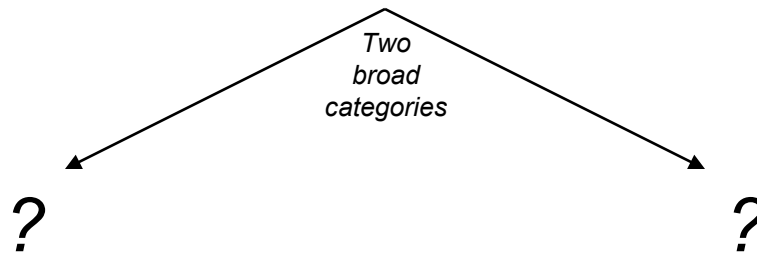
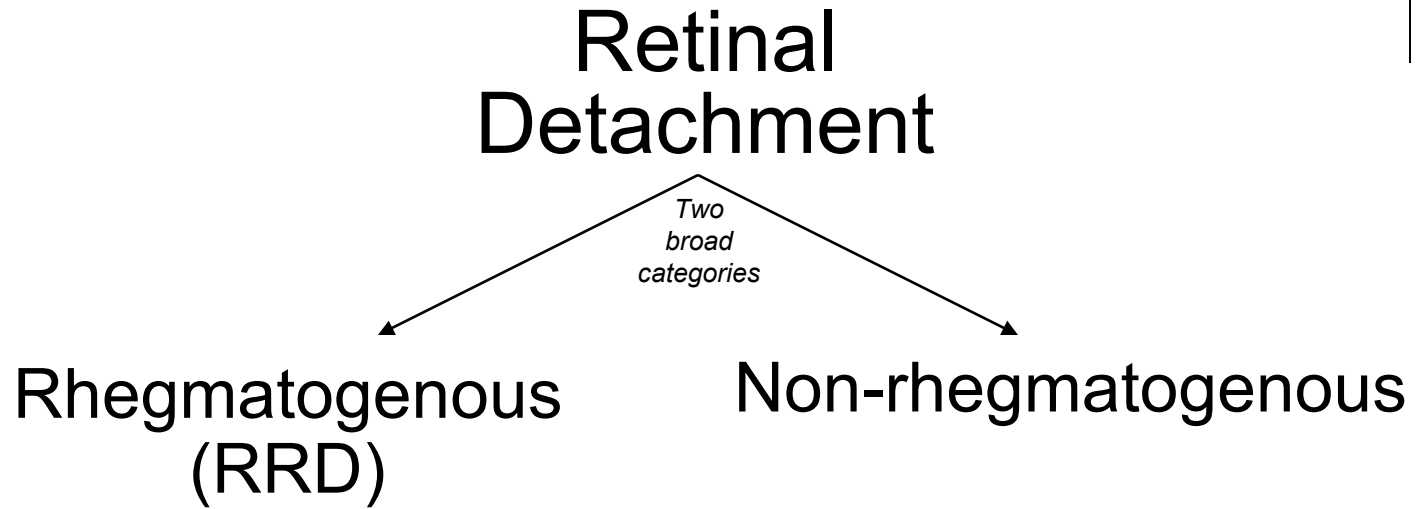
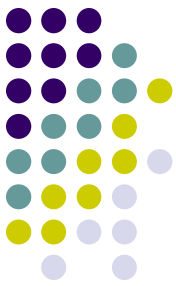
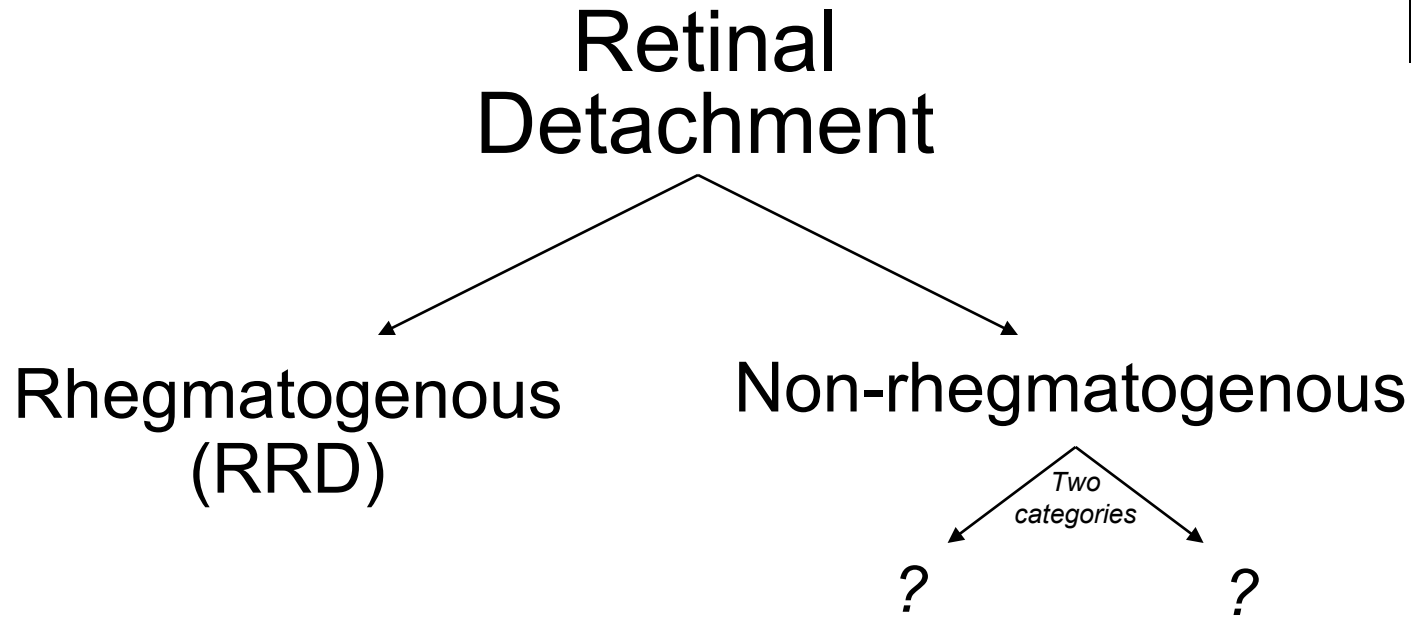
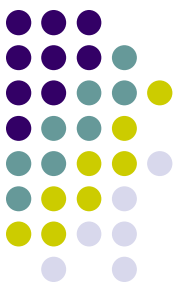


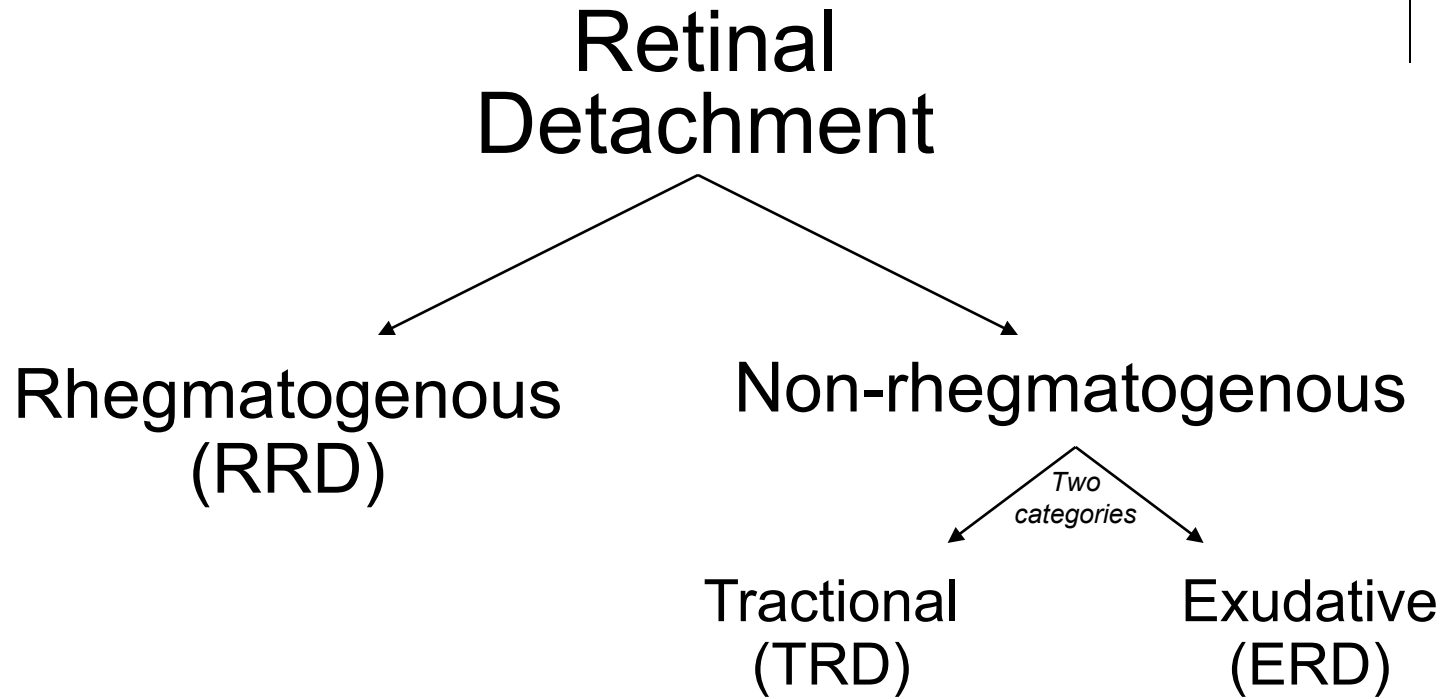
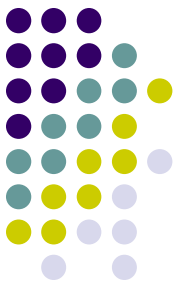
Retinal Detachment



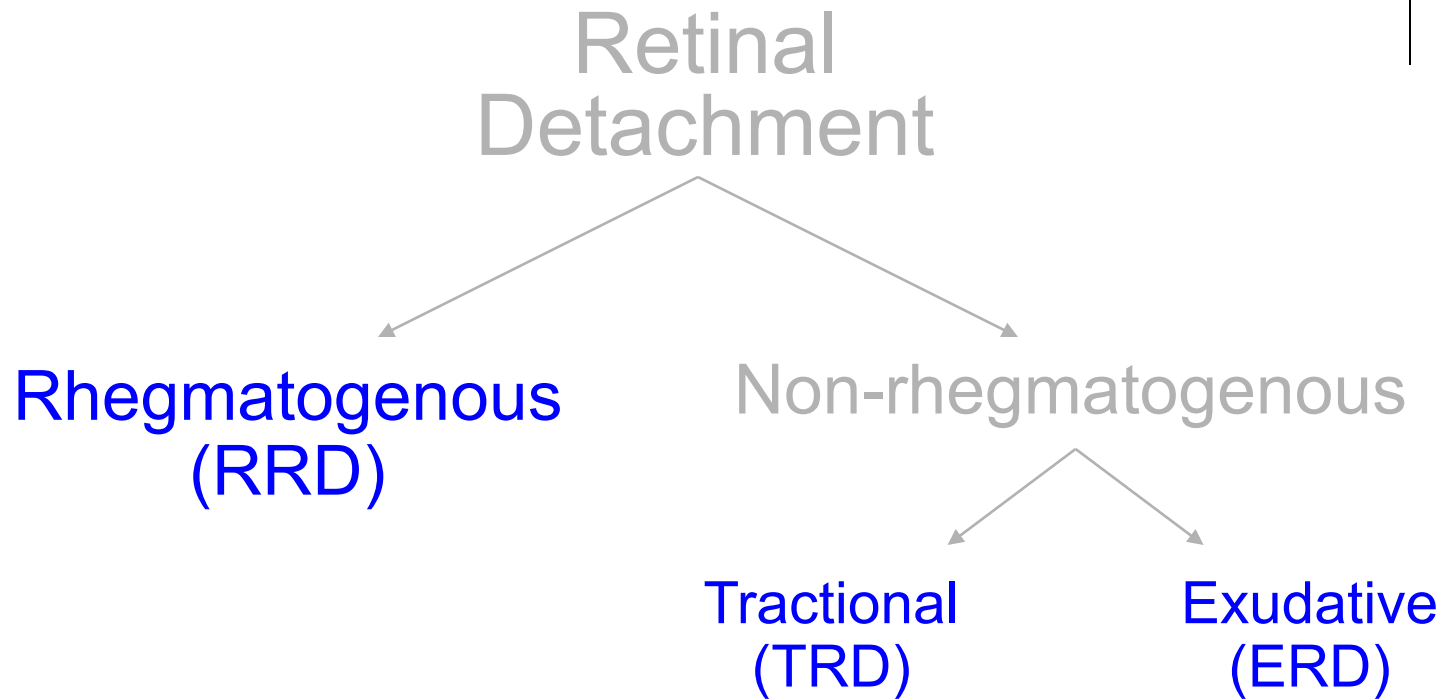
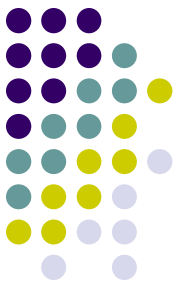


Retinal Detachment Overview

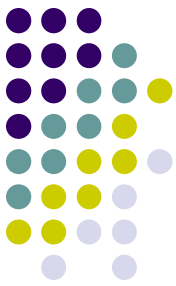




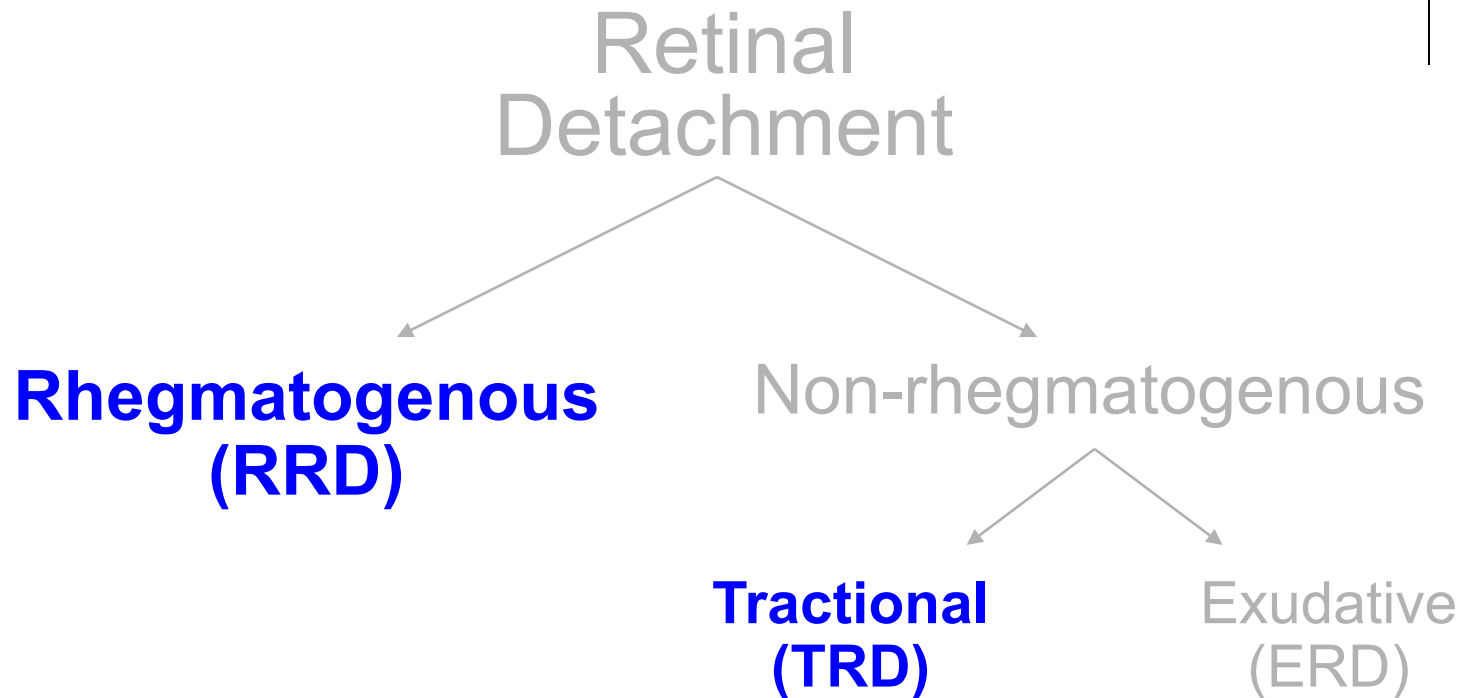
Retinal Detachment Overview



Which of these is/are associated with trauma?



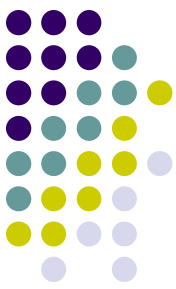
Retinal Detachment Overview



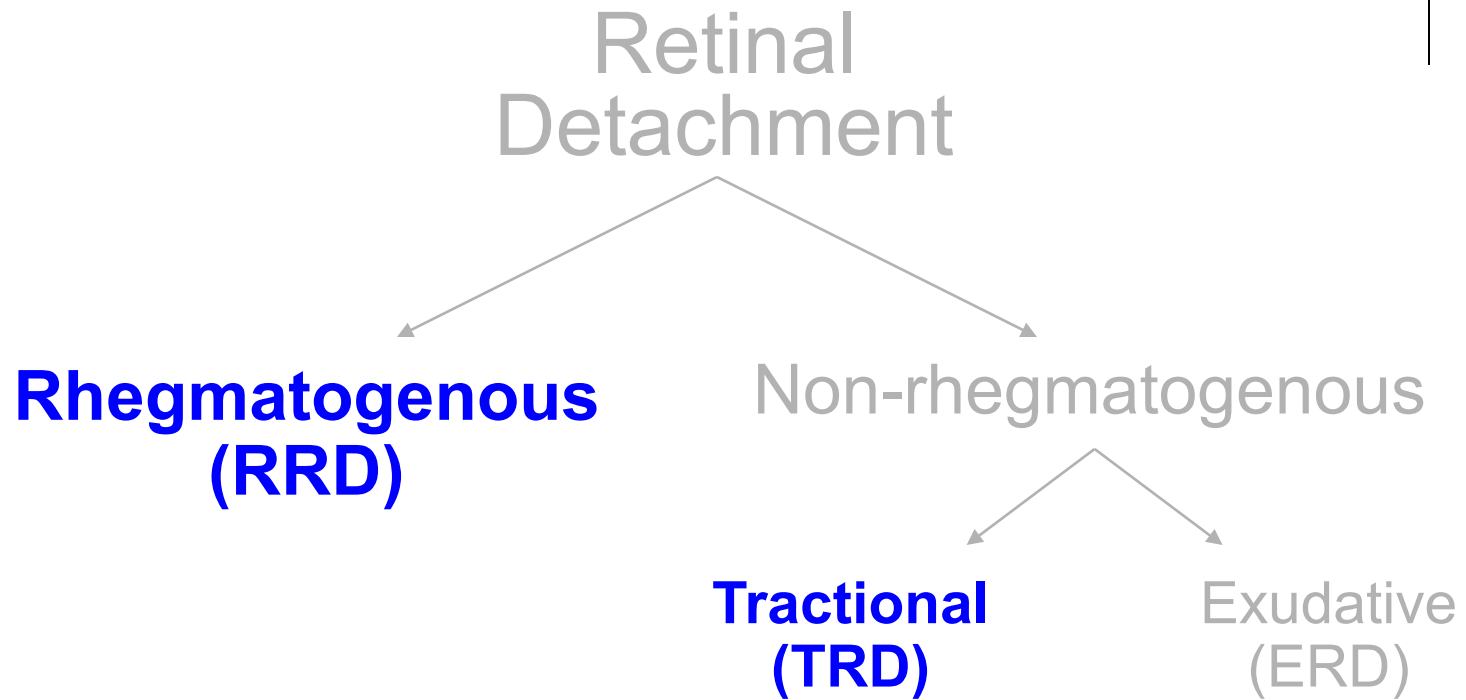
Which of these is/are associated with trauma?

Both RRD and TRD are associated with a history of trauma

Retinal Detachment Overview



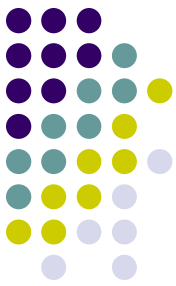
7



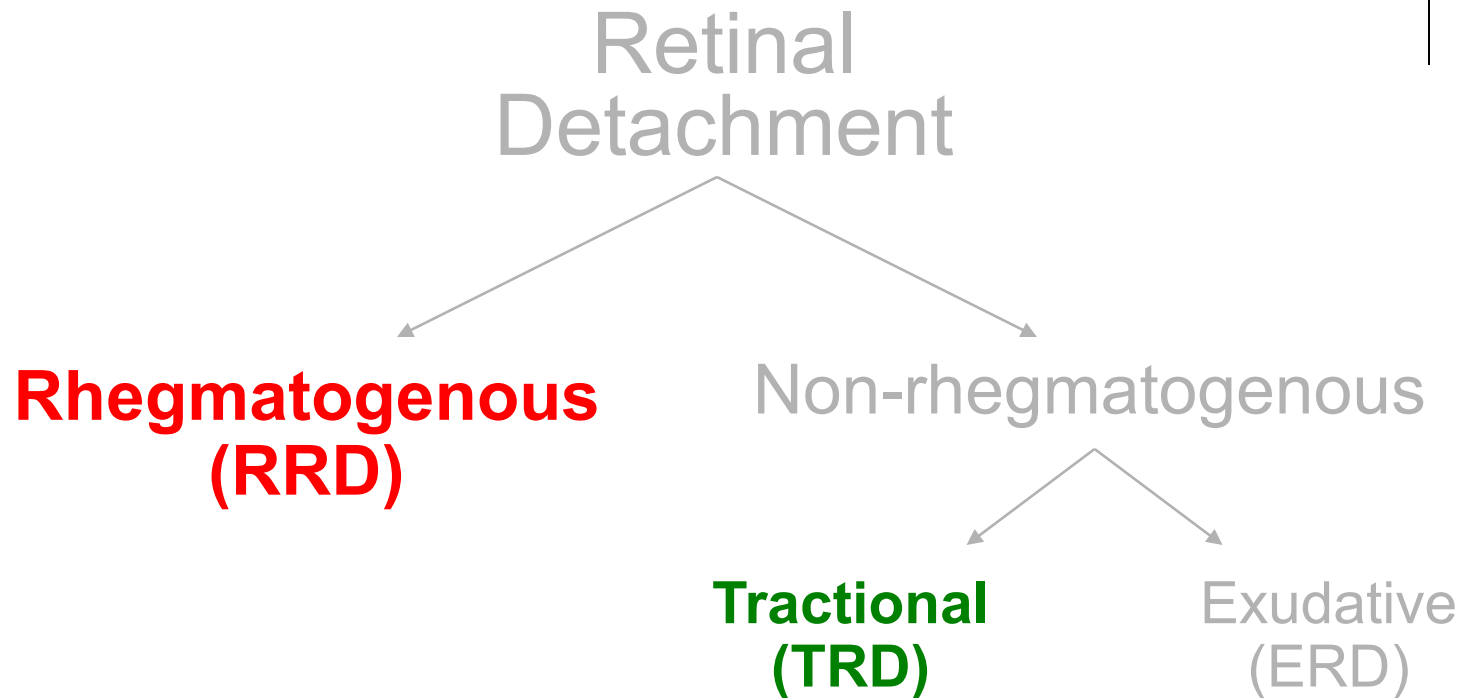
Which of these is/are associated with trauma?

Both RRD and TRD are associated with a history of trauma

Any differences in their respective trauma histories?



Retinal Detachment Overview

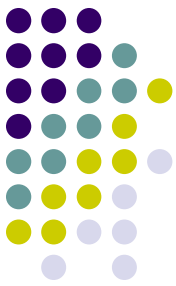


Which of these is/are associated with trauma?

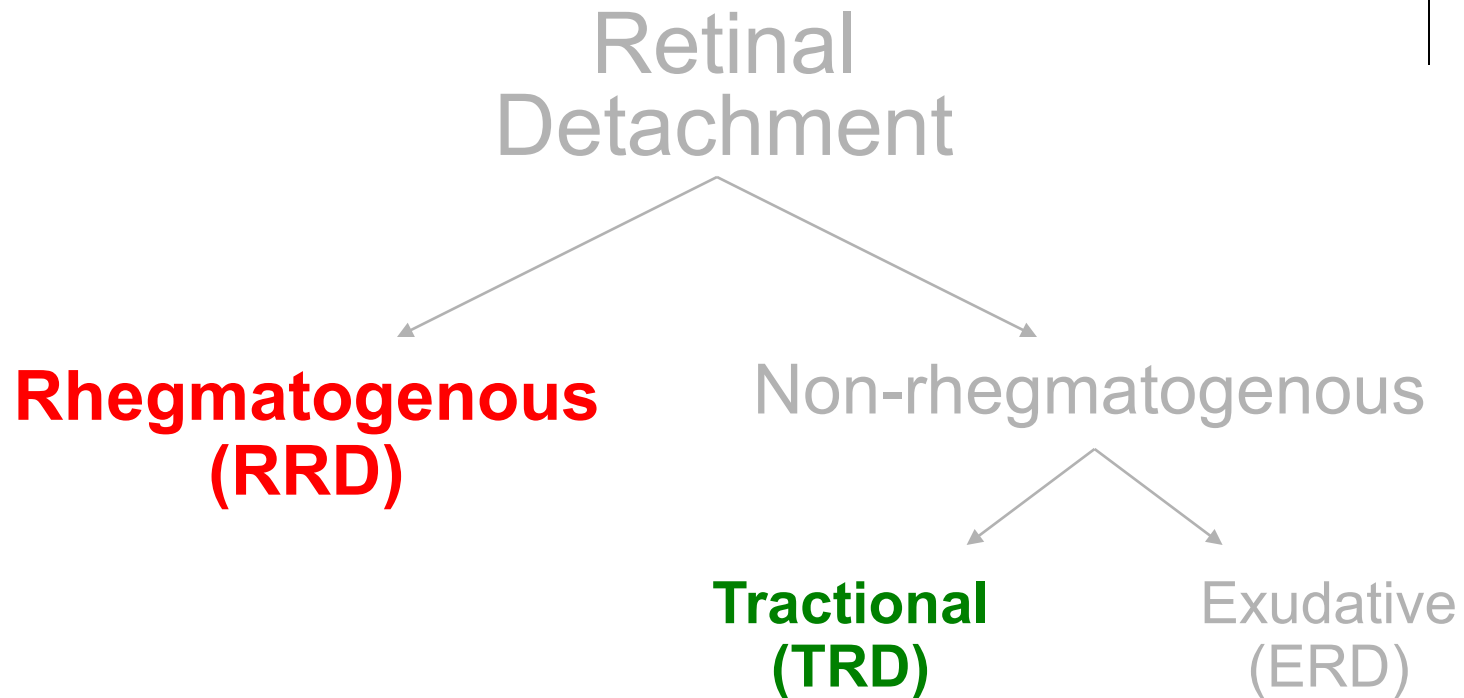
Both RRD and TRD are associated with a history of trauma

Any differences in their respective trauma histories?

Yes—RRD is associated with trauma, whereas TRD is associated with trauma



Retinal Detachment Overview

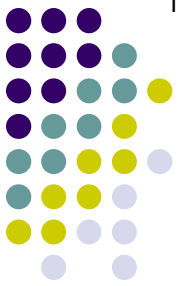


Which of these is/are associated with trauma?

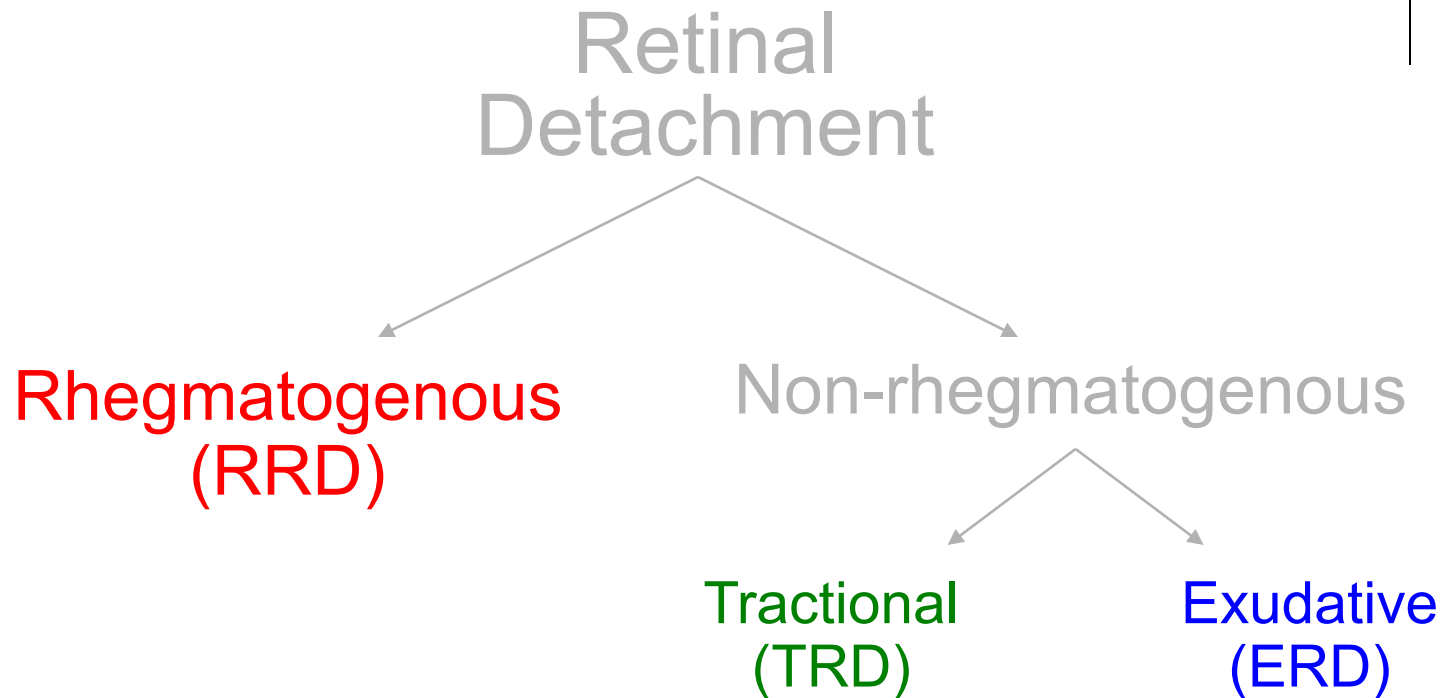
Both RRD and TRD are associated with a history of trauma

Any differences in their respective trauma histories?

