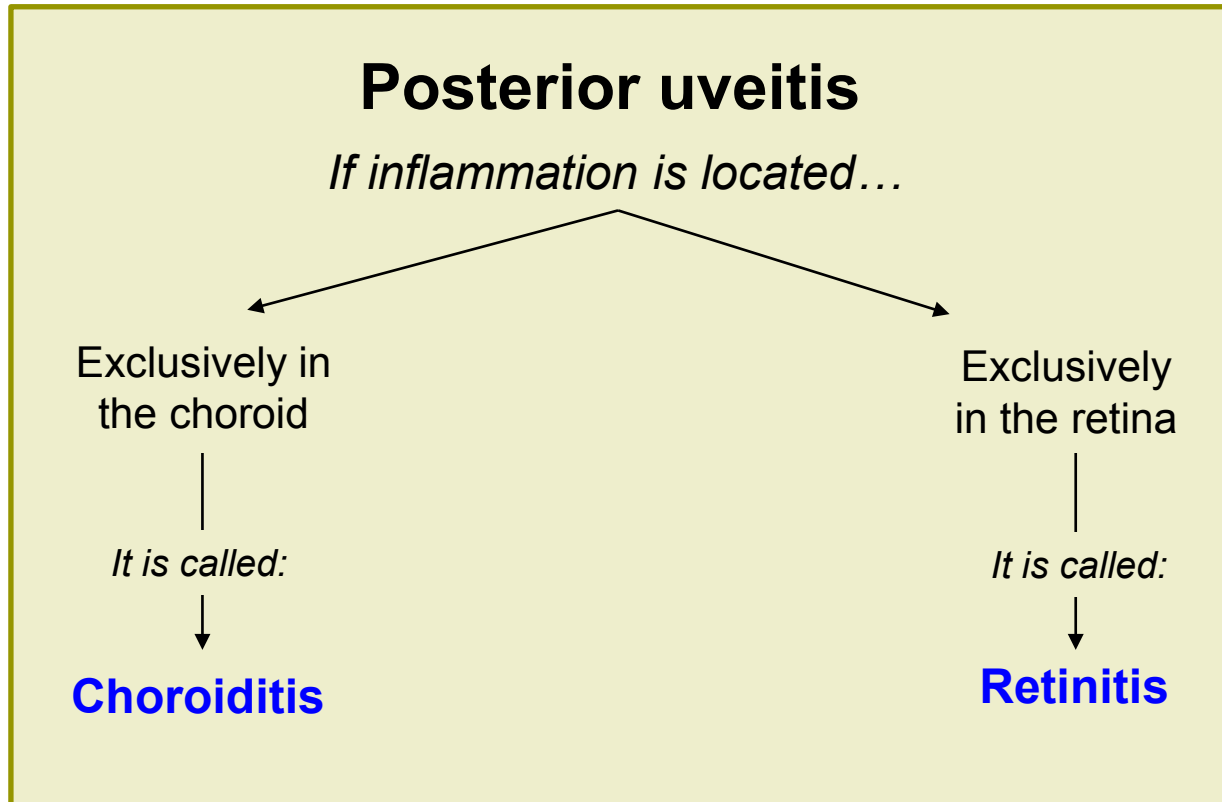
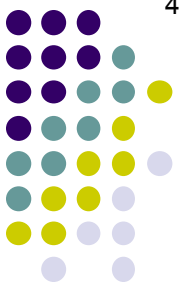
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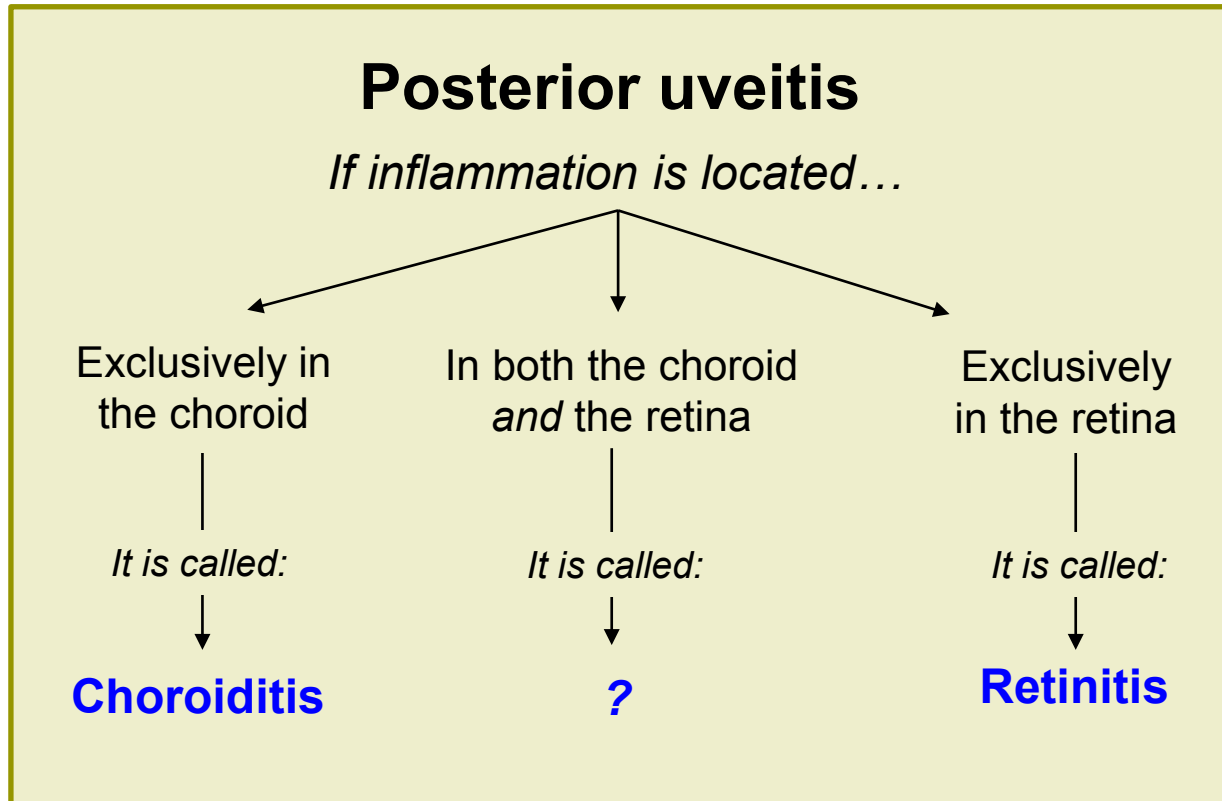
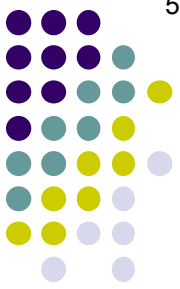


# Uveitis



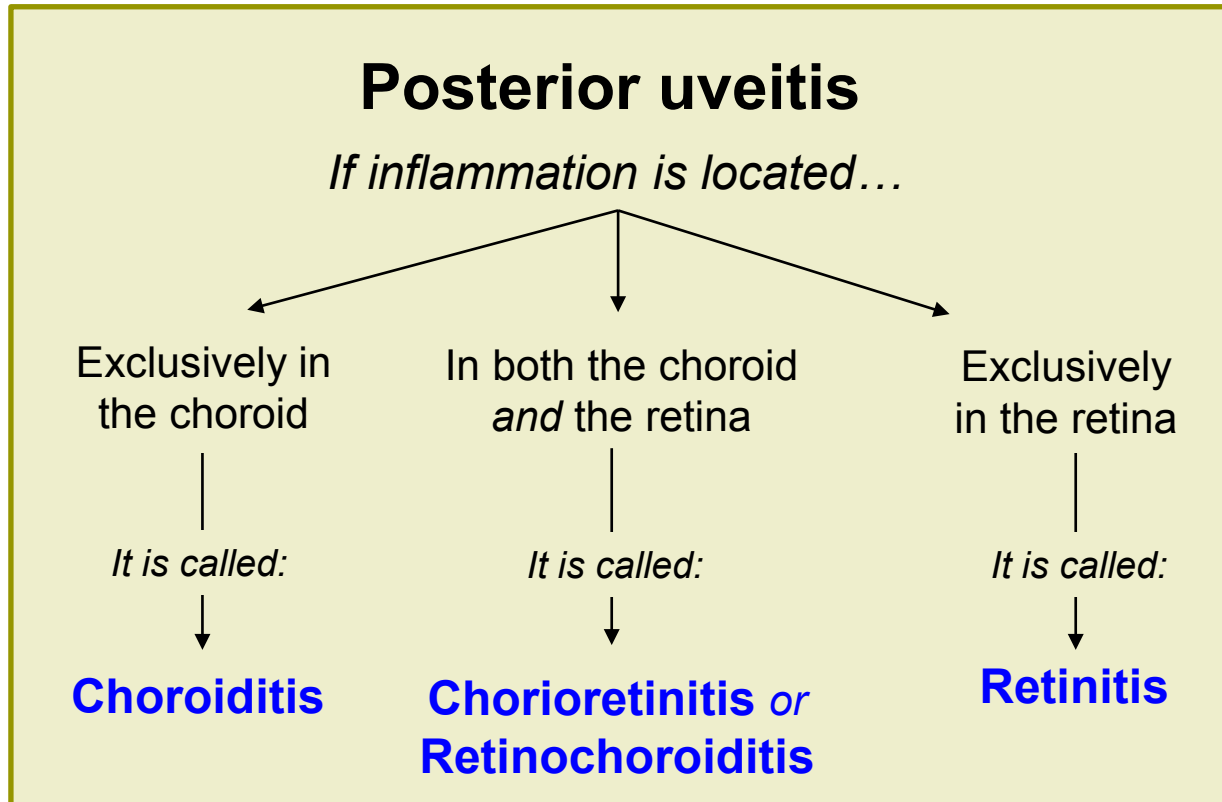
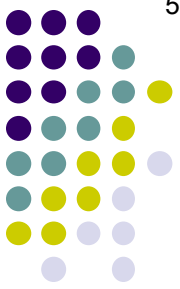
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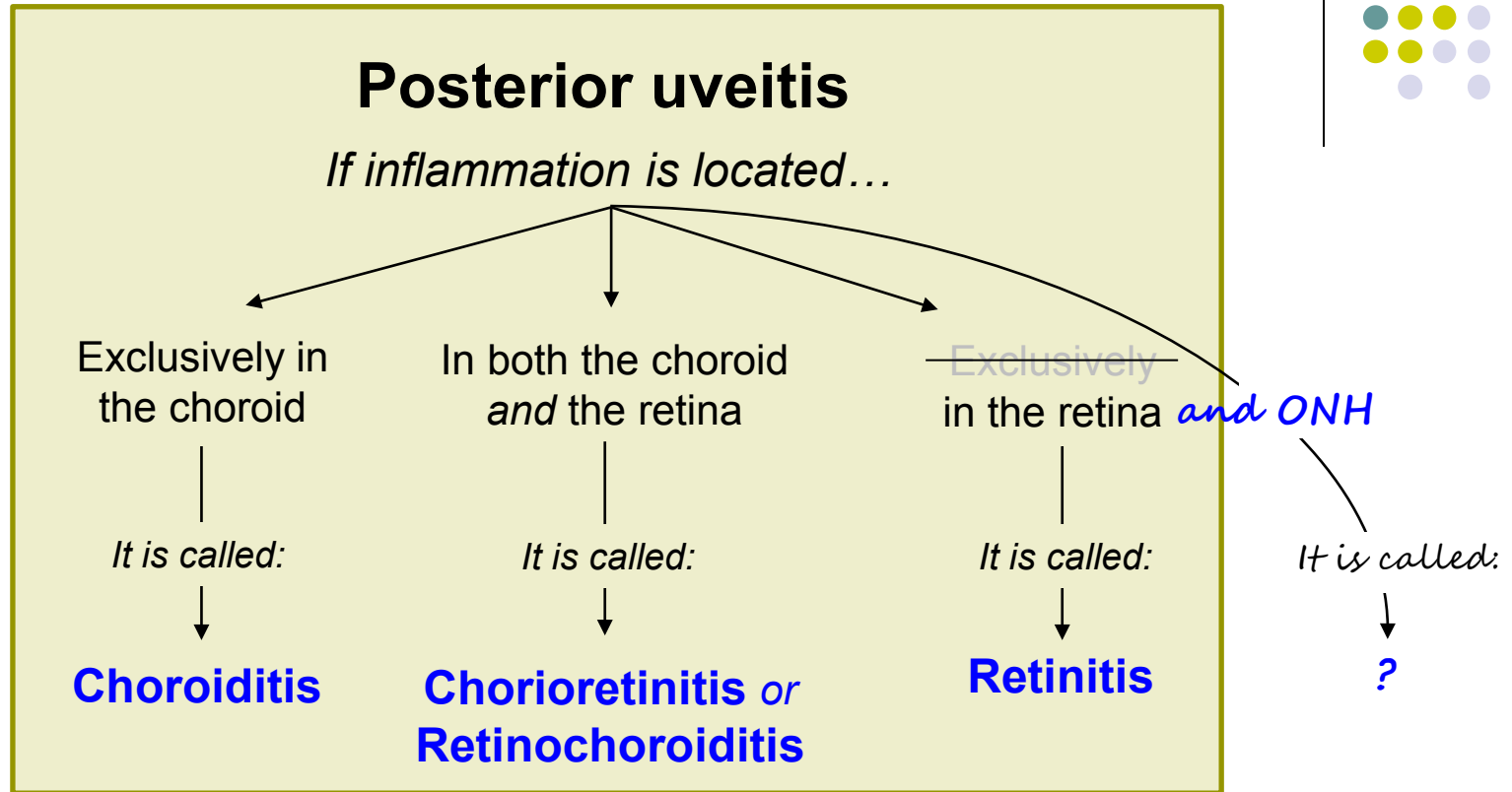
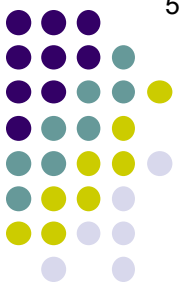
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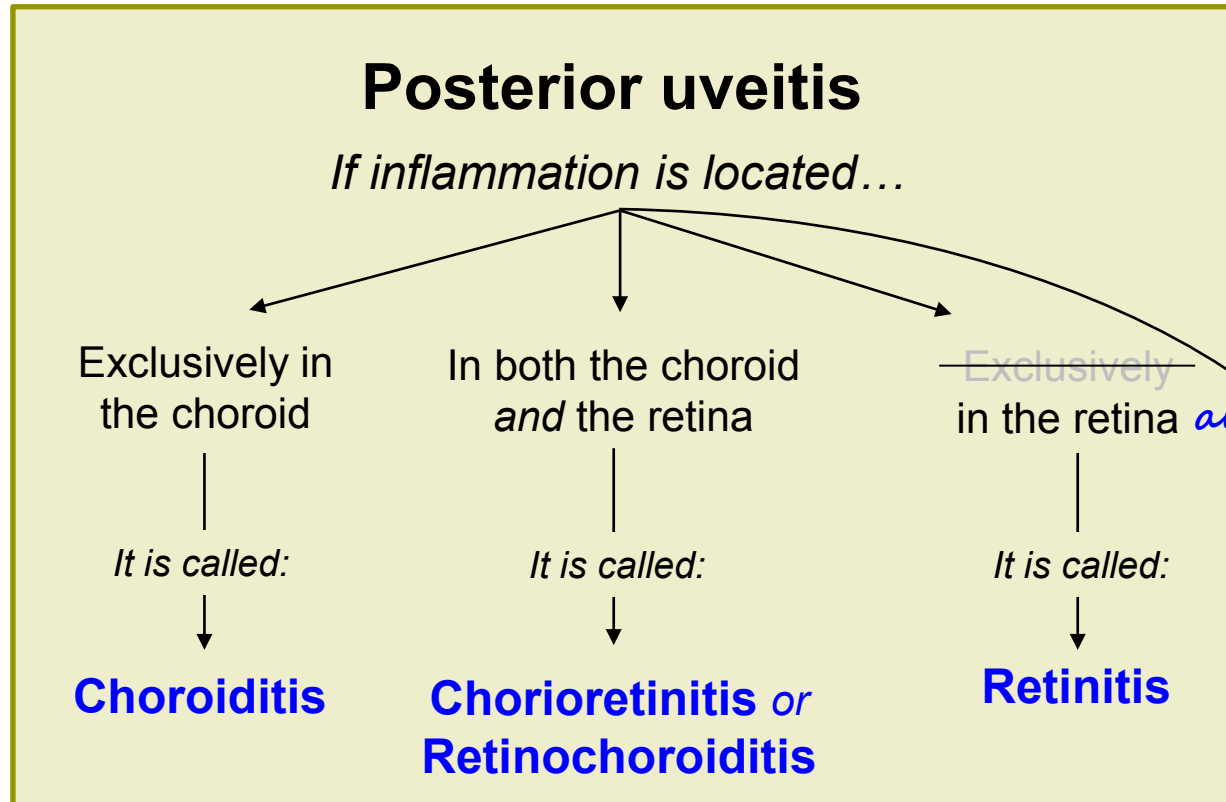
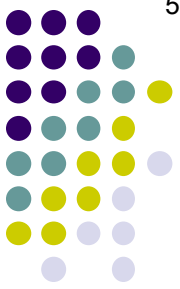
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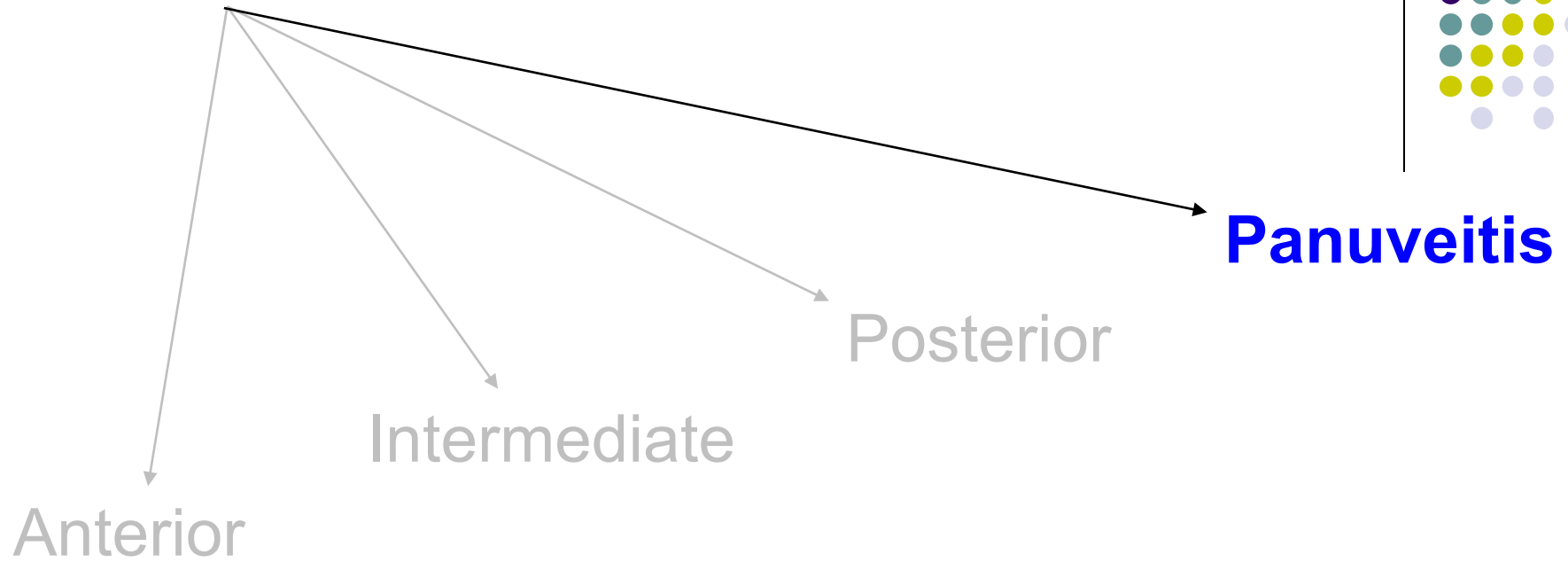
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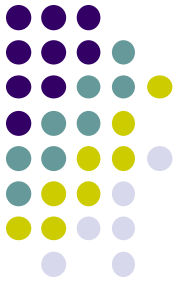
# Uveitis



*In panuveitis, all three locations are equally involved*

# Uveitis

Many experts endorse a *profiling and meshing* approach to diagnosing uveitis.



# Uveitis

1) The uveitis is profiled

Many experts endorse a *profiling and meshing* approach to diagnosing uveitis.

*Profiling* refers to identifying germane aspects of the pt's personal history (age, ethnicity, occupation, etc); nonocular signs and symptoms associated with the uveitis (eg, skin findings; CNS involvement); and key features of the inflammation itself (ie, location, duration, etc).





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- 2) The profiled case is meshed



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'**VKH** affects adults of ME descent, produces a bilateral granulomatous panuveitis, and is associated with CNS manifestations, especially tinnitus'

(VKH = *Vogt-Koyanagi-Harada dz.* You'll come to know it well.)

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# Uveitis

- 1) The uveitis is profiled
- 2) The profiled case is meshed
- 3) A differential diagnosis list is generated
- 4) Studies are obtained to identify the etiology



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

# Uveitis

- 1) The uveitis is profiled
- 2) The profiled case is meshed
- 3) A differential diagnosis list is generated
- 4) Studies are obtained to identify the etiology
- 5) Treatment appropriate for the etiology is initiated



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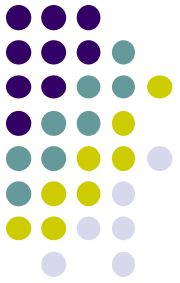
# Uveitis



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



# Uveitis



Anterior uveitis is by far the most common form encountered clinically. The classic symptoms are  and , along with some degree of

two words

# Uveitis



Anterior uveitis is by far the most common form encountered clinically. The classic symptoms are **pain** and **photophobia** , along with some degree of **reduced vision** .

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# Uveitis



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*What is meant by the term ciliary flush?*

# Uveitis



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*What is meant by the term ciliary flush?*

It refers to dilated deep conjunctival and episcleral vessels adjacent and circumferential to the corneal limbus

# Uveitis



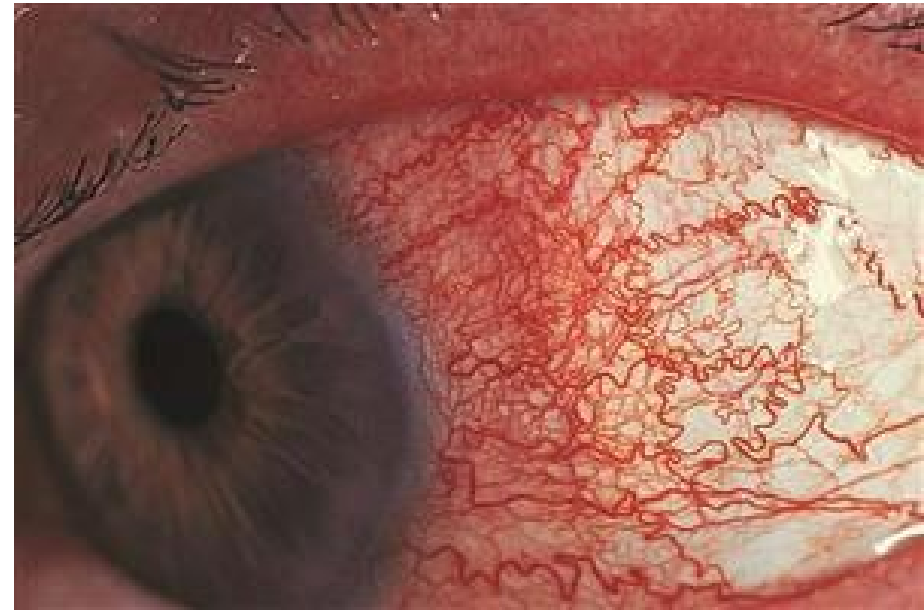
Injection in conjunctivitis

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

# Uveitis



Injection in conjunctivitis



Injection in anterior uveitis, aka *ciliary flush*

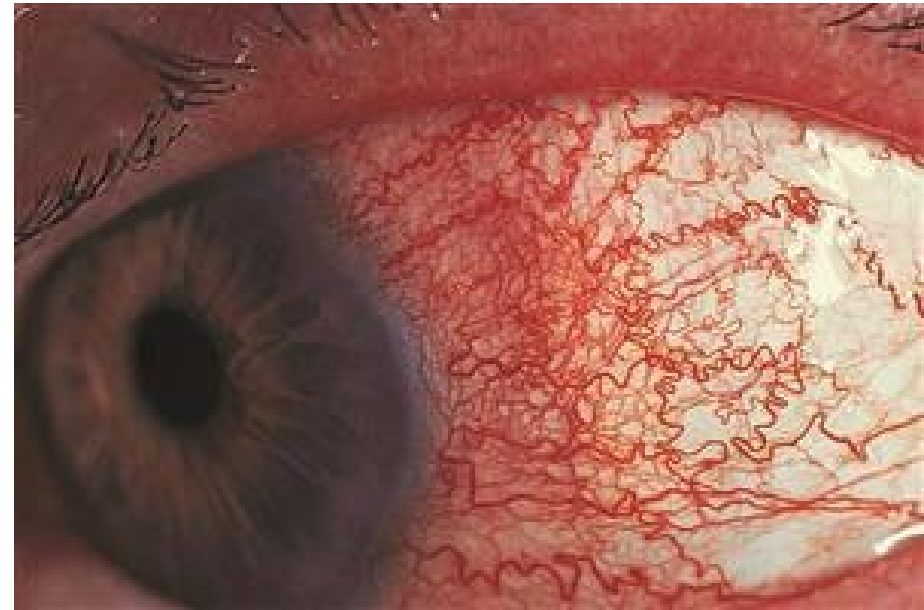
In surface disorders (eg, conjunctivitis), redness is either distributed uniformly across the eye, or it tapers off near the limbus. **In contrast, redness associated with anterior uveitis is usually most intense at and just behind the limbus, and may taper away from it.**



# Uveitis



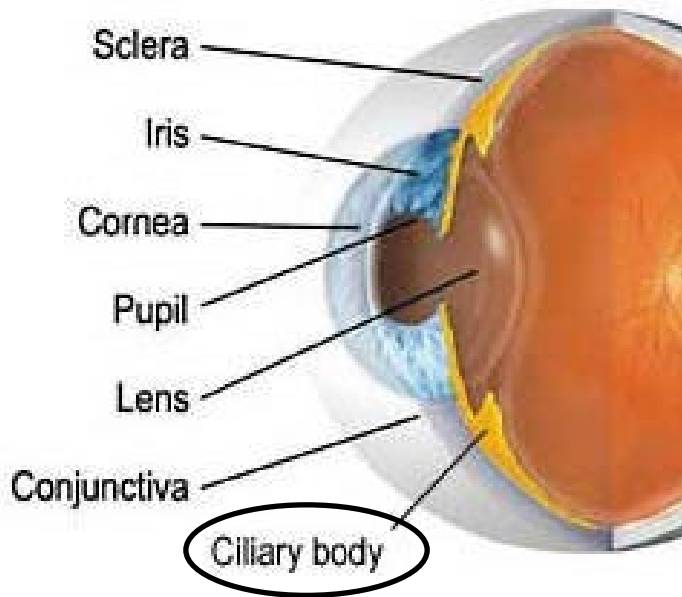
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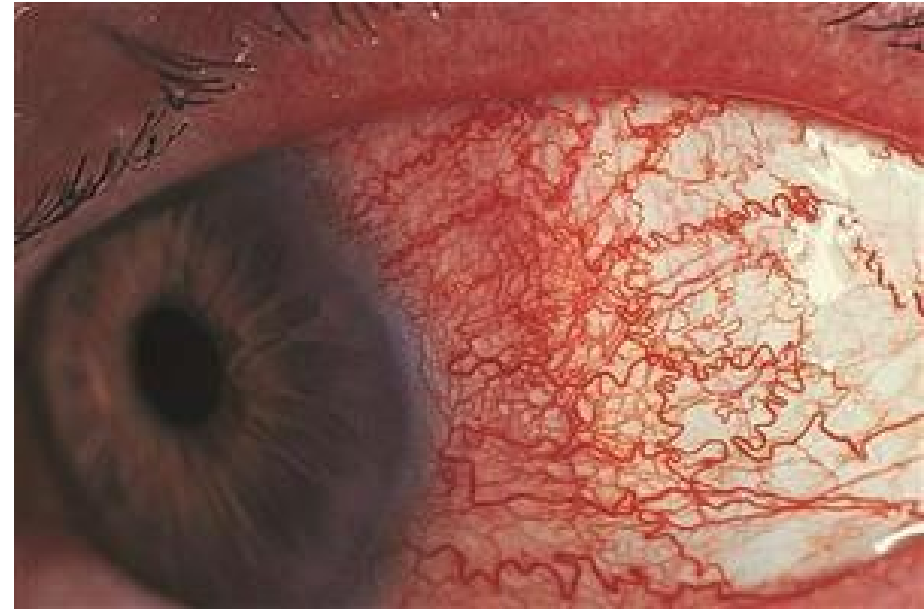
Injection in anterior uveitis, aka *ciliary flush*

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

# Uveitis



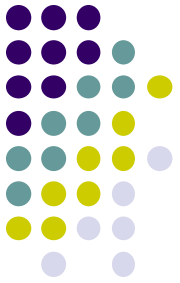
Ciliary body just deep to the limbal region



Injection in anterior uveitis, aka *ciliary flush*

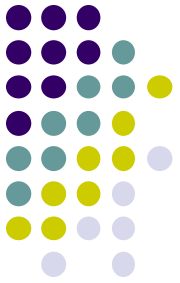
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# Uveitis



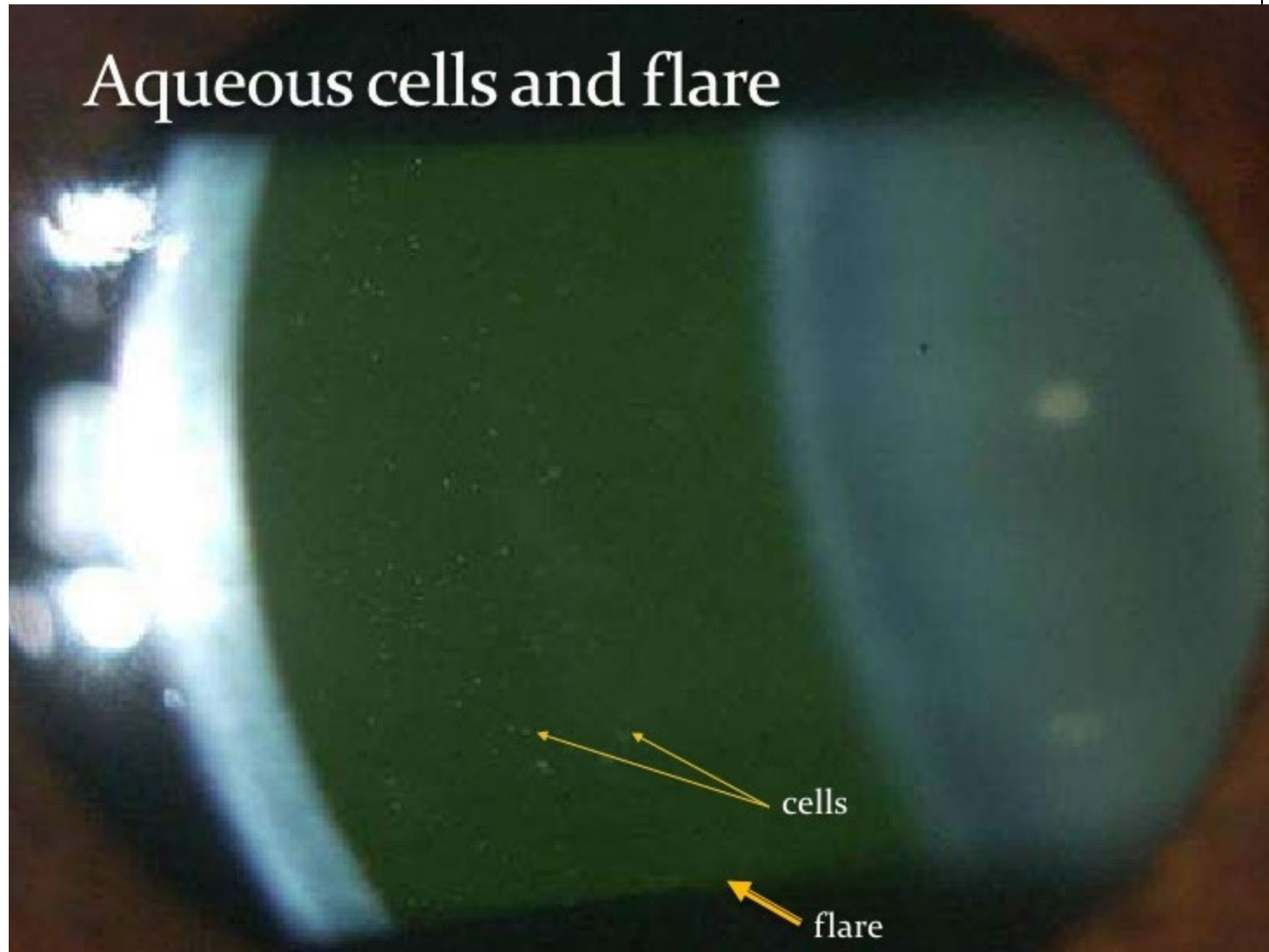
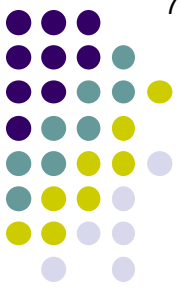
Anterior uveitis is by far the most common form encountered clinically. The classic symptoms are **pain** and **photophobia**, along with some degree of **reduced vision**. Patients will also complain of **surface injection** (which presents often in a so-called ciliary flush pattern). At the slit lamp,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

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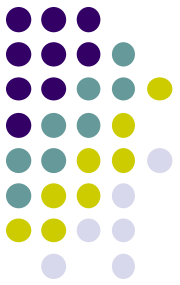
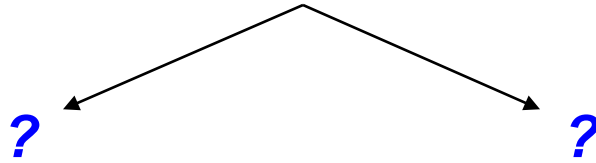
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# Uveitis

## *Anterior Uveitis*



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The *Uveitis* book employs an organizational tree on which it hangs the common causes of anterior uveitis. The first branch point in this tree is whether the inflammation is word or non-word.

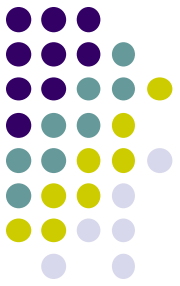


# Uveitis

## *Anterior Uveitis*

Granulomatous

Nongranulomatous



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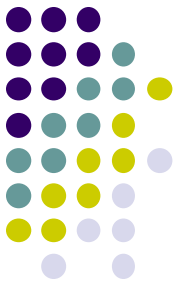
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# Uveitis

## *Anterior Uveitis*

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Nongranulomatous



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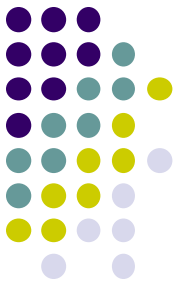
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# Uveitis

## *Anterior Uveitis*

Granulomatous

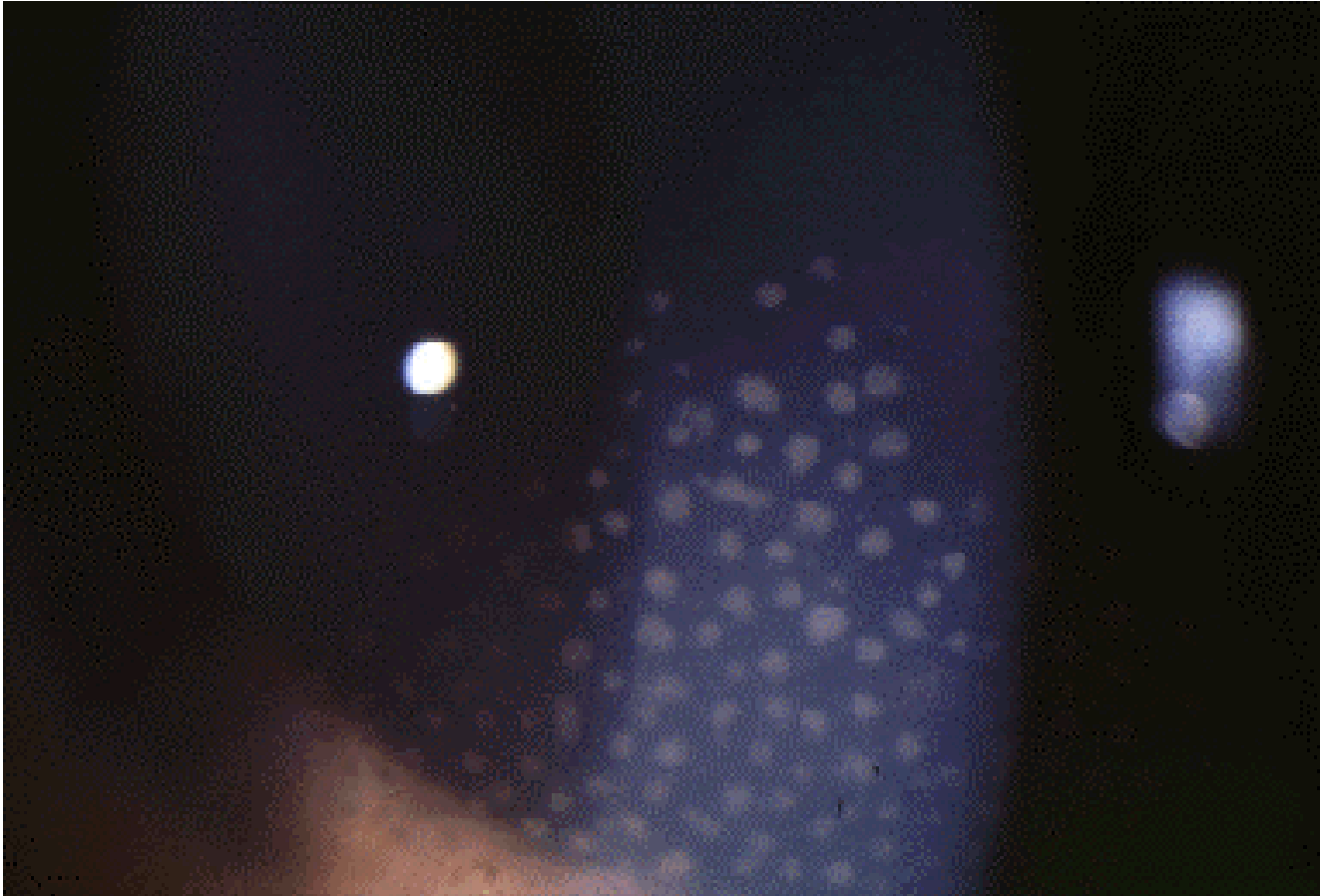
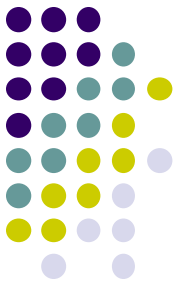
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# Uveitis



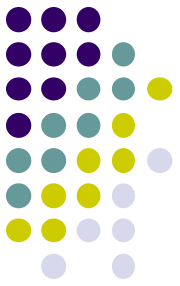
Granulomatous KP

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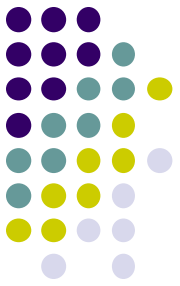
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# Uveitis

## *Anterior Uveitis*

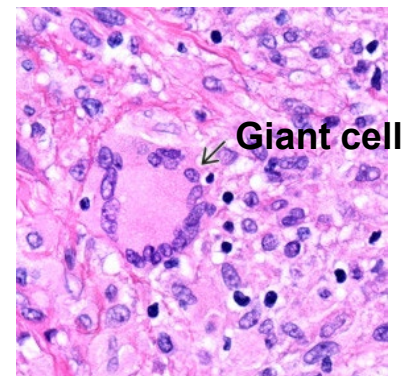
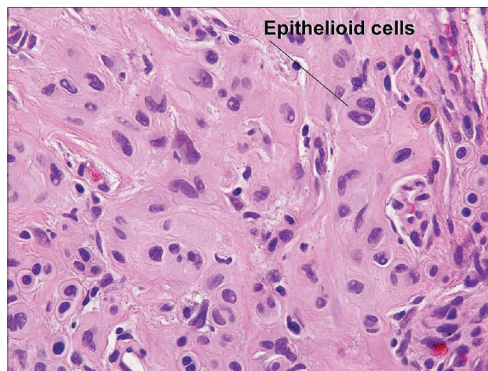
Granulomatous

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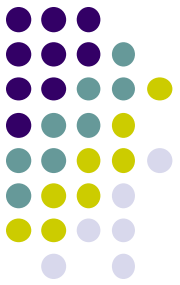


# Uveitis

## *Anterior Uveitis*

Granulomatous

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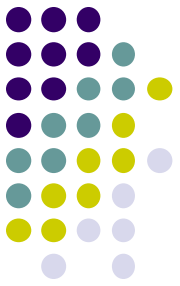
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# Uveitis

## *Anterior Uveitis*

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Nongranulomatous



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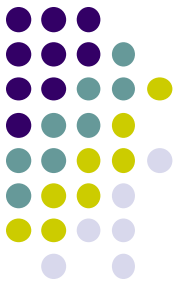
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**This is key: In clinical use the term *granulomatous* refers to the slit-lamp appearance of the KP, not to the underlying histology of the condition.**



# Uveitis

## *Anterior Uveitis*



### Granulomatous

- ?
- ?
- ?
- ?
- ?
- ?
- ?

### Nongranulomatous

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

# Uveitis

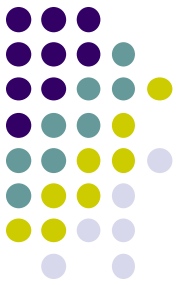
## ***Anterior Uveitis***

### Granulomatous

- TB
- Sarcoid
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### Nongranulomatous

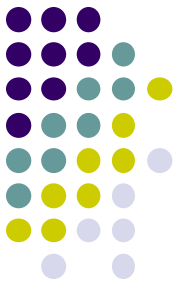


# Uveitis

## *Anterior Uveitis*

Granulomatous

Nongranulomatous

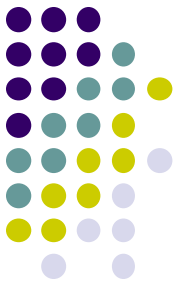


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In contrast, *nongranulomatous KP* are smaller, lighter in color, and do not look greasy. (Note: If no KP are present, the inflammation is considered nongranulomatous.)

# Uveitis



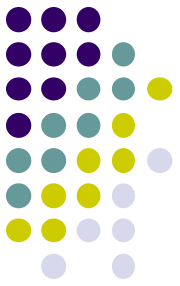
Nongranulomatous KP

# Uveitis

## *Anterior Uveitis*

Granulomatous

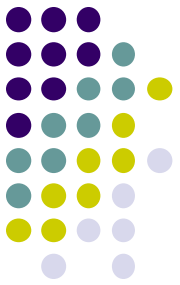
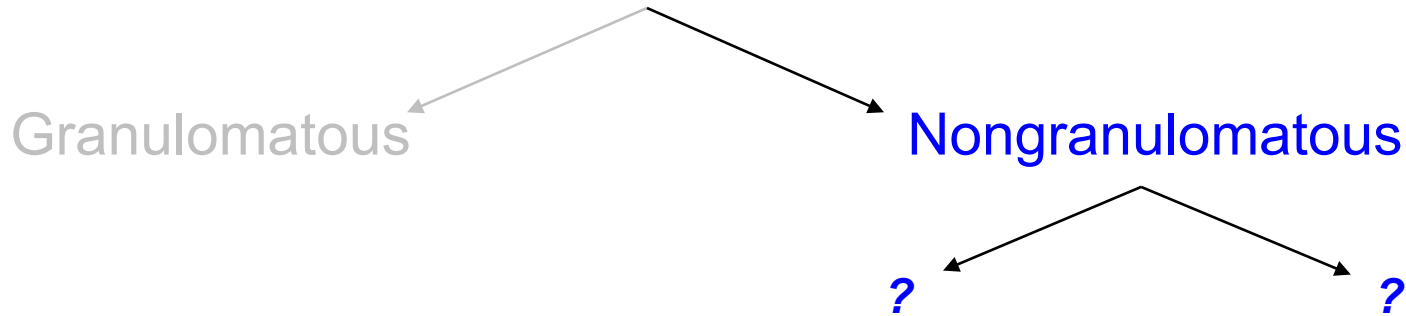
Nongranulomatous



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

# Uveitis

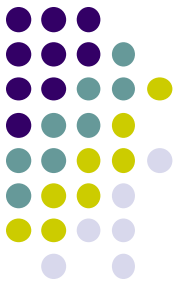
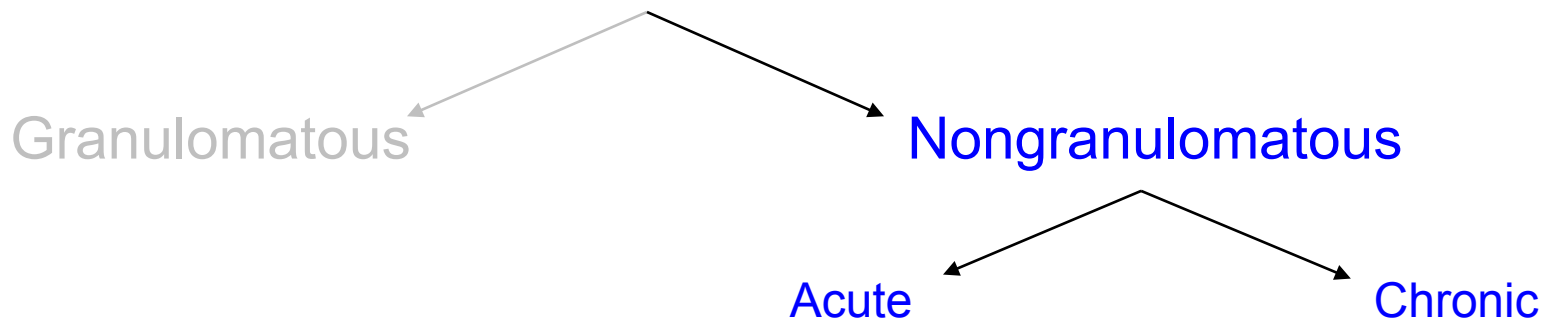
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# Uveitis

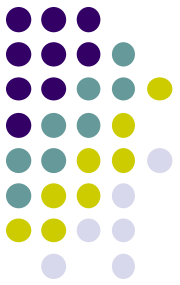
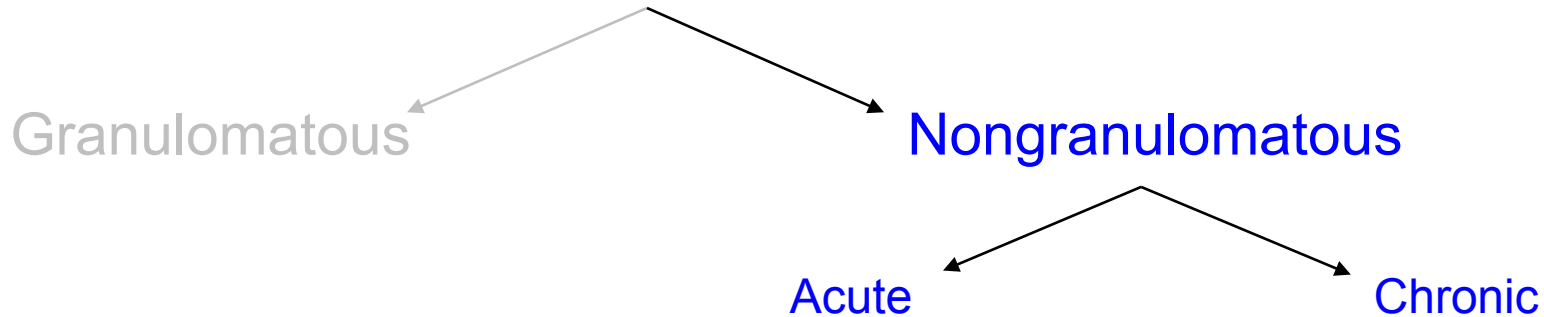
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# Uveitis

## *Anterior Uveitis*



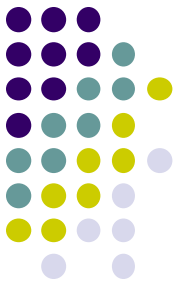
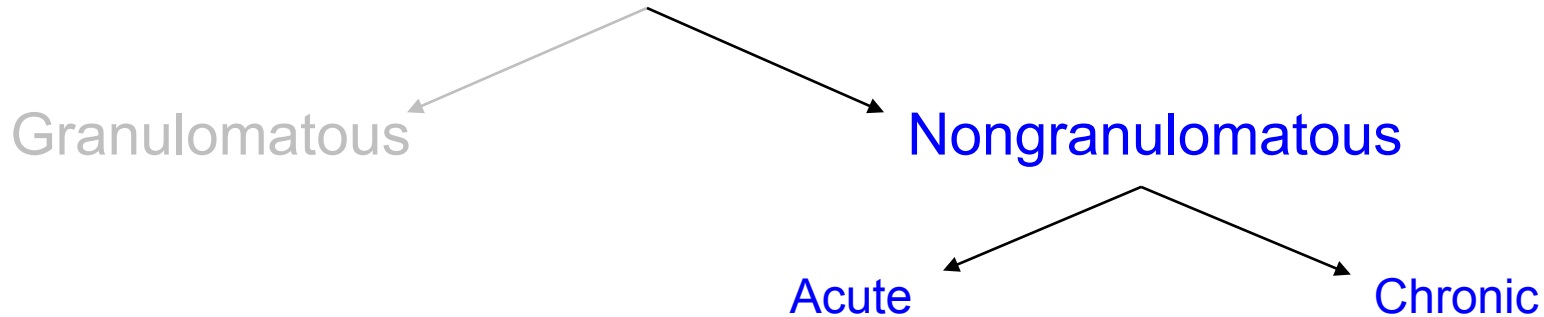
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***Acute uveitis*** comes on suddenly and resolves fairly quickly.



# Uveitis

## *Anterior Uveitis*

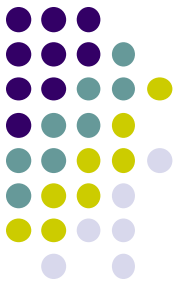
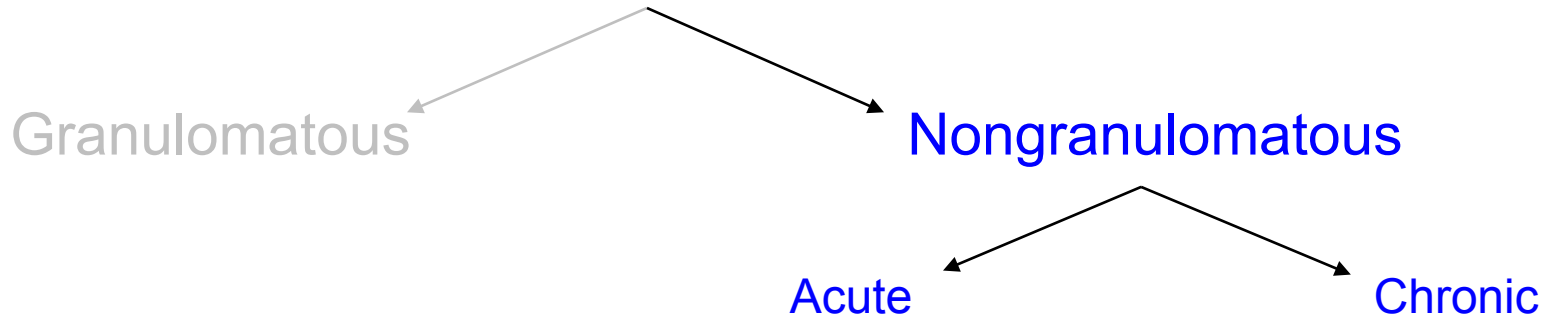


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***Acute uveitis*** comes on suddenly and resolves fairly quickly. ***Chronic uveitis*** also resolves, but once treatment is withdrawn, it relapses within amount of time.

# Uveitis

## *Anterior Uveitis*

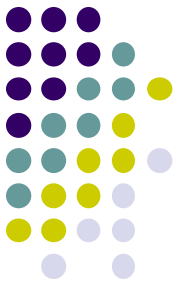
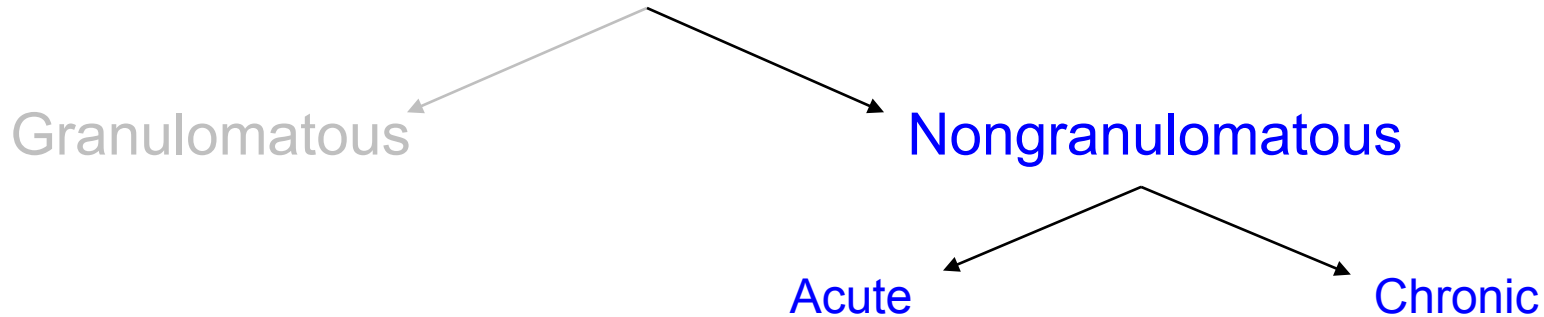


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***Acute uveitis*** comes on suddenly and resolves fairly quickly.  
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# Uveitis

## *Anterior Uveitis*



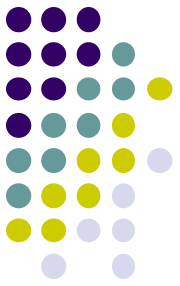
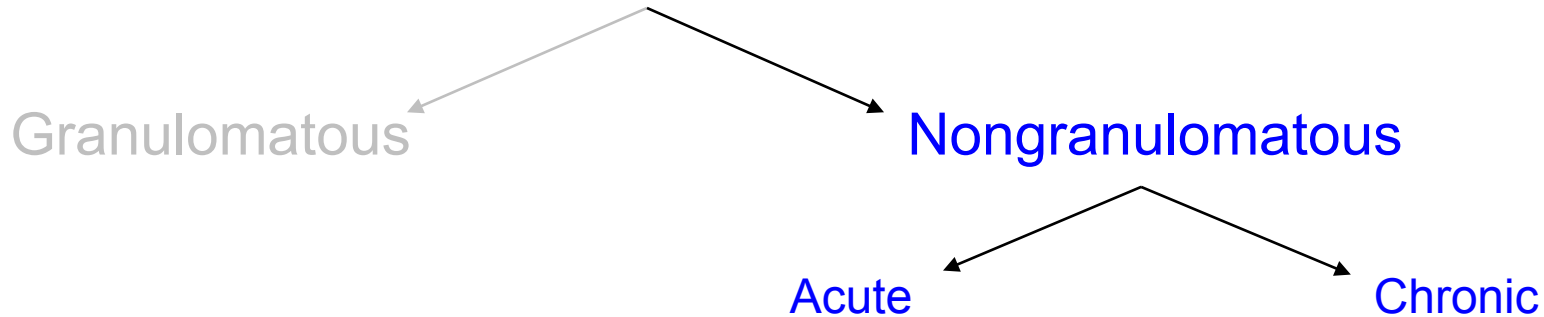
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(FYI: If a uveitis eventually relapses but is quiescent off-treatment for **longer** than three months, it is termed a   uveitis.)

# Uveitis

## *Anterior Uveitis*



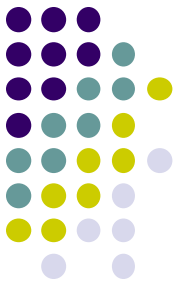
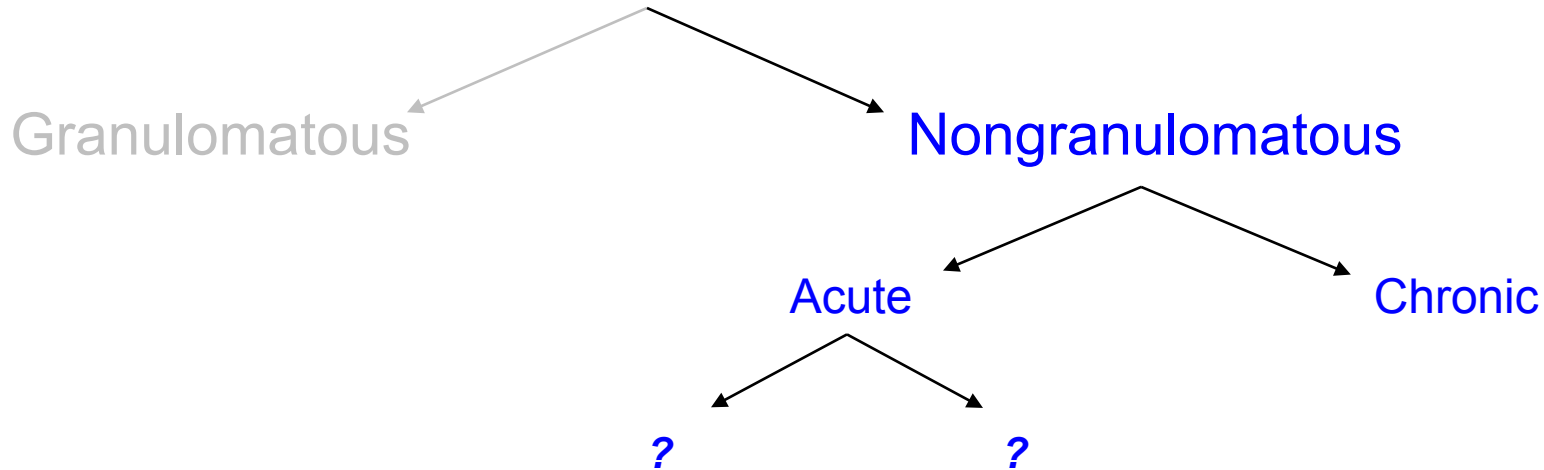
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(FYI: If a uveitis eventually relapses but is quiescent off-treatment for **longer** than three months, it is termed a *recurrent* uveitis.)

