Note: This slide-set is Enormous—way too much to be fruitfully consumed in a single sesh. That said, it contains numerous natural breaks (ie, section headers), so take advantage of these when you need to. (There’s one long stretch without a natural break, so I put a Break Time slide within it.)
Many ophthalmologists dread the prospect of interpreting path slides. <raises hand> In this slide-set we will simplify path identification by borrowing from the concept of the birdwatching field guide—reference books that facilitate bird identification by pointing out key characteristics (‘field marks’) for each species. We will endeavor to do the same for common ophthalmic pathology.
When you encounter a photomicrograph of the **angle**, be on the lookout for:

- ?
- ?
- ?

**Pathwatching**

Three types of angle issues (not specific conditions)
The AC Angle
When you encounter a photomicrograph of the angle, be on the lookout for:

- Traumatic changes
- Dysgeneses
- Cell clogging the TM

Three types of angle issues (not specific conditions)
When you encounter a photomicrograph of the angle, be on the lookout for:

- Traumatic changes
  - ?
  - ?

- Dysgeneses

- Cell clogging the TM

Two well-known post-traumatic angle issues
When you encounter a photomicrograph of the angle, be on the lookout for:

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

- Traumatic changes
  - Cyclodialysis
  - Angle recession
- Dysgeneses
  - ?
  - ?

Two well-known dysgeneses

- Cell clogging the TM
When you encounter a photomicrograph of the angle, be on the lookout for:

- Traumatic changes
  - Cyclodialysis
  - Angle recession
- Dysgeneses
  - Peters anomaly
  - Axenfeld-Rieger
- Cell clogging the TM

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

- Traumatic changes
  - Cyclodialysis
  - Angle recession
- Dysgeneses
  - Peters anomaly
  - Axenfeld-Rieger
- Cell clogging the TM
  - ?
  - ?

Two cell types notorious for clogging the TM
When you encounter a photomicrograph of the **angle**, be on the lookout for:

- Traumatic changes
  - Cyclodialysis
  - Angle recession
- Dysgeneses
  - Peters anomaly
  - Axenfeld-Rieger
- Cell clogging the TM
  - RBCs
  - Macrophages

*Two cell types notorious for clogging the TM*
These are the key angle landmarks—name them. (I assume you’ve got the iris on lock already.)
These are the key angle landmarks—name them. (I assume you’ve got the iris on lock already.)
These are the key angle landmarks—name them.
(I assume you’ve got the iris on lock already.)

*Bearing in mind there is considerable anatomic variability in the degree of the normal angle.
These are the key angle landmarks—name them. (I assume you’ve got the iris on lock already.)
These are the key angle landmarks—name them.
(I assume you’ve got the iris on lock already.)

Note:
--The ‘degree’ of the angle*, and its location relative to the SSp
--How insubstantial SL is
Pathwatching

This angle looks wonky for several reasons:
--?
--?
This angle looks wonky for several reasons:
--Its ‘degree’ seems much too large vs small
--?
Pathwatching

This angle looks wonky for several reasons:
--Its ‘degree’ seems much too large
--?
This angle looks wonky for several reasons:
--Its ‘degree’ seems much too large
--It’s displaced relative to the SS
Pathwatching

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

What’s the diagnosis?
**Pathwatching**

*Angle recession.* Blunt trauma has torn the **structure**...
**Pathwatching**

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

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

Is this angle recession as well?
Pathwatching

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

What’s the diagnosis?
**Pathwatching**

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

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

**Cyclodialysis.** Blunt trauma has again torn the ciliary body (asterisk), but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the SS.
**Cyclodialysis.** Blunt trauma has again torn the ciliary body (asterisk), but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the SS. Such pts are also at risk for developing glaucoma (less v. more so than those with angle recession).
**Cyclodialysis.** Blunt trauma has again torn the ciliary body (asterisk), **but rather than tearing fiber from fiber a la recession, it has torn away from its normal attachment to the SS.** Such pts are also at risk for developing glaucoma (less so than those with angle recession).
Angle recession and cyclodialysis side-by-side
For more on angle recession and cyclodialysis, see slide-set G10
Pathwatching

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

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

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

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

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

--The TM is here, which means the SS is about here.
Pathwatching

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

--The TM is here, which means the SS is about here. So this structure is way too anterior to be SS.
At first glance, this looks like angle recession, with what appears to be a split in the CB and an intact CB-SS attachment. But careful inspection of the image reveals problems with this interpretation:
--The TM is here, which means the SS is about here. So this structure is way too anterior to be SS.
--The attachment is arising from the iris, not the CB.
Pathwatching

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

Compared to the SL on the ‘normal’ angle image (from the beginning of this section), there are two things wrong with this SL—what are they? --?
--?
Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to the SL.

Compared to the SL on the ‘normal’ angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
--It’s significantly thicker than normal
--?

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

Compared to the SL on the 'normal' angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
--It's significantly thicker than normal
--?
Axenfeld-Rieger syndrome, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to the SL.

Pathwatching

Compared to the SL on the ‘normal’ angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
--It’s significantly thicker than normal
--It’s displaced anteriorly vs posteriorly

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

Compared to the SL on the ‘normal’ angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
--It’s significantly thicker than normal
--It’s displaced anteriorly

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

Pathwatching

Compared to the SL on the ‘normal’ angle image (from the beginning of this section), there are two things wrong with this SL—what are they?
--It’s significantly thicker than normal
--It’s displaced anteriorly

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

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

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

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

**Axenfeld-Rieger syndrome**, an anterior-segment dysgenesis. Rather than CB fibers attaching to the SS, the attachment is an iris process attaching to the SL.
At first glance this looks like Axenfeld-Rieger as well, with what appears to be an iris process attaching to a posterior embryotoxon. But close inspection reveals problems with this:

--?

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

--A ‘SL’ doesn’t seem to be present at all (much less a thickened one).

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

--A ‘SL’ doesn’t seem to be present at all (much less a thickened one).

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

Finally, look carefully at the central aspect of the cornea: there's no Descemet's or endothelium present.
Another issue: The shape of the angle is off—it's rounded instead of forming more of a point. Also, note the presence of tissue (star) covering the SS and (weird-looking) TM (arrowheads)—if in fact those structures can be reliably identified, as they seem quite underdeveloped.

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

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

What’s the diagnosis?
**Peter’s anomaly.** The iris strand attaches to the posterior aspect of the cornea, the central portion of which is missing Descemet’s and endothelium. The drainage angle is abnormal, having failed to cleave completely/normally.
Axenfeld-Rieger and Peter’s anomaly side-by-side
Pathwatching

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

Axenfeld-Rieger

Peter’s anomaly

Axenfeld-Rieger and Peter’s anomaly side-by-side
As for slides depicting cell in the AC: 
--If the cells are bright red, that's a
As for slides depicting cell in the AC:
--If the cells are bright red, that's a hyphema

Erythrocytes in the anterior chamber (hyphema)
posterior to the cornea (asterisk)
As for slides depicting cell in the AC:
--If the cells are bright red, that's a hyphema

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

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

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

--If the macrophages are jet black, you’re dealing with a diagnosis.
As for slides depicting cell in the AC:
--If the cells are bright red, that's a hyphema

If the cells are not bright red, they are likely macrophages.
--If the macrophages are jet black, you’re dealing with a melanoma
As for slides depicting cell in the AC:
--If the cells are bright red, that's a hyphema

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

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

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

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

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

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

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

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

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

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

Hemolytic glaucoma showing macrophages with erythrocytic debris and hemosiderin in the angle
As for slides depicting cell in the AC:
--If the cells are bright red, that’s a hyphema

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

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

(It’s not apparent to me that these can be reliably distinguished on the basis of appearance, so I suspect clinical context will play a role in doing so.)
As for slides depicting cell in the AC:
--If the cells are bright red, that’s a hyphema

If the cells are not bright red, they are likely macrophages.
--If the macrophages are jet black, you’re dealing with a melanoma (that is likely inducing glaucoma)
If the macrophages aren’t jet black, it’s likely one of two entities:
--Phacolytic glaucoma, or
--Hemolytic glaucoma

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

For more on phacolytic and hemolytic glaucoma, see slide-sets G13 and G14
These images will include a tissue edge—a boundary between tissue and nothing. Identifying pathology on such images requires that one first determine which tissue (lid skin vs conj) one is dealing with, so we’ll start by tackling how to make this distinction.
Here we have conj and lid skin—*but which is which?*

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

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

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

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

Epithelium: Squamous, stratified, keratinized

? 

Finally, the deeper layers in skin and conj are the dermis and the stroma (or substantia propia) respectively.

Epithelium: Squamous, stratified, *non*-keratinized

? 

However, the epithelia differ in a key aspect—one is keratinized and the other is not. This is the distinction that allows us to identify them, because skin is keratinized, whereas (normal) conj isn’t.
Here we have conj and lid skin—but which is which?

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

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

Finally, the deeper layers in skin and conj are the *dermis* and the *stroma* (aka substancia or) respectively.
Here we have conj and lid skin—*but which is which?*

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

**Pathwatching**

- **Lid skin**
  - Epithelium: Squamous, stratified, keratinized
  - Dermis

- **Conj**
  - Epithelium: Squamous, stratified, non-keratinized
  - Stroma or substantia propia

Finally, the deeper layers in skin and conj are the *dermis* and the *stroma (aka substantia propia)* respectively.
Note 1: Lid keratinization can be subtler than depicted previously
Note 2: Keratinization occurs in some conj pathologies (OSSN* in this case)

*Which stands for ocular surface squamous neoplasia
**Note 2**: Keratinization occurs in some conj pathologies (OSSN* in this case)

*Which stands for *ocular surface squamous neoplasia*
Pathwatching

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

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia.
First things first: Skin, or conj?
Lack of keratinization = conj

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

*Remember, neoplasia just means abnormal growth—it does not mean ‘malignancy’!
First things first: Skin, or conj?
Lack of keratinization = conj

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

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia*. But how to begin identifying it?

Begin by recognizing there are three broad categories of conj neoplasias:
--?
--?
--?
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia*. But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
First things first: Skin, or conj?
Lack of keratinization = conj

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

-- Lymphatic?
   -- Melanocytic
   -- Epithelial
First things first: Skin, or conj?  
Lack of keratinization = conj

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

-- Lymphatic? Unlikely; such lesions are characterized by large channels in the substantia propria underlying a normal-appearing epithelium, like this:

Lymphangiectasia. A, low power; B, higher power
First things first: Skin, or conj?
Lack of keratinization = conj

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

But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:

--- Lymphatic
--- Melanocytic?
--- Epithelial

Is it melanocytic? Also unlikely, as such lesions typically contain an attention-grabbing amount of melanin
First things first: Skin, or conj?
Lack of keratinization = conj

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

But how to begin identifying it?

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

-- Lymphatic
-- Melanocytic?
-- Epithelial

By process of elimination, complexion-associated (aka racial, aka benign-acquired) melanosis is unlikely, as such lesions typically contain an attention-grabbing amount of melanin like this.

Is it melanocytic? Also unlikely, as such lesions typically contain an attention-grabbing amount of melanin like this.

Complexion-associated (aka racial, aka benign-acquired) melanosis
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it's a neoplasia. But how to begin identifying it?

Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial

By process of elimination, is it melanocytic? Also unlikely, as such lesions typically contain an attention-grabbing amount of melanin like this, and/or lots of melanocytes like this.

Conj nevus with beaucoup melanocytes in nests (asterisks)
First things first: Skin, or conj? Lack of keratinization = conj

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

--Lymphatic
--Melanocytic
--Epithelial

So by process of elimination, it’s epithelial.
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

But what is it? In this case, there’s a classic field mark:
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it? Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

But what is it? In this case, there’s a classic field mark: These projections, classically described as [ ].
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

But what is it? In this case, there’s a classic field mark: These projections, classically described as ‘fronds’.
First things first: Skin, or conj? Lack of keratinization = conj

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

--Lymphatic
--Melanocytic
--Epithelial

So by process of elimination, it’s epithelial.

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

Note that the ‘cores’ of the fronds are structures
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it? Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

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

Note that the ‘cores’ of the fronds are fibrovascular structures
First things first: Skin, or conj?
Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it?
Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

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

What’s the diagnosis?
First things first: Skin, or conj? Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it? Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

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

**Pedunculated papilloma** of the conj occur more often in adults vs kids.
First things first: Skin, or conj? Lack of keratinization = conj

Clearly this is not normal conj—there is obvious exuberant growth, indicating it’s a neoplasia. But how to begin identifying it? Begin by recognizing there are three broad categories of conj neoplasias:
--Lymphatic
--Melanocytic
--Epithelial
So by process of elimination, it’s epithelial.

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

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

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

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

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

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

For more on conj papillomas, see slide-set K25

Lack of keratinization = conj
Again, first things first: Skin, or conj?
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The answer is clear once we compare the epithelia on the two sides of the change in keratinization status.
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OSSN arises on portions of the conj
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OSSN arises on sun-exposed portions of the conj

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OSSN arises on sun-exposed portions of the conj (*sun exposure is a strong risk factor*).
Again, first things first: Skin, or conj?
At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) and part of it isn’t (indicating conj). *Could this be a junction between lid skin and conj?* No, because no such junction exists (without intervening landmarks of the lid margin). So this is either skin that lost keratinization or conj that acquired it. But there is a sharp demarcation between the two areas, suggestive of a border between normal and neoplastic epithelium. Conj containing florid neoplasia + keratinization is strongly suggestive of [ocular surface squamous neoplasia (OSSN)].