Yes—RRD is associated with **blunt** trauma, whereas TRD is associated with **penetrating** trauma



Retinal Detachment Overview

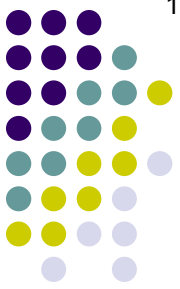


What are the classic ophthalmoscopic descriptors of each RD type?

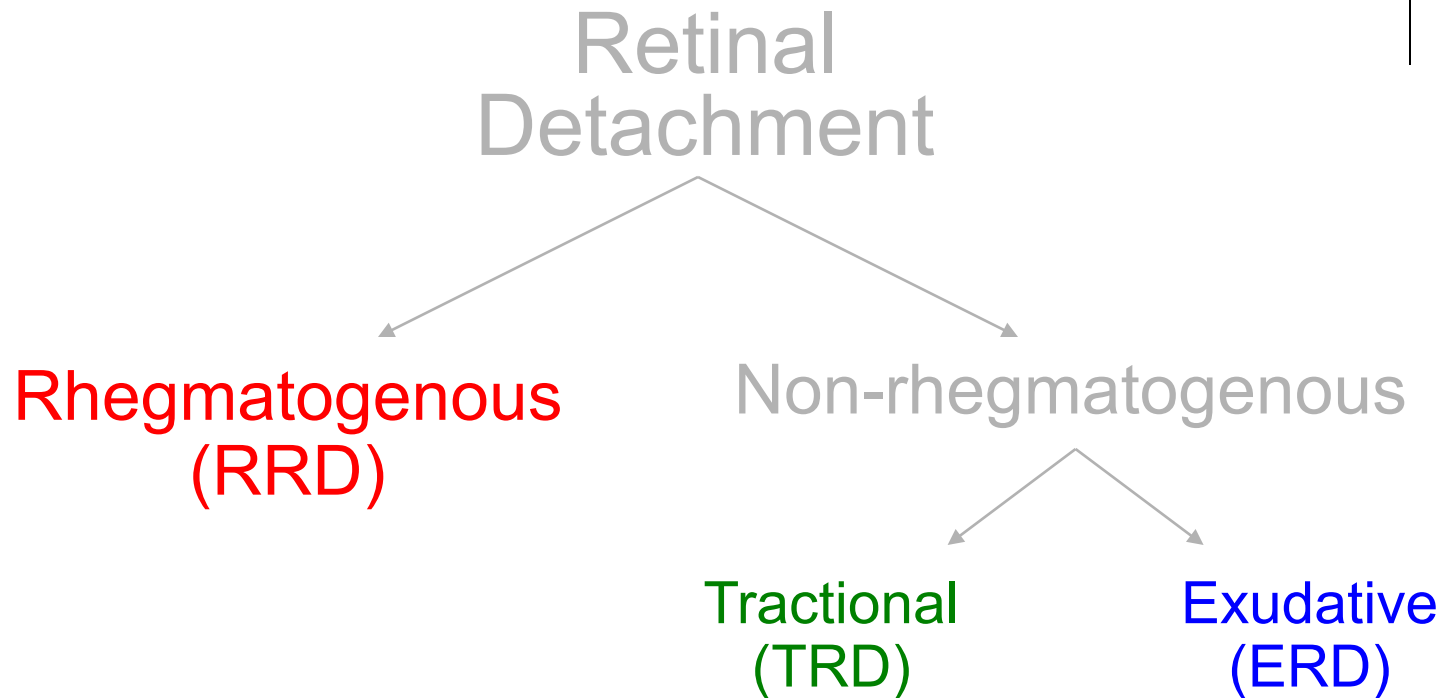
RRD: like a tin roof, like a belly dancer

TRD:

ERD:



Retinal Detachment Overview



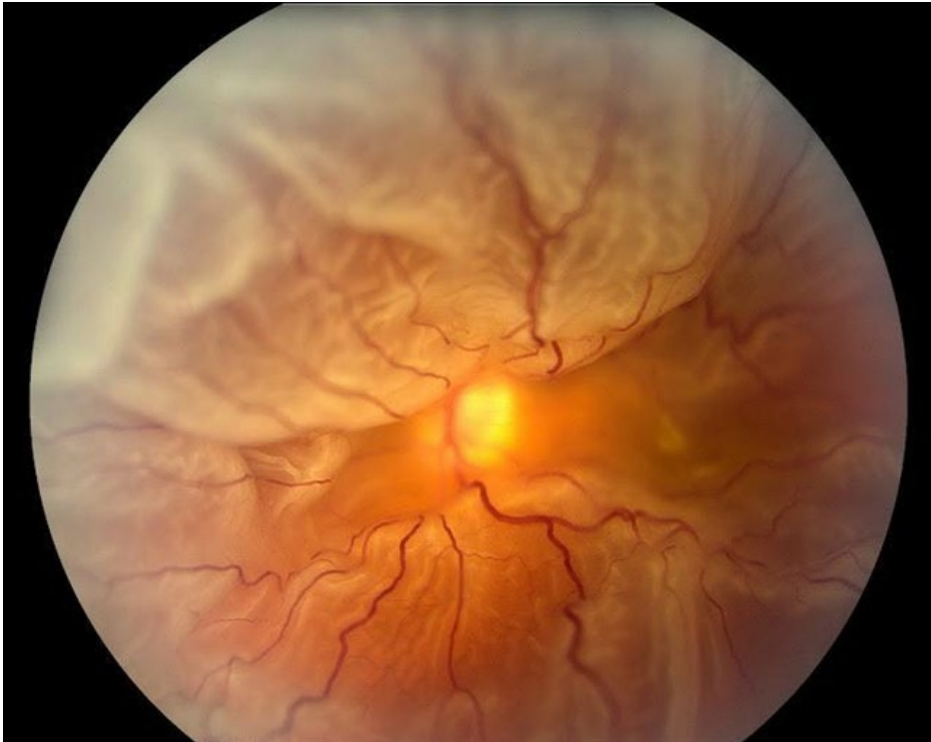
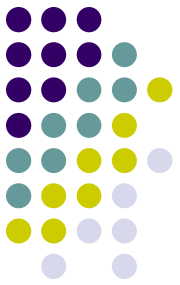
What are the classic ophthalmoscopic descriptors of each RD type?

RRD: Corrugated, undulating

TRD:

ERD:

Retinal Detachment Overview

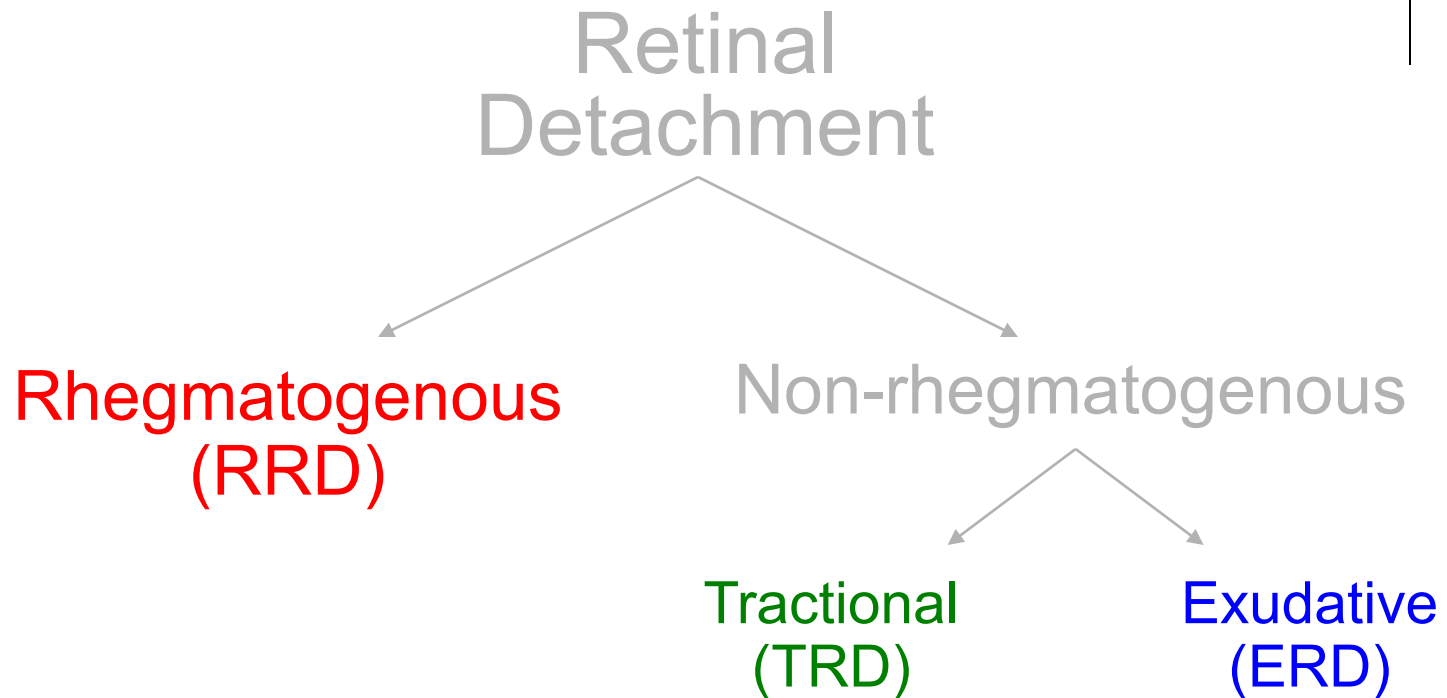


Rhegmatogenous RD





Retinal Detachment Overview

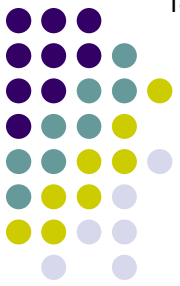


What are the classic ophthalmoscopic descriptors of each RD type?

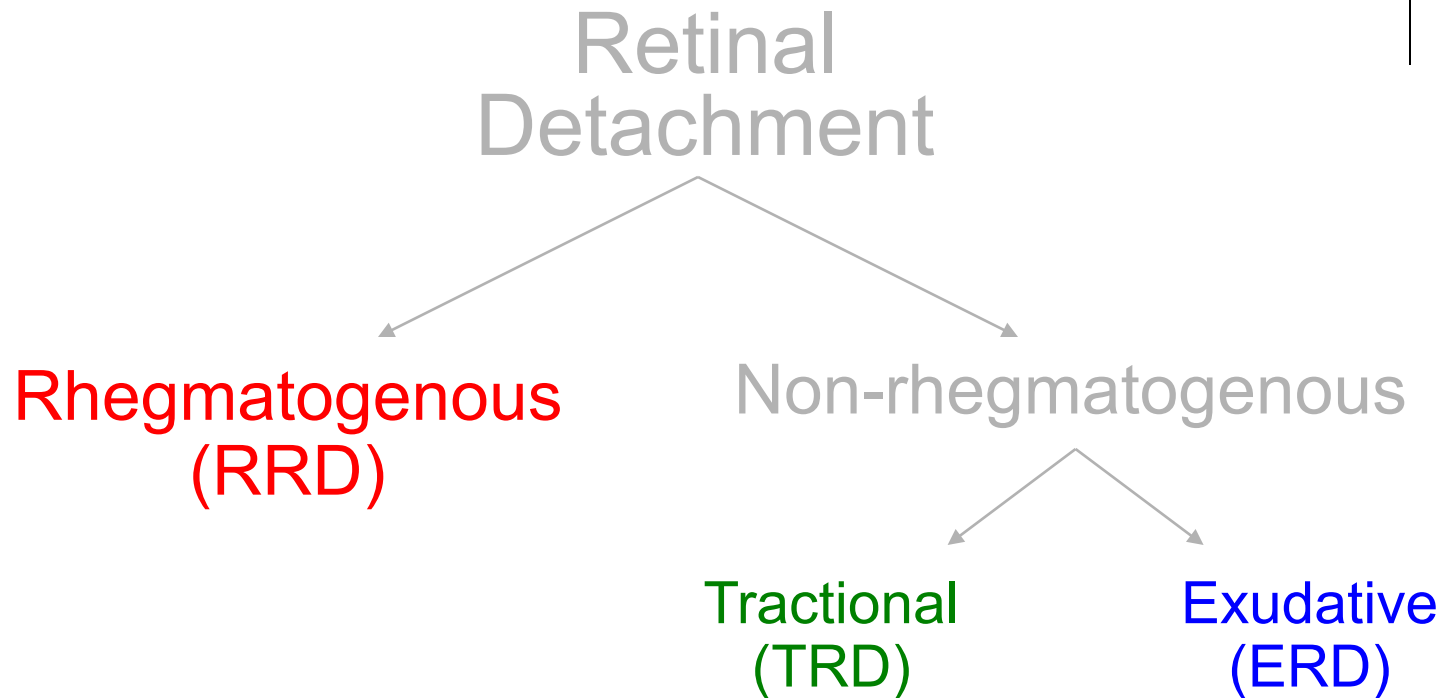
RRD: Corrugated, undulating

TRD: convex vs
concave,

ERD:



Retinal Detachment Overview



What are the classic ophthalmoscopic descriptors of each RD type?

RRD: Corrugated, undulating

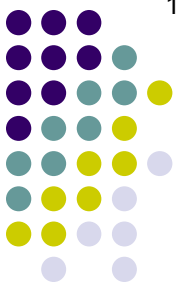
TRD: Concave, taut

ERD:

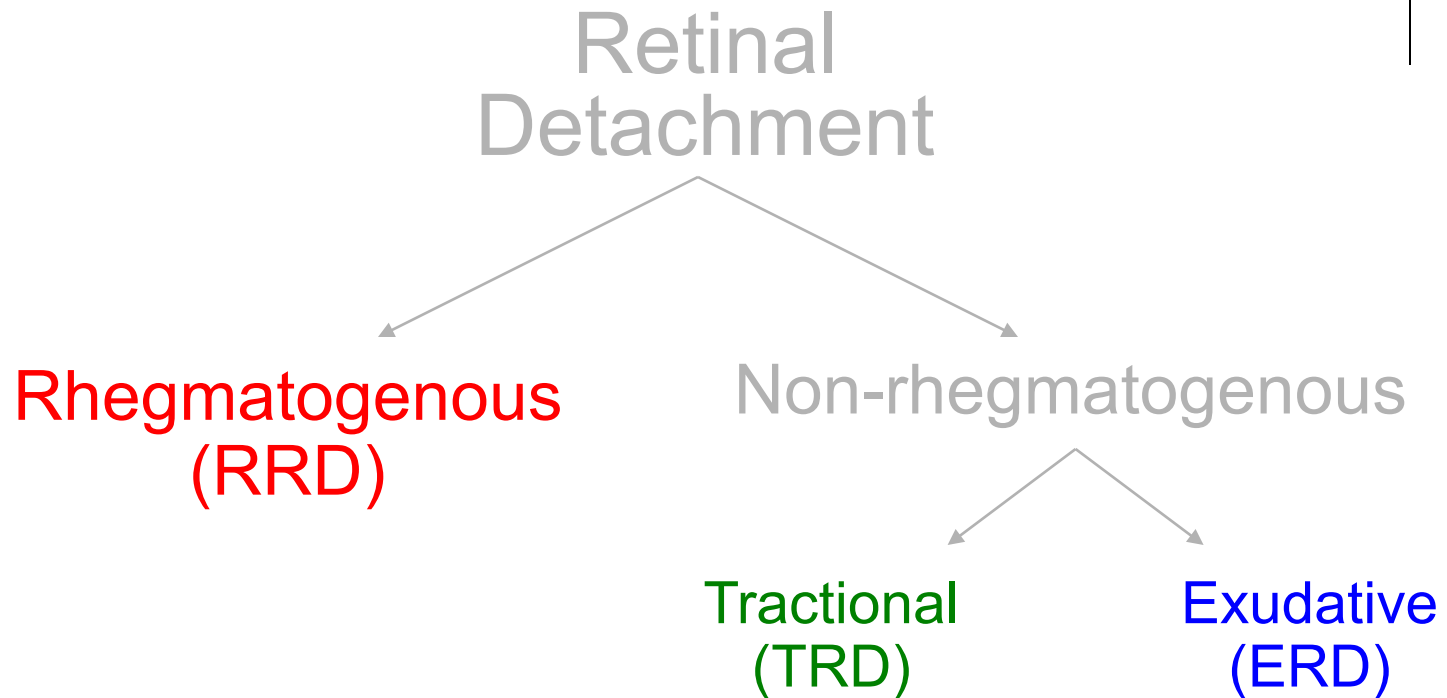
Retinal Detachment Overview



Tractional RD



Retinal Detachment Overview

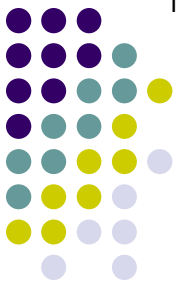


What are the classic ophthalmoscopic descriptors of each RD type?

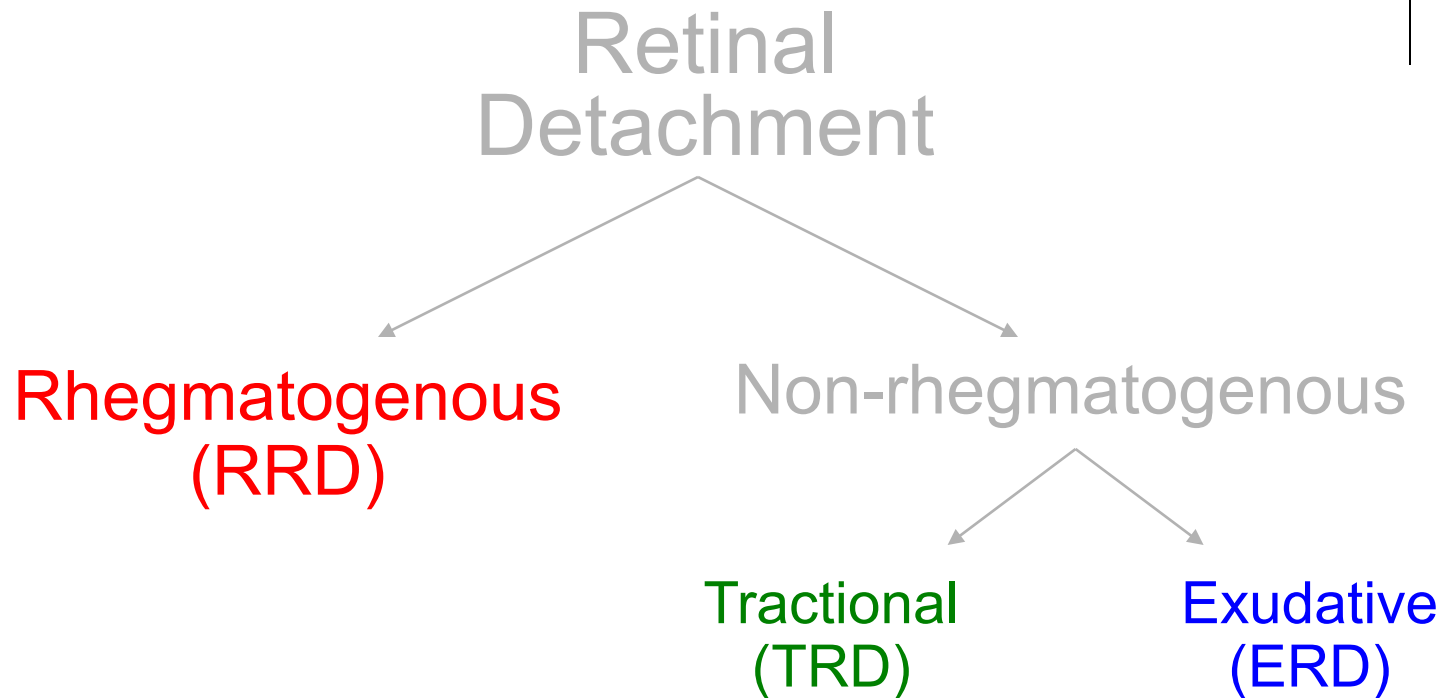
RRD: Corrugated, undulating

TRD: Concave, taut

ERD: something-shaped, something-dependent



Retinal Detachment Overview



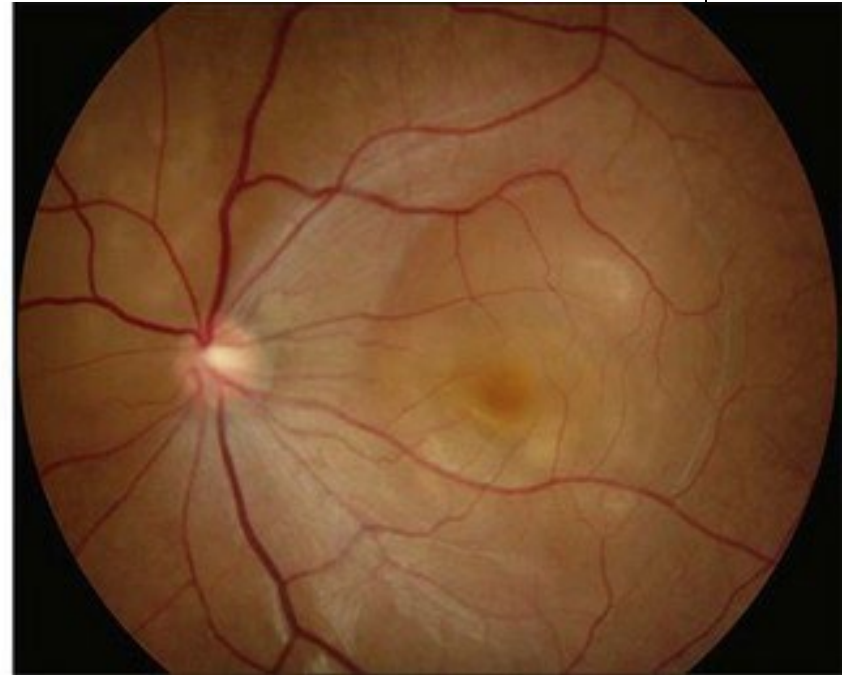
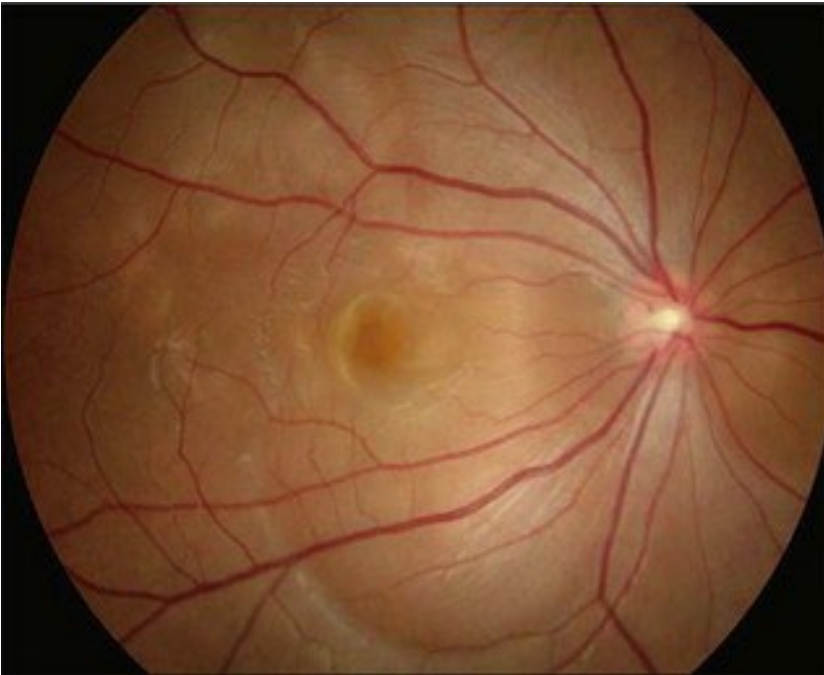
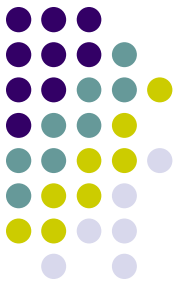
What are the classic ophthalmoscopic descriptors of each RD type?

RRD: Corrugated, undulating

TRD: Concave, taut

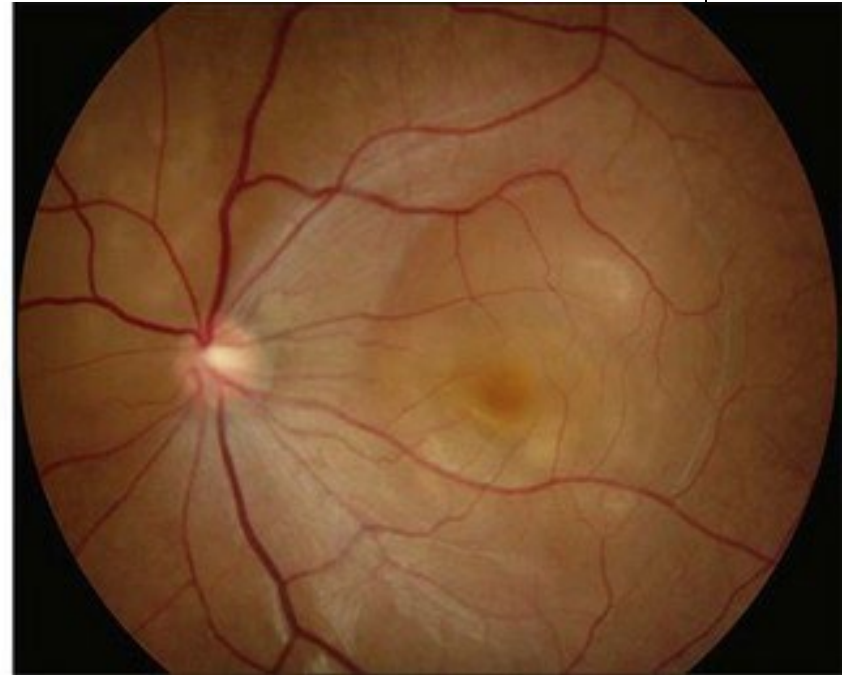
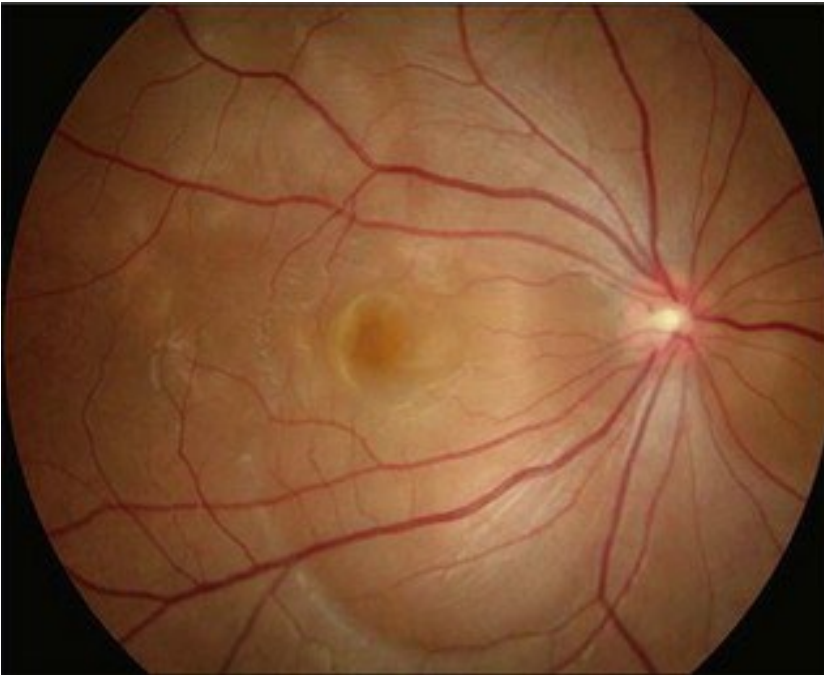
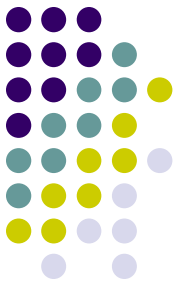
ERD: Dome-shaped, gravity-dependent

Retinal Detachment Overview



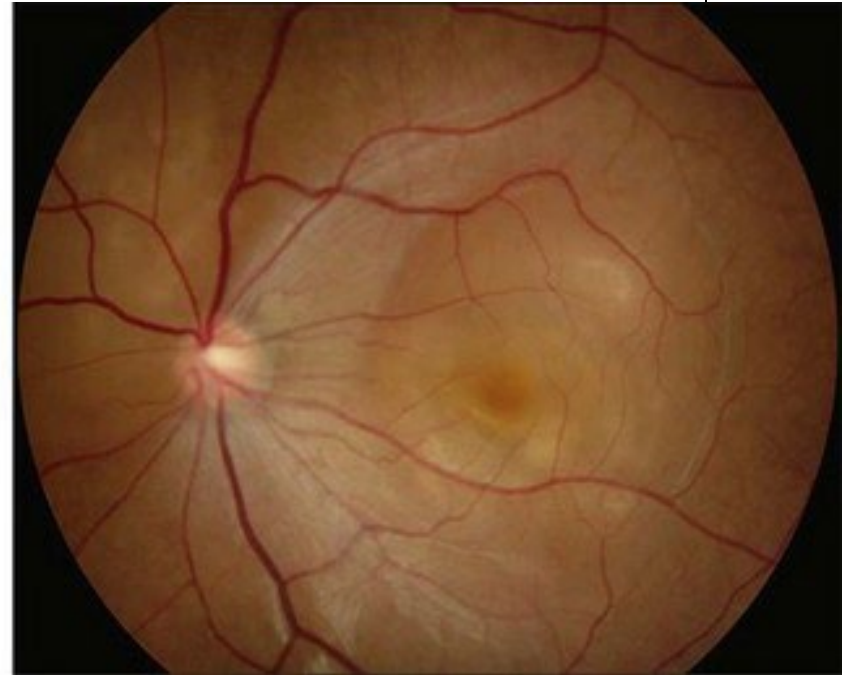
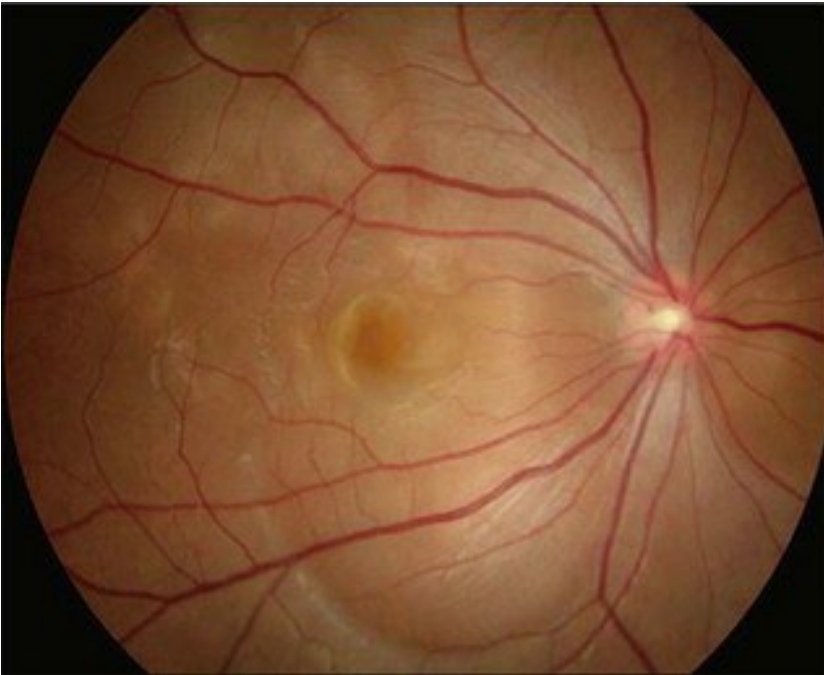
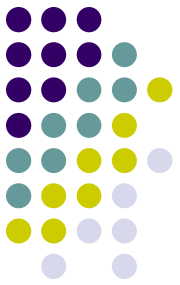
Bilateral exudative RD