# Uveitis

## *Anterior Uveitis*

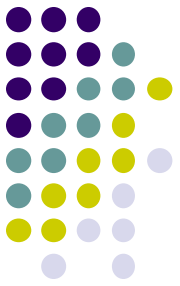
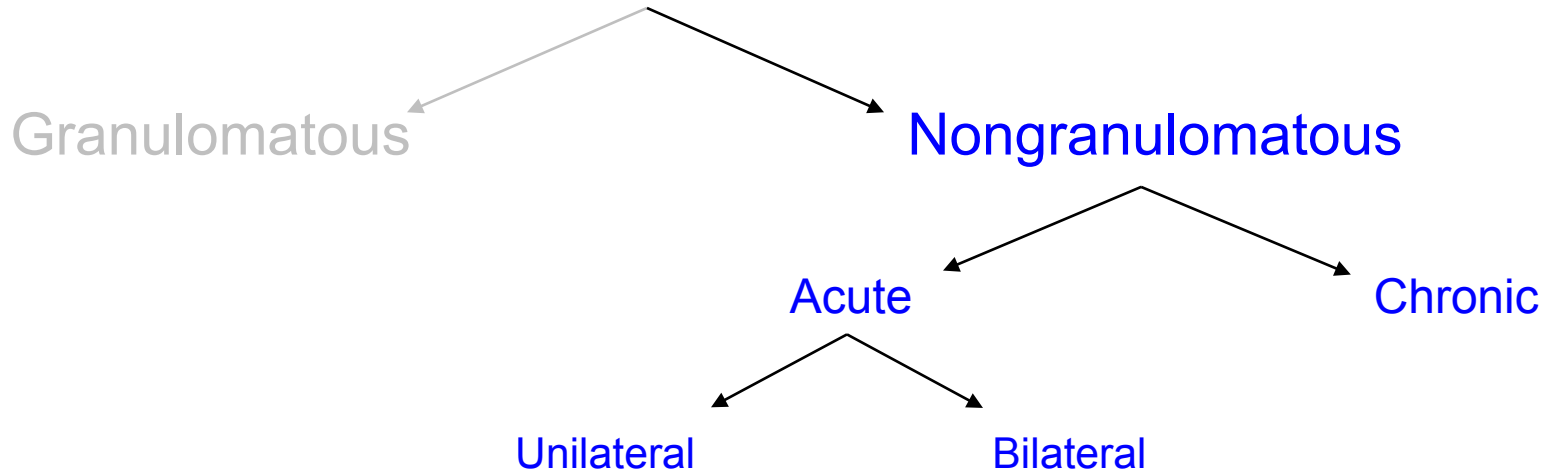


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Finally, the acute uveitides are divided into those that present   vs those that tend to present

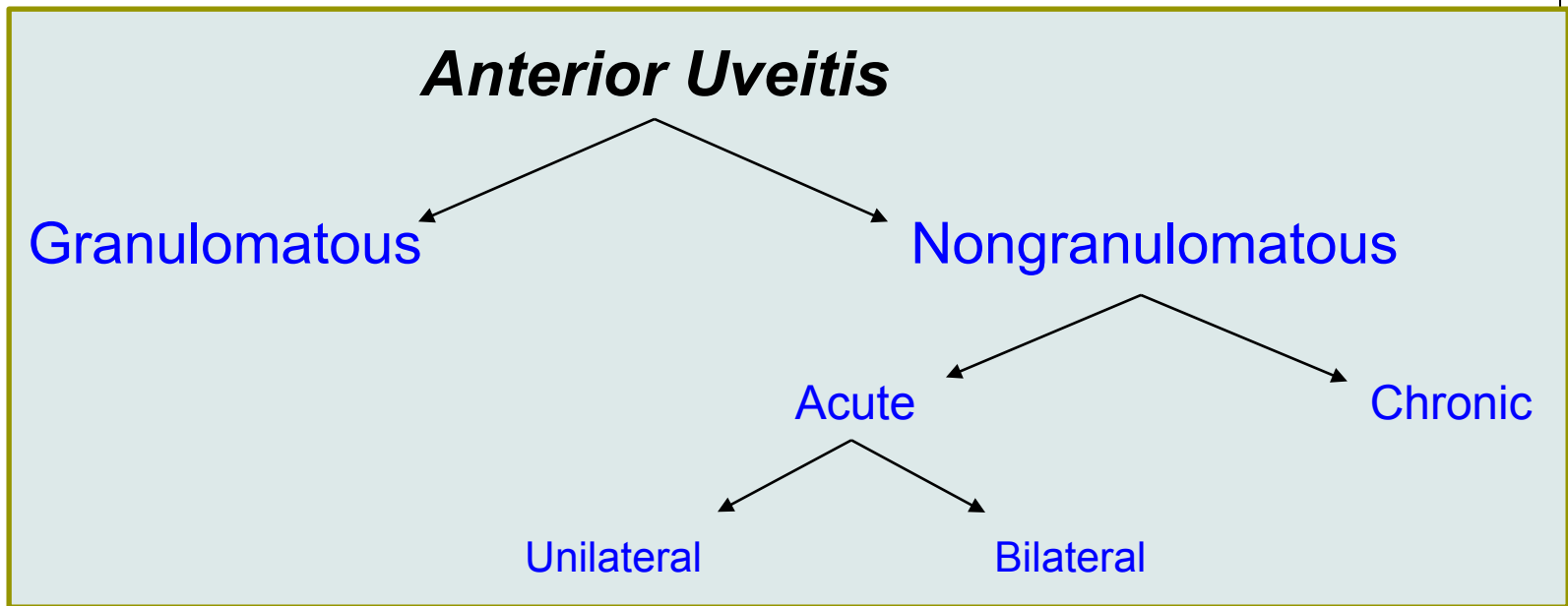
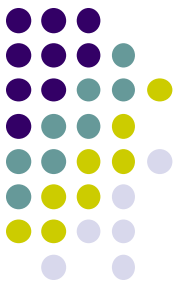
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The rest of the anterior-uveitis classification tree concerns nongranulomatous dz. The first branch-point divides the etiologies into those that produce **acute dz** vs those producing **chronic dz**.

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



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

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

# Uveitis

## *Anterior Uveitis*

### Granulomatous

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

### Nongranulomatous

#### Acute

##### Unilateral

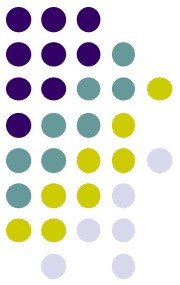
- HLA-B27 dz
- Posner-Schlossman
- HSV/VZV
- Sarcoid
- Syphilis
- TB

##### Bilateral

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

#### Chronic

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



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



# Uveitis

## *Anterior Uveitis*

### Granulomatous

- TB
- Sarcoid
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### Nongranulomatous

#### Acute

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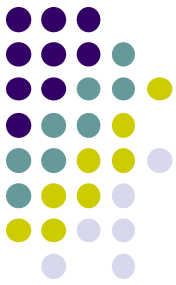
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- Sarcoid
- Syphilis
- TB

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



Just as on FY1, these are the anterior uveitides that are covered in detail in the Uveitis book. One fact you **should** memorize is that the vast majority of anterior-uveitis cases—about %—are infectious vs non- better if you le

# Uveitis

## Anterior Uveitis

### Granulomatous

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- Sarcoid
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### Nongranulomatous

#### Acute

##### Unilateral

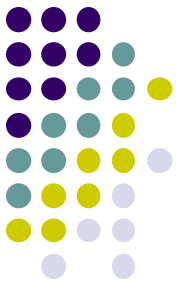
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- Syphilis
- TB



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One fact you **should** memorize is that the vast majority of anterior-uveitis cases—about 80%—are *noninfectious*

# Uveitis

## Anterior Uveitis

### Granulomatous

- TB
- Sarcoid
- Syphilis

- HSV

- VKH

- Toxoplasmosis

- Lyme

### Nongranulomatous

#### Acute

##### Unilateral

- HLA-B27 dz

- Posner-Schlossman

- HSV/VZV

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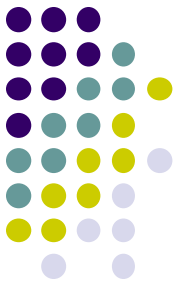
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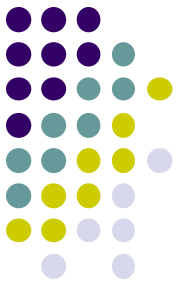
- TB

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



# Uveitis

## *Anterior Uveitis*



### Granulomatous

- TB
- Sarcoid
- Syphilis
- HSV
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- Lyme

### Nongranulomatous

#### Acute

##### Unilateral

- HLA-B27 dz
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#### Chronic

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

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

### ***Rule of thumb:***

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

# Uveitis

## Anterior Uveitis

### Granulomatous

TB

Sarcoid

Syphilis

HSV

VKH

Toxoplasmosis

Lyme

### Nongranulomatous

#### Acute

#### Unilateral

HLA-B27 dz

Posner-Schlossman

HSV/VZV

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Drug rxn

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TB



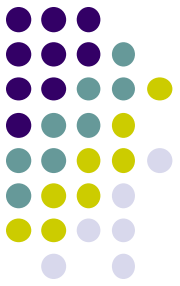
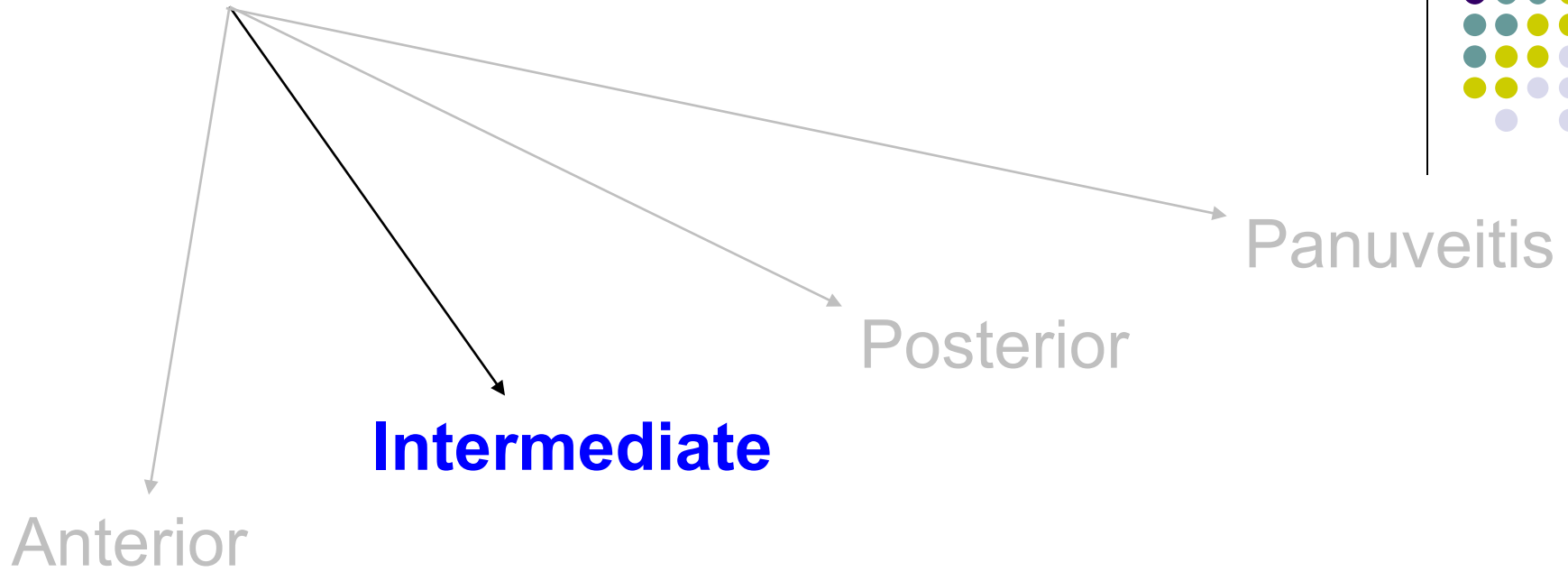
This fact is very useful early in training, a period during which you will be clueless regarding uveitis. That is, if your Uveitis attending presses you for a Ddx on a pt and you have **no idea** what it could be, stroke your chin thoughtfully and say “Well, certainly syphilis must be considered...[pause,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

Note: Sarcoid, Syphilis, and TB are on the Ddx for **every** pt with **any** form of uveitis! everywhere on the tree. This is because *all three can manifest in so many different ways.*

### Rule of thumb:

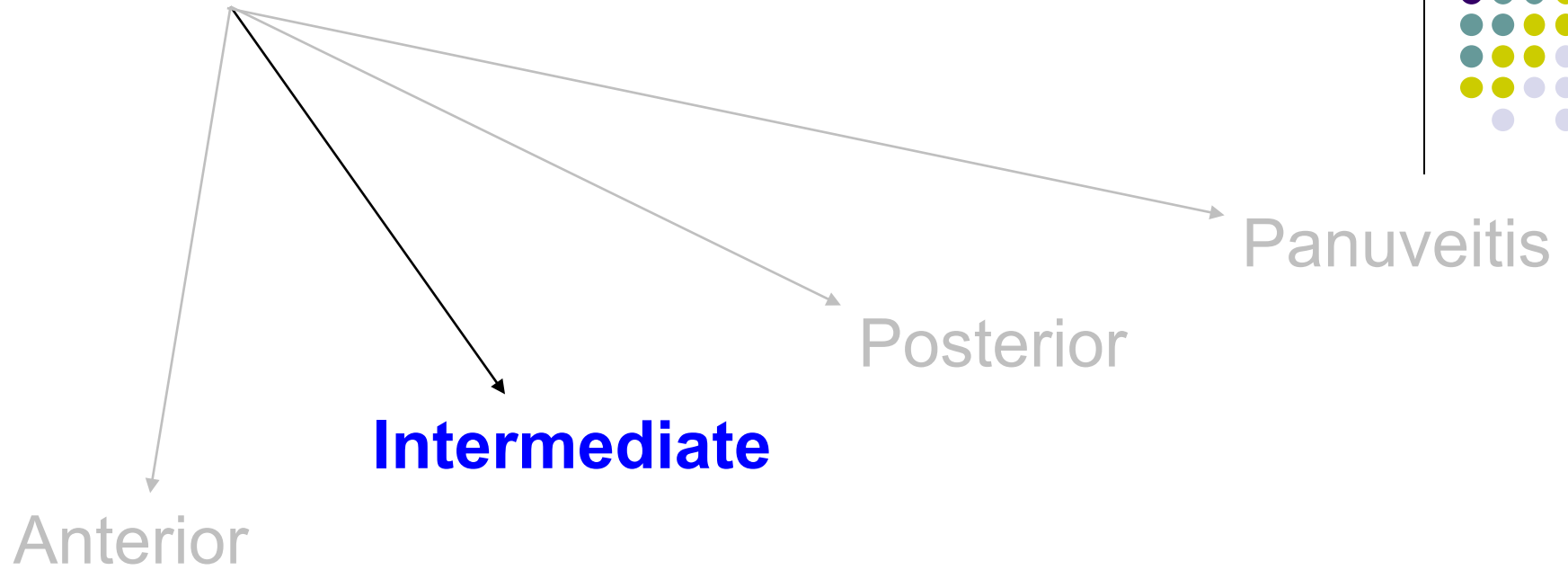
Syphilis, sarcoid and TB are on the Ddx for **every** pt with **any** form of uveitis!

# Uveitis



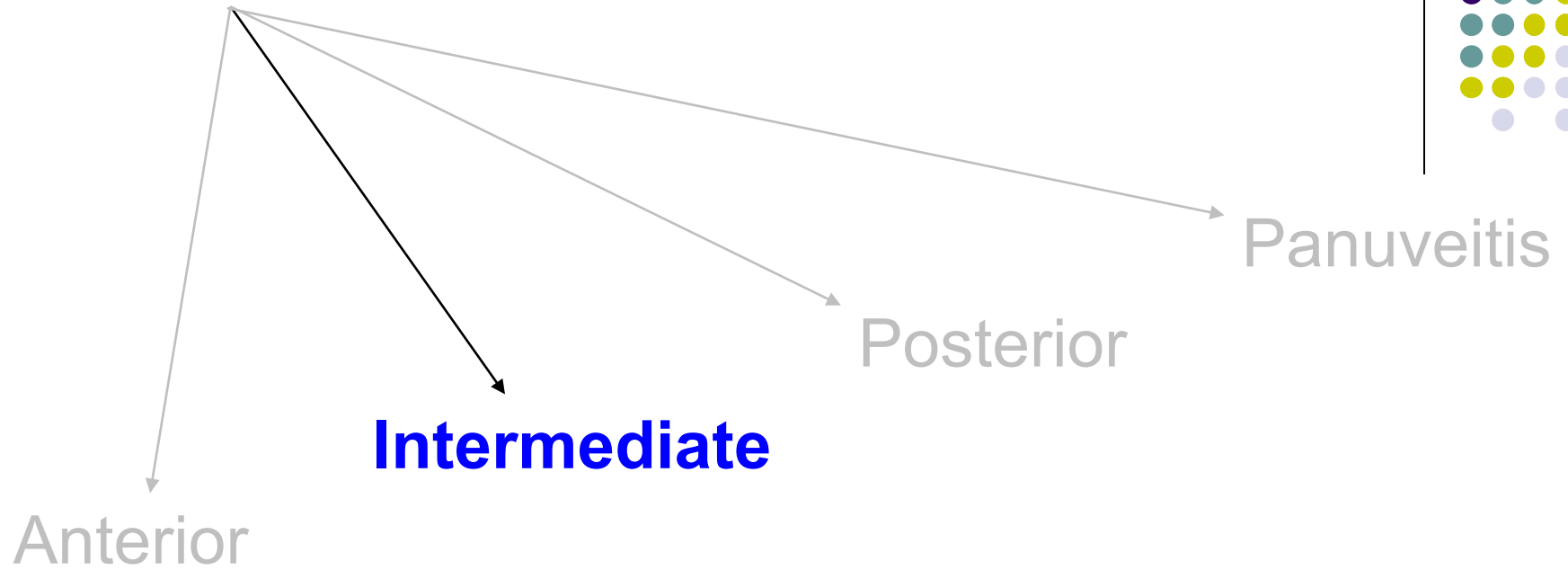
*Next let's look at **intermediate uveitis***

# Uveitis



The hallmark of **intermediate uveitis** (IU) is inflammation in the two words that involves the two words

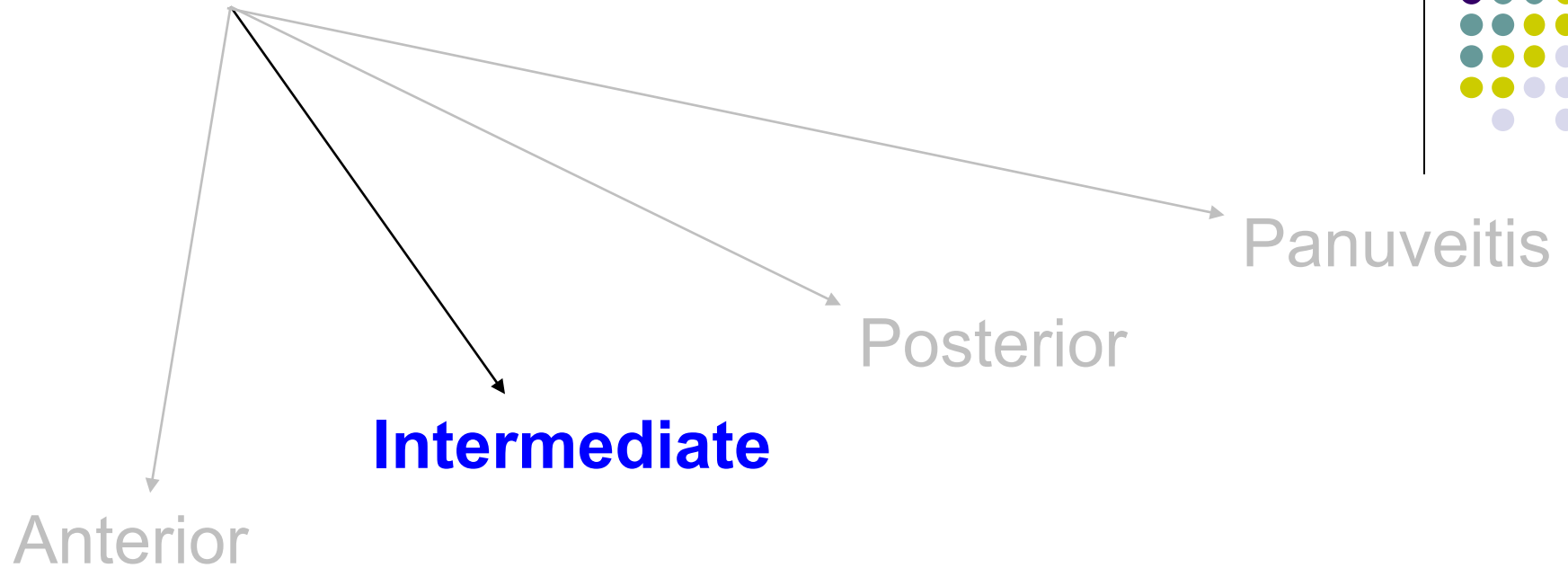
# Uveitis



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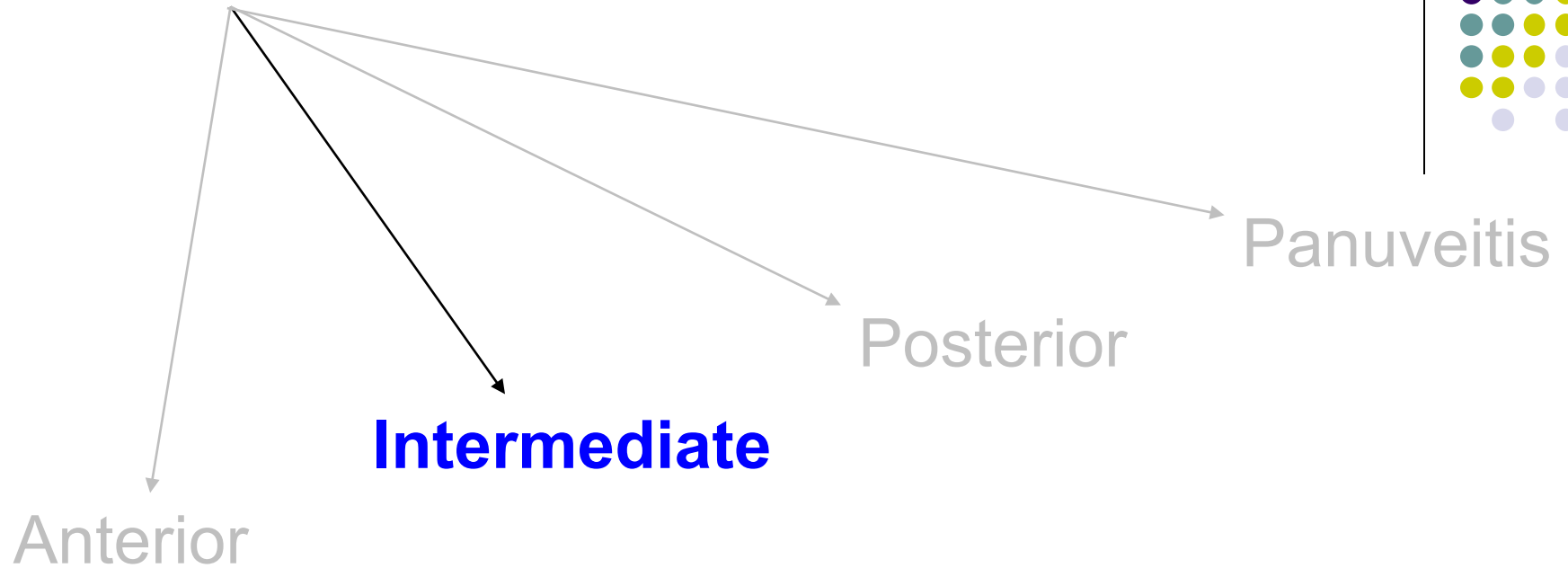


# Uveitis



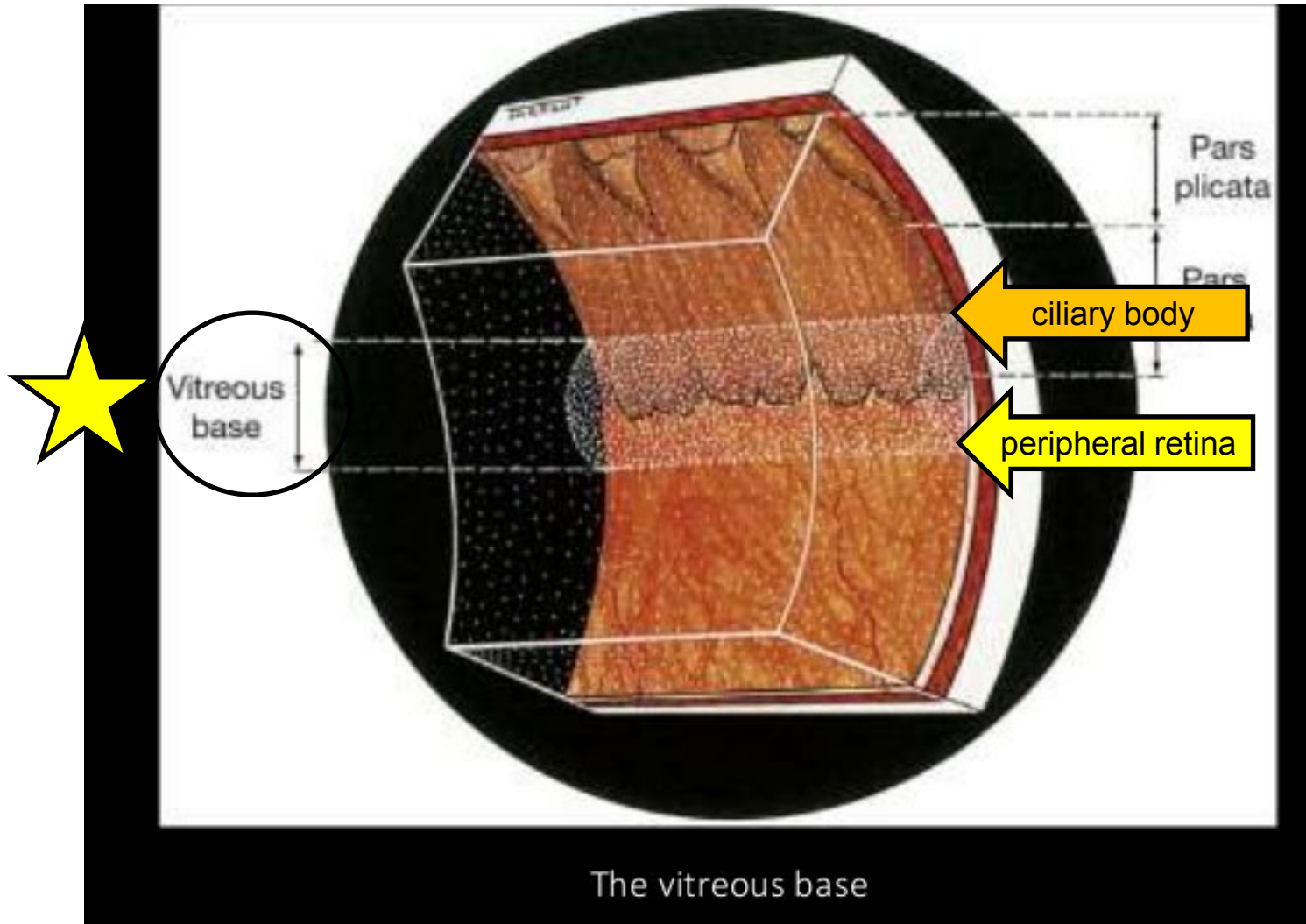
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# Uveitis

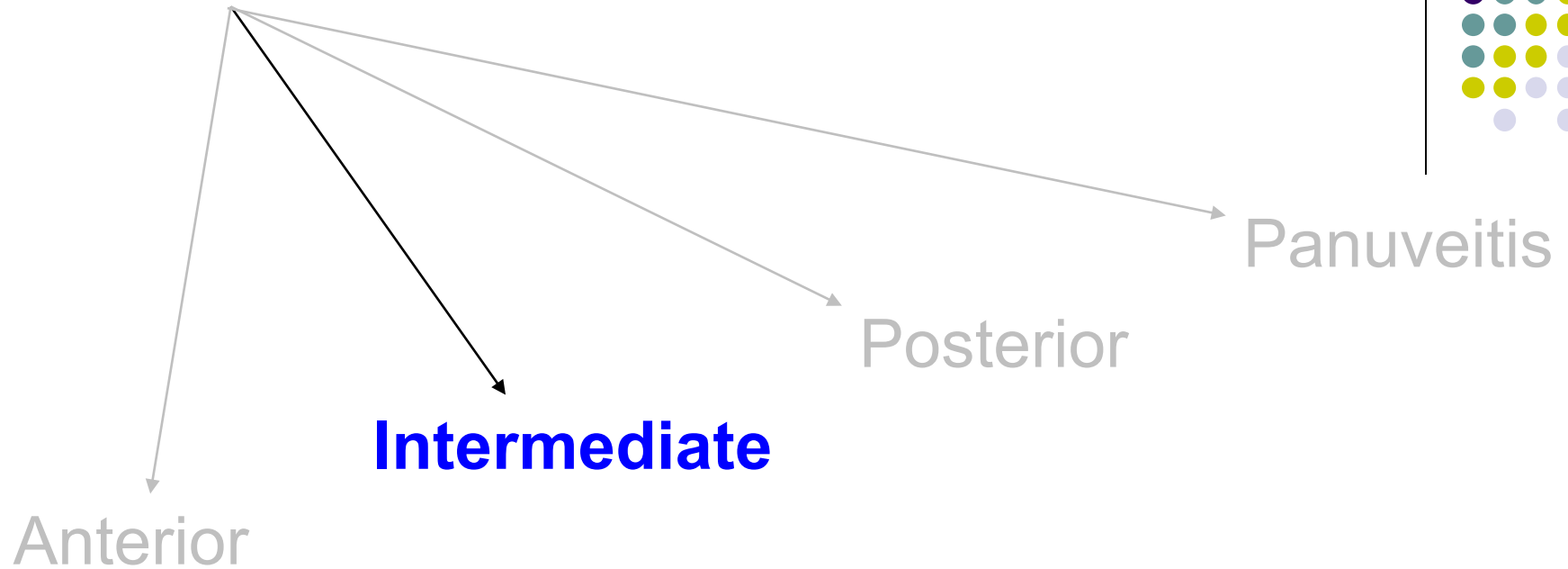


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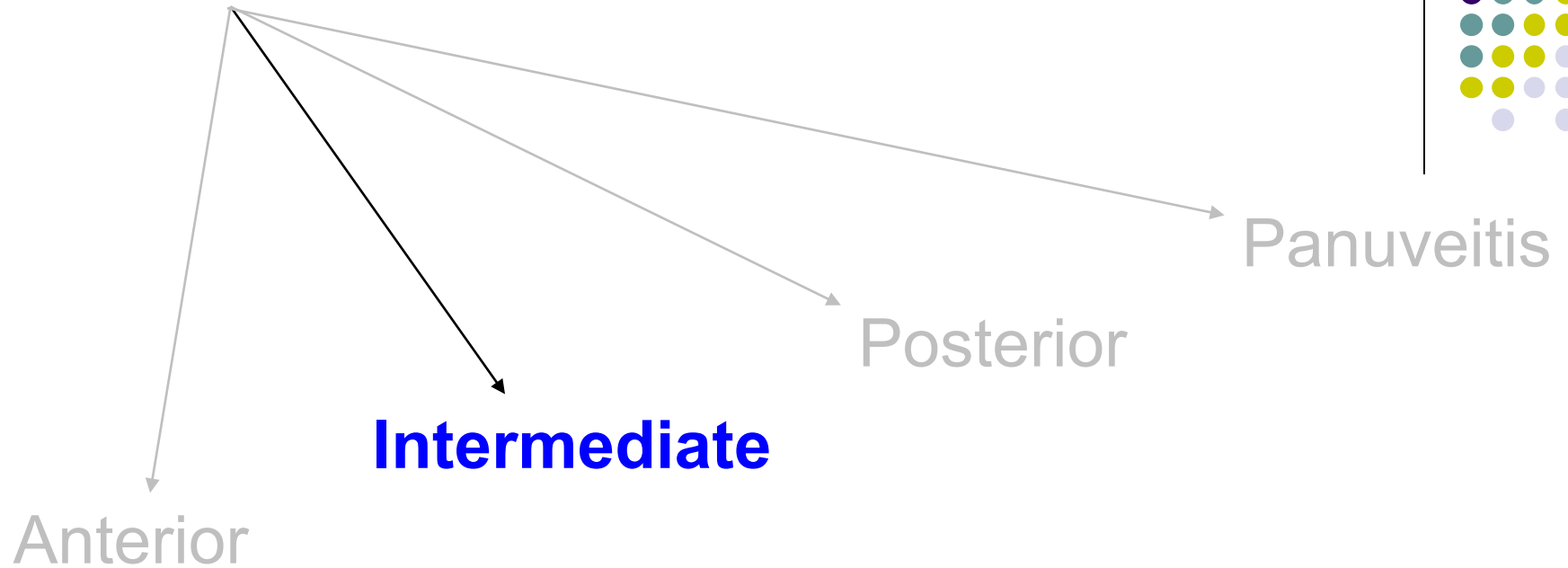


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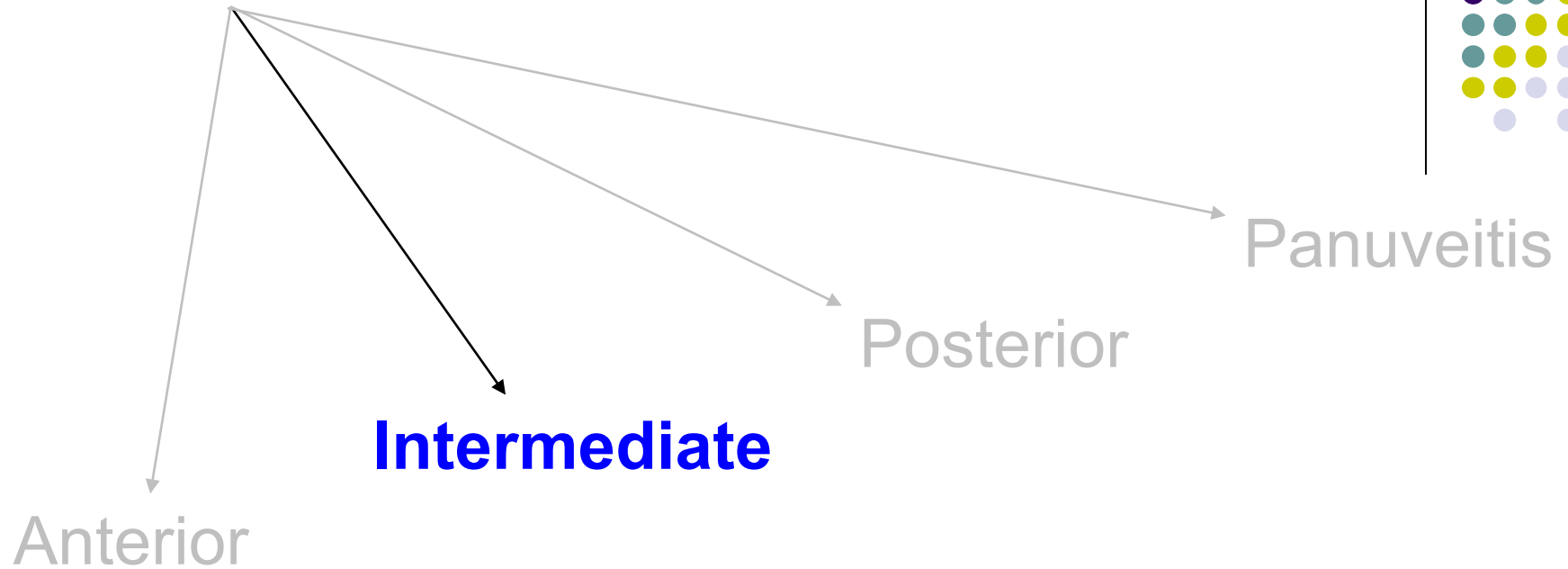
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# Uveitis



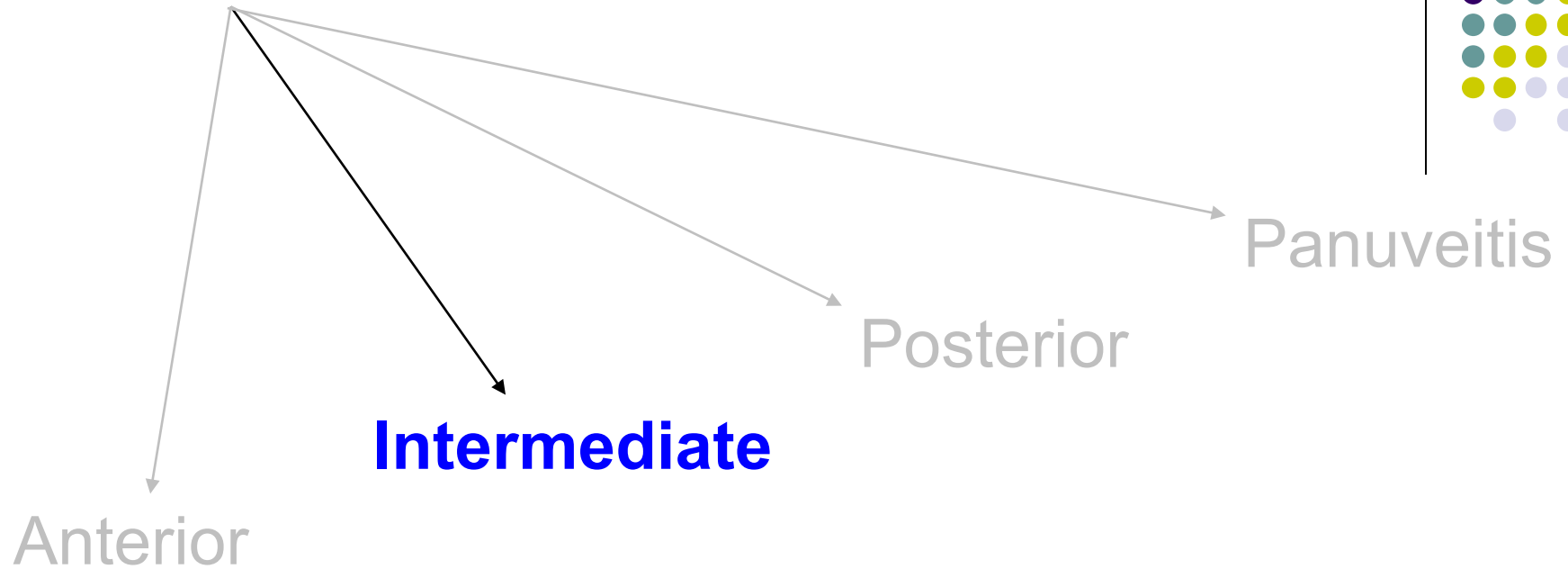
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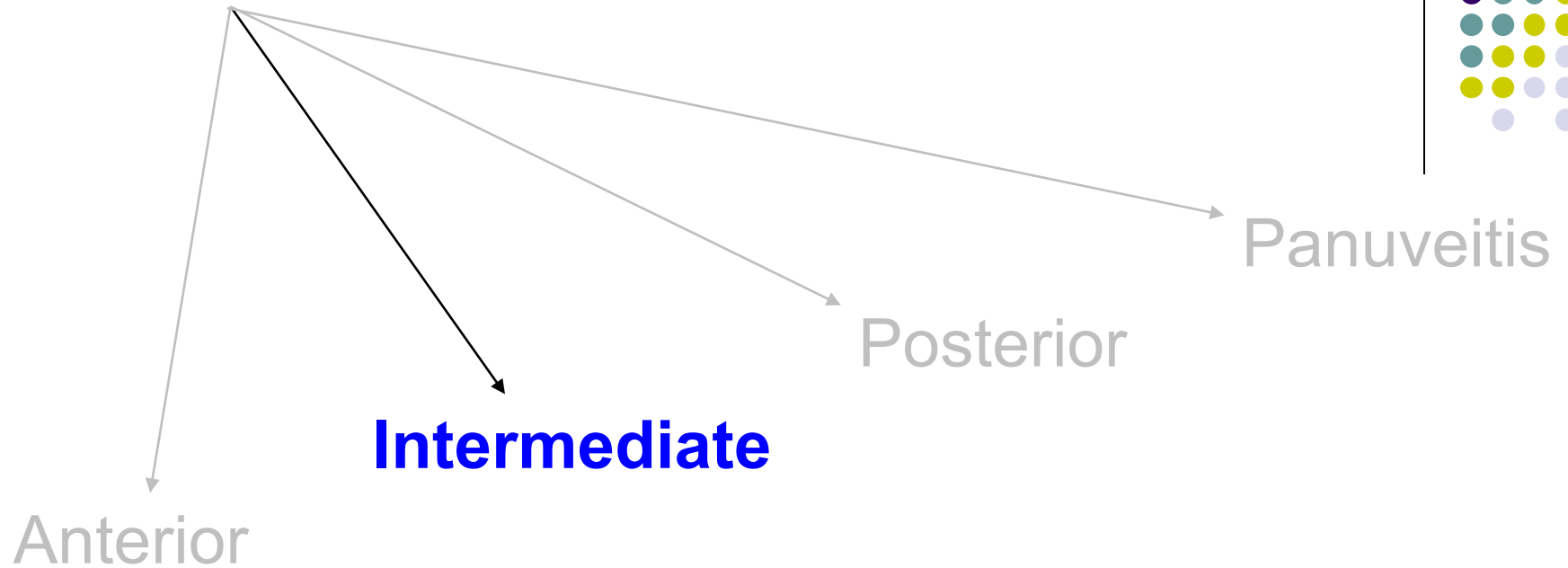
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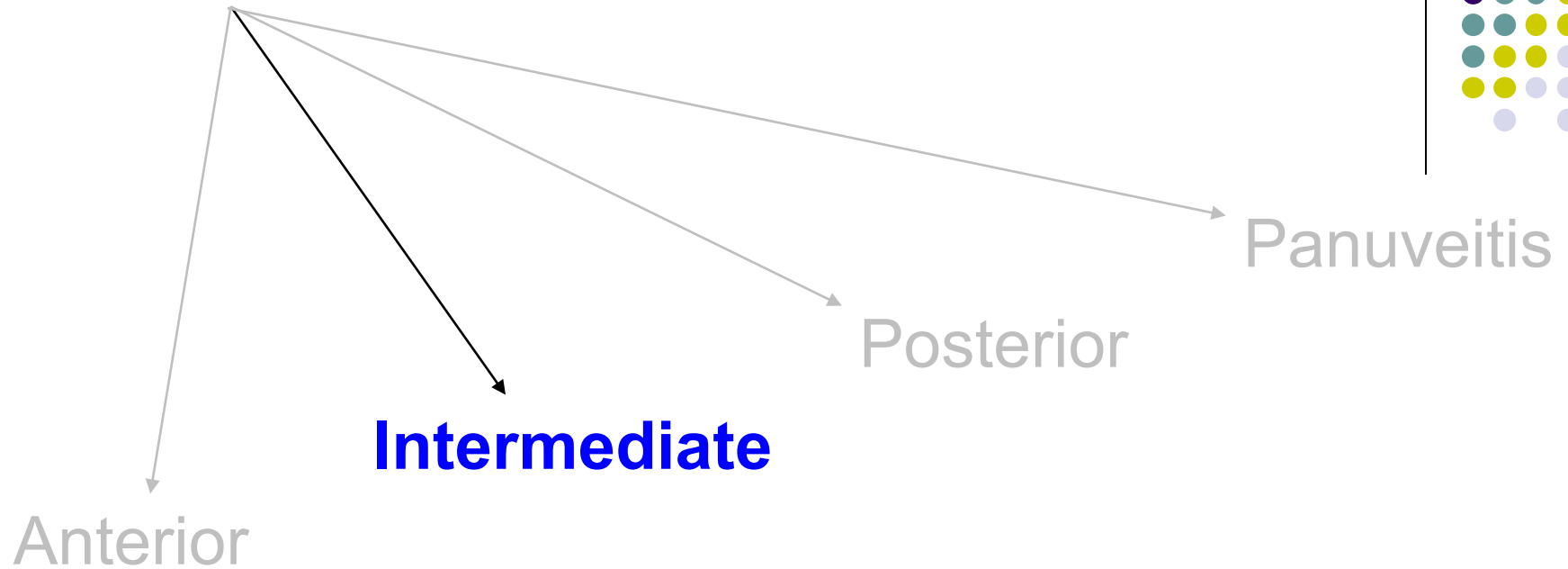


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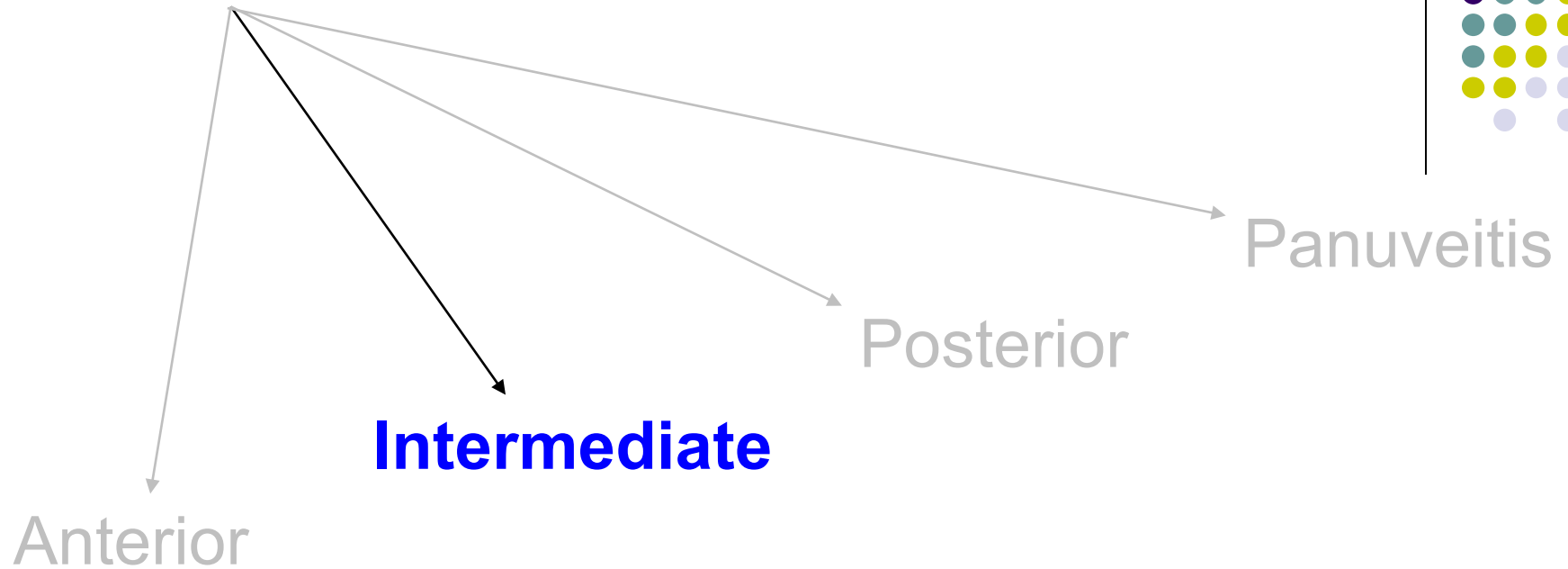
Snowballs in intermediate uveitis

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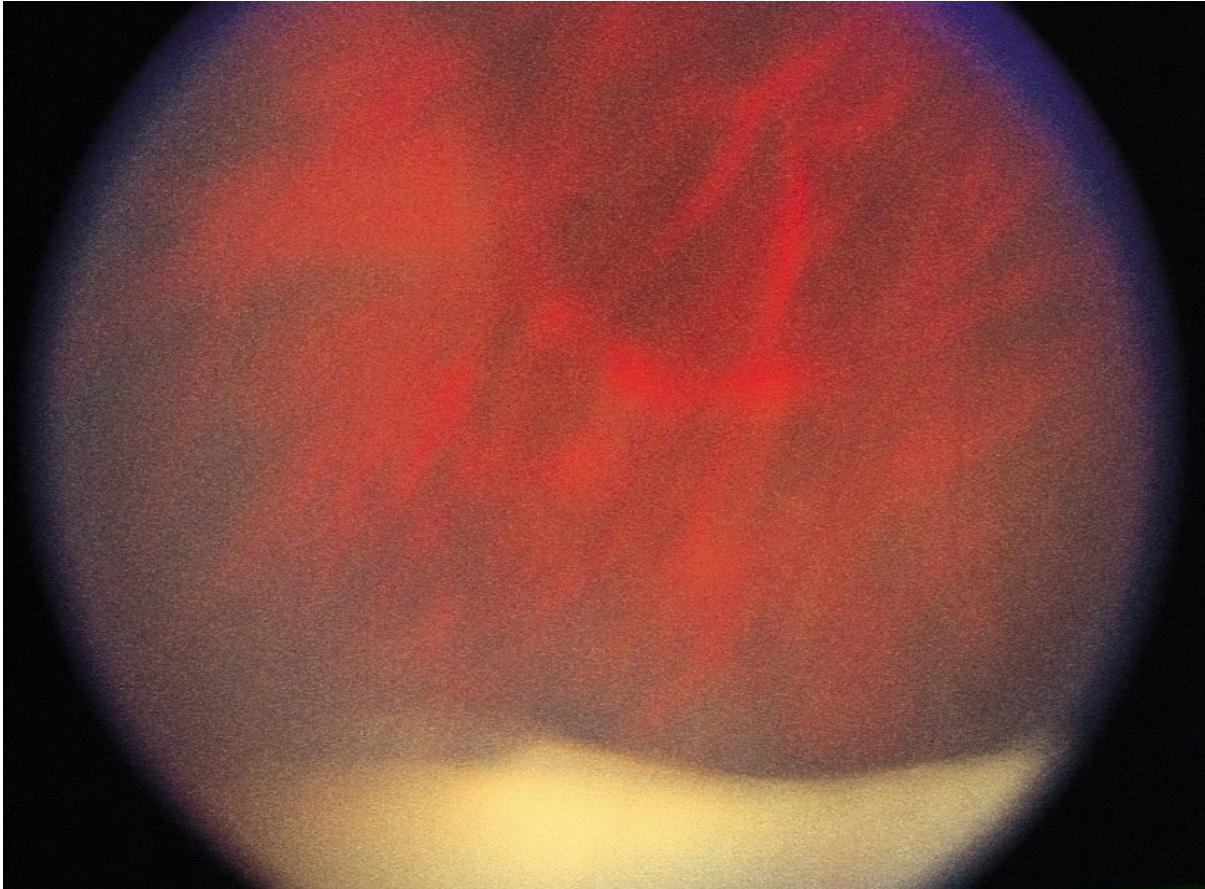
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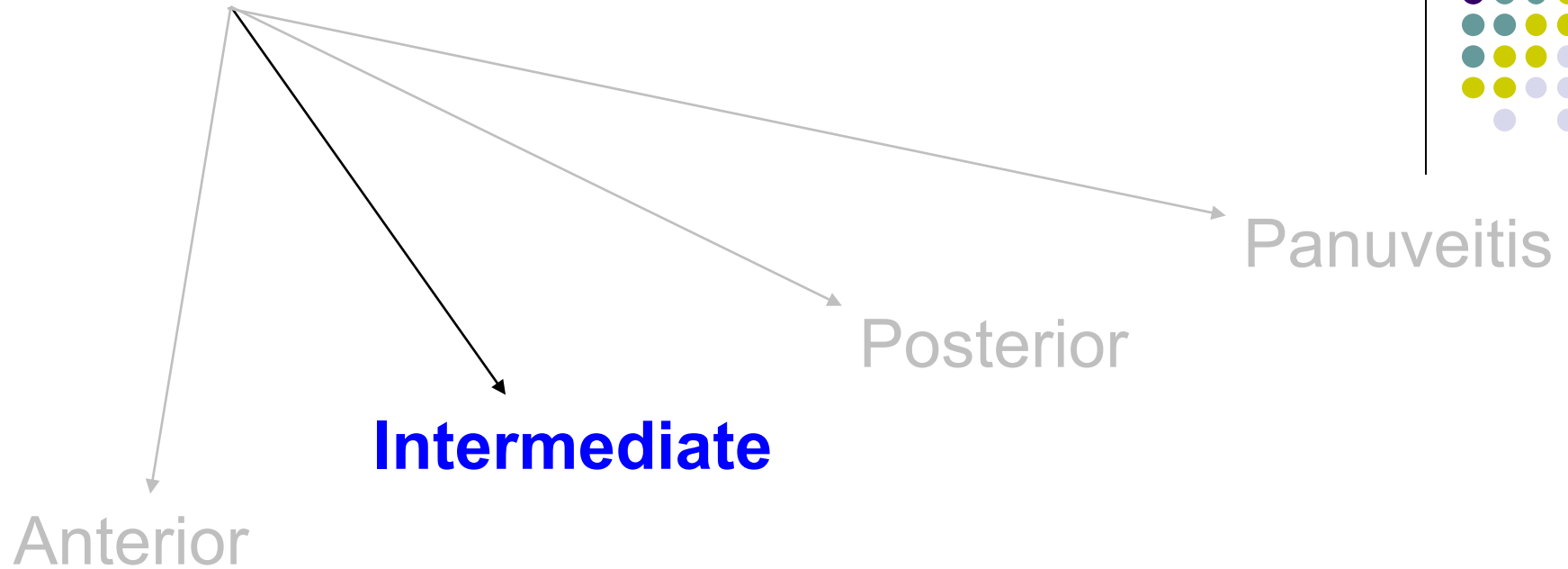
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# Uveitis



Snowbanking in intermediate uveitis

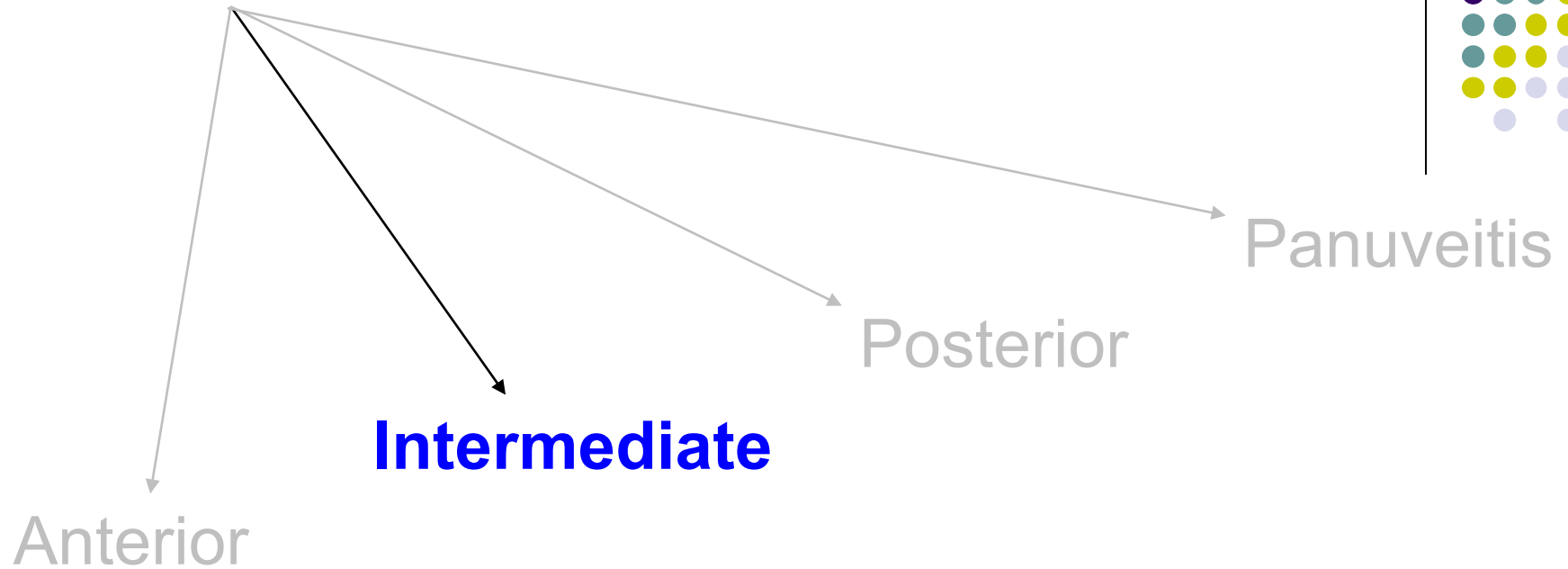
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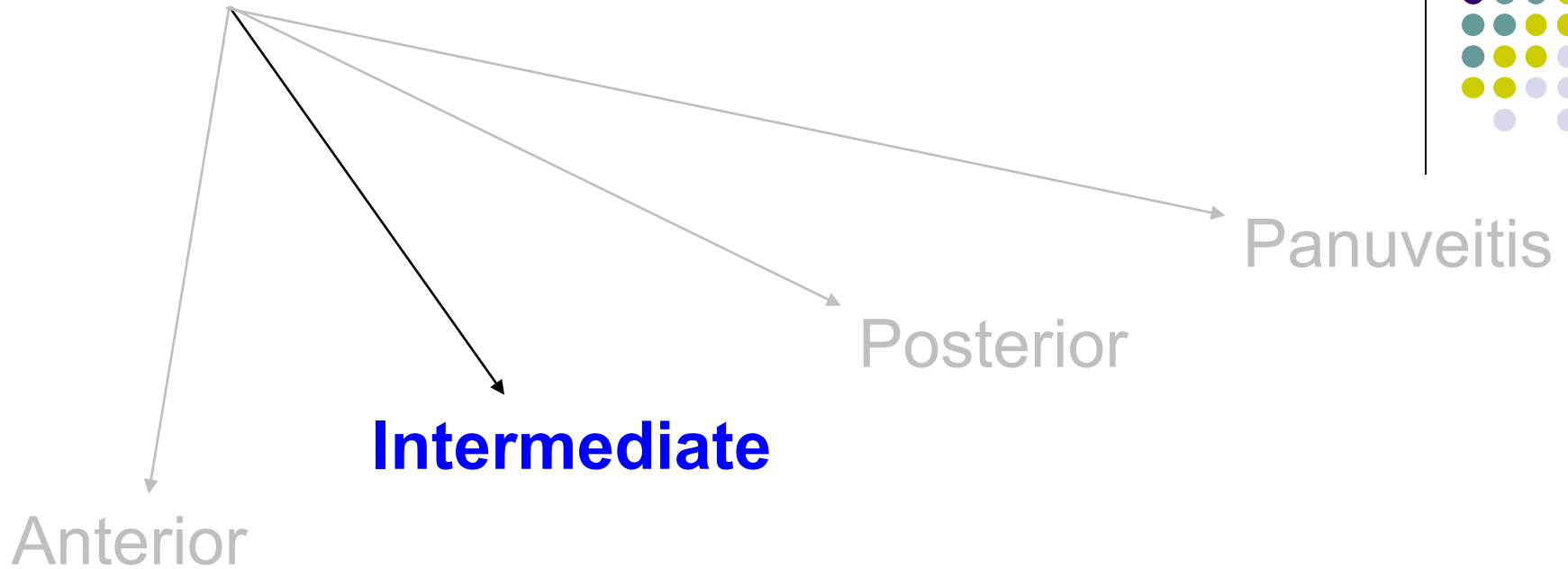
IU tends to be a dz of young vs older people—[age range]

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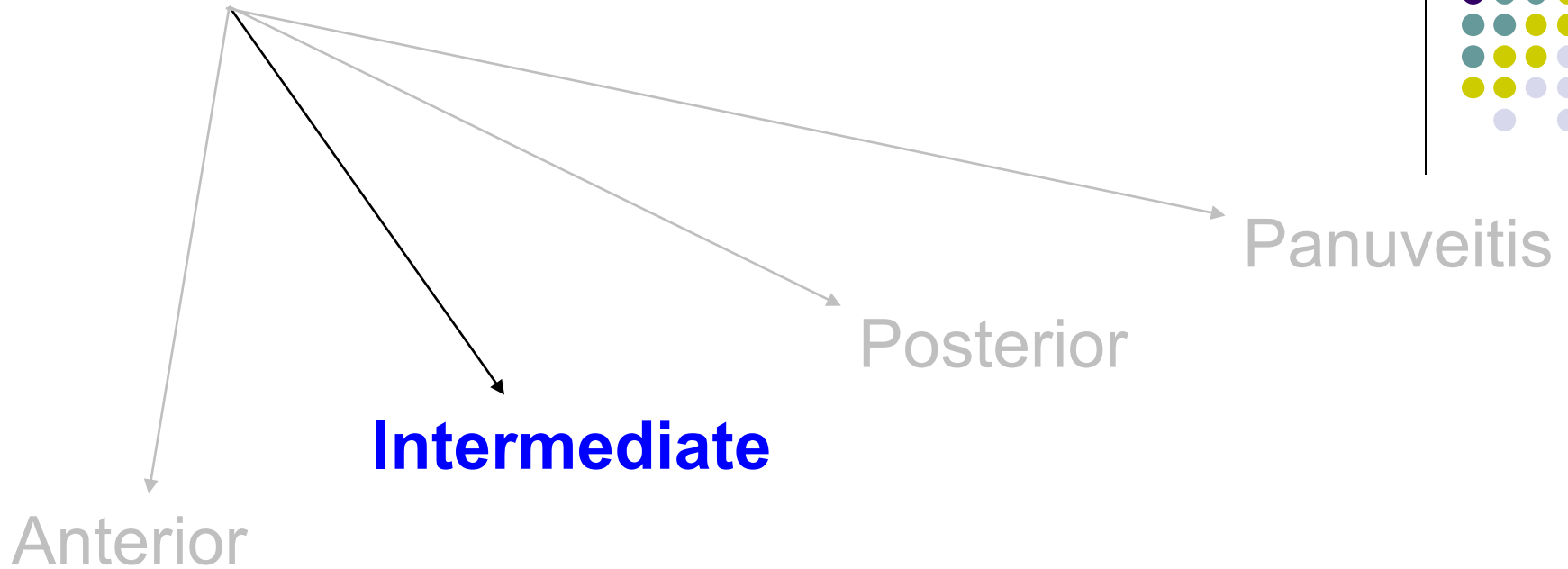
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# Uveitis