OSSN arises on sun-exposed portions of the conj (*sun exposure is a strong risk factor*). It is more common in older individuals.
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At first blush this seems an impossible question to answer, because part of it is keratinized (and therefore indicates this is skin) and part of it isn’t (indicating conj). Could this be a junction between lid skin and conj? No, because no such junction exists (without intervening landmarks of the lid margin). So this is either skin that lost keratinization or conj that acquired it. But OSSN arises on sun-exposed portions of the conj (sun exposure is a strong risk factor). It is more common in older individuals.
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OSSN arises on sun-exposed portions of the conj (sun exposure is a strong risk factor). It is more common in older individuals. (OSSN in individuals <50 should raise suspicion for infection.)

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OSSN arises on sun-exposed portions of the conj (sun exposure is a strong risk factor). It is more common in older individuals. (OSSN in individuals <50 should raise suspicion for HIV infection.)
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OSSN arises on sun-exposed portions of the conj (sun exposure is a strong risk factor). It is more common in older individuals. (OSSN in individuals <50 should raise suspicion for HIV infection.) Keratinization isn’t pathognomonic for OSSN.

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The answer is clear once we compare the epithelia on the two sides of the change in keratinization status. The epithelium on the keratinized side is vastly thicker than that on the nonkeratinized side, strongly suggesting it (the keratinized epithelium) is neoplastic. Further, there is a sharp demarcation between the two areas, suggestive of a border between normal and neoplastic epithelium. Conj containing florid neoplasia + keratinization is strongly suggestive of ocular surface squamous neoplasia (OSSN).
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For more on OSSN, see slide-set K25
Skin or conj?
Skin or conj?
No keratinization = conj
Skin or conj?  
No keratinization = conj

There’s a classic field mark here—what is it?
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of...
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’.
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

What’s the diagnosis?
Skin or conj?
No keratinization = conj

There's a classic field mark here—what is it?
It's these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of 'cobblestones'. When you see these, one thing should come to mind:

**Papillary conjunctivitis** is one of main forms of conjunctivitis
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

**Papillary conjunctivitis** is one of two main forms of conjunctivitis
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

Papillary conjunctivitis is one of two main forms of conjunctivitis (the other being).
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

**Papillary conjunctivitis** is one of two main forms of conjunctivitis (the other being **follicular**).
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

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

Skin or conj?  
No keratinization = conj

There’s a classic field mark here—what is it?  
It’s these closely packed, flat-topped mesa-looking structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

**Papillary conjunctivitis** is one of two main forms of conjunctivitis (the other being **follicular**). It is most commonly associated with either allergies or a foreign body response.
Skin or conj?
No keratinization = conj

There’s a classic field mark here—what is it?
It’s these closely packed, flat-topped structures. These correspond to a slit-lamp finding of ‘cobblestones’. When you see these, one thing should come to mind:

Pathwatching

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

Skin or conj?
Skin or conj?
No keratinization = conj
Skin or conj?
No keratinization = conj

There’s a good field mark here—what is it?
Skin or conj?
No keratinization = conj

There's a good field mark here—what is it?
It's this large acellular region in the stroma.
Skin or conj?
No keratinization = conj

There’s a good field mark here—what is it?
It’s this large acellular region in the stroma.
When you see this in a conj specimen, think...
Skin or conj?

No keratinization = conj

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

It's this large acellular region in the stroma. When you see this in a conj specimen, think *elastotic degeneration*
Skin or conj?
No keratinization = conj

*There’s a good field mark here—what is it?*
It’s this large acellular region in the stroma.
*When you see this in a conj specimen, think elastotic degeneration,* which refers to fragmentation of stromal...
Skin or conj?
No keratinization = conj

There’s a good field mark here—what is it? It’s this large acellular region in the stroma. When you see this in a conj specimen, think elastotic degeneration, which refers to fragmentation of stromal collagen.
Skin or conj?
No keratinization = conj

There’s a good field mark here—what is it?
It’s this large acellular region in the stroma. When you see this in a conj specimen, think elastotic degeneration, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you’re looking at one of two related conditions: pinguecula and pterygium.
Skin or conj?
No keratinization = conj

There’s a good field mark here—what is it?
It’s this large acellular region in the stroma. When you see this in a conj specimen, think elastotic degeneration, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you’re looking at one of two related conditions: Pinguecula and pterygium.
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No keratinization = conj

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Skin or conj?
No keratinization = conj

*There’s a good field mark here—what is it?*
It’s this large acellular region in the stroma. When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you’re looking at one of two related conditions: *Pinguecula* and *pterygium*. These are distinguishable via whether prominent blood vessels are present (= pterygium) or absent (= pinguecula).
Skin or conj?
No keratinization = conj

There’s a good field mark here—what is it?
It’s this large acellular region in the stroma. When you see this in a conj specimen, think elastotic degeneration, which refers to fragmentation of stromal collagen. If elastotic degeneration is present, it means you’re looking at one of two related conditions: Pinguecula and pterygium. These are distinguishable via whether prominent blood vessels are present (= pterygium) or absent (= pinguecula).

What’s the diagnosis?
Skin or conj?
No keratinization = conj

*There’s a good field mark here—what is it?*
It’s this large acellular region in the stroma. When you see this in a conj specimen, think *elastotic degeneration*, which refers to fragmentation of stromal collagen. *If elastotic degeneration is present, it means you’re looking at one of two related conditions: Pinguecula and pterygium.* These are distinguishable via whether prominent blood vessels are present (= pterygium) or absent (= pinguecula).

**Pinguecula** (no prominent blood vessels present)
For comparison, here is a **pterygium**. Note the elastotic degeneration (*arrow*) as well as the blood vessels (*arrowheads*).
For comparison, here is a pterygium. Note the elastotic degeneration (arrow) as well as the blood vessels (arrowheads). Surgically-induced hemorrhage is present as well.
Protip: If a slide is stained for elastin and is positive as all get-out like this, it’s elastotic degeneration (and therefore a ptinguecula or pterygium)
**Protip**: If a slide is stained for elastin and is positive as all get-out like this, it’s elastotic degeneration (and therefore a pingeucula or pterygium)
Protip: If a slide is stained for elastin and is positive as all get-out like this, it’s elastotic degeneration (and therefore a pinguecula or pterygium)
This one is puzzling at first. What tissue(s) are we looking at?

(Rhetorical question—keep going)
This one is puzzling at first. What tissue(s) are we looking at?
Maybe this is the cornea
This one is puzzling at first. What tissue(s) are we looking at? Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event?
This one is puzzling at first. What tissue(s) are we looking at?
Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event?
Doesn’t work, because it doesn’t explain **this** tissue.
This one is puzzling at first. What tissue(s) are we looking at? Maybe *this* is the cornea, and *this* is the iris pulled up against it in an angle closure event? Doesn’t work, because it doesn’t explain *this* tissue. If *this* isn’t the cornea, there’s only one thing it could be—*sclera*. (Only the cornea and have this laminar appearance.)
This one is puzzling at first. What tissue(s) are we looking at?

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

If **this** isn’t the cornea, there’s only one thing it could be—**sclera**. (Only the cornea and **sclera** have this laminar appearance.)
This one is puzzling at first. What tissue(s) are we looking at?

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

If this isn’t the cornea, there’s only one thing it could be—sclera. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, this deeply pigmented tissue must be...
This one is puzzling at first. What tissue(s) are we looking at?
Maybe **this** is the cornea, and **this** is the iris pulled up against it in an angle closure event? Doesn’t work, because it doesn’t explain **this** tissue.
If **this** isn’t the cornea, there’s only one thing it could be—**sclera**. (Only the cornea and **sclera** have this laminar appearance.) And if **this** is **sclera**, **this** deeply pigmented tissue must be **uvea**.
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Maybe *this* is the cornea, and *this* is the iris pulled up against it in an angle closure event? Doesn’t work, because it doesn’t explain *this* tissue.
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OK, now that we know where we are, what are we looking at, ie, what’s the pathology? Look carefully at the sclera and (especially) the episclera—there’s something unusual there. It’s the relatively heavy presence of...
This one is puzzling at first. What tissue(s) are we looking at?
Maybe this is the cornea, and this is the iris pulled up against it in an angle closure event? Doesn’t work, because it doesn’t explain this tissue.
If this isn’t the cornea, there’s only one thing it could be—sclera. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, this deeply pigmented tissue must be uvea. Which means this tissue must be episclera.
OK, now that we know where we are, what are we looking at, ie, what’s the pathology? Look carefully at the sclera and (especially) the episclera—there’s something unusual there. It’s the relatively heavy presence of melanin/melanocytes.
This one is puzzling at first. What tissue(s) are we looking at?

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

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

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**Ocular melanocytosis** is a involving the deep episclera and sclera.
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**Ocular melanocytosis** is a nevus involving the deep episclera and sclera. If the periocular skin is also involved, the condition is called oculodermal melanocytosis.
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If this isn’t the cornea, there’s only one thing it could be—sclera. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, this deeply pigmented tissue must be uvea. Which means this tissue must be episclera.
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**Ocular melanocytosis** is a nevus involving the deep episclera and sclera. If the periocular skin is also involved, the condition is called oculodermal melanocytosis (aka three words).
This one is puzzling at first. What tissue(s) are we looking at? Maybe this is the cornea, and this is the iris pulled up against it in an angle closure event? Doesn’t work, because it doesn’t explain this tissue. If this isn’t the cornea, there’s only one thing it could be—sclera. (Only the cornea and sclera have this laminar appearance.) And if this is sclera, this deeply pigmented tissue must be uvea. Which means this tissue must be episclera.

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**Ocular melanocytosis** is a nevus involving the deep episclera and sclera. If the periocular skin is also involved, the condition is called oculodermal melanocytosis (aka Nevus of Ota).
This one is puzzling at first. What tissue(s) are we looking at?
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OK, now that we know where we are, what are we looking at, ie, what’s the pathology? Look carefully at the sclera and (especially) the episclera—there’s something unusual there. It’s the relatively heavy presence of melanin/melanocytes. When you encounter heavy episcleral melanin-related findings, one thing should come to mind:

**Ocular melanocytosis** is a nevus involving the deep episclera and sclera. If the periocular skin is also involved, the condition is called **oculodermal melanocytosis** (aka **Nevus of Ota**).
This one is puzzling at first. What tissue(s) are we looking at?

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

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

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**Ocular melanocytosis** is a nevus involving the deep episclera and sclera. If the periocular skin is also involved, the condition is called oculodermal melanocytosis (aka *Nevus of Ota*). Lightly pigmented individuals with melanocytosis are at significantly increased of melanoma.
This one is puzzling at first. What tissue(s) are we looking at?

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

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

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

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Pathwatching

Skin/conj?
Skin/conj?
Conj

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

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

--These tight clusters of [cell type] are called --?
Skin/conj?

Conj

There are a couple of field marks that, taken together, nail the diagnosis. What are they? -- **These** tight clusters of melanocytes are called nests --?
Skin/conj?
Conj

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

--These tight clusters of melanocytes are called nests (aka  ).
--?
Pathwatching

Skin/conj?
Conj

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

* Conj

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

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

Skin/conj?
Conj

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

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

---

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

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

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

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

--**these** epithelial inclusion cysts

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

*What’s the diagnosis?*

**Melanocytic nevi** almost always appear on the **conj** portion.
There are a couple of field marks that, taken together, nail the diagnosis. What are they? These tight clusters of melanocytes are called nests (aka theques) and these epithelial inclusion cysts.

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

What’s the diagnosis?

Melanocytic nevi almost always appear on the bulbar conj.
There are a couple of field marks that, taken together, nail the diagnosis. What are they?

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

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

**What’s the diagnosis?**

**Melanocytic nevi** almost always appear on the bulbar conj during life stage.
There are a couple of field marks that, taken together, nail the diagnosis. What are they?

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

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

What’s the diagnosis?

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

**Skin/conj?**

Conj

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

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

What’s the diagnosis?

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

[Diagram of histologic conformations]...
Skin/conj?
Conj

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

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

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

**What’s the diagnosis?**

**Melanocytic nevi** almost always appear on the bulbar conj during childhood. As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to stromal.
There are a couple of field marks that, taken together, nail the diagnosis. What are they?

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

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

What’s the diagnosis?

**Melanocytic nevi** almost always appear on the bulbar conj during childhood. As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to stromal. **Conj nevi** have low vs high malignant potential.
There are a couple of field marks that, taken together, nail the diagnosis. What are they? -- **These** tight clusters of melanocytes are called nests *(aka theques)* and -- **these** epithelial inclusion cysts

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

**What’s the diagnosis?**

**Melanocytic nevi** almost always appear on the bulbar conj **during childhood**. As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to stromal. **Conj nevi** have **low malignant potential**.
There are a couple of field marks that, taken together, nail the diagnosis. What are they?

Skin/conj?

Conj

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

These epithelial inclusion cysts

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

What’s the diagnosis?

Melanocytic nevi almost always appear on the bulbar conj during childhood. As with cutaneous nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to stromal. Conj nevi have low malignant potential.
These both represent the same tissue, with related-but-different diagnoses.
Pathwatching

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

*Skin, or conj?*
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*

Dat melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions?
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*

Dat melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions? While oversimplified, we can think of melanocytic conj lesions as falling into one of categories:
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*

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

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

--?
--?
--?
--?
--?
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**Skin, or conj?**
No keratinization, so conj

*What are we supposed to notice in these images?*
Dat melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions?