Retinal Detachment Overview

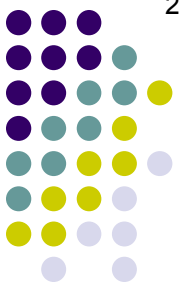


Bilateral exudative RD *brings what diagnosis immediately to mind?*

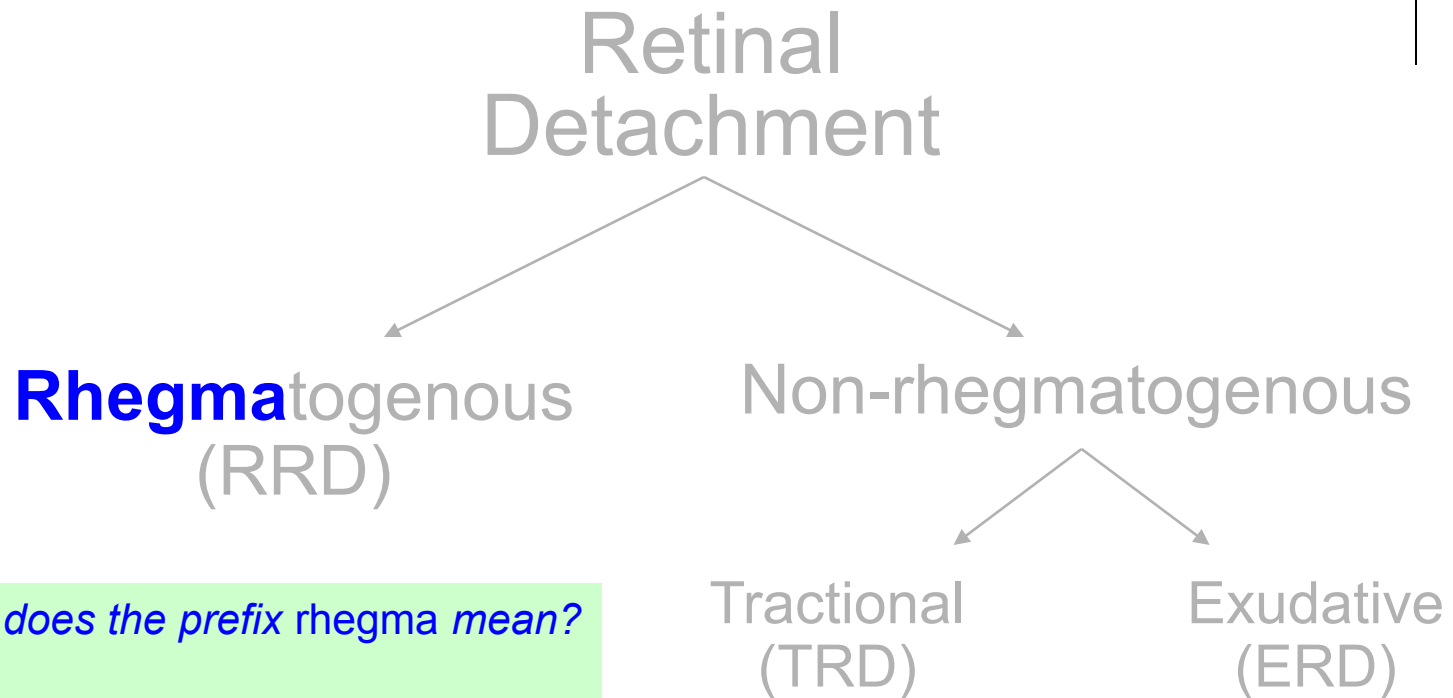
Retinal Detachment Overview



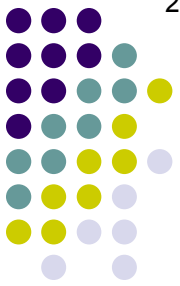
Bilateral exudative RD *brings what diagnosis immediately to mind?*
Vogt-Koyanagi-Harada dz (see slide-set U6)



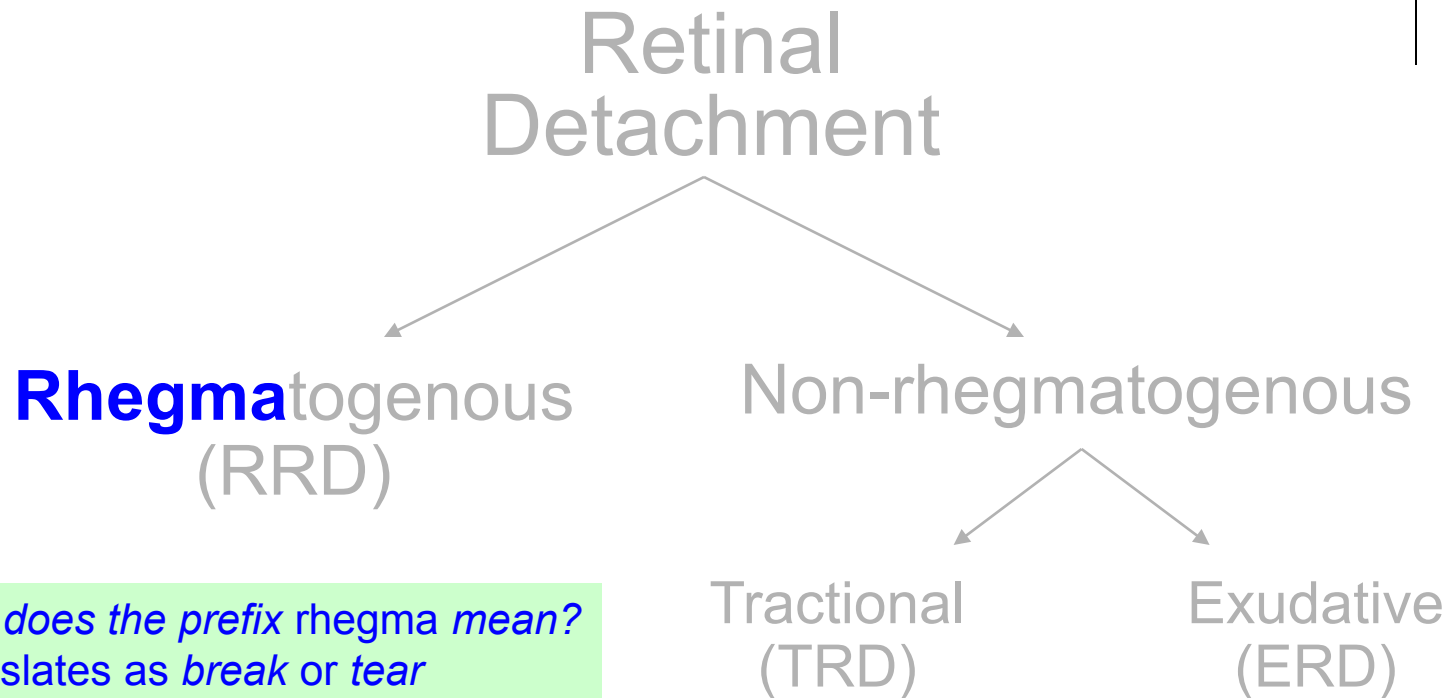
Retinal Detachment Overview



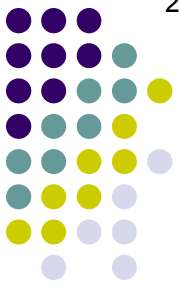
What does the prefix rhegma mean?



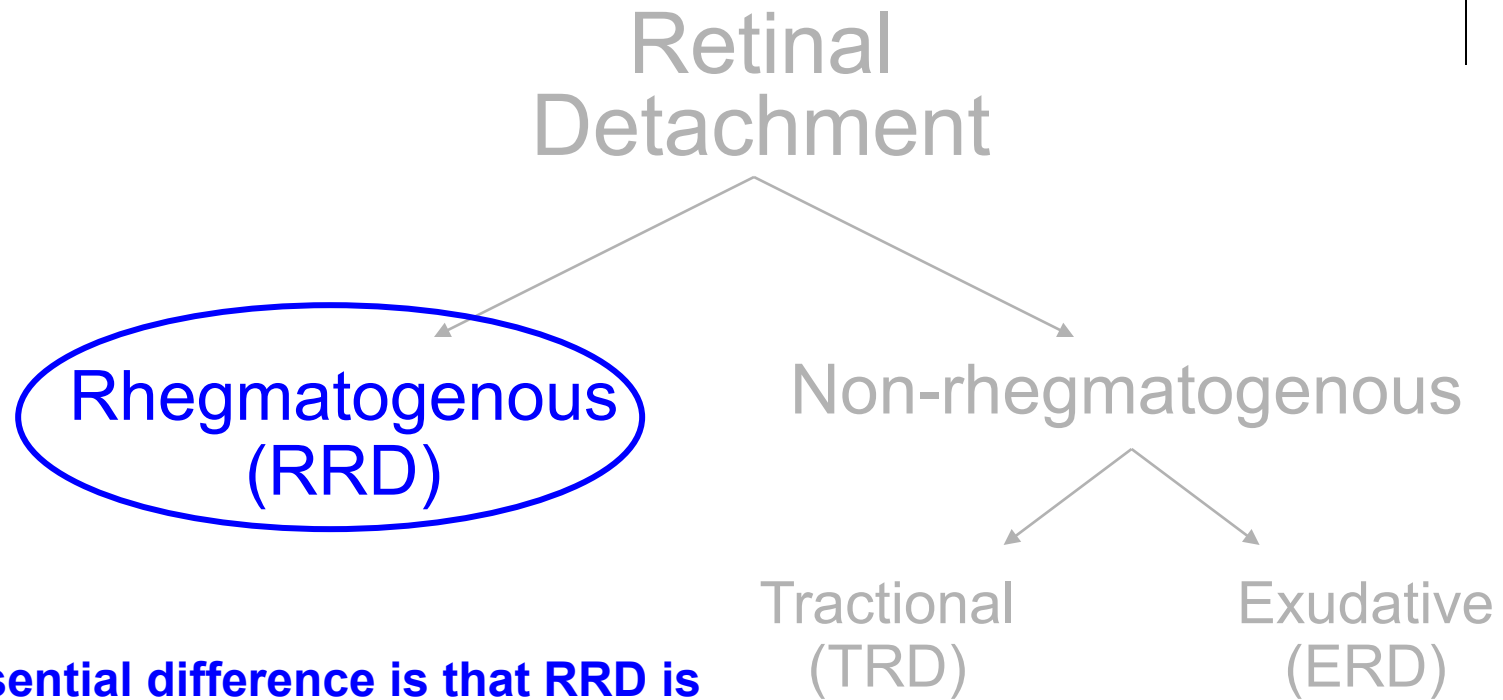
Retinal Detachment Overview



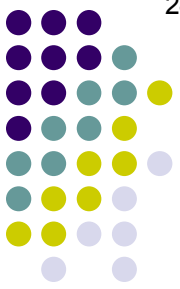
What does the prefix rhegma mean?
It translates as *break* or *tear*



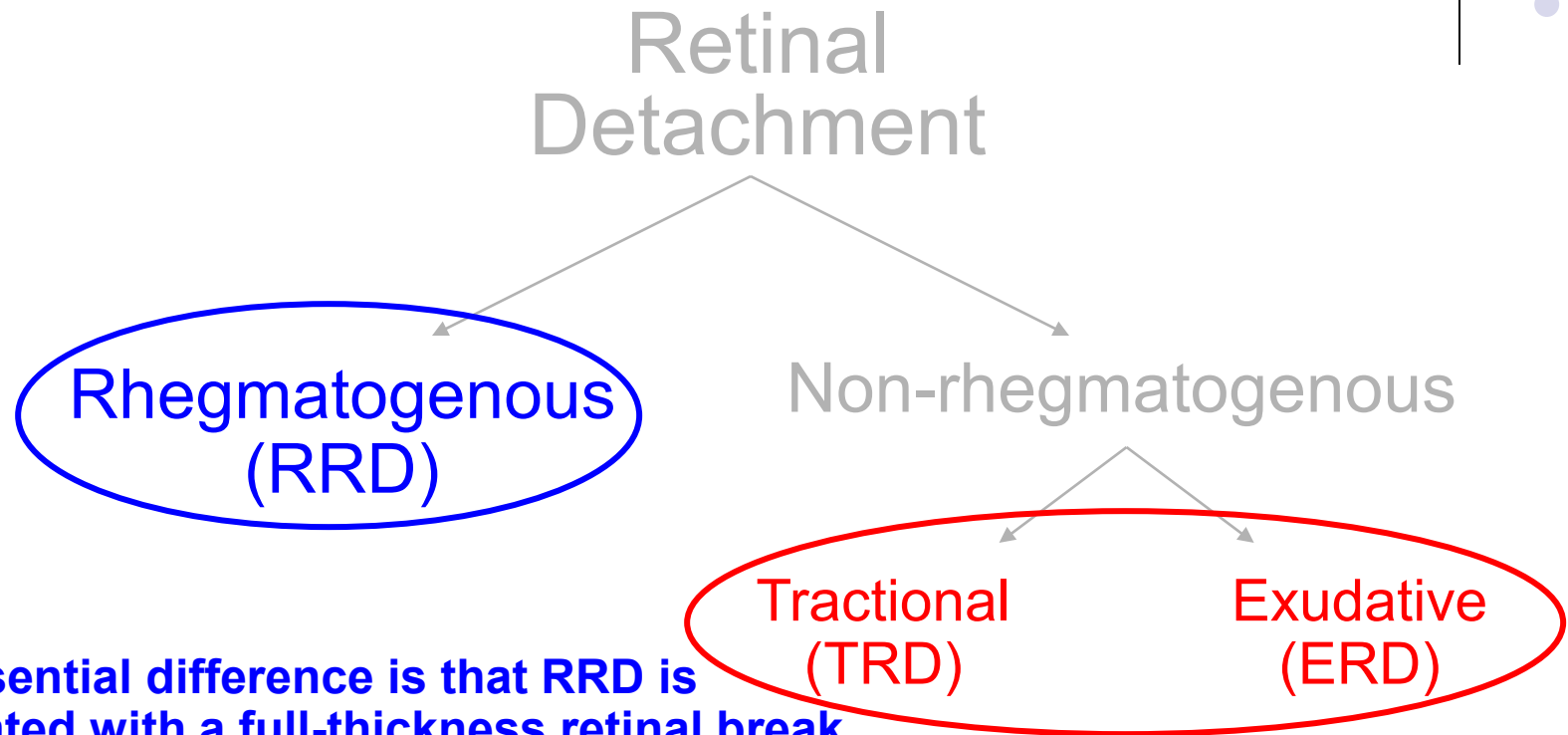
Retinal Detachment Overview



The essential difference is that RRD is associated with a full-thickness retinal break...

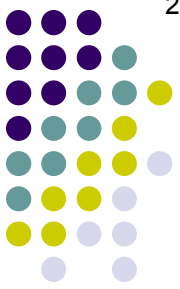


Retinal Detachment Overview

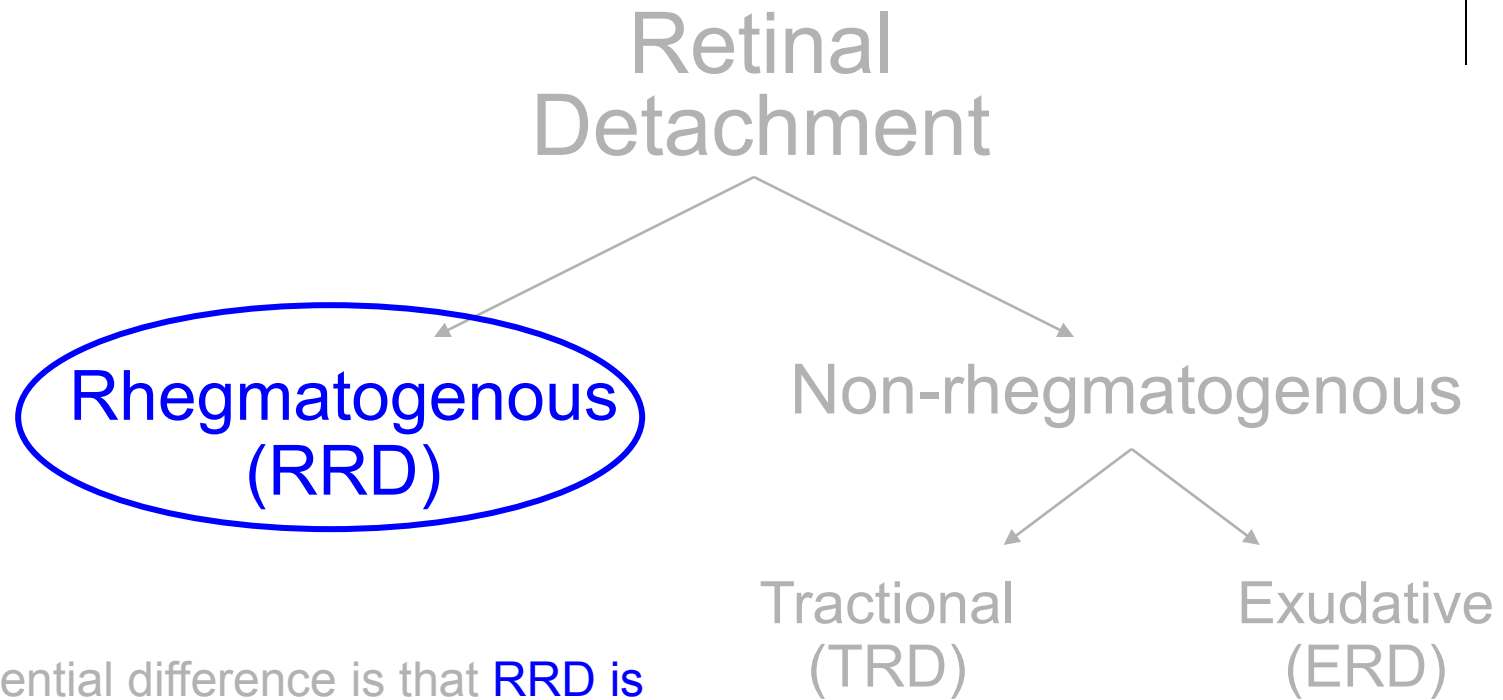


The essential difference is that RRD is associated with a full-thickness retinal break...

...and TRD/ERD aren't

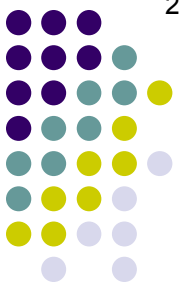


Retinal Detachment Overview

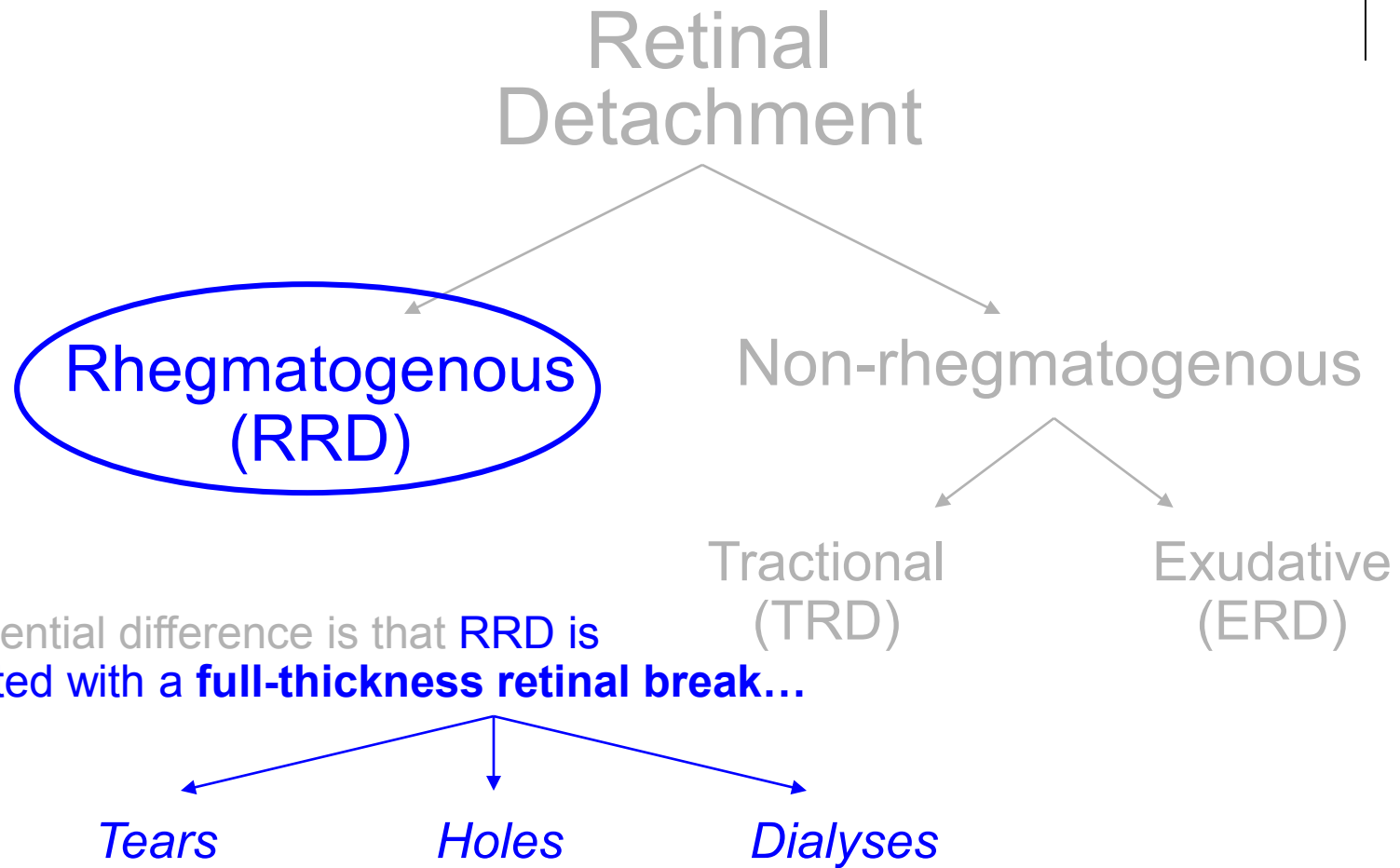


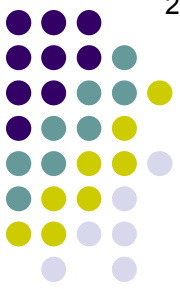
The essential difference is that RRD is associated with a **full-thickness retinal break...**

What are the three types of retinal breaks?

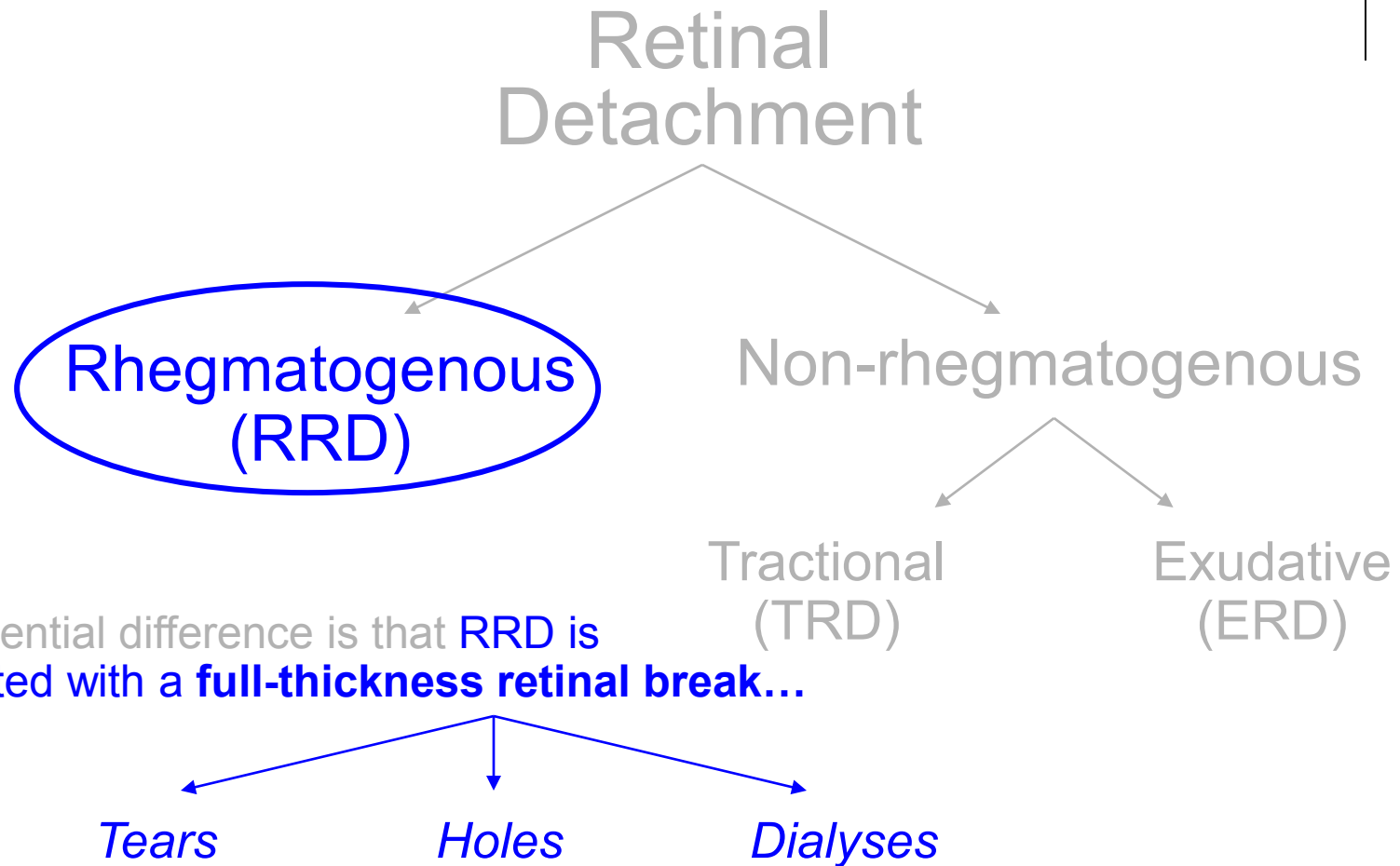


Retinal Detachment Overview





Retinal Detachment Overview



The essential difference is that RRD is associated with a **full-thickness retinal break...**

Tears

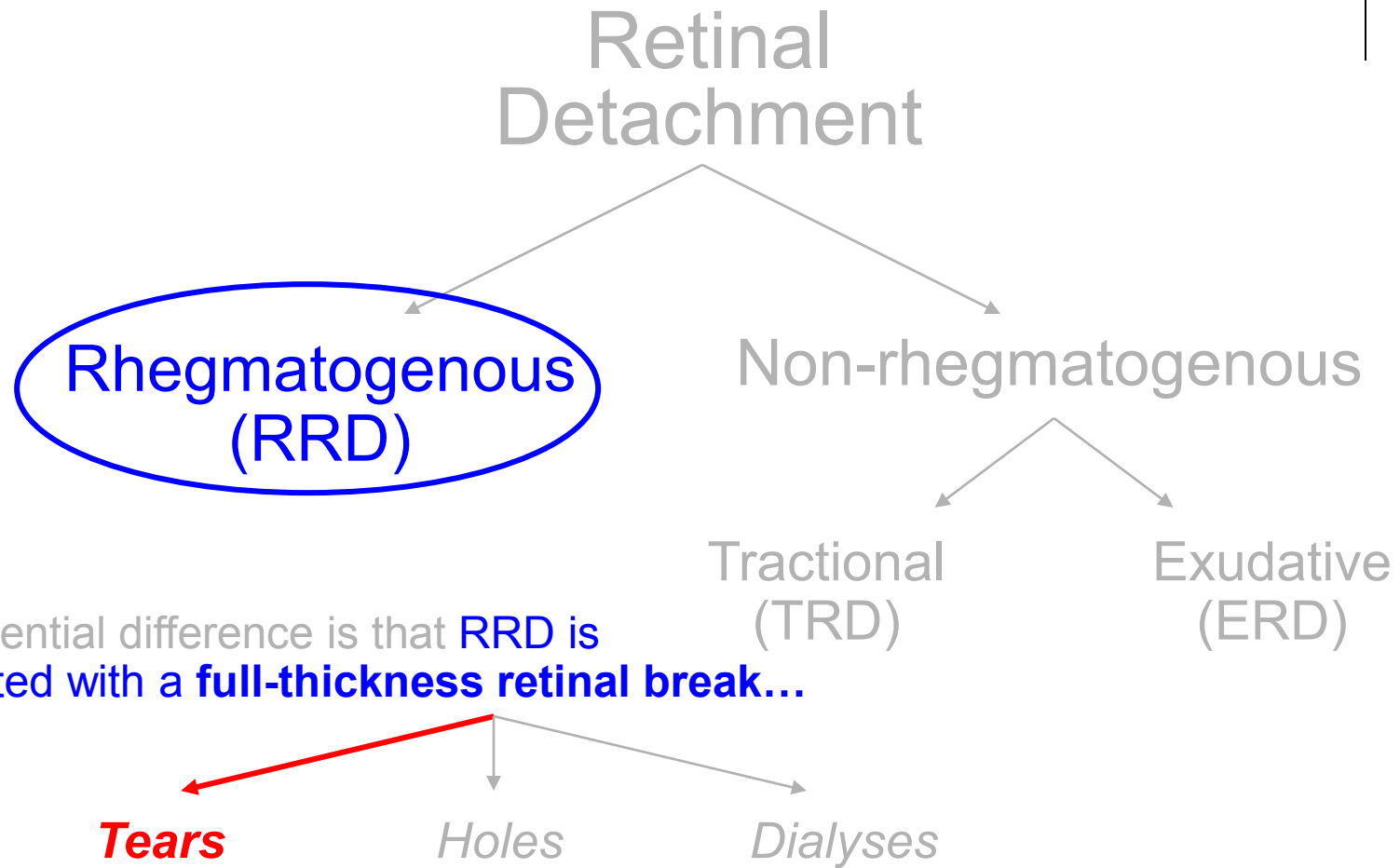
Holes

Dialyses

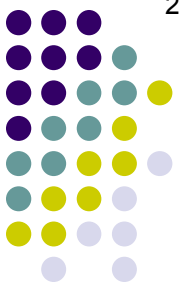
Which of these is most commonly implicated in RRD?