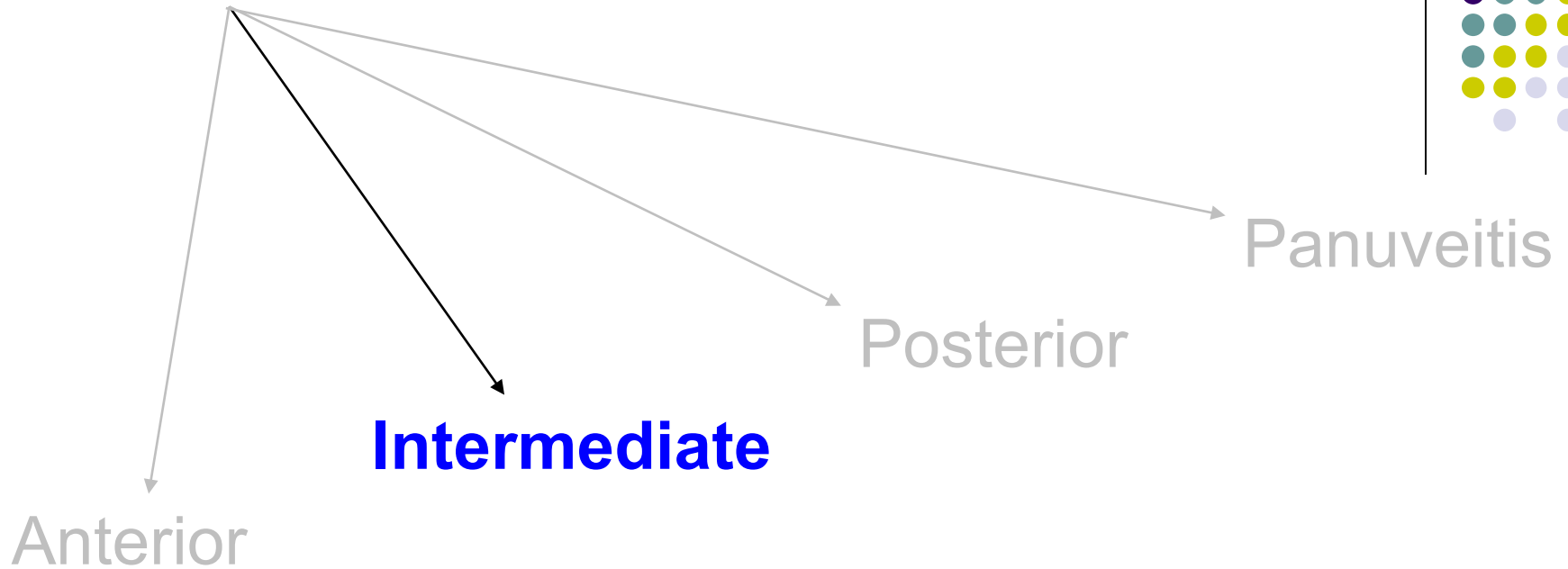


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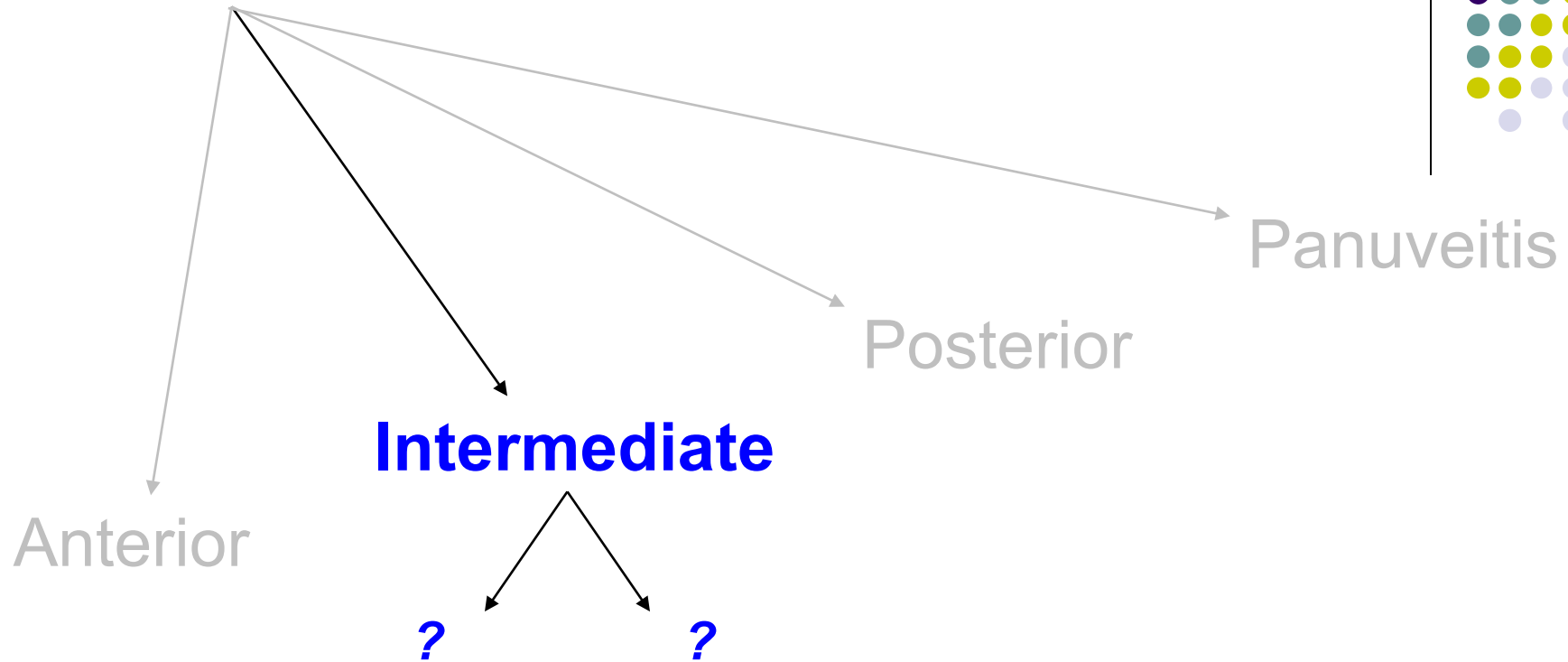
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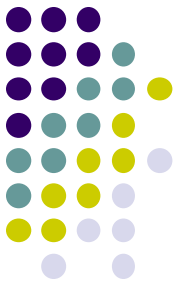
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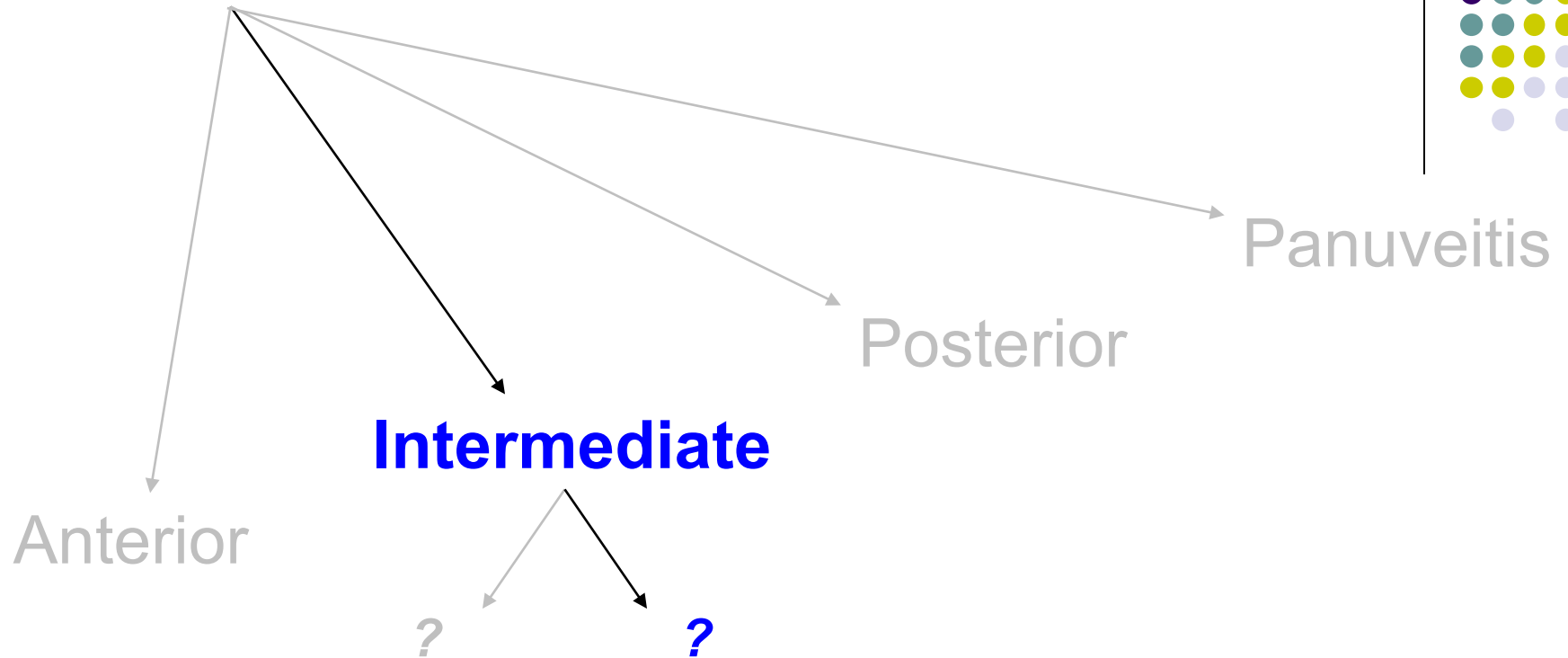
# Uveitis



As indicated previously, IU is divided up into two categories.

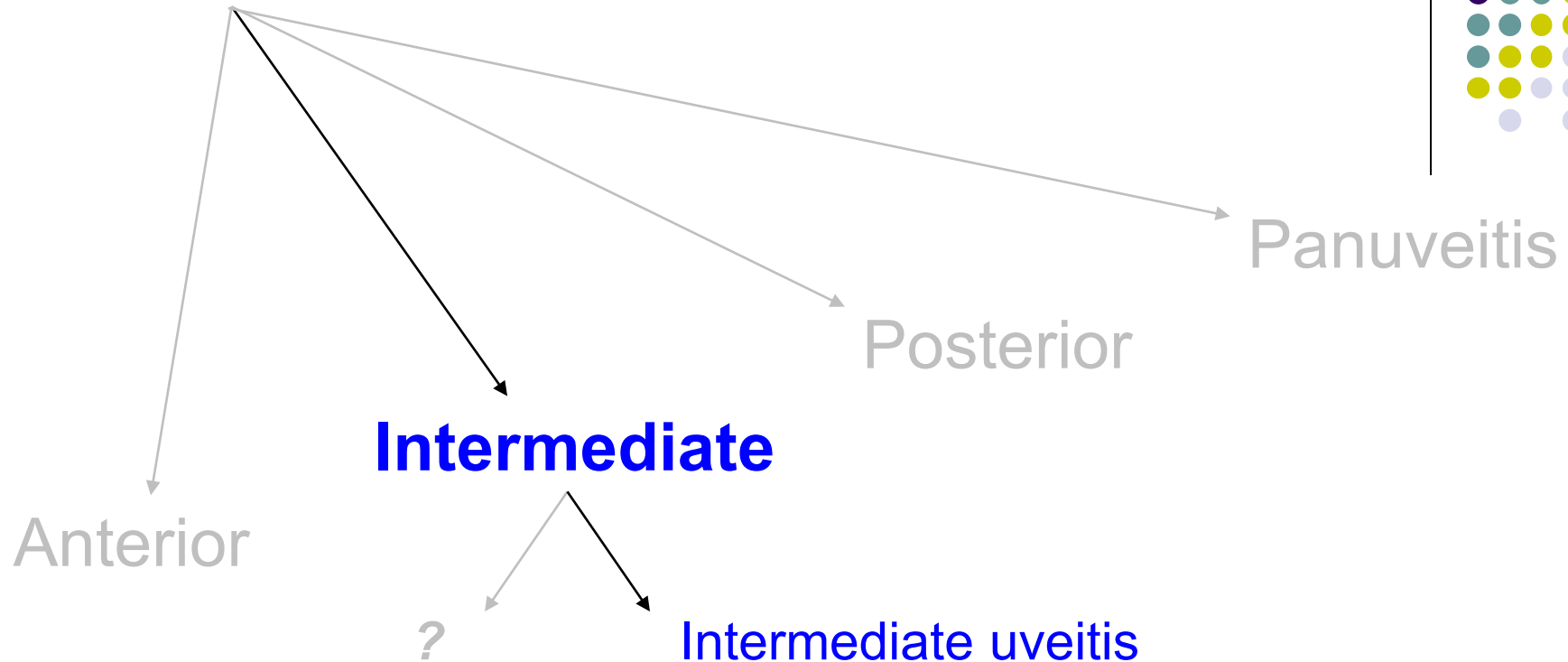


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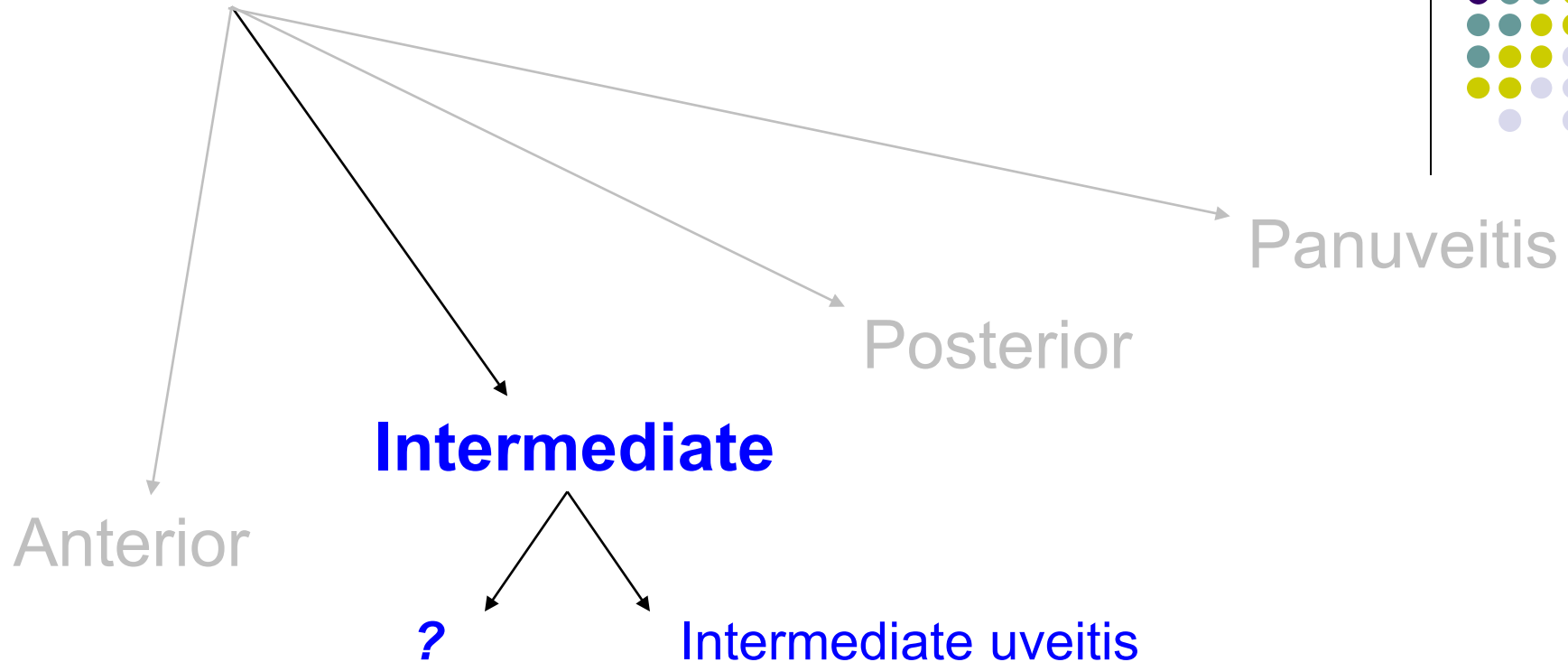
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# Uveitis



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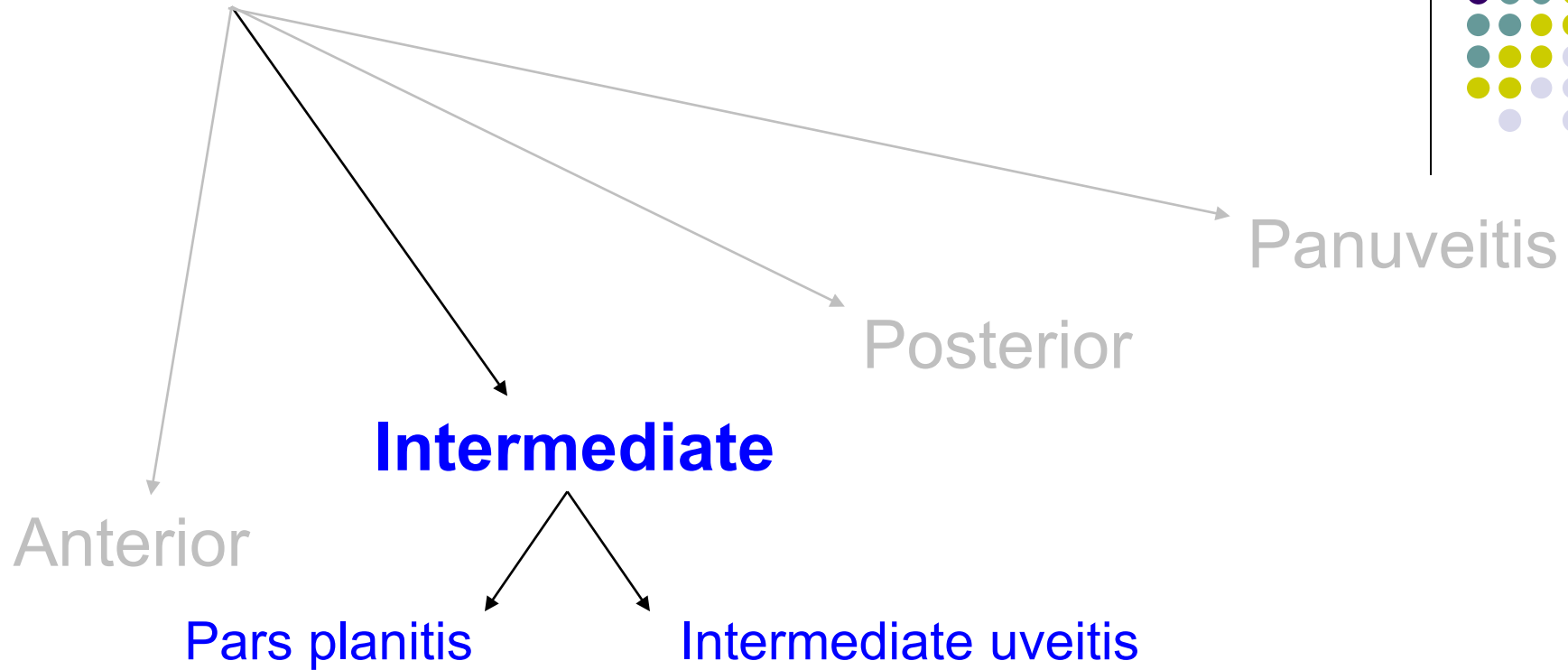
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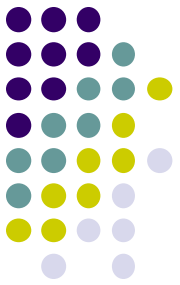
As indicated previously, IU is divided up into two categories. If the inflammation is associated with an identifiable condition, the uveitis is called **IU**. If it is idiopathic, ie, if no cause can be identified, it is called



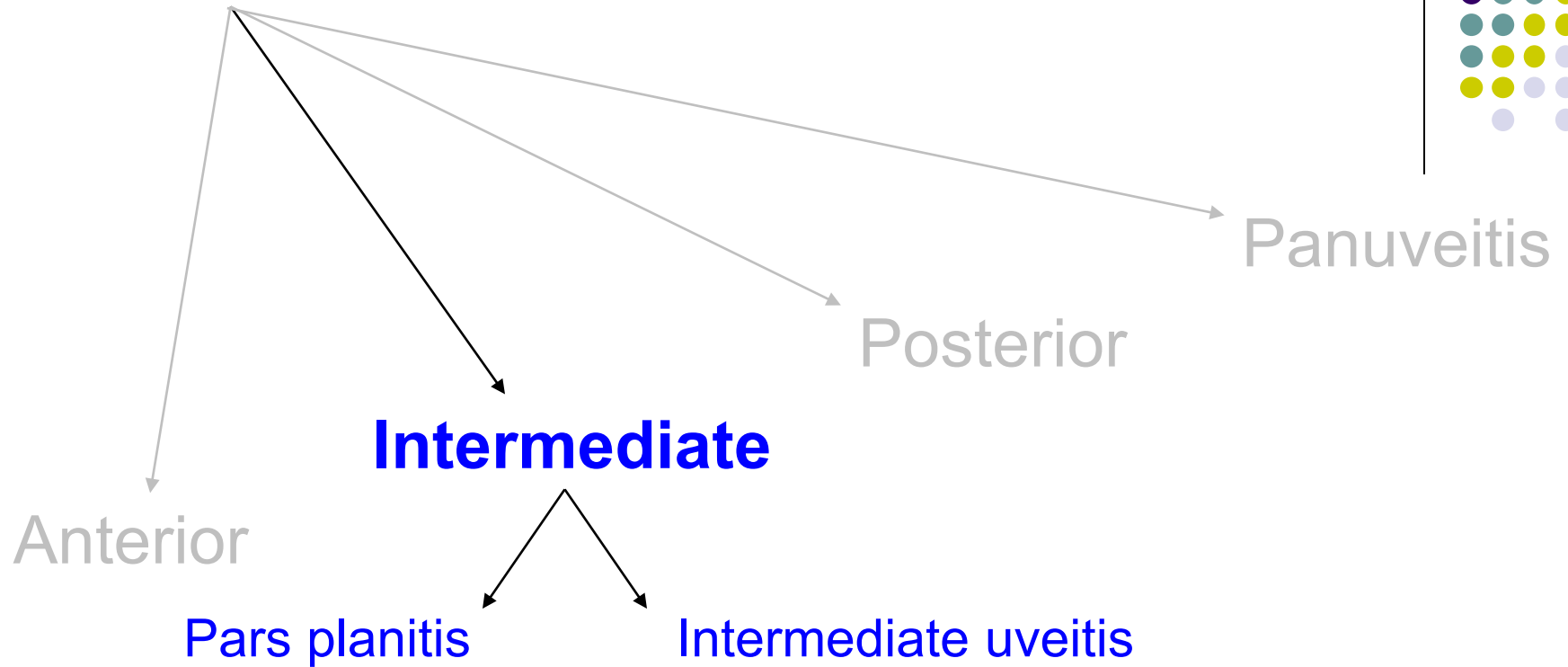
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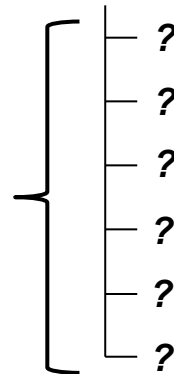
As indicated previously, IU is divided up into two categories. If the inflammation is associated with an identifiable condition, the uveitis is called **IU**. If it is idiopathic, ie, if no cause can be identified, it is called **pars planitis**.



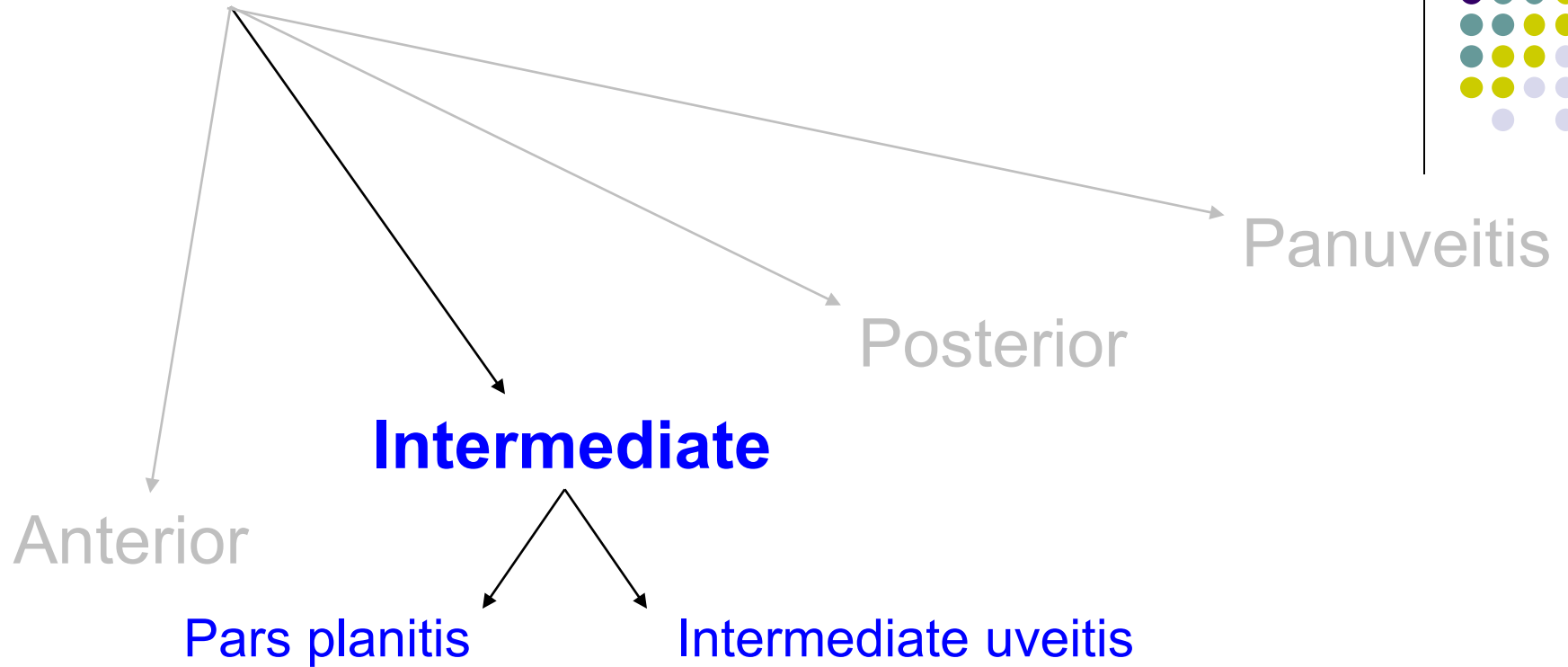
# Uveitis



The entities most  
likely to produce IU



# Uveitis

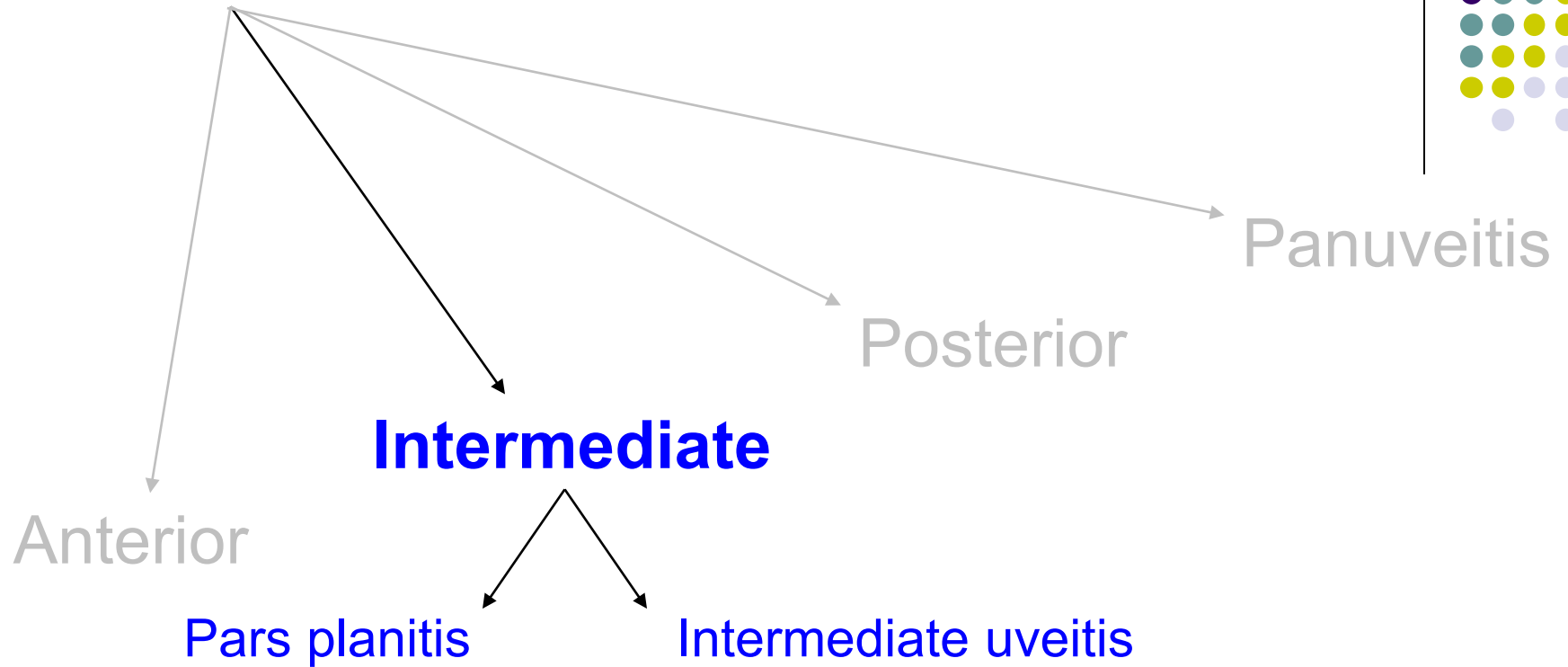


The entities most  
likely to produce IU

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



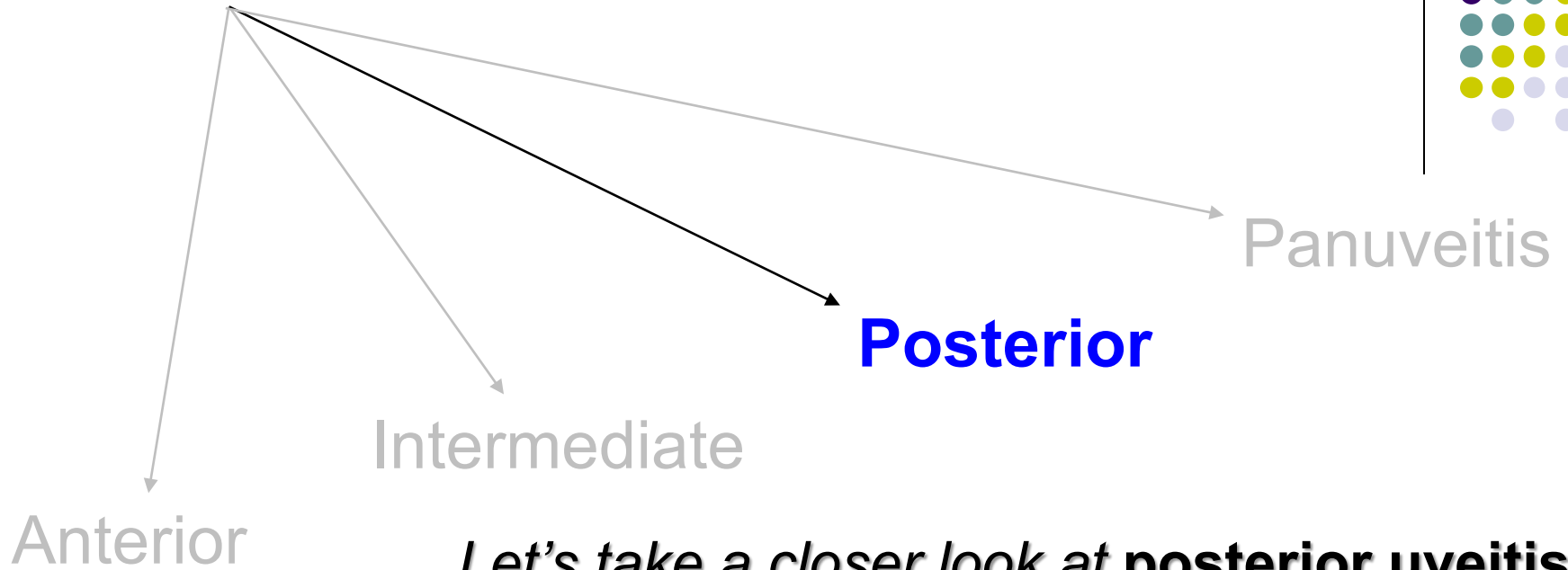
# Uveitis



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

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

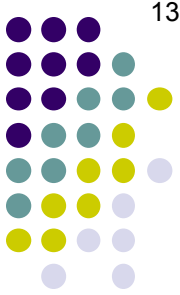
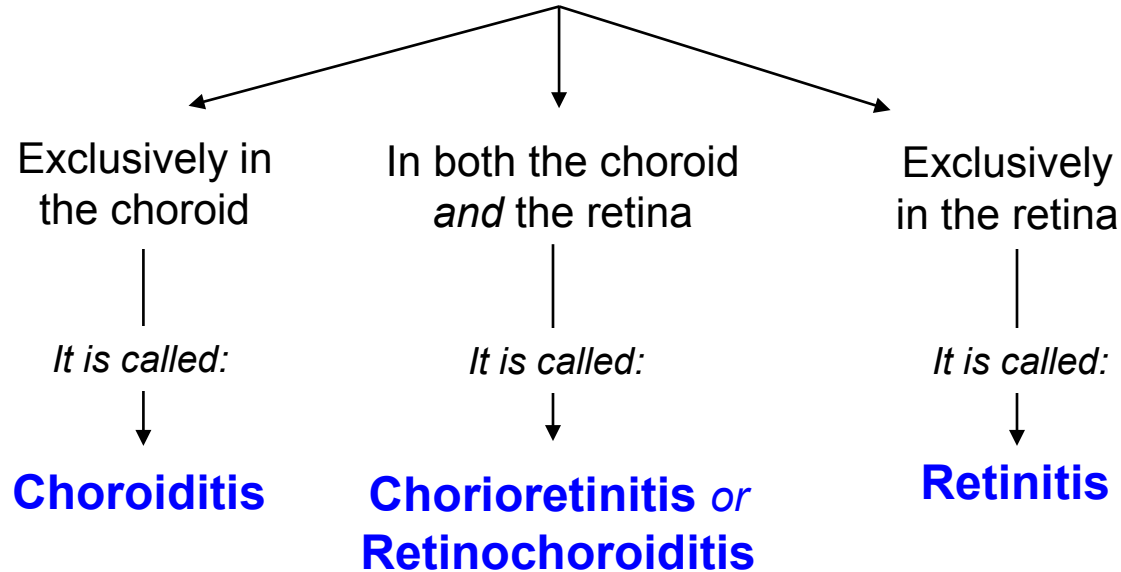
# Uveitis



# Uveitis

## Posterior uveitis

*If inflammation is located...*

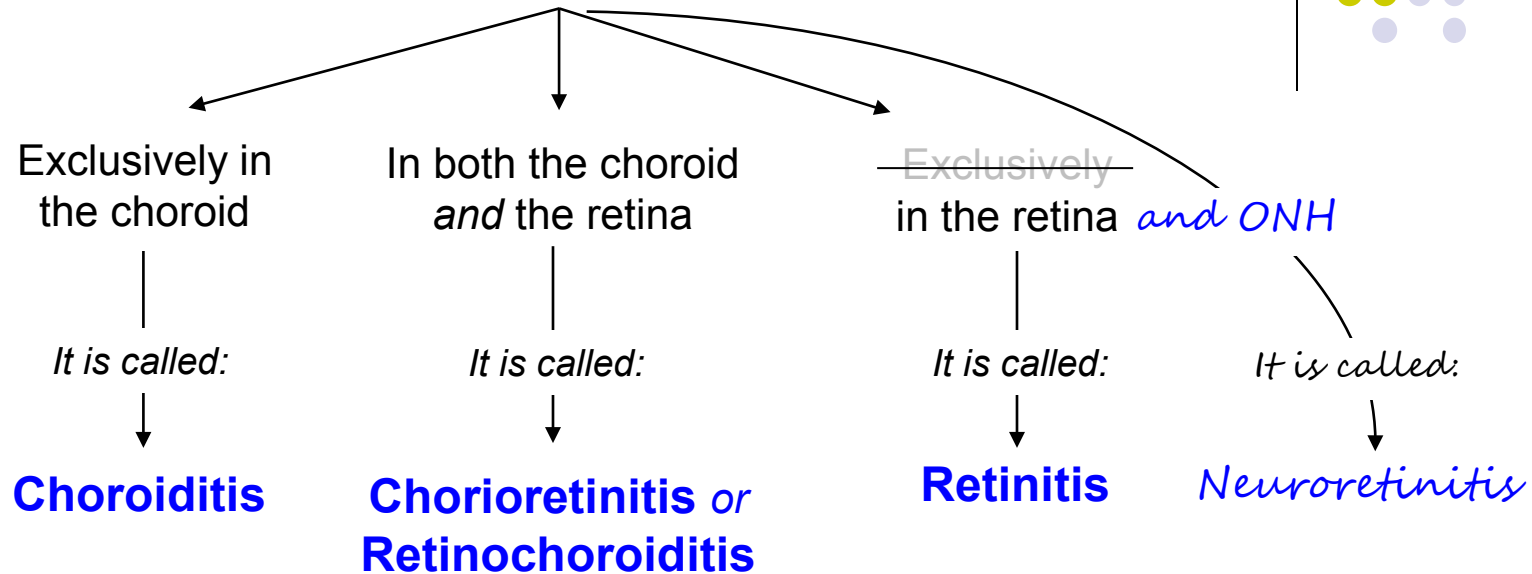


As noted previously, here are the ways **posterior uveitis** can manifest.

# Uveitis

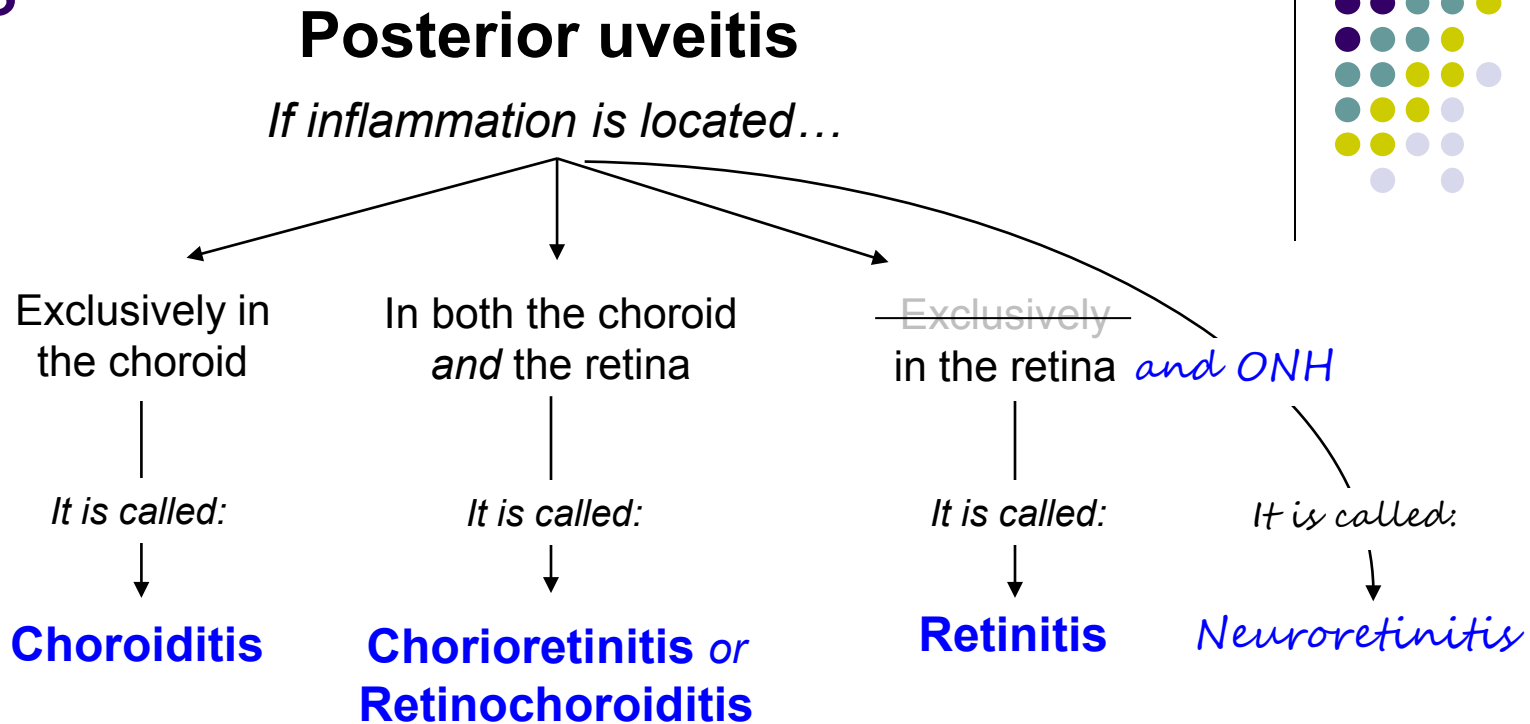
## Posterior uveitis

*If inflammation is located...*



As noted previously, here are the ways **posterior uveitis** can manifest. Also noted previously was the condition *neuroretinitis*—inflammation involving both the retina and optic nerve.

# Uveitis



As noted previously, here are the ways **posterior uveitis** can manifest. Also noted previously was the condition *neuroretinitis*—inflammation involving both the retina and optic nerve.

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

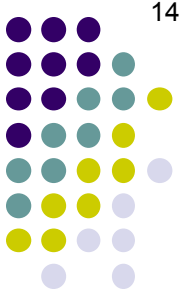
# Posterior uveitis

```
graph TD; A[Intraocular inflammation] --> B[Exclusively in the choroid]; A --> C[In both the choroid and the retina]; A --> D[Exclusively in the retina and ONH]; B --> B1[It is called:]; B1 --> B2[Choroiditis]; C --> C1[It is called:]; C1 --> C2[Chorioretinitis or Retinochoroiditis]; D --> D1[It is called:]; D1 --> D2[Retinitis]; D --> D3[It is called:]; D3 --> D4[Neuroretinitis];
```

The diagram is a flowchart classifying intraocular inflammation based on its location. It starts with a central point at the top, from which three arrows branch out. The first arrow points to the text 'Exclusively in the choroid'. Below this, a vertical line leads to the text 'It is called:', which then points down to the word 'Choroiditis' in bold blue font. The second arrow points to the text 'In both the choroid and the retina'. Below this, a vertical line leads to 'It is called:', which then points down to 'Chorioretinitis or Retinochoroiditis' in bold blue font. The third arrow points to the text 'Exclusively in the retina and ONH', where 'ONH' is in blue. Below this, a vertical line leads to 'It is called:', which then points down to 'Retinitis' in bold blue font. A second arrow from the 'It is called:' text points down to 'Neuroretinitis' in blue script font.

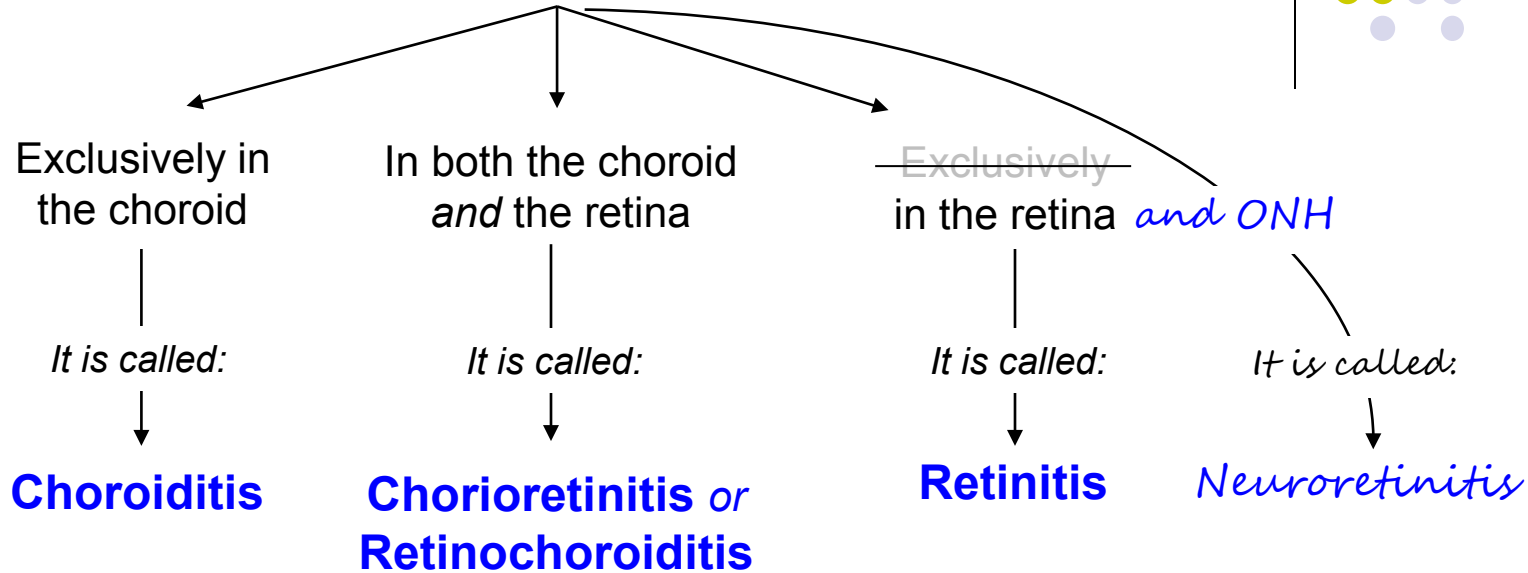
**Toxoplasmosis** is a common, classic cause of posterior uveitis. It is infectious, the bug being **Toxoplasma gondii** an obligate intracellular parasite. **Cats** are its definitive host. *T. gondii* has a worldwide distribution; an estimated one billion people are infected. Humans usually acquire the parasite via **contaminated food or water**.

# Uveitis



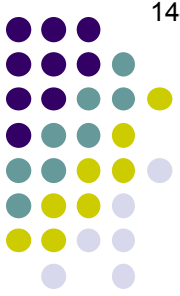
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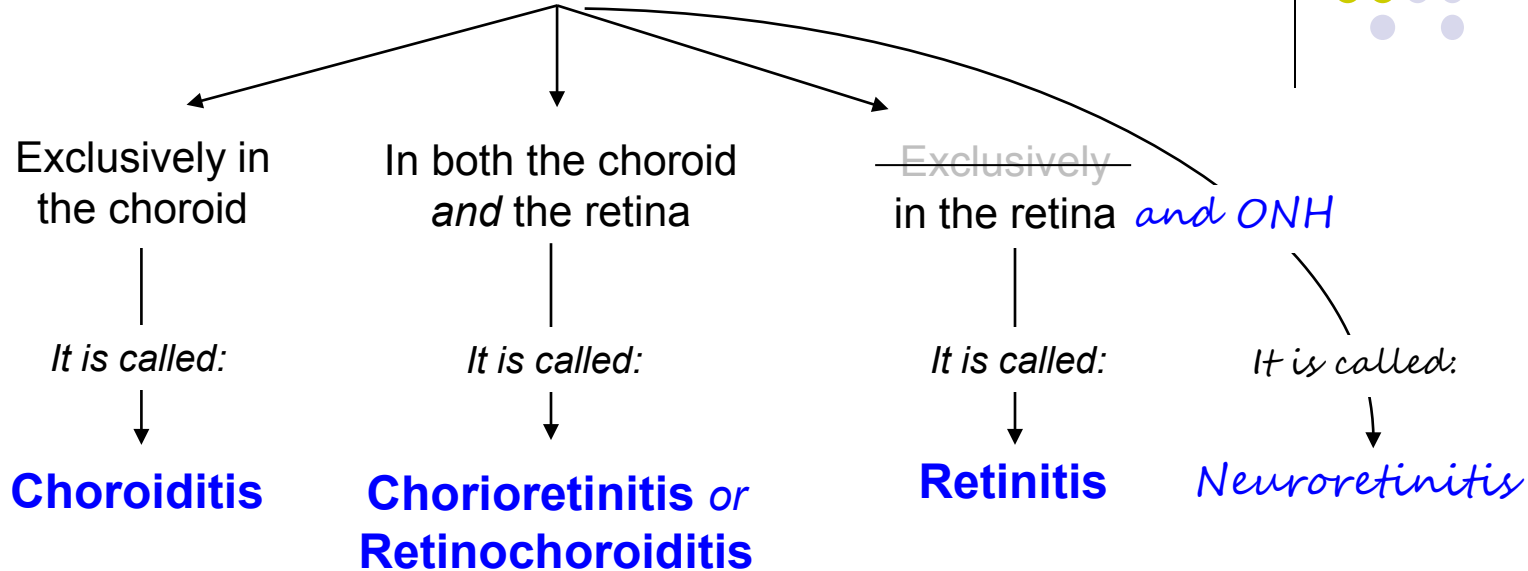
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# Uveitis



## Posterior uveitis

*If inflammation is located...*



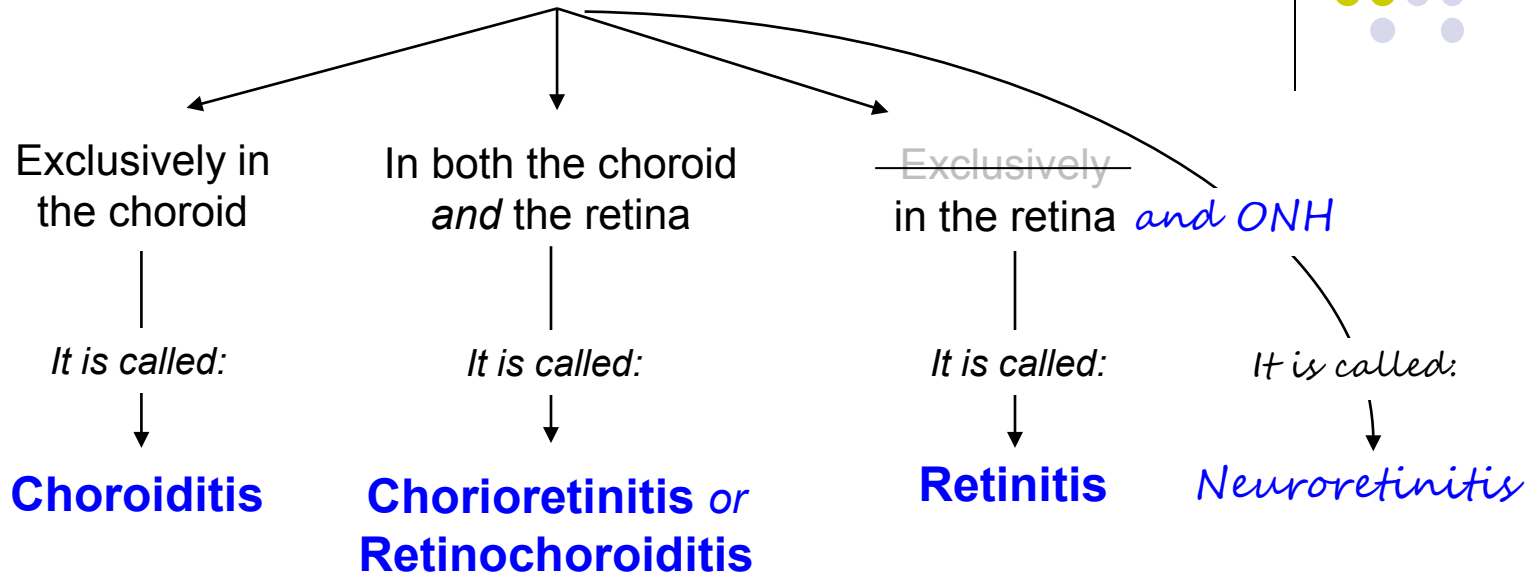
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# Uveitis

## Posterior uveitis

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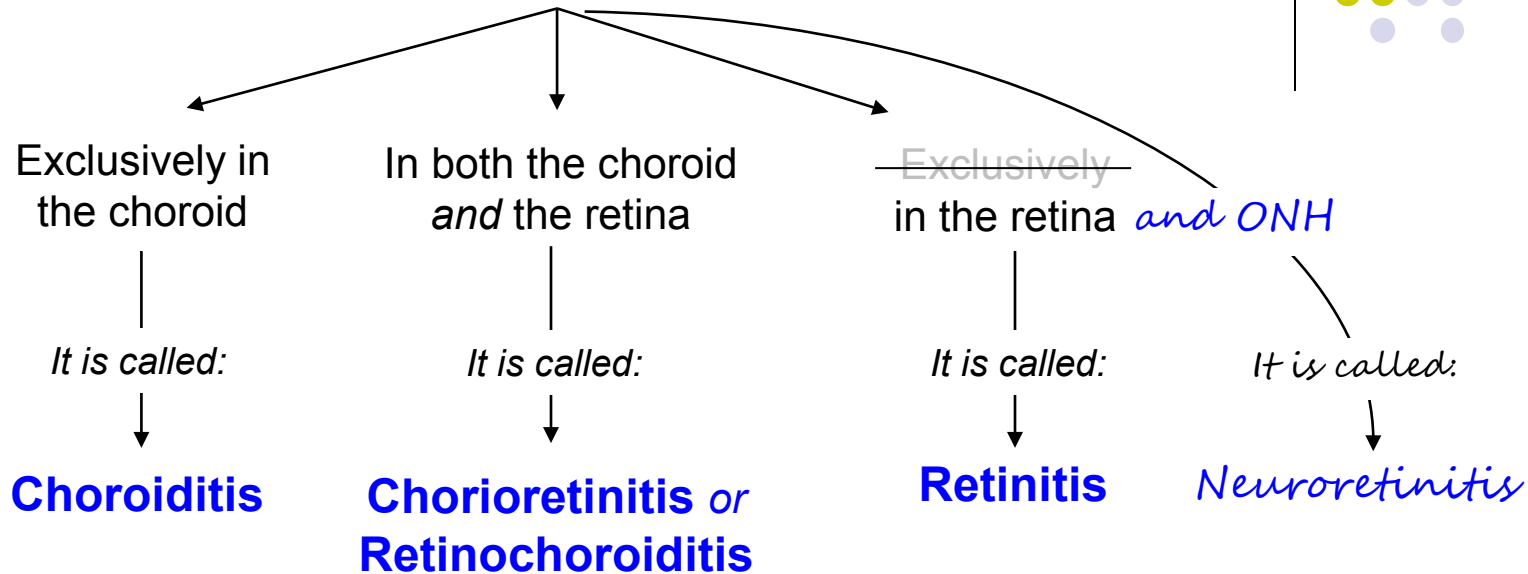


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# Uveitis

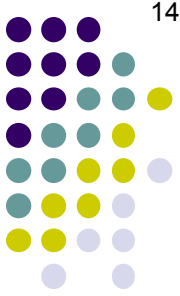
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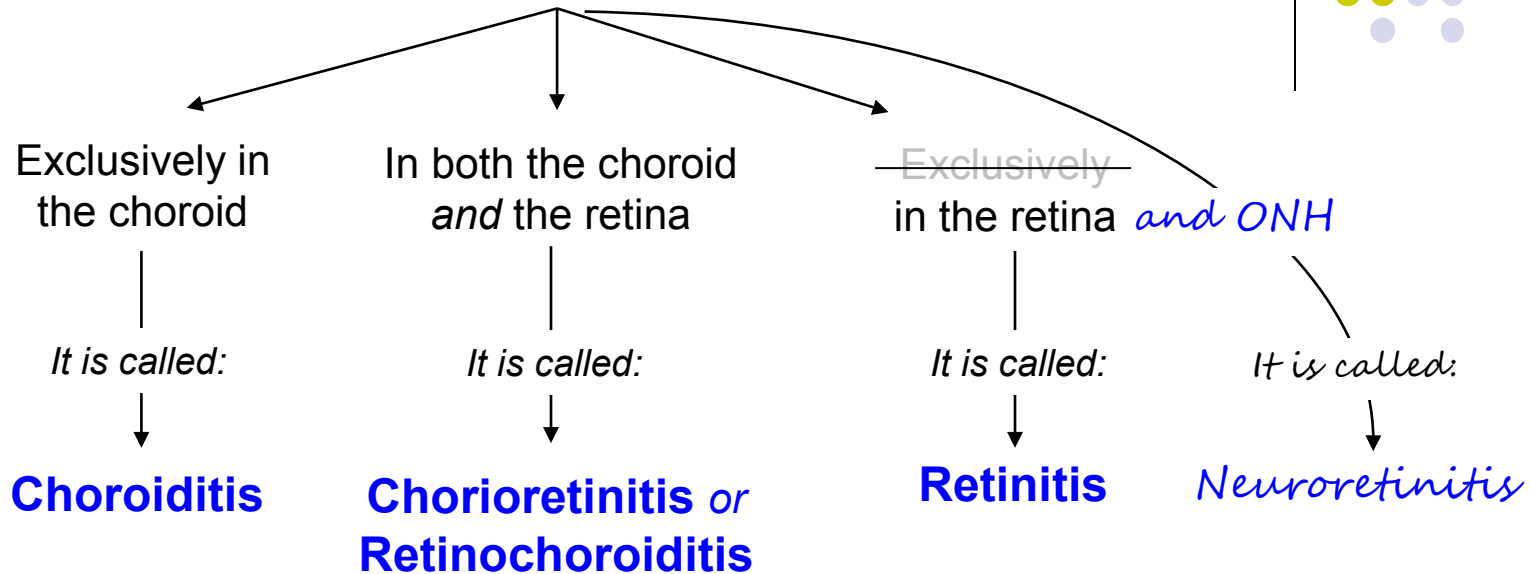
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# Uveitis



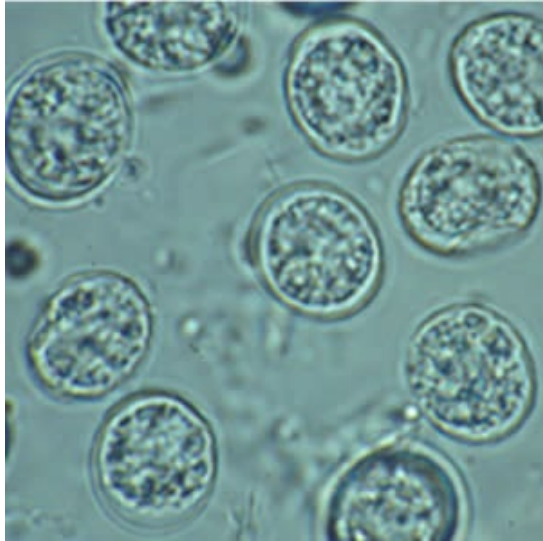
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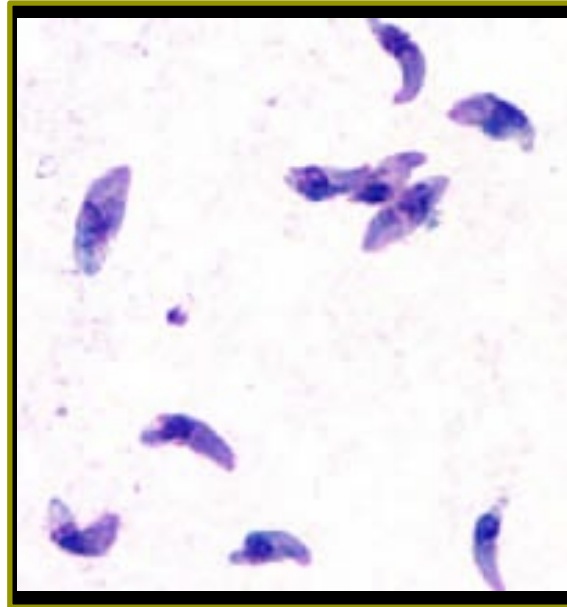
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# Uveitis



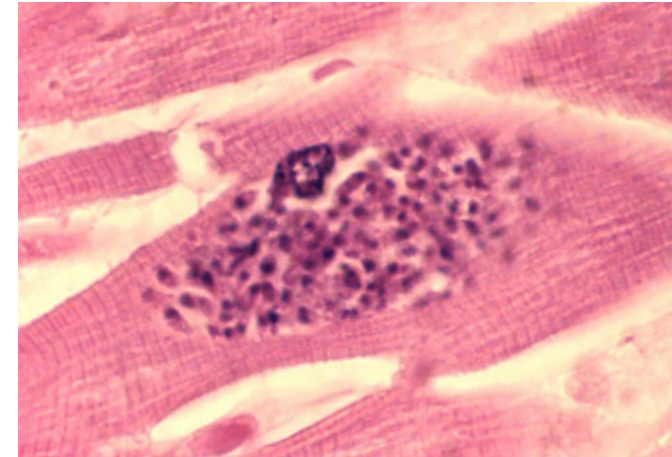
Oocyst form

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



Tachyzoite form

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



Tissue cyst

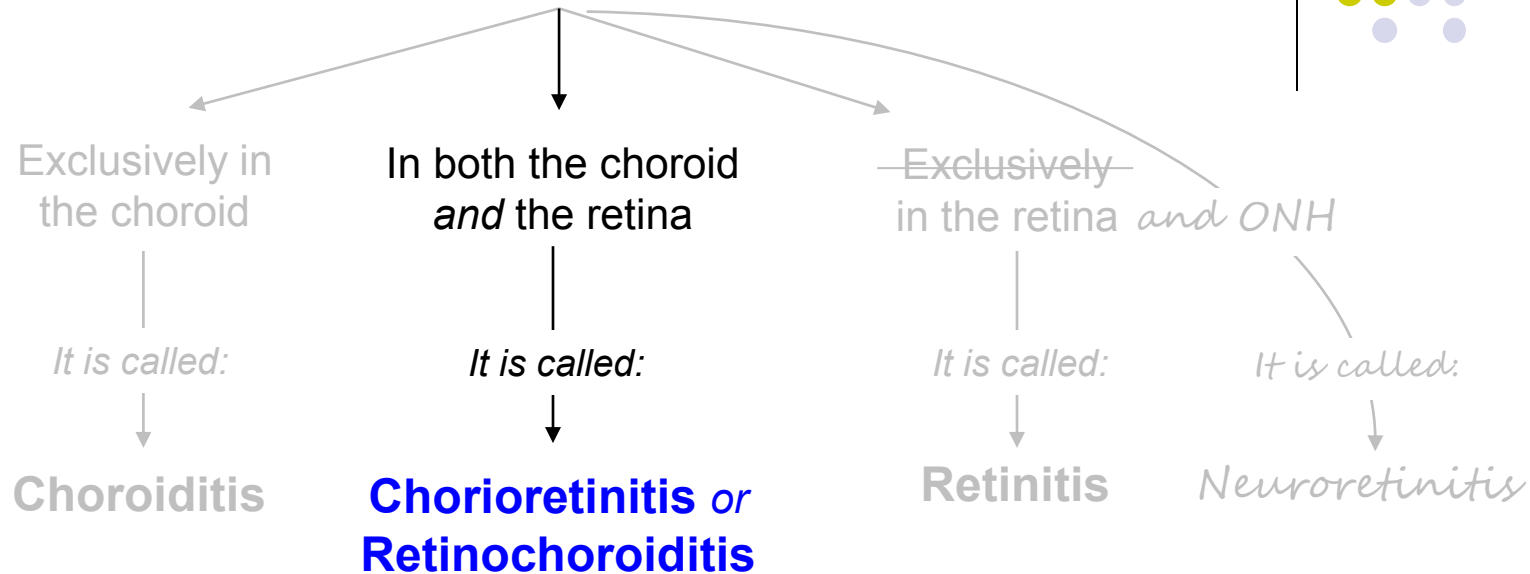
- Found in tissue of infected livestock
- Acquired via consumption of undercooked meat

*Toxoplasma gondii*: Three infectious forms

# Uveitis

## Posterior uveitis

*If inflammation is located...*



**Toxoplasmosis** is a common, classic cause of posterior uveitis. It is infectious, the bug being *Toxoplasma gondii*, an obligate intracellular parasite. Cats are its definitive host. *T gondii* has a worldwide distribution; an estimated one billion people are infected. Humans usually acquire the parasite via consumption of unwashed produce or undercooked meat. Another crucial mechanism of transmission is transplacentally, which leads to devastating congenital manifestations in affected infants (it is one of the TORCH syndrome etiologies).