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

--Nevus (already addressed)
--CAM* 
--PAM** without
--PAM with
--Melanoma

*Complexion-associated melanosis; aka benign acquired melanosis (BAM); aka racial melanosis
**Primary acquired melanosis
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*

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

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

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

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

**Primary acquired melanosis**
These both represent the same tissue, with related-but-different diagnoses. 

**Skin, or conj?**
No keratinization, so conj

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

With regard to malignant potential: CAM and PAM with no/minimal atypia have essentially none, whereas PAM with moderate or severe atypia do.
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

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

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

*Which is not to say that melanin is confined to the basal layer—remember, melanocytes package their melanin in melanosomes for distribution to neighboring epi cells*
These both represent the same tissue, with related-but-different diagnoses.  
*Skin, or conj?*
No keratinization, so conj
*What are we supposed to notice in these images?*
Dat melanin and all those melanocytes. The question

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

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*Which is not to say that melanin is confined to the basal layer—remember, melanocytes package their melanin in melanosomes for distribution to neighboring epi cells*
These both represent the same tissue, with related-but-different diagnoses. 
*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*  
Dat melanin and all those melanocytes. The question

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

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

*See what I did there?
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*

No keratinization, so conj

*What are we supposed to notice in these images?*

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

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

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

With regard to malignant potential: CAM and PAM with no/minimal atypia have essentially none, whereas PAM with moderate or severe atypia do.
These both represent the same tissue, with related-but-different diagnoses.

*Skin, or conj?*
No keratinization, so conj

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

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

---

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

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

---

So what are we looking at here? Note that in both images the melanocytic atypia is confined to the basal layer of the epithelium*.

**Benign-looking melanocytes confined to the basal epi layer is consistent with both CAM and PAM without/with minimal atypia.**

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How am I supposed to tell them apart?

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--PAM with moderate to severe atypia

---

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

---

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

**Skin, or conj?**
No keratinization, so conj

**What are we supposed to notice in these images?**
Dat melanin and all those melanocytes. The question being addressed: Can you differentiate between concerning and non-concerning melanocytic lesions?

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

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

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

**How am I supposed to tell them apart?**
You're not—not from an H&E slide, anyway. If such a distinction is expected on a test, it would likely be based on clinical info.

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

---

**PAM without atypia**

---

**CAM**
These are what melanocytic badness look like.
These are what melanocytic badness look like.

In the *PAM with moderate atypia* pic, note that most of the melanocytes are confined to the basal layer (*arrowheads*). That’s a good thing.
These are what melanocytic badness look like.

In the *PAM with moderate atypia* pic, note that most of the melanocytes are confined to the basal layer (*arrowheads*). That’s a good thing. Unfortunately, not all of the melanocytes are basal—some are well up into the more superficial layers (*arrows*). Mos def not a good thing.
These are what melanocytic badness look like.

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

These are what melanocytic badness look like.

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

An important aside: Something seems to be missing from the severe atypia pic—what is it?
These are what melanocytic badness look like.

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

An important aside: Something seems to be missing from the severe atypia pic—what is it? *Melanin*—there’s hardly any present at all. Clinically, this lesion was *amelanotic*.
These are what melanocytic badness look like.

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These are what melanocytic badness look like.

In the *PAM with moderate atypia* pic, note that most of the melanocytes are confined to the basal layer (*arrowheads*). That’s a good thing. Unfortunately, not all of the melanocytes are basal—some are well up into the more superficial layers (*arrows*). Mos def **not** a good thing.

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

An important aside: Something seems to be missing from the severe atypia pic—what is it? **Melanin**—there’s hardly any present at all. Clinically, this lesion was **amelanotic**. The point being, don’t depend on the presence of melanin to pull the trigger on a melanocytic diagnosis!
These are what melanocytic badness look like.

In the PAM with moderate atypia pic, note that most of the melanocytes are confined to the basal layer (arrowheads). That’s a good thing. Unfortunately, not all of the melanocytes are basal—some are well up into the more superficial layers (arrows). Mos def not a good thing.

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

An important aside: Something seems to be missing from the severe atypia pic—what is it? Melanin—there’s hardly any present at all. Clinically, this lesion was amelanotic. The point being, don’t depend on the presence of melanin to pull the trigger on a melanocytic diagnosis!
Pathwatching

Skin, or conj?
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large like structure.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin.

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note: --The cyst is lined by something that looks an awful lot like...
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
Pathwatching

**Skin, or conj?**

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

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

-- The cyst is lined by something that looks an awful lot like *epithelium*.
-- The cyst contains a fairly uniform, amorphous and acellular material.
-- The cyst is located in the **dermis**.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.
Pathwatching

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

So what's going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.

What's the diagnosis?

When you encounter a cyst in the dermis lined with epi and containing an amorphous material, one dx should come to mind:
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.

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

Epidermal inclusion cyst (aka cyst) is a common lid finding.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

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

**Epidermal inclusion cyst** (aka *epidermoid* cyst) is a common lid finding.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.

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

**Epidermal inclusion cyst** (aka **epidermoid** cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium.
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.

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

**Epidermal inclusion cyst** (aka *epidermoid cyst*) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium.
Pathwatching

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

So what's going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.

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

Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:
---The cyst is lined by something that looks an awful lot like epithelium.
---The cyst contains a fairly uniform, amorphous and acellular material.
---The cyst is located in the dermis.

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

**Epidermal inclusion cyst** (aka *epidermoid* cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Since it’s in the dermis, shouldn’t it be a dermal cyst?

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

Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

Since it’s in the dermis, shouldn’t it be a dermal cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain two words

cyst in the dermis

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

Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

Since it’s in the dermis, shouldn’t it be a dermal cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages

Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:

--The cyst is lined by something that looks an awful lot like epithelium.
--The cyst contains a fairly uniform, amorphous and acellular material.
--The cyst is located in the dermis.

Pathwatching

Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

Since it’s in the dermis, shouldn’t it be a dermal cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka

two words

It is the presence of dermal appendages that give the dermoid cyst its name.

Are we going to see a photomicrograph of a dermoid cyst?
Not in this section. While they can occur in the lids, they are much more common in the orbit (classic presentation: A mass in the superotemporal orbit of a child).

Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
So what's going on here? The most obvious finding is this large cyst-like structure. In this regard, note:--The cyst is lined by something that looks an awful lot like epithelium.--The cyst contains a fairly uniform, amorphous and acellular material.--The cyst is located in the dermis.

Pathwatching

Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin... When you encounter a cyst in the dermis lined with epi and containing an amorphous material, one dx should come to mind:

Since it’s in the dermis, shouldn’t it be a dermal cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka adnexal structures).

Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

Since it’s *in the dermis*, shouldn’t it be a **dermal cyst**?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka **adnexal structures**) such as

Epidermal inclusion cyst (aka **epidermoid** cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

So what’s going on here? The most obvious finding is this large cyst-like structure. In this regard, note:

- The cyst is lined by something that looks an awful lot like epithelium.
- The cyst contains a fairly uniform, amorphous and acellular material.
- The cyst is located in the dermis.

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

**Epidermal inclusion cyst** (aka *epidermoid* cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

Since it’s in the dermis, shouldn’t it be a **dermal cyst**?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka **adnexal structures**) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain **hair** and **sebum**.

Epidermal inclusion cyst (aka **epidermoid** cyst) is a common lid finding. Like the lid itself, the cyst is lined with **stratified squamous keratinizing epithelium**. (This explains why the amorphous material filling the cyst is **keratin**.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin

Since it’s in the dermis, shouldn’t it be a dermal cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka adnexal structures) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain hair and sebum.

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Pathwatching

Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin...

Since it’s *in the dermis*, shouldn’t it be a *dermal* cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka *adnexal structures*) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain hair and sebum (in addition to...).

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Skin, or conj?
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**Pathwatching**

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Since *it’s in the dermis, shouldn’t it be a dermal cyst?*
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka adnexal structures) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain hair and sebum (in addition to keratin).

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

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

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

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Pathwatching

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

Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
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Epidermal inclusion cyst (aka epidermoid cyst) is a common lid finding. Like the lid itself, the cyst is lined with stratified squamous keratinizing epithelium. (This explains why the amorphous material filling the cyst is keratin.)
Skin, or conj?
At such a low power it’s tough to see, but keratinization is present, so skin...

Since it’s in the dermis, shouldn’t it be a dermal cyst?
You’d think so, but no. While similar to epidermal cysts, dermoid cysts differ in that they contain dermal appendages (aka adnexal structures) such as hair follicles and sebaceous glands. Thus, the lumen of a dermoid cyst will contain hair and sebum (in addition to keratin). It is the presence of dermal appendages that give the dermoid cyst its name.

Are we going to see a photomicrograph of a dermoid cyst?
Not in this section. While they can occur in the lids, they are much more common in the orbit. (Classic presentation: A finding in the orbit of a life stage.)

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

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

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

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

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

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

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

Skin, or conj?
Skin, or conj?
Again, low mag makes it a tough call.
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization isn't present.
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.
Pathwatching

*Skin, or conj?*

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

So what are we to make of this? First, note the unusual shape of the lesion.
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is ...)
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is ‘cup-like’.)
Skin, or conj?  Again, low mag makes it a tough call. That said, keratinization is present, so skin.

So what are we to make of this? First, note the unusual shape of the lesion. (The term of art for its shape is ‘cup-like’.) The epithelium at the bottom of the cup is dramatically thickened, and the cup is filled with an amorphous acellular material that seems friable.
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

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

What’s the diagnosis?
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

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

What’s the diagnosis?

Molluscum contagiosum lesions arise from a type of bug infection.
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

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

What’s the diagnosis?

*Molluscum contagiosum* lesions arise from a viral infection.
Pathwatching

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

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

What’s the diagnosis?

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

NOT 'cup'
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

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

**What’s the diagnosis?**

*Molluscum contagiosum* lesions arise from a viral infection. Clinically they are dome-shaped nodules.
Skin, or conj?
Again, low mag makes it a tough call. That said, keratinization is present, so skin.

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

What’s the diagnosis?

*Molluscum contagiosum* lesions arise from a viral infection. Clinically they are dome-shaped nodules with a central [term of art] (the ‘cup’ component of the lesion).
Pathwatching

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

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

What’s the diagnosis?

**Molluscum contagiosum** lesions arise from a viral infection. Clinically they are dome–shaped nodules with a central umbilication (the ‘cup’ component of the lesion).
Pathwatching

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

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

What’s the diagnosis?

*Molluscum contagiosum* lesions arise from a viral infection. Clinically they are dome-shaped nodules with a central umbilication (the ‘cup’ component of the lesion). Necrotic cells are shed, filling the cup with amorphous funk.
Skin or conj?
Skin or conj?
Skin
Pathwatching

Skin or conj?
Skin

What are we supposed to notice? A few things:
--?
--?
--?
Skin or conj?

Skin

What are we supposed to notice? A few things:
--The overall configuration is dome-shaped
--?
--?
Skin or conj?

Skin

What are we supposed to notice? A few things:
--The overall configuration is dome-shaped
--?
--?
Skin or conj?

Skin

What are we supposed to notice? A few things:
--The overall configuration is dome-shaped
--The epi is ________, and looks benign vs malignant
--?
Skin or conj?
Skin

What are we supposed to notice? A few things:
--The overall configuration is dome–shaped
--The epi is hyperplastic, and looks benign
--?
Skin or conj?

Skin

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

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

Skin

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

Here is a close-up wherein the concentric lamination is easier to appreciate (both asterisk and arrows)
What’s the diagnosis?

Skin or conj?
Skin

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

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

If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:
What’s the diagnosis?

Seborrheic keratosis is a common epithelial proliferation

Skin or conj?
Skin

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

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

If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:
What’s the diagnosis?

Seborrheic keratosis is a common epithelial proliferation

Skin or conj?
Skin

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

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

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

**What’s the diagnosis?**

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

**Skin or conj?**

**Skin**

What are we supposed to notice? A few things:

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

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

If you encounter a dome-shaped lesion containing such cysts, one diagnosis should come to mind:
What’s the diagnosis?

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

Skin, or conj?
Skin, or conj?
Skin
Pathwatching

Skin, or conj?
Skin

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

Skin, or conj?

Skin

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

Skin, or conj?
Skin

What’s going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. But what really stands out is this large area of gnarly-looking squamous cells located well into the dermis. Needless to say (I hope), the presence of severely atypical squamous cells in the dermis—ie, having apparently broken through their basement membrane—is strongly suggestive of one diagnosis:

What’s the diagnosis?
What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. But what really stands out is this large area of gnarly-looking squamous cells located well into the dermis. Needless to say (I hope), the presence of severely atypical squamous cells in the dermis—ie, having apparently broken through their basement membrane—is strongly suggestive of one diagnosis:

**What's the diagnosis?**

Squamous cell carcinoma (SCC) is far less common than basal cell carcinoma (BCC) in the lids.
What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. But what really stands out is this large area of gnarly-looking squamous cells located well into the dermis. Needless to say (I hope), the presence of severely atypical squamous cells in the dermis—ie, having apparently broken through their basement membrane—is strongly suggestive of one diagnosis:

**What’s the diagnosis?**

*Squamous cell carcinoma* (SCC) is far less common than basal cell carcinoma (BCC) in the lids.
Skin, or conj?
Skin

What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. But what really stands out is this large area of gnarly-looking squamous cells located well into the dermis. Needless to say (I hope), the presence of severely atypical squamous cells in the dermis—ie, having apparently broken through their basement membrane—is strongly suggestive of one diagnosis:

What's the diagnosis?

**Squamous cell carcinoma** (SCC) is far less common than basal cell carcinoma (BCC) in the lids. Like BCC, it has a proclivity for the lower lid.
What's going on here? Note that the epithelium is quite thickened and rather chaotic in appearance. The dermis looks hinky as well. But what really stands out is this large area of gnarly-looking squamous cells located well into the dermis. Needless to say (I hope), the presence of severely atypical squamous cells in the dermis—ie, having apparently broken through their basement membrane—is strongly suggestive of one diagnosis:

What’s the diagnosis?

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

Skin/conj?
Pathwatching

Skin/conj?
Skin
Pathwatching

Skin/conj?
Skin

There’s a field mark that nails the diagnosis. What is it?
Skin/conj?
Skin

*There's a field mark that nails the diagnosis. What is it?
*These tight clusters of [cell type] are called [cell type] (aka [cell type]).*
Pathwatching

Skin/conj?
Skin

There’s a field mark that nails the diagnosis. What is it?
These tight clusters of melanocytes are called nests (aka theques).
There’s a field mark that nails the diagnosis. What is it?