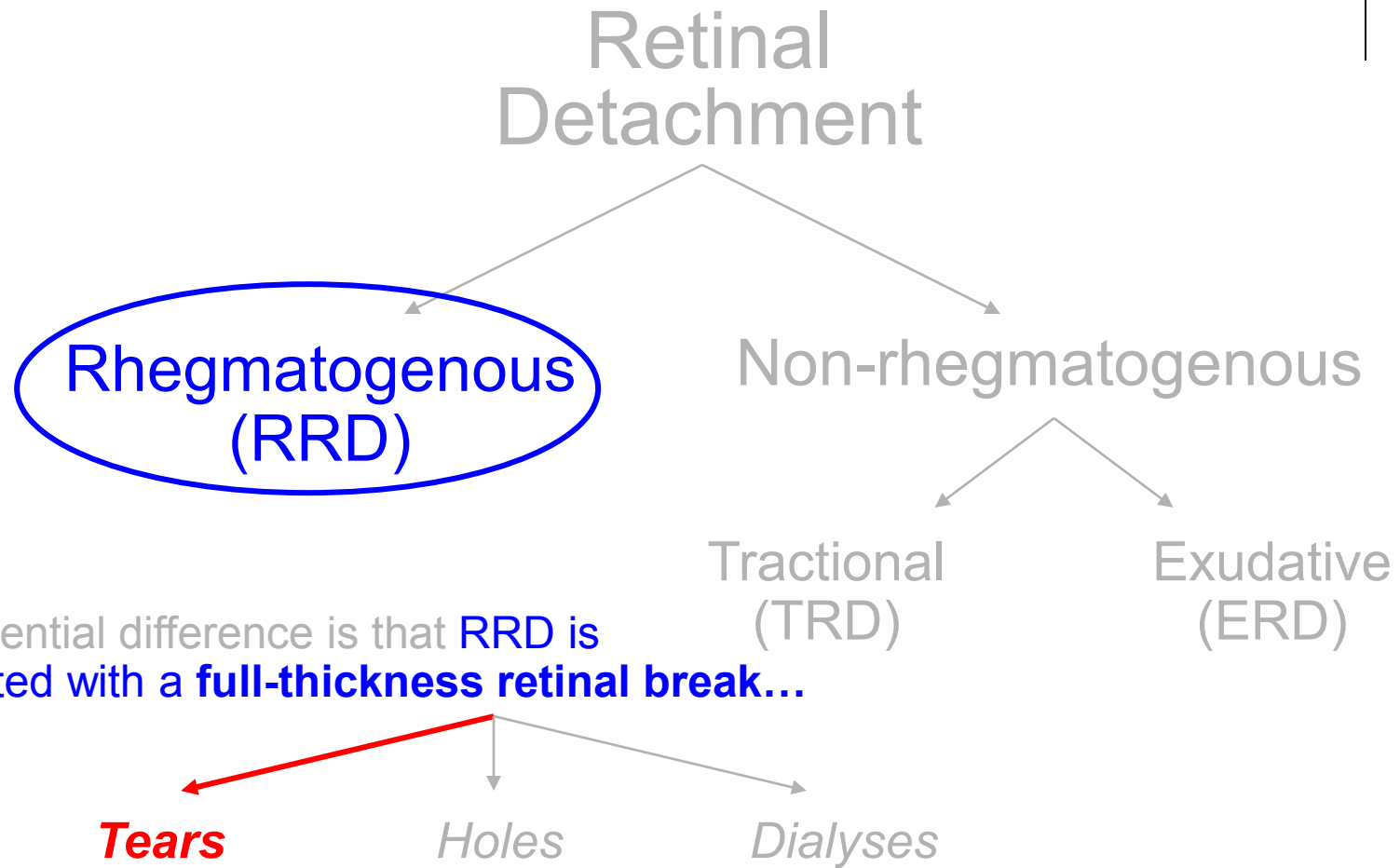
Retinal Detachment Overview



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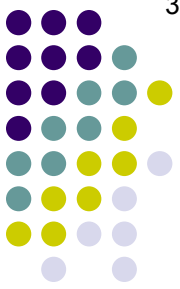


Retinal Detachment Overview

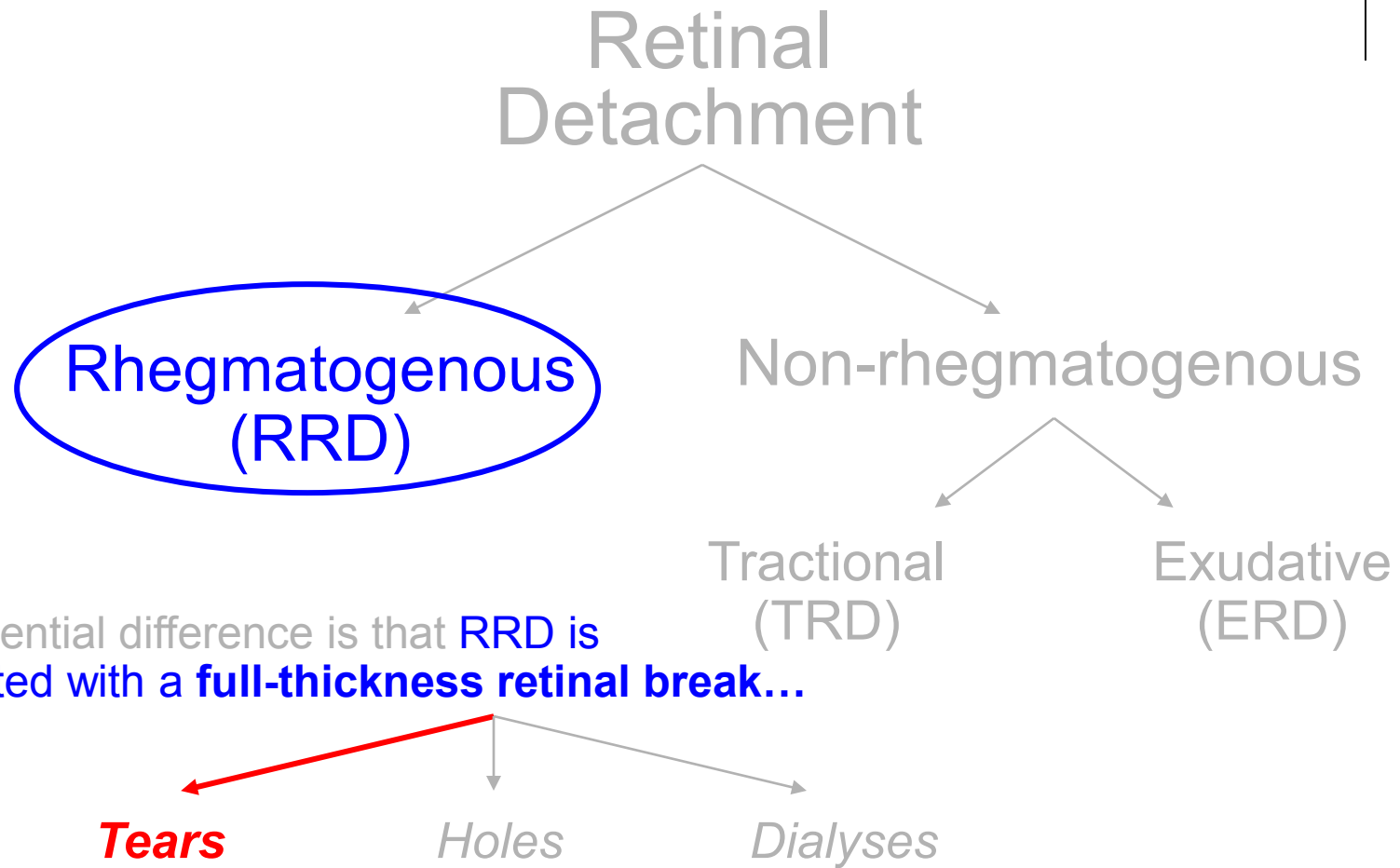


Which of these is most commonly implicated in RRD?

Specifically, these are known as neighhh! **tears**



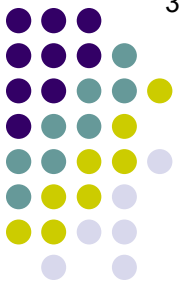
Retinal Detachment Overview



The essential difference is that RRD is associated with a **full-thickness retinal break...**

Which of these is most commonly implicated in RRD?

Specifically, these are known as **horseshoe tears**



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous (RRD)

Non-

Why are they called 'horseshoe' tears?

Traction
(TRD)

The essential difference is that RRD is associated with a **full-thickness retinal break...**

Tears

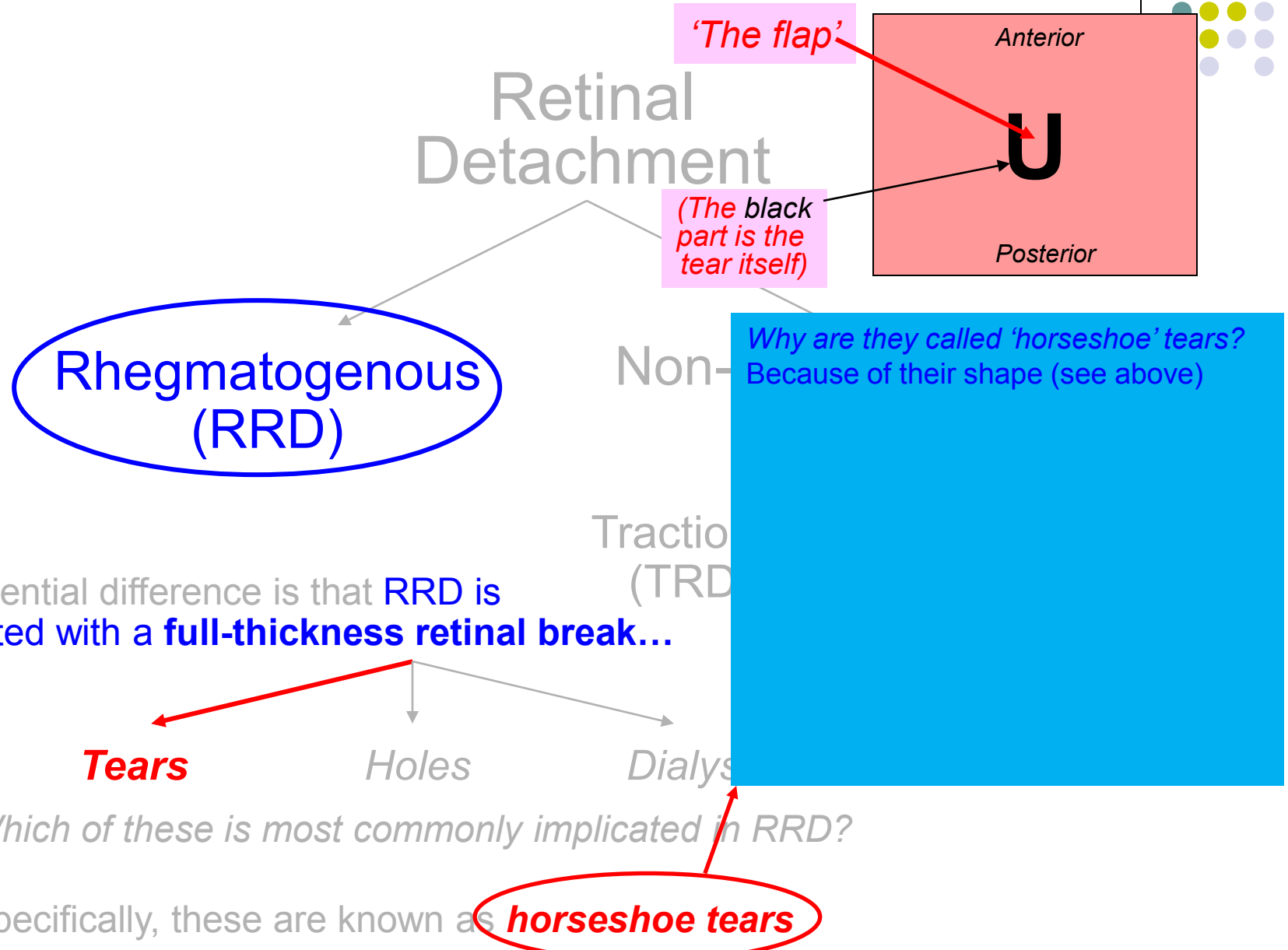
Holes

Dialysis

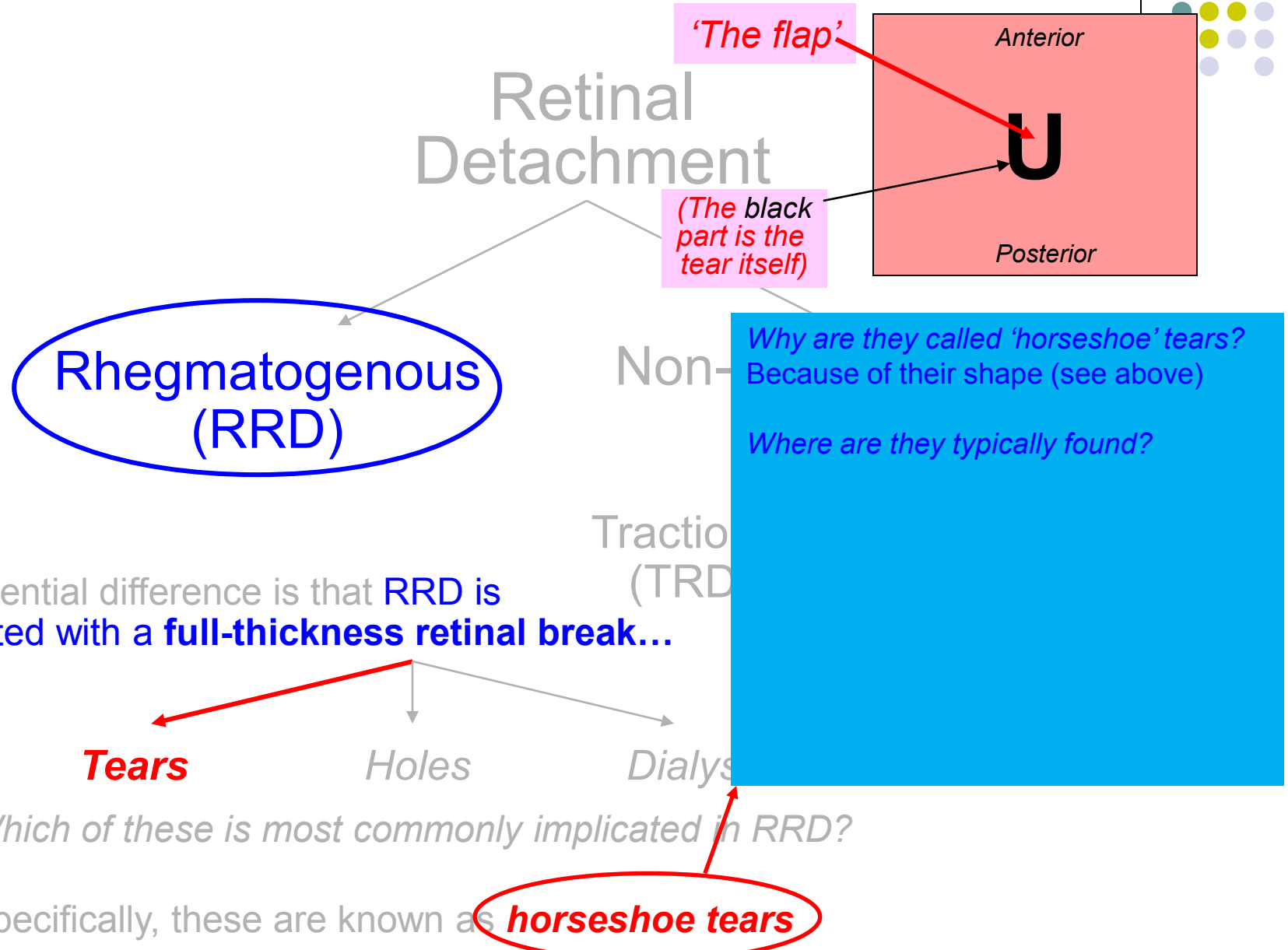
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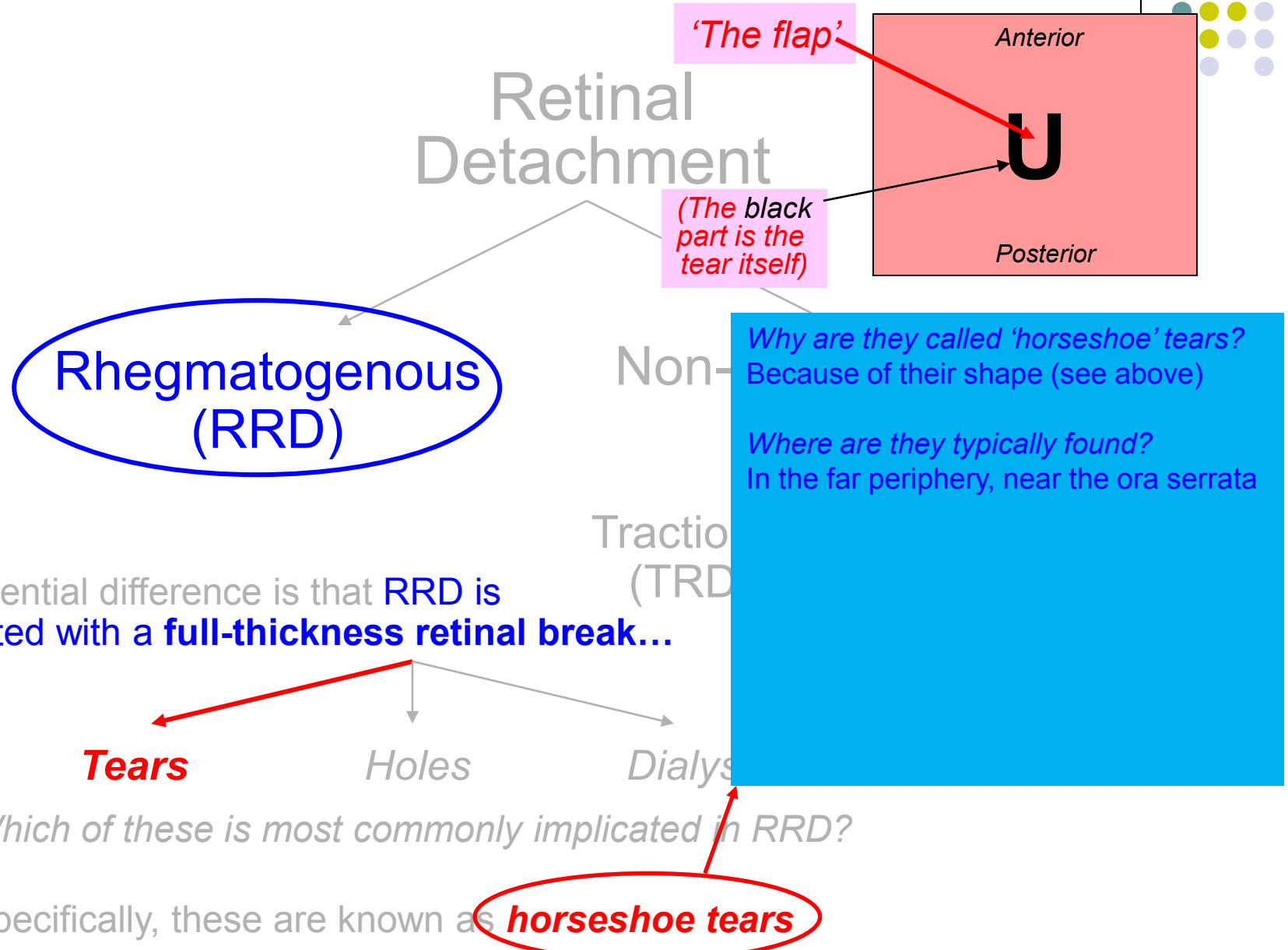
Retinal Detachment Overview



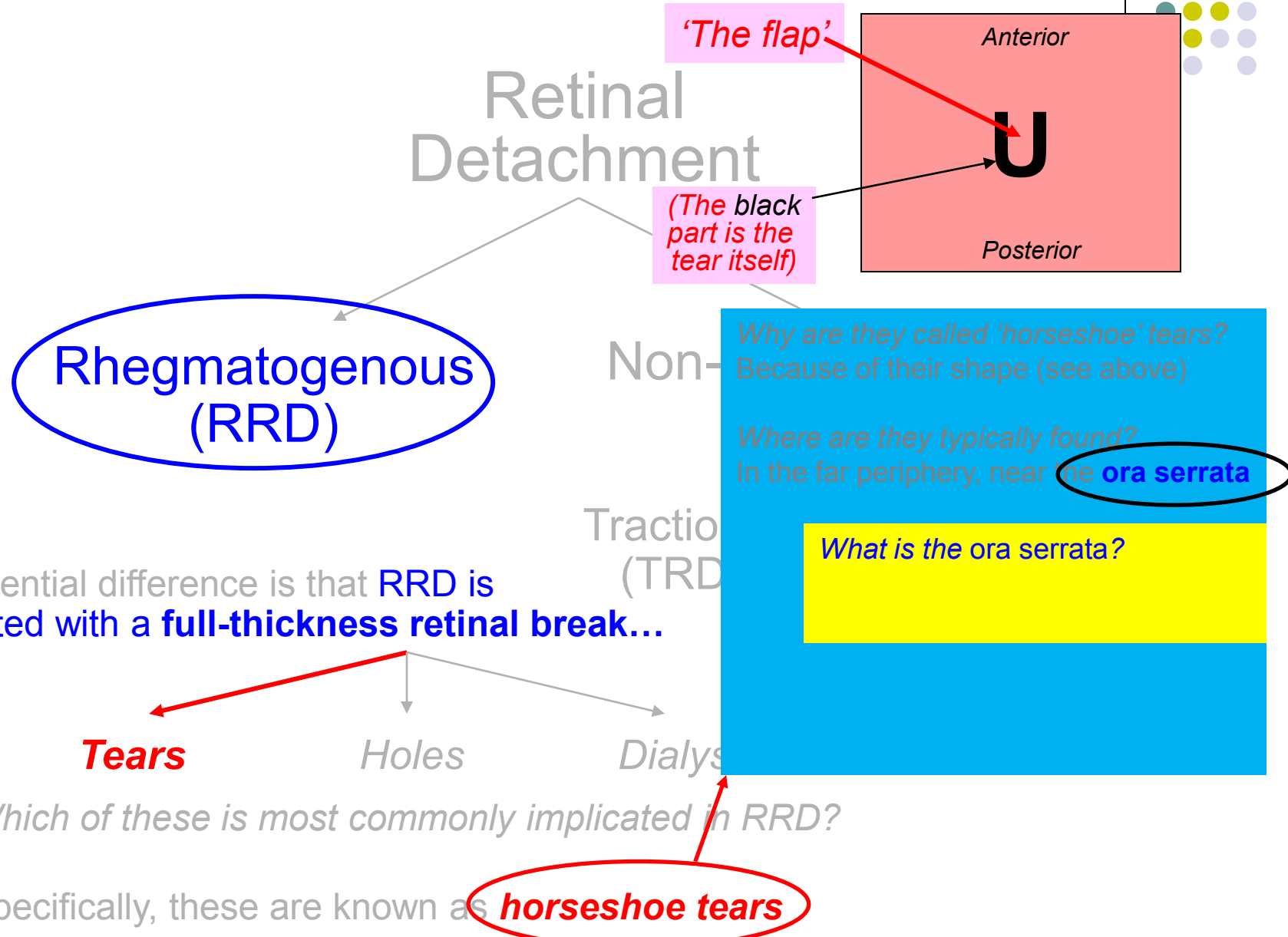
Retinal Detachment Overview



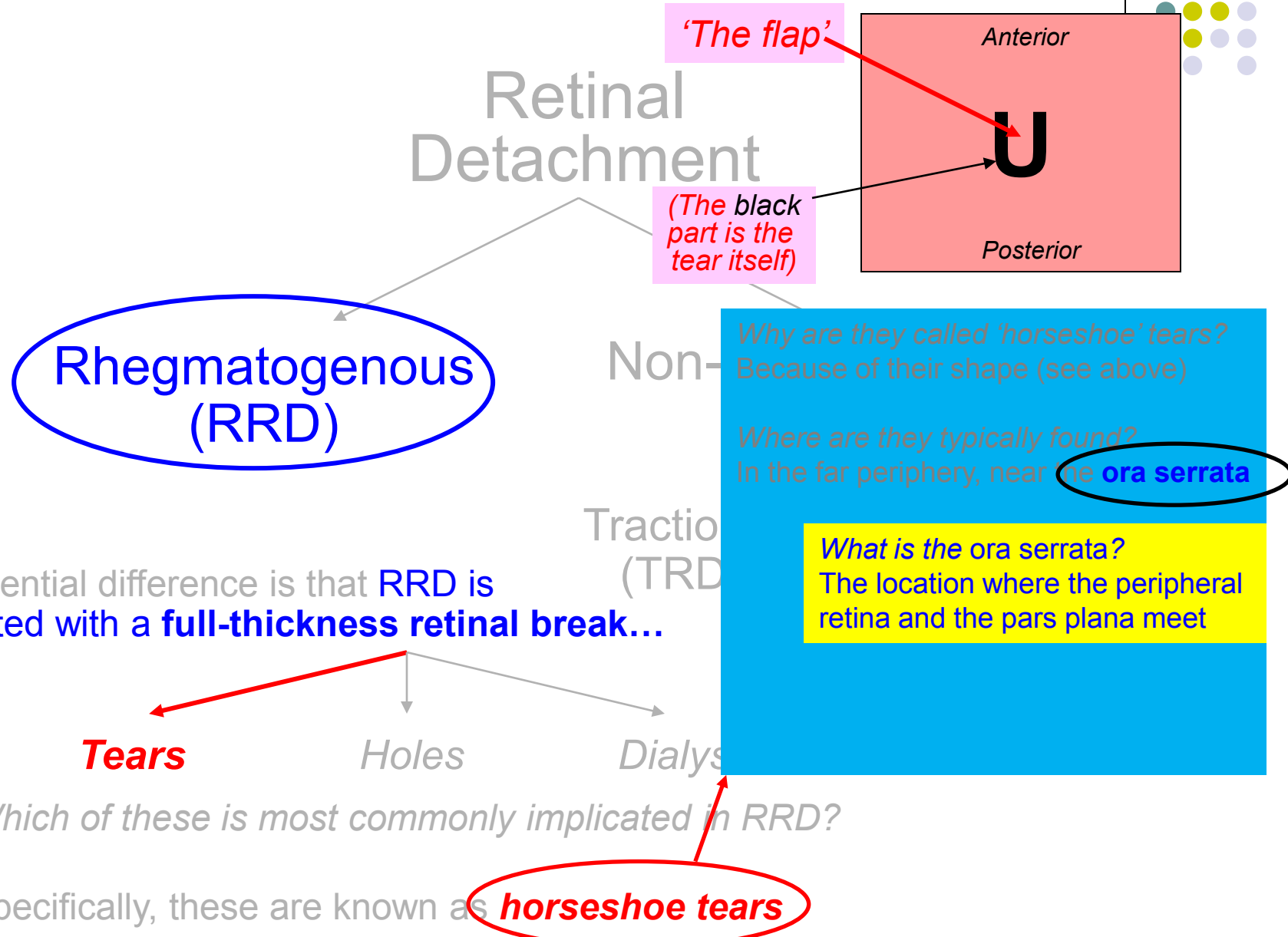
Retinal Detachment Overview

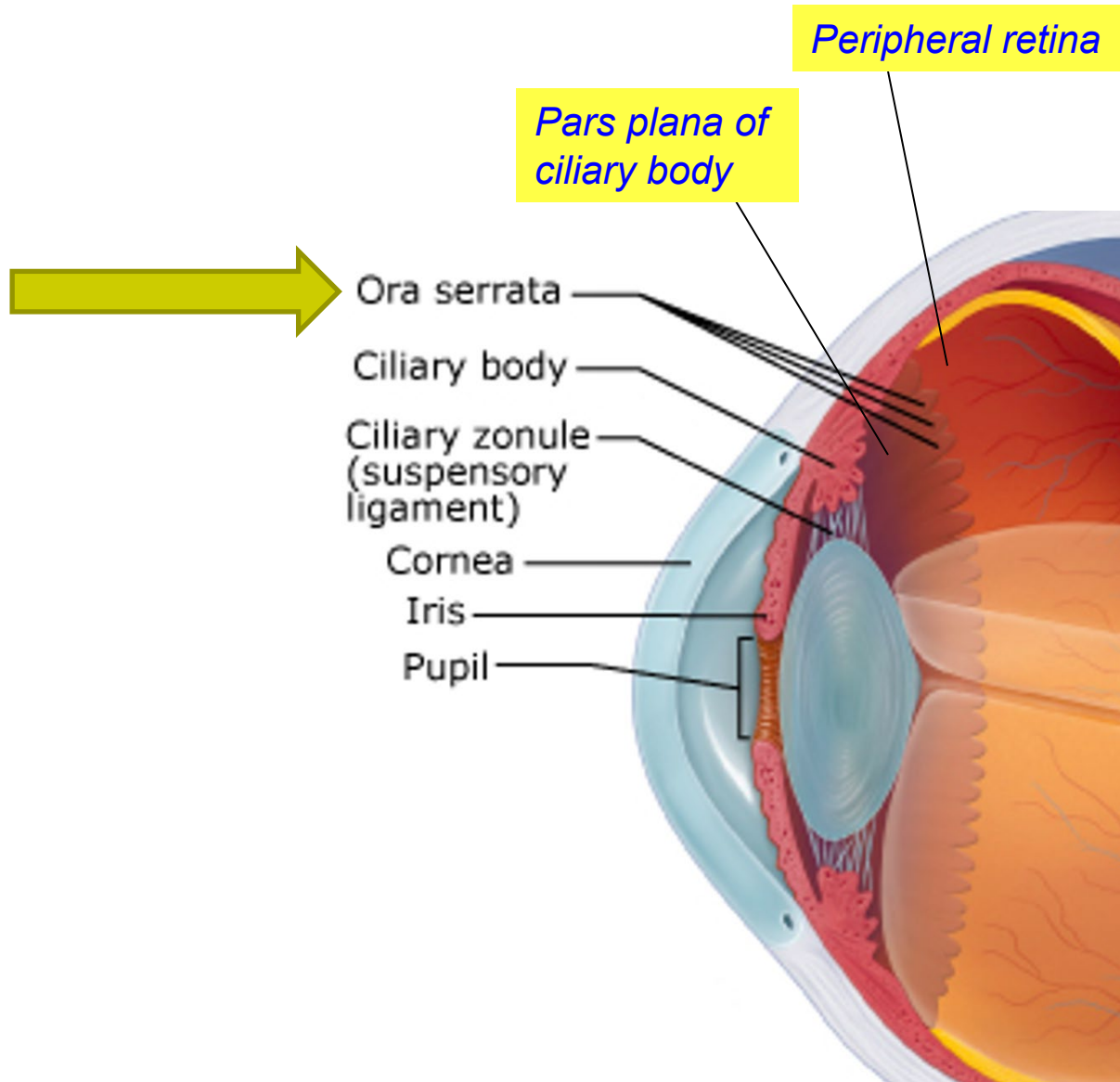
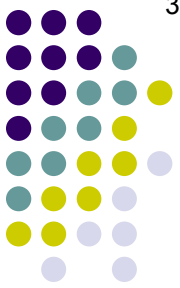