Toxoplasmosis typically manifests as a retinochoroiditis accompanied by a dense overlying vitritis. Taken together, the appearance has been likened to a

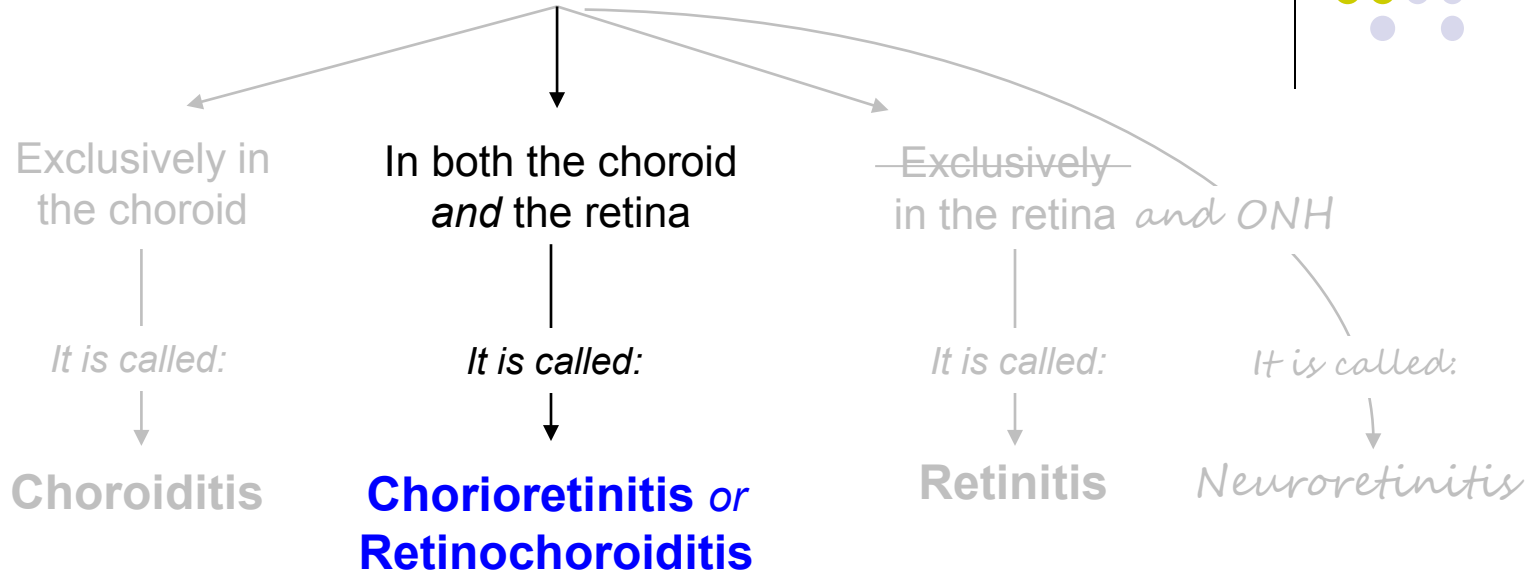
four words

# Uveitis

150

## Posterior uveitis

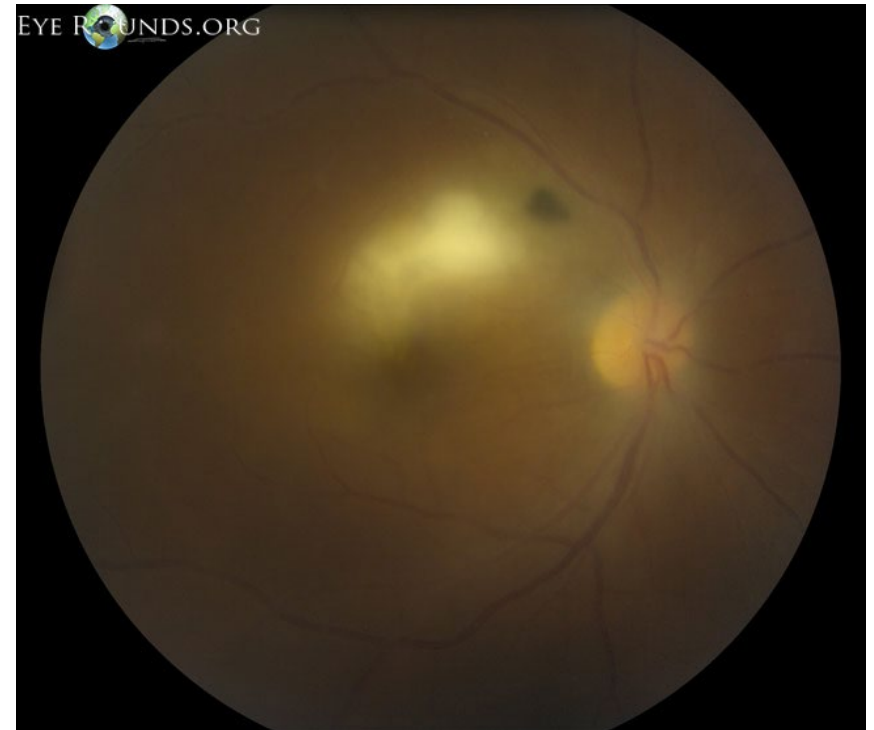
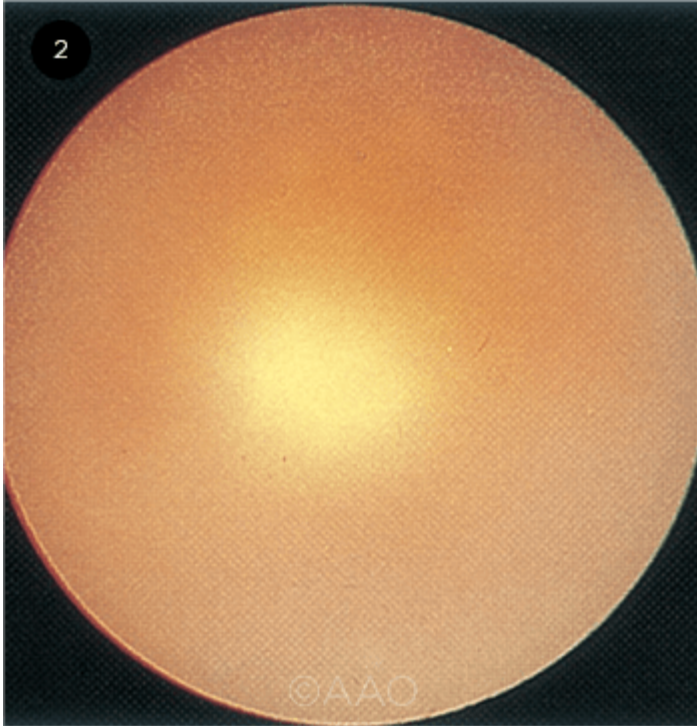
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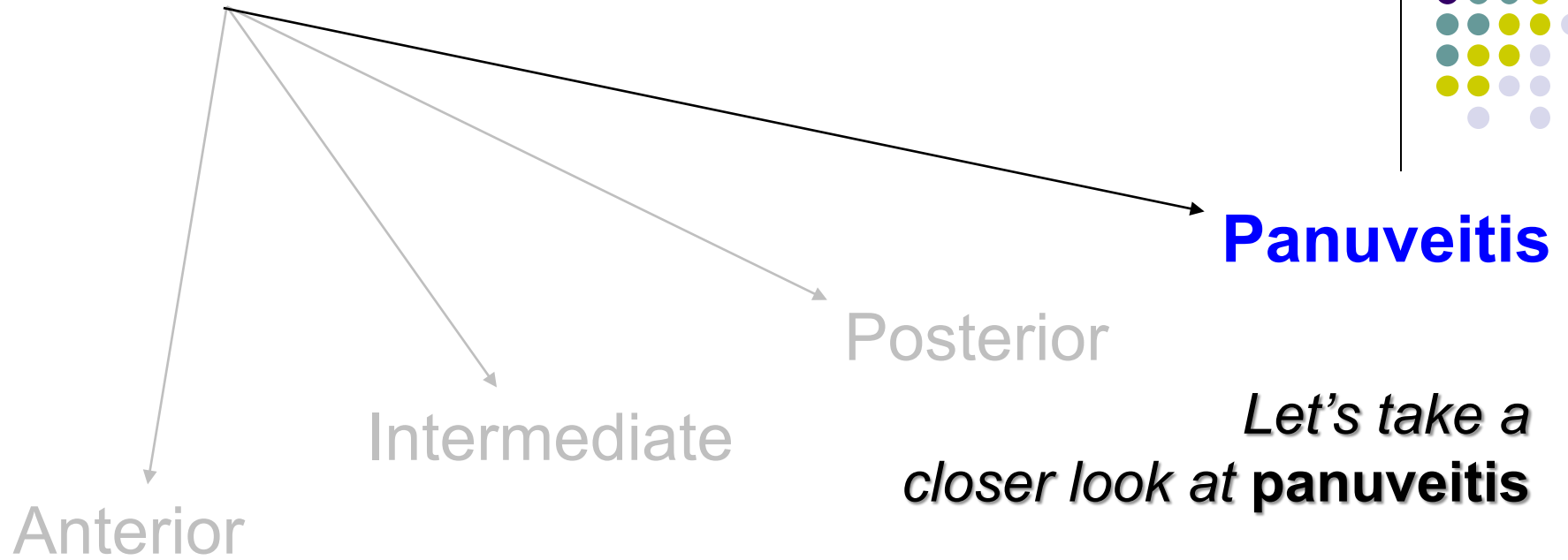
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# Uveitis



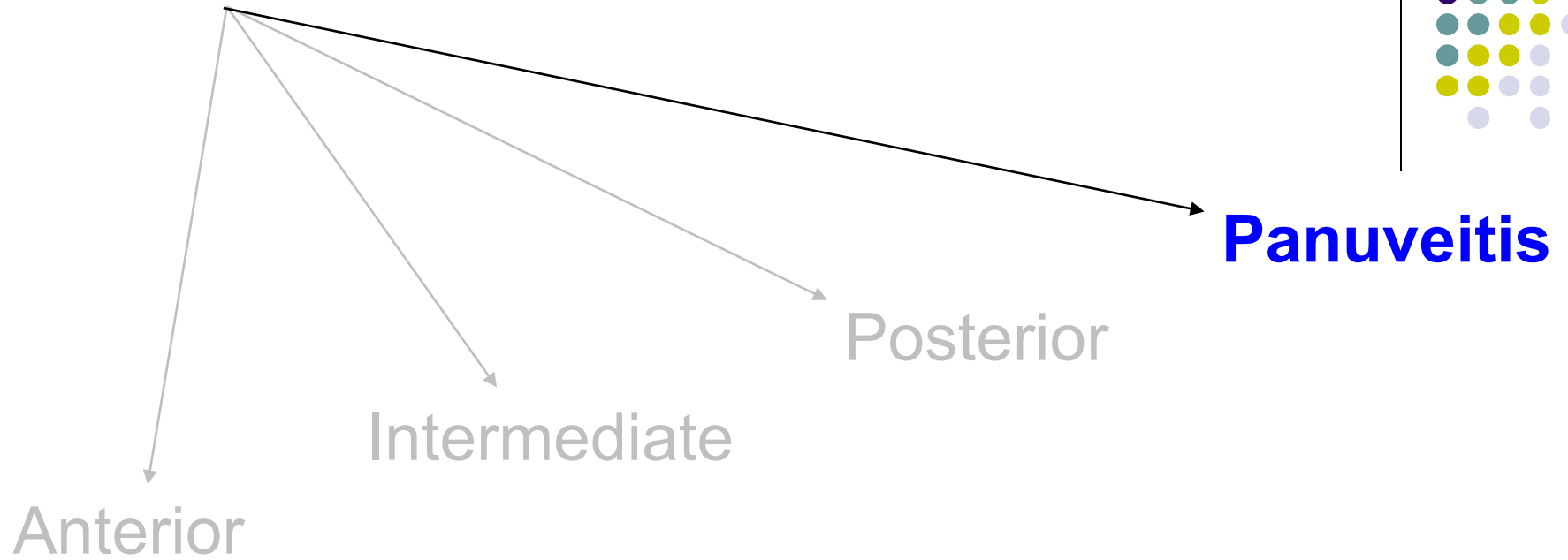
Ocular toxoplasmosis: 'Headlight in the fog'

# Uveitis



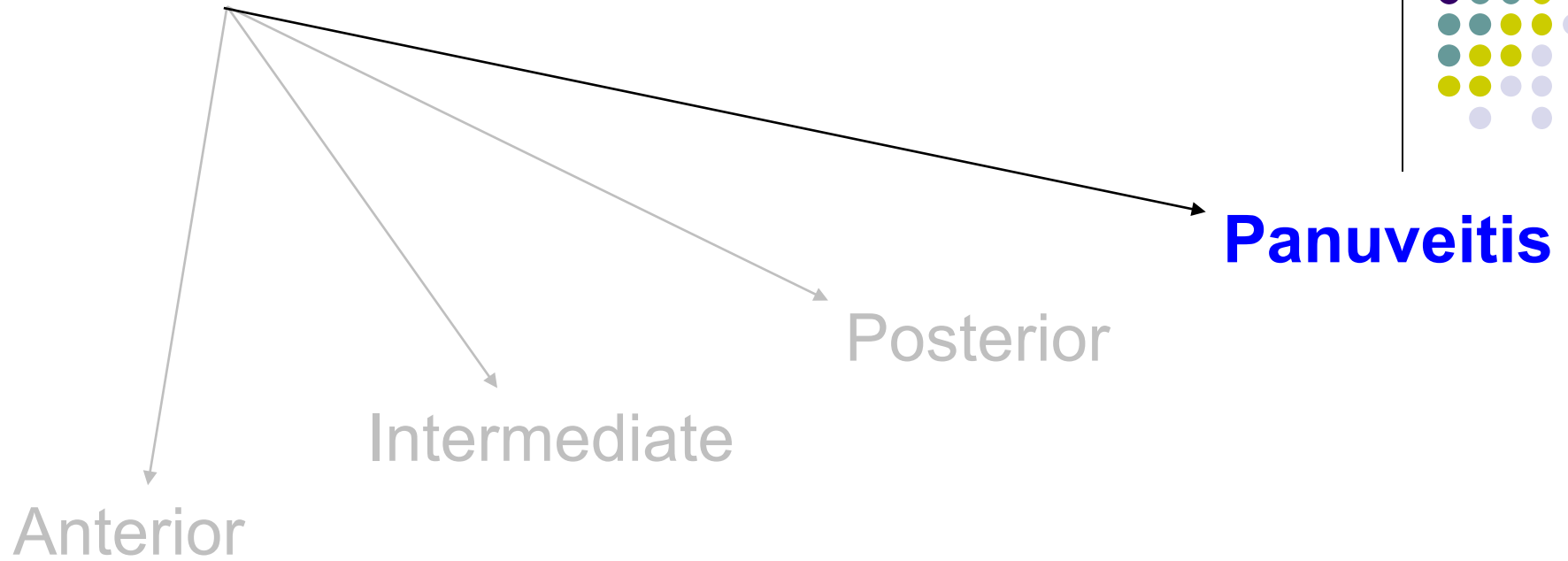


# Uveitis



To qualify as a **panuveitis**, all compartments of the eye—the AC, vitreous, and retina/choroid—must be equally involved in the inflammatory process.

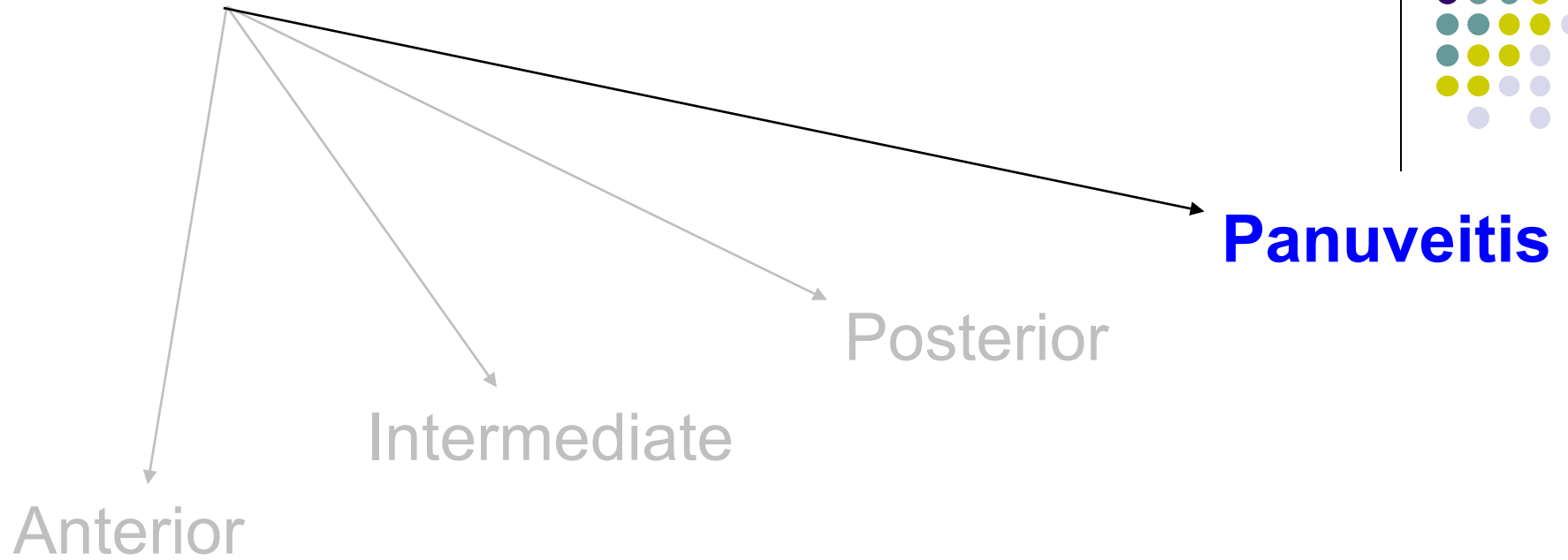
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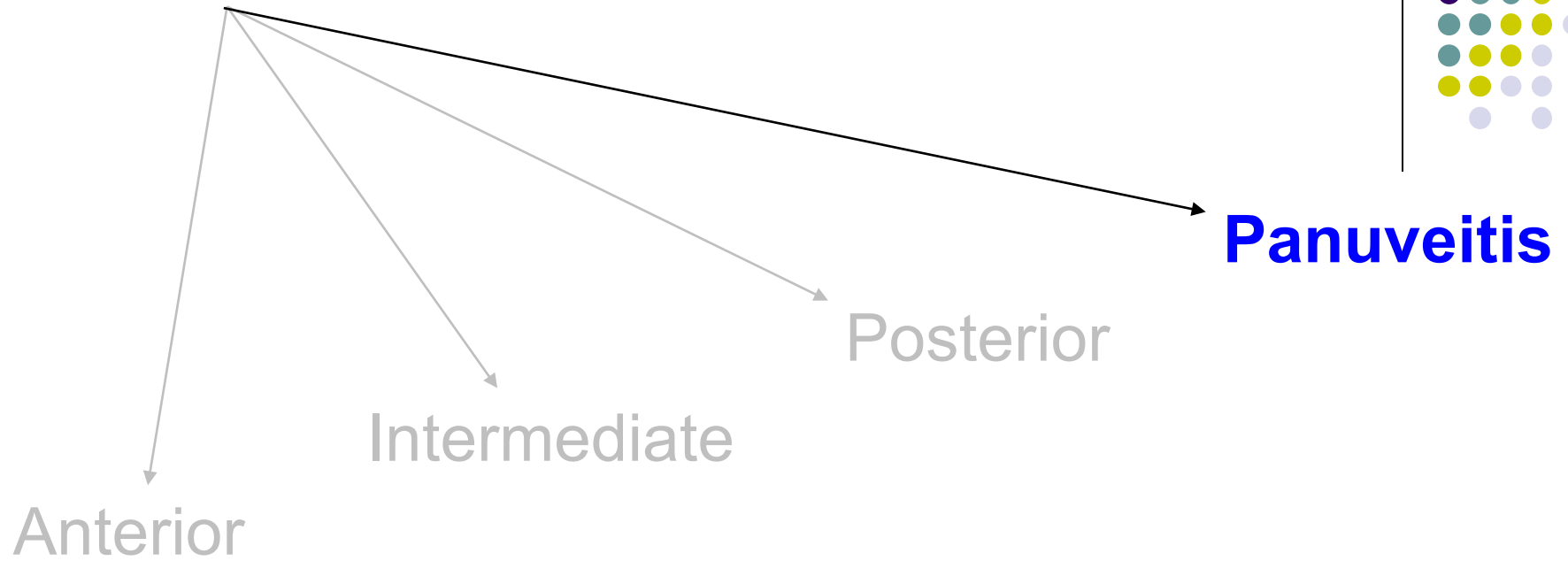
uni- v bilateral

# Uveitis



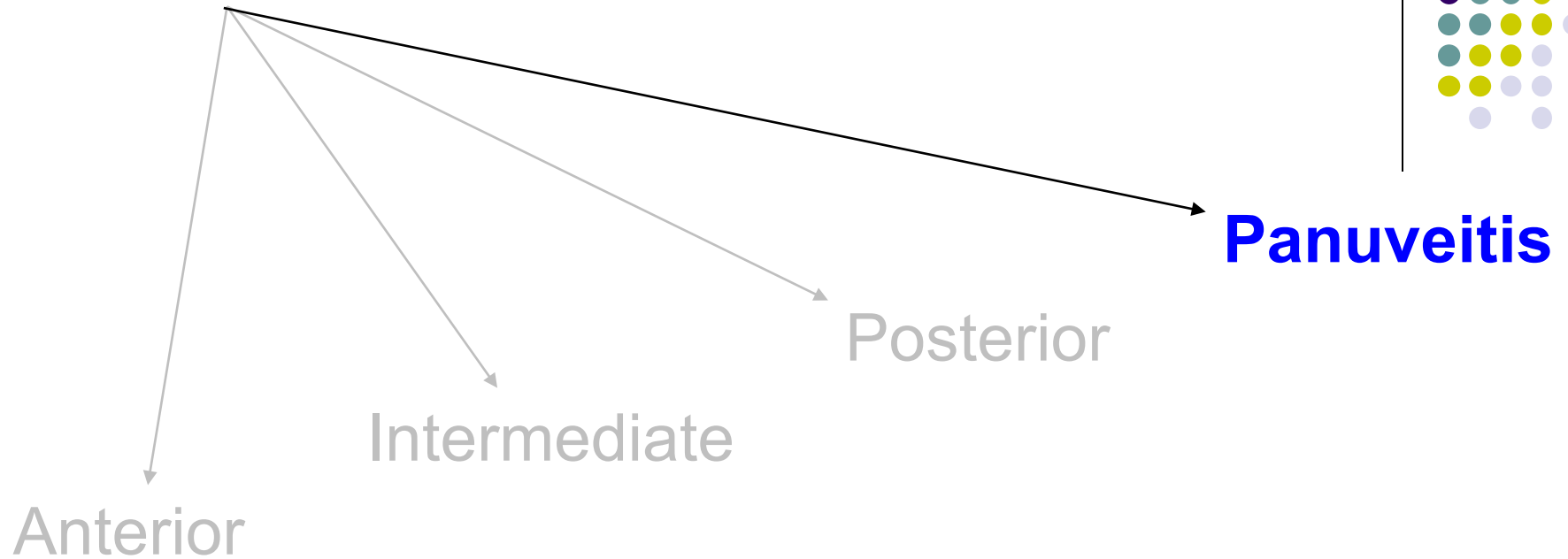
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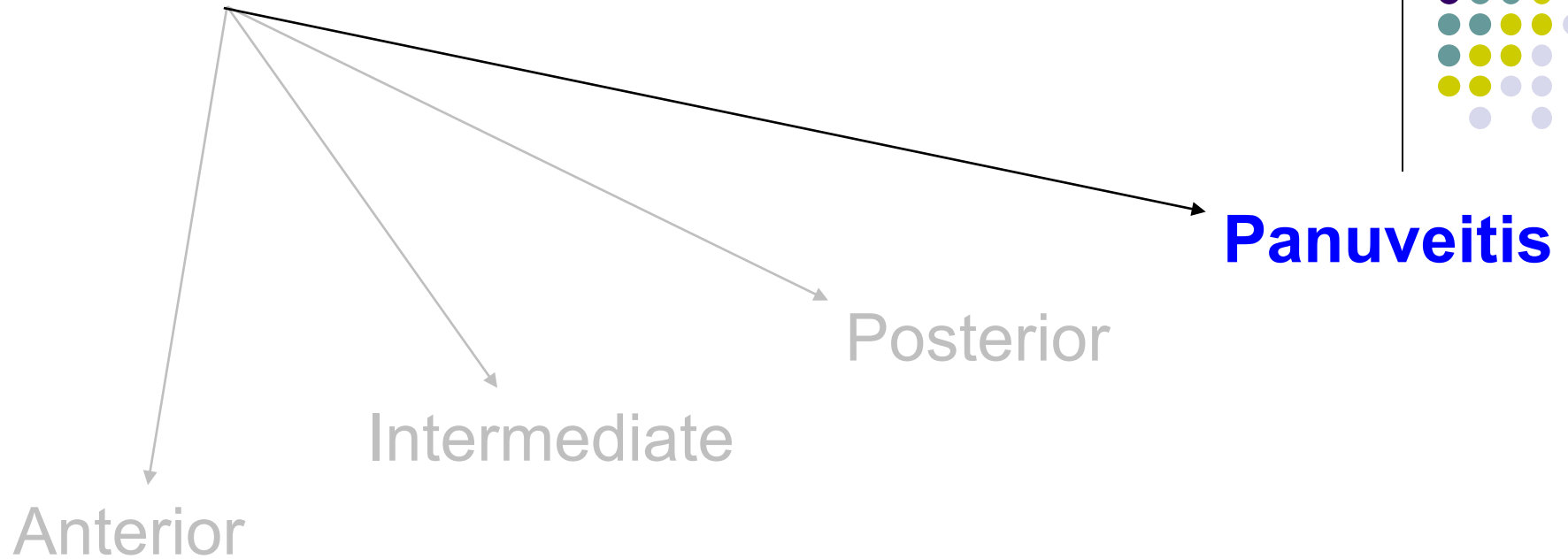
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The panuveitides are divided into  and  causes.

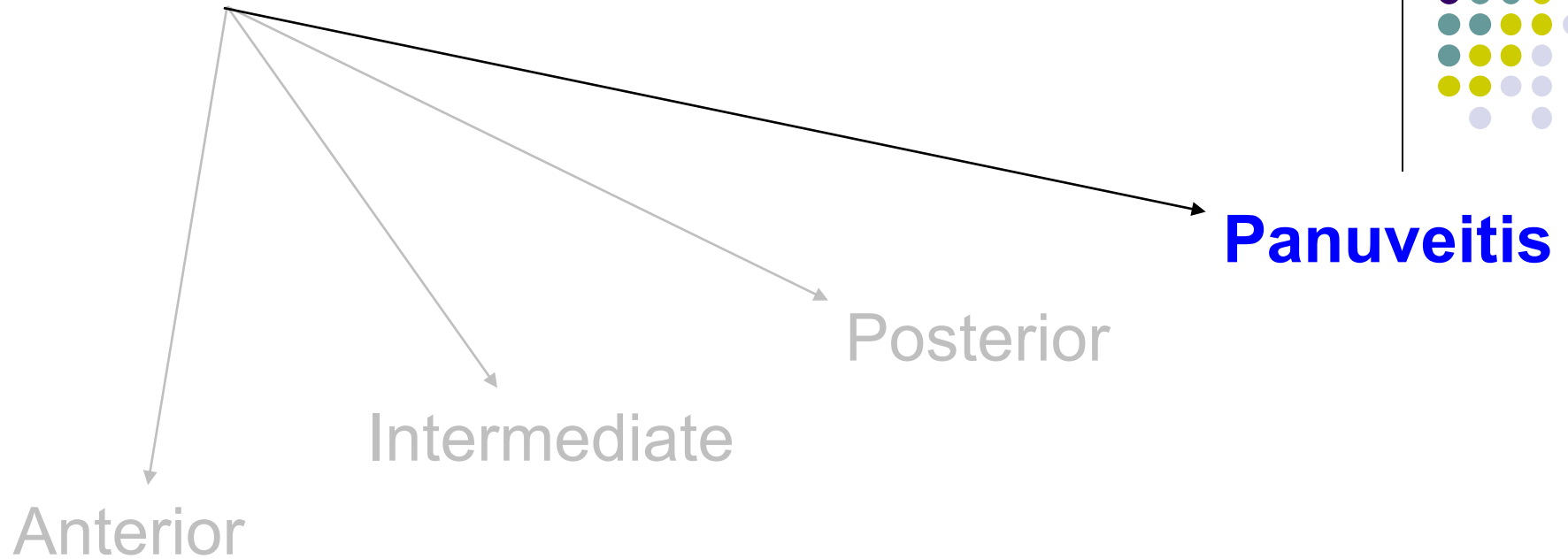
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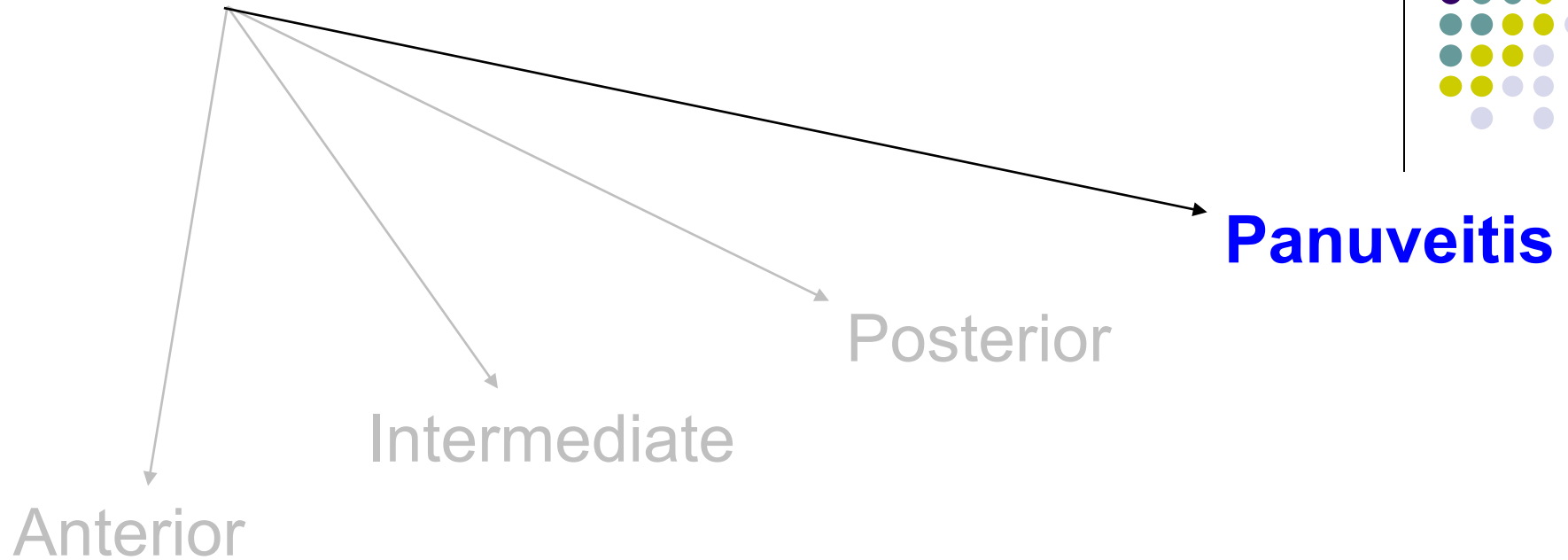
?—

?—

?—

?—

# Uveitis



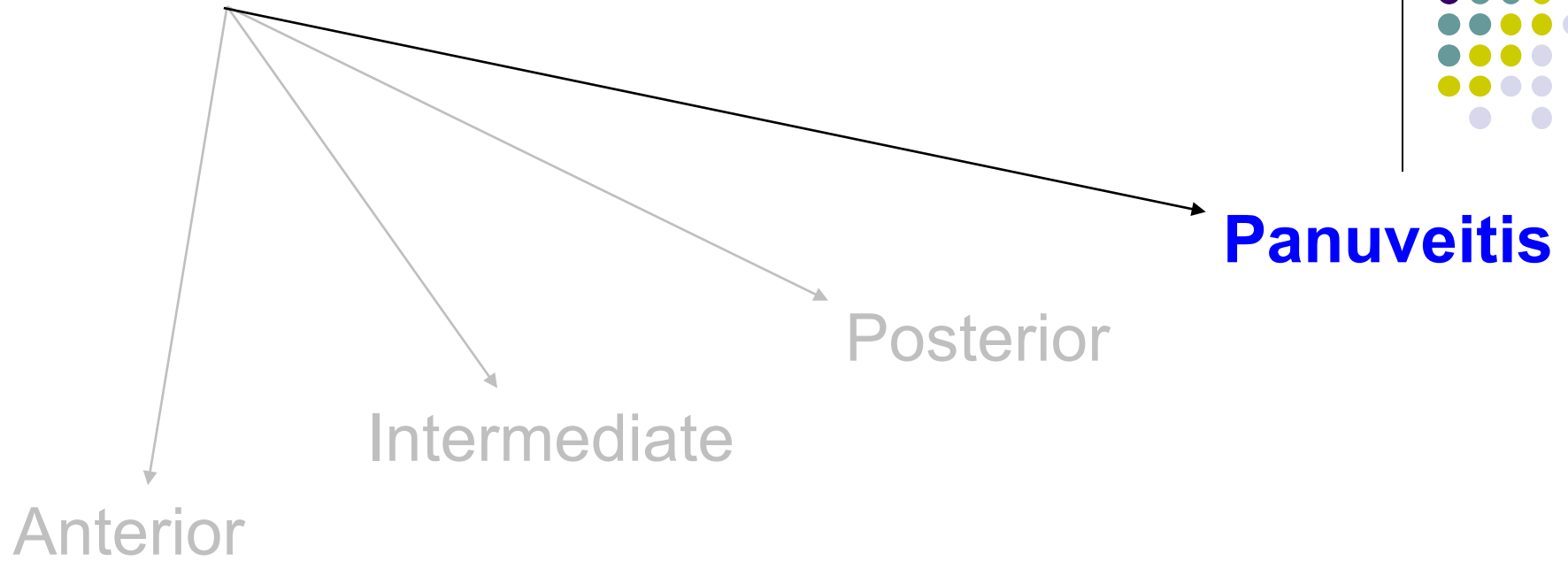
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- Sarcoid—
- Sympathetic ophthalmia—
- Vogt-Koyanagi-Harada—
- Behçet syndrome—



# Uveitis

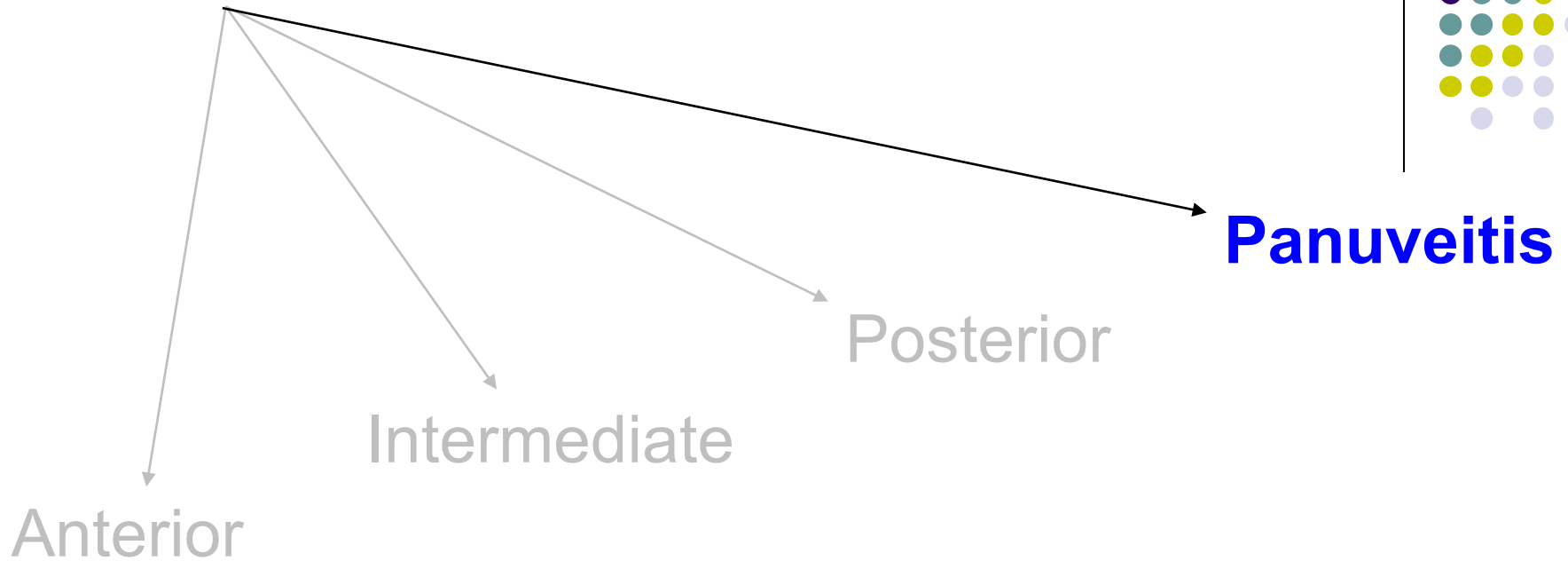


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	—?

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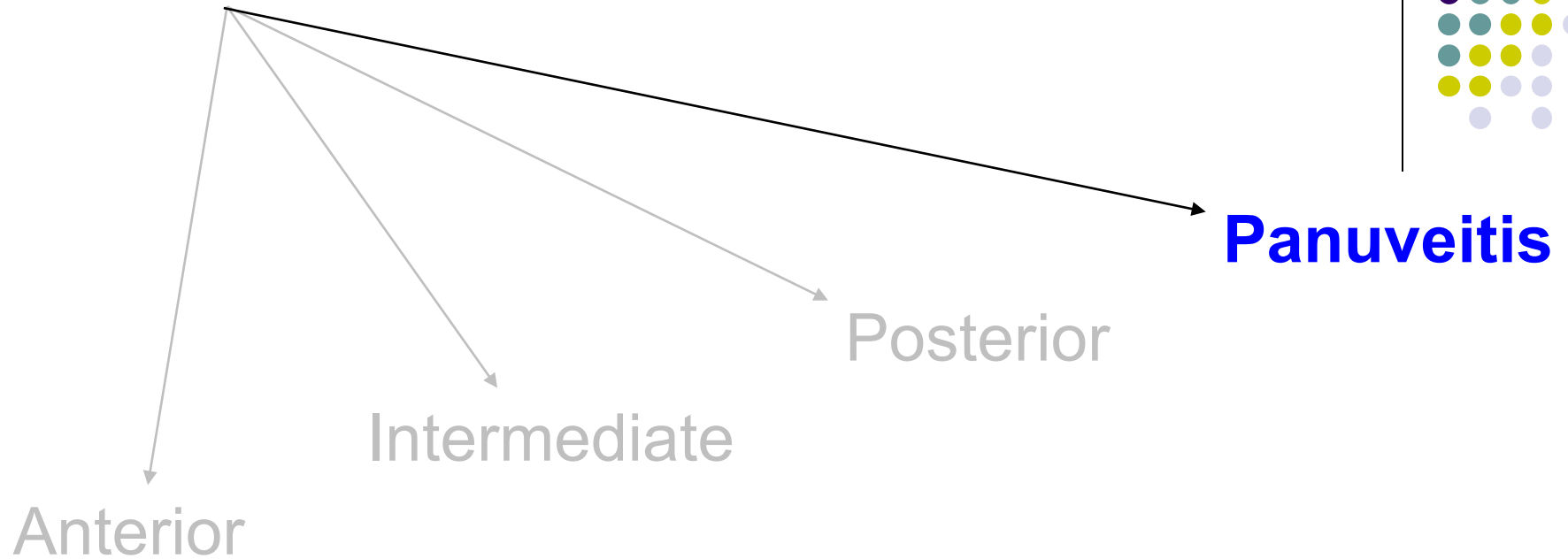


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Sarcoid	Syphilis
Sympathetic ophthalmia	TB
Vogt-Koyanagi-Harada	Lyme
Behçet syndrome	Leptospirosis
	Whipple dz

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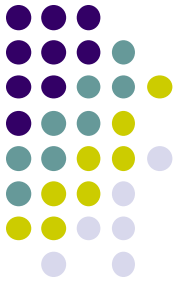
<b>Sarcoid</b>	<i>Note that these three appear yet again</i>	<b>Syphilis</b>
Sympathetic ophthalmia		<b>TB</b>
Vogt-Koyanagi-Harada		Lyme
Behçet syndrome		Leptospirosis
		Whipple dz

# Endophthalmitis



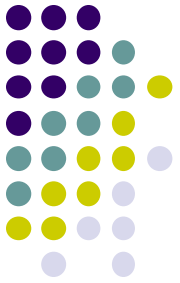
*Now we'll change gears and look at endophthalmitis*

# Endophthalmitis



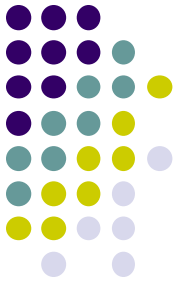
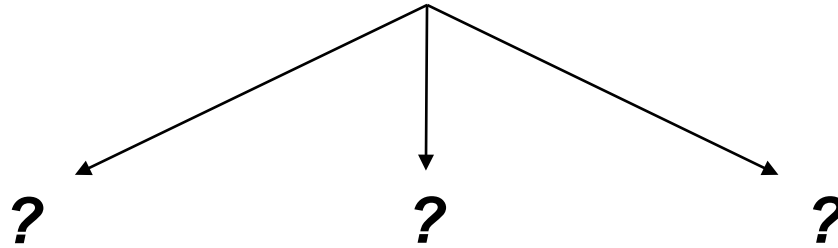
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# Endophthalmitis



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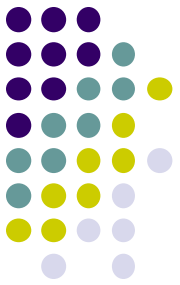
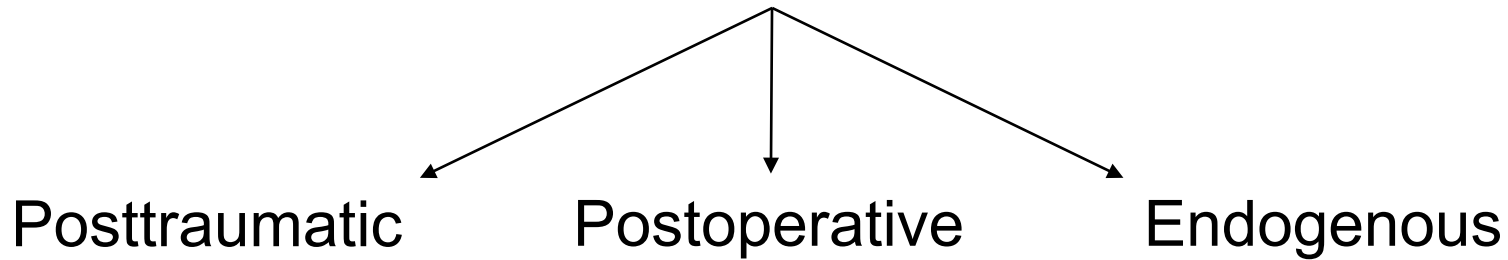
# Endophthalmitis



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Endophthalmitis can be causal event A , causal event B or causal event C

# Endophthalmitis



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

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



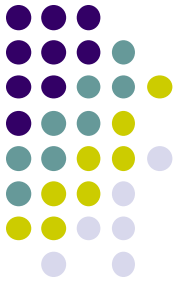
# *Endogenous* Endophthalmitis



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# Endogenous Endophthalmitis



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

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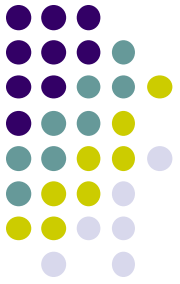
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# *Endogenous* Endophthalmitis

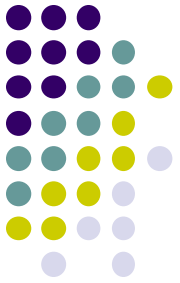
Bacterial

Fungal

As mentioned, endogenous endophthalmitis can be bacterial or fungal.



# *Endogenous* Endophthalmitis



**Bacterial**

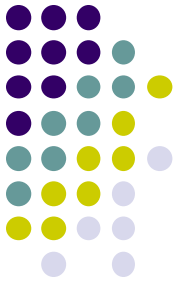
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two words



# *Endogenous* Endophthalmitis

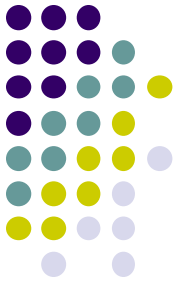


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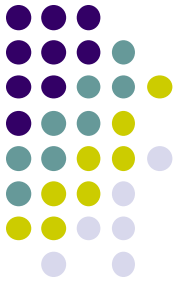


**Bacterial**

Fungal

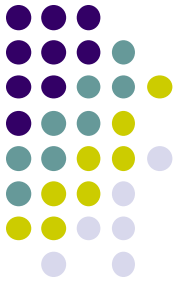
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Endog



Bacterial endophthalmitis

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Some classic bacterial pathogen associations in endogenous endophthalmitis:

--*Endocarditis*: ?

--*Skin infections*

--*IVDU*

--*Liver abscess*

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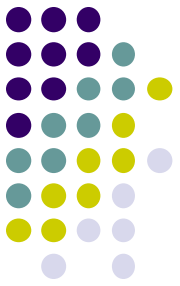
- Endocarditis*: *Strep*
- Skin infections*: *Staph*
- IVDU*: *Bacillus*
- Liver abscess*: *Klebsiella*

# *Endogenous* Endophthalmitis

Bacterial

Fungal

In contrast to the bacterial version, endogenous **fungal** endophthalmitis tends to be more   in onset.

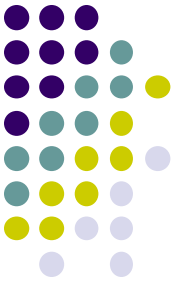


# *Endogenous* Endophthalmitis

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# Endogenous Endophthalmitis



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Fungal

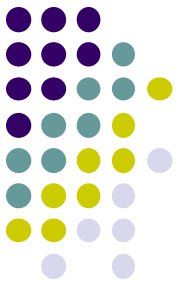
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In contrast to the bacterial version, endogenous **fungal** endophthalmitis tends to be more insidious in onset. *It generally progresses in a particular fashion. First, isolated choroidal metastatic lesions appear.*



# *Endogenous* Endophthalmitis



*Candida* endophthalmitis: Choroidal lesions

# *Endogenous* Endophthalmitis



Bacterial

Fungal

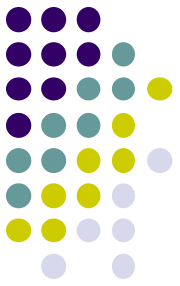
In contrast to the bacterial version, endogenous **fungal** endophthalmitis tends to be more insidious in onset. It generally progresses in a particular fashion. First, isolated choroidal metastatic lesions appear. With time, these break through  to involve the retina.

# *Endogenous* Endophthalmitis

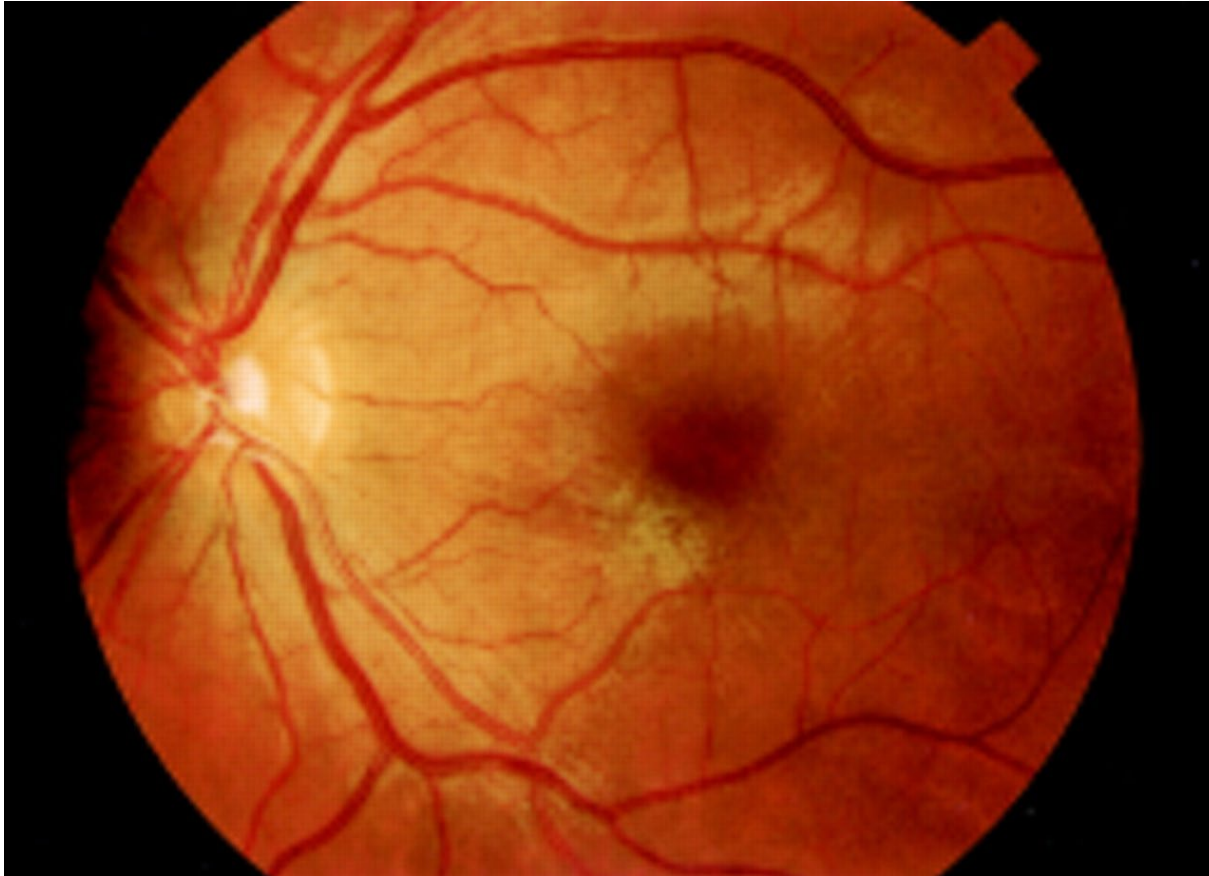
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# *Endogenous* Endophthalmitis



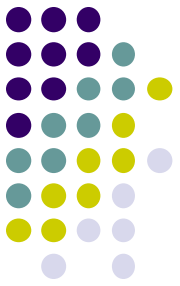
*Candida* endophthalmitis: Retinal involvement

# *Endogenous* Endophthalmitis

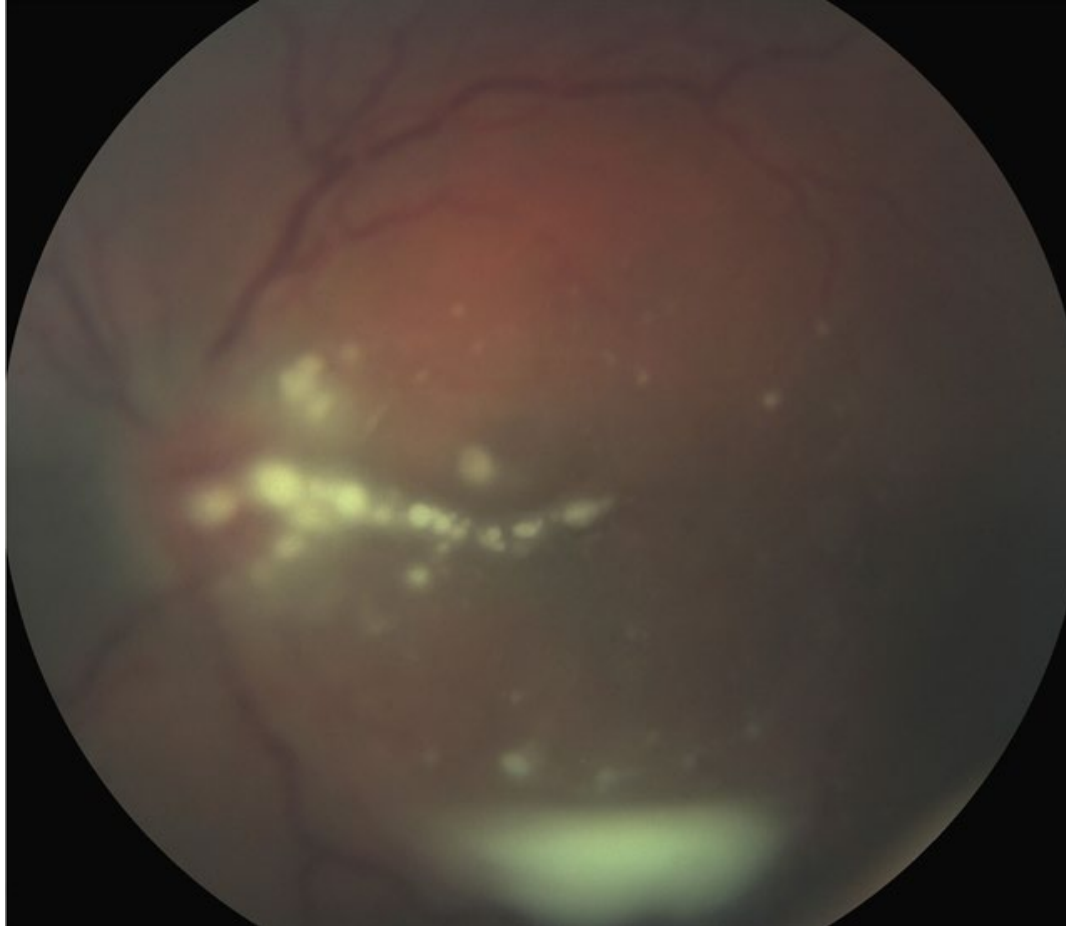
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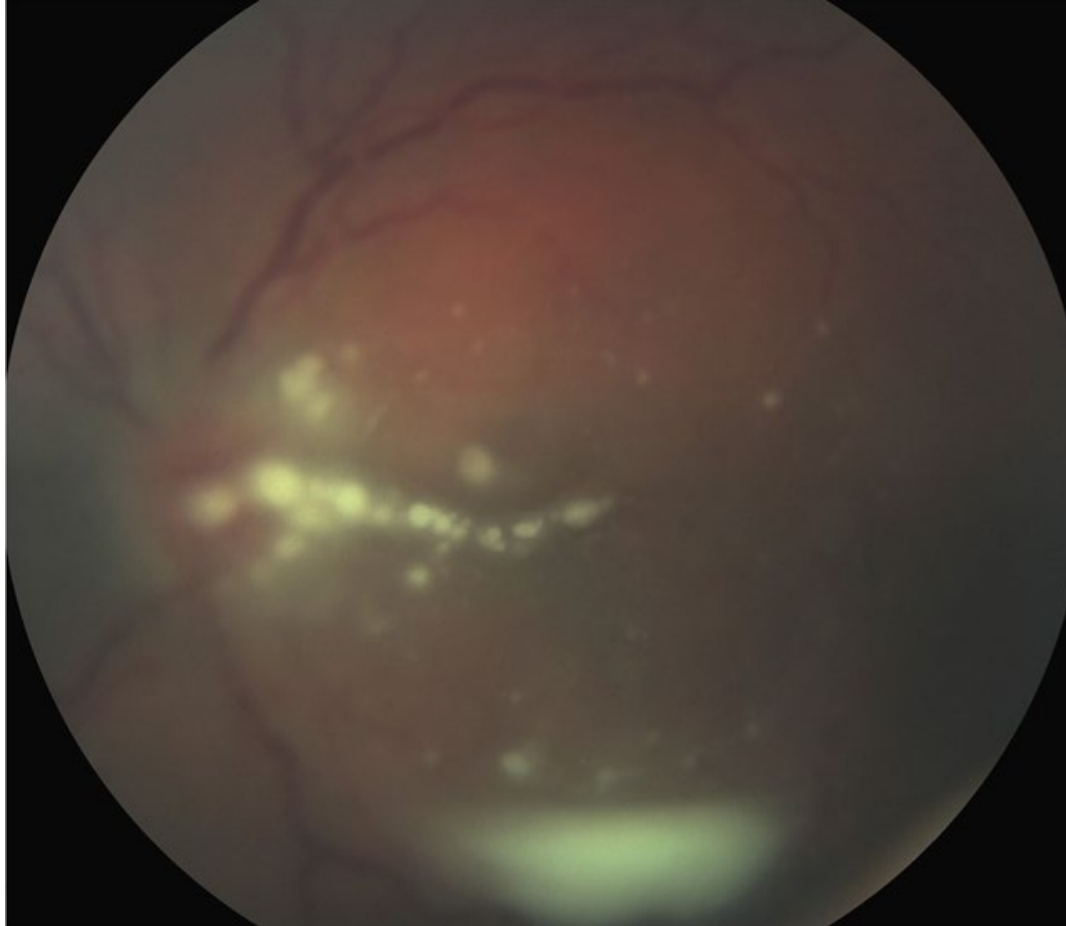
# *Endogenous* Endophthalmitis



*Candida* endophthalmitis: Classic three words vitreous involvement

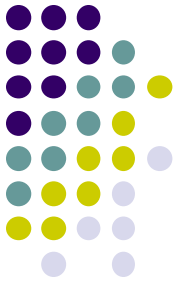


# *Endogenous* Endophthalmitis



*Candida* endophthalmitis: Classic 'string of pearls' vitreous involvement

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Some classic fungal pathogen associations in endogenous endophthalmitis:

- Chronic indwelling lines/catheters: ?
- HIV/AIDS
- Hx liver transplantation
- San Joaquin valley

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# Endogenous Endophthalmitis



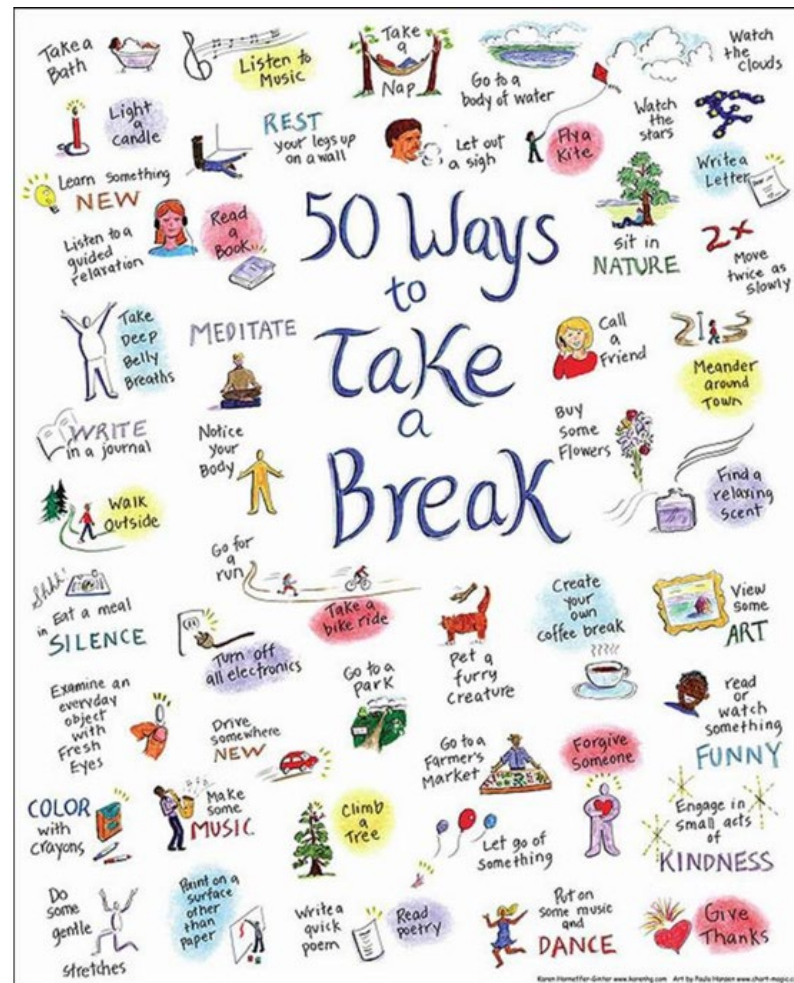
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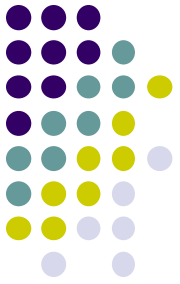
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(This is a good point in the set to take a break)

# Uveitis

*Next let's take a look at* Scleritis



# Uveitis



## Scleritis

Scleritis is an inflammatory condition characterized by painful infiltrative scleral edema and congestion of the  plexus.