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

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

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

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

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

What’s the diagnosis?

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) __________ to __________ to __________.
There’s a field mark that nails the diagnosis. What is it?

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

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

What’s the diagnosis?

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

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

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

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

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Pathwatching

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Pathwatching

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**What’s the diagnosis?**

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

Skin/conj?

Skin

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

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

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

*What’s the diagnosis?*

Melanocytic nevi of the lid can be congenital, or arise later in life. As with conj nevi, they evolve through a series of histologic conformations, from (in order) junctional to compound to intradermal. Most cutaneous nevi of the lid have low malignant potential; however, dysplastic nevi (those larger than 0.5 cm; those with irregular margins or pigmentation) are at higher risk and should be monitored closely.
All three above are melanocytic nevi of the lid. In what important way do they differ from one another?
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All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus’s conformational ‘life cycle.’ In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus.
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All three above are melanocytic nevi of the lid. In what important way do they differ from one another? Each represents a different stage in a nevus’s conformational ‘life cycle.’ In the first, the nests are confined to the dermal-epidermal junction and is therefore a junctional nevus. In the second, the nests are found both at the dermal-epidermal junction as well as in the dermis itself; thus, it is a compound nevus. In the last nevus the nest is confined to the dermis, and it therefore is an intradermal nevus.
Cornea

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

Let’s spend a few minutes reviewing normal corneal histology.
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1. **Epithelium**
2. **Bowman’s layer**
3. **Stroma**
4. **Descemet’s layer**
5. **Endothelium**

Note that the stroma is very **uniform** in its appearance. While a few tiny dark dots can be appreciated (more on those shortly), its overall appearance is monotone.
Let's spend a few minutes reviewing normal corneal histology. First, identify the five basic layers of the cornea: Epithelium, Bowman's layer, Stroma, Descemet's layer, and Endothelium. Note that the stroma is very uniform in its appearance. While a few tiny dark dots can be appreciated (more on those shortly), its overall appearance is monotone. The reason this is important: We will soon see that certain conditions (especially the corneal dystrophies) are identified via the non-uniform manner in which the stroma stains.
Let's spend a few minutes reviewing normal corneal histology. First, identify the five basic layers of the cornea:

- Epithelium
- Bowman’s layer
- Stroma
- Descemet’s layer
- Endothelium

Note that the stroma is very uniform in its appearance. While a few tiny dark dots can be appreciated (more on those shortly), its overall appearance is monotone. The reason this is important: We will soon see that certain conditions (especially the corneal dystrophies) are identified via the non-uniform manner in which the stroma stains.
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*
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(Note: Both arrows are pointing to examples of the same issue of interest)
Now on with the review. This image is drilling down on the anterior cornea. *ID the indicated structures:*
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What does it mean to say the stromal clefts are artifactual?

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

OK, so the stroma contains an artifact. Why should I care?

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

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Pathwatching

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

(Do this one first)
Pathwatching

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

- Descemet’s layer
This image is drilling down on the posterior cornea. ID the indicated structures:
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- Descemet’s layer
- Endothelium
This image is drilling down on the posterior cornea. ID the indicated structures:

- Descemet’s layer
- Endothelium

(these are the ‘tiny dark dots’ alluded to earlier)
This image is drilling down on the posterior cornea. ID the indicated structures:

- Descemet’s layer
- Endothelium
- Nucleus

(These are the ‘tiny dark dots’ alluded to earlier)
This image is drilling down on the posterior cornea. *ID the indicated structures:*
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This image is drilling down on the **posterior** cornea. *ID the indicated structures:*
In a nutshell, what is Dua’s layer?

Dua’s layer

Descemet’s layer

Endothelium

This image is drilling down on the posterior area. ID the indicated structures:
In a nutshell, what is Dua’s layer?
A thin acellular layer of pre-Descemet’s stroma.

This image is drilling down on the posterior cornea. ID the indicated structures:
In a nutshell, what is Dua's layer?
A thin acellular layer of pre-Descemet's stroma. It is tightly adherent to the underlying Descemet's vs overlying stromal layer.
In a nutshell, what is Dua’s layer?
A thin acellular layer of pre-Descemet’s stroma. It is tightly adherent to the underlying Descemet’s.
Note: Both the *Path* and *Cornea* books use *Dua layer* to refer to this portion of the cornea. That said, the term is somewhat controversial in the ophthalmic community writ large.

*In a nutshell, what is Dua’s layer?*  
A thin acellular layer of pre-Descemet’s stroma. It is tightly adherent to the underlying Descemet’s.
This image is drilling down on the posterior cornea. **ID the indicated structures:**

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

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

---

**Pathwatching**

Note: Both the *Path* and *Cornea* books use **Dua layer** to refer to this portion of the cornea. That said, the term is somewhat controversial in the ophthalmic community writ large. **The point being**, don’t be surprised if you get pushback if/when you use it, and don’t necessarily look for it on an exam (ie, that portion of the cornea may be *described* rather than *named*).
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
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What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
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What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts ; and
--Bowman's layer  seems intact (albeit hard to discern with this stain).
Pathwatching

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

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

--Bowman’s layer seems intact (albeit hard to discern with this stain).
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:

--The stroma contains the expected artifactual clefts; and
--Bowman’s layer seems intact (albeit hard to discern with this stain).

Now let’s talk about the obvious:
--The epi is thickened and cystic.
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Now let’s talk about the obvious:

--The epi is thickened and cystic
--The [red area] is running up into the epithelium
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
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Now let’s talk about the obvious:
--The epi is thickened and cystic
--The basement membrane (BM) is running up into the epithelium.
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
--Bowman’s layer seems intact (albeit hard to discern with this stain).

Now let’s talk about the obvious:
--The epi is thickened and cystic
--The basement membrane (BM) is running up into the epithelium.

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

What’s the diagnosis?
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A thickened epi with BM running up into it can only be one thing:

What’s the diagnosis?

Epithelial basement membrane dystrophy (EBMD) is aka dystrophy on account of its appearance at the slit lamp. (It has other names as well.)
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
--Bowman’s layer seems intact (albeit hard to discern with this stain).

Now let’s talk about the obvious:
--The epi is thickened and cystic
--The basement membrane (BM) is running up into the epithelium

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

**What’s the diagnosis?**

*Epithelial basement membrane dystrophy* (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.)
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
--Bowman’s layer seems intact (albeit hard to discern with this stain).

Now let’s talk about the obvious:
--The epi is thickened and cystic
--The basement membrane (BM) is running up into the epithelium

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

**Epithelial basement membrane dystrophy** (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.) The intraepithelial insinuation of BM accounts for the two of them, whereas the (pseudo)cysts account for the last one.
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
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Now let’s talk about the obvious:
--The epi is thickened and cystic
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**What’s the diagnosis?**

**Epithelial basement membrane dystrophy** (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.) The intraepithelial insinuation of BM accounts for the *maps* and *fingerprints*, whereas the (pseudo)cysts account for the *dots*.
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
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--The epi is thickened and cystic
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**What’s the diagnosis?**

**Epithelial basement membrane dystrophy** (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.) The intraepithelial insinuation of BM accounts for the *maps* and *fingerprints*, whereas the (pseudo)cysts account for the *dots*. Complaints are related to three words.
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts; and
--Bowman’s layer seems intact (albeit hard to discern with this stain).

Now let’s talk about the obvious:
--The epi is thickened and cystic
--The basement membrane (BM) is running up into the epithelium

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

**What’s the diagnosis?**

**Epithelial basement membrane dystrophy** (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.) *The intraepithelial insinuation of BM accounts for the maps and fingerprints, whereas the (pseudo)cysts account for the dots.* Complaints are related to recurrent epithelial erosions.
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
--The stroma contains the expected artifactual clefts ; and
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Now let’s talk about the obvious:
--The epi is thickened and cystic
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A thickened epi with BM running up into it can only be one thing:

**What’s the diagnosis?**

**Epithelial basement membrane dystrophy** (EBMD) is aka *map-dot-fingerprint dystrophy* on account of its appearance at the slit lamp. (It has other names as well.) The intraepithelial insinuation of BM accounts for the **maps** and **fingerprints**, whereas the (pseudo)cysts account for the **dots**. Complaints are related to recurrent epithelial erosions. Vision typically is vs isn’t affected.
What’s going on here? Before leaping to the obvious, let’s take note of what looks unremarkable:
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--The epi is thickened and cystic
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What’s the diagnosis?

**Epithelial basement membrane dystrophy** (EBMD) is aka map-dot-fingerprint dystrophy on account of its appearance at the slit lamp. (It has other names as well.) The intraepithelial insinuation of BM accounts for the *maps* and *fingerprints*, whereas the (pseudo)cysts account for the *dots*. Complaints are related to recurrent epithelial erosions. Vision typically is affected.
More EBMD examples wherein the BM can be better seen snaking into the epithelium.
More EBMD examples wherein the BM can be better seen snaking into the epithelium

For more on EBMD, see slide-set K41
Pathwatching

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

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

Focal disruption of Bowman’s layer in the absence of abnormal stromal staining should bring to mind one dx:
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*Keratoconus* is an *ectatic* disorder.
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**Keratoconus** is an ectatic disorder.
Pathwatching

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

**Keratoconus** is an ectatic disorder characterized by progressive corneal...
Pathwatching

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

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

**Keratoconus** is an ectatic disorder characterized by progressive corneal thinning and protrusion.
What’s going on here? Again saving the obvious, let’s note what looks OK:

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

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

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

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

**Keratoconus** is an ectatic disorder characterized by progressive corneal thinning and protrusion of its central and/or inferior portions.
What’s going on here? Again saving the obvious, let’s note what looks OK:

--The stroma contains the expected artifactual clefts, and isn’t picking up stain in a way that suggests it contains some sort of abnormal material.
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Now let’s talk about the obvious: Bowman’s layer is completely disrupted right here.

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

**Keratoconus** is an ectatic disorder characterized by progressive corneal thinning and protrusion of its central and/or inferior portions.
What’s going on here? Again saving the obvious, let’s note what looks OK:
--The stroma contains the expected artifactual clefts, and isn’t picking up stain in a way that suggests it contains some sort of abnormal material.
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Pathwatching

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For more on KCN, see slide-set K38
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Reis-Bücklers corneal dystrophy (RBCD) is one of the corneal dystrophies.
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*It mainly affects Bowman’s layer*.

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

Reis-Bücklers corneal dystrophy (RBCD) is one of the epithelial-stromal TGFB1 corneal dystrophies. It mainly affects Bowman’s layer*. Primary complaints are related to recurrent epithelial erosions.

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Pathwatching

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Another characteristic of RBCD: The inverse relationship between stromal involvement and the robustness of the overlying epithelium.
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Note: This image appears in both the *Cornea* and *Path* books. Here is how it is captioned in each:
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**In the *Cornea* book:** Light microscopy with Masson trichrome stain reveals replacement of Bowman's layer (arrows) with hyaline. Note thinner epithelium overlying areas of increased stromal involvement and vice-versa.
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**In the Cornea book:** Light microscopy with Masson trichrome stain reveals replacement of Bowman’s layer (arrows) with hyaline. Note thinner epithelium overlying areas of increased stromal involvement and vice-versa.

**In the Path book:** Masson trichrome stain demonstrates diffuse loss of Bowman layer, superficial stromal fibrosis, and numerous red deposits (arrows).
There is one more epithelial-stromal TGFBI dystrophy that primarily effects Bowman’s (pictured)—what is it?
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Pathwatching

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Thiel-Behnke corneal dystrophy (TBCD)
RBCD and TBCD: Photomicrographs demonstrating their characteristic forms
TBCD. The sawtooth pattern is readily apparent on anterior-segment OCT.
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In electron microscopy: By the shape of the fibers comprising the abnormal material:
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--In TBCD fibers are curly
Pathwatching

RBCD: Rod-shaped fibers

TBCD: Curly fibers

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

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

**What’s the diagnosis?**
Pathwatching

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**Pathwatching**

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**Lattice corneal dystrophy (LCD)** is one of the **epithelial-stromal** *TGFB1* corneal dystrophies. The BCSC recognizes five variants, but spends essentially all of its attention on LCD1 (aka ‘classic’ lattice). The LCD pathologic process involves the deposition of amyloid in the cornea, mainly in the mid- and anterior stroma.
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Lattice corneal dystrophy (LCD) is one of the epithelial-stromal $TGFBI$ corneal dystrophies. The BCSC recognizes five variants, but spends essentially all of its attention on LCD1 (aka ‘classic’ lattice). The LCD pathologic process involves the deposition of amyloid in the cornea, mainly in the mid- and anterior stroma. The subepithelial/Bowman’s portion may be involved. The classic stain (there are others) is Congo red.

Pathwatching

What’s going on here? Again, let’s first note what looks OK:
--The epithelium seems to be unaffected
--It’s hard to see Bowman’s the whole way across, and small sections may be hinky. But for the most part it appears intact—certainly lacking evidence of the extensive disruption we’d expect from a CDB or keratoconus.

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

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

What’s the diagnosis?
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Note: The *Path* book asserts that the amyloid deposits are “fusiform” in distribution, a claim supported by the photomicrograph used in that volume (above).
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The presence of anterior/mid-stromal deposits that stains avidly with Masson trichrome can be only one thing:
Granular corneal dystrophy type 1 (GCD1) is one of the epithelial-stromal TGFBI corneal dystrophies.

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

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

Granular corneal dystrophy type 2 (GCD2) is a thing. GCD2 also has an eponymous name—Avellino corneal dystrophy.