Retinal Detachment Overview



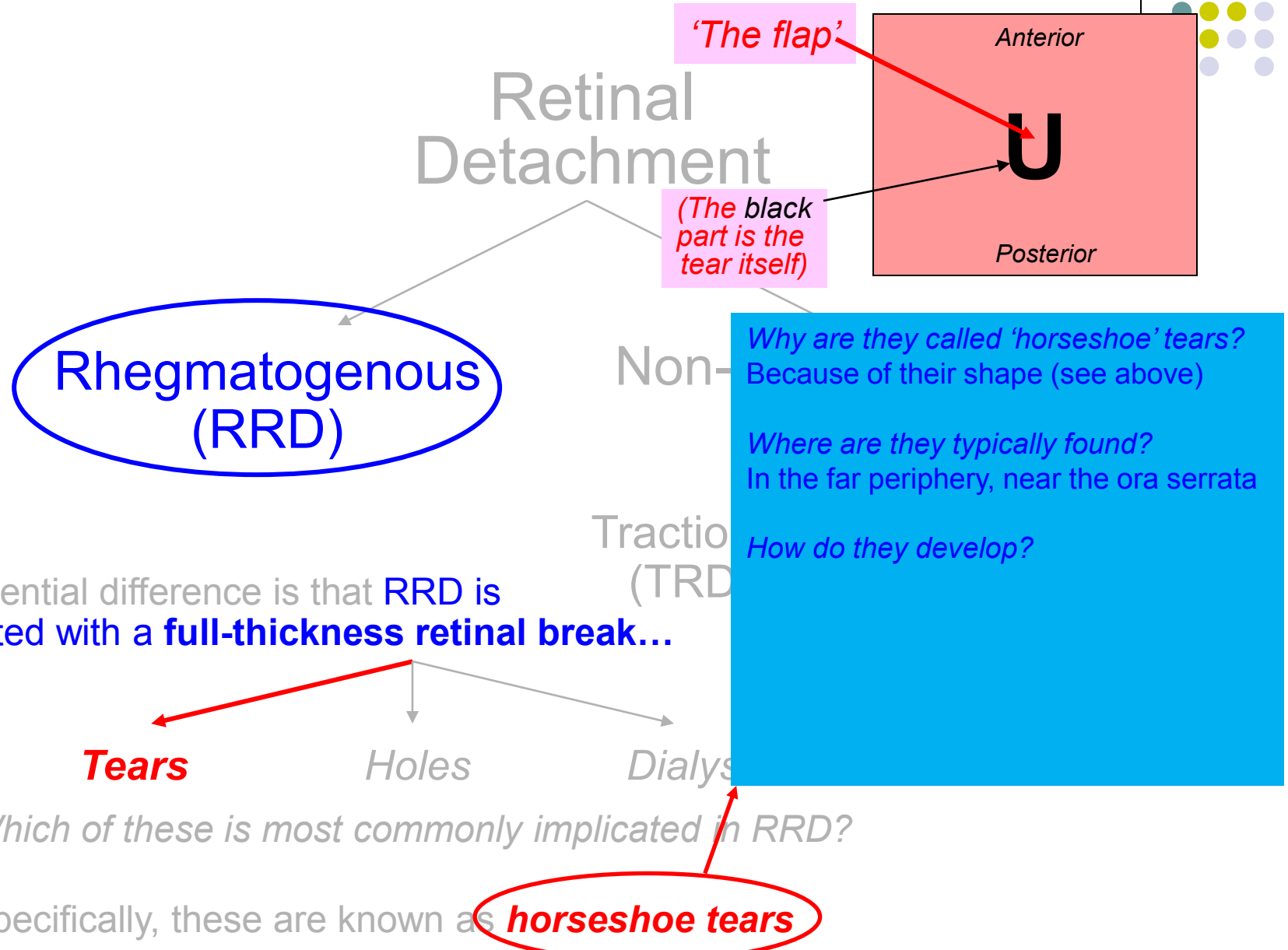
Retinal Detachment Overview



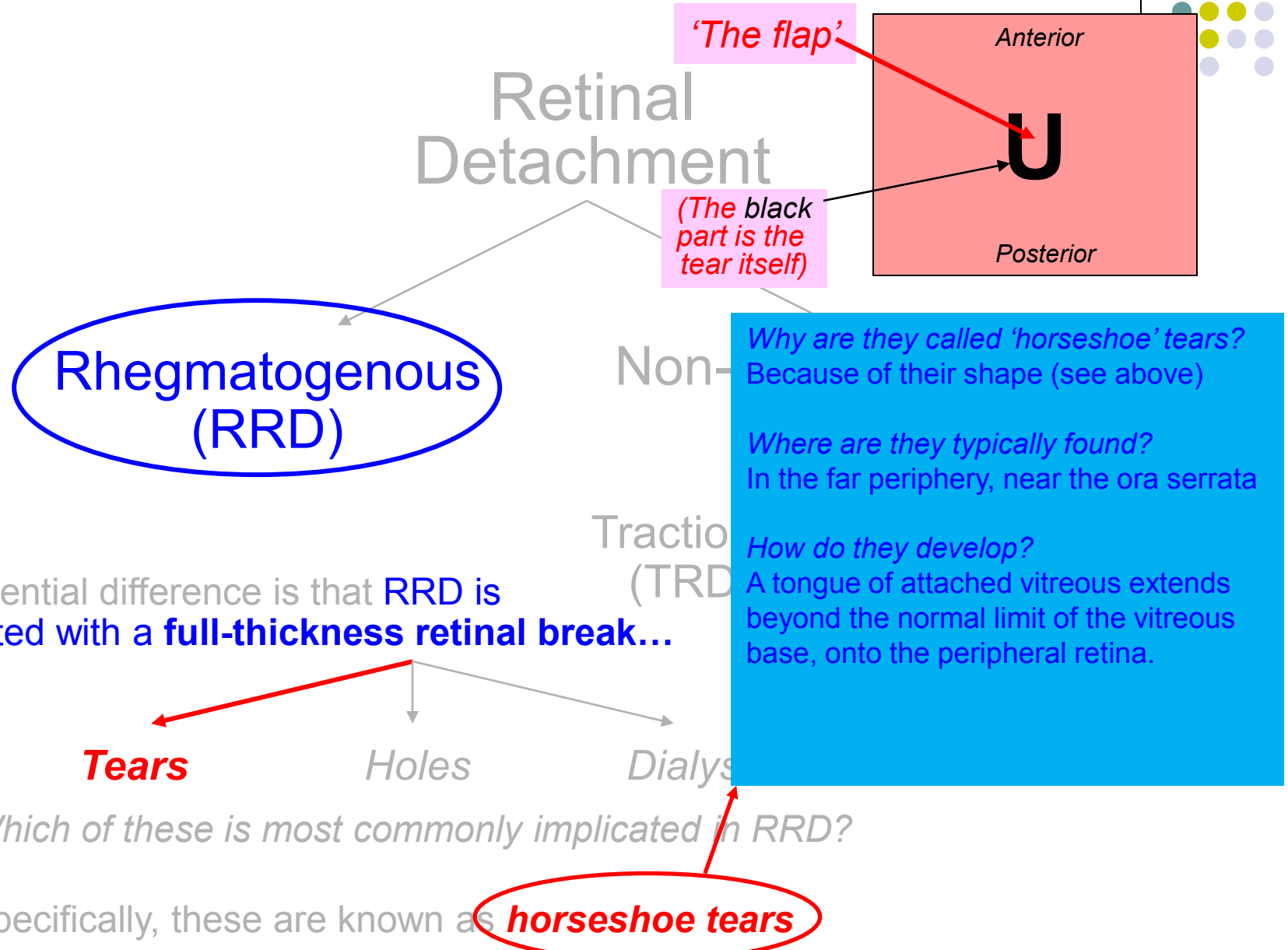


Ora serrata

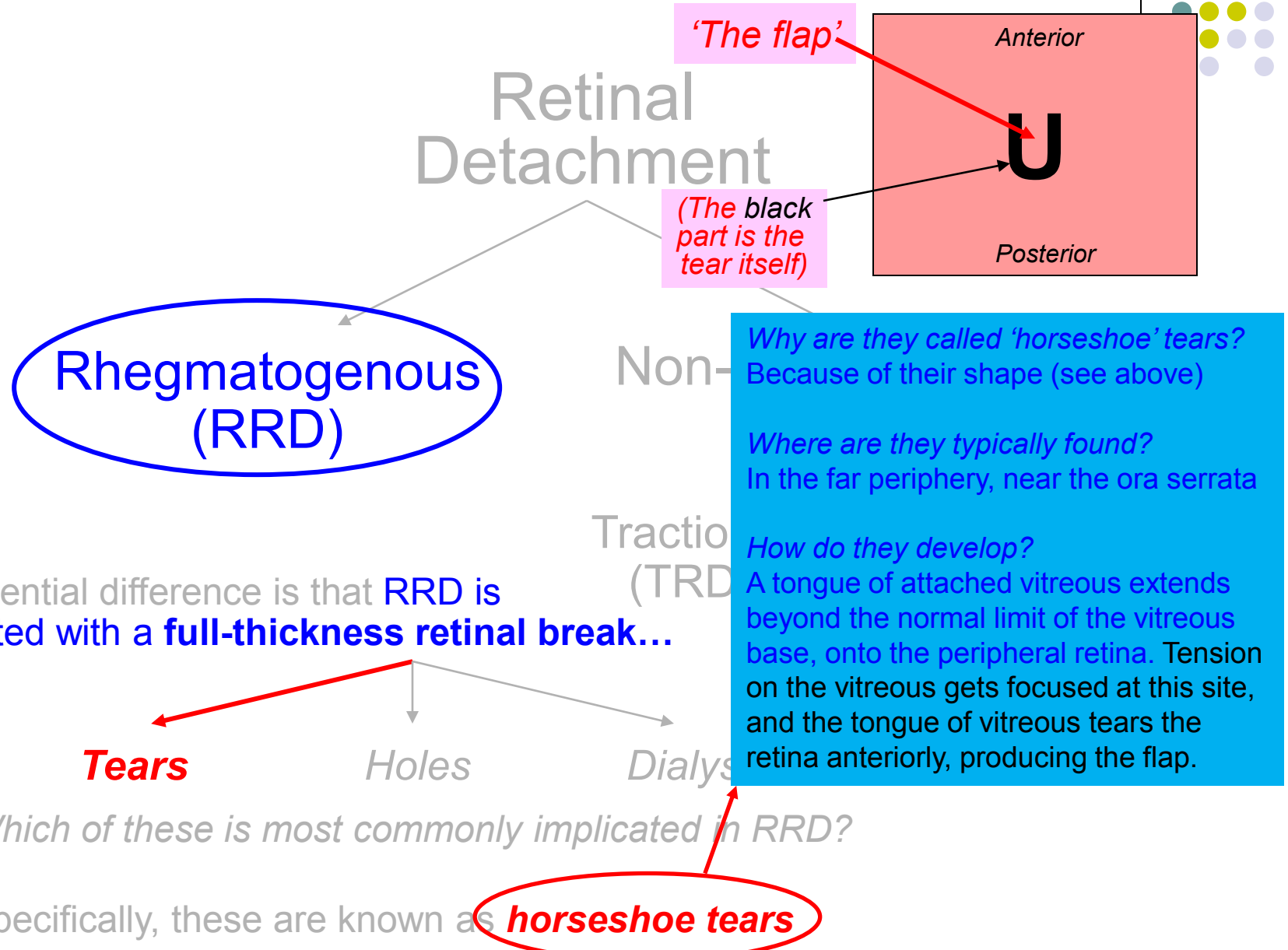
Retinal Detachment Overview



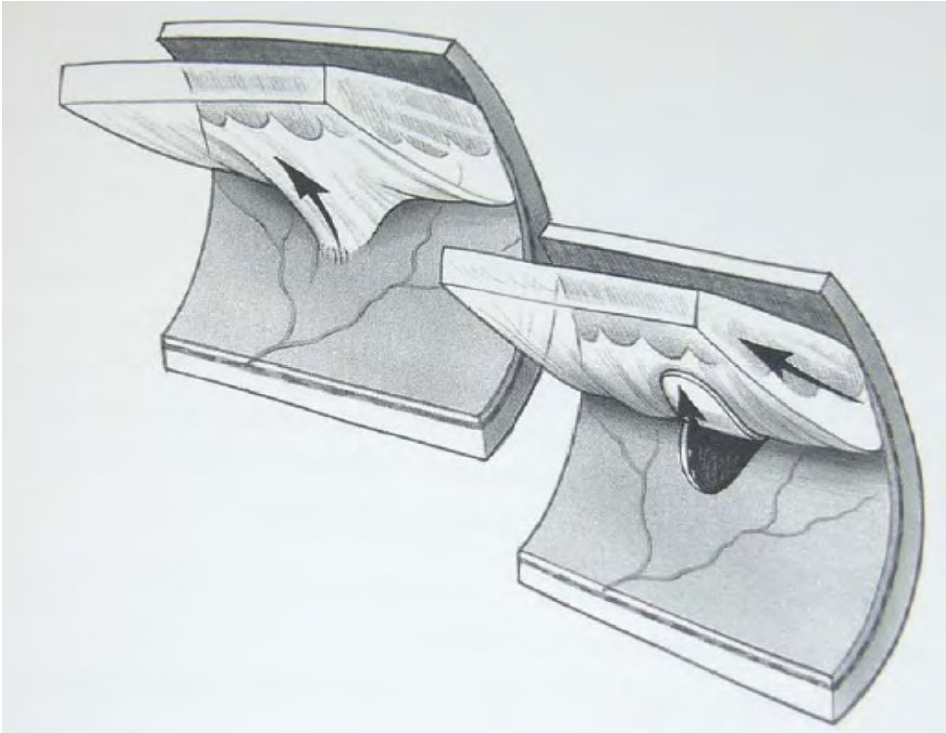
Retinal Detachment Overview



Retinal Detachment Overview

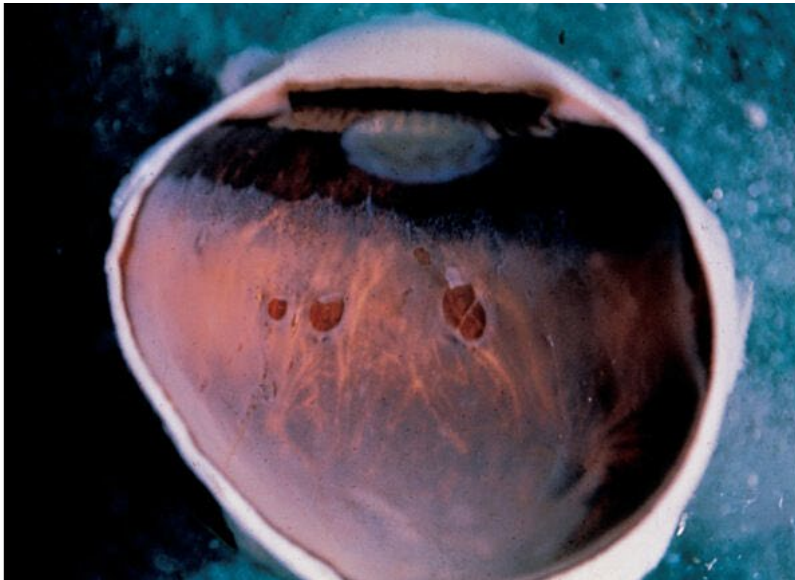
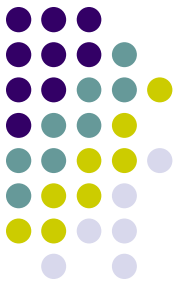


Retinal Detachment Overview



Horseshoe tear

Retinal Detachment Overview

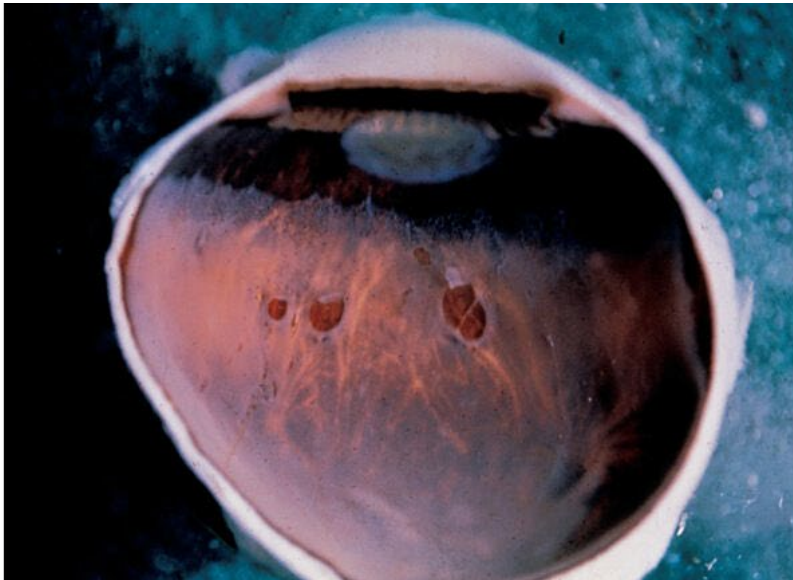
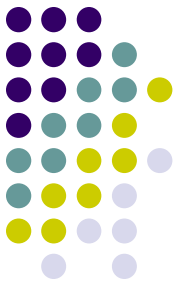


A

A, Gross photograph shows several retinal tears at the vitreous base.

Horseshoe tear

Retinal Detachment Overview



A, Gross photograph shows several retinal tears at the vitreous base. **B**, Photomicrograph demonstrating condensed vitreous (*arrow*) attached to the anterior flap of the retinal tear

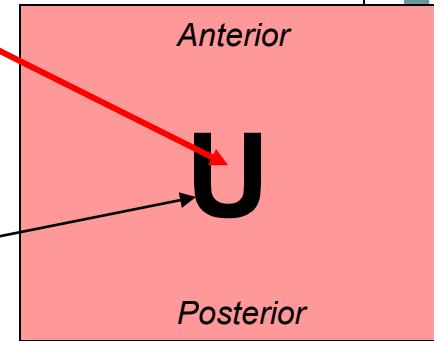
Horseshoe tear

Retinal Detachment Overview

Retinal Detachment

'The flap'

(The black part is the tear itself)



Rhegmatogenous
(RRD)

Technically, this is incorrect. What is the correct name of the structure that gets torn?

The essential difference is that RRD is associated with a **full-thickness** tear.

Tears

Holes

Dialyses

and the tongue of vitreous tears the retina anteriorly, producing the flap.

Which of these is most commonly implicated in RRD?

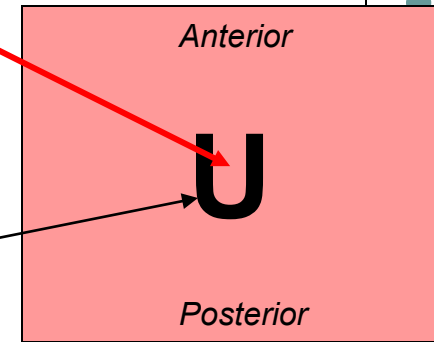
Specifically, these are known as **horseshoe tears**

Retinal Detachment Overview

Retinal Detachment

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The **neurosensory** retina

The essential difference is that it is associated with a **full-thickness** tear.

Tears

Holes

Dialysis

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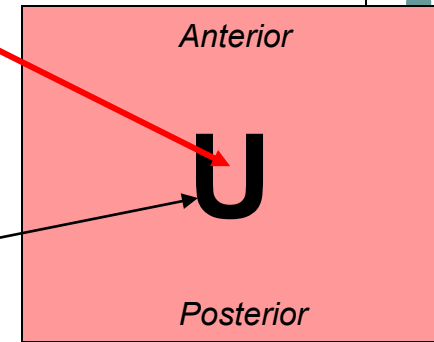
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Retinal Detachment Overview

Retinal Detachment

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Technically, this is incorrect. What is the correct name of the structure that gets torn?

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What? Aren't the terms retina and neurosensory retina interchangeable?

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Holes

Dialyses

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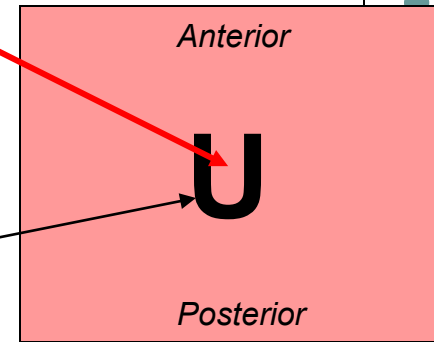
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Retinal Detachment Overview

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The **neurosensory** retina

*What? Aren't the terms retina and neurosensory retina interchangeable? Again, technically no. Neurosensory retina refers to the multilayered structure from the photoreceptors inward, whereas the retina is composed of the neurosensory retina **and** the RPE.*

The essential difference is that RRD is associated with a **full-thickness** tear.

Tears

Holes

Dialysis

and the tongue of vitreous **tears the retina** anteriorly, producing the flap.

Which of these is most commonly implicated in RRD?

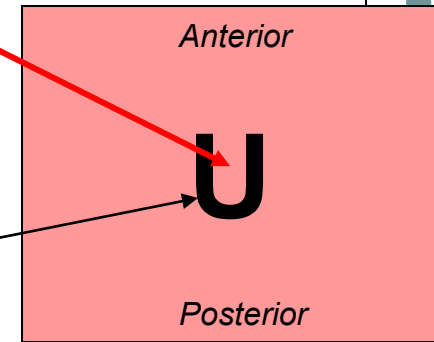
Specifically, these are known as **horseshoe tears**

Retinal Detachment Overview

Retinal Detachment

'The flap'

(The black part is the tear itself)



Rhegmatogenous (RRD)

Technically, this is incorrect. What is the correct name of the structure that gets torn?

The **neurosensory** retina

*What? Aren't the terms retina and neurosensory retina interchangeable? Again, technically no. Neurosensory retina refers to the multilayered structure from the photoreceptors inward, whereas the retina is composed of the neurosensory retina **and** the RPE.*

That said, most ophthalmologists most of the time are referring to the neurosensory portion when they say 'retina,' and the same is true in this slide-set.