# Uveitis



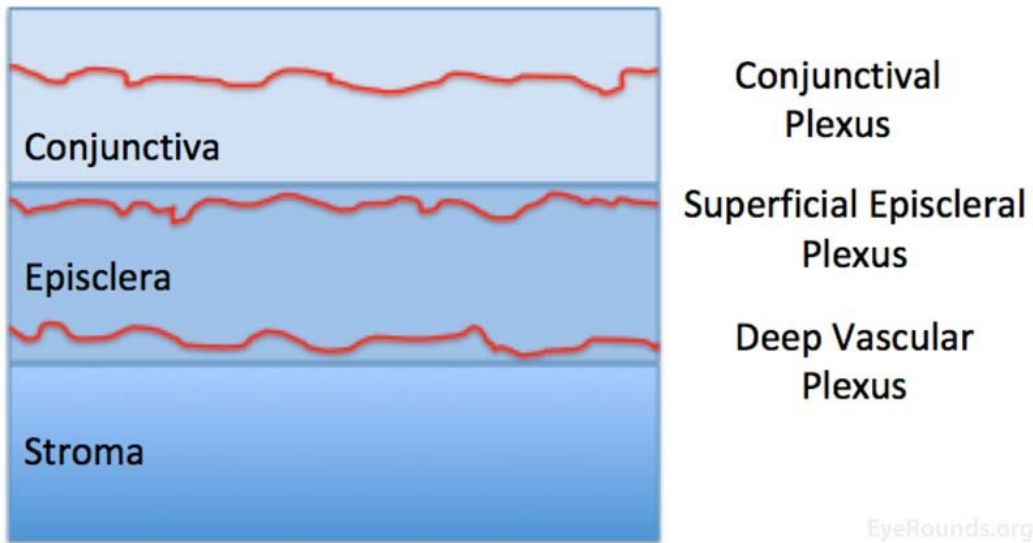
## Scleritis

Scleritis is an inflammatory condition characterized by painful infiltrative scleral edema and congestion of the deep episcleral plexus.

# Uveitis



214



Anatomical depiction of the conjunctiva, episclera, and scleral stroma, and the approximate location of the conjunctival, superficial episcleral, and deep vascular plexi.



Scleritis: Deep episcleral plexus edema

# Uveitis



## Scleritis

Scleritis is an inflammatory condition characterized by painful infiltrative scleral edema and congestion of the deep episcleral plexus. It can be extremely painful, and can lead to [redacted] and [redacted]

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# Uveitis



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

two words

# Uveitis

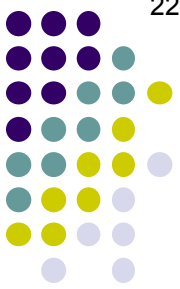


## Scleritis

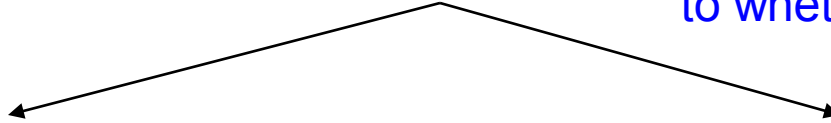
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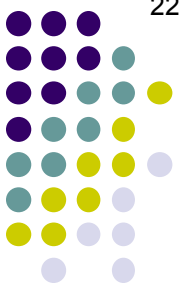
# Uveitis



**Scleritis** is divvied up with respect  
to whether the...



# Uveitis



**Scleritis** is divvied up with respect  
to whether the...

Anterior sclera is affected, vs the Posterior sclera.



## Scleritis

**Anterior**

Posterior

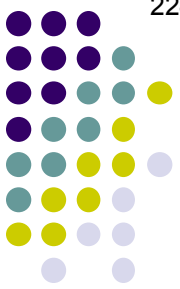
*There are three classic signs of anterior scleritis:*

--Scleral



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## Scleritis

**Anterior**

Posterior

*There are three classic signs of anterior scleritis:*

--Scleral edema

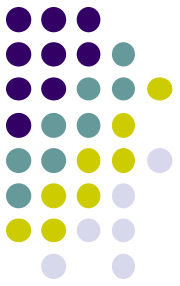
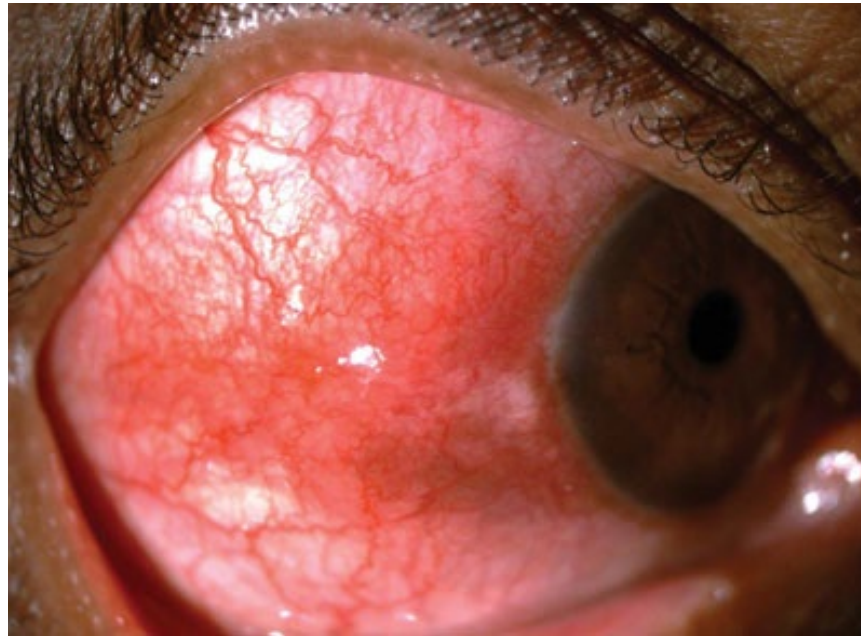
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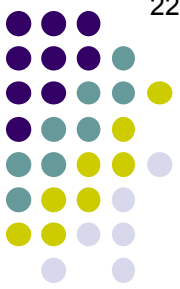


# Uveitis

Anterior scleritis:  
Scleral edema



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



## Scleritis

**Anterior**

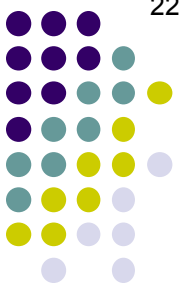
Posterior

*There are three classic signs of anterior scleritis:*

--Scleral edema

--Sclera has a   hue

--



## Scleritis

**Anterior**

Posterior

*There are three classic signs of anterior scleritis:*

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

# Uveitis



Anterior scleritis: Violaceous hue




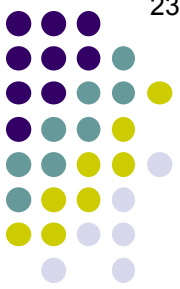
## Scleritis

**Anterior**

Posterior

*There are three classic signs of anterior scleritis:*

- Scleral edema
- Sclera has a **violaceous** hue
- Inflamed vasculature has a  pattern



## Scleritis

Anterior

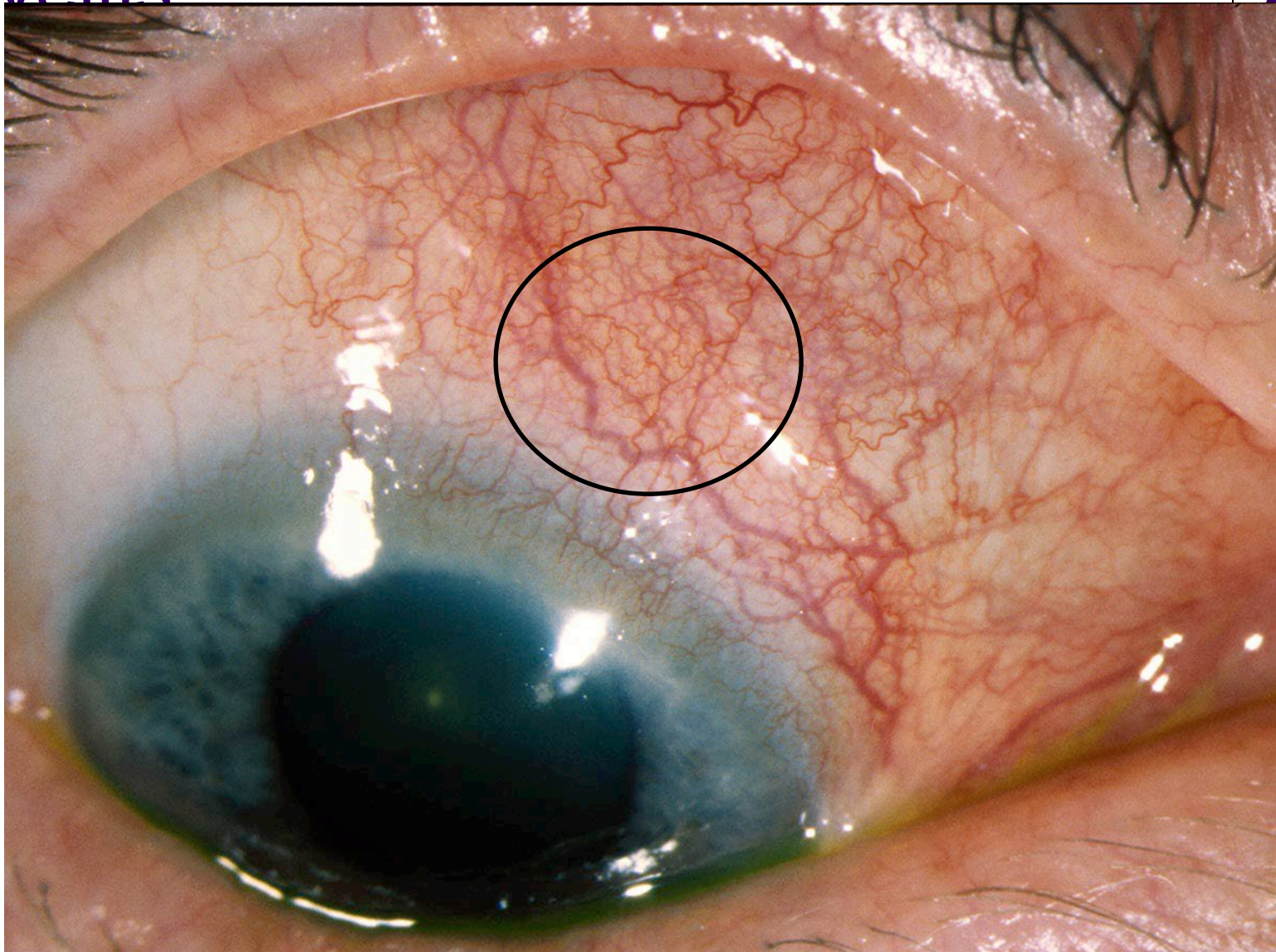
Posterior

*There are three classic signs of anterior scleritis:*

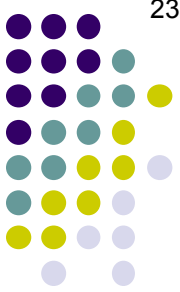
- Scleral edema
- Sclera has a **violaceous** hue
- Inflamed vasculature has a **criss-cross** pattern



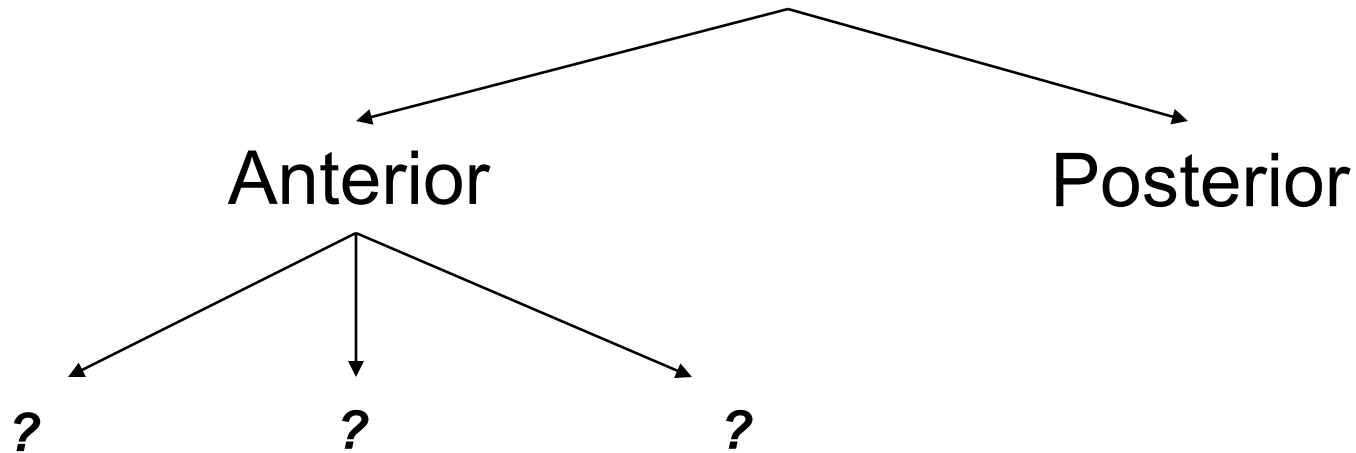
# Uveitis



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



## Scleritis

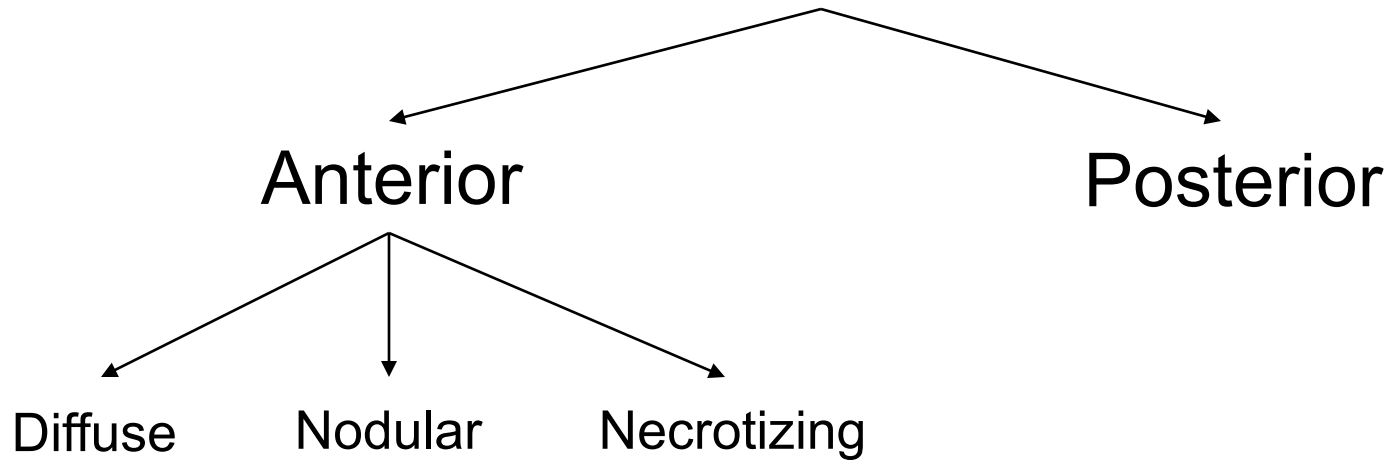


Anterior scleritis comes in three forms:





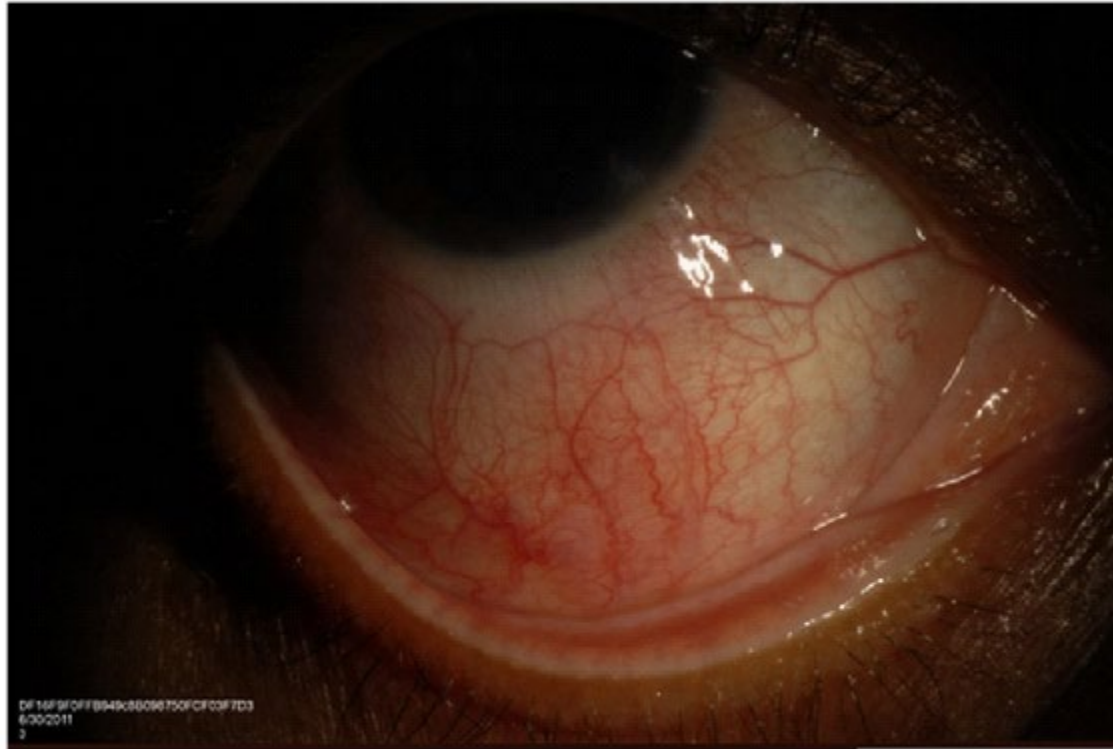
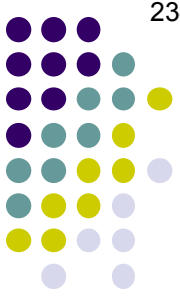
## Scleritis



Anterior scleritis comes in three forms:

*Diffuse, nodular and necrotizing*

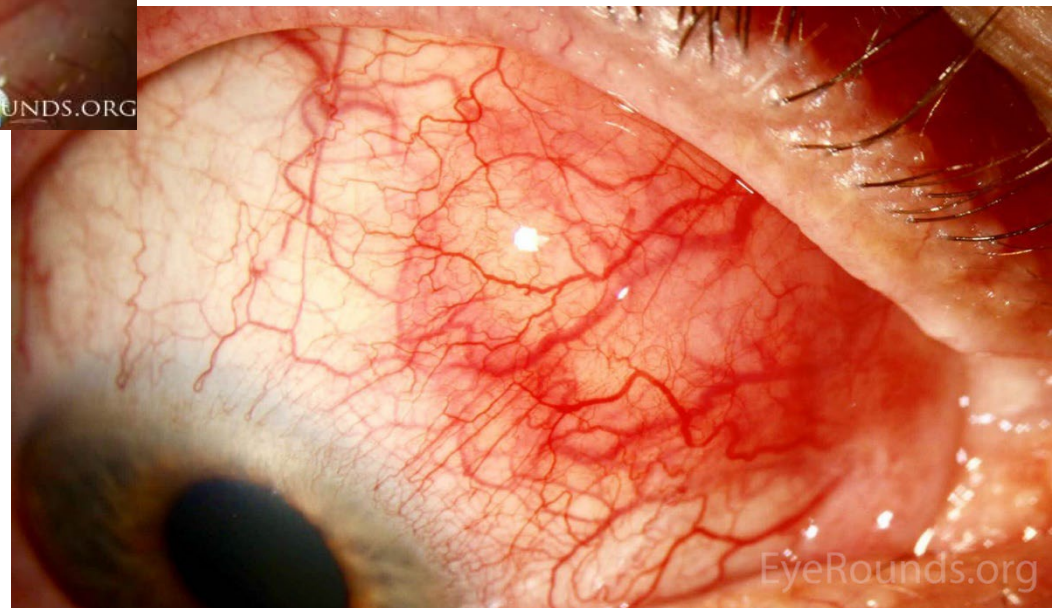
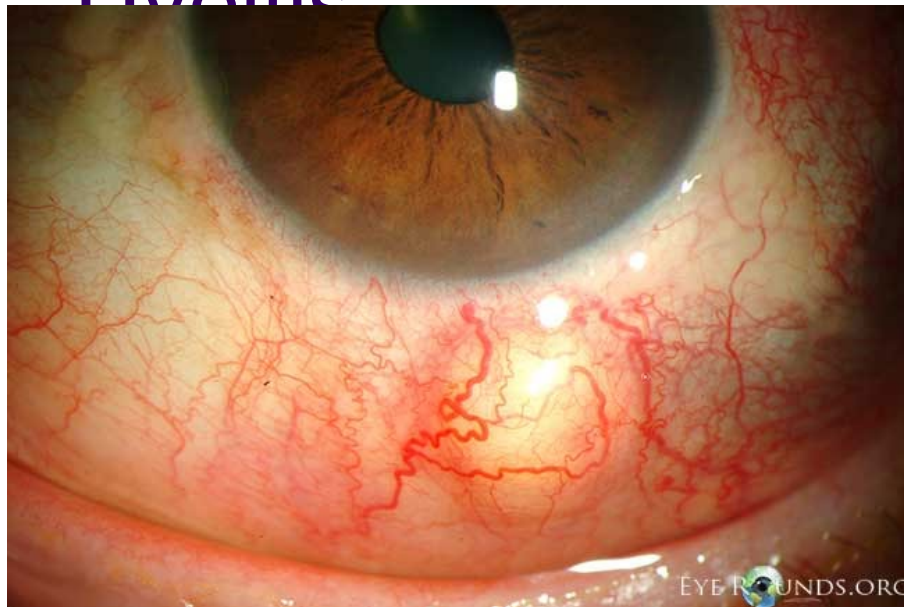
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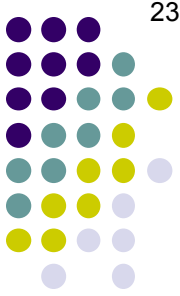
Diffuse anterior scleritis



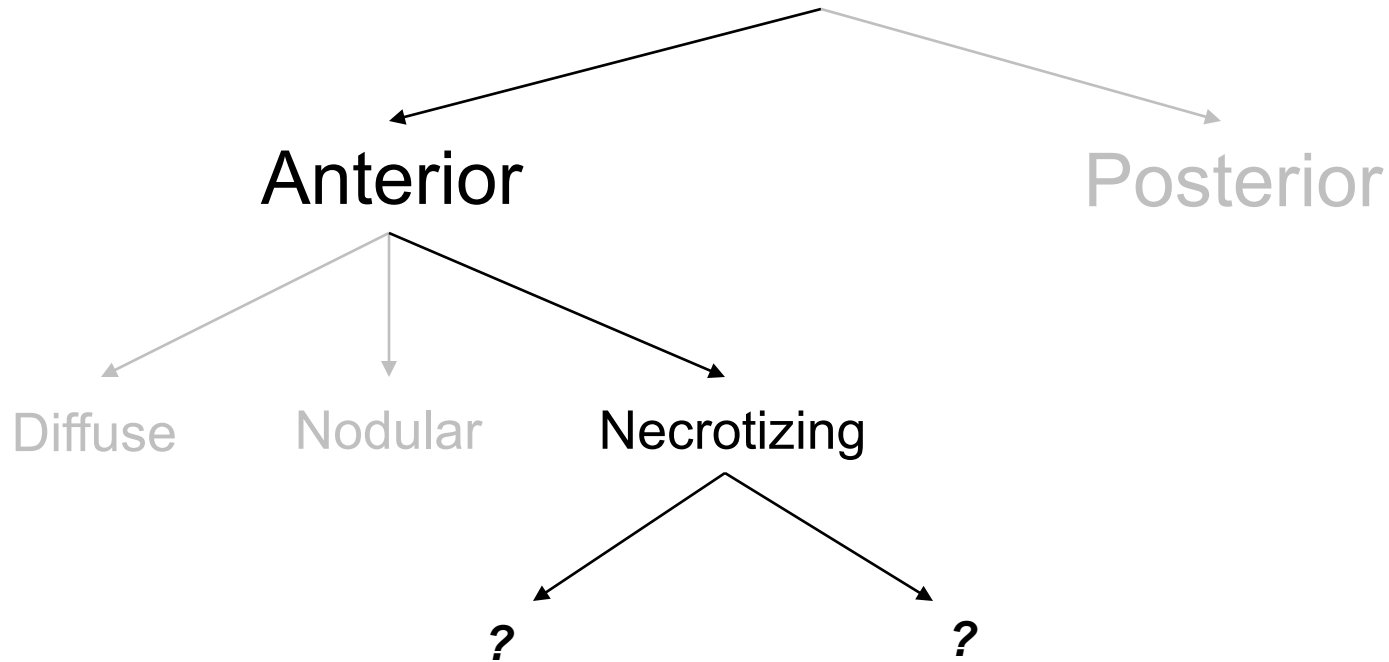
# Ilyoitis



Nodular anterior scleritis



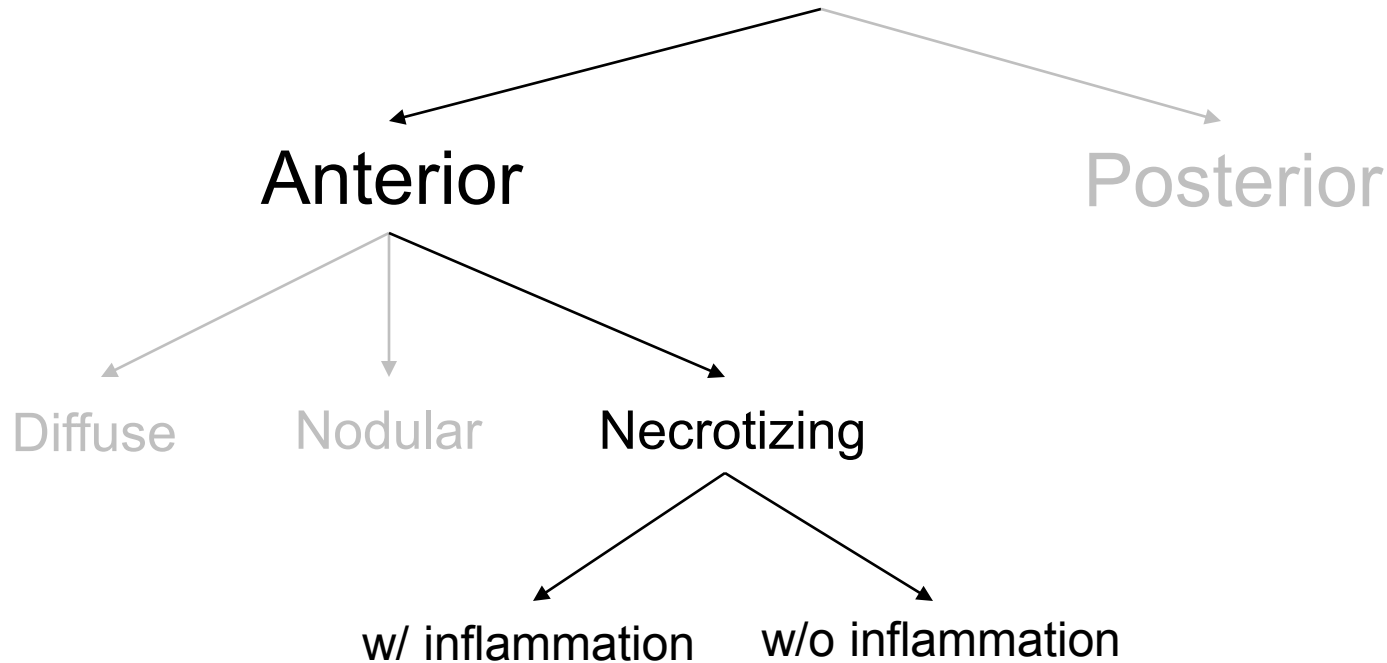
## Scleritis



Necrotizing anterior scleritis comes in two forms:

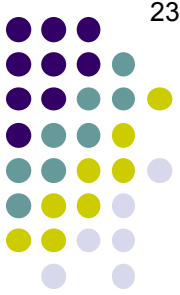


## Scleritis

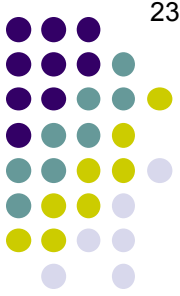


Necrotizing anterior scleritis comes in two forms:  
*With and without inflammation*

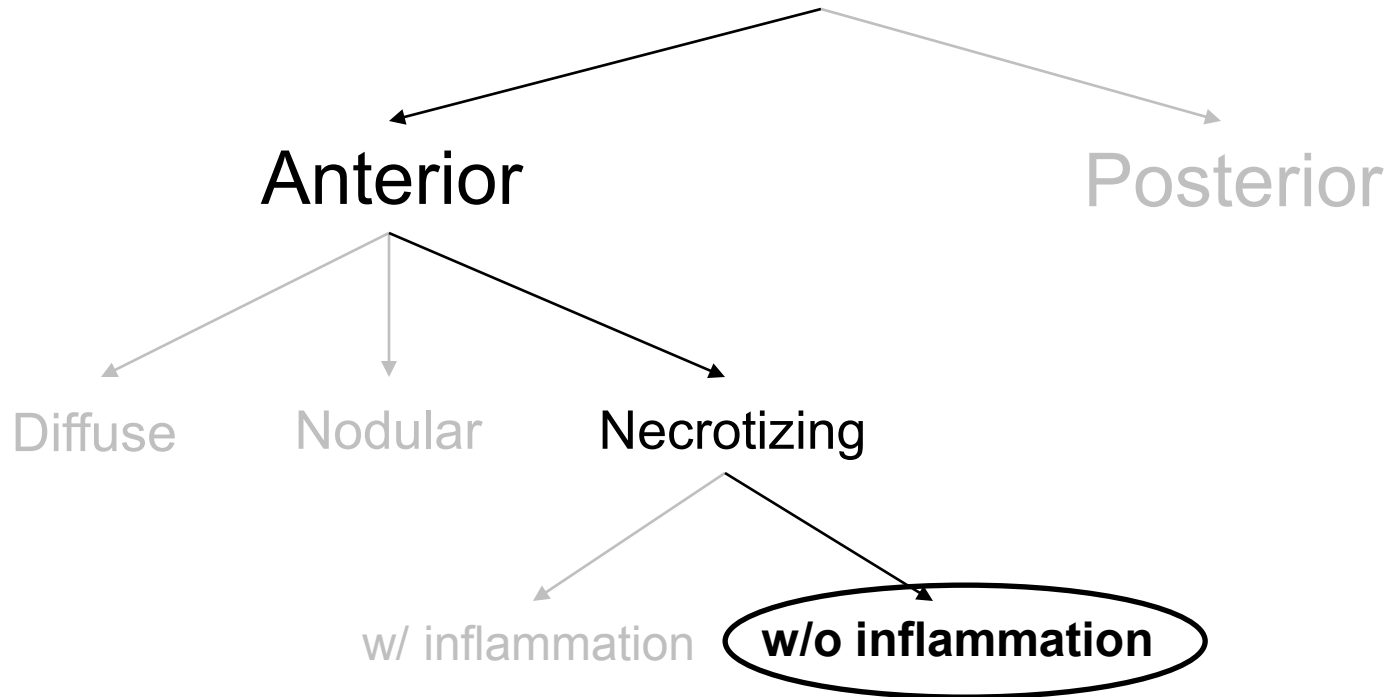
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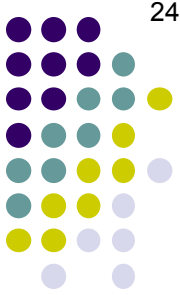
Necrotizing anterior scleritis **with** inflammation



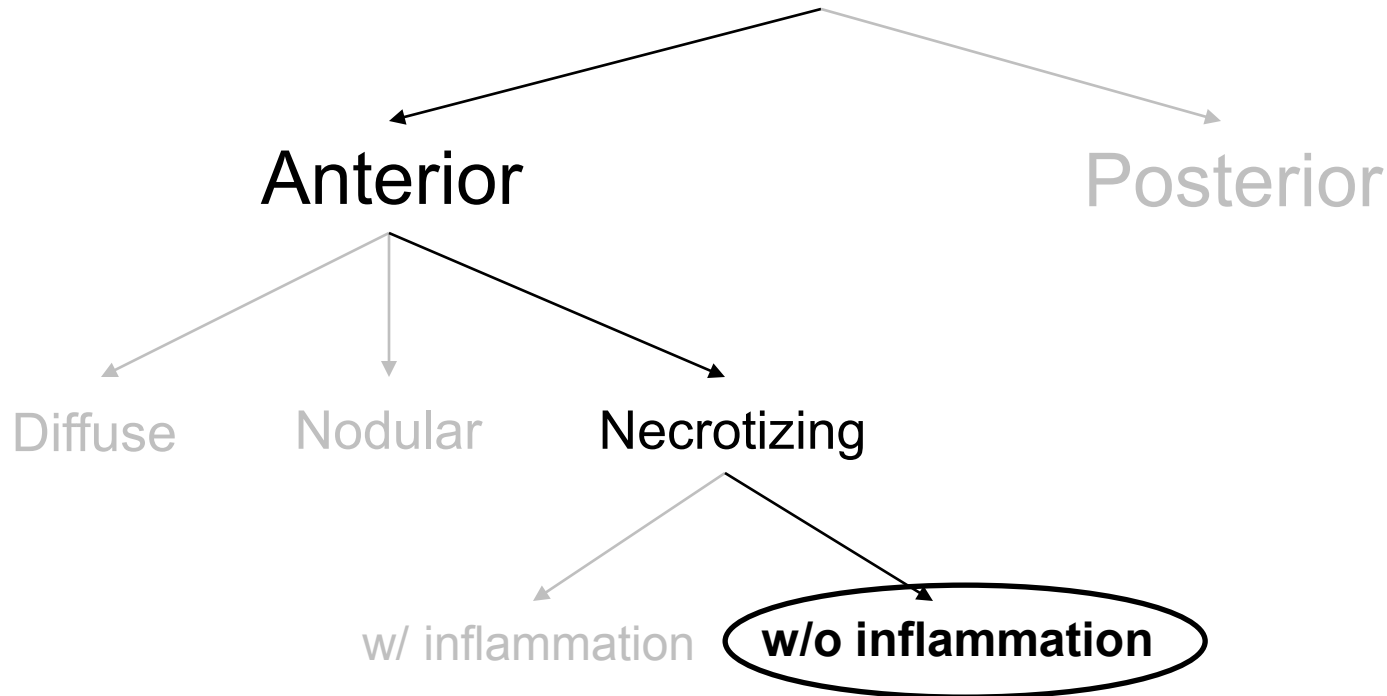
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Contrary to the implications of the name, inflammation **is** present in *necrotizing scleritis w/o inflammation*.



## Scleritis



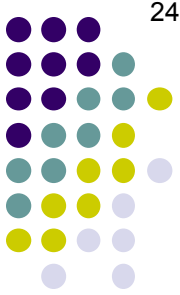
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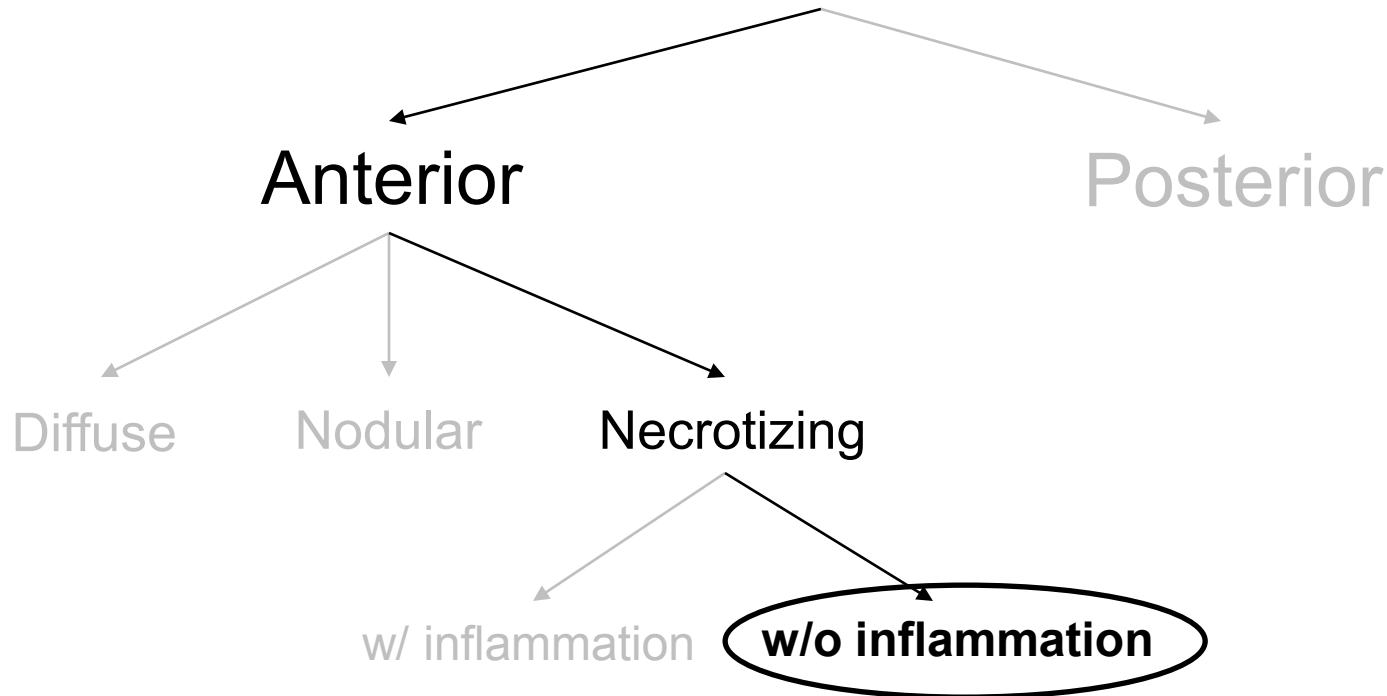
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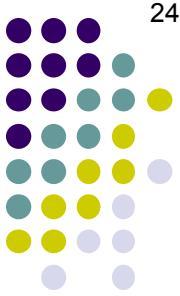
Necrotizing anterior scleritis without inflammation



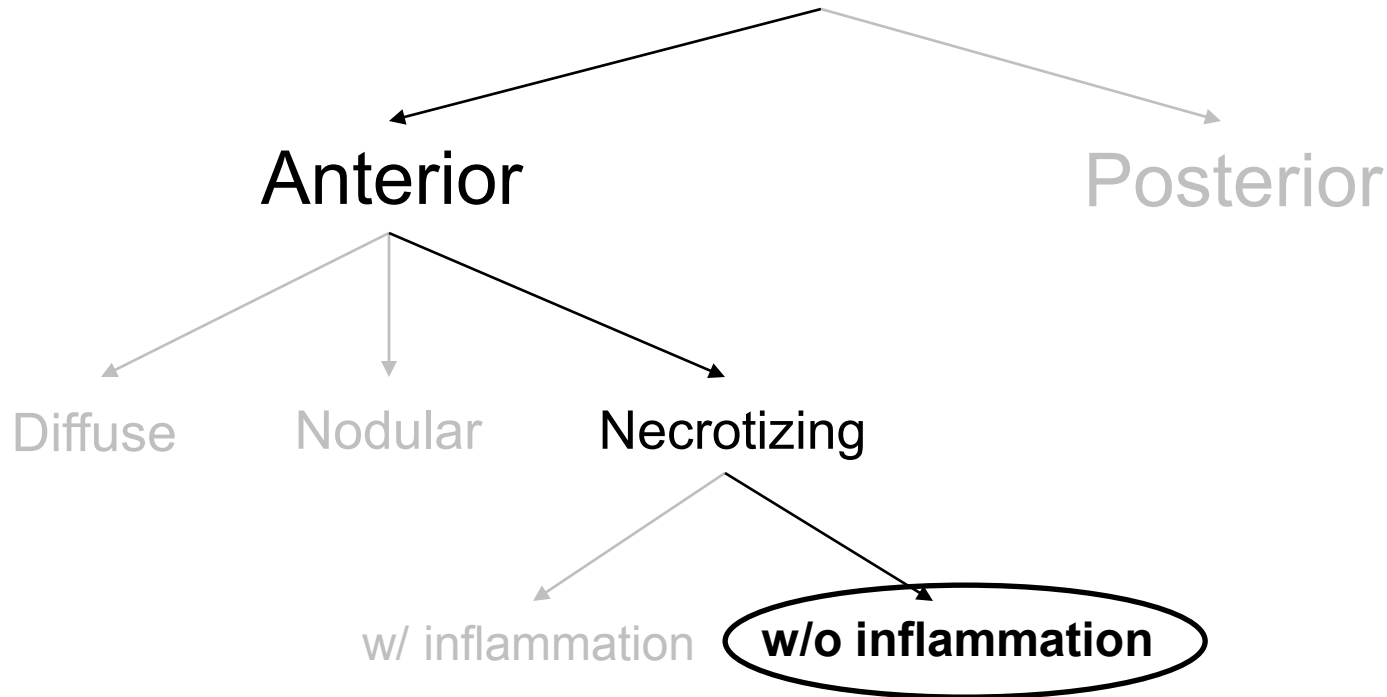
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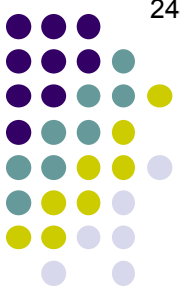
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## Scleritis



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## Scleritis

Anterior

Posterior

Diffuse

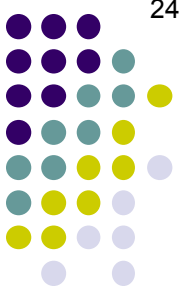
Unlike anterior scleritis, **posterior scleritis** does not present with a red eye, and nodules are not present. Instead, posterior scleritis presents with:

eye 'location'

Discoedema

w/ inflammation

w/o inflammation



## Scleritis

Anterior

Posterior

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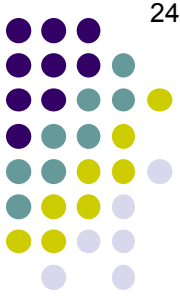
--**Proptosis**

**Disc edema**

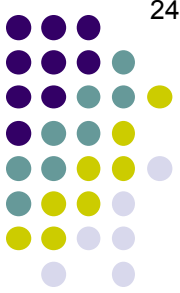
w/ inflammation

w/o inflammation

# Uveitis



Posterior scleritis: Proptosis



## Scleritis

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Posterior

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--Disc

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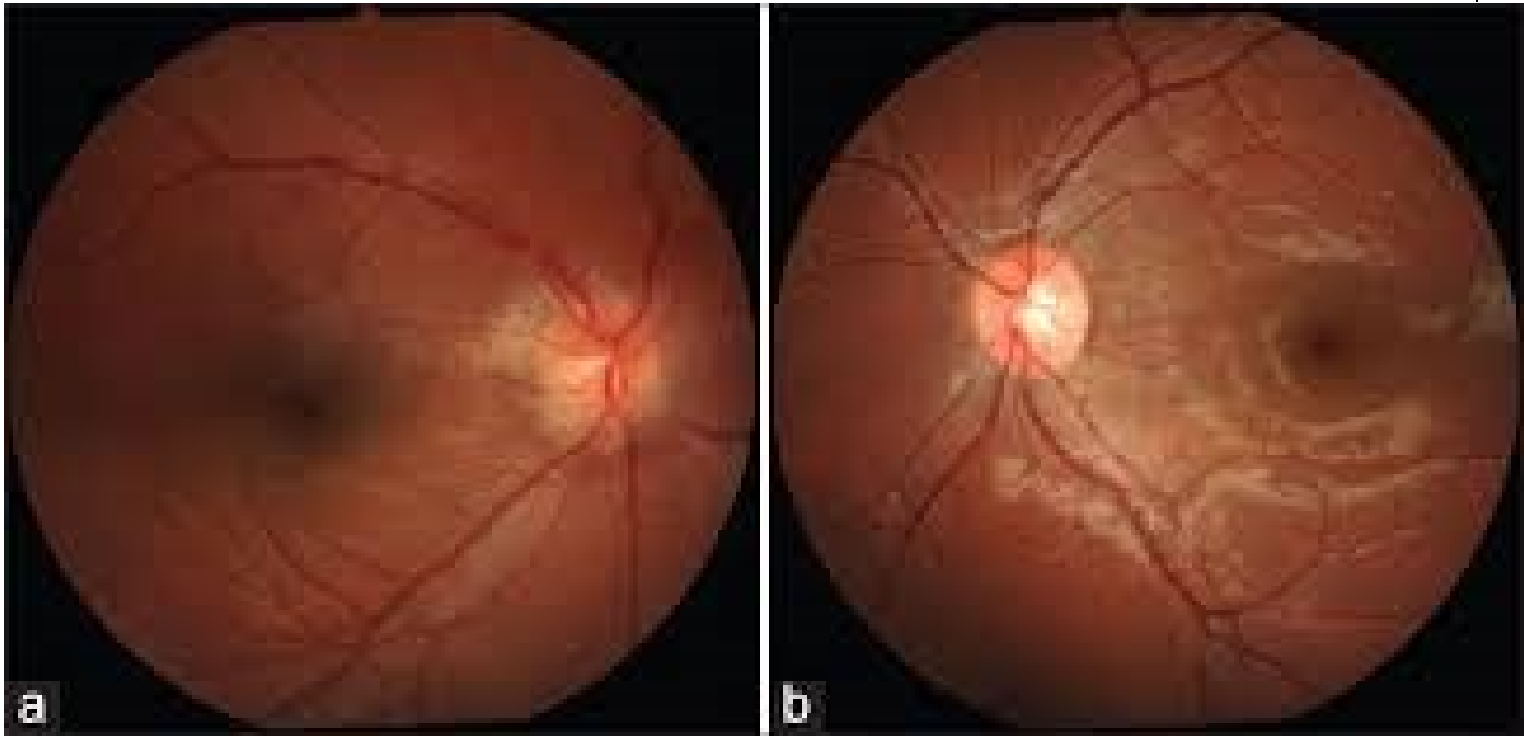
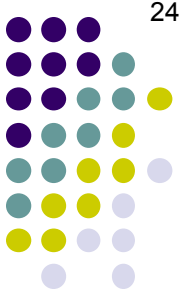
--**Disc edema**

w/ inflammation

w/o inflammation



# Uveitis



Posterior scleritis OD: Optic nerve edema



## Scleritis

Anterior

Posterior

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--**Proptosis**

--Disc **edema**

--Retinal/choroidal findings

w/ inflammation

w/o inflammation

# Uveitis



Posterior scleritis producing retinal folds



## Scleritis

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--**Disc edema**

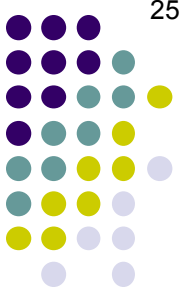
--**Retinal/choroidal findings**

function

disorders

w/ inflammation

w/o inflammation



## Scleritis

Anterior

Posterior

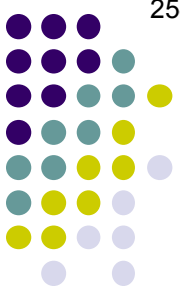
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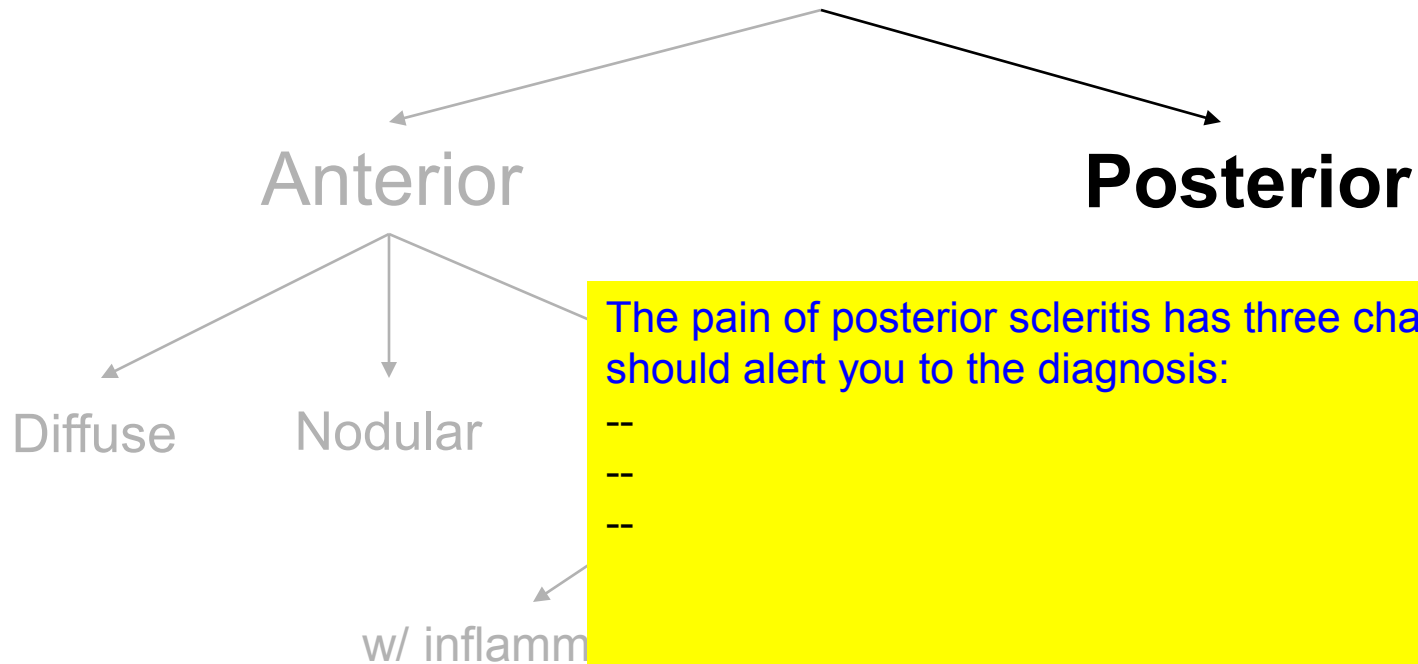
- Proptosis**
- Disc **edema**
- Retinal/choroidal findings
- Motility** disorders

w/ inflammation

w/o inflammation

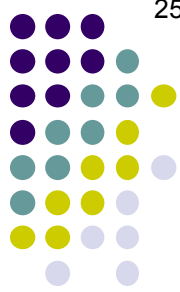


## Scleritis

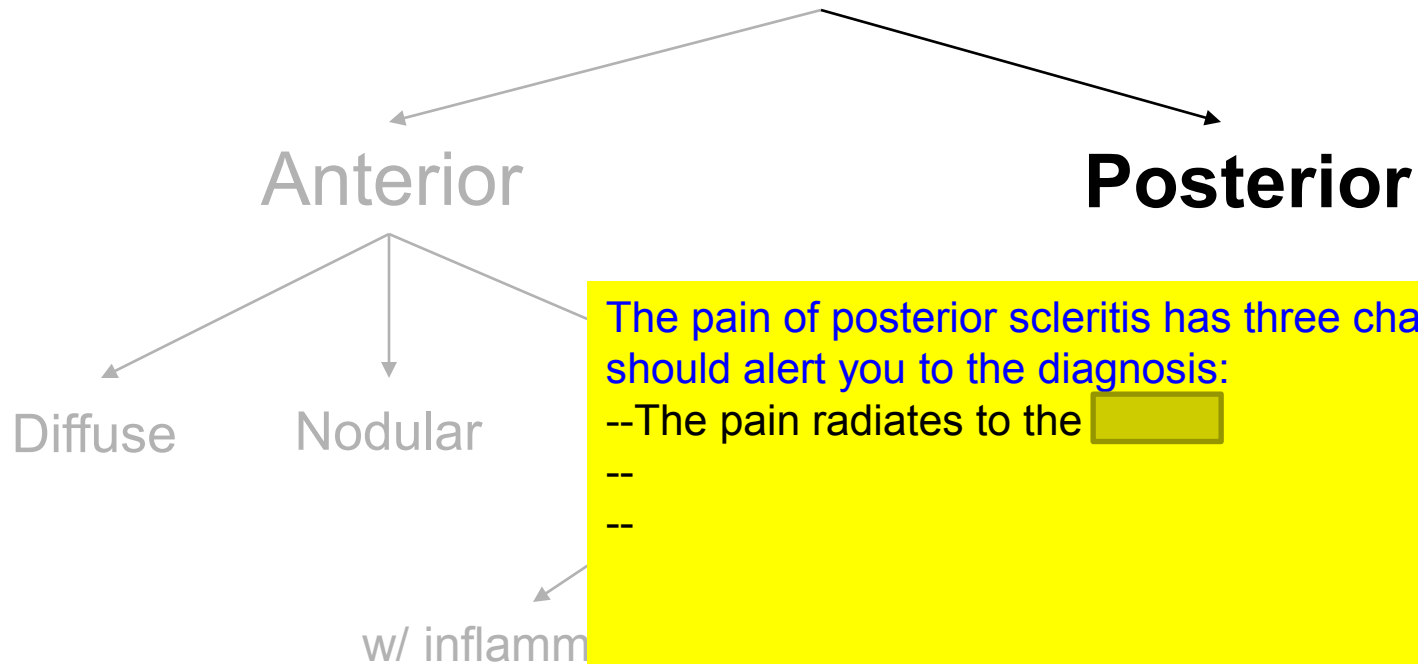


The pain of posterior scleritis has three characteristics that should alert you to the diagnosis:

--  
--  
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## Scleritis



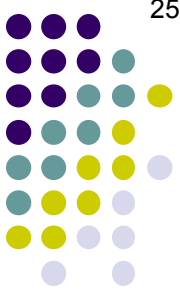
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--The pain radiates to the