In a nutshell, what is GCD2?
Both clinically and histopathologically, it is a combo of LCD and GCD1. As would be expected, a GCD2 cornea contains deposits of both amyloid and hyaline, and thus stains with Congo red and Masson trichrome.
Granular corneal dystrophy type 1 (GCD1) is one of the epithelial-stromal TGBI corneal dystrophies. The GCD1 pathologic process involves the deposition of hyaline in the mid- and anterior stroma. Nearby clefts are compressed/distorted. A section of Bowman’s is disrupted in association with subjacent deposits. The epithelium is largely unaffected, with the notable exception of the portion associated with Bowman’s disruption.

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Granular corneal dystrophy type 1

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For more on GCD1&2, see slide-set K42.
What’s going on here?
--The epi looks involved vs not
--Bowman’s seems disrupted vs not
--Stromal clefting is affected vs not
Pathwatching

What’s going on here?
--The epi looks OK
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--Stromal clefting is unremarkable
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Pathwatching

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

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The abnormal material deposited in the cornea is **
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*Were you expecting here?
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What’s the diagnosis?

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

*Were you expecting mucopolysaccharides here?*
What’s going on here?
--The epi looks OK
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--Stromal clefting is unremarkable
But also:
--Stain-avid deposits are present through the entire breadth of the stroma.
--Descemet’s and the endothelium are involved.
This can be seen more easily here, where the arrowheads indicate stain in the endothelium, and the arrow is pointing to an excrescence in Descemet’s membrane, i.e., a guttae. (Note: This specimen used a different stain than the first.)

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

What’s the diagnosis?

**Macular corneal dystrophy (MCD)** *isn’t* one of the **epithelial-stromal TGFB1** corneal dystrophies. The abnormal material deposited in the cornea is glycosaminoglycans (GAGs).*

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

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What's going on here?
--The epi looks involved v uninvolved
Pathwatching

What’s going on here? --The epi looks bad.
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What’s going on here?
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Guttata + absent endo cells + stromal changes c/w edema + epi changes c/w edema points toward one dx:

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

Fuchs endothelial corneal dystrophy (FECD) is characterized by corneal edema, which can be severe enough to produce epithelial bullae (as in this example, asterisk). Descemet’s becomes irregularly thickened, and guttae develop on it (arrows).
Fuchs endothelial corneal dystrophy (FECD) is characterized by corneal edema, which can be severe enough to produce epithelial bullae (as in this example, asterisk). Descemet’s becomes irregularly thickened, and guttae develop on it (arrows). The underlying pathology is loss of endothelial cell function and viability.
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How are you supposed to know the endothelial cell count is low?

By eyeballing it. Here is the photomicrograph of a normal cornea we opened the chapter with. Look at its endothelial layer—it’s wall-to-wall nuclei, all lined up in a single layer. Now look at the endo layer in the Fuchs picture—hardly a nucleus to be seen. If a single layer of tightly-spaced nuclei isn’t found in an image, there’s a problem with the endothelium.
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Another view of the single-cell-thick nature of the endothelial cells in the normal human cornea
Here we have what seems like another case of FECD, given the:
--?
--?
--?
Here we have what seems like another case of FECD, given the:
--Epithelial
--?
--?
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--?
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--Loss of stromal c/w edema
--?
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--?
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--The absence of cells
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--The absence of endothelial cells
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
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--The absence of endothelial cells
But it mos def isn’t FECD. How can you tell?
--?
--?
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So, this is a case of 2ndry to endothelial-cell loss, but it’s not FECD.
Here we have what seems like another case of FECD, given the:
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--Loss of stromal clefting c/w edema
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But it mos def isn’t FECD. How can you tell?
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So, this is a case of bullous keratopathy 2ndry to endothelial-cell loss, but it’s not FECD.
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--The absence of endothelial cells
But it mos def isn’t FECD. How can you tell?
--Descemet’s isn’t thickened (again, a tough call)
--The absence of guttata

So, this is a case of bullous keratopathy 2ndry to endothelial-cell loss, but it’s not FECD. What then is the most likely cause?
Here we have what seems like another case of FECD, given the:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--The absence of endothelial cells
But it mos def isn’t FECD. **How can you tell?**
--Descemet’s isn’t thickened (again, a tough call)
--The absence of guttata

So, this is a case of **bullous keratopathy 2ndry to endothelial-cell loss, but it’s not FECD.** What then is the most likely cause? **Pseudophakic bullous keratopathy** (PBK), which is in fact what’s going on here.
Here we have what seems like another case of FECD, given the:
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But it mos def isn’t FECD. How can you tell?
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So, this is a case of bullous keratopathy 2ndry to endothelial-cell loss, but it’s not FECD. What then is the most likely cause? Pseudophakic bullous keratopathy (PBK), which is in fact what’s going on here. The key to differentiating PBK from FECD is in noting the presence vs absence of guttata.
Before we get started, *note:* All this clefting is artifactual (and not the good kind we’ve been relying on). Just ignore it.
Here we have what seems like another case of PBK, as we have:
--?
--?
--?
--?
Here we have what seems like another case of PBK, as we have:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--The absence of endothelial cells
--No guttata
Pathwatching

Here we have what seems like another case of PBK, as we have:
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--Loss of stromal clefting c/w edema
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But it *isn’t* PBK; rather, it is
Pathwatching

Here we have what seems like another case of PBK, as we have:
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But it isn’t PBK; rather, it is **congenital hereditary endothelial dystrophy (CHED)**.
Here we have what seems like another case of PBK, as we have:
--Epithelial bullae
--Loss of stromal clefting c/w edema
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*How can you tell it’s CHED and not PBK?*
Here we have what seems like another case of PBK, as we have:
--Epithelial bullae
--Loss of stromal clefting c/w edema
--The absence of endothelial cells
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But it isn’t PBK; rather, it is **congenital hereditary endothelial dystrophy (CHED)**.

*How can you tell it’s CHED and not PBK?*
Because unlike in PBK, in CHED **Descemet’s** is thickened.
Pathwatching

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*How can you tell it’s CHED and not PBK?*
Because unlike in PBK, in CHED Descemet’s is thickened.
Again, tough call for those of us who aren’t pathologists.
Should you be expected to make this call on a test, I reckon the thickening would be much more obvious than in this pic (eg, see the next slide).
CHED. Even I can tell Descemet’s is thick here.
For more on FECD and CHED, see slide-set K45.

CHED. Even I can tell Descemet’s is thick here.
It should not surprise that the key finding in this condition is to be found in the posterior cornea...
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What’s going on here?

--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
It should not surprise that the key finding in **this** condition is to be found in the posterior cornea...

What’s going on here?

--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
It should not surprise that the key finding in this condition is to be found in the posterior cornea...

What's going on here?
--The stroma isn't taking a stain, suggesting this isn't a stromal dystrophy.
--Speaking of: Stromal clefting is affected vs unaffected
It should not surprise that the key finding in this condition is to be found in the posterior cornea…
What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected
It should not surprise that the key finding in this condition is to be found in the posterior cornea… What’s going on here?

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

--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:

--Descemet’s appears , for lack of a better term (I know—tough call again).
It should not surprise that the key finding in **this** condition is to be found in the posterior cornea... What’s going on here?

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

--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:

--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected.

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).

--OTOH, what’s not a tough call is that the endothelium is affected vs unaffected as suggested by its
It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).

--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.
Pathwatching

It should not surprise that the key finding in this condition is to be found in the posterior cornea... What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?
It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?

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

--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:

--Descemet’s appears wonky, for lack of a better term (I know—tough call again).

--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations.
It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

**What’s the diagnosis?**

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations.

Histologically, Descemet’s is [ ] and [ ]
It should not surprise that the key finding in this condition is to be found in the posterior cornea… What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected
Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations. Histologically, Descemet’s is thickened and laminated
It should not surprise that the key finding in this condition is to be found in the posterior cornea… What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations.
Histologically, Descemet’s is thickened and laminated; excrescences are not present.
It should not surprise that the key finding in this condition is to be found in the posterior cornea… What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations. Histologically, Descemet’s is thickened and laminated; excrescences may be present.
It should not surprise that the key finding in this condition is to be found in the posterior cornea…
What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected
Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations.
Histologically, Descemet’s is thickened and laminated; excrescences may be present.
The underlying pathology is endothelial cell

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**What’s the diagnosis?**
It should not surprise that the key finding in this condition is to be found in the posterior cornea...

What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations. Histologically, Descemet’s is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation.
Pathwatching

It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?

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

--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:

--Descemet’s appears wonky, for lack of a better term (I know—tough call again).

--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations.

Histologically, Descemet’s is thickened and laminated; excrescences may be present.

The underlying pathology is endothelial cell transformation, which leads to them looking and ‘behaving’ like [cell type] cells and/or [cell type]
Pathwatching

It should not surprise that the key finding in this condition is to be found in the posterior cornea… What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

**What’s the diagnosis?**

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations. Histologically, Descemet’s is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation, which leads to them looking and ‘behaving’ like epithelial cells and/or fibroblasts.
It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations. Histologically, Descemet’s is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation, which leads to them looking and ‘behaving’ like epithelial cells and/or fibroblasts. (This explains how the endothelium comes to have its characteristic appearance.)
Pathwatching

It should not surprise that the key finding in this condition is to be found in the posterior cornea… What’s going on here?

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

--Speaking of: Stromal clefting is unaffected

Turning our attention to the posterior cornea:

--Descemet’s appears wonky, for lack of a better term (I know—tough call again).

--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

What’s the diagnosis?

Posterior polymorphous dystrophy (PPMD) has a variety of clinical manifestations.

Histologically, Descemet’s is thickened and laminated; excrescences may be present.

The underlying pathology is endothelial cell transformation, which leads to them looking and ‘behaving’ like epithelial cells and/or fibroblasts. (This explains how the endothelium comes to have its characteristic multilayered appearance.)
It should not surprise that the key finding in this condition is to be found in the posterior cornea…

What’s going on here?
--The stroma isn’t taking a stain, suggesting this isn’t a stromal dystrophy.
--Speaking of: Stromal clefting is unaffected.

Turning our attention to the posterior cornea:
--Descemet’s appears wonky, for lack of a better term (I know—tough call again).
--OTOH, what’s not a tough call is that the endothelium is jacked up as suggested by its multiple layers.

Wonky Descemet’s + multilayered endothelium strongly indicates one dx:

**What’s the diagnosis?**

**Posterior polymorphous dystrophy (PPMD)** has a variety of clinical manifestations. Histologically, Descemet’s is thickened and laminated; excrescences may be present. The underlying pathology is endothelial cell transformation, which leads to them looking and ‘behaving’ like epithelial cells and/or fibroblasts. (This explains how the endothelium comes to have its characteristic multilayered appearance.)

*For more on PPMD, see slide-set K45*
(This is a good point in the set to take a break)
First: What tissue/structure is this?
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that: --It’s a [layered] epi (K epi is [layered])
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is of Bowman’s)
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)

So it ain’t cornea.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)

--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)

So it ain’t cornea.

There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: ?
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea. There’s only one structure that has a membrane (with an epi *under* it) that surrounds amorphous material: The lens.
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens?
Pathwatching

**Anterior**

First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)

--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)

So it ain’t cornea. There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. *Is this the anterior or posterior lens? Anterior.*
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea. There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. 
*Is this the anterior or posterior lens? Anterior.*
*How can you tell?*
Anterior

First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. *Is this the anterior or posterior lens? Anterior.*
*How can you tell?* By the presence of (there are none posteriorly)
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. **Is this the anterior or posterior lens?** Anterior. **How can you tell?** By the presence of epithelial cells (there are none posteriorly).
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens? Anterior.
How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal?
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens? Anterior.
How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal?
This material on the lens
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

---It’s a single-layered epi (K epi is multi-layered)
---It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)

So it ain’t cornea. There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.
**Pathwatching**

**Anterior**

First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.

There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.

There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. Is this the anterior or posterior lens? Anterior.

How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

**Pseudoexfoliation syndrome** (PXS) is a systemic vs ophthalmic condition
First: What tissue/structure is this?
It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens? Anterior.
How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal?
This material on the lens capsule.

Pseudoexfoliation syndrome (PXS) is a systemic condition
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule.

*And distant organs, but we’re not concerned about that.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)

So it ain’t cornea.

There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

**Pseudoexfoliation syndrome** (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule.

*And distant organs, but we’re not concerned about that.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

*Is this the anterior or posterior lens? Anterior.
How can you tell? By the presence of epithelial cells (there are none posteriorly)*

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal?

What’s the diagnosis?

Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

**Pseudoexfoliation syndrome** (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma*
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
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So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal?
This material on the lens capsule.

Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
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So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.
Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

Pseudoexfoliation syndrome (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma, specifically open-angle glaucoma.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

**Pseudoexfoliation syndrome** (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma*

*Specifically open-angle glaucoma, specifically secondary open-angle glaucoma.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

**Pseudoexfoliation syndrome** (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma* and an increased risk of intra-op complications during surgery.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
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**Pseudoexfoliation syndrome** (PXS) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma* and an increased risk of intra-op complications during cataract surgery.
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:
--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens. Is this the anterior or posterior lens? Anterior. How can you tell? By the presence of epithelial cells (there are none posteriorly).

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal? This material on the lens capsule.

**Pseudoexfoliation syndrome** (PXs) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma* and an increased risk of intra-op complications during cataract surgery. The appearance of the accumulated material has been likened to a sawtooth pattern and ‘iron filings’. 
First: What tissue/structure is this? It kinda looks like the anterior cornea—you can see what looks like stroma, a layer of epithelium, and Bowman’s. But this interpretation is problematic in that:

--It’s a single-layered epi (K epi is multi-layered)
--It’s deep to the ‘Bowman’s’ (K epi is on top of Bowman’s)
So it ain’t cornea.
There’s only one structure that has a membrane (with an epi under it) that surrounds amorphous material: The lens.