Tears

Holes

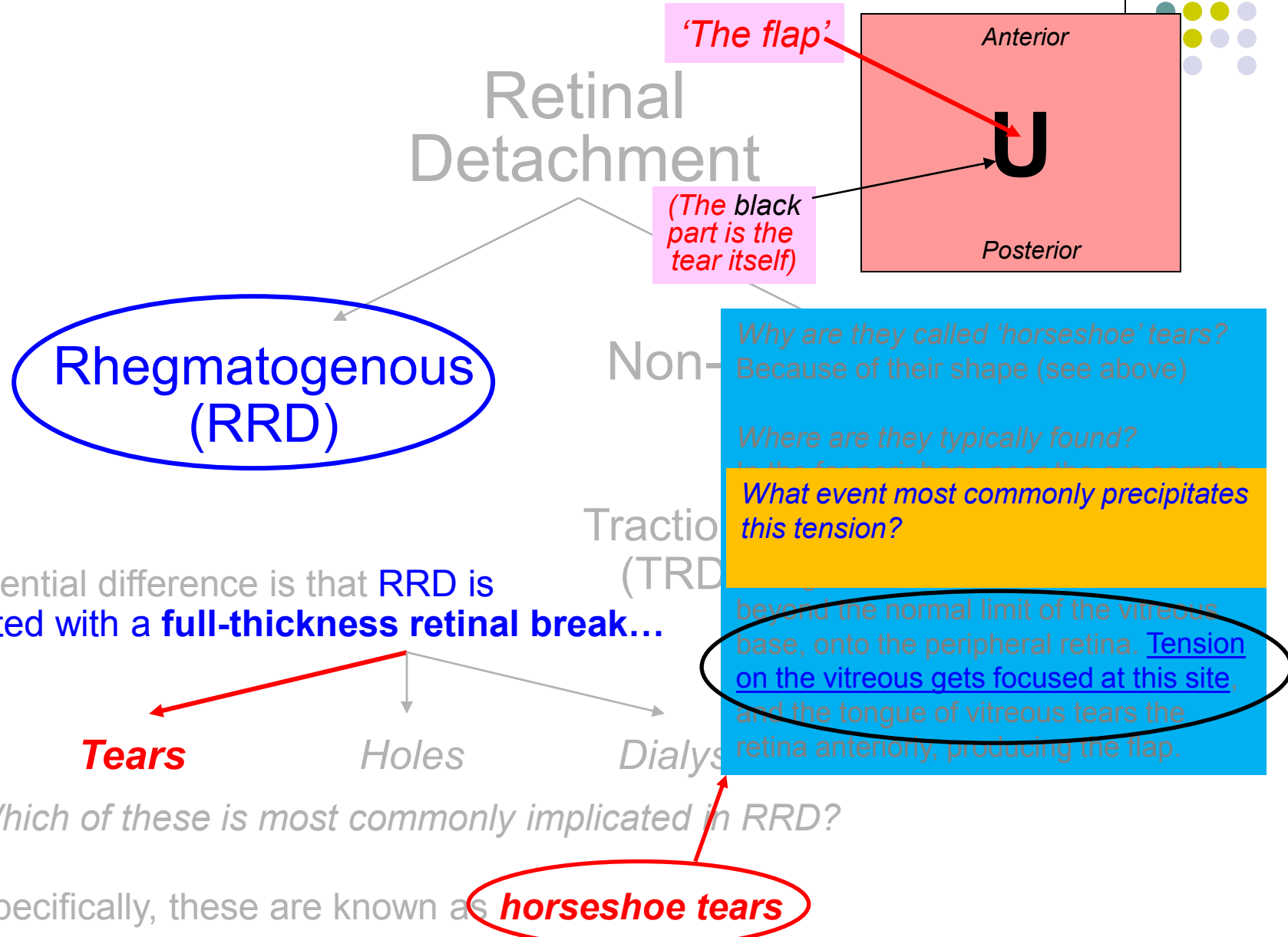
Dialysis

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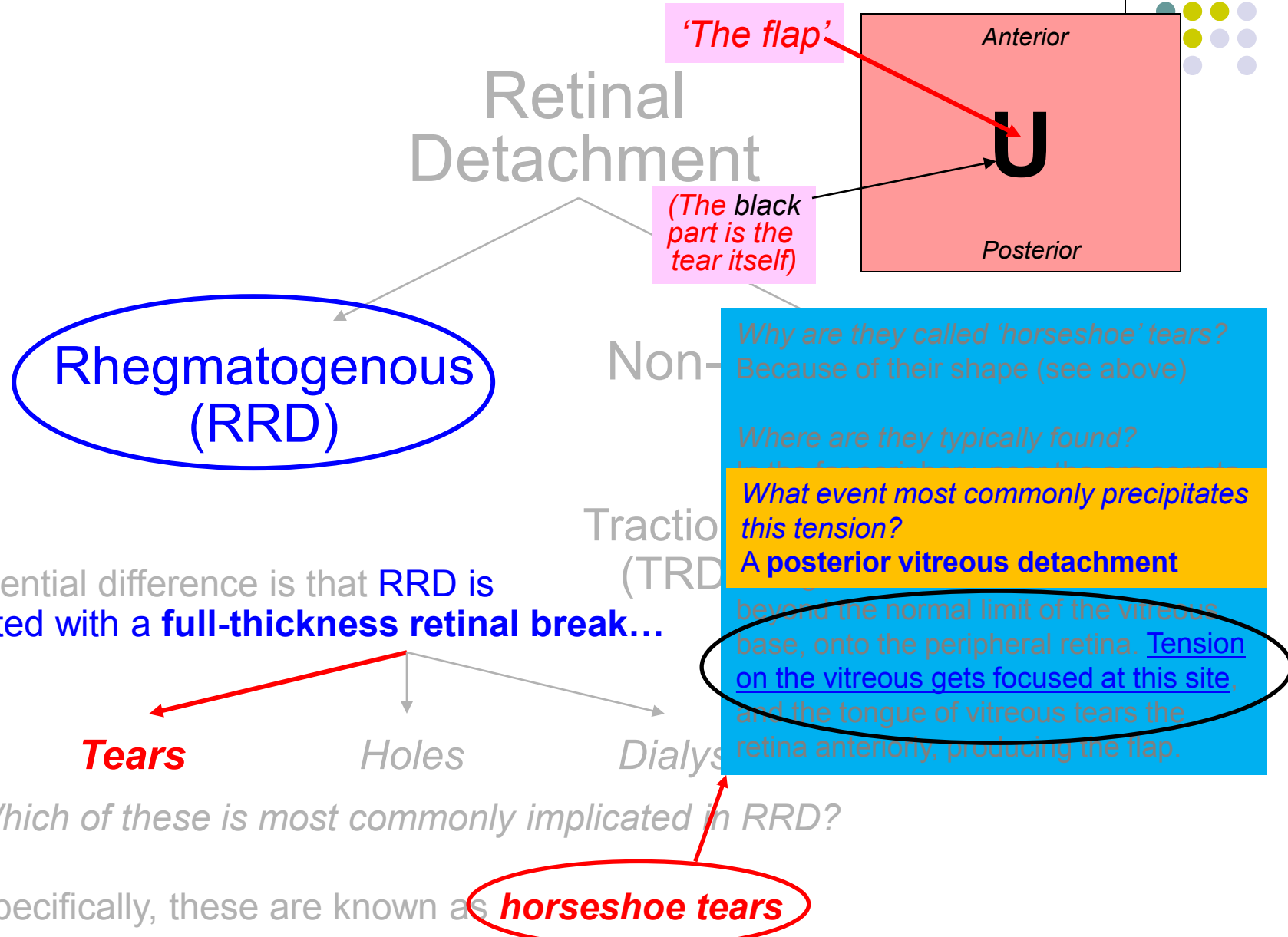
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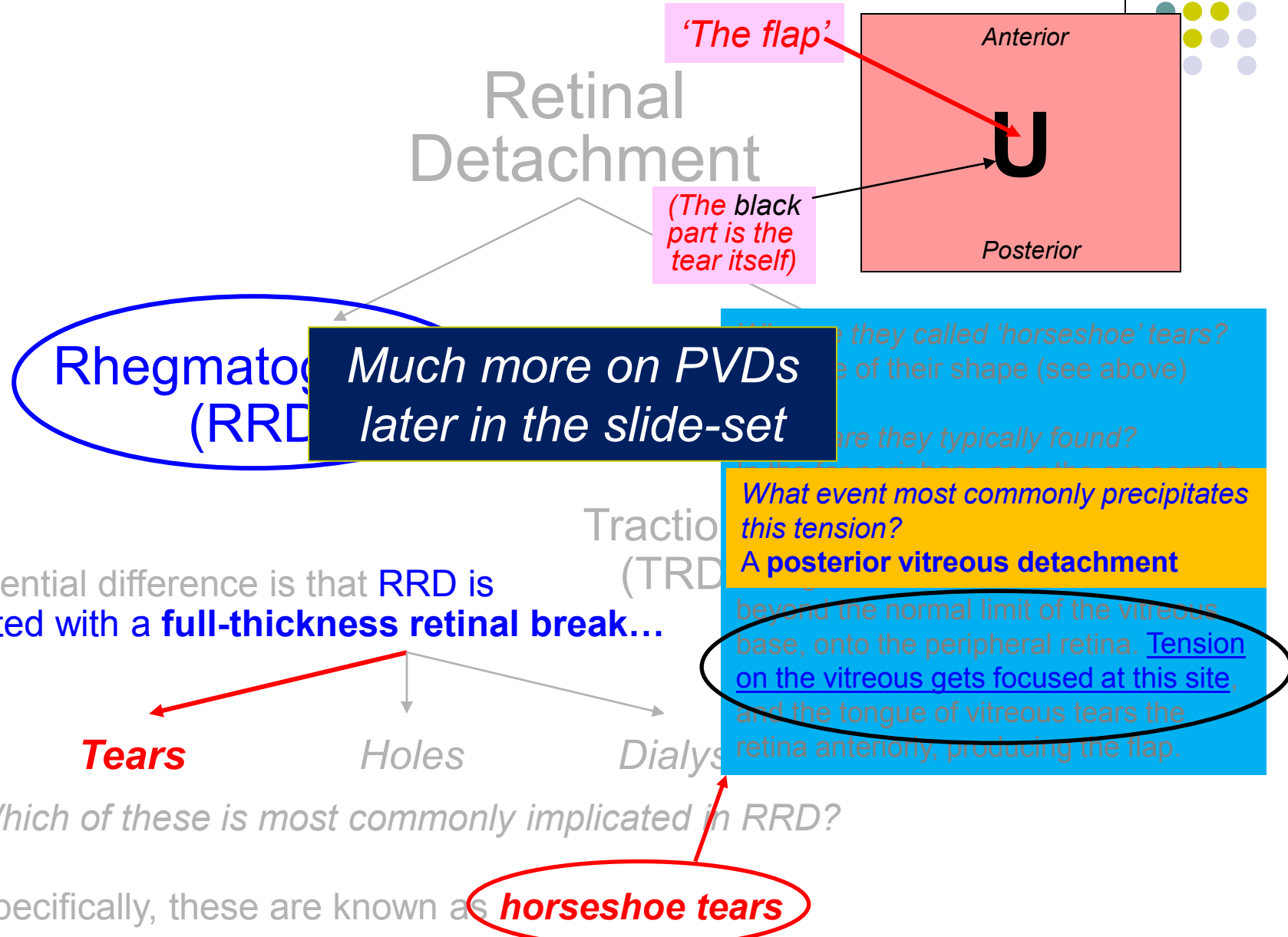
Retinal Detachment Overview



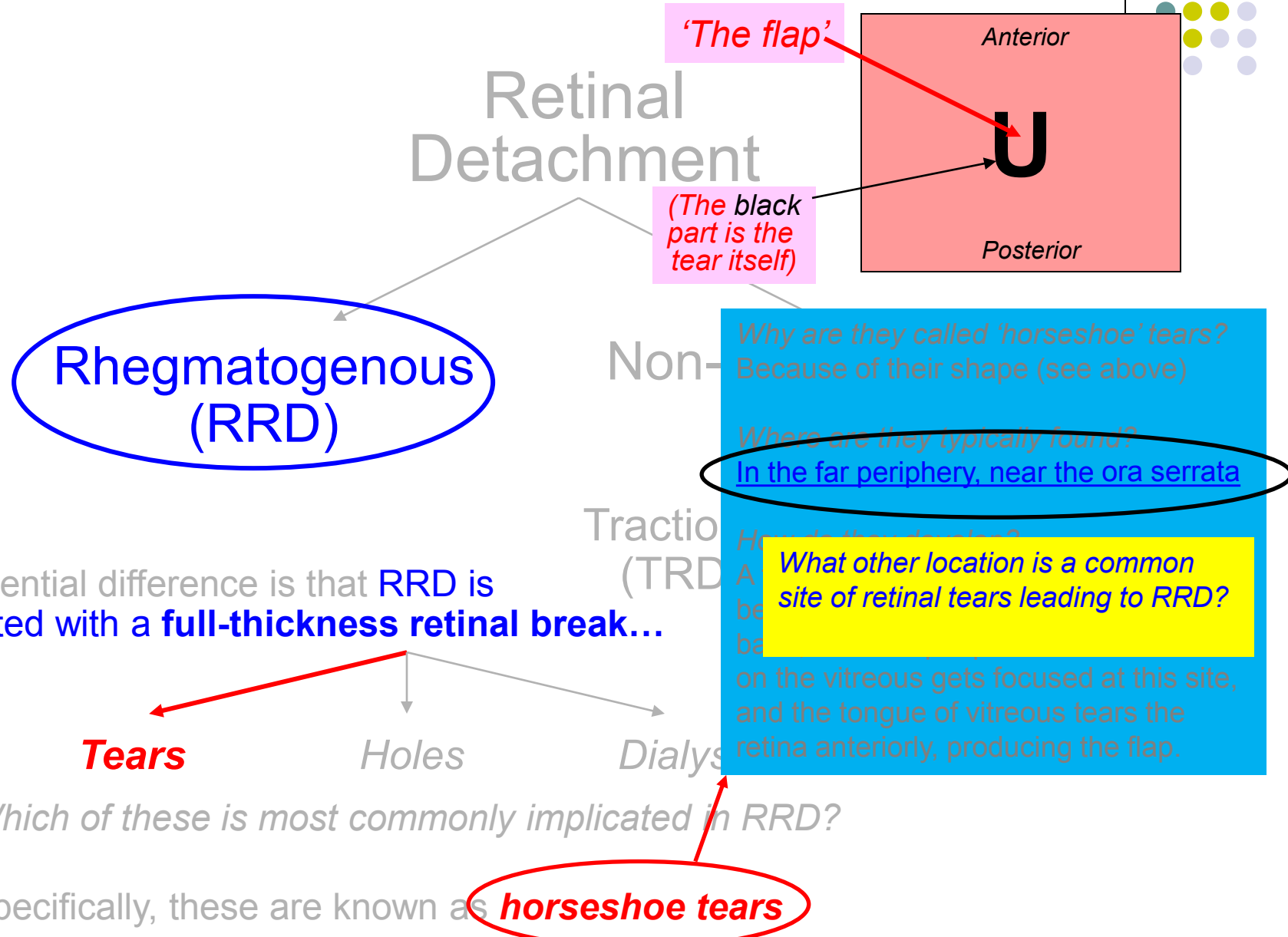
Retinal Detachment Overview



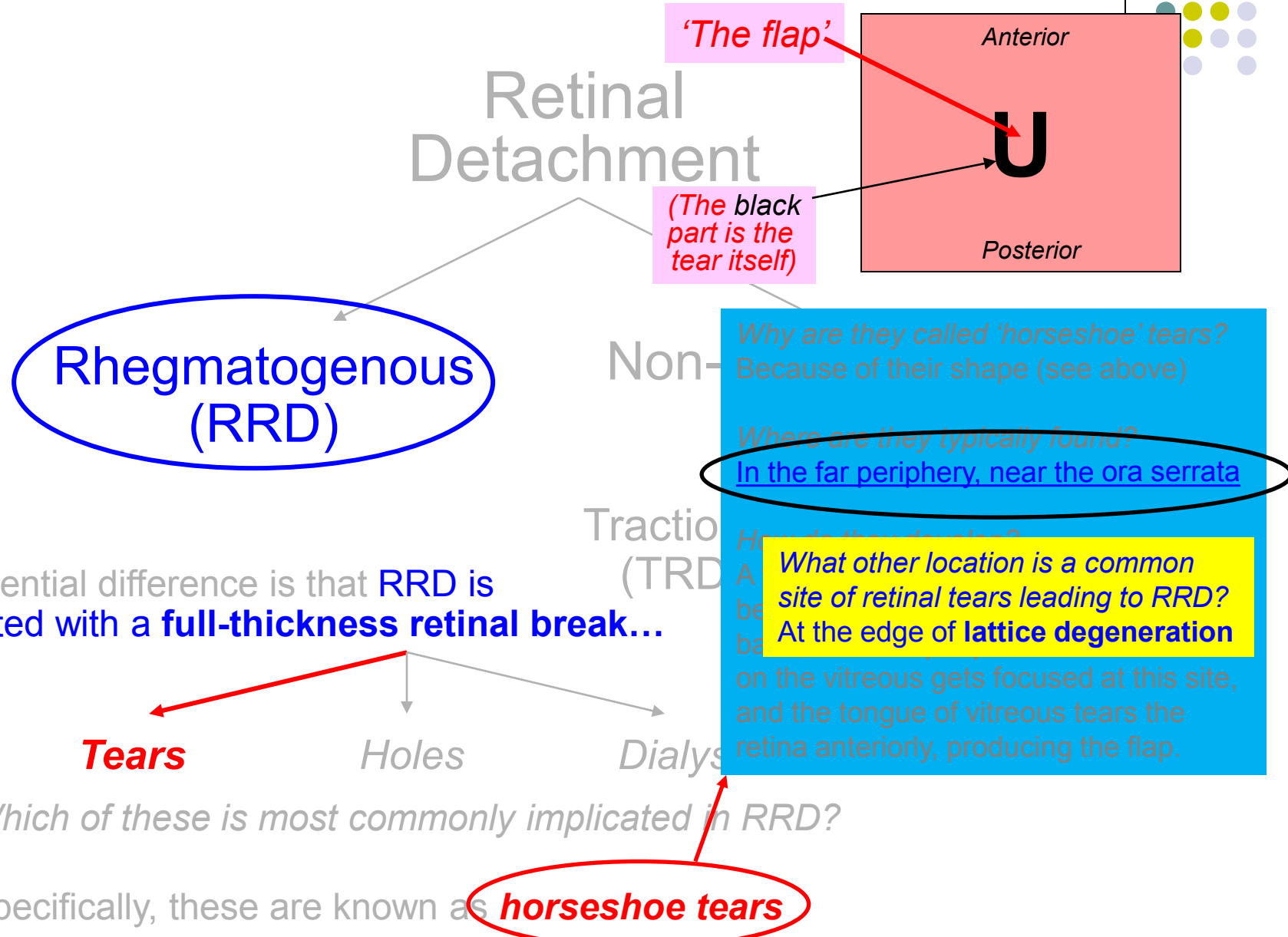
Retinal Detachment Overview



Retinal Detachment Overview



Retinal Detachment Overview

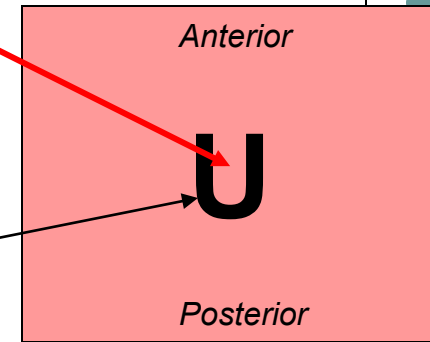


Retinal Detachment Overview

Retinal Detachment

'The flap'

(The black part is the tear itself)



Rhegma

Lattice will also be covered in detail later in the slide-set

...they called 'horseshoe' tears? of their shape (see above)

...they typically found?

In the far periphery, near the ora serrata

Traction (TRD)

The essential difference is that RRD is associated with a **full-thickness retinal break...**

Tears

Holes

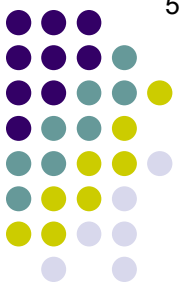
Dialysis

What other location is a common site of retinal tears leading to RRD?
At the edge of **lattice degeneration**

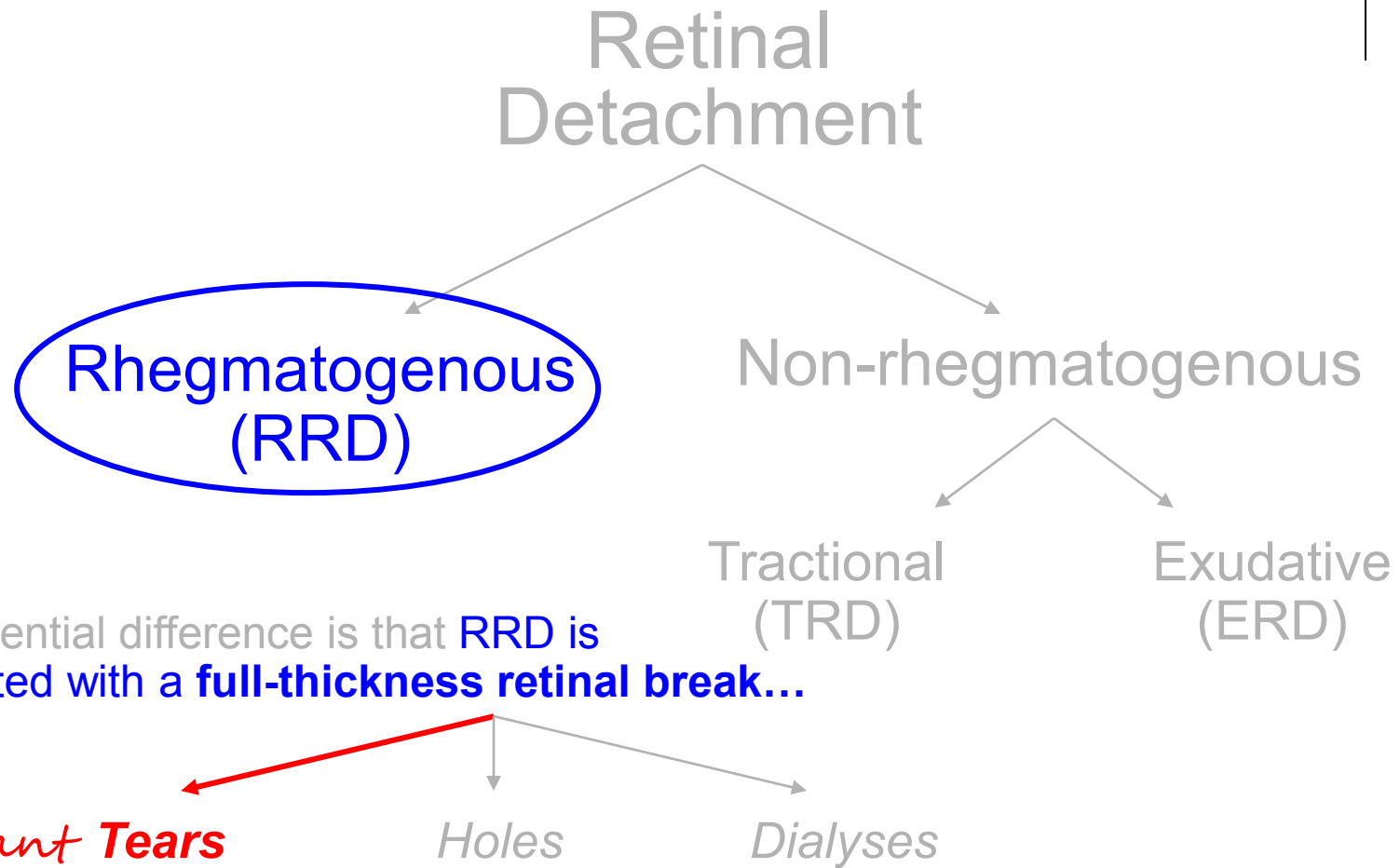
...on the vitreous gets focused at this site, and the tongue of vitreous tears the retina anteriorly, producing the flap.

Which of these is most commonly implicated in RRD?

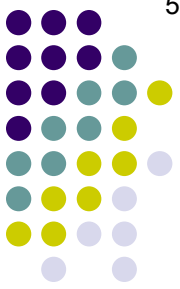
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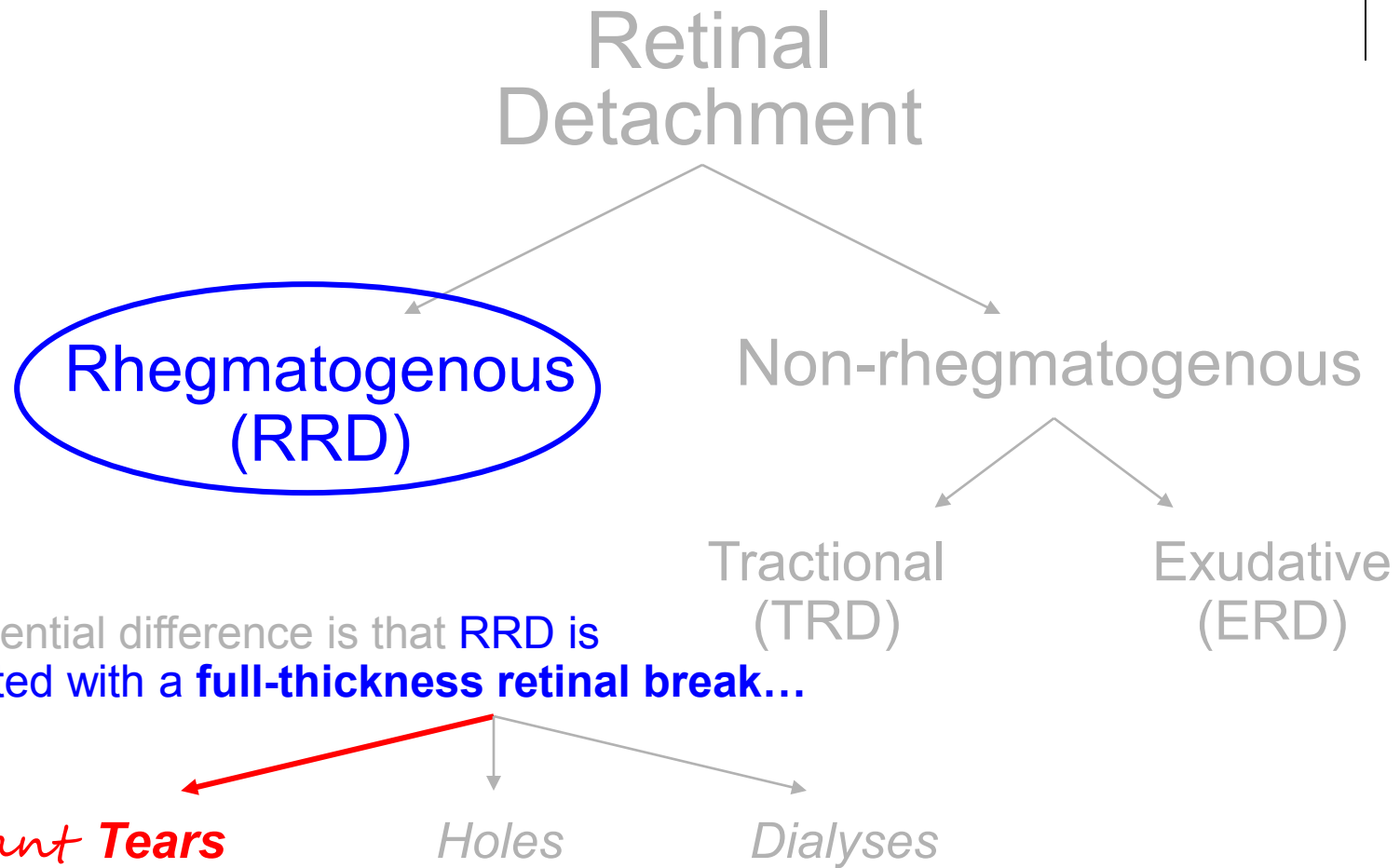
Retinal Detachment Overview



What is a giant retinal tear?



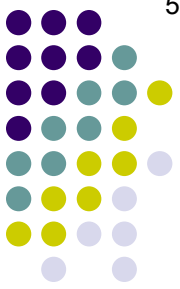
Retinal Detachment Overview



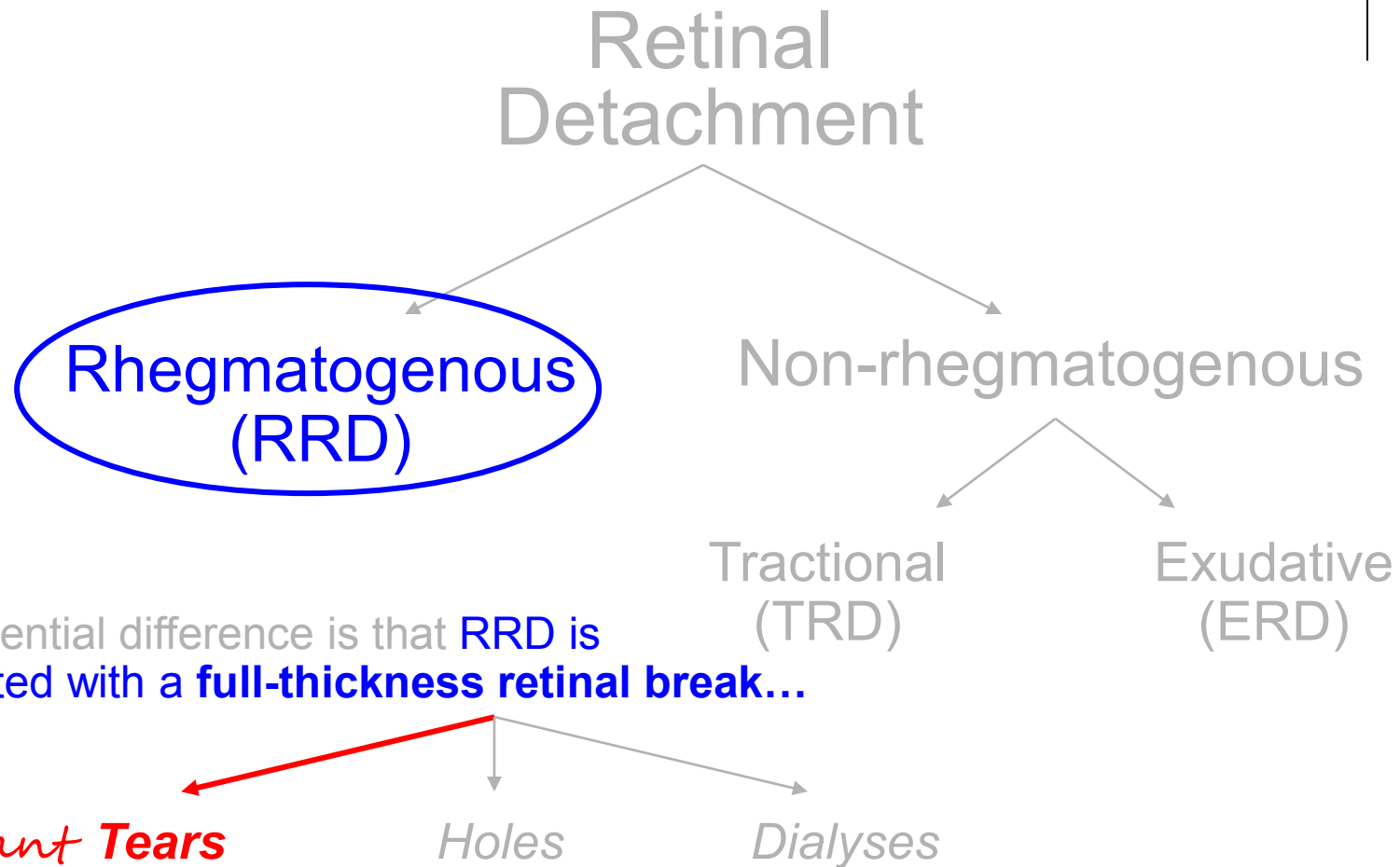
The essential difference is that RRD is associated with a **full-thickness retinal break...**

*What is a **giant** retinal tear?*

A circumferential tear extending at least 90° (3 clock-hours).



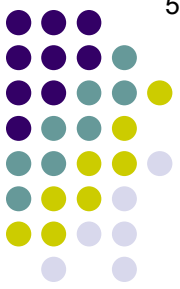
Retinal Detachment Overview



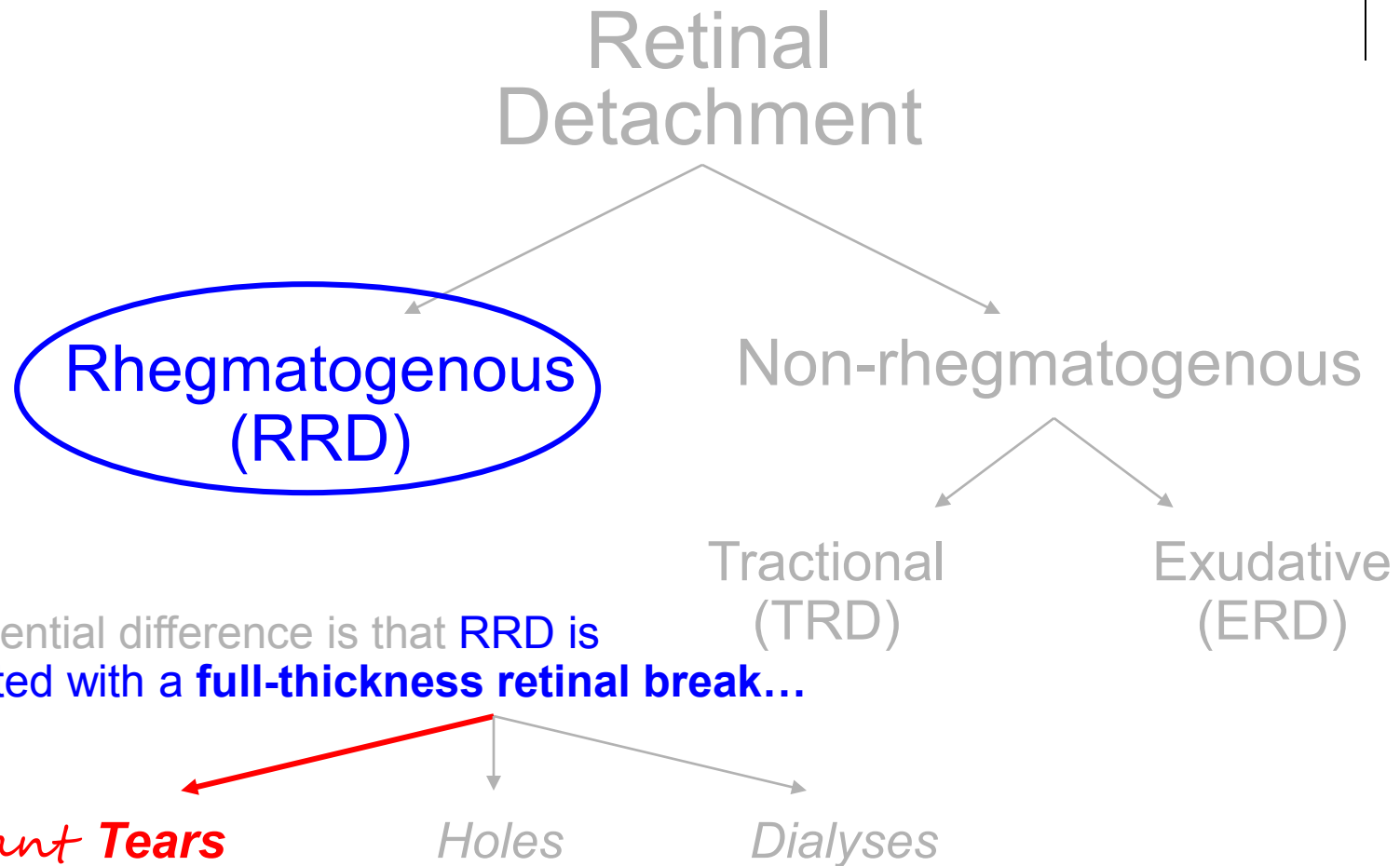
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What is a giant retinal tear? Where are they located?

A circumferential tear extending at least 90° (3 clock-hours).