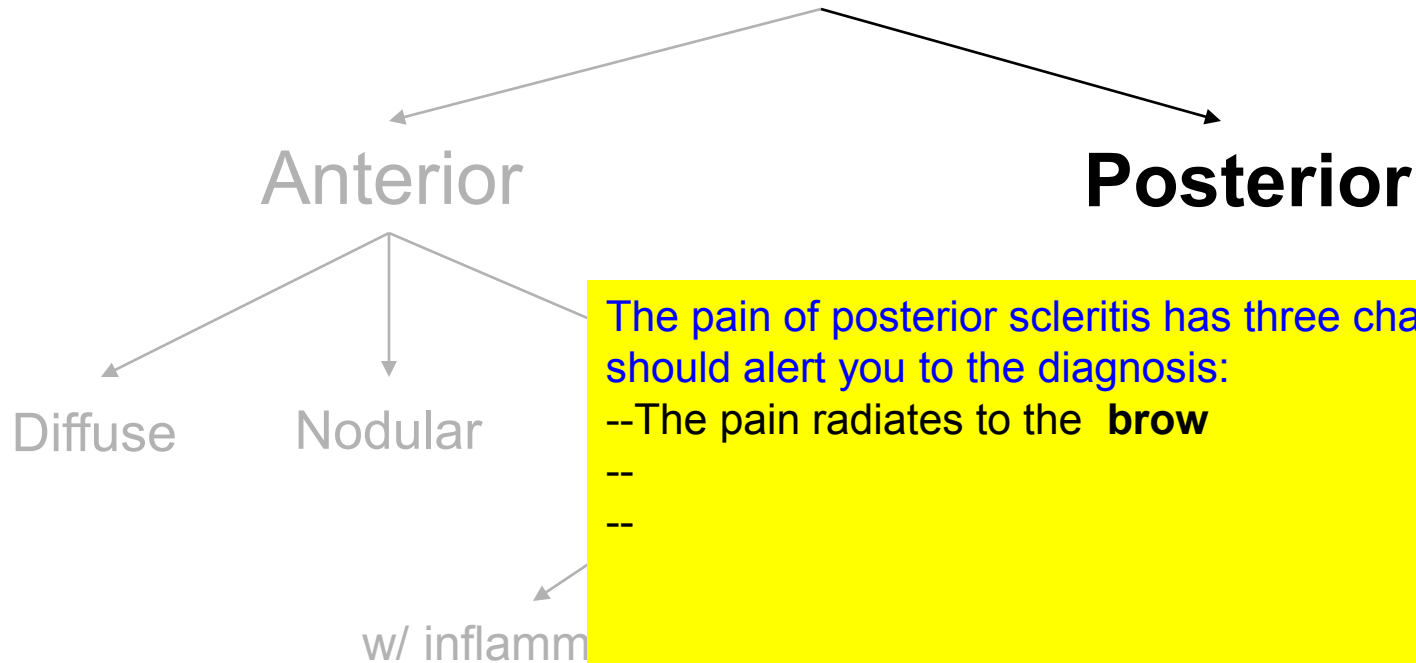
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--

w/ inflammation



## Scleritis



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

--The pain radiates to the **brow**

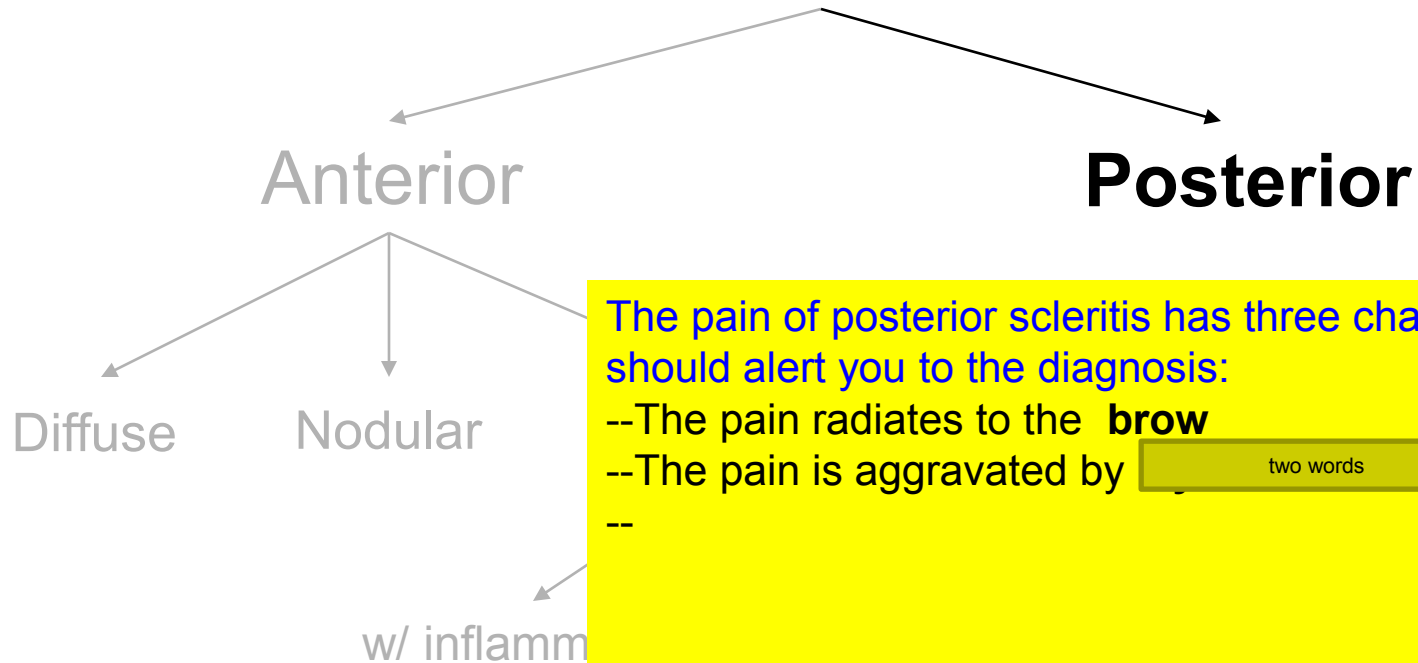
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## Scleritis



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

--The pain radiates to the **brow**

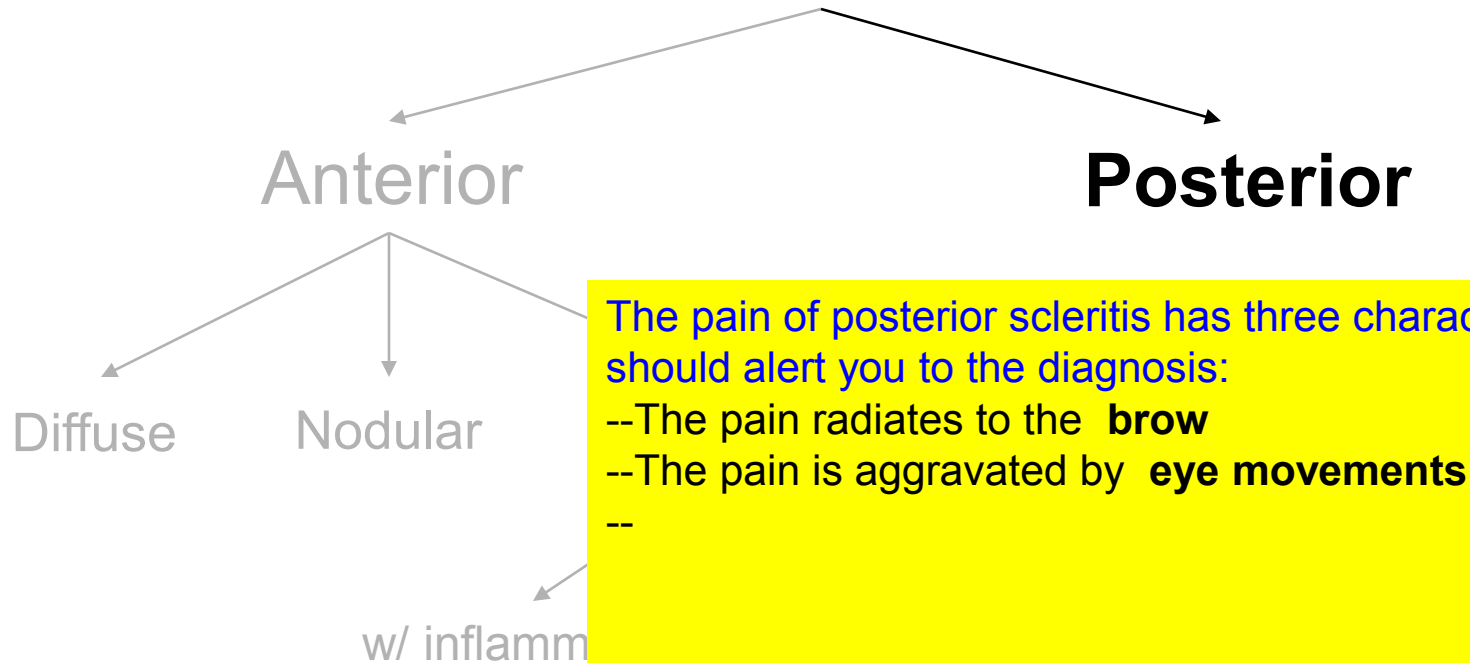
--The pain is aggravated by

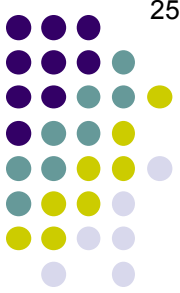
two words

--

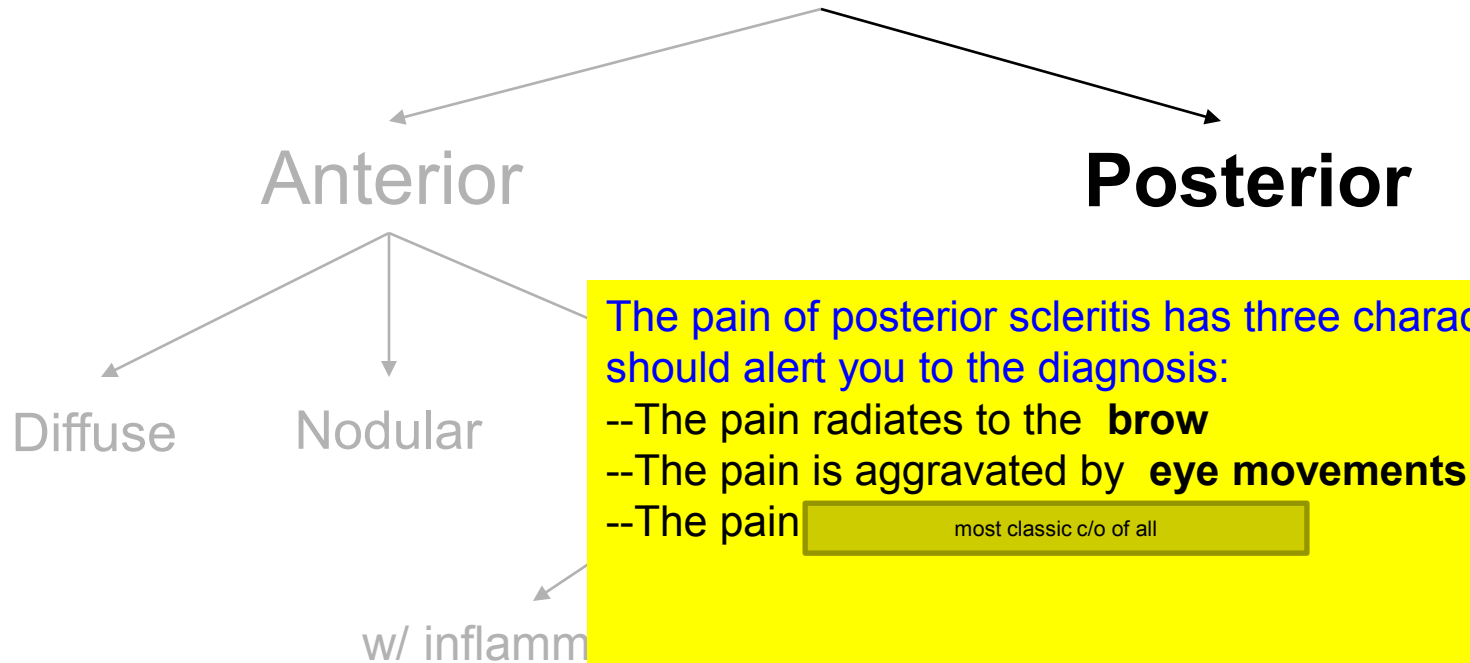


## Scleritis



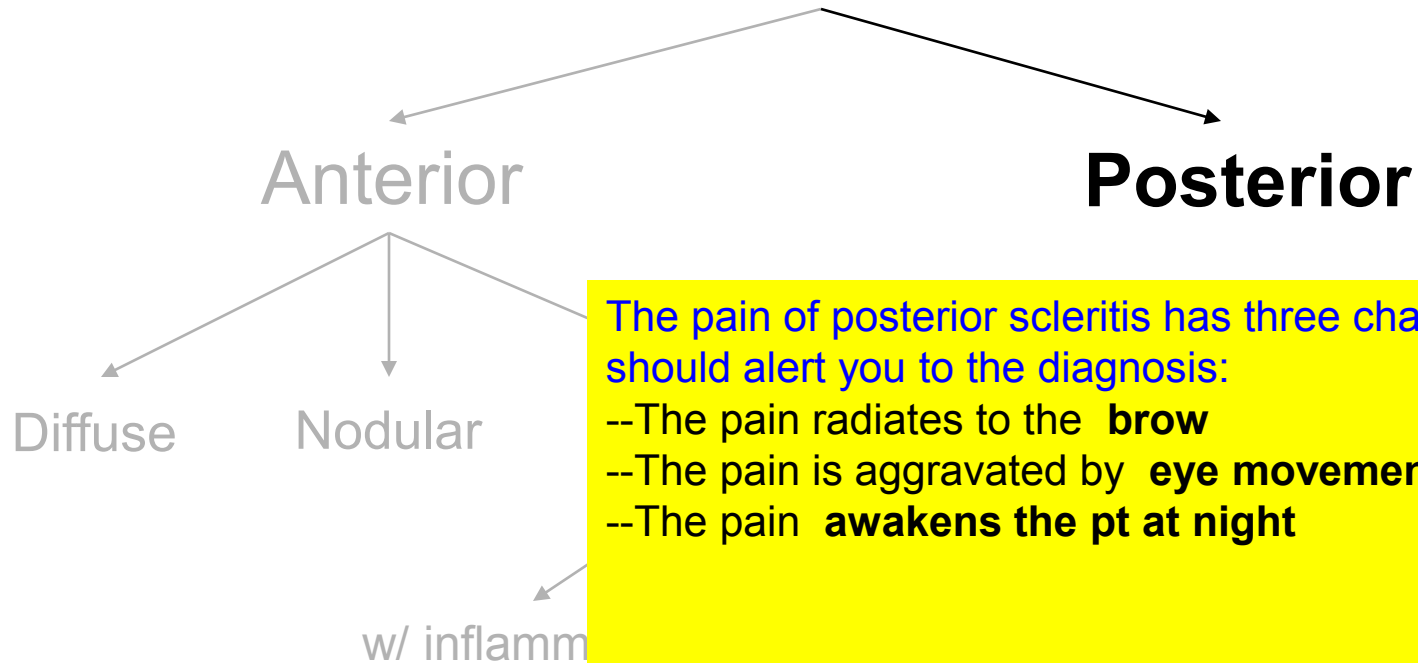


## Scleritis





## Scleritis

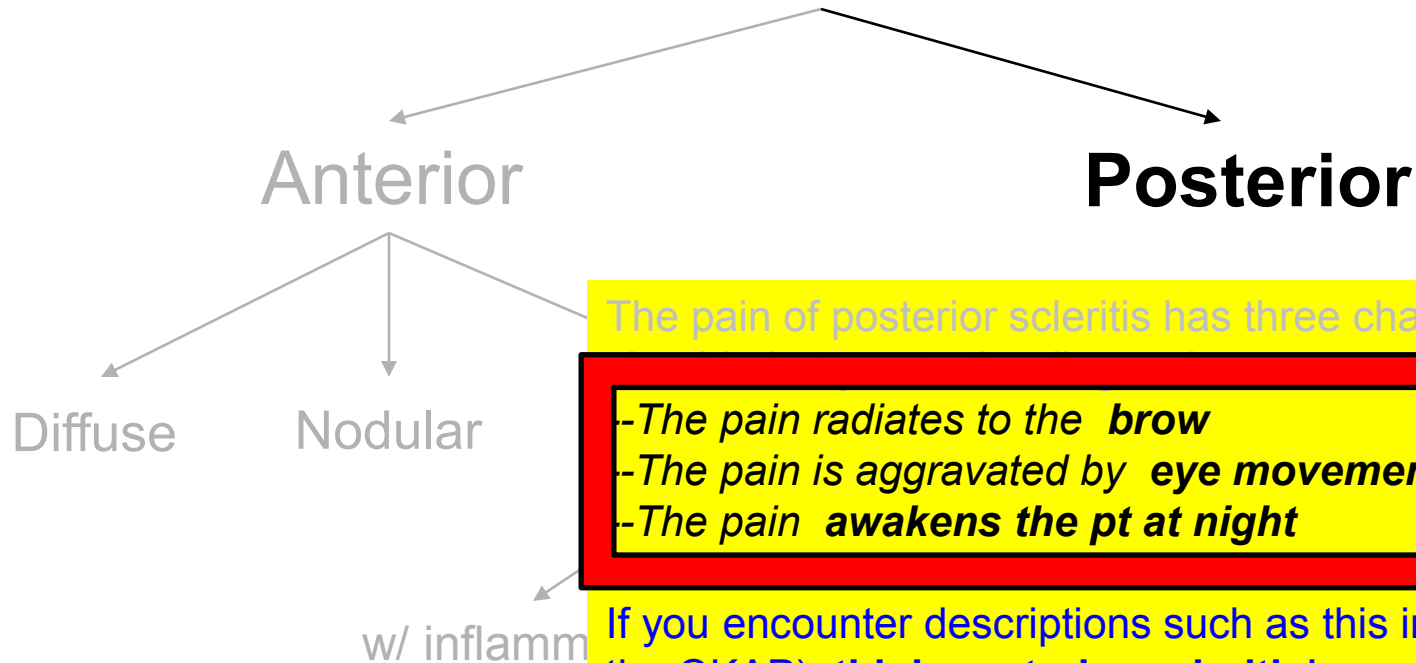


The pain of posterior scleritis has three characteristics that should alert you to the diagnosis:

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



## Scleritis



The pain of posterior scleritis has three characteristics that

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

If you encounter descriptions such as this in the clinic (or on the OKAP), **think posterior scleritis!**



## Scleritis

Anterior

**Posterior**

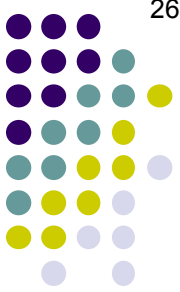
Diffuse

N

An easy-to-obtain imaging study for confirming the diagnosis of posterior scleritis is

w/ inflammation

w/o inflammation



## Scleritis

Anterior

**Posterior**

Diffuse

N

An easy-to-obtain imaging study for confirming the diagnosis of posterior scleritis is **B-scan ultrasonography**

w/ inflammation

w/o inflammation



## Scleritis

Anterior

Posterior

Diffuse

An easy-to-obtain imaging study for confirming the diagnosis of posterior scleritis is **B-scan ultrasonography**. B-scan will reveal

two words

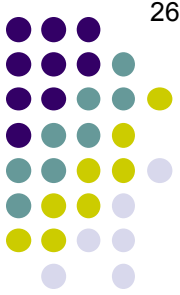
and

three words

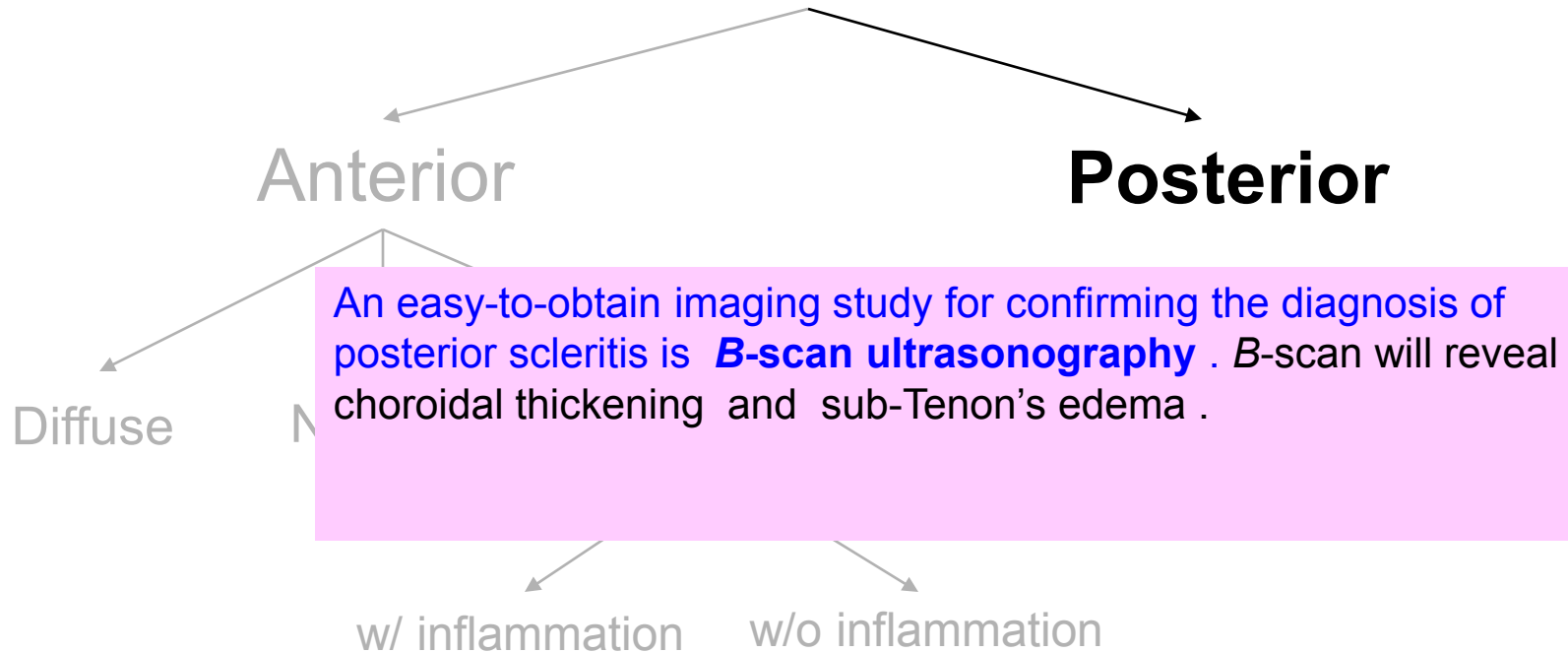
w/ inflammation

w/o inflammation

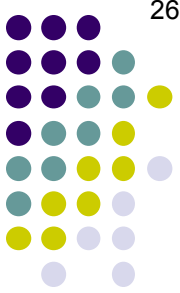




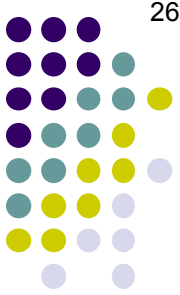
## Scleritis



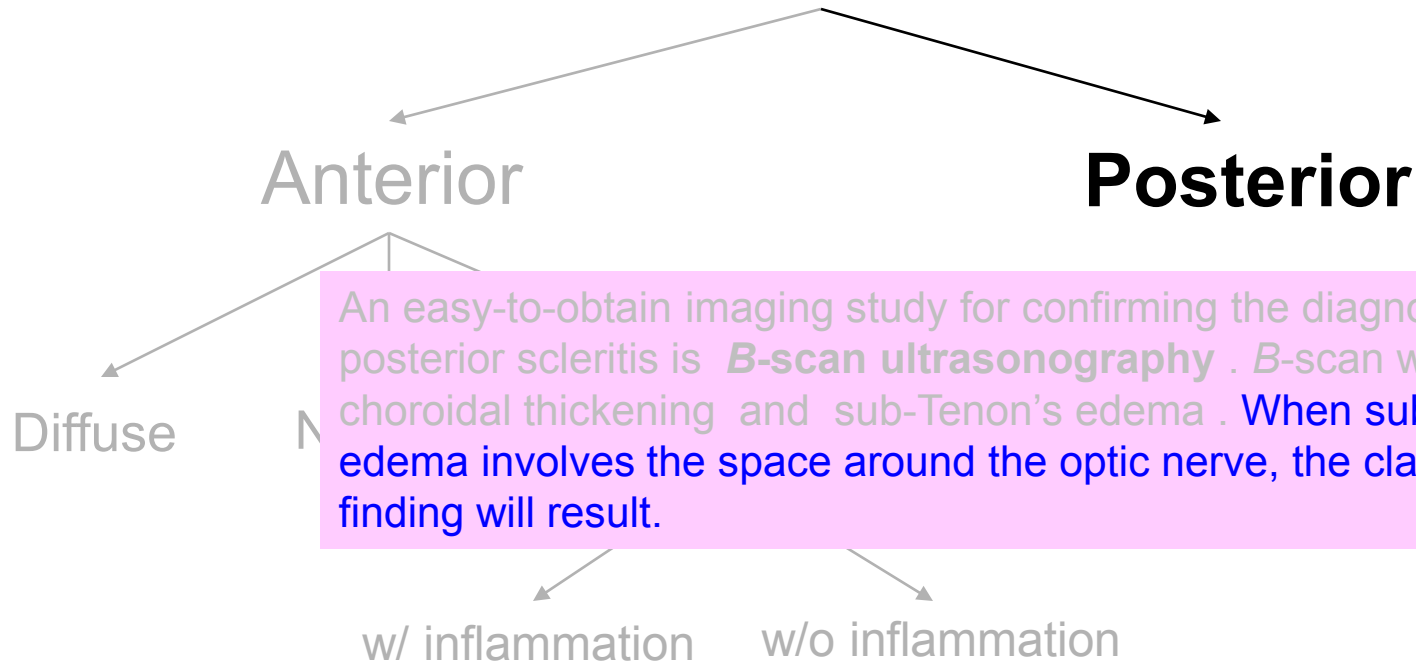
# Uveitis



Posterior scleritis: Choroidal thickening; sub-Tenon's edema

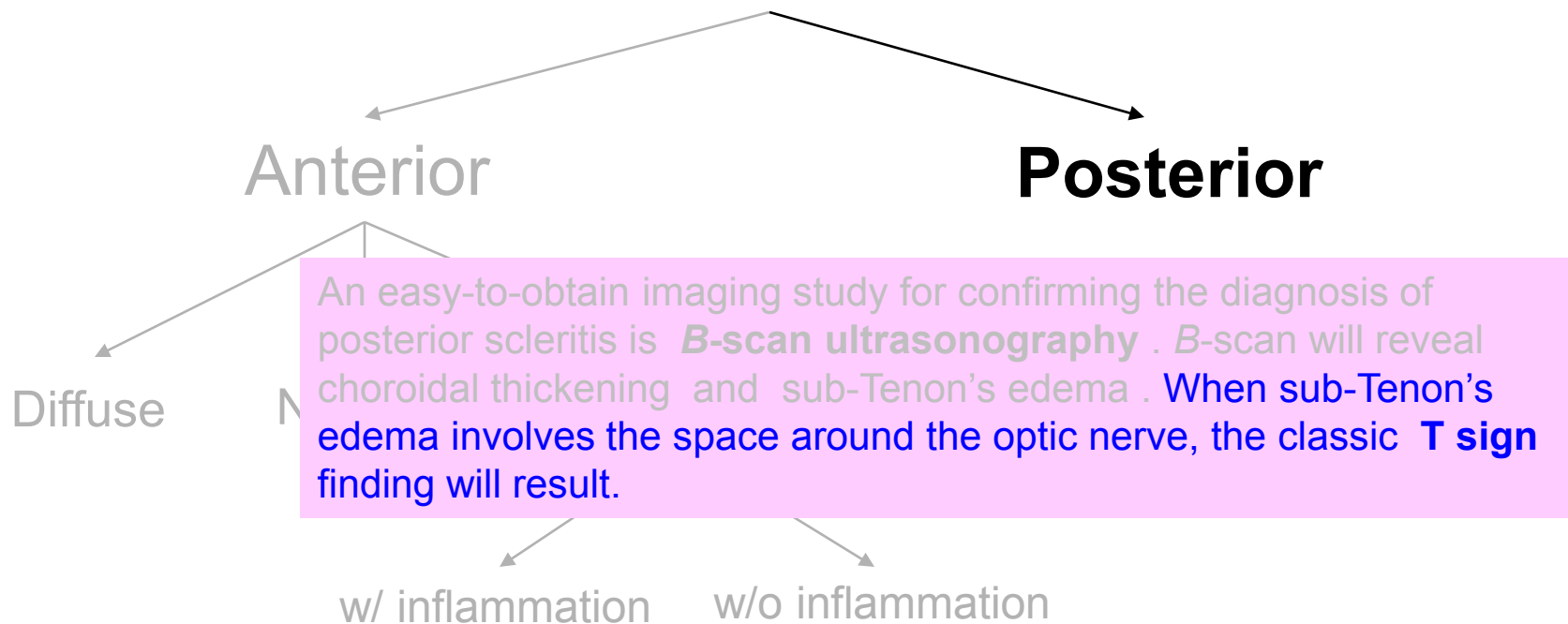


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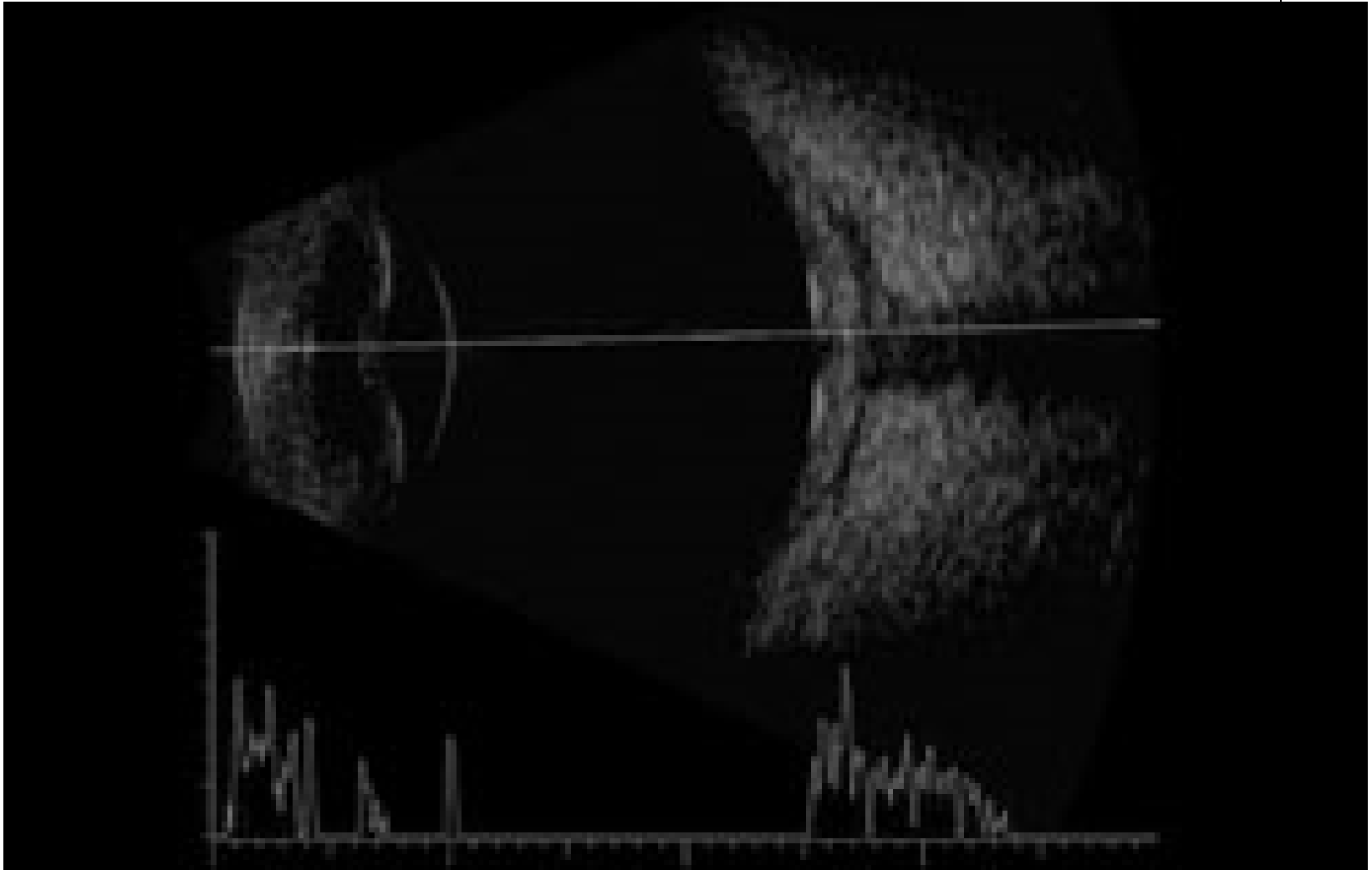
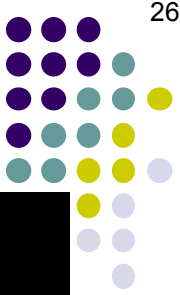




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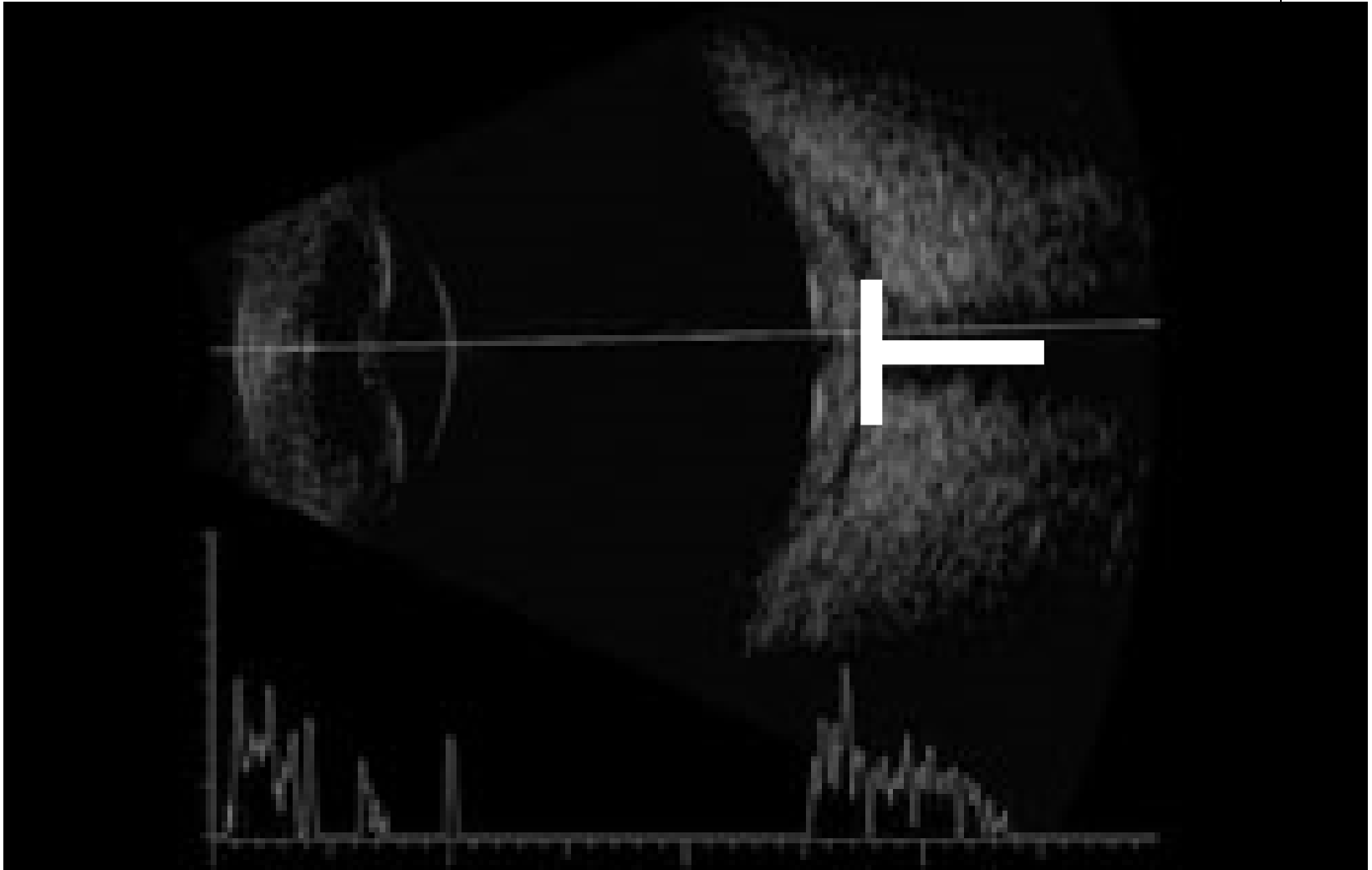


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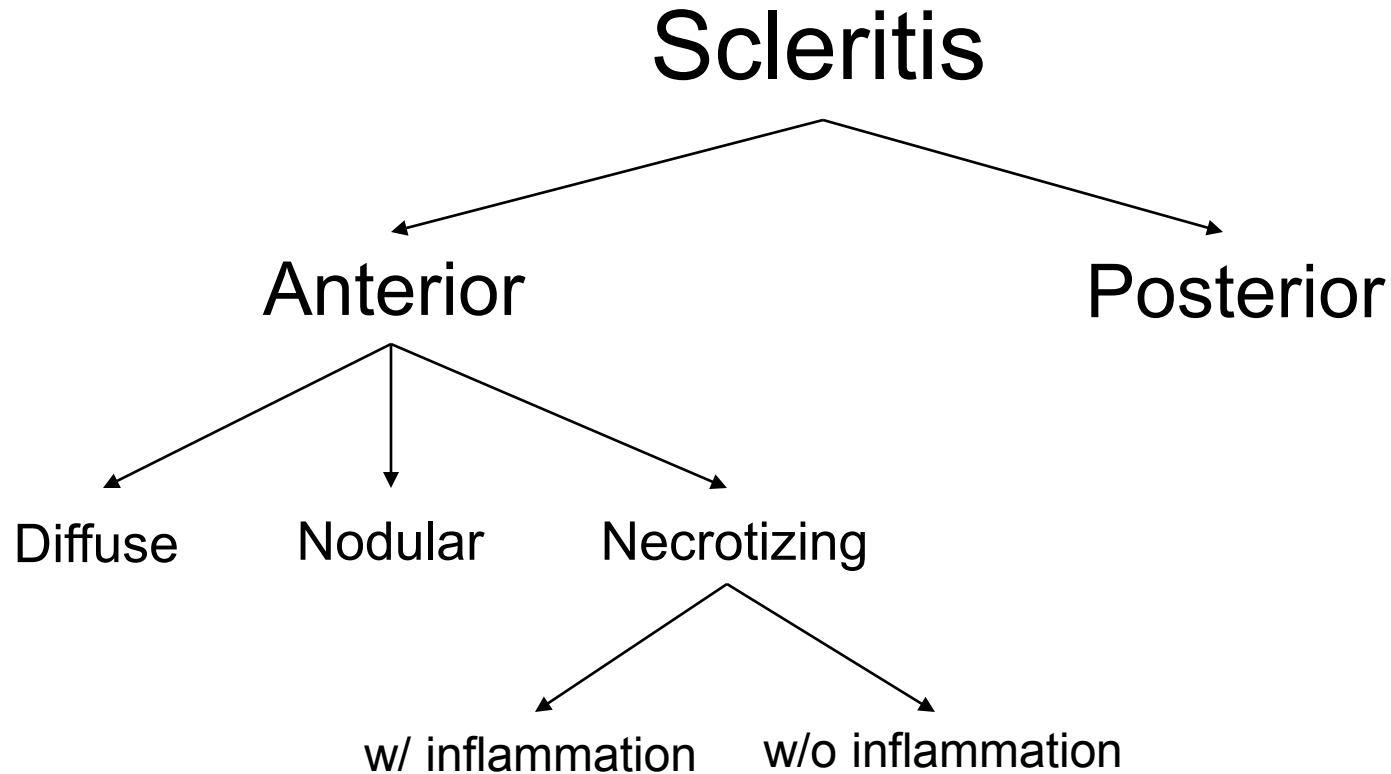


Posterior scleritis: T-sign (advance to next slide if you don't see it)

# Uveitis



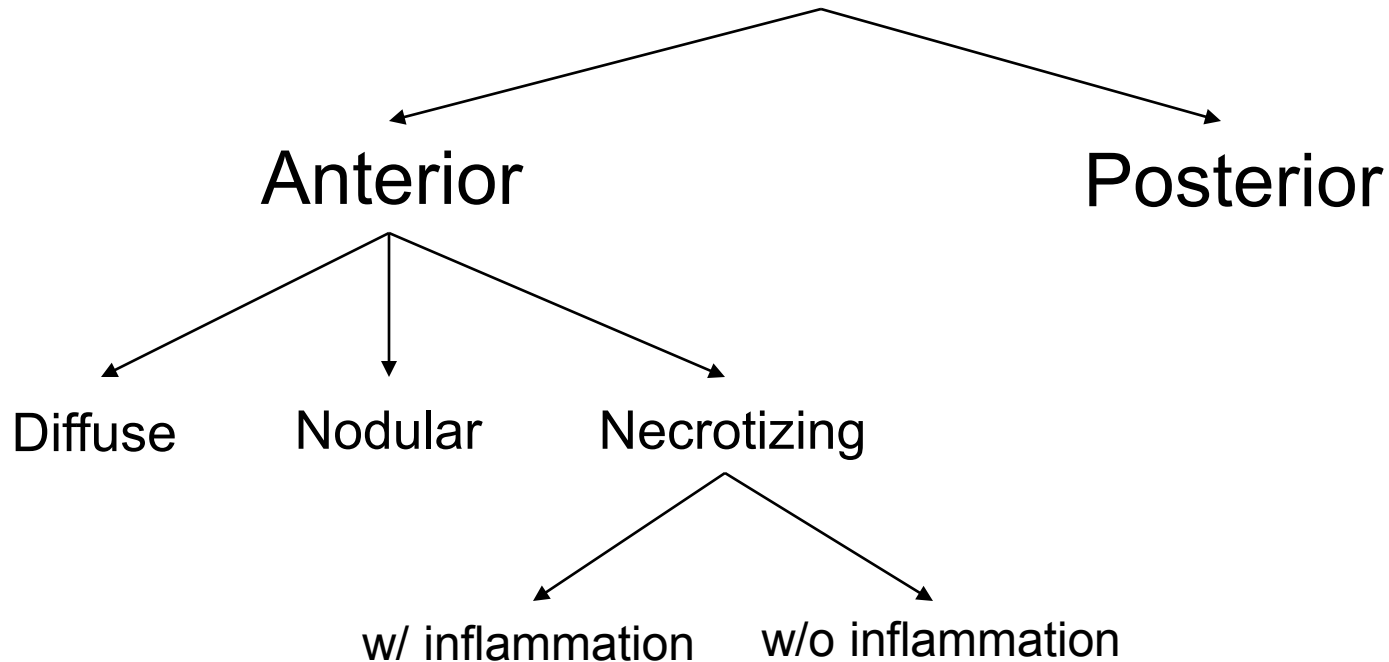
Posterior scleritis: T-sign



**Scleritis requires systemic treatment.** Diffuse scleritis might respond to abb., so try them first if not contraindicated.

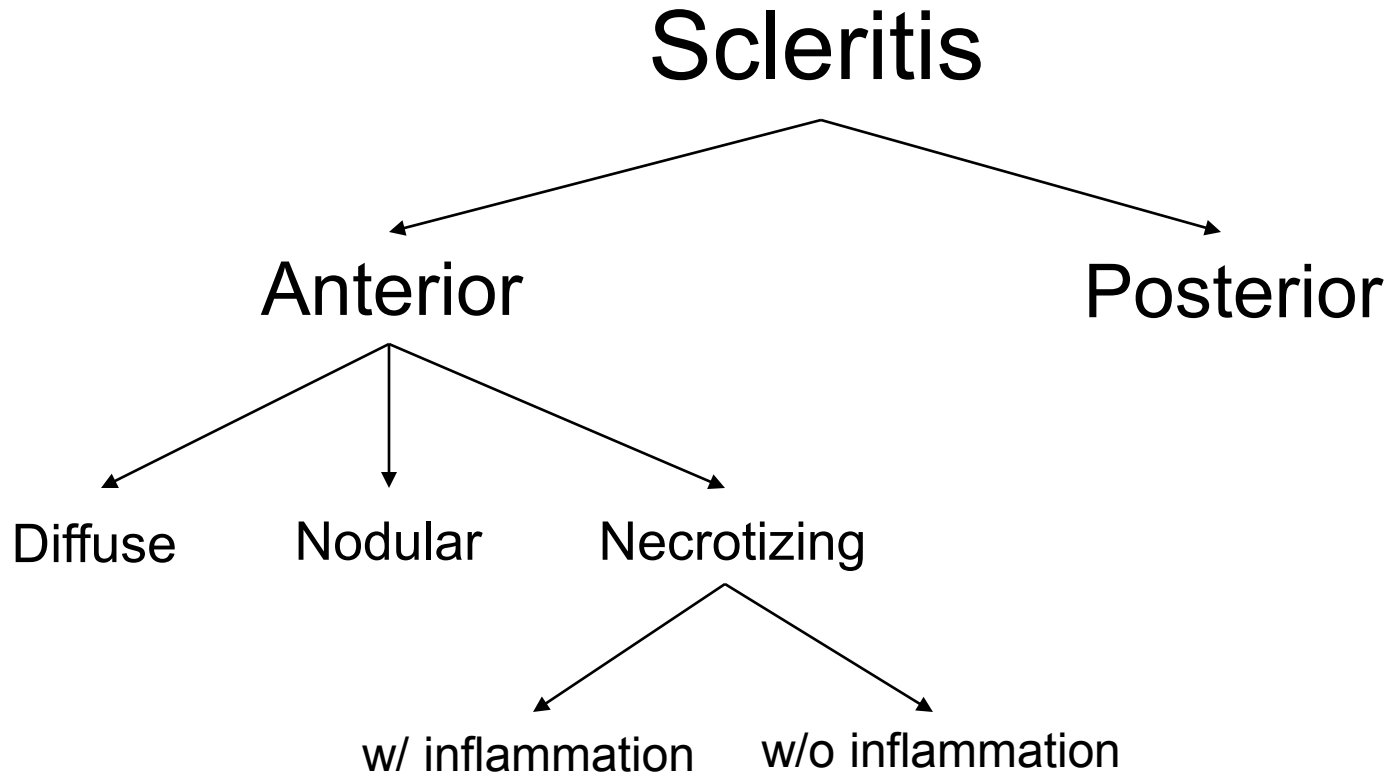


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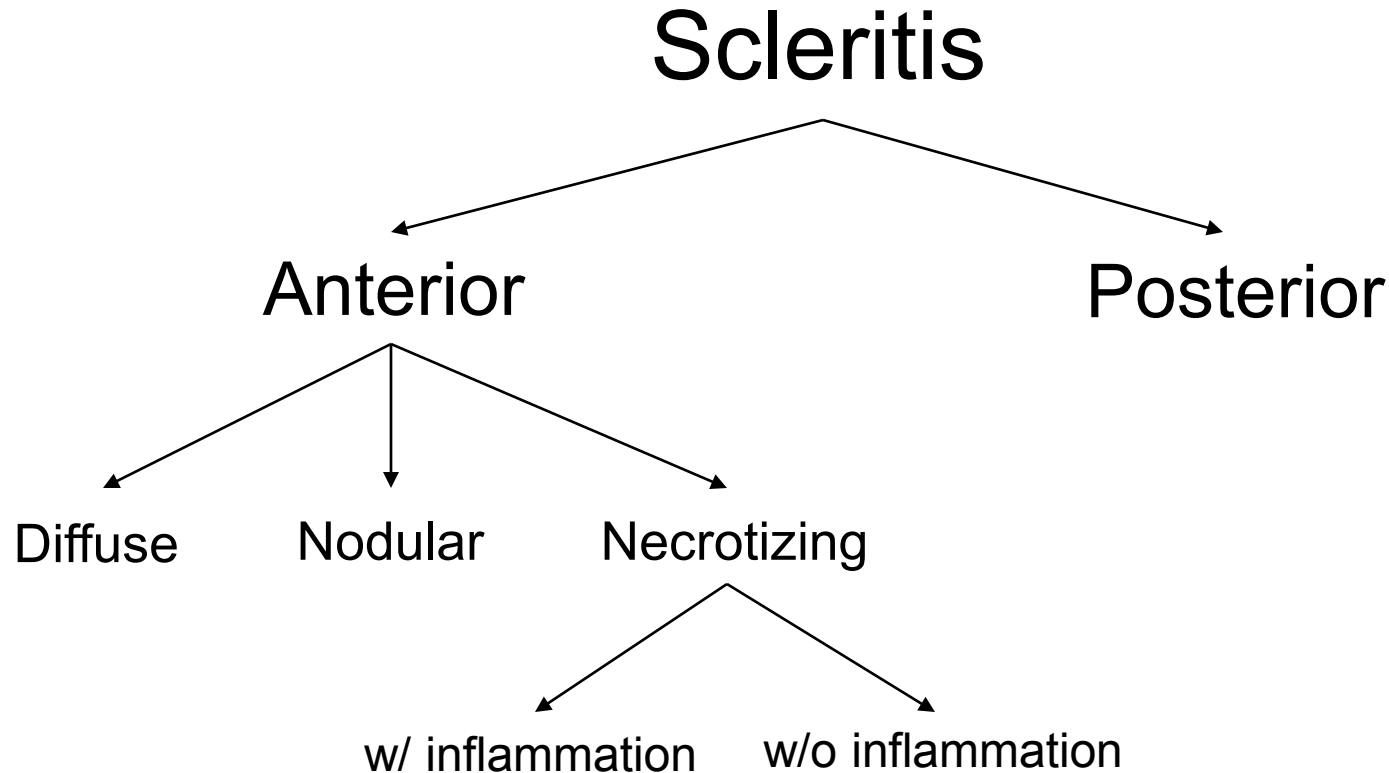
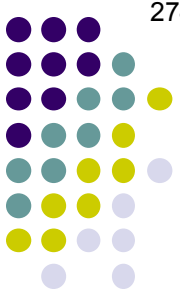


**Scleritis requires systemic treatment.** Diffuse scleritis might respond to PO NSAIDs, so try them first if not contraindicated.

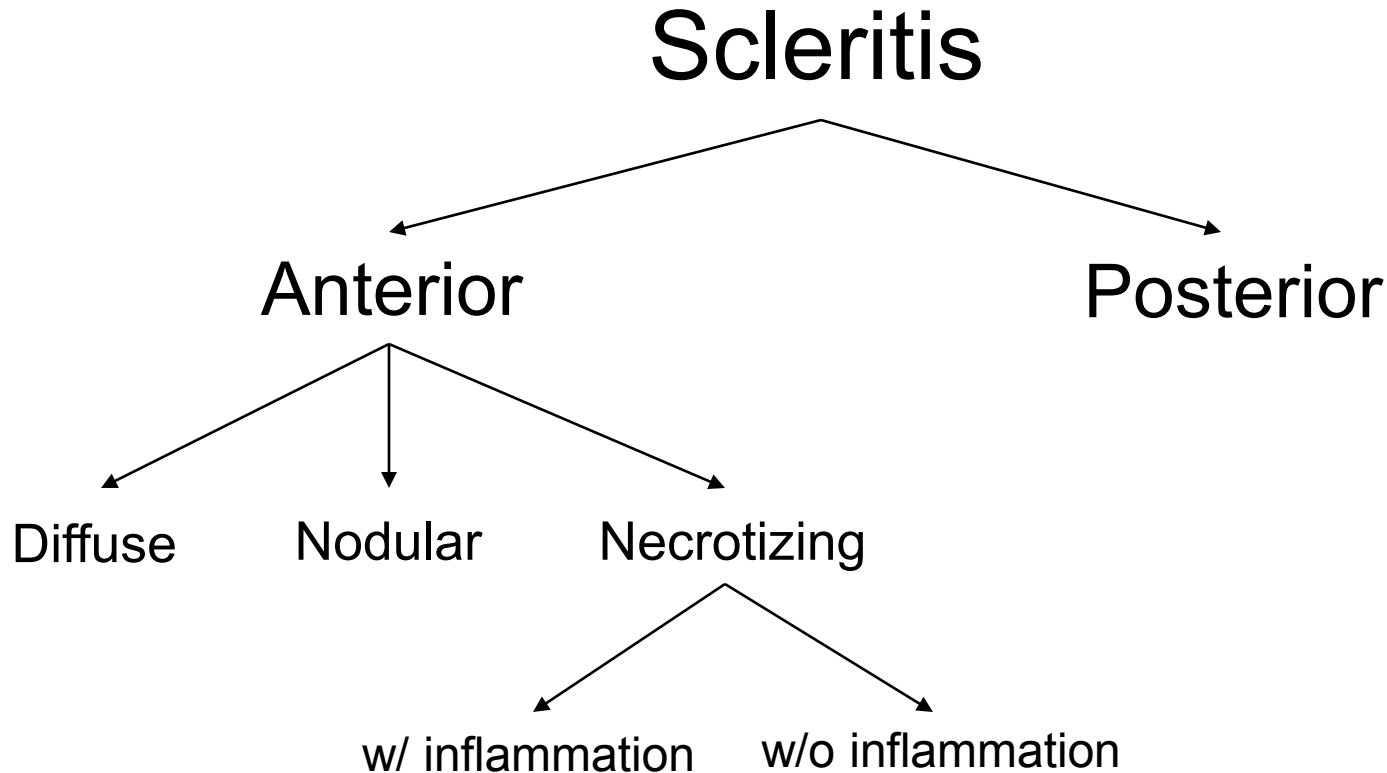
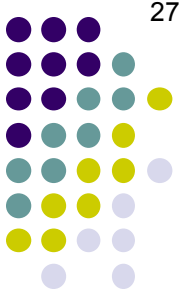




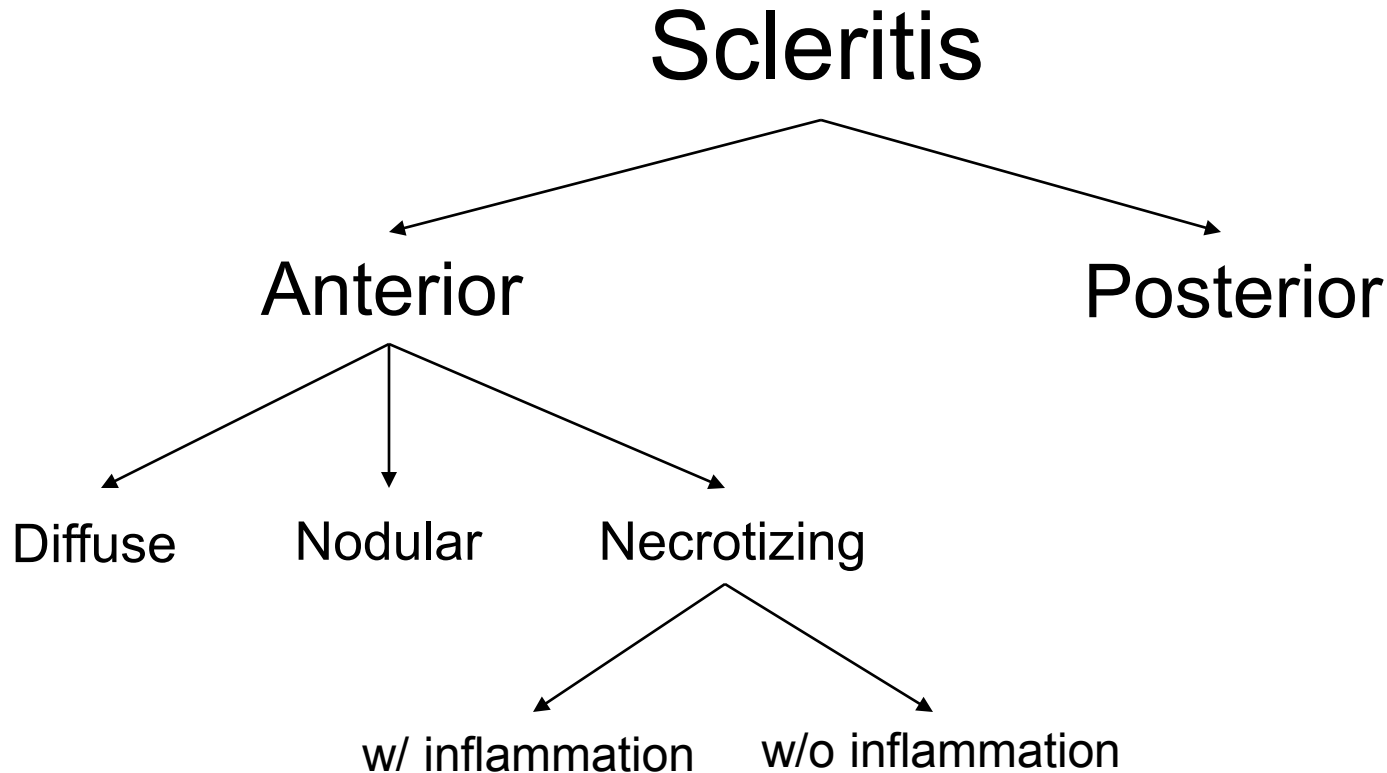
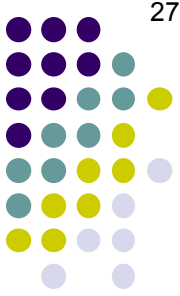
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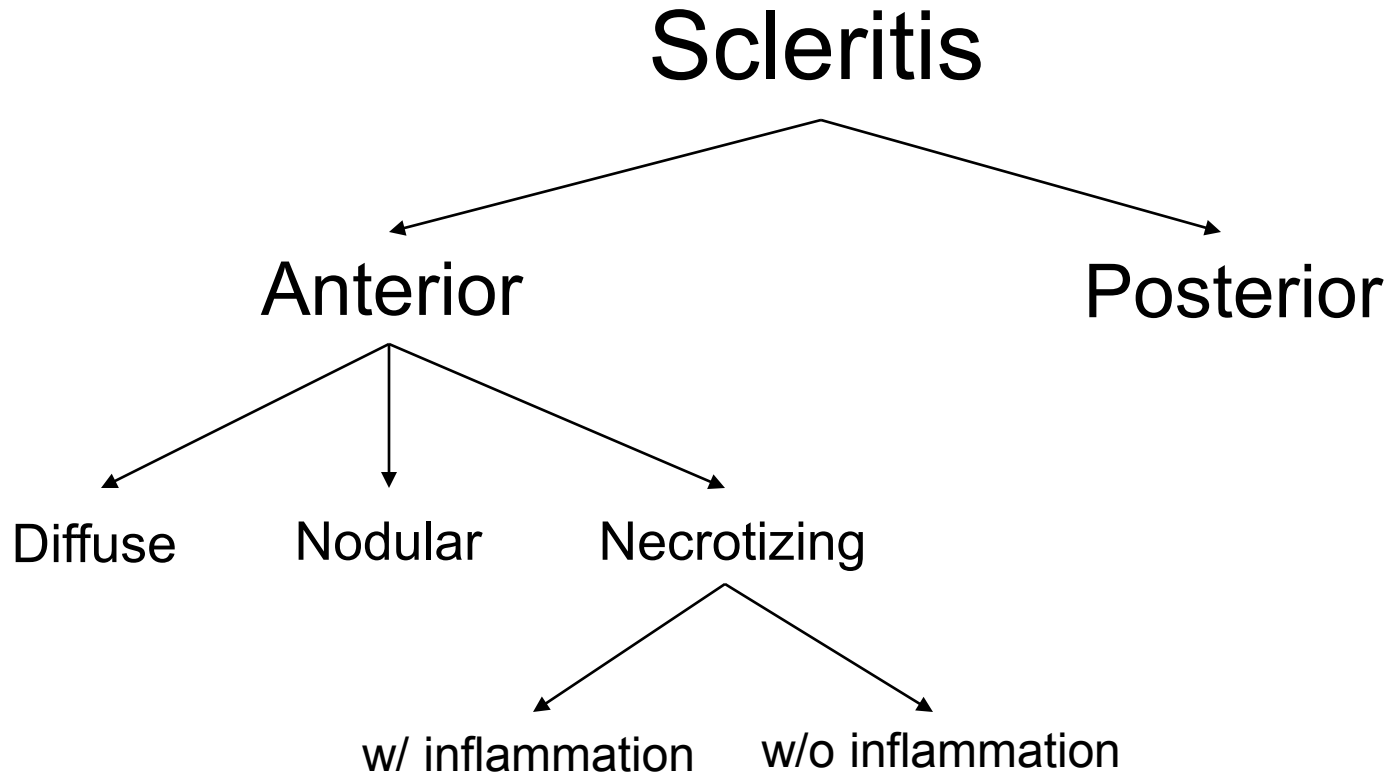
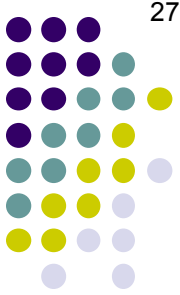
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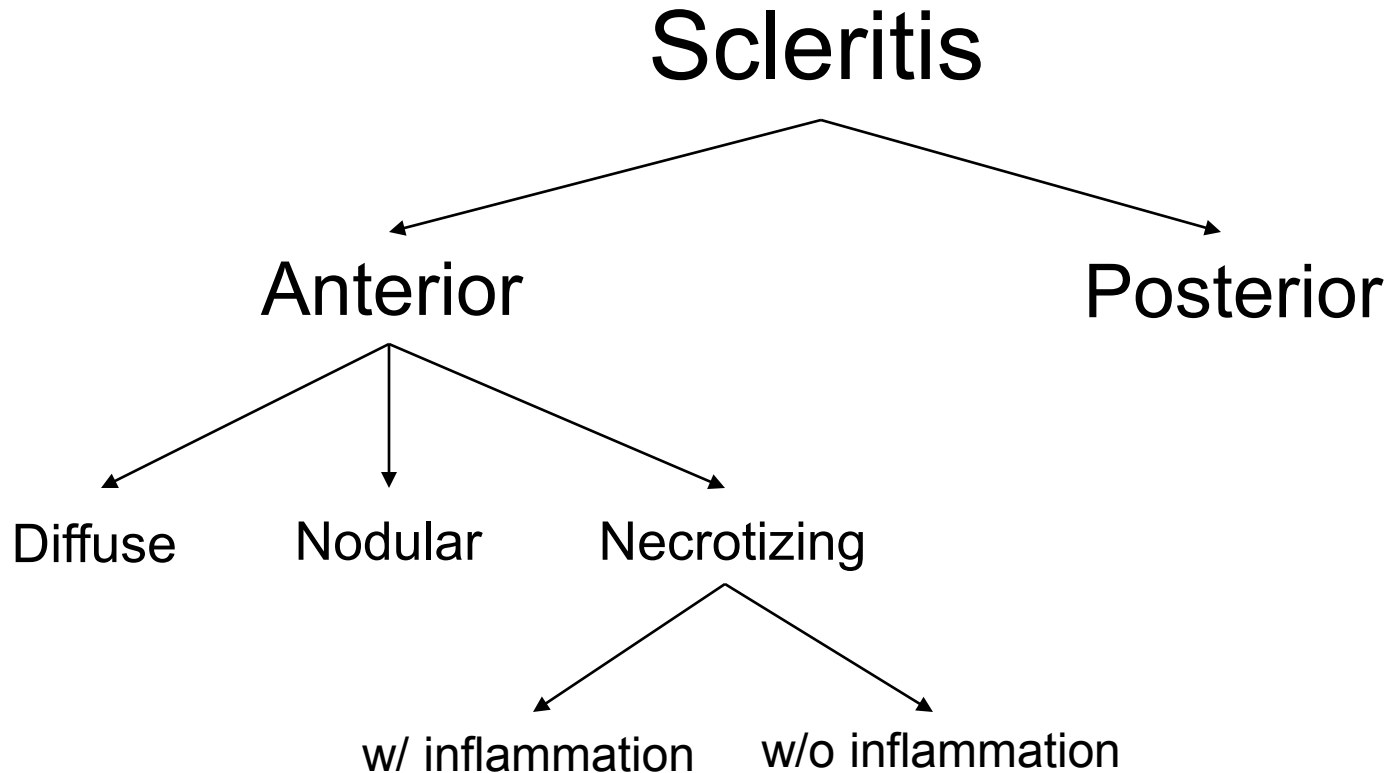
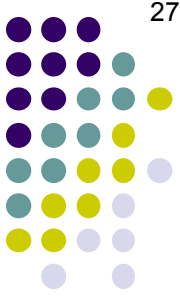
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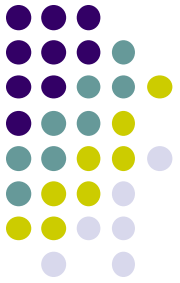
two words

steroids, long considered contraindicated, have recently gained wide acceptance as a treatment option.