Is this the anterior or posterior lens? Anterior.
How can you tell? By the presence of epithelial cells (there are none posteriorly)

Now that we know what we’re looking at, why are we looking at it, ie, what’s abnormal?

What’s the diagnosis?

Pseudoexfoliation syndrome (PXs) is a systemic condition characterized by the production and accumulation of fibrillar material throughout the anterior segment*, including upon the lens capsule. It is associated with glaucoma* and an increased risk of intra-op complications during cataract surgery. The appearance of the accumulated material has been likened to a sawtooth pattern and ‘iron filings’. 
Keeping it 🙈: This is a *terrible* pic to use when asserting that PXS fibrillar material adopts what could be called an ‘iron filings’ configuration.
Keeping it terrible: This is a terrible pic to use when asserting that PXS fibrillar material adopts what could be called an ‘iron filings’ configuration. This pic of fibrillar material on the ciliary body does justice to the assertion. Just FYI.
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat.
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

What’s the diagnosis?
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

What’s the diagnosis?

**Pigment dispersion syndrome** (PDS) results from excessive contact between the anterior iris surface and the posterior iris surface.
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

**What’s the diagnosis?**

**Pigment dispersion syndrome** (PDS) results from excessive contact between the posterior iris surface and the zonules.
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

What’s the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris.
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

What’s the diagnosis?

Pigment dispersion syndrome (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

Pathwatching

What’s the diagnosis?

**Pigment dispersion syndrome** (PDS) results from excessive contact between the posterior iris surface and the zonules. *Friction between these structures liberates pigment granules from the iris*, which subsequently deposit on intraocular structures including the lens capsule.
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeau on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

**Pathwatching**

What’s the diagnosis?

**Pigment dispersion syndrome** (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris, which subsequently deposit on intraocular structures including the lens capsule. Pts with PDS are at risk of developing [two words]...
Once again, we’re faced with (what we now recognize as) an image of the anterior aspect of the lens. And once again, the lens capsule has some gradeax on it, only instead of pinkish and sawtooth-y it’s black and flat. What’s going on here?

*What’s the diagnosis?*

**Pigment dispersion syndrome** (PDS) results from excessive contact between the posterior iris surface and the zonules. Friction between these structures liberates pigment granules from the iris, which subsequently deposit on intraocular structures including the lens capsule. Pts with PDS are at risk of developing pigmentary glaucoma.
First things first: What tissue is this?
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?*
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks **nothing** like a lid margin.
First things first: What tissue is this?
It's long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks **nothing** like a lid margin. **There's only one non-lid structure shaped like this**—what is it?
First things first: What tissue is this?
It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin*? No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this*—*what is it*? The iris.
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let’s review normal iris anatomy…
Normal iris. *Which surface is anterior, and which is posterior?*
Normal iris. *Which surface is anterior, and which is posterior?*
The anterior surface is corrugated, with large spaces separated by deep grooves.
Normal iris. *Which surface is anterior, and which is posterior?* The anterior surface is corrugated, with large folds separated by deep crypts.
Normal iris. *Which surface is anterior, and which is posterior?*

The anterior surface is corrugated, with large folds separated by deep crypts. The posterior surface is lined by a densely-pigmented double layer of cells oriented base-to-base? base-to-apex? apex-to-apex?
Normal iris. Which surface is anterior, and which is posterior? The anterior surface is corrugated, with large folds separated by deep crypts. The posterior surface is lined by a densely-pigmented double layer of epithelial cells oriented apex-to-apex.*

*See slide-set FELT21 if you don't understand how the apex-to-apex arrangement came to be.
First things first: What tissue is this?
It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.
Before getting into the pathology here, let’s review normal iris anatomy…
Now back to our path slide.
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. First, here is the orientation of what we’re looking at.
First things first: What tissue is this?
It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.
Before getting into the pathology here, let’s review normal iris anatomy…
Now back to our path slide. First, here is the orientation of what we’re looking at. *Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:*
--?
--?
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. First, here is the orientation of what we’re looking at. *Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:*

---The anterior iris is unnaturally blanked out

---?
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—*what is it? The iris.  
Before getting into the pathology here, let’s review normal iris anatomy…  
Now back to our path slide. First, here is the orientation of what we’re looking at. *Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:*  
--The anterior iris is unnaturally flat  
--?
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let’s review normal iris anatomy… Now back to our path slide. First, here is the orientation of what we’re looking at. *Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:*

-- The anterior iris is unnaturally flat

-- The posterior pigmented epi bilayer has lotsa words
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. First, here is the orientation of what we’re looking at. *Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:*

--The anterior iris is unnaturally flat
--The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.
First things first: What tissue is this? It’s long and skinny, and has a natural end—*is it a section of eyelid at the margin?* No, because it lacks any semblance of skin/conj structures, and the end looks *nothing* like a lid margin. *There’s only one non-lid structure shaped like this—what is it?* The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. First, here is the orientation of what we’re looking at. *Now, based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:*

--The anterior iris is unnaturally flat
--The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.

*When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:*
First things first: What tissue is this? It’s long and skinny, and has a natural end—is it a section of eyelid at the margin? No, because it lacks any semblance of skin/conjunctival structures, and the end looks nothing like a lid margin. There’s only one non-lid structure shaped like this—what is it? The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

--The anterior iris is unnaturally flat
--The posterior pigmented epithelium has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

**Rubeosis iridis** (iris neovascularization) is associated with a number of conditions.
First things first: What tissue is this? It's long and skinny, and has a natural end—is it a section of eyelid at the margin? No, because it lacks any semblance of skin/conjunctival structures, and the end looks nothing like a lid margin. There's only one non-lid structure shaped like this—what is it? The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

--The anterior iris is unnaturally flat
--The posterior pigmented epithelium has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

**Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. The final pathologic pathway involves the exuberant (over)production of

The anterior iris is unnaturally flat.

The posterior pigmented epithelium has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

**Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. The final pathologic pathway involves the exuberant (over)production of VEGF, a signaling molecule that promotes neovascularization.

**Abb.**
First things first: What tissue is this? It’s long and skinny, and has a natural end—is it a section of eyelid at the margin? No, because it lacks any semblance of skin/conjunctival structures, and the end looks nothing like a lid margin. There’s only one non-lid structure shaped like this—what is it? The iris.

Before getting into the pathology here, let’s review normal iris anatomy… Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:
--The anterior iris is unnaturally flat
--The posterior pigmented epithelial bilayer has come around the pupil margin onto the anterior iris.
When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

**Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. The final pathologic pathway involves the exuberant (over)production of **VEGF**.
First things first: What tissue is this? It’s long and skinny, and has a natural end—is it a section of eyelid at the margin? No, because it lacks any semblance of skin/conjunctival structures, and the end looks nothing like a lid margin. There’s only one non-lid structure shaped like this—what is it? The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:

--The anterior iris is unnaturally flat
--The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

**Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. The final pathologic pathway involves the exuberant (over)production of **VEGF**, a signaling molecule that... two words

**What’s the diagnosis?**
First things first: What tissue is this? It’s long and skinny, and has a natural end—is it a section of eyelid at the margin? No, because it lacks any semblance of skin/conj structures, and the end looks nothing like a lid margin. There’s only one non-lid structure shaped like this—what is it? The iris.

Before getting into the pathology here, let’s review normal iris anatomy…

Now back to our path slide. Based on our new knowledge of normal iris anatomy we can see a couple of problems right off the bat:
--The anterior iris is unnaturally flat
--The posterior pigmented epi bilayer has come around the pupil margin onto the anterior iris.

When you see an iris with a flat anterior surface + pigmented epithelium coming around like this, one diagnosis should come to mind:

**Rubeosis iridis** (iris neovascularization) is associated with a number of conditions. The final pathologic pathway involves the exuberant (over)production of VEGF, a signaling molecule that promotes neovascularization.

**What’s the diagnosis?**
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying...
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.
Pathwatching

Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of?
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of? --First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide. --The choroid is filled with innumerable cells.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.
What’s going on here—what are we supposed to take note of?
--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells. (asterisks)
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of?--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide. --The choroid is filled with innumerable inflammatory cells. --Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located?
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.

What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located?

Note what’s running across their tops—a thin, densely pigmented line. This is the **RPE**.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.

What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located? Note what’s running across their tops—a thin, densely pigmented line. This is the RPE.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of? --First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide. --The choroid is filled with innumerable inflammatory cells. --Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located? Note what’s running across their tops—a thin, densely pigmented line. This is the RPE. And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below or just above it.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located?

Note what’s running across their tops—a thin, densely pigmented line. This is the RPE. And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below Bruch’s or just above it.
What’s the finding?*

Pathwatching

Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.

What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located?

Note what’s running across their tops—a thin, densely pigmented line. This is the RPE. And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below Bruch’s or just above it.

Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:

*Note that we’re looking for the name of the aggregates, not the name of the underlying condition causing them.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.

What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.

--The choroid is filled with innumerable inflammatory cells.

--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located? Note what’s running across their tops—a thin, densely pigmented line. This is the RPE.

And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below Bruch’s or just above it.

Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:

**Dalen-Fuchs nodules** are inflammatory-cell aggregates between two structures.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of?
--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located? Note what’s running across their tops—a thin, densely pigmented line. This is the RPE. And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below Bruch’s or just above it.
Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:

**Dalen-Fuchs nodules** are inflammatory-cell aggregates between the RPE and Bruch’s.
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.
What’s going on here—what are we supposed to take note of?
--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located? Note what’s running across their tops—a thin, densely pigmented line. This is the RPE.
And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below Bruch’s or just above it.
Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:

**Pathwatching**

**What’s the finding?**

**Dalen-Fuchs nodules** are inflammatory-cell aggregates between the RPE and Bruch’s. They are most strongly associated with two conditions: and
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera. What’s going on here—what are we supposed to take note of?

--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these aggregates—exactly where are they located? Note what’s running across their tops—a thin, densely pigmented line. This is the RPE. And because the RPE is separated from the underlying choroid by Bruch’s membrane, we can’t be sure if the aggregates are below Bruch’s or just above it.

Focal aggregates of inflammatory cells just beneath the RPE + widespread choroidal inflammatory infiltration points to one entity:

**Dalen-Fuchs nodules** are inflammatory-cell aggregates between the RPE and Bruch’s. They are most strongly associated with two conditions: Vogt-Koyanagi-Harada syndrome (VKH) and sympathetic ophthalmia (SO).
Hopefully you recognize what we’re looking at here—it’s the retina along with the choroid and underlying sclera.
What’s going on here—what are we supposed to take note of?
--First, while I realize the neurosensory retina looks wonky, that’s not the point of the slide.
--The choroid is filled with innumerable inflammatory cells.
--Two focal aggregates of inflammatory cells can be seen here and here. Drill down on these.

What’s the finding?

**Dalen-Fuchs nodules** are inflammatory-cell aggregates between the RPE and Bruch’s. They are most strongly associated with two conditions: Vogt-Koyanagi-Harada syndrome (VKH) and sympathetic ophthalmia (SO).
This space is artifactual—pretend these two layers are touching.

Before we begin—take note.
We’re looking at four basic structures here:
--[the one marked by the bracket]
--?
--?
--?
We’re looking at four basic structures here:
-- The neurosensory (NS) retina
-- ?
-- ?
-- ?
We’re looking at four basic structures here:
-- The neurosensory (NS) retina
-- [the asterisks]
-- ?
-- ?
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--?
--?
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--*the arrows*
--?
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--?
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--[the bracket]
We’re looking at four basic structures here:
-- The neurosensory (NS) retina
-- The vitreous
-- The RPE
-- The choroid
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid

As for what’s going on here, let’s take note of the following:
--If we take the NS retina from **here** to **here** as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (**arrowheads**).
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid

As for what’s going on here, let’s take note of the following:

--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

What’s the diagnosis?
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with **three words**.

**Pathwatching**
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD.

What’s the diagnosis?
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the retina.
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish...we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

Lattice degeneration is a common condition that may be associated with rhegmatogenous RD.
Its chief features are atrophy of the inner retina.

What’s the diagnosis?
We’re looking at four basic structures here:
-- The neurosensory (NS) retina
-- The vitreous
-- The RPE
-- The choroid

As for what’s going on here, let’s take note of the following:
-- If we take the NS retina from here to here as being normal-ish... we can see that from here to here it is thin-to-very-thin.
-- The vitreous is attached to the area of thinned retina at its edges (arrowheads).
-- The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the 

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**What’s the diagnosis?**

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We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid

As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD.

Its chief features are atrophy of the inner retina (including absence of the ILM).
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid

As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of vitreous

*What’s the diagnosis?*
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).
Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquified vitreous
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish...we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD.
Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquified vitreous; and the firm adherence of vitreous at the outer boundary of the area.
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid
As for what’s going on here, let’s take note of the following:
--If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
--The vitreous is attached to the area of thinned retina at its edges (arrowheads).
--The vitreous directly overlying the thinned area is devoid of normal strands (asterisks).

Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquified vitreous; and the firm adherence of vitreous at the outer boundary of the area.
We’re looking at four basic structures here:
--The neurosensory (NS) retina
--The vitreous
--The RPE
--The choroid

As for what’s going on here, let’s take note of the following:

- If we take the NS retina from here to here as being normal-ish…we can see that from here to here it is thin-to-very-thin.
- The vitreous is attached to the area of thinned retina at its edges (arrowheads).
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Focal retinal thinning attached to the V at its edges and associated with an overlying pocket of empty V is only one thing:

**Lattice degeneration** is a common condition that may be associated with rhegmatogenous RD. Its chief features are atrophy of the inner retina (including absence of the ILM); an overlying pocket of liquified vitreous; and the firm adherence of vitreous at the outer boundary of the area.