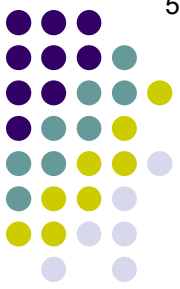
Retinal Detachment Overview



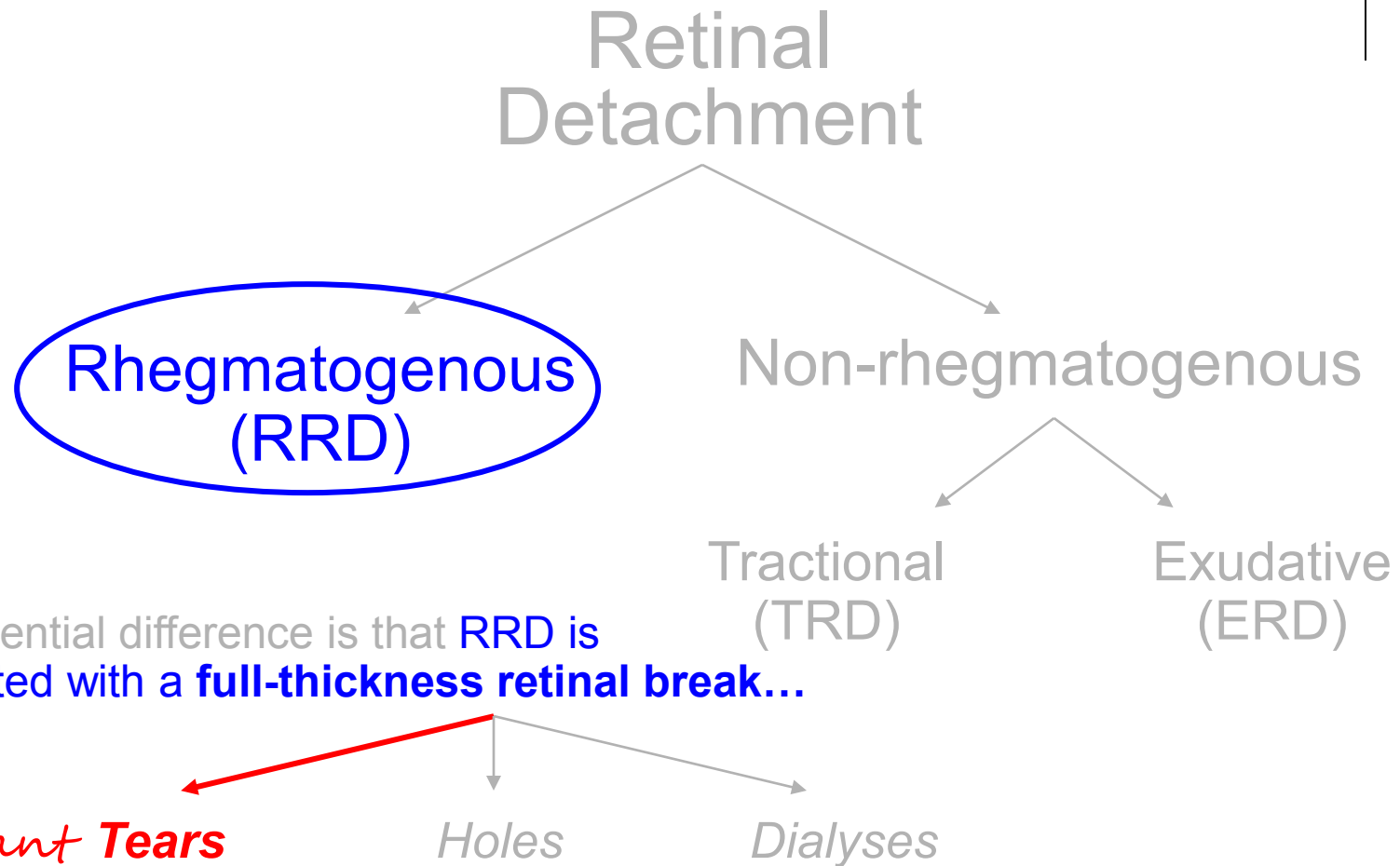
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*What is a **giant retinal tear**? Where are they located?*

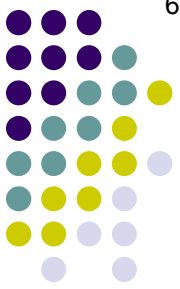
A circumferential tear extending at least 90° (3 clock-hours). In the far periphery.



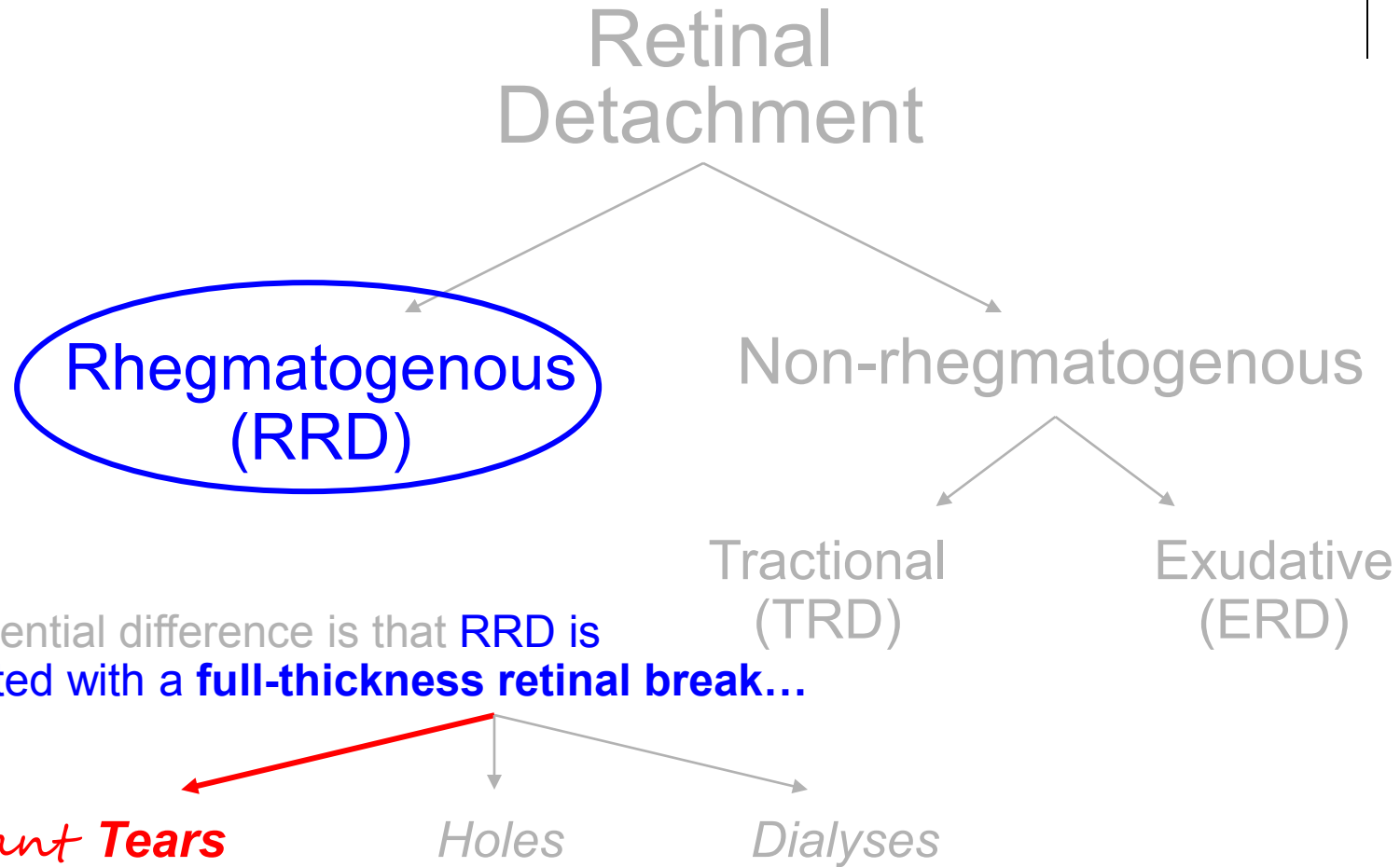
Retinal Detachment Overview



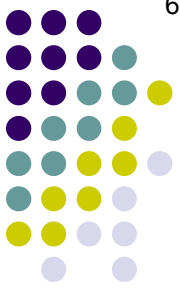
What is a giant retinal tear? Where are they located? What is the cause?
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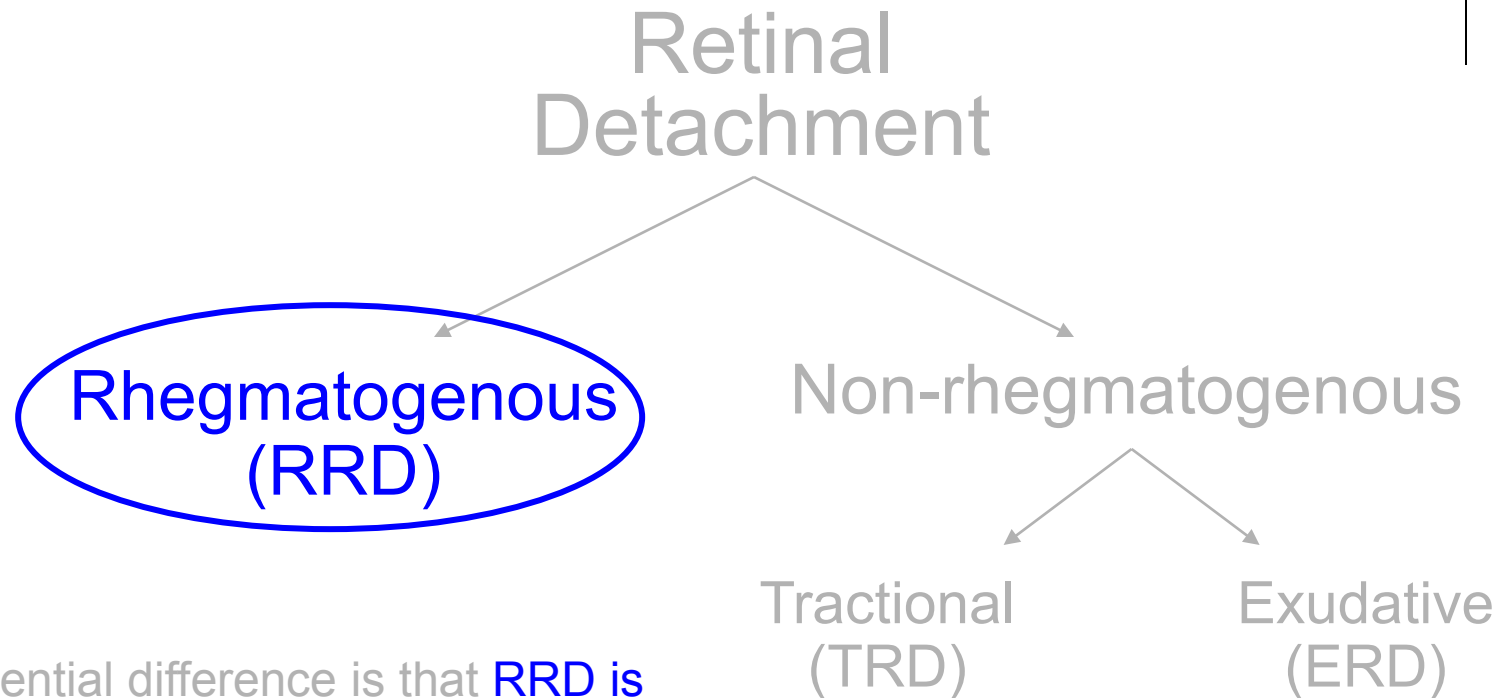
Retinal Detachment Overview



What is a giant retinal tear? Where are they located? What is the cause?
 A circumferential tear extending at least 90° (3 clock-hours). In the far periphery.
 Blunt trauma, usually.



Retinal Detachment Overview



The essential difference is that RRD is associated with a **full-thickness retinal break...**

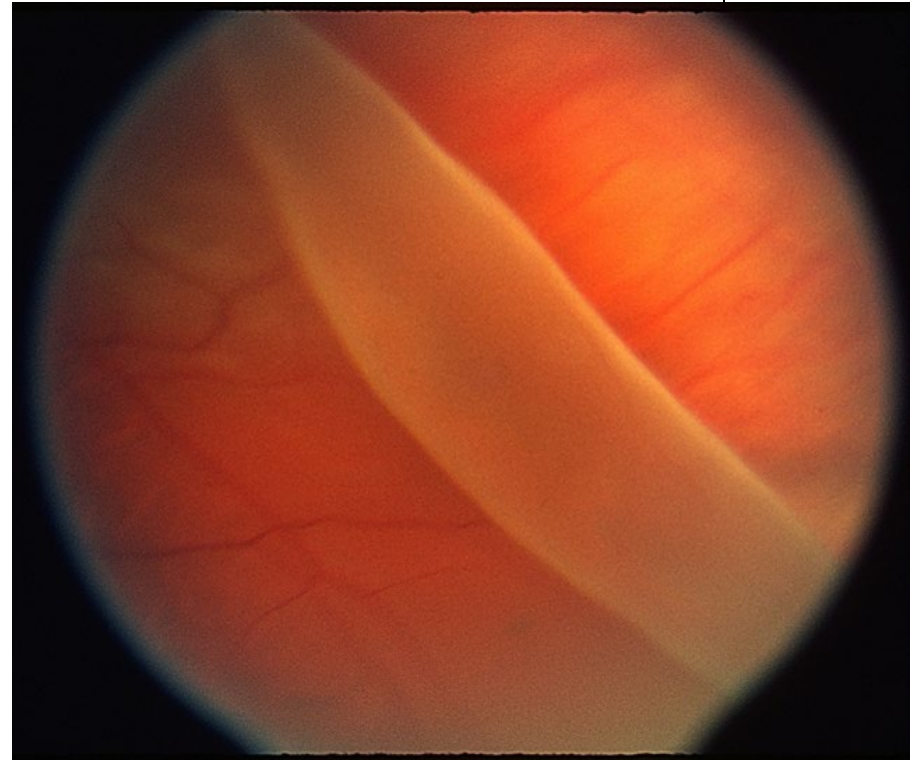
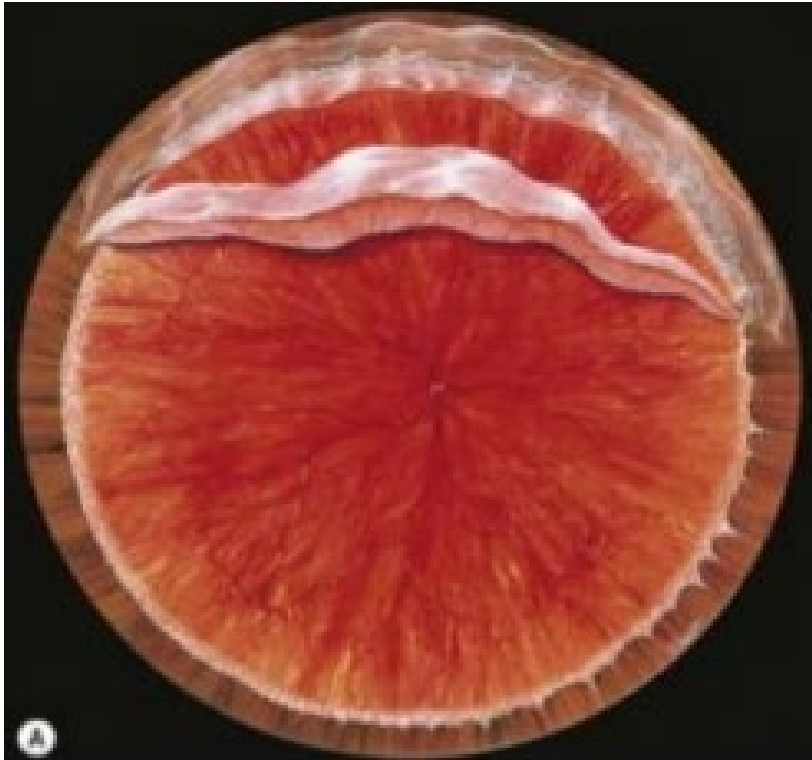
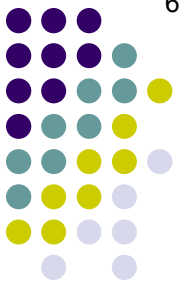
Giant Tears

What is a giant tear?

A circumferential tear extending at least 90° (3 clock-hours). In the far periphery. Blunt trauma, usually.

The mechanism underlying giant retinal tears is essentially the same as that of horseshoe tears: Tension causes the posterior attachment of the vitreous base to tear the peripheral retina anteriorly. The main difference is simply the extent of retina involved.

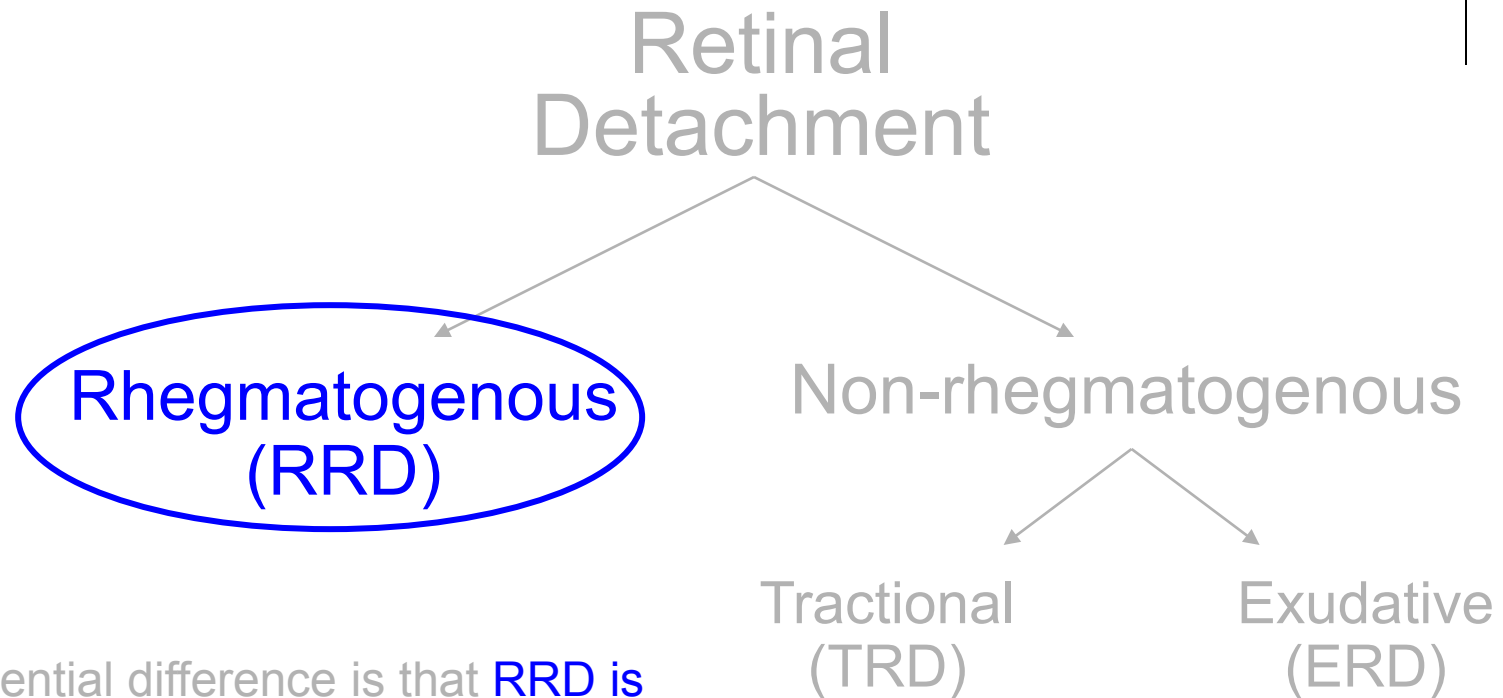
Retinal Detachment Overview



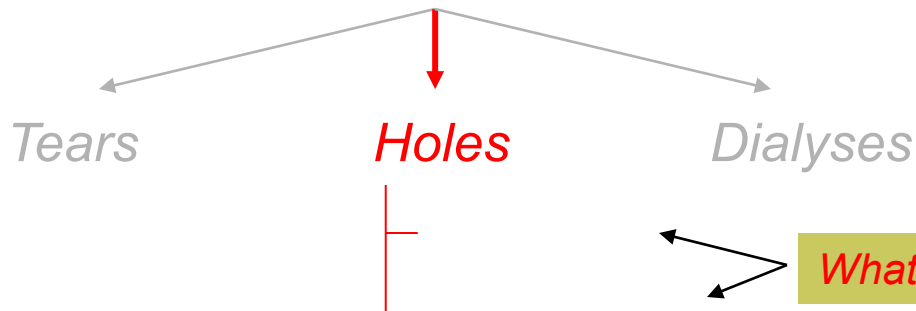
Giant retinal tear



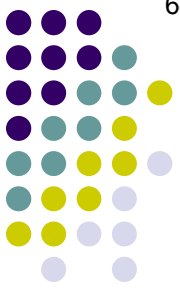
Retinal Detachment Overview



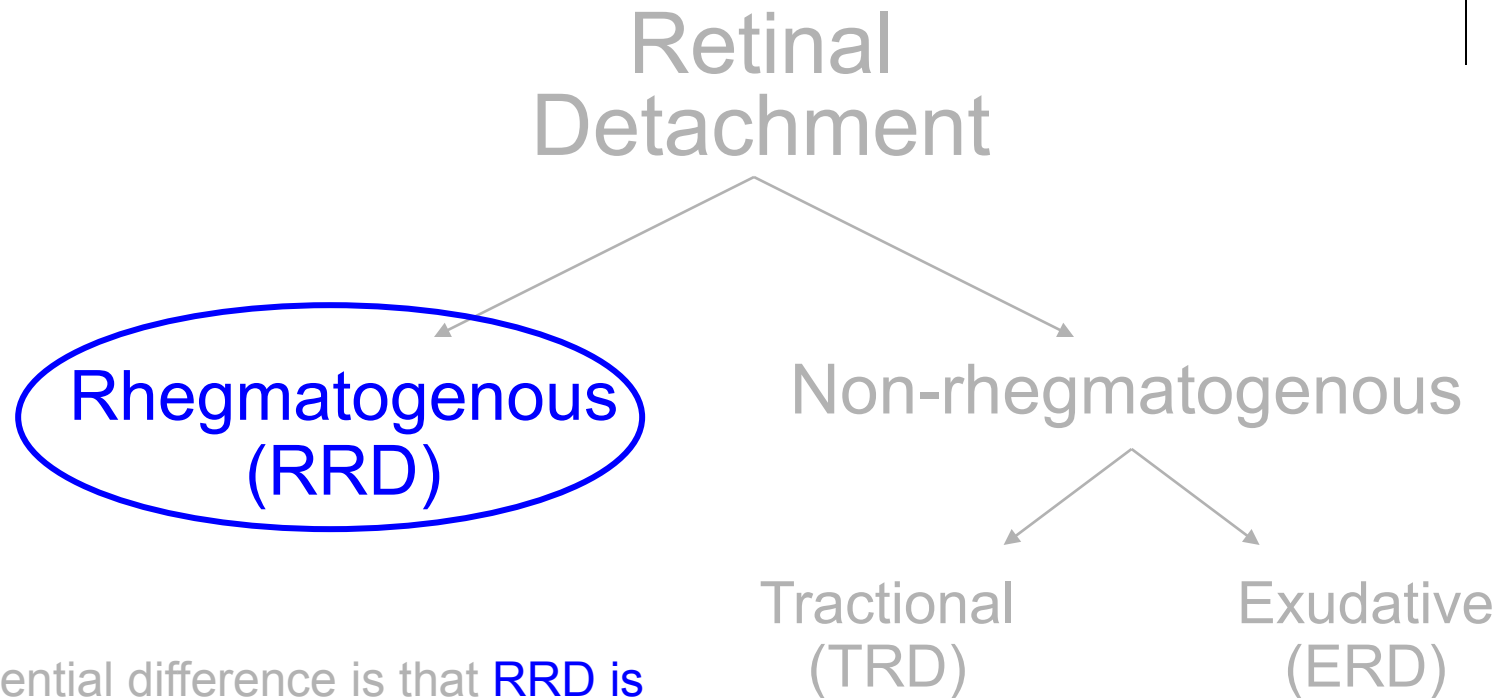
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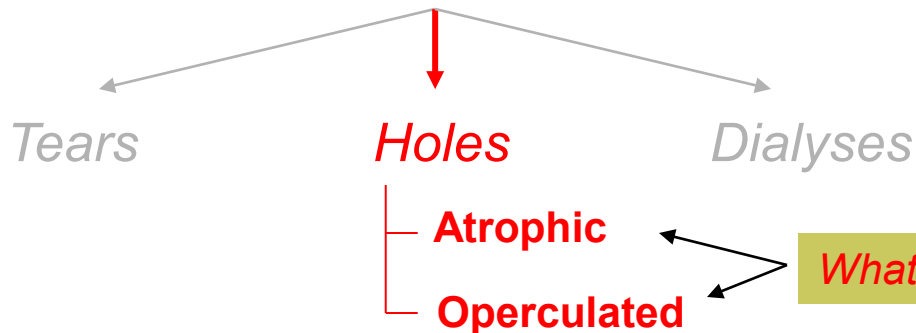
What are the two types of retinal holes?



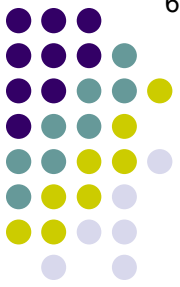
Retinal Detachment Overview



The essential difference is that RRD is associated with a **full-thickness retinal break...**



What are the two types of retinal holes?



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

What does operculated mean?

Tractional
(TRD)

The essential difference is that RRD is associated with a **full-thickness retinal break...**

Tears

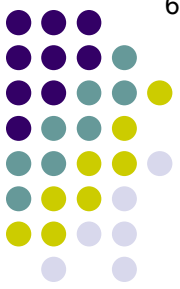
Holes

Dialyses

Atrophic

Operculated





Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

What does operculated mean?

It means, 'covered by an operculum'

Tractional
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The essential difference is that RRD is associated with a **full-thickness retinal break...**

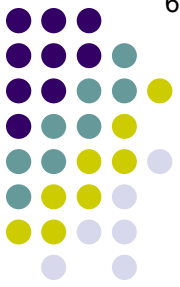
Tears

Holes

Dialysis

Atrophic

Operculated



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
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Non-rhegmatogenous

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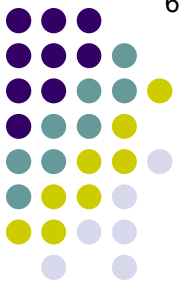
Tears

Holes

Dialyses

Atrophic

Operculated



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

What does operculated mean?

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OK, so what's an operculum?

An operculum is a lid, or a cover. Thus, an operculated retinal hole is a full-thickness break in the retina with the missing piece of retina suspended within the vitreous above the break.

The essential difference is that RRD is associated with a **full-thickness retinal break...**

Tears

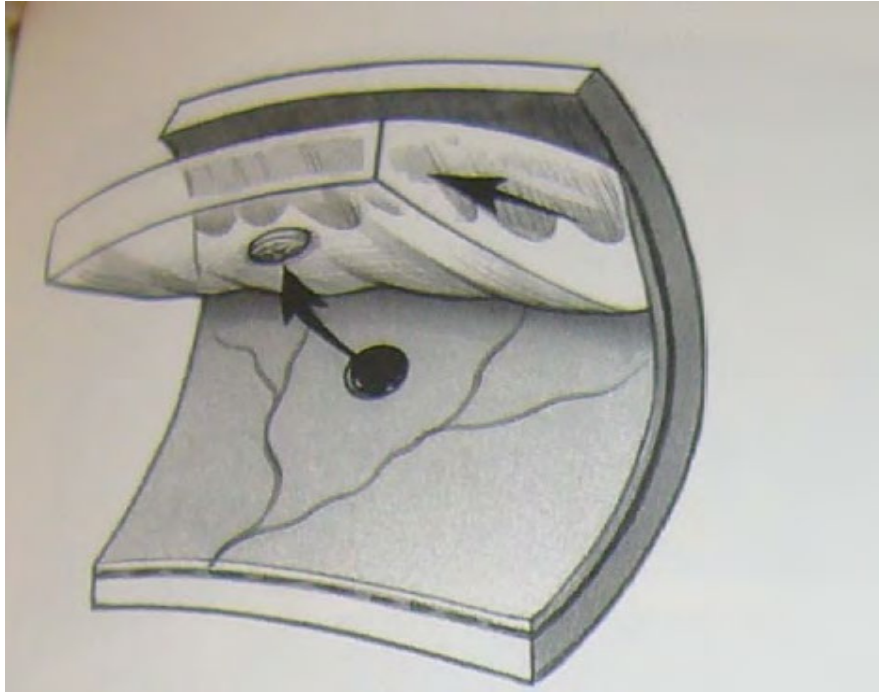
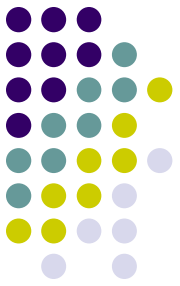
Holes

Dialyses

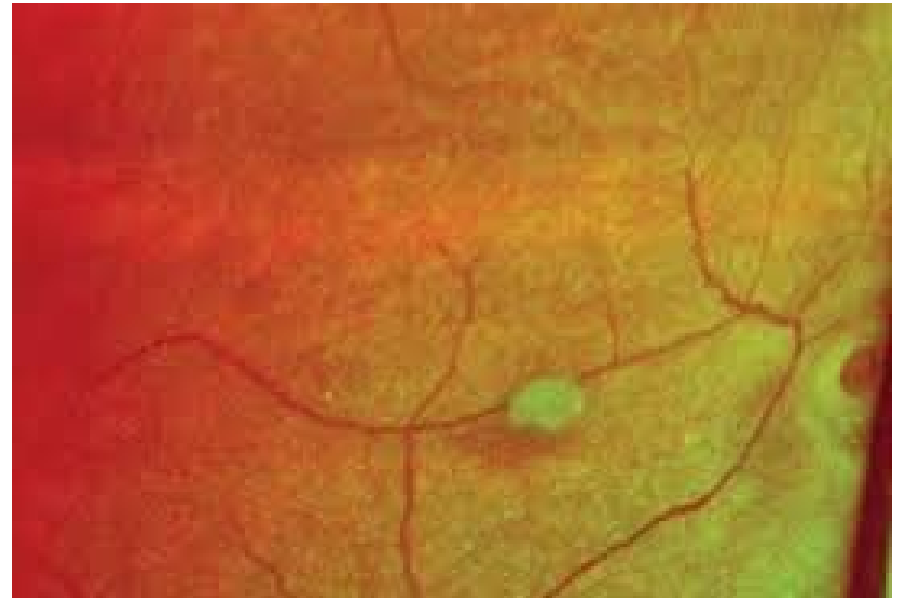
Atrophic

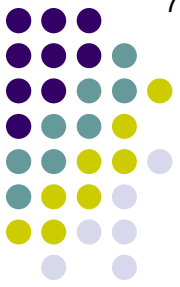
Operculated

Retinal Detachment Overview



Operculated retinal hole





Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

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How do operculated holes come about?