**Scleritis requires systemic treatment.** Diffuse scleritis might respond to PO NSAIDs, so try them first if not contraindicated. For the others, PO steroids are usually the first-line med, although NSAIDs may be tried. Immunomodulatory therapy is often required. Subconj depot steroids, long considered contraindicated, have recently gained wide acceptance as a treatment option.

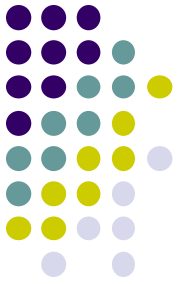
# Uveitis



In the next section we will go through the criteria regarding how one classifies/describes a uveitis with respect to its ocular findings. (Some of this will be a recapitulation of material we've already covered.)

# Uveitis

*In the context of uveitis, what does the acronym SUN stand for?*

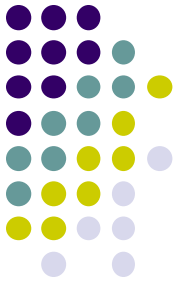




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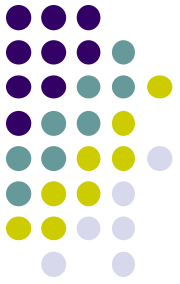


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The [ ] of the uveitis      The [ ], [ ] and [ ] of the uveitis      The [ ] of the uveitis

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The **onset, duration** and **course** of the uveitis

The **severity** of the uveitis

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--?

--?

--?

--?

*The onset, duration and  
course of the uveitis*

*The severity of the uveitis*

**What are the four locations?**

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--Anterior

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*With respect to uveitis: Where is the primary location of inflammation in...*

**Anterior uveitis?**

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**Intermediate uveitis?**

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**Panuveitis?** All three locations are equally involved



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- Anterior
- Intermediate
- Posterior

**The *onset, duration* and**

**The *severity* of the uveitis**

*A pt has dense AC cell, scant anterior vitreous cell, and cystoid macular edema. Given all three locations are involved, this pt has panuveitis, yes?*

**Panuveitis**

*With respect to uveitis, where is the primary inflammation located in...*

**Anterior uveitis?** The anterior chamber (although cell 'spillover' into the anterior vitreous may occur)

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*A pt has dense AC cell, scant anterior vitreous cell, and cystoid macular edema. Given all three locations are involved, this pt has panuveitis, yes?*

*No. The description clearly suggests the pt has an anterior uveitis with spillover of cell into the anterior vitreous, along with cystoid macular edema caused by the anterior uveitis*

*With respect to uveitis, where is the primary inflammation located in...*

**Anterior uveitis?** The anterior chamber (although cell 'spillover' into the anterior vitreous may occur)

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*A pt has dense AC cell, scant anterior vitreous cell, and cystoid macular edema. Given all three locations are involved, this pt has panuveitis, yes?*

*No. The description clearly suggests the pt has an anterior uveitis with spillover of cell into the anterior vitreous, along with cystoid macular edema caused by the anterior uveitis.*

*In other words, despite the fact that all three locations are involved, the **primary** location is anterior, making this an anterior uveitis.*

*With respect to uveitis, where is the primary inflammation located in...*

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*The **onset, duration and course** of the uveitis*

- Onset: something vs something
- Duration
- Course

*The **severity** of the uveitis*

***How are onset, duration and course delineated?***

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- Onset: Sudden vs insidious
- Duration: something vs something
- Course

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*The **location** of the uveitis*

- Anterior
- Intermediate
- Posterior
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*The **onset, duration and course** of the uveitis*

- Onset: Sudden vs insidious
- Duration: Limited vs persistent
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*The **severity** of the uveitis*

***How are onset, duration and course delineated?***

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Recurrent uveitis eventually relapses, but is quiescent off-treatment for at least 3 months.



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Recurrent uveitis eventually relapses, but is quiescent off-treatment for at least 3 months. Chronic uveitis also relapses, but its quiescent periods off-treatment last **less** than 3 months.

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The **severity** of the uveitis

- AC two words
- AC two words
- Vitreous two words

**How is severity determined?**

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By counting the number of WBCs visible within a # x # mm slit-lamp beam

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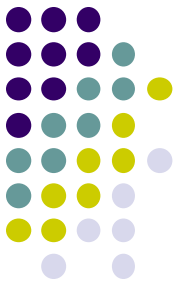
**--AC cell grade**

- AC flare grade
- Vitreous haze score

*How is the severity of the AC cellular reaction graded?*

By counting the number of WBCs visible within a **1 x 1 mm** slit-lamp beam

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Grade	Number of Cells/Field
?	?
?	?
?	?
?	?
?	?
?	?

*The SUN c*

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*The locati*

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*on and  
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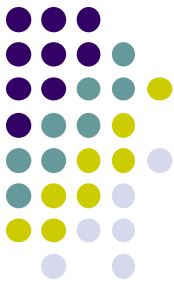
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*What are the six grades employed in the SUN criteria, and how many cells/field correlate with each grade?*

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Grade	Number of Cells/Field
0	<1
0.5+	1-5
1+	6-15
2+	16-25
3+	26-50
4+	>50

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- Iris changes

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- Diffuse
- Confined to

two words

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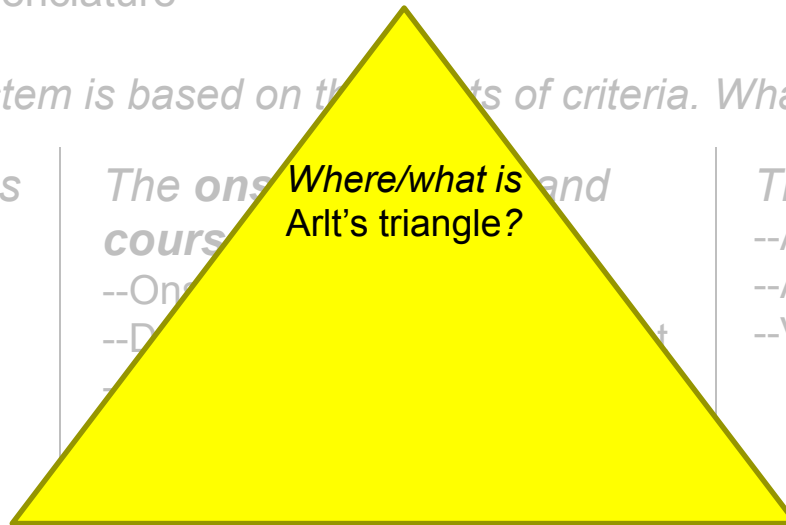
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*The **onset/duration/course** of the uveitis*  
**Where/what is Arlt's triangle?**

- Onset
- Duration
- Course

*The **severity** of the uveitis*

- AC cell grade
- AC flare grade
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*In addition to location, onset/duration/course, and severity, what other aspects of presentation are important in classifying a case of uveitis?*

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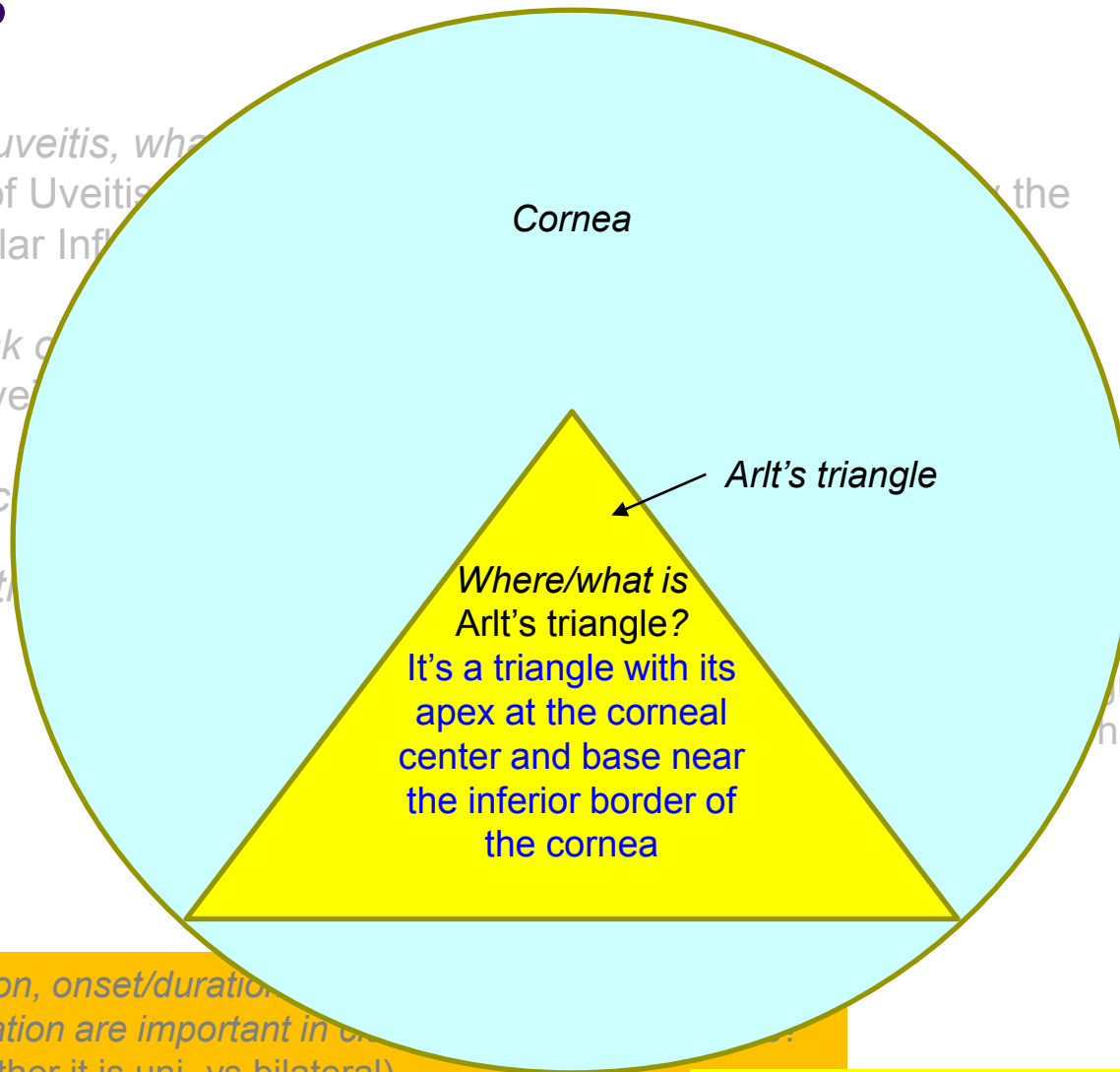
- Their **appearance** and their **distribution**

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# Uveitis



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*What was the task of the SUO group?*  
To standardize uveitis classification

*The SUN classification*

*The **location** of the uveitis*

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*Severity of the uveitis*  
--Mild  
--Moderate  
--Severe  
--Haze score

*In addition to location, onset/duration, and other aspects of presentation are important in classifying uveitis.*

- Laterality (ie, whether it is uni- vs bilateral)
- The character of keratic precipitates (KP) if present**

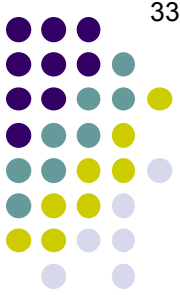
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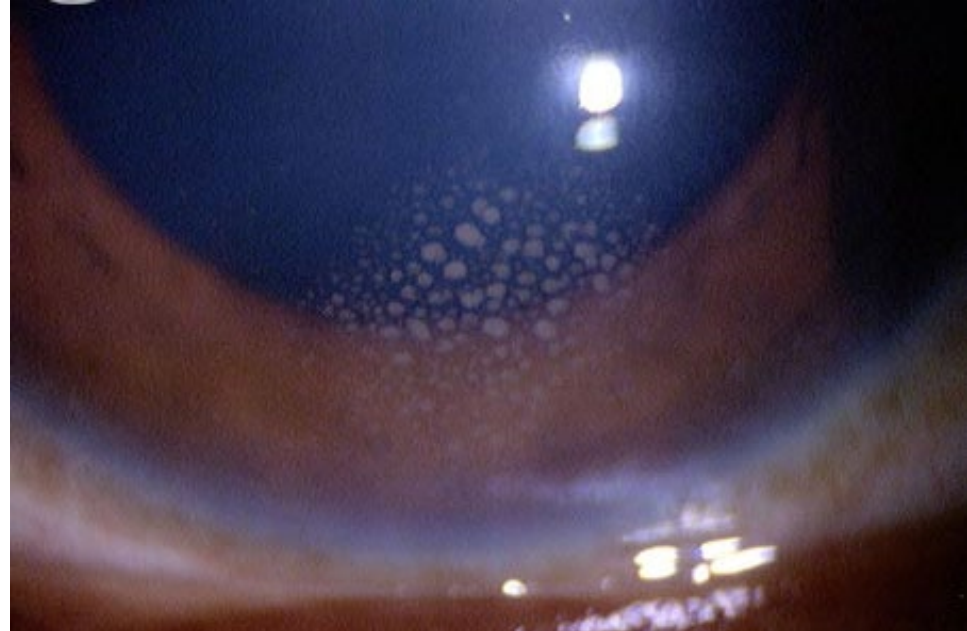
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# Uveitis



Diffusely distributed KP



KP concentrated in Arlt's triangle

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--?

--?

# Uveitis



*In the context of uveitis, what does the acronym SUN stand for?*

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*What was the task of the SUN Working Group?*

To standardize uveitis nomenclature

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- Anterior
- Intermediate
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The **onset, duration and course** of the uveitis

- Onset: Sudden vs insidious
- Duration: Limited vs persistent
- Course: Acute vs recurrent vs chronic

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- AC cell grade
- AC flare grade
- Vitreous haze score

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--Laterality (ie, whether it is uni- vs bilateral)

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Broadly, what two characteristics of KP are important?

--Their **appearance** and their **distribution**

*The appearance of KP is most often described with one of three terms. What are they?*

- Granulomatous
- Nongranulomatous
- Stellate

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Always...

Always...

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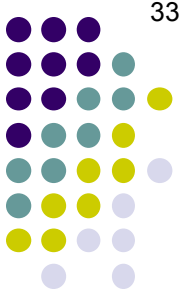
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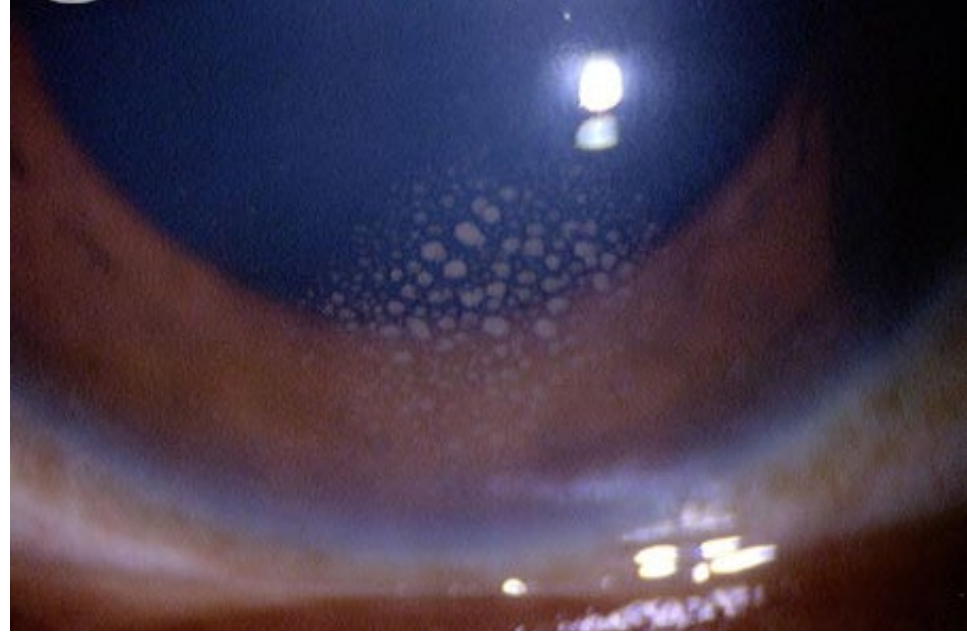
Always...in **Arlt's triangle**

Always...**diffuse**

# Uveitis



Stellate KP



Granulomatous KP

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- Atrophy
- Synechiae
- Nodules
- Heterochromia

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- Iris changes

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- Nodules
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*The character of atrophic changes is often described with one of two terms. What are they?*

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- Atrophy
- Synechiae
- Nodules
- Heterochromia

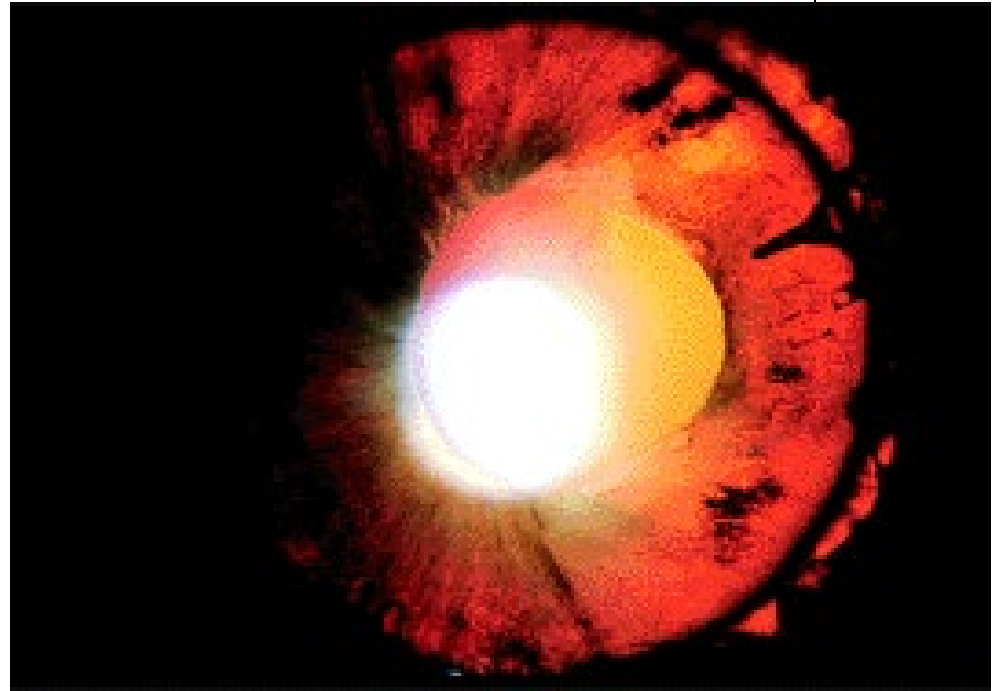
*The character of atrophic changes is often described with one of two terms. What are they?*

- Diffuse
- Sectoral

# Uveitis



Sectoral



Diffuse

Iris atrophy

# Uveitis



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- The character of the changes
- Iris changes
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*Synechiae typically are found in one of two locations--where?*

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*Synechiae typically are found in one of two locations--where?*

- At the pupillary margin (these are called **anterior** synechiae)
- At the angle (these are called *peripheral anterior* synechiae)

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- Iris changes
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- Atrophy
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*Synechiae typically are found in one of two locations--where?*

- At the pupillary margin (these are called *posterior* synechiae)
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two words



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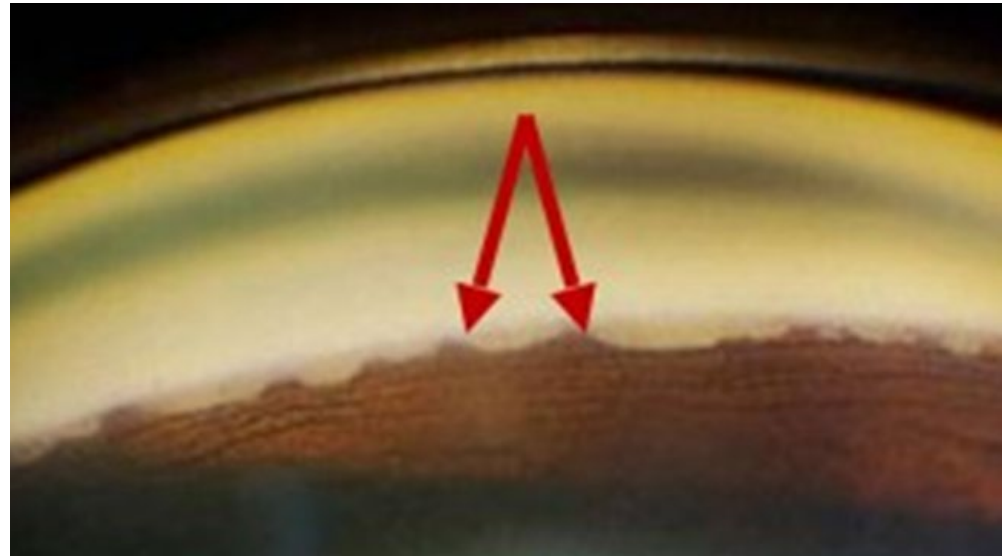
*Synechiae typically are found in one of two locations--where?*

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# Uveitis



Posterior



Peripheral anterior

Iris synechiae

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--The character of the vitreous reaction *Iris nodules typically are found in one of three locations--where?*

--**Iris changes**

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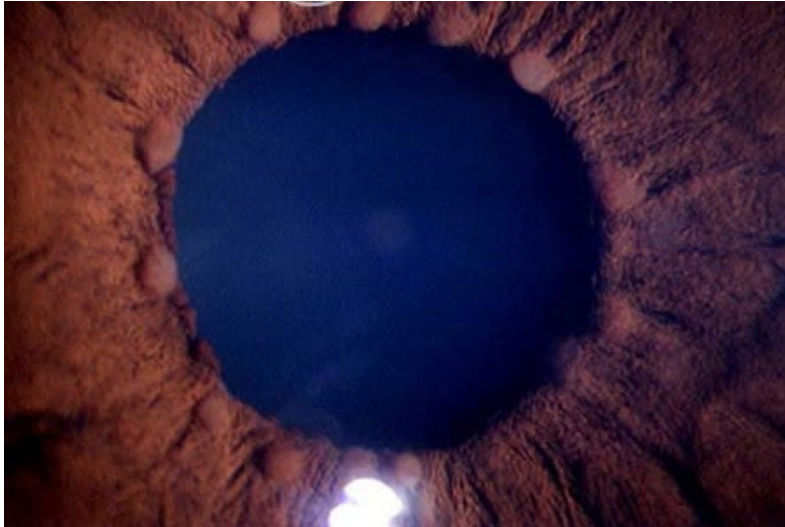
*Iris nodules typically are found in one of three locations--where?*

--At the pupillary margin

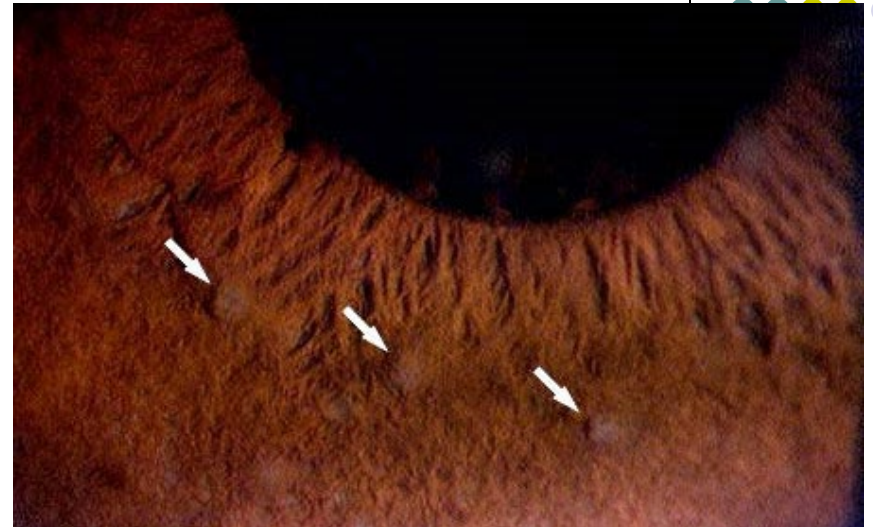
--The mid-iris

--At the angle

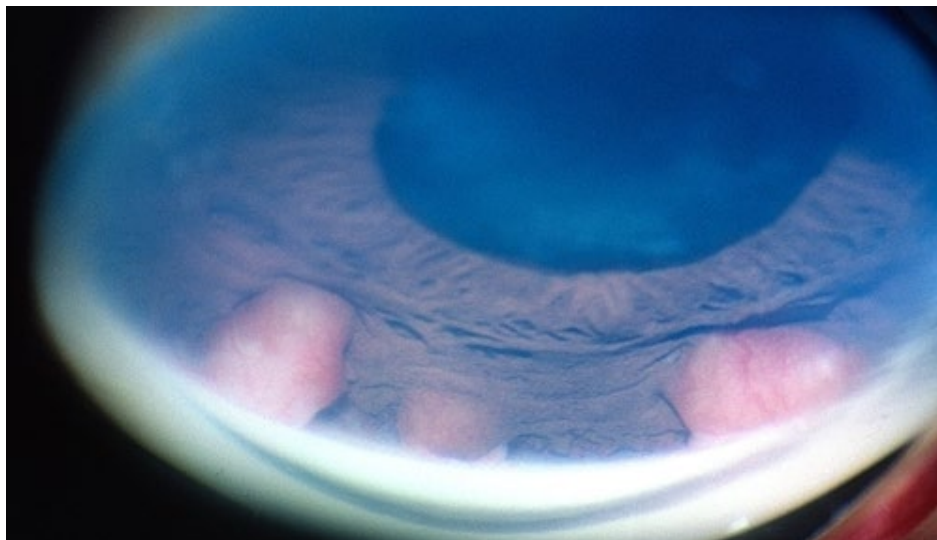
# Uveitis



Marginal



Mid-iris



Near the angle

Iris nodules

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*In a pt with uveitis and heterochromia, which iris is more likely to be the abnormal one--the lighter iris, or the darker?*

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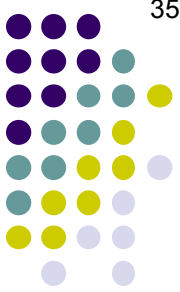
--Nodules

--Heterochromia

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The lighter



# Uveitis

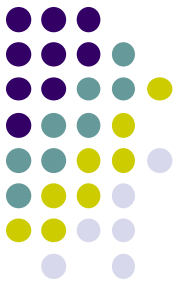


Heterochromia iridis in a uveitis pt



# Uveitis

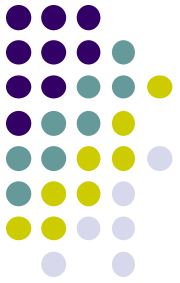
## *Masquerade Syndrome*



*Finally, we will look at masquerade syndromes*

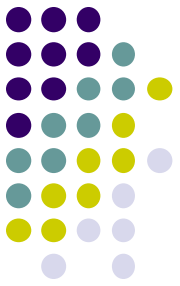
# Uveitis

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



# Uveitis

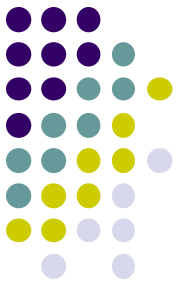
*Masquerade  
Syndrome* refers to entities  
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*In other words, these are pts who look like they have a uveitic condition, but do not.*

# Uveitis

*Masquerade  
Syndrome* refers to entities  
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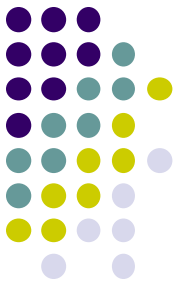


*In other words, these are pts who look like they have a uveitic condition, but do not. It is very important that masquerade syndromes be recognized as such, because their prolonged (mis)diagnosis as uveitis may result in a devastating delay in the treatment of the actual underlying condition.*

# Uveitis

## *Masquerade*

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



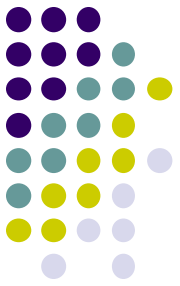
The entities can be broadly divided into  
and causes.



# Uveitis

## *Masquerade*

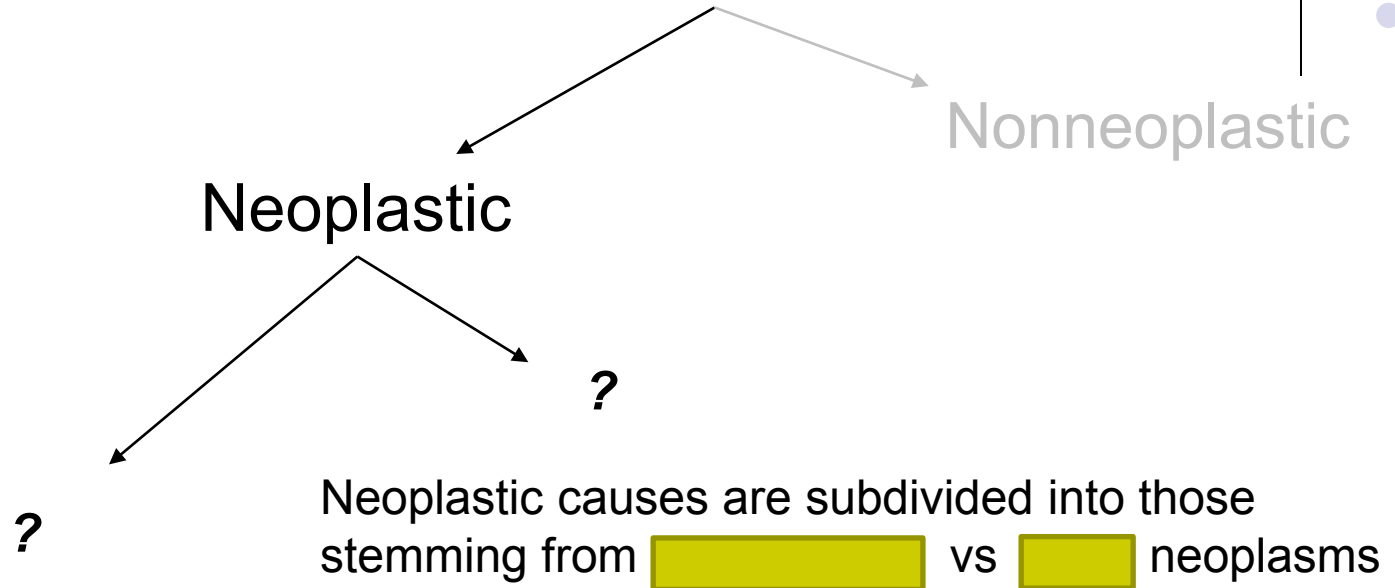
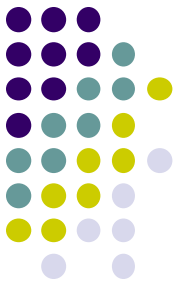
*Syndrome* refers to entities  
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The entities can be broadly divided into Nonneoplastic  
and Neoplastic causes.

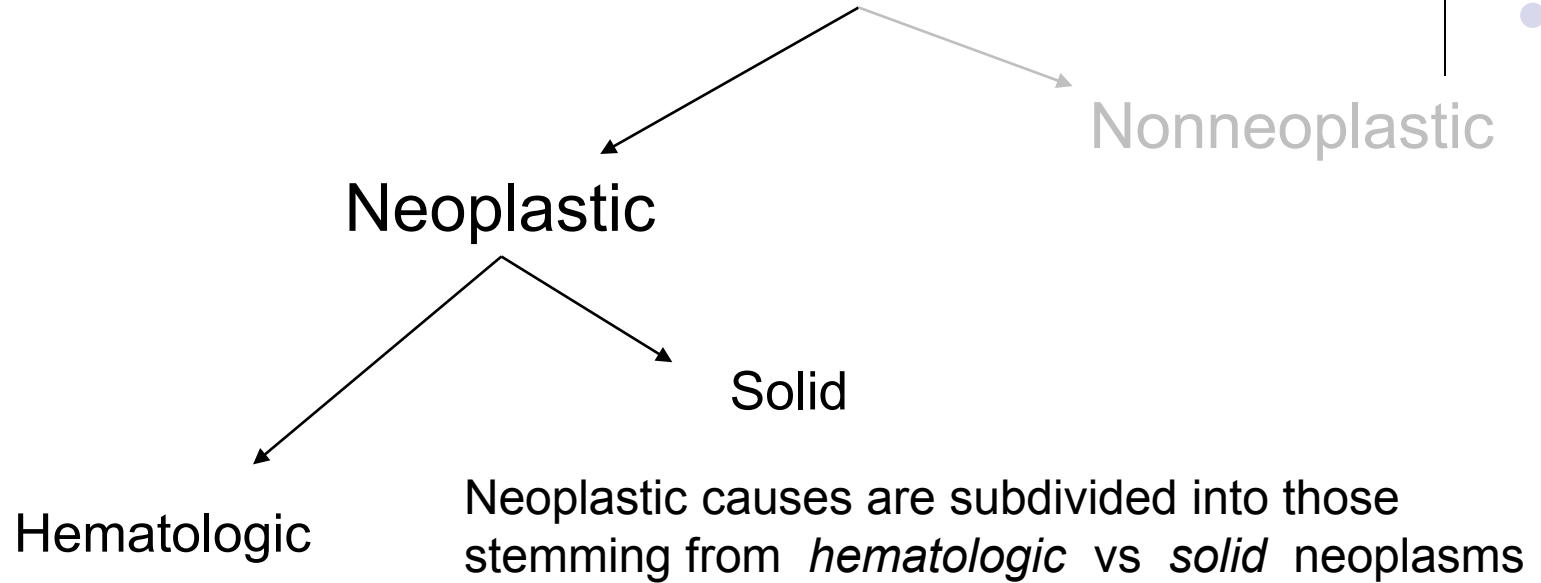
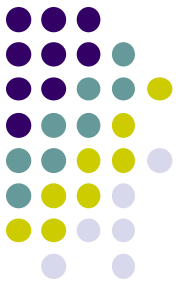
# Uveitis

## *Masquerade Syndrome*



# Uveitis

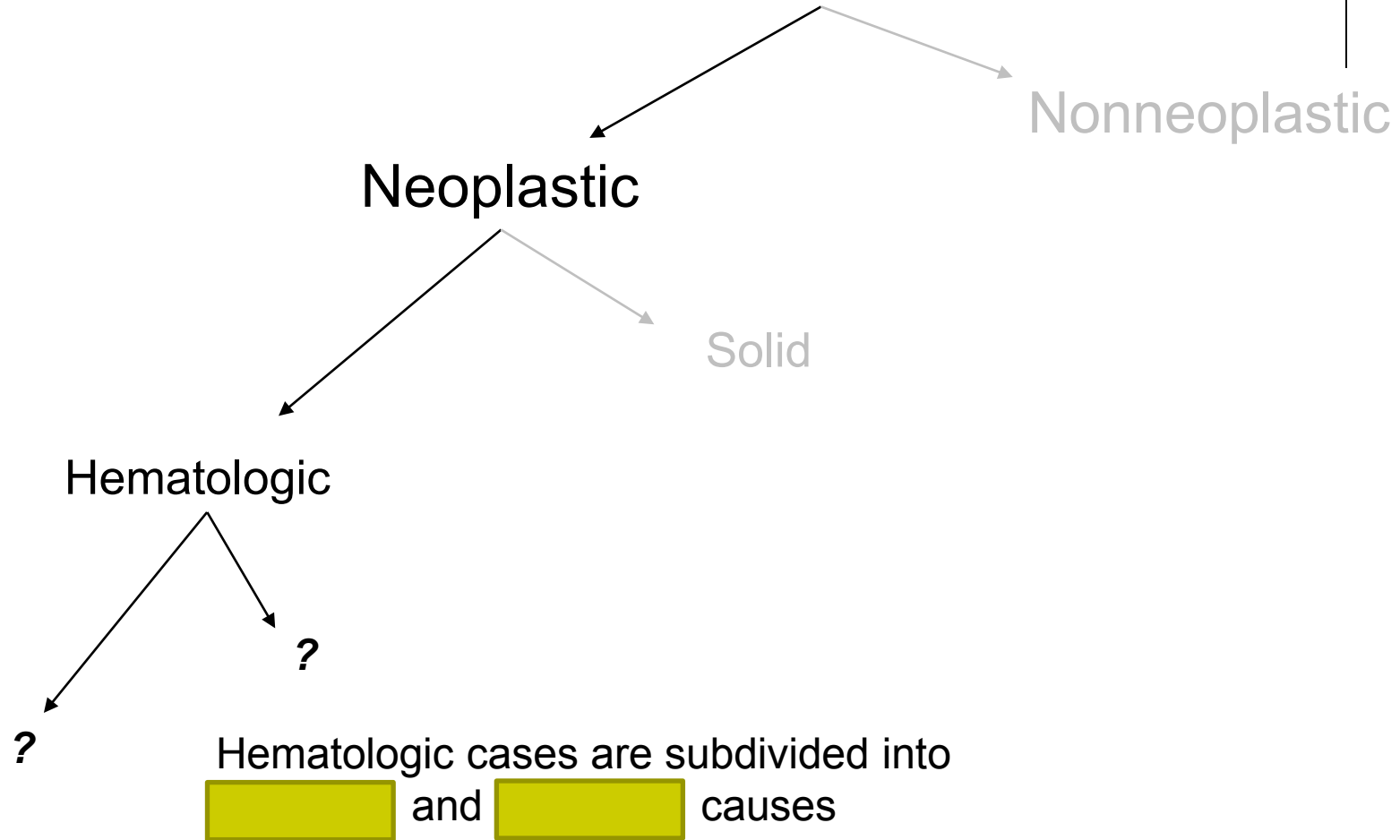
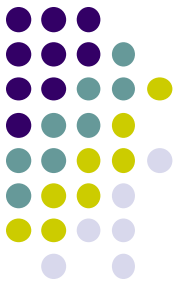
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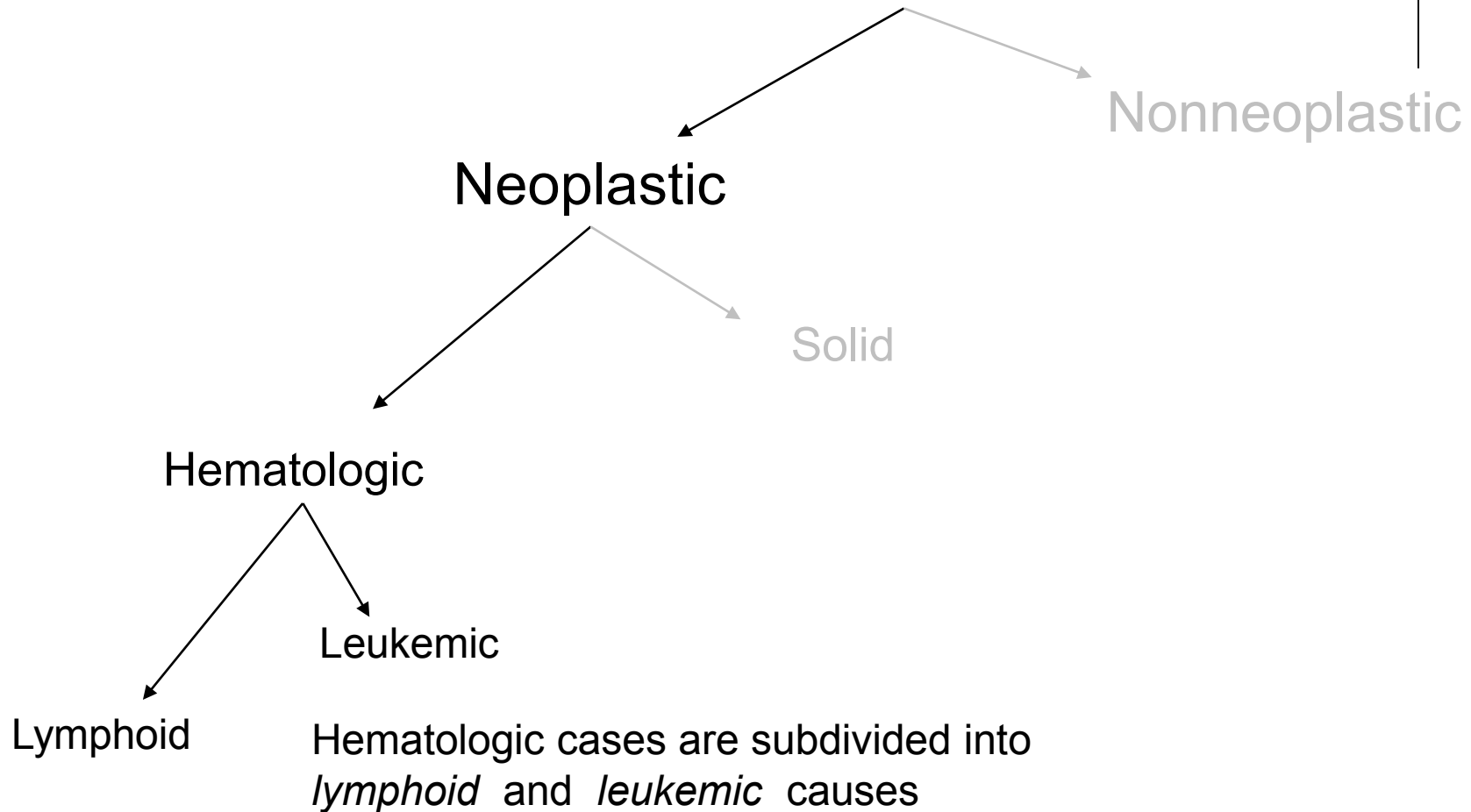
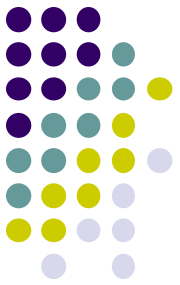
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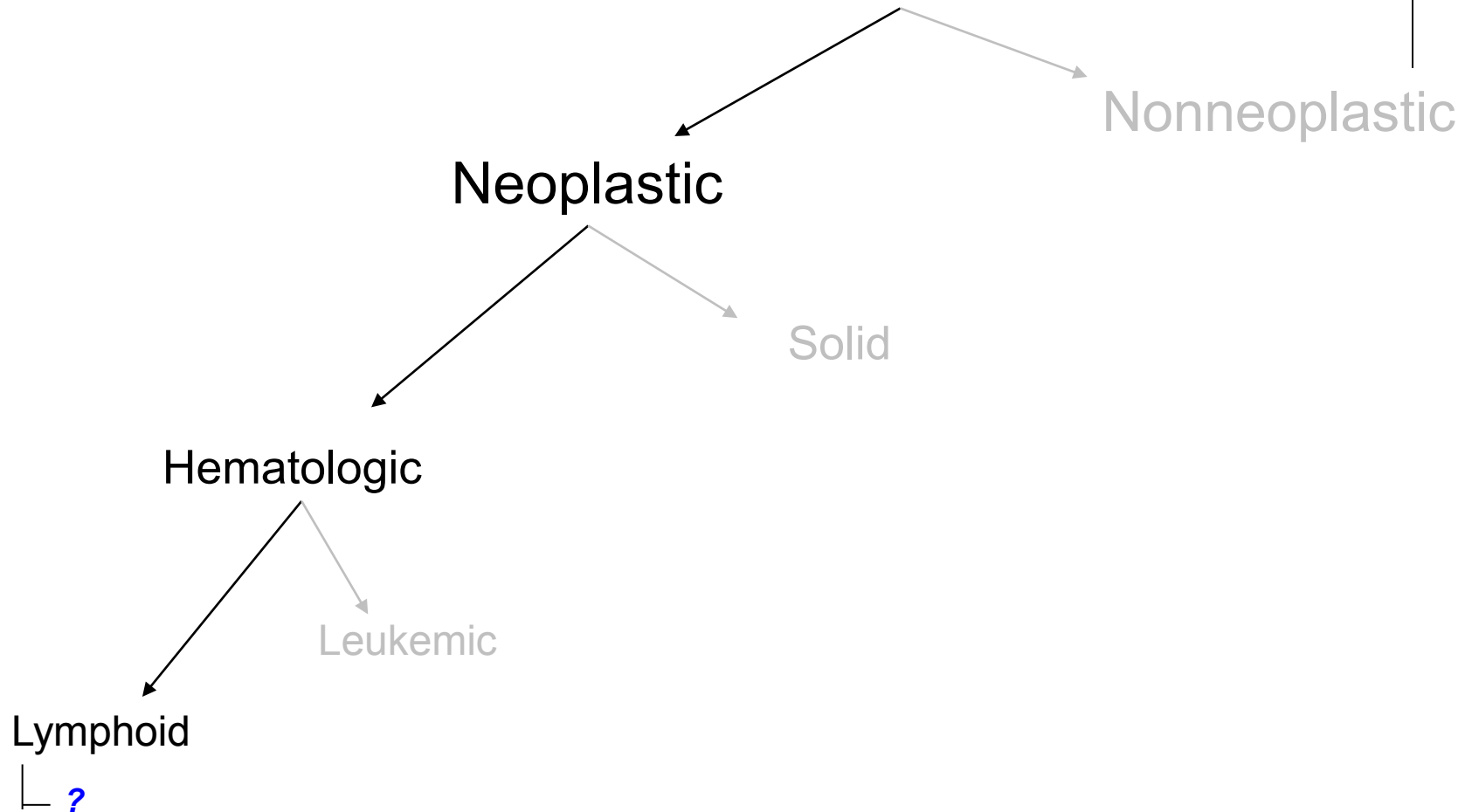
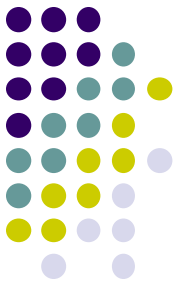
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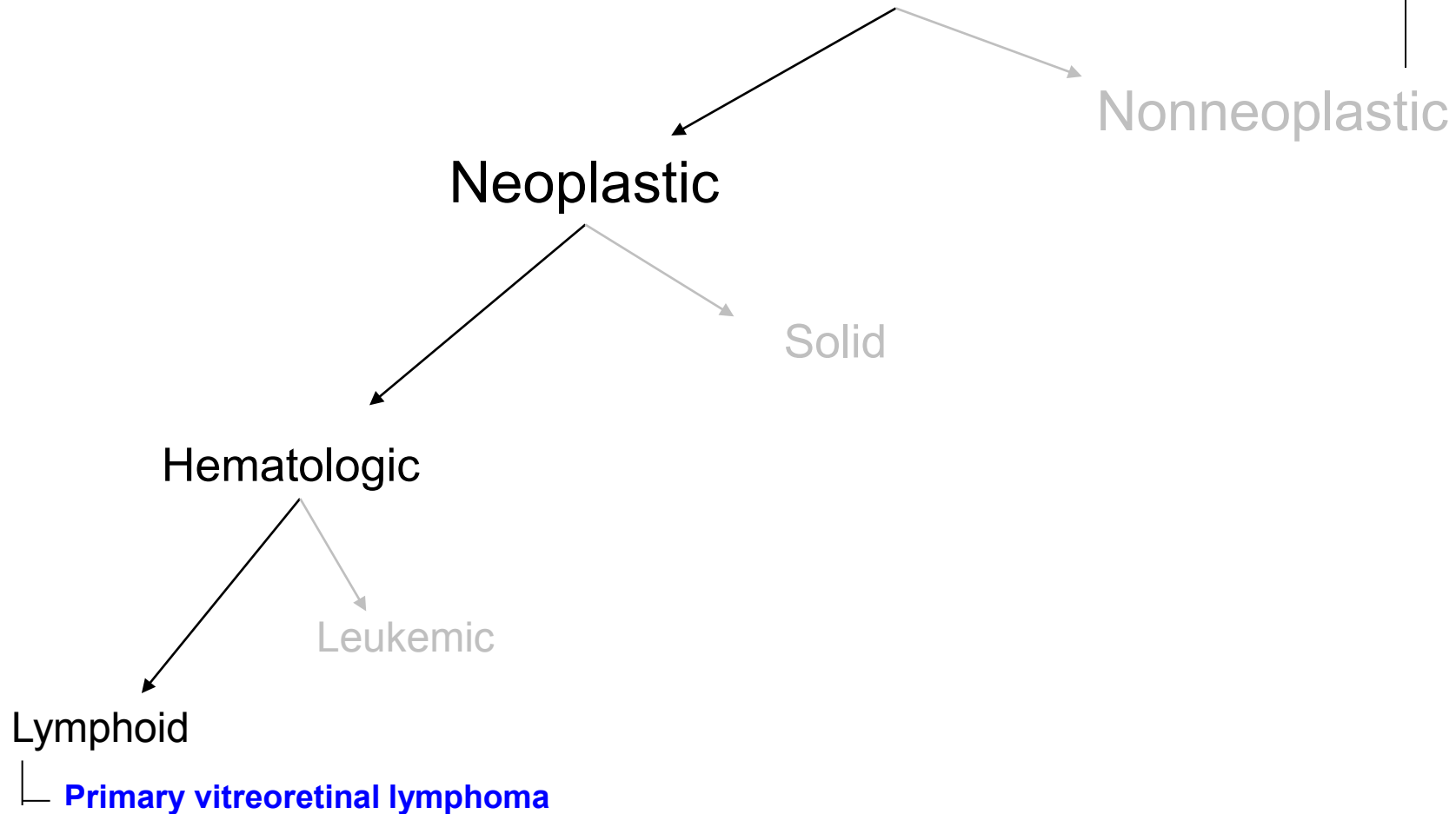
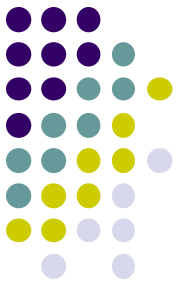
## *Masquerade Syndrome*



The most common entity to masquerade as intraocular uveitis is

# Uveitis

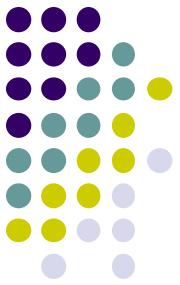
## *Masquerade Syndrome*



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

# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

Virtually all PVRLs are cancer and cell type lymphomas.

Leukemic

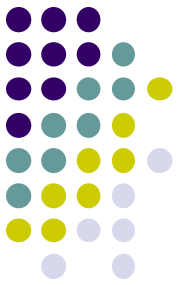
Lymphoid

└ **Primary vitreoretinal lymphoma**

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

# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

Virtually all PVRLs are non-Hodgkin B-cell lymphomas.