For more on lattice degeneration, see slide-set R36

**Pathwatching**

What’s the diagnosis?
Images Consisting of Wall-to-Wall Cells

These images are challenging because they lack context—no up or down; no natural edges—thus making it difficult to know what the tissue is. That being said, if you’re expected to work with such an image, *it will contain a field mark that gives its identity away*. Know the mark, know the diagnosis!
Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: [text box].
Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
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--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout.
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Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here
Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example.
Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.
Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?
Pathwatching

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland.
Pathwatching

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--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland
Pathwatching

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is

painless
Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.

What’s the diagnosis?

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.

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Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.

Slightly more common in men.

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.

Slightly more common in M vs F.
Pathwatching

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. It is **painless**. Slightly more common in **men**.
Pathwatching

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the range decade.
Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the 4th-5th decade.

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the 4th-5th decade.
Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.
Slightly more common in men. Presents in the 4th-5th decade. The tumor is enclosed in a pseudoencapsulated capsule.

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the 4th-5th decade. The tumor is...
Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the 4th-5th decade. The tumor is pseudoencapsulated.
Pathwatching

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. **It is painless**.
Slightly more common in men. Presents in the 4th-5th decade. **The tumor is pseudoencapsulated.**
Grows quickly v slowly
Pathwatching

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the 4th-5th decade. The tumor is pseudoencapsulated. Grows slowly.
Pathwatching

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

**Pleomorphic adenoma**, the most common epithelial tumor of the lacrimal gland. It is painless. Slightly more common in men. Presents in the 4th-5th decade. The tumor is pseudoencapsulated. Grows slowly. Progressive growth may excavate adjacent bone but does not erode it.
Pathwatching

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.
Slightly more common in men. Presents in the 4th-5th decade. The tumor is pseudoencapsulated.
Grows slowly. Progressive growth may excavate adjacent bone but does not erode it.

Note:
--The many glandular/tubular structures. For us eyedocs this suggests one tissue: The main lacrimal gland.
--The gland/tubule walls consist of two epi layers. This arrangement is consistently orderly throughout—look here, here, and here, for example. In short, there’s nothing here to suggest the chaotic, uncontrolled growth of a malignancy.

What’s the diagnosis?

Pleomorphic adenoma, the most common epithelial tumor of the lacrimal gland. It is painless.
Slightly more common in men. Presents in the 4th-5th decade. The tumor is pseudoencapsulated.
Grows slowly. Progressive growth may excavate adjacent bone but does not erode it.
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well.
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic.
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its 'Swiss cheese' appearance.
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.
This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?
Pathwatching

**What’s the diagnosis?**

**Adenoid cystic carcinoma** (ACC) is slightly more common in M vs F.

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese‘ appearance.
Pathwatching

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?

**Adenoid cystic carcinoma** (ACC) is slightly more common in women.
Pathwatching

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about # years.
Pathwatching

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese‘ appearance.

What’s the diagnosis?

**Adenoid cystic carcinoma** (ACC) is slightly more common in women. The median age at presentation is about 40 years.
Pathwatching

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?

**Adenoid cystic carcinoma** (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule.
Pathwatching

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?

**Adenoid cystic carcinoma** (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule.
Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical vs atypical.

What's the diagnosis?

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.
Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical.
Pathwatching

What’s the diagnosis?

Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical, and pain at presentation is common vs uncommon.

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese‘ appearance.
Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudcapsule. Bone erosion is typical, and pain at presentation is the rule.

Pathwatching

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?
Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical, and pain at presentation is the rule. Grows quickly vs slowly.

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.

What’s the diagnosis?
Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical, and pain at presentation is the rule. Grows rapidly.

What’s the diagnosis?

This tissue also forms glandular/tubular structures with lumen, and clearly represents the main lacrimal gland as well. However, instead of two well-ordered epi layers, the epi here is dense and chaotic. The multitude of small tubules is responsible for its ‘Swiss cheese’ appearance.
Adenoid cystic carcinoma (ACC) is slightly more common in women. The median age at presentation is about 40 years. ACC has no pseudocapsule. Bone erosion is typical, and pain at presentation is the rule. Grows rapidly.
Hopefully, the appearance of this image screams lymphoid to you.
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Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here's one*)
Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles *(here’s one)* with well-formed *(asterisks).*
Pathwatching

Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles *(here’s one)* with well-formed germinal centers *(asterisks).*
Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here’s one*) with well-formed germinal centers (*asterisks*).

*What’s the diagnosis?*
Pathwatching

Hopefully, the appearance of this image screams *lymphoid* to you. The tip-off is the presence of follicles (*here’s one*) with well-formed germinal centers (*asterisks*).

*What’s the diagnosis?*

Reactive lymphoid hyperplasia
This one should also bring to mind the word *lymphoid*. 
This one should also bring to mind the word *lymphoid*. However, note that its follicles (*arrows*) are much more haphazard-looking, and lack well-formed germinal centers.
Pathwatching

This one should also bring to mind the word *lymphoid*. However, note that its follicles (*arrows*) are much more haphazard-looking, and lack well-formed germinal centers.

What’s the diagnosis?
Pathwatching

This one should also bring to mind the word *lymphoid*. However, note that its follicles (*arrows*) are much more haphazard-looking, and lack well-formed germinal centers.

*What’s the diagnosis?*

**Lymphoma.** Most orbital lymphomas are non-Hodgkin B-cell tumors.
Pathwatching

This one should also bring to mind the word *lymphoid*. However, note that its follicles (*arrows*) are much more haphazard-looking, and lack well-formed germinal centers.

*What’s the diagnosis?*

**Lymphoma.** Most orbital lymphomas are non-Hogkins low-grade B-cell tumors.
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What’s the diagnosis?

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### TED vs NSOI

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### Pathwatching

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Pathwatching

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For comparison, here's TED involving the EOMs.
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### NSOI vs. TED

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Finally, and circling back as promised: If you said IgG4-related orbital disease (IgG4-ROD) or lymphoproliferative disease, give yourself a check as well.
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This field mark (arrow) is so difficult to see, I feel it would have to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of?
Pathwatching

This field mark (*arrow*) is so difficult to see, I feel it would **have** to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of? If you said ‘muscle fiber striations,’ good on ya. Now look at the slide in general and note both its disordered appearance and the large, heavily stained nuclei. What does *that* make you think of?
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What’s the diagnosis?
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What’s the diagnosis?

**Rhabdomyosarcoma** showing cross-striations (Z bands of actin-myosin complexes) within tumor cell cytoplasm
Rhabdomyosarcoma showing cross-striations (Z bands of actin-myosin complexes) within tumor cell cytoplasm.

Pathwatching

This field mark (arrow) is so difficult to see, I feel it would have to be pointed out on the OKAP. Look very carefully at it, then think way back to med school Path—what does it remind you of? ‘Muscle fiber striations,’ right? Now look at the slide in general appearance and what does that make you think of? If you said malignancy, bingo. Now put your Ophtho hat back on—what sort of malignancy is this?

For more on rhabdo, see slide-sets P15 and O13

What’s the diagnosis?

Rhabdomyosarcoma showing cross-striations (Z bands of actin-myosin complexes) within tumor cell cytoplasm.
The field mark (*arrows*) for this condition is best remembered by describing it—’they are ___________, and they ___________.’
Pathwatching

The field mark *(arrows)* for this condition is best remembered by describing it—’they are broad, and they branch.’
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Pathwatching

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What’s the diagnosis?

Aspergillus infection showing broad branching fungal hyphae
Aspergillus infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

-- ? aspergillosis
-- ? aspergillosis
-- ? aspergillosis

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Orbital aspergillosis comes in three forms:

- Invasive aspergillosis
- Noninvasive aspergillosis
- Allergic aspergillosis

What’s the diagnosis?

Aspergillus infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms: --Invasive aspergillosis --Noninvasive aspergillosis --Allergic aspergillosis

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Aspergillus infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:
--Invasive aspergillosis: An infectious condition in immunocompromised pts
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Aspergillus infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

--- *Invasive* aspergillosis: An infectious condition in immunocompromised pts
--- *Noninvasive* aspergillosis
--- *Allergic* aspergillosis

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Orbital aspergillosis comes in three forms:

- Invasive aspergillosis: An infectious condition in immunocompromised pts
- Noninvasive aspergillosis: Characterized by the presence of an aspergilloma (aka a ‘fungal ball’)
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**Pathwatching**

*Aspergillus* infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

--- **Invasive aspergillosis:** An infectious condition in immunocompromised pts
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--- **Allergic aspergillosis:** As named. Pts are usually atopic

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**What’s the diagnosis?**

*Aspergillus* infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

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Aspergillus infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

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**Pathwatching**

For more on aspergillosis, see slide-set U9

What’s the diagnosis?

*Aspergillus* infection showing broad branching fungal hyphae. Orbital aspergillosis comes in three forms:

-- *Invasive* aspergillosis: An infectious condition in immunocompromised pts

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The striking thing about this mass is that it is comprised chiefly of numerous large spaces. That’s all you need to know to ID it.
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What’s the diagnosis?
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What’s the diagnosis?

Cavernous hemangioma (aka three words)
The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That’s all you need to know to ID it.

What’s the diagnosis?

**Cavernous hemangioma** (aka *cavernous venous malformation*)
The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That’s all you need to know to ID it.

**What’s the diagnosis?**

**Cavernous hemangioma** (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults.
The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That's all you need to know to ID it.

What's the diagnosis?

**Cavernous hemangioma** (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults.
The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That’s all you need to know to ID it.

What’s the diagnosis?

Cavernous hemangioma (aka cavernous venous malformation) is the most common primary orbital lesion in adults (usually the 4th to 5th decade).
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**Cavernous hemangioma** (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults (usually the 4th to 5th decade).
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What’s the diagnosis?

Cavernous hemangioma (aka cavernous venous malformation) is the most common primary orbital lesion in adults (usually the 4th to 5th decade). More common in women than men.
Pathwatching

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The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That’s all you need to know to ID it.

What’s the diagnosis?

Cavernous hemangioma (aka cavernous venous malformation) is the most common primary orbital lesion in adults (usually the 4th to 5th decade). More common in women. Presents with slowly vs rapidly progressive and painful vs painless proptosis.
The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That’s all you need to know to ID it.

What’s the diagnosis?

**Cavernous hemangioma** (aka *cavernous venous malformation*) is the most common primary orbital lesion in adults (usually the 4th to 5th decade). More common in women. Presents with slowly progressive and painless proptosis.
The striking thing about this mass is that it is comprised chiefly of numerous large blood-filled spaces. That’s all you need to know to ID it.

For more on cavernous hemangioma, see slide-set O10

What’s the diagnosis?

Cavernous hemangioma (aka cavernous venous malformation) is the most common primary orbital lesion in adults (usually the 4th to 5th decade). More common in women. Presents with slowly progressive and painless proptosis.
There is a classic finding here of a high-profile ophthalmic condition—can you find it?
There is a classic finding here of a high-profile ophthalmic condition—can you find it? **This** is it.
Pathwatching

What's the diagnosis?

There is a classic finding here of a high-profile ophthalmic condition—can you find it? This is it.
There is a classic finding here of a high-profile ophthalmic condition—can you find it? This is it.

What's the diagnosis?

two words rosettes in disease.
Flexner-Wintersteiner rosettes in retinoblastoma (Rb).
There is a classic finding here of a high-profile ophthalmic condition—can you find it? This is it.

What’s the diagnosis?

Flexner-Wintersteiner rosettes in retinoblastoma (Rb) is vs is not pathognomonic for Rb
What’s the diagnosis?

Flexner-Wintersteiner rosettes in retinoblastoma (Rb). Not pathognomonic for Rb.
Flexner-Wintersteiner rosettes in retinoblastoma (Rb). Not pathognomonic for Rb, but they are only rarely found in other general cell type tumors.

What’s the diagnosis?

There is a classic finding here of a high-profile ophthalmic condition—can you find it? This is it.
Flexner-Wintersteiner rosettes in retinoblastoma (Rb). Not pathognomonic for Rb, but they are only rarely found in other neuroblastic tumors.
Flexner-Wintersteiner rosettes in retinoblastoma (Rb). Not pathognomonic for Rb, but they are only rarely found in other neuroblastic tumors. Represents differentiation of the tumor, ie, an attempt to form mature retinal tissue.
Flexner-Wintersteiner rosettes in retinoblastoma (Rb). Not pathognomonic for Rb, but they are only rarely found in other neuroblastic tumors. Represents differentiation of the tumor, ie, an attempt to form mature retinal tissue.

What’s the diagnosis?

Pathwatching

There is a classic finding here of a high-profile ophthalmic condition—can you find it? This is it.
Flexner-Wintersteiner rosettes in retinoblastoma (Rb). Not pathognomonic for Rb, but they are only rarely found in other neuroblastic tumors. Represents differentiation of the tumor, ie, an attempt to form mature retinal tissue.

What’s the diagnosis?

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What’s the diagnosis?

Flexner-Wintersteiner rosettes in retinoblastoma (Rb).
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it?
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? **Here it is.**
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

rosettes in retinoblastoma (Rb) .
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

Homer Wright rosettes in retinoblastoma (Rb).
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

Homer Wright rosettes in retinoblastoma (Rb) is not pathognomonic for Rb
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

Homer Wright rosettes in retinoblastoma (Rb). Not pathognomonic for Rb
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

Homer Wright rosettes in retinoblastoma (Rb). Not pathognomonic for Rb; they are found in other general cell type tumors.
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

**Homer Wright rosettes** in **retinoblastoma** (Rb). Not pathognomonic for Rb; they are found in other neuroblastic tumors.
Pathwatching

Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

Homer Wright rosettes in retinoblastoma (Rb). Not pathognomonic for Rb; they are found in other neuroblastic tumors. Also represents tumor process.
Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.

What’s the finding?