Leukemic

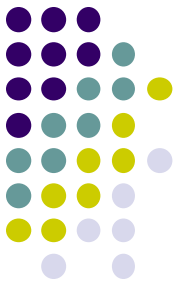
Lymphoid

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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

Virtually all PVRLs are non-Hodgkin B-cell lymphomas. The typical PVRL pt is an adult v child

Leukemic

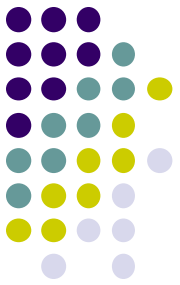
Lymphoid

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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

Virtually all PVRLs are non-Hodgkin B-cell lymphomas. The typical PVRL pt is an adult

Leukemic

Lymphoid

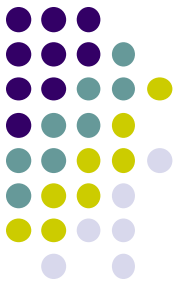
└ **Primary vitreoretinal lymphoma**

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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

Virtually all PVRLs are non-Hodgkin B-cell lymphomas. The typical PVRL pt is an adult in their  
age range

Leukemic

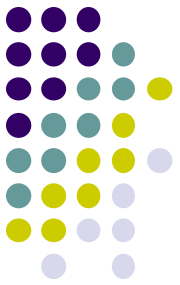
Lymphoid

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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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Leukemic

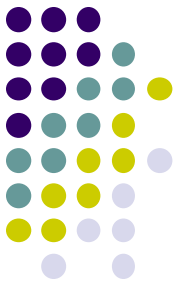
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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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

Leukemic

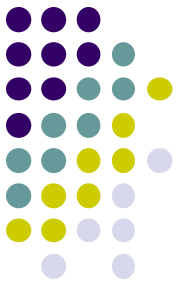
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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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

Leukemic

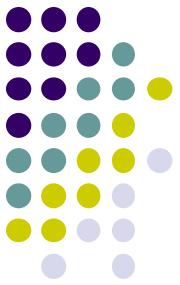
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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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

abb. + word

Leukemic

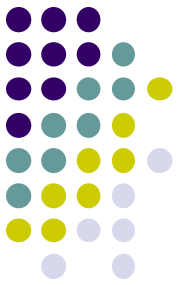
Lymphoid

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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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Leukemic

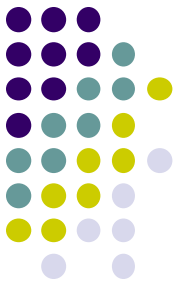
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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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Leukemic

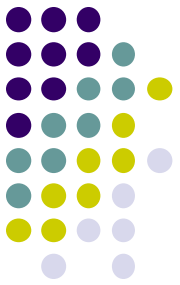
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## *Masquerade Syndrome*



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Leukemic

Lymphoid

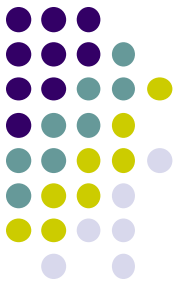
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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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Leukemic

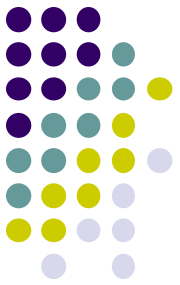
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# Uveitis

## *Masquerade Syndrome*



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Leukemic

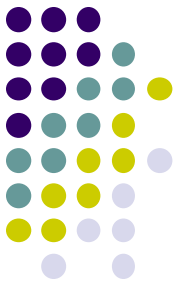
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# Uveitis

## *Masquerade Syndrome*



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Leukemic

Lymphoid

└ **Primary vitreoretinal lymphoma**

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

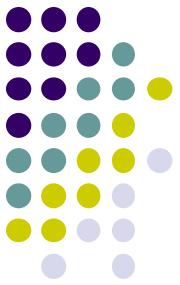
# Uveitis



PVRL: Typical white-yellow subretinal infiltrates

# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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Leukemic

Lymphoid

└ **Primary vitreoretinal lymphoma**

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# Uveitis

## *Masquerade Syndrome*



Neoplastic

Nonneoplastic

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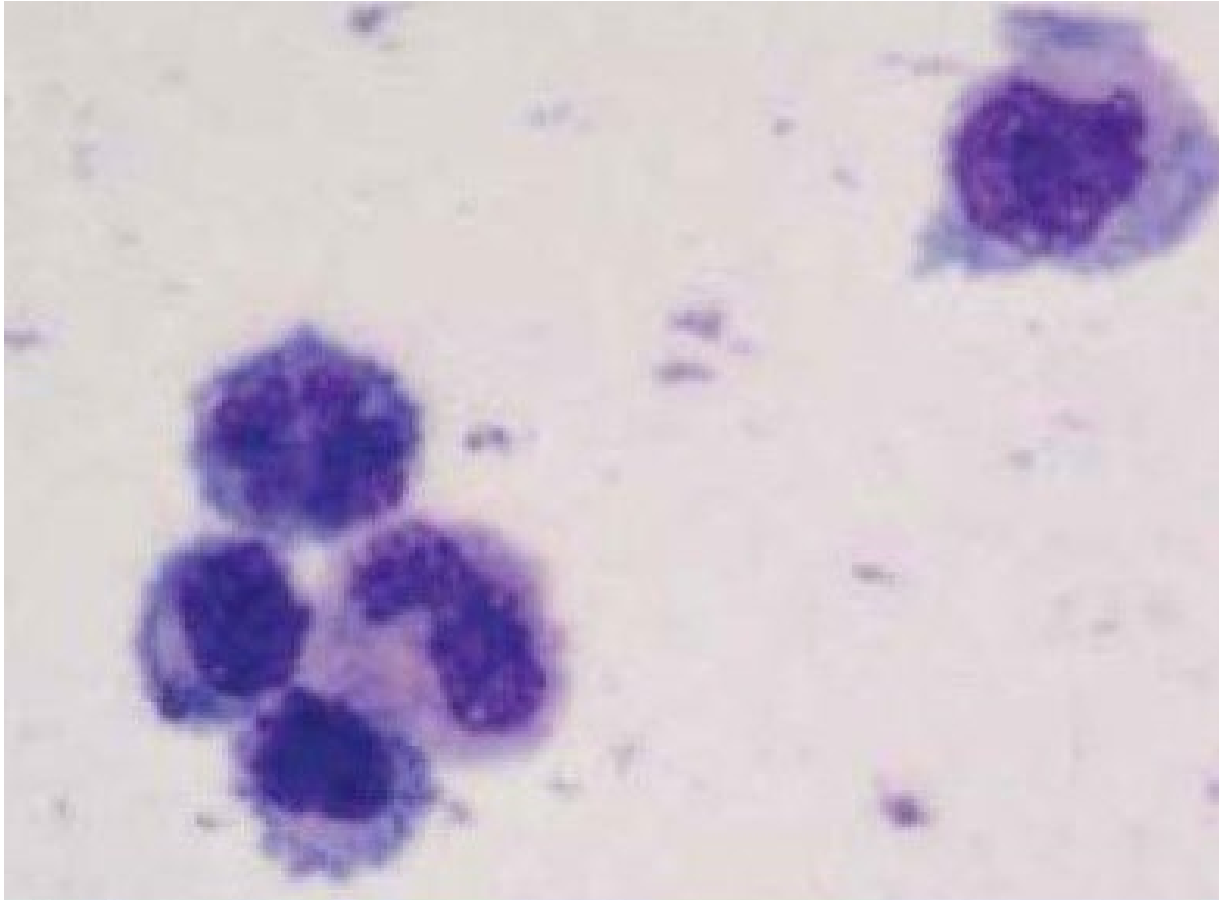
Leukemic

Lymphoid

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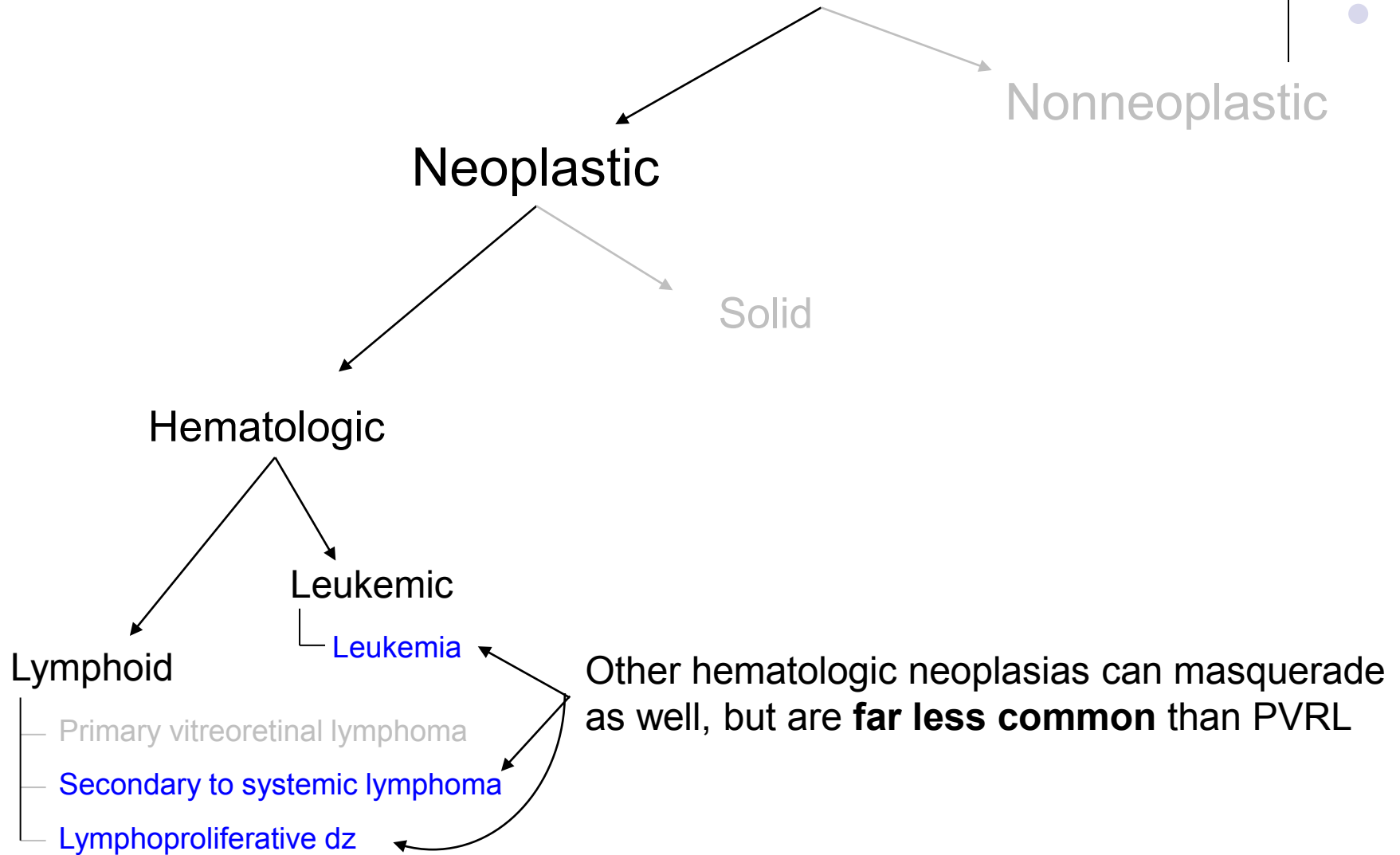
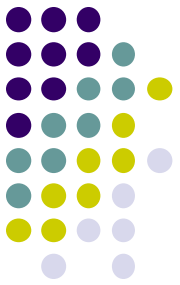
# Uveitis



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

# Uveitis

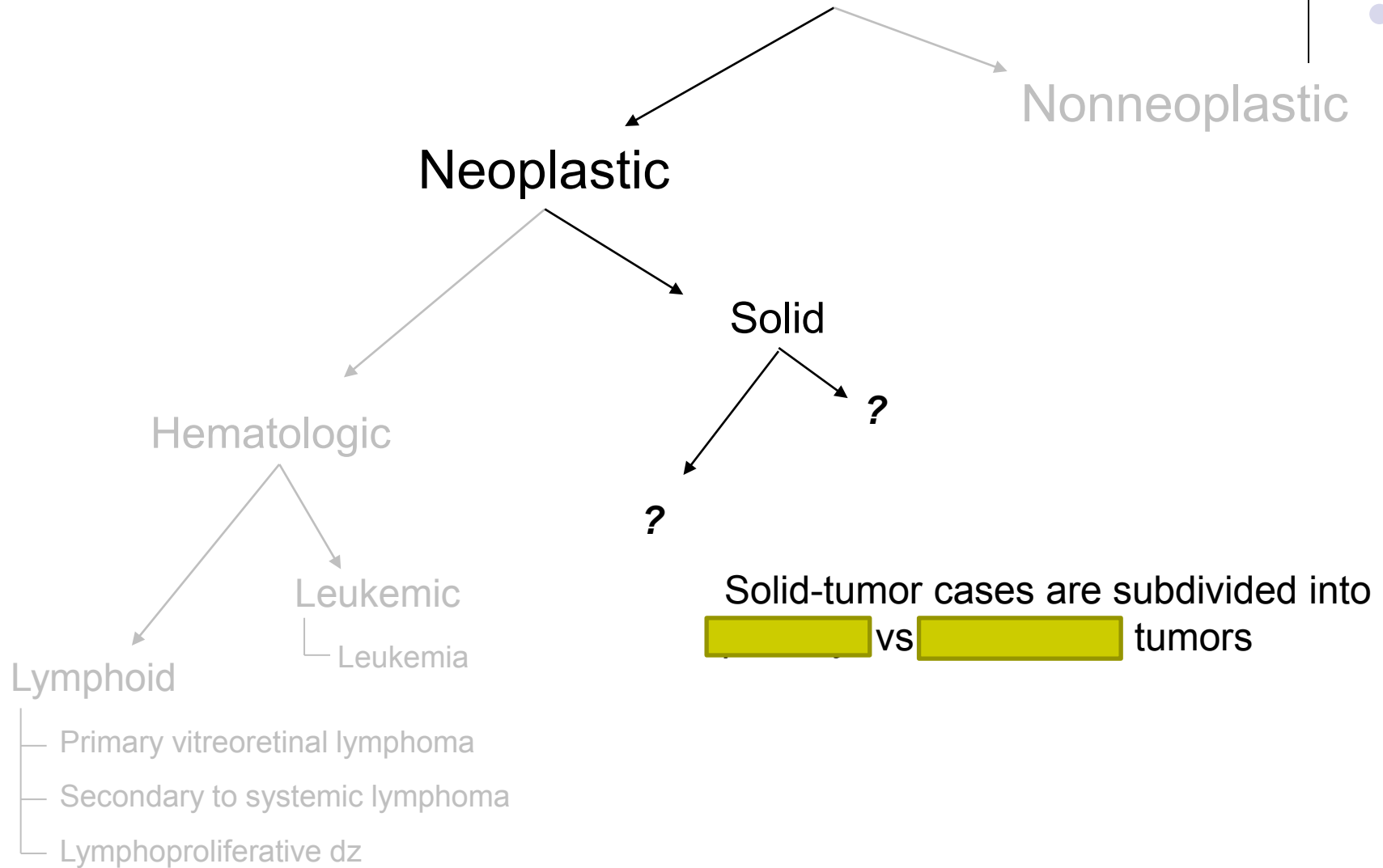
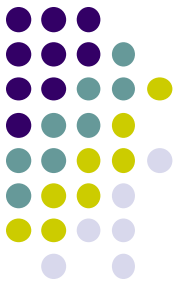
## *Masquerade Syndrome*





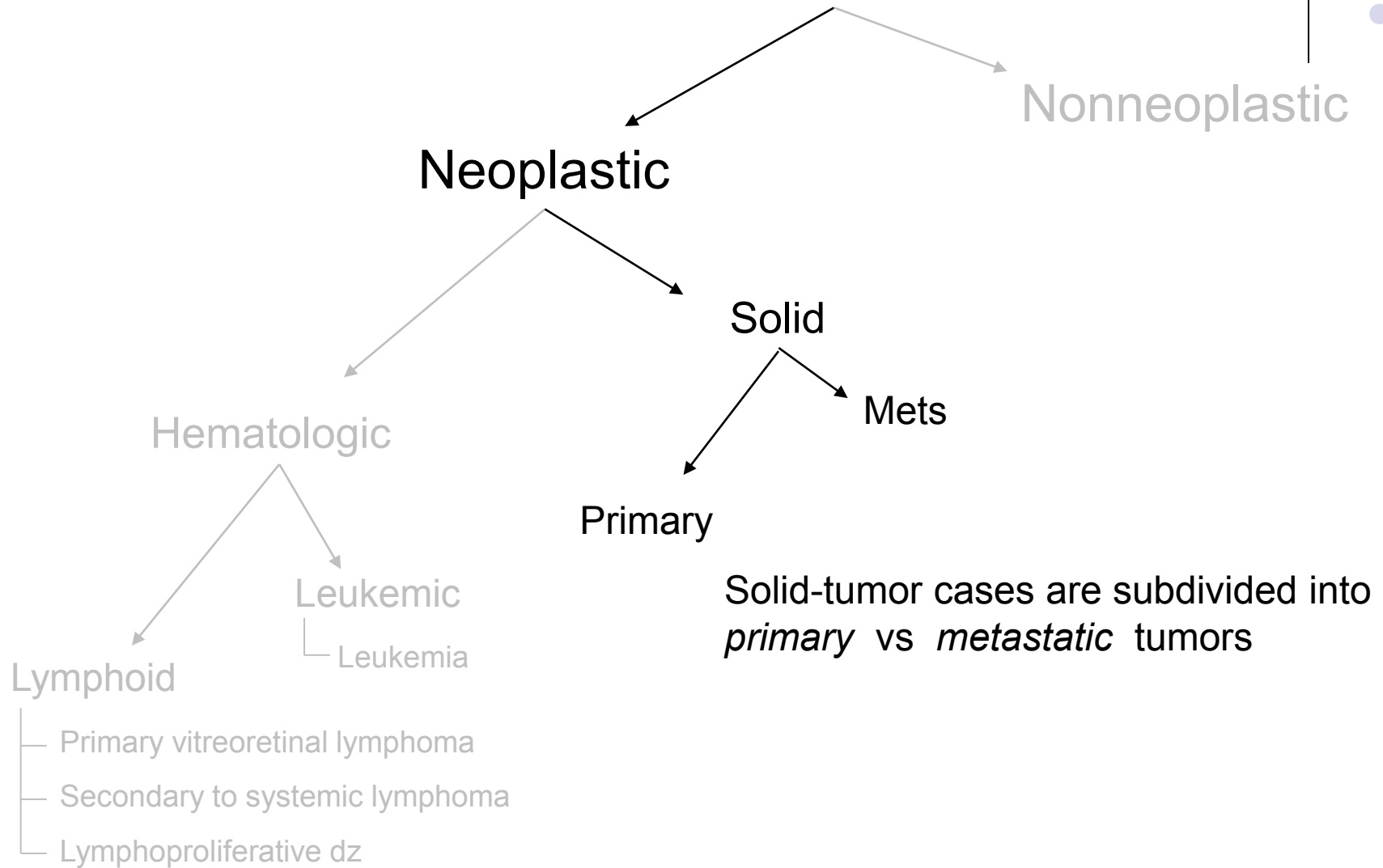
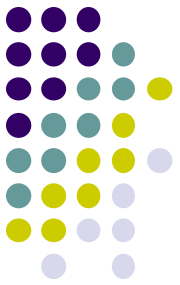
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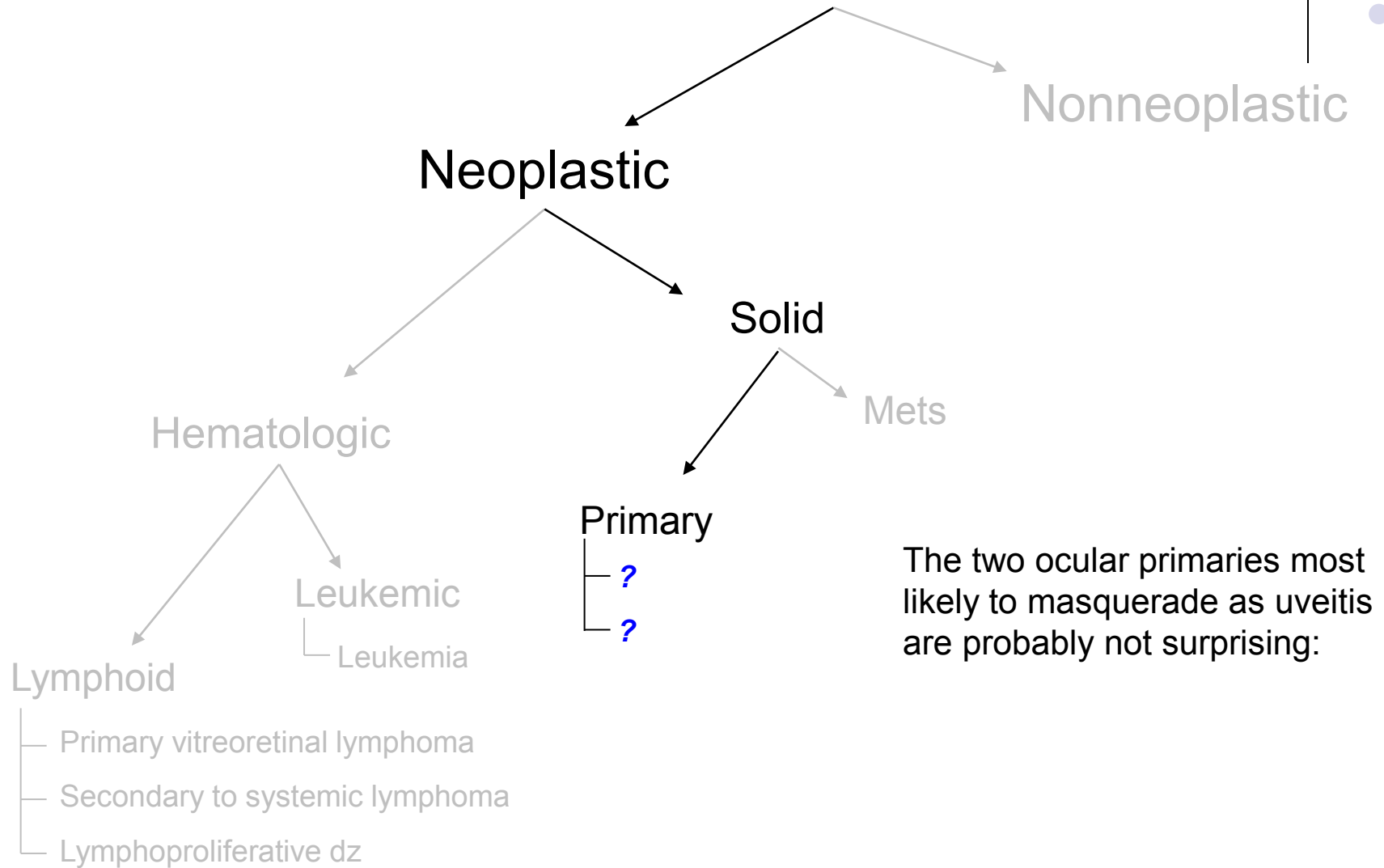
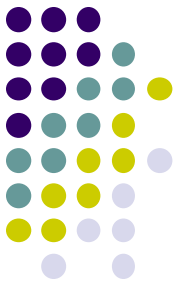
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## *Masquerade Syndrome*



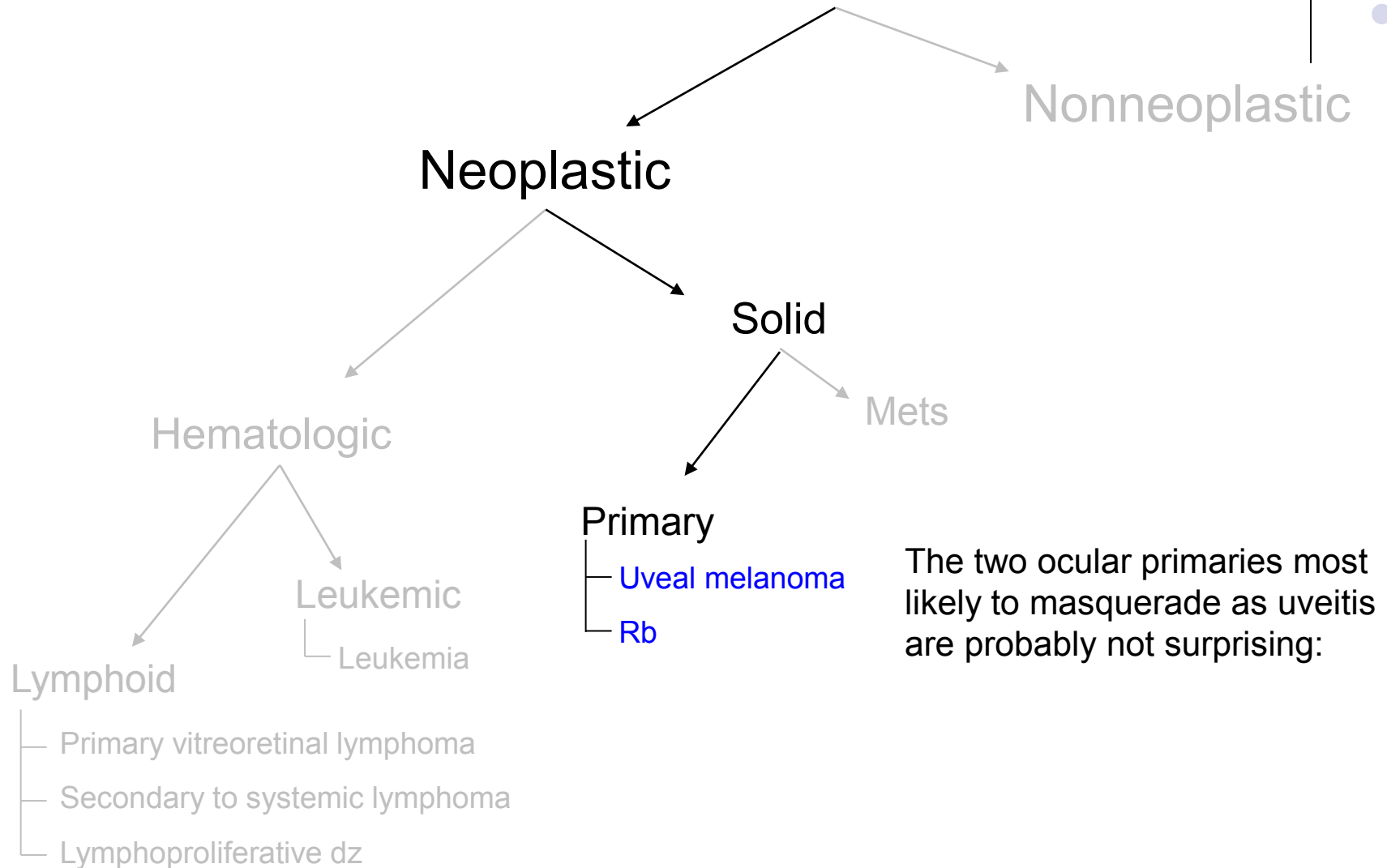
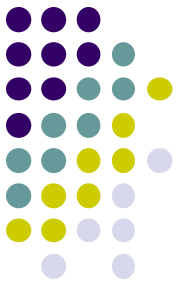
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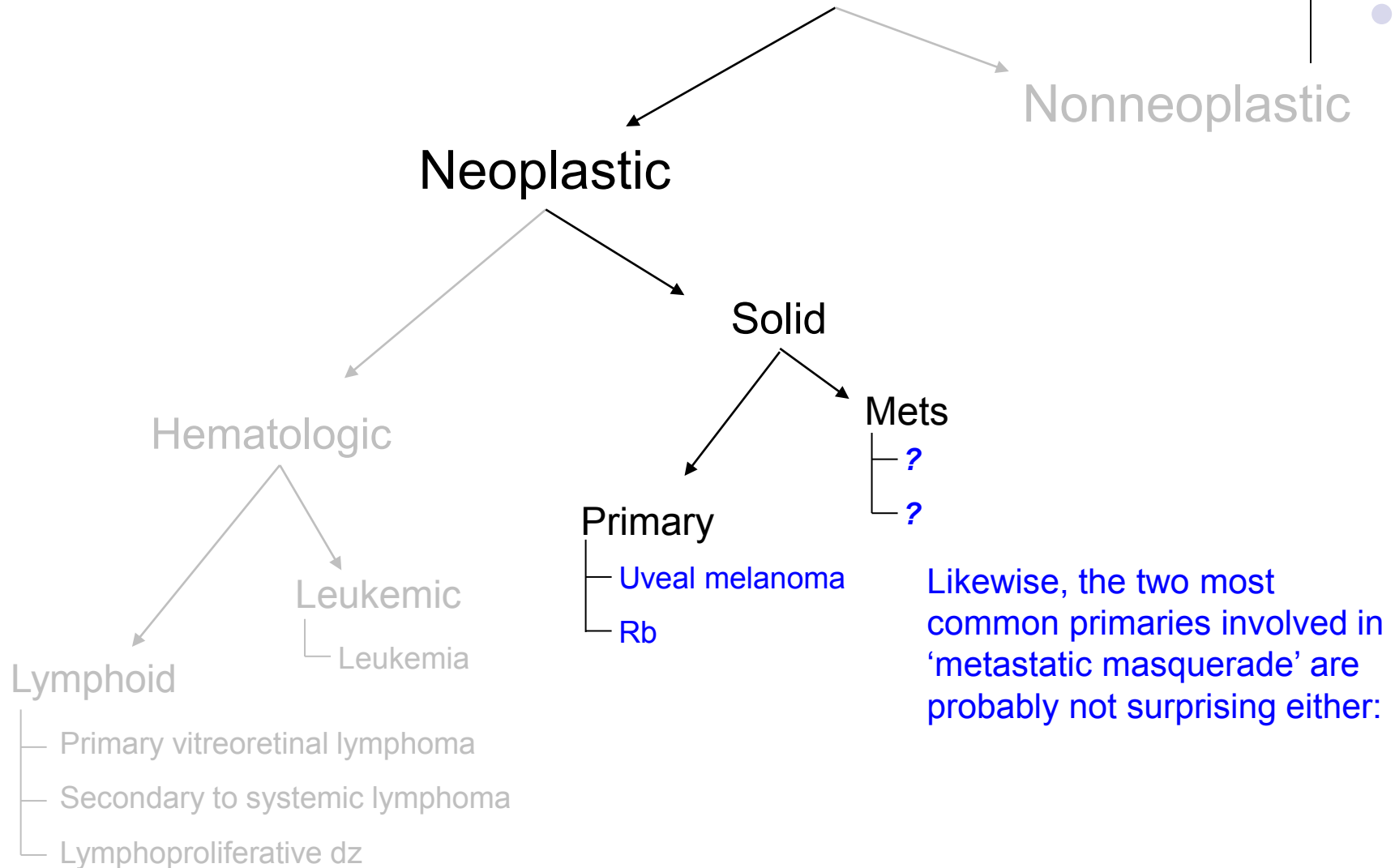
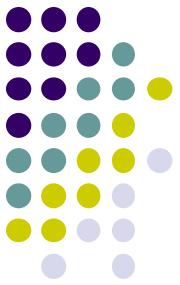
# Uveitis

## *Masquerade Syndrome*



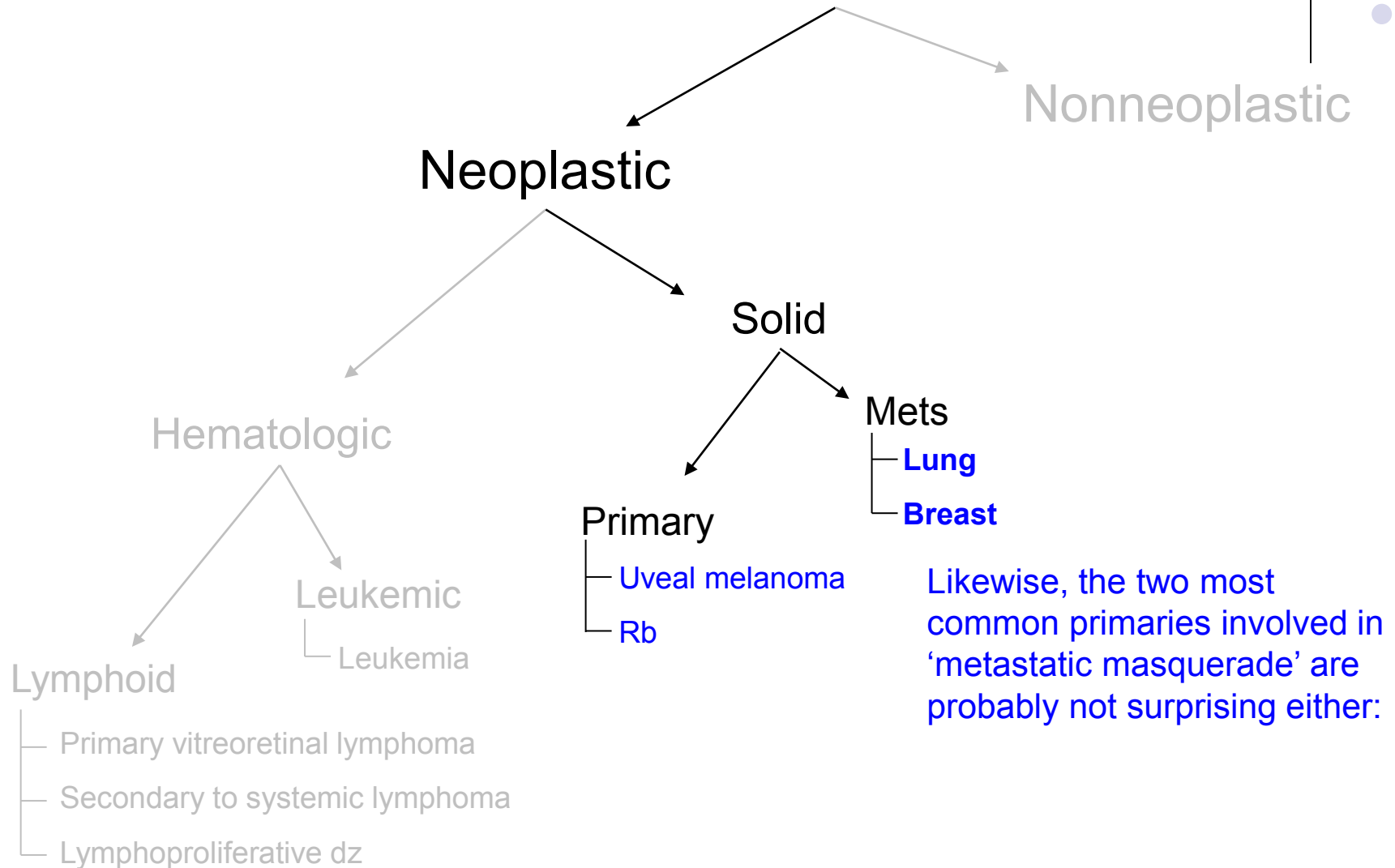
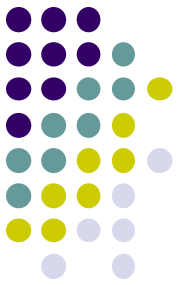
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## *Masquerade Syndrome*



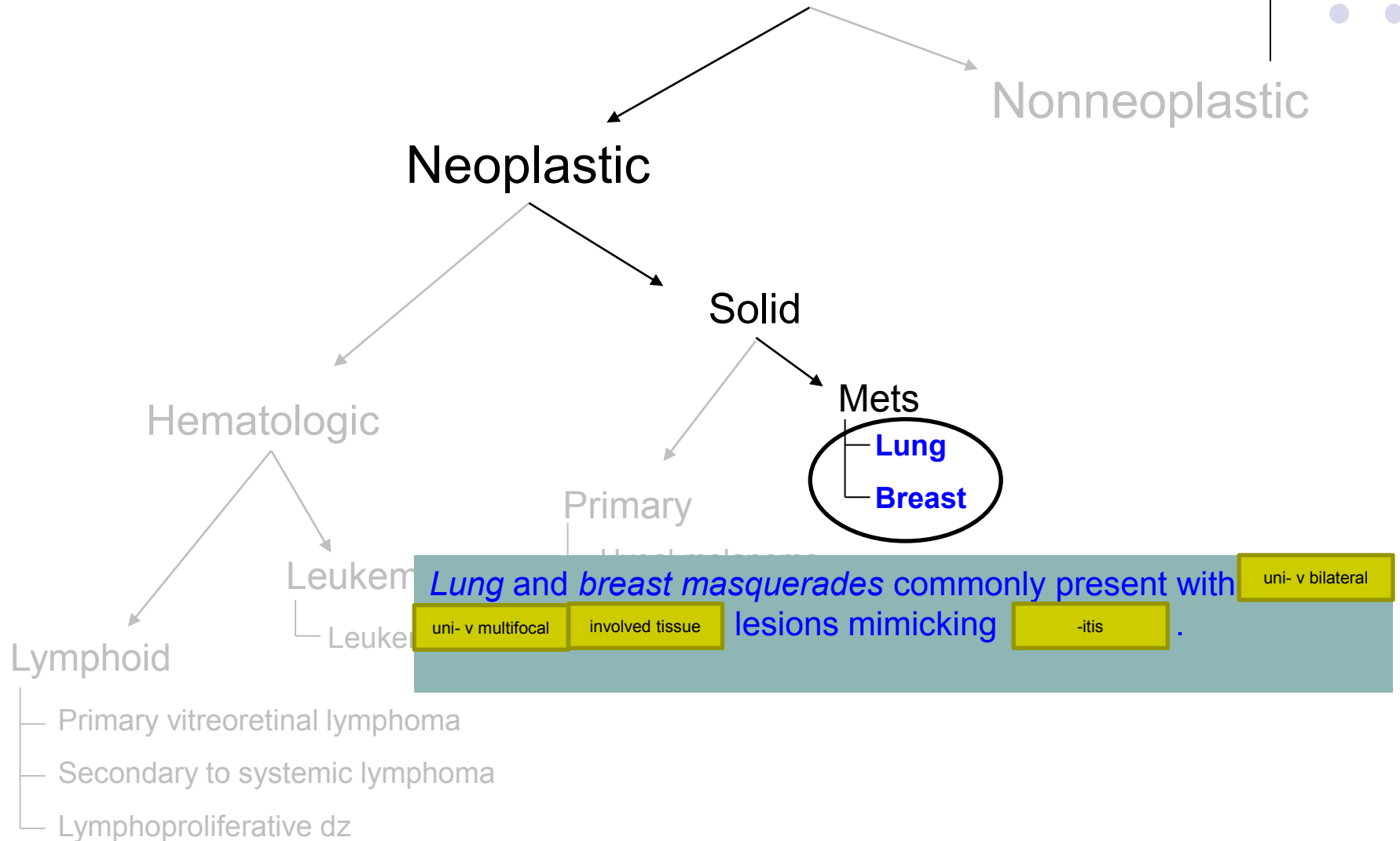
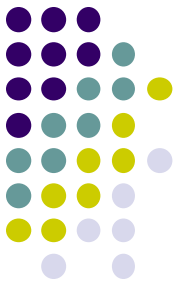
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## *Masquerade Syndrome*



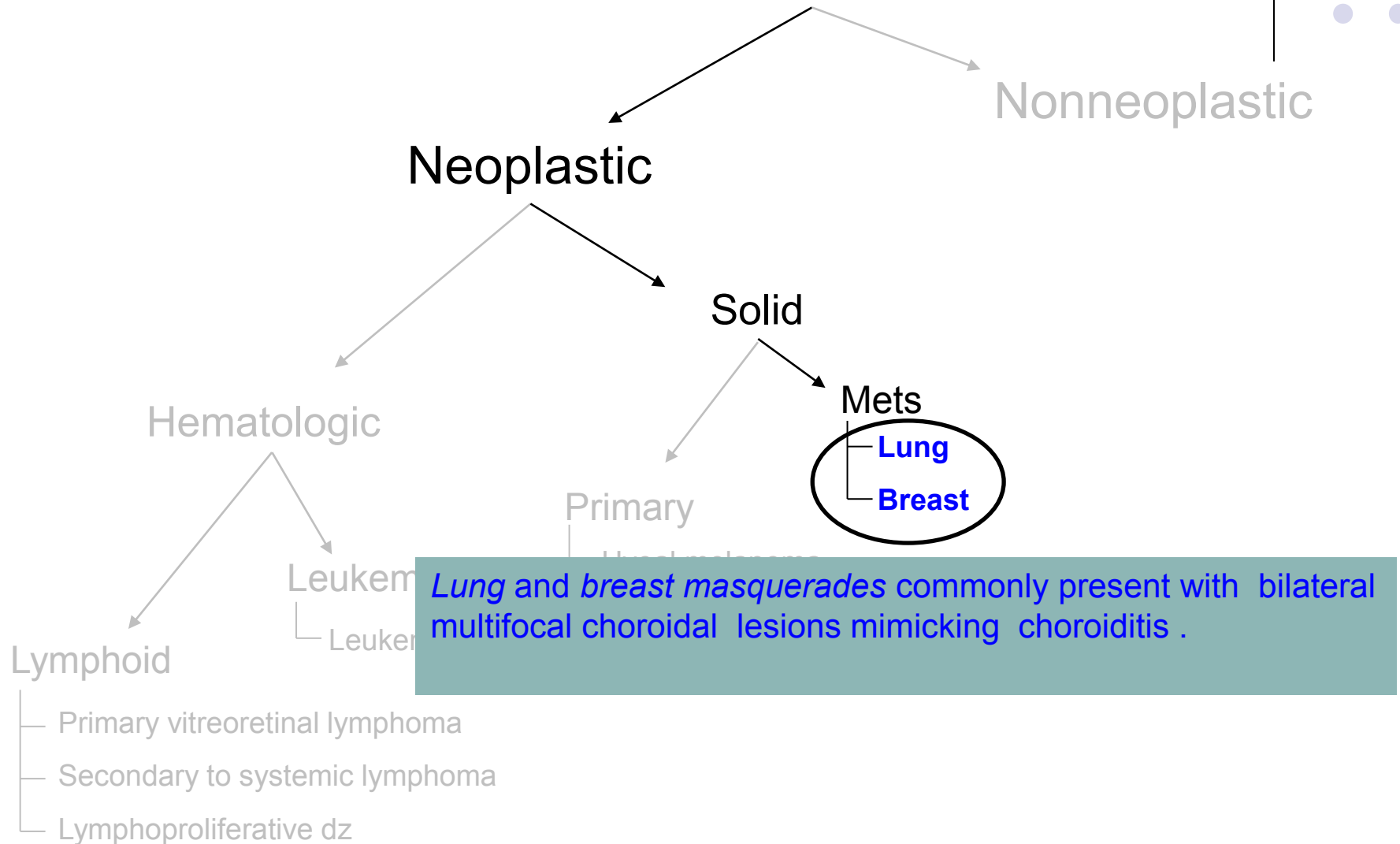
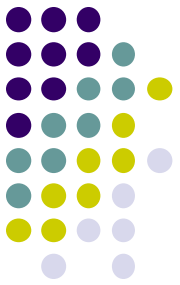
# Uveitis

## Masquerade Syndrome



# Uveitis

## Masquerade Syndrome



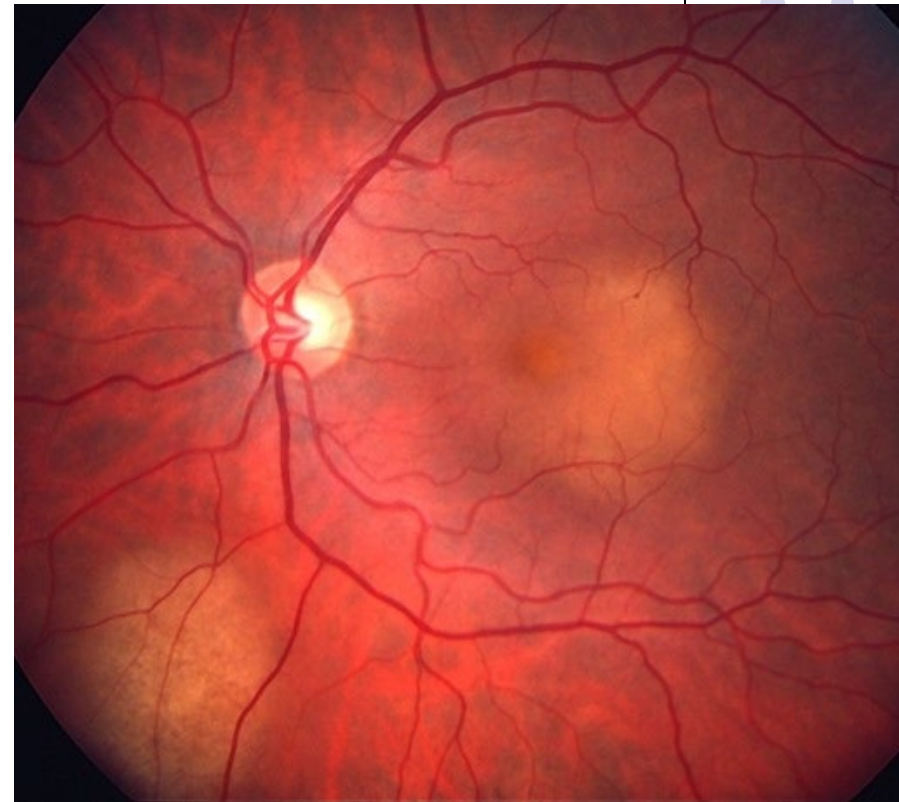
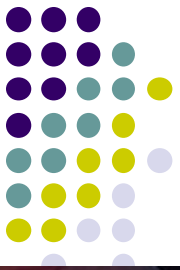


# Uveitis



Bilateral metastatic lung cancer

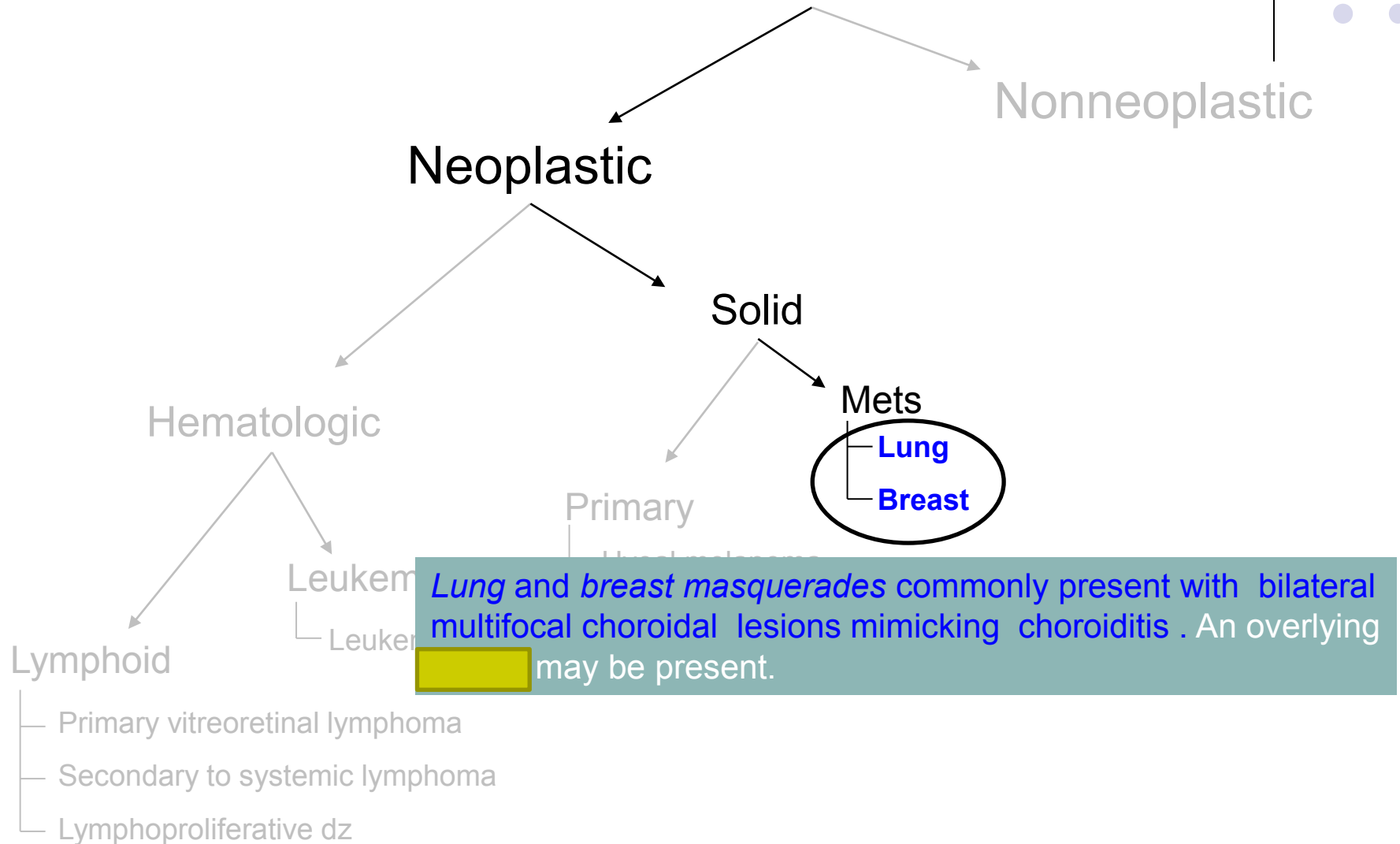
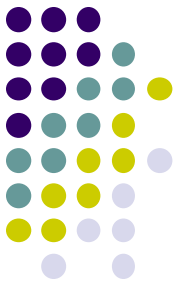
# Uveitis



Bilateral metastatic breast cancer

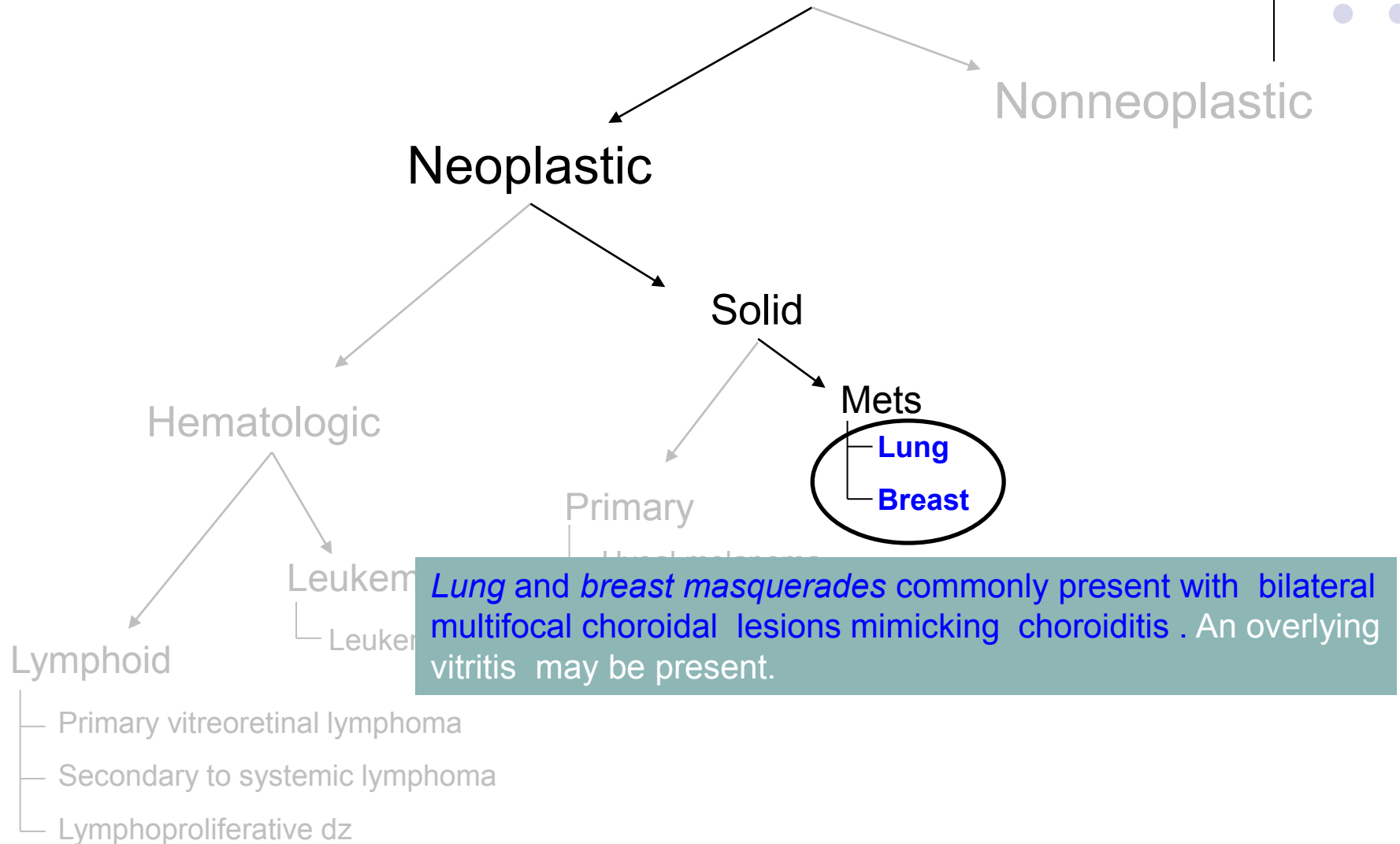
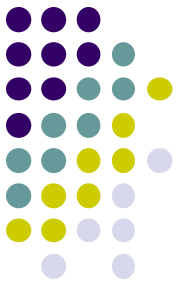
# Uveitis

## Masquerade Syndrome



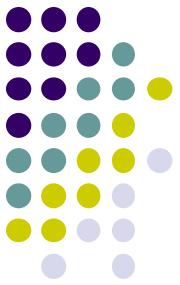
# Uveitis

## Masquerade Syndrome



# Uveitis

## Masquerade Syndrome



Neoplastic

Nonneoplastic

These are the **nonneoplastic** masquerade entities discussed in the *Uveitis* book

Hematologic

Leukemic

Leukemia

Primary

Uveal melanoma

Rb

Mets

Lung

Breast

?  
?  
?  
?  
?  
?

Lymphoid

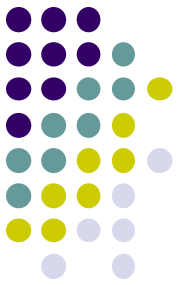
Primary vitreoretinal lymphoma

Secondary to systemic lymphoma

Lymphoproliferative dz

# Uveitis

## Masquerade Syndrome



### Neoplastic

### Nonneoplastic

These are the **nonneoplastic** masquerade entities discussed in the *Uveitis* book

- Retinitis pigmentosa
- Ocular ischemic syndrome
- Chronic rhegmatogenous RD
- Intraocular foreign body
- Pigment dispersion syndrome
- Juvenile xanthogranuloma

### Hematologic

### Mets

- Lung
- Breast

### Primary

- Uveal melanoma
- Rb

### Leukemic

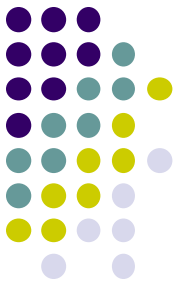
- Leukemia

### Lymphoid

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

# Uveitis

## Masquerade Syndrome



*Ocular ischemic syndrome (OIS)* is a constellation of ocular abnormalities stemming from chronic of the globe.

### Nonneoplastic

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

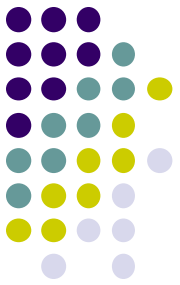
- Lymphoid
  - Primary vitreoretinal lymphoma
  - Secondary to systemic lymphoma
  - Lymphoproliferative dz

- Leukemic
  - Leukemia

- Rb

# Uveitis

## Masquerade Syndrome



*Ocular ischemic syndrome (OIS)* is a constellation of ocular abnormalities stemming from chronic hypoperfusion of the globe.

### Nonneoplastic

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

### Leukemic

Leukemia

Ovarian melanoma

Rb

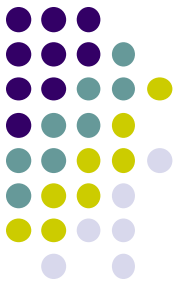
### Lymphoid

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



# Uveitis

## Masquerade Syndrome



*Ocular ischemic syndrome* (OIS) is a constellation of ocular abnormalities stemming from chronic hypoperfusion of the globe. The classic cause is ipsilateral to the eye in question.

two words

### Nonneoplastic

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

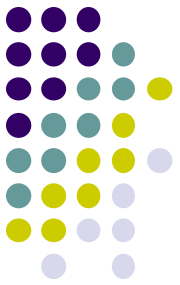
- Lymphoid
  - Primary vitreoretinal lymphoma
  - Secondary to systemic lymphoma
  - Lymphoproliferative dz

- Leukemic
  - Leukemia

- Rb

# Uveitis

## Masquerade Syndrome



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

### Nonneoplastic

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

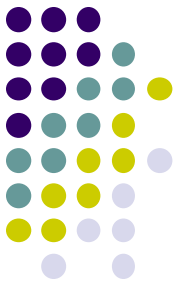
- Lymphoid
  - Primary vitreoretinal lymphoma
  - Secondary to systemic lymphoma
  - Lymphoproliferative dz

- Leukemic
  - Leukemia

- Rb

# Uveitis

## Masquerade Syndrome



*Ocular ischemic syndrome (OIS)* is a constellation of ocular abnormalities stemming from chronic hypoperfusion of the globe. The classic cause is carotid stenosis ipsilateral to the eye in question. The typical pt is an age, health status, gender.

### Nonneoplastic

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

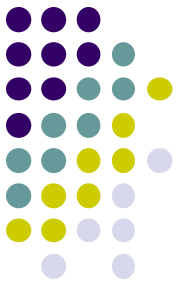
- Lymphoid
  - Primary vitreoretinal lymphoma
  - Secondary to systemic lymphoma
  - Lymphoproliferative dz

- Leukemic
  - Leukemia

- Rb

# Uveitis

## Masquerade Syndrome



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

### Nonneoplastic

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

### Leukemic

— Leukemia

### Ocular melanoma

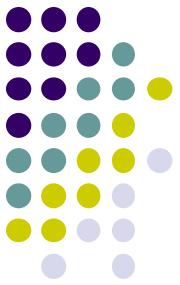
— Rb

### Lymphoid

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

# Uveitis

## Masquerade Syndrome



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

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

--?  
--?  
--?  
--?

### Nonneoplastic

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

Leukemic

Leukemia

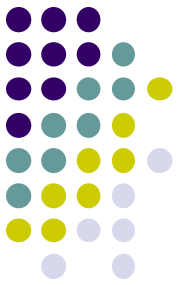
Rb

Lymphoid

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

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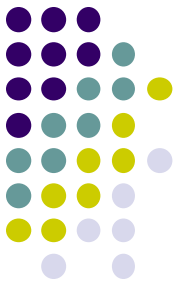
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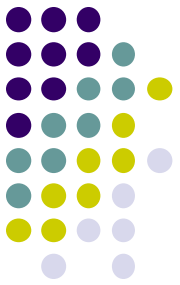
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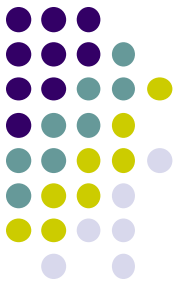
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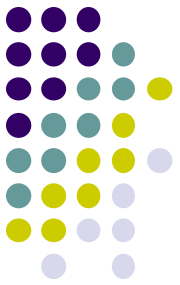
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--IOP is...low

--Neovascularization of the...

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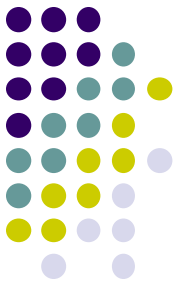
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- AC...cell and flare
- IOP is...low
- Neovascularization of the...iris and/or angle
- ?

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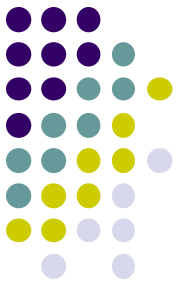
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Four findings, common in OIS, can (mis)lead one to conclude the pt has uveitis:

- AC...cell and flare
- IOP is...low
- Neovascularization of the...iris and/or angle
- Ipsilateral cataract is...

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- **OIS**
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- Intraocular foreign body
- Pigment dispersion syndrome
- Juvenile xanthogranuloma

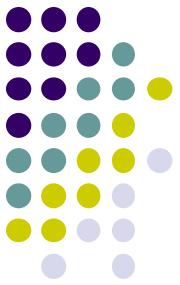
- Lymphoid
  - Primary vitreoretinal lymphoma
  - Secondary to systemic lymphoma
  - Lymphoproliferative dz

- Leukemic
  - Leukemia

- Rb

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

- AC...cell and flare
- IOP is...low
- Neovascularization of the...iris and/or angle
- Ipsilateral cataract is...more advanced

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- Intraocular foreign body
- Pigment dispersion syndrome
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Leukemic

Leukemia

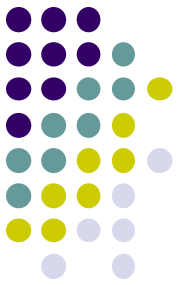
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# Uveitis

## *Masquerade Syndrome*



### Neoplastic

The hallmark of *PDS* is the liberation of pigment from the

### Nonneoplastic

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

### Leukemic

Leukemia

### Lymphoid

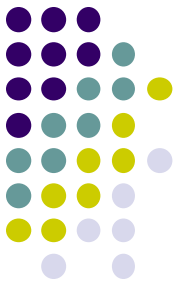
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Uveal melanoma

Rb

# Uveitis

## Masquerade Syndrome



### Neoplastic

The hallmark of *PDS* is the liberation of pigment from the posterior aspect of the iris .

### Nonneoplastic

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

### Leukemic

Leukemia

### Lymphoid

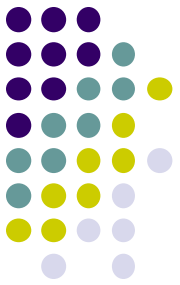
- Primary vitreoretinal lymphoma
- Secondary to systemic lymphoma
- Lymphoproliferative dz

Uveal melanoma

Rb

# Uveitis

## *Masquerade Syndrome*



### Neoplastic

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

### Nonneoplastic

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

### Leukemic

Leukemia

### Lymphoid

- Primary vitreoretinal lymphoma
- Secondary to systemic lymphoma
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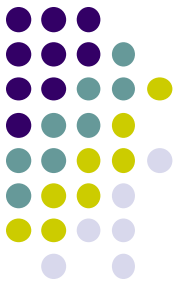
Uveal melanoma

Rb



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## Masquerade Syndrome



### Neoplastic

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

Typically, retroillumination of the iris will reveal

two words

with a orientation.

Leukemic

Leukemia

Lymphoid

Primary vitreoretinal lymphoma

Secondary to systemic lymphoma

Lymphoproliferative dz

Uveal melanoma

Rb

### Nonneoplastic

RP

OIS

Chronic rhegmatogenous RD

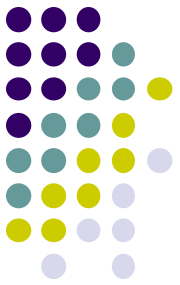
IOFB

**Pigment dispersion syndrome**

Juvenile xanthogranuloma

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## Masquerade Syndrome



### Neoplastic

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

Typically, retroillumination of the iris will reveal transillumination defects with a radial orientation.

### Nonneoplastic

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- **Pigment dispersion syndrome**
- Juvenile xanthogranuloma

### Leukemic

Leukemia

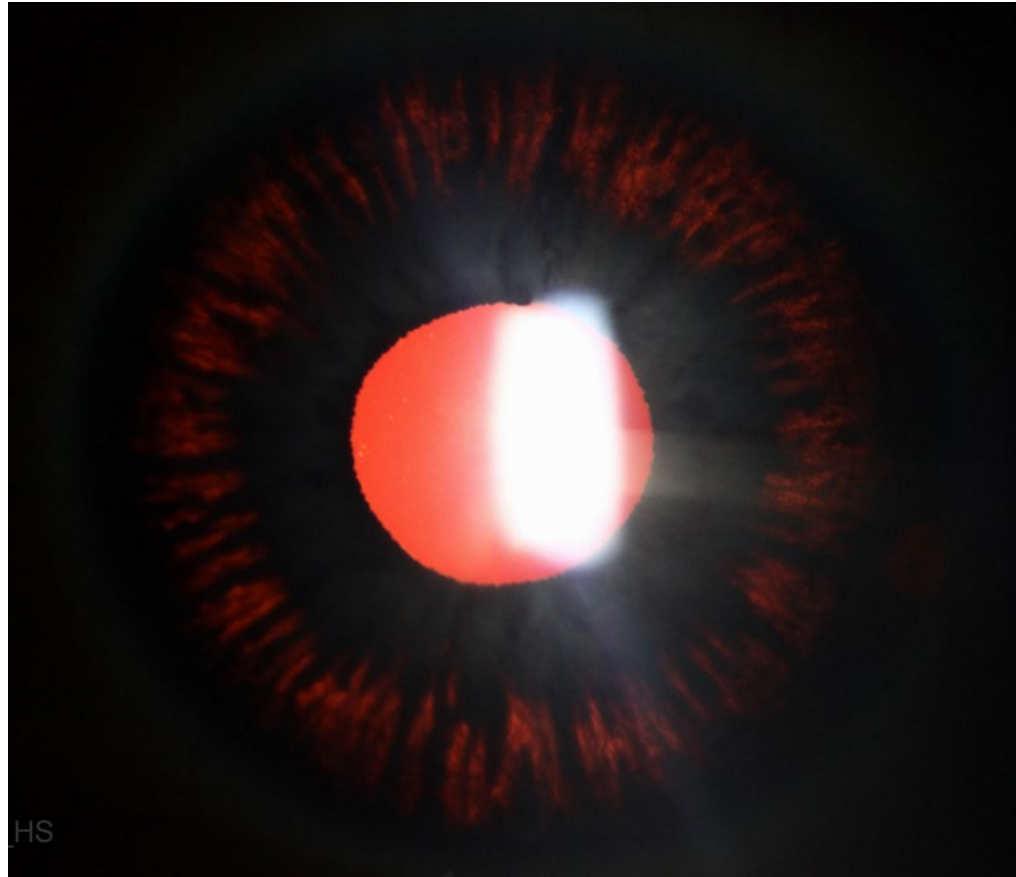
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Uveal melanoma

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PDS: Radial transillumination defects