**Homer Wright rosettes** in **retinoblastoma** (Rb). Not pathognomonic for Rb; they are found in other neuroblastic tumors. Also represents tumor differentiation.
Pathwatching

Homer Wright rosettes in retinoblastoma (Rb). Not pathognomonic for Rb; they are found in other neuroblastic tumors. Also represents tumor differentiation.

Note a defining attribute of the HW rosette—the [two words] at its center.

(Another important factoid.)

What’s the finding?

Another classic Rb finding (albeit neither as infamous nor as easy to spot as F-W rosettes) is depicted here—can you spot it? Here it is.
Homer Wright rosettes in retinoblastoma (Rb). Not pathognomonic for Rb; they are found in other neuroblastic tumors. Also represents tumor differentiation.
Pathwatching

F-W rosette: Empty central lumen

HW rosette: Neurofibrillary tangle centrally

Flexner-Wintersteiner vs Homer Wright rosettes
A third classic finding Rb, less infamous and spot-able still—see it?
A third classic finding Rb, less infamous and spot-able still—see it? Here it is.
Pathwatching

A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding's shape is ‘bulbous.’
A third classic finding Rb, less infamous and spot-able still—see it? **Here** it is. The classic descriptor of this finding's shape is ‘bulbous.’
A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding's shape is 'bulbous.'
A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding's shape is ‘bulbous.’
Pathwatching

What’s the finding?

Fleurettes in retinoblastoma (Rb).

A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding’s shape is ‘bulbous.’
A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding’s shape is ‘bulbous.’

**What’s the finding?**

Fleurettes in retinoblastoma (Rb). Also represents tumor differentiation, specifically differentiation.
Pathwatching

Fleurettes in retinoblastoma (Rb). Also represents tumor differentiation, specifically photoreceptor differentiation.

A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding's shape is 'bulbous.'
Pathwatching

A third classic finding Rb, less infamous and spot-able still—see it? Here it is. The classic descriptor of this finding's shape is 'bulbous'.

For more on Rb, see slide-set R2

What's the finding?

Fleurettes in retinoblastoma (Rb). Also represents tumor differentiation, specifically photoreceptor differentiation.
Another set of classic findings that must become readily recognizable.
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, two words.
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a fancy word of two names for one cell type.
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages.
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Note:
--Crucially: *This is not* the giant cell...
Note:
--Crucially: *This is not* the giant cell... *This is*

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.
Note:
--Crucially: *This is not* the giant cell... *This is*
--located ring of nuclei

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.
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Note:
--Crucially: This is not the giant cell...This is
--Central ring of nuclei
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Note:
--Crucially: *This is not* the giant cell... *This is*
--Central ring of nuclei
--A surrounding donut of lipid
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

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**Touton** giant cell

Touton giant cells are most closely associated with two words.

--- Central ring of nuclei

--- A surrounding donut of lipid
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

**Touton giant cell**

Touton giant cells are most closely associated with juvenile xanthogranuloma (JXG).

- Central ring of nuclei
- A surrounding donut of lipid
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

**Touton** giant cell

Touton giant cells are most closely associated with juvenile xanthogranuloma (JXG). However, they are also associated with xanthogranuloma dz.

-Central ring of nuclei
--A surrounding donut of lipid
Pathwatching

Touton giant cell

Touton giant cells are most closely associated with juvenile xanthogranuloma (JXG). However, they are also associated with adult-onset xanthogranuloma dz.

- Central ring of nuclei
- A surrounding donut of lipid

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.
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**Touton giant cell**

Note:
--Crucially: *This is not* the giant cell... *This is*
--Central ring of nuclei
--A surrounding donut of lipid

Note:
--- location ring of nuclei
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.
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**Touton giant cell**

Note:
--Crucially: *This is not* the giant cell... *This* is
--Central ring of nuclei
--A surrounding donut of lipid

Note:
--Peripheral ring of nuclei
(often in a shape)

---
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

**Touton giant cell**

Note:
--Crucially: *This is not* the giant cell... *This is*
--Central ring of nuclei
--A surrounding donut of lipid

Note:
--Peripheral ring of nuclei
(often in a horseshoe)
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

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**What’s the finding?**

**Touton** giant cell

Note:
--Crucially: *This is not* the giant cell... *This is*
--Central ring of nuclei
--A surrounding donut of lipid

**Langhans** giant cell

Note:
--Peripheral ring of nuclei (often in a horseshoe)
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

**Touton giant cell**

**Langhans giant cell**

Note:
--Crucially: *This* is not the giant cell... *This* is
--Central ring of nuclei
--A surrounding donut of lipid

Langhans giant cells are associated with infectious etiologies, one of particular note being **Abb.**
Pathwatching

**Touton** giant cell

**Langhans** giant cell

Note:
--Crucially: *This is not* the giant cell...
--Central ring of nuclei
--A surrounding donut of lipid

Langhans giant cells are associated with infectious etiologies, one of particular note being TB

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A *giant cell*, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.
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**Touton giant cell**

Note:
--Crucially: *This* is **not** the giant cell... *This* is
--Central ring of nuclei
--A surrounding donut of lipid

**Langhans giant cell**

Note:
--Peripheral ring of nuclei (often in a horseshoe)

Note:
--Central ring of nuclei
--A surrounding donut of lipid

---

**arrangement of nuclei**

**adjective**
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

**Touton giant cell**

Note:
--Crucially: *This is not* the giant cell... *This* is
--Central ring of nuclei
--A surrounding donut of lipid

**Langhans giant cell**

Note:
--Peripheral ring of nuclei
(often in a horseshoe)

Note:
--Haphazard arrangement of nuclei
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

What’s the finding?

**Touton giant cell**

Note:
--Crucially: *This is not* the giant cell… *This is*
--Central ring of nuclei
--A surrounding donut of lipid

**Langhans giant cell**

Note:
--Peripheral ring of nuclei (often in a horseshoe)

**? giant cell**

Note:
--Haphazard arrangement of nuclei
Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

What’s the finding?

**Touton** giant cell

Note:
--Crucially: *This is not* the giant cell... *This is*
--Central ring of nuclei
--A surrounding donut of lipid

**Langhans** giant cell

Note:
--Peripheral ring of nuclei
(often in a horseshoe)

**Foreign-body** giant cell

Note:
--Haphazard arrangement of nuclei
Pathwatching

Another set of classic findings that must become readily recognizable. First things first—in general terms, what does each image depict? A giant cell, which is just a syncytium of histiocytes/macrophages. Now comes the challenging part—IDing each giant-cell type. Let’s go through them.

For more on giant cells, see slide-set K20

Note:
--Crucially: This is not the giant cell... This is
--Central ring of nuclei
--A surrounding donut of lipid

Note:
--Peripheral ring of nuclei
(often in a horseshoe)

Note:
--Haphazard arrangement of nuclei

What’s the finding?
Another classic Path finding—what is it?
Another classic Path finding—what is it? It’s **this** ‘picket fence’ of cells *(arrows)* on the border of a large nest of similar-appearing cells.
Another classic Path finding—what is it? It's this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be **palisading**.
Another classic Path finding—what is it? It's this ‘picket fence’ of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’.
Another classic Path finding—what is it? It’s **this** ‘picket fence’ of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (*arrowheads*) between the palisading cells and the surrounding tissue.
Another classic Path finding—what is it? It’s this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (arrowheads) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What’s the diagnosis?
Another classic Path finding—what is it? It's this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (arrowheads) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

**What’s the diagnosis?**

**Basal cell carcinoma** (BCC) is the most common malignancy of the
What’s the diagnosis?

**Basal cell carcinoma** (BCC) is the most common malignancy of the eyelids.

Another classic Path finding—what is it? It’s this ‘picket fence’ of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (*arrowheads*) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:
Pathwatching

Another classic Path finding—what is it? It’s this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (arrowheads) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

What’s the diagnosis?

**Basal cell carcinoma** (BCC) is the most common malignancy of the eyelids. Sun exposure is a strong risk factor.
Another classic Path finding—what is it? It’s this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (arrowheads) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

**What’s the diagnosis?**

*Basal cell carcinoma* (BCC) is the most common malignancy of the eyelids. *Sun exposure* is a strong risk factor.
Basal cell carcinoma (BCC) is the most common malignancy of the eyelids. Sun exposure is a strong risk factor, and explains why the lower lid is more commonly affected.
Pathwatching

What’s the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids. Sun exposure is a strong risk factor, and explains why the lower lid is more commonly affected.

Another classic Path finding—what is it? It’s this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (arrowheads) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:
What's the diagnosis?

**Basal cell carcinoma** (BCC) is the most common malignancy of the eyelids. Sun exposure is a strong risk factor, and explains why the lower lid is more commonly affected. The clear spaces surrounding the tumor-cell islands are factitious.

Another classic Path finding—what is it? It’s **this** ‘picket fence’ of cells (*arrows*) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (*arrowheads*) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:
Pathwatching

Another classic Path finding—what is it? It’s this ‘picket fence’ of cells (arrows) on the border of a large nest of similar-appearing cells. In Path-speak the cells are said to be ‘palisading’. Note also the clear space (arrowheads) between the palisading cells and the surrounding tissue.

When you see palisading cells with a surrounding empty cleft like this, one diagnosis should come to mind:

**What’s the diagnosis?**

**Basal cell carcinoma** (BCC) is the most common malignancy of the eyelids. Sun exposure is a strong risk factor, and explains why the lower lid is more commonly affected. The clear spaces surrounding the tumor-cell islands are factitious.
Pathwatching

What's the diagnosis?

Basal cell carcinoma (BCC) is the most common malignancy of the eyelids. Sun exposure is a strong risk factor, and explains why the lower lid is more commonly affected. The clear spaces surrounding the tumor-cell islands are factitious (they arise during tissue processing).
These pics could easily be confused for one another, but the path they depict couldn’t be more different. What are they?
These pics could easily be confused for one another, but the path they depict couldn’t be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature.
These pics could easily be confused for one another, but the path they depict couldn’t be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature.
These pics could easily be confused for one another, but the path they depict couldn’t be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts…
These pics could easily be confused for one another, but the path they depict couldn’t be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts…the filamentous/mold form of the dimorphic fungus **Histoplasma capsulatum**.
These pics could easily be confused for one another, but the path they depict couldn’t be more different. **What are they?** The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts…the filamentous/mold form of the dimorphic fungus *Histoplasma capsulatum*. 
These pics could easily be confused for one another, but the path they depict couldn’t be more different. What are they? The pic on the left is a special prep that allows one to see diabetic microaneurysms of the retinal vasculature. The pic on the right depicts...the filamentous/mold form of the dimorphic fungus *Histoplasma capsulatum*. Take note of these strikingly similar images, lest you get fooled on an exam into thinking one is the other!
Pathwatching

All you’re told about this is it’s a vitreous biopsy.
All you’re told about this is it’s a vitreous biopsy.

In three words, what do you see?
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see?* **Big blue cells**
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:

--?
--?
--?
--?
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:

-- Scant (arrowhead)
-- ?
-- ?
-- ?
Pathwatching

All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:

--Scant cytoplasm (*arrowhead*)
--?
--?
--?
Pathwatching

All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:

-- Scant cytoplasm *(arrowhead)*
-- Smudge cells *(arrows)*
-- ?
-- ?
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:
-- Scant cytoplasm (*arrowhead*)
-- Smudge cells (*arrows*)
-- ?
-- ?
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:
--Scant cytoplasm (*arrowhead*)
--Smudge cells (*arrows*)
--Hyperchromatic?

*Pathwatching*
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see?** Big blue cells

Note that these BBCs demonstrate several worrisome characteristics:
--Scant cytoplasm *(arrowhead)*
--Smudge cells *(arrows)*
--Hyperchromatic nuclei
--?
All you’re told about this is it’s a vitreous biopsy.

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--Scant cytoplasm (*arrowhead*)
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

What’s the diagnosis?
All you’re told about this is it’s a vitreous biopsy. 

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--Scant cytoplasm (*arrowhead*)
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

**Primary intraocular lymphoma** (PIOL) is an uncommon vs a very common vs a very rare malignancy.
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*
Note that these BBCs demonstrate several worrisome characteristics:
--Scant cytoplasm (*arrowhead*)
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

**What’s the diagnosis?**

**Primary intraocular lymphoma** (PIOL) is an uncommon malignancy
All you’re told about this is it’s a vitreous biopsy.

In three words, what do you see? **Big blue cells**
Note that these BBCs demonstrate several worrisome characteristics:
-- Scant cytoplasm (**arrowhead**)
-- Smudge cells (**arrows**)
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-- Prominent nucleoli

When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

**What’s the diagnosis?**

**Primary intraocular lymphoma** (PIOL) is an uncommon malignancy. The vast majority are B-cell in origin.
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

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*What’s the diagnosis?*

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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

**What’s the diagnosis?**

**Primary intraocular lymphoma** (PIOL) is an uncommon malignancy. The vast majority are B-cell in origin. At least half of pts demonstrate CNS involvement.
All you’re told about this is it’s a vitreous biopsy.

In three words, what do you see? **Big blue cells**

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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

**What’s the diagnosis?**

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--Scant cytoplasm (*arrowhead*)
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

*What’s the diagnosis?*

**Primary intraocular lymphoma** (PIOL) is an uncommon malignancy. *The vast majority are B-cell in origin.* At least half of pts demonstrate CNS involvement. *The prognosis is poor.*
All you’re told about this is it’s a vitreous biopsy.

*In three words, what do you see? Big blue cells*

Note that these BBCs demonstrate several worrisome characteristics:
--Scant cytoplasm *(arrowhead)*
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When you see wonky BBCs on a vitreous biopsy, one dx should come to mind:

**What’s the diagnosis?**

*Primary intraocular lymphoma (PIOL) is an uncommon malignancy. The vast majority are B-cell in origin. At least half of pts demonstrate CNS involvement. The prognosis is poor.*