The essential difference is that RRD is associated with a **full-thickness retinal break...**

Tears

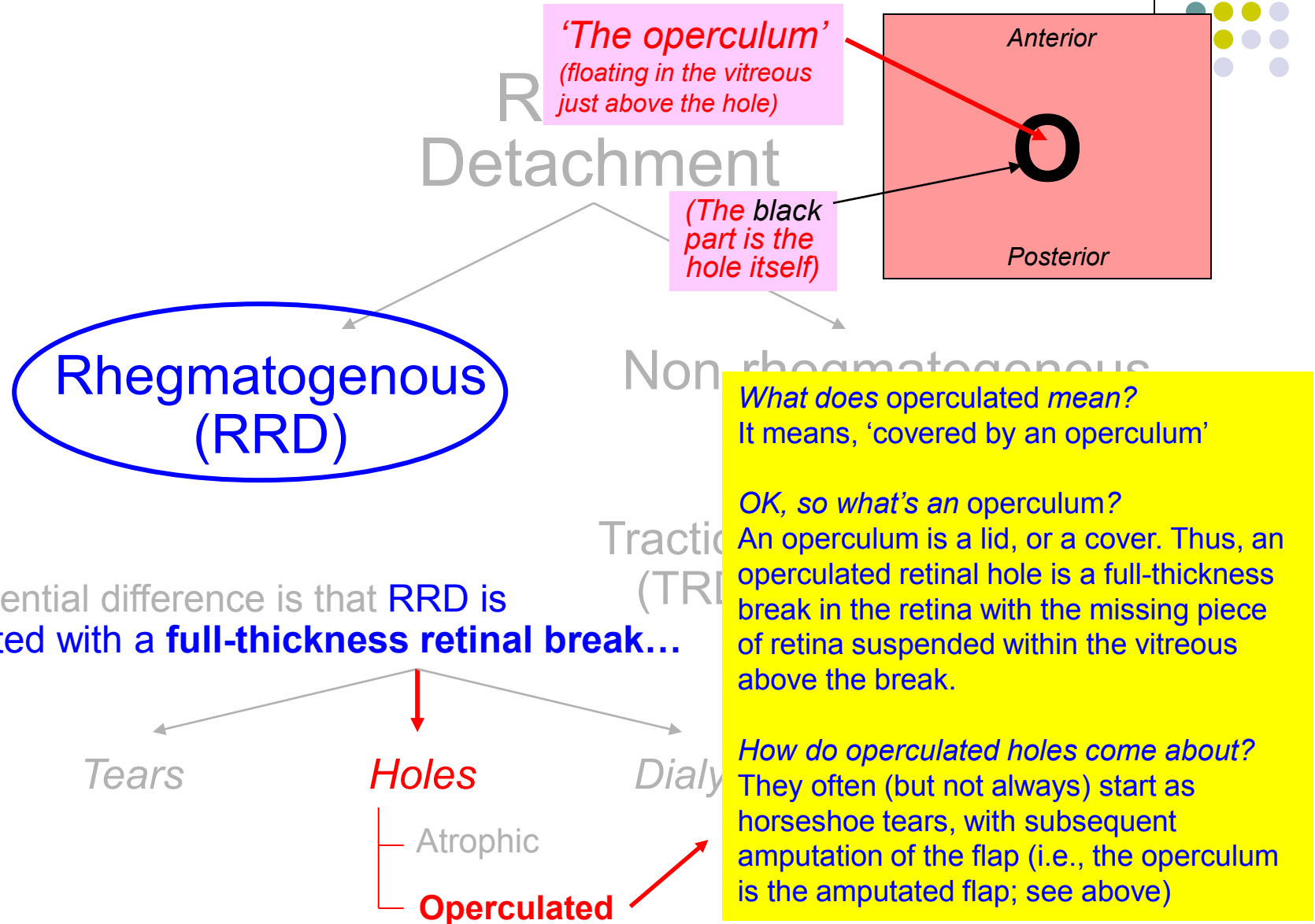
Holes

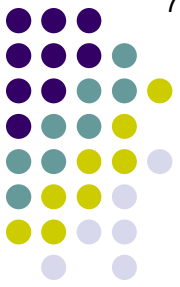
Dialyses

Atrophic

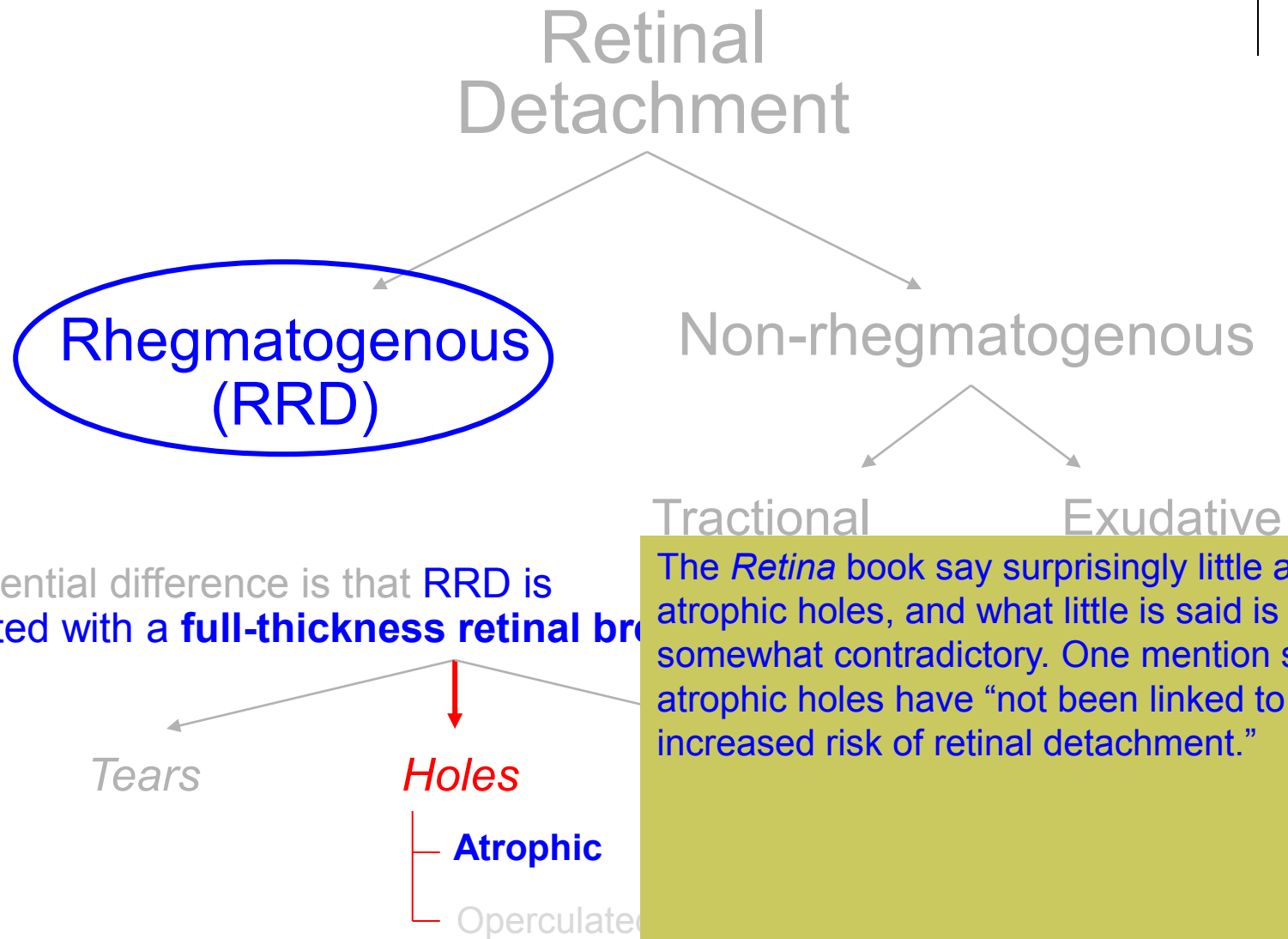
Operculated

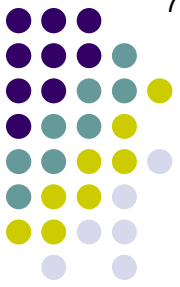
Retinal Detachment Overview



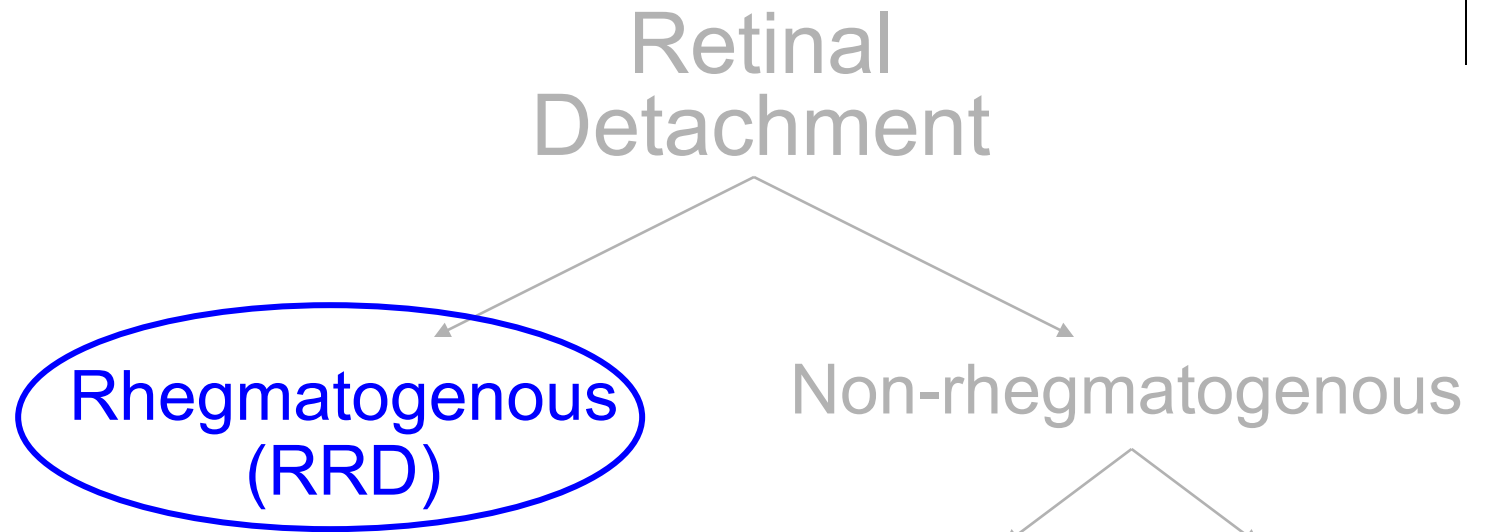


Retinal Detachment Overview

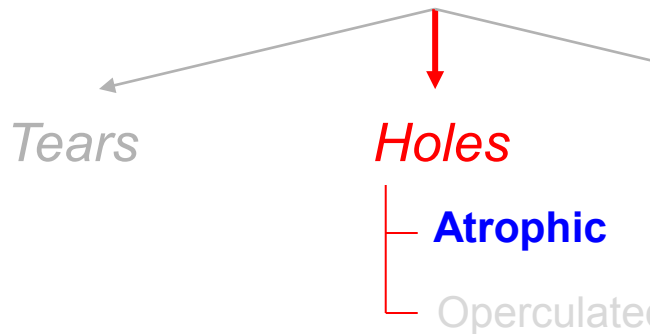




Retinal Detachment Overview

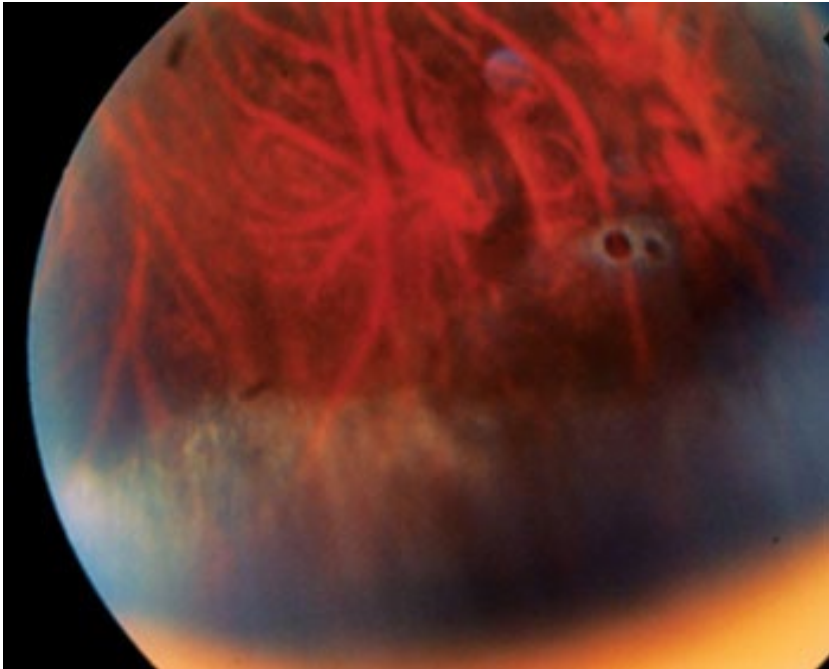
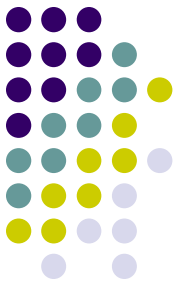


The essential difference is that RRD is associated with a **full-thickness retinal break**

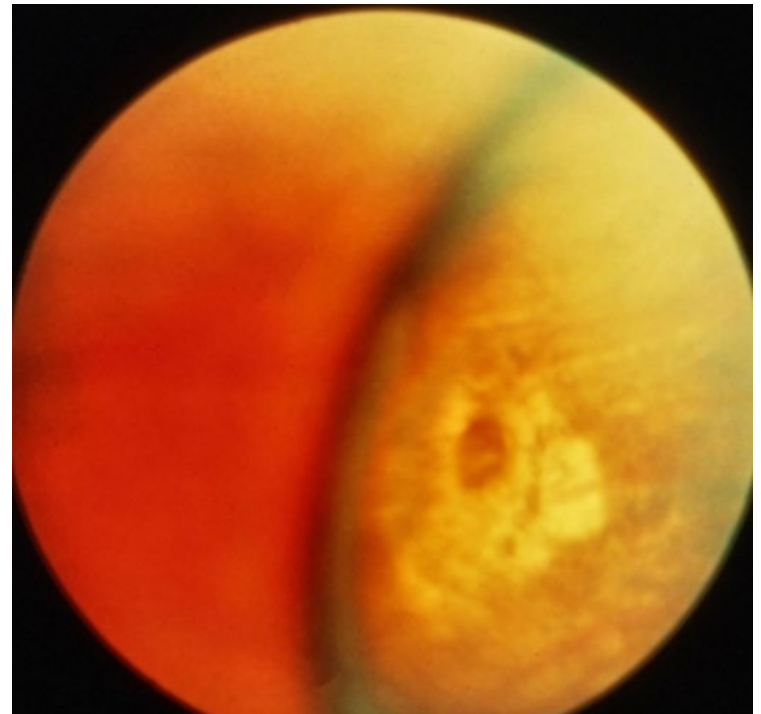


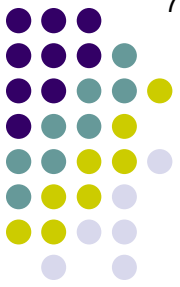
The *Retina* book says surprisingly little about atrophic holes, and what little is said is somewhat contradictory. One mention states atrophic holes have “not been linked to an increased risk of retinal detachment.” But another mention asserts that atrophic holes within an area of lattice degeneration are an ‘uncommon cause of retinal detachment.’ Caveat emptor.

Retinal Detachment Overview

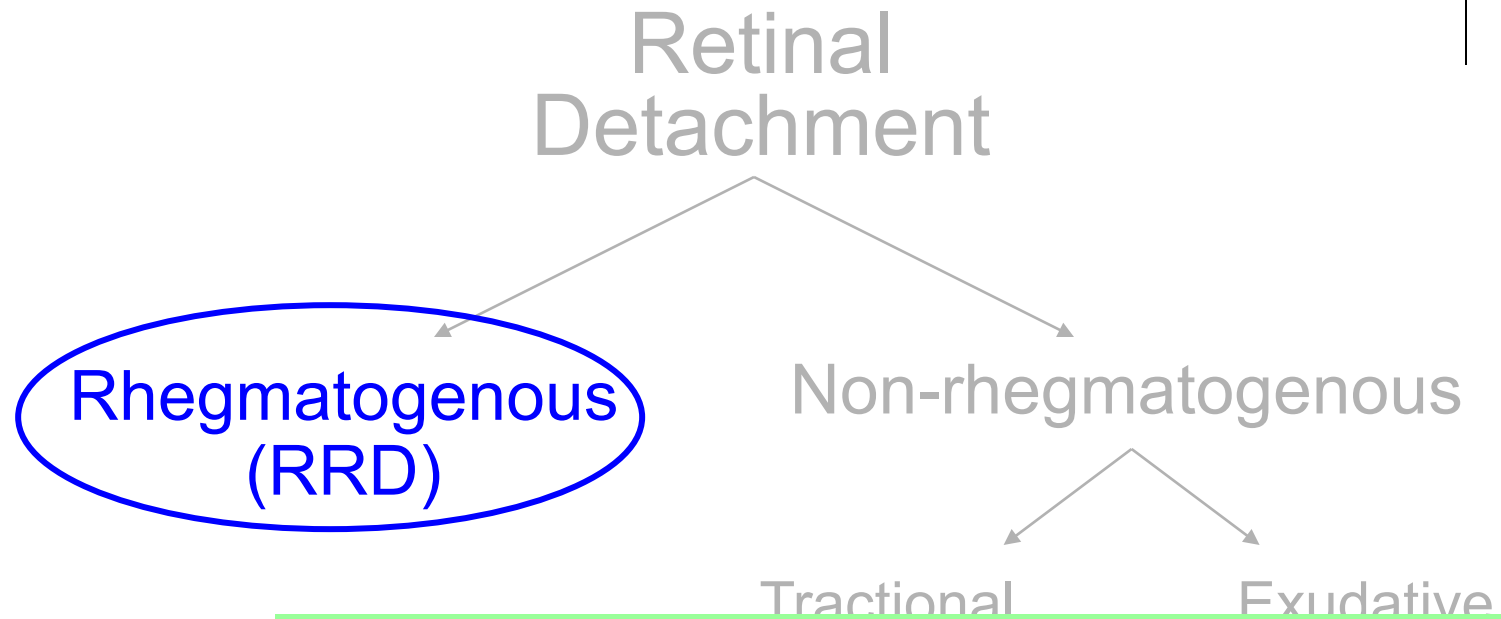


Atrophic retinal hole





Retinal Detachment Overview



Rhegmatogenous
(RRD)

Non-rhegmatogenous

Tractional

Exudative

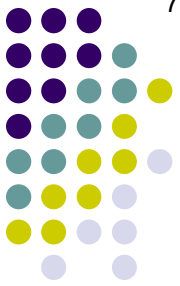
What is a retinal dialysis?

The essential difference
associated with a full

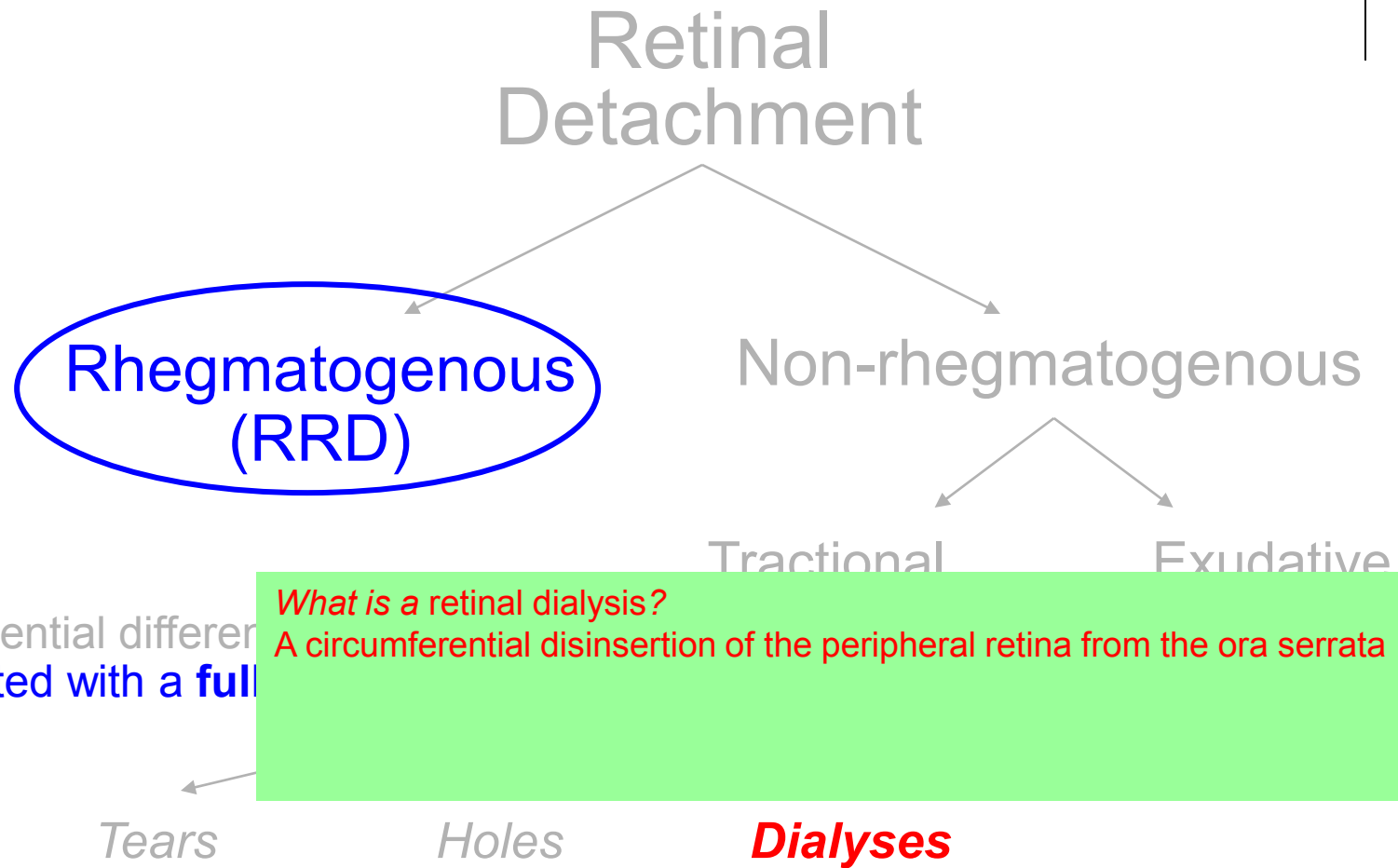
Tears

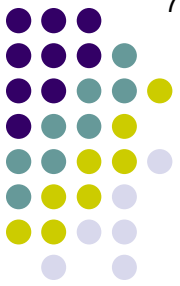
Holes

Dialyses

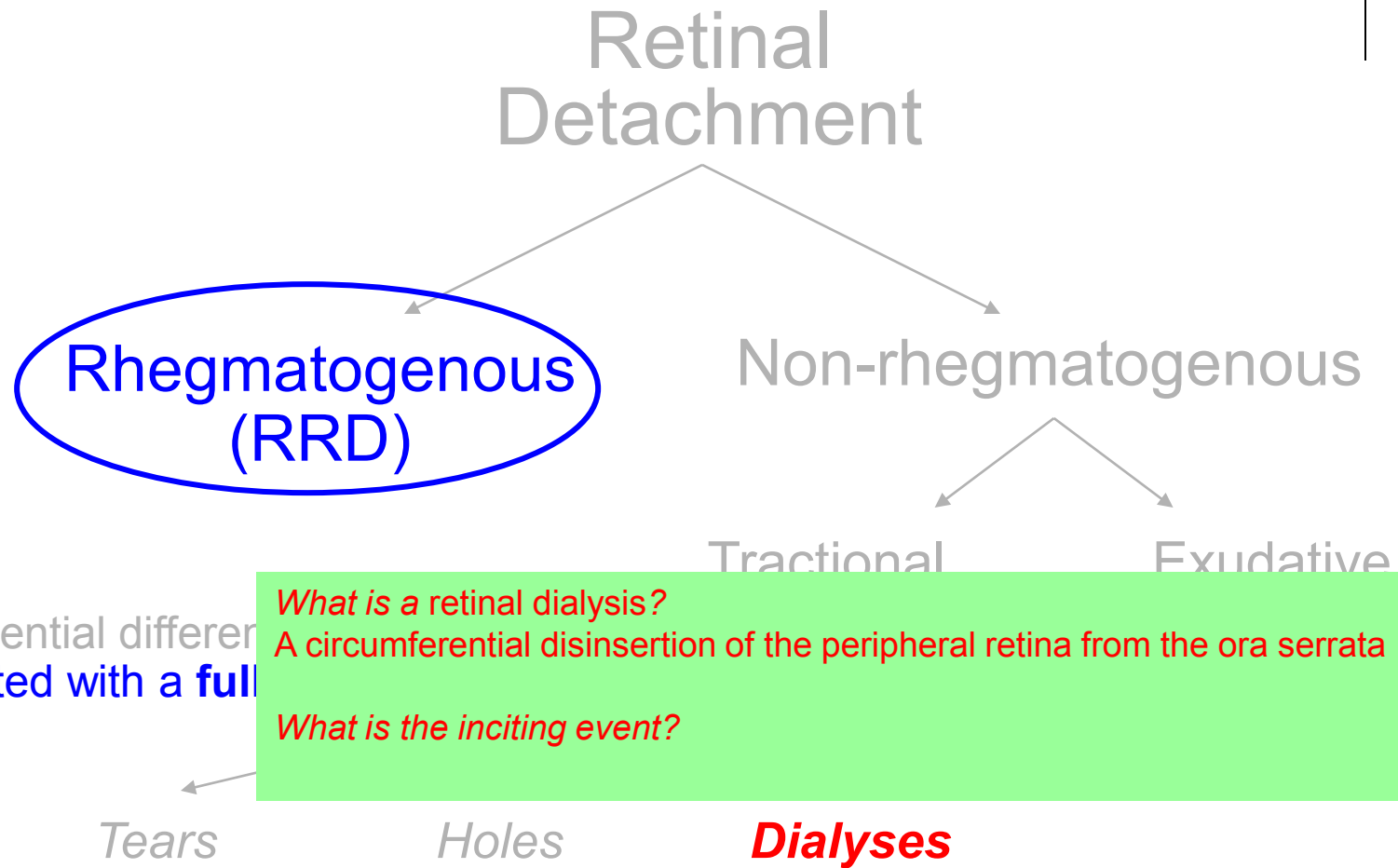


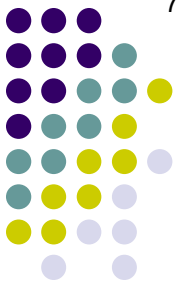
Retinal Detachment Overview



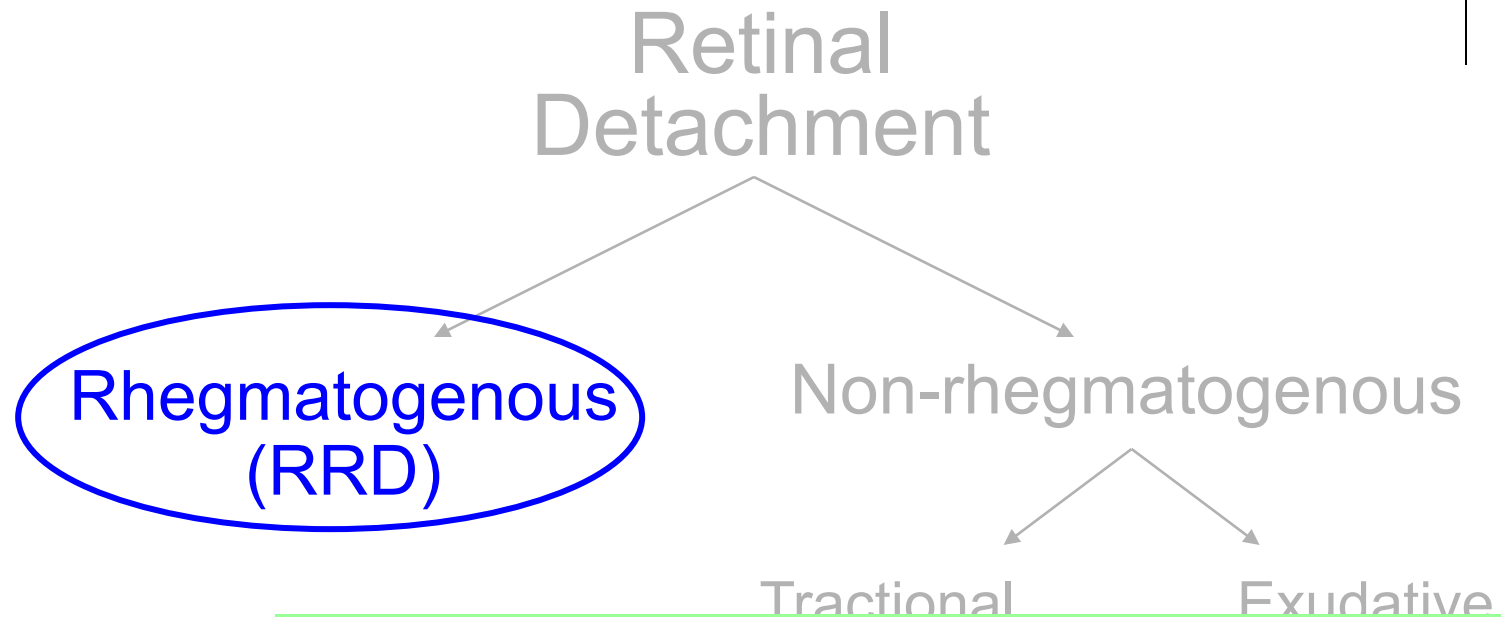


Retinal Detachment Overview





Retinal Detachment Overview



Rhegmatogenous
(RRD)

Non-rhegmatogenous

Tractional

Exudative

The essential difference
associated with a full

What is a retinal dialysis?

A circumferential disinsertion of the peripheral retina from the ora serrata

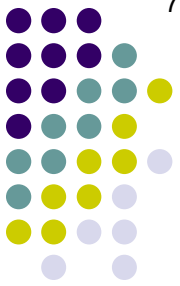
What is the inciting event?

Usually blunt trauma (although it can occur spontaneously in predisposed eyes)

Tears

Holes

Dialyses



Retinal Detachment Overview

Retinal Detachment

'A circumferential disinsertion of the peripheral retina due to blunt trauma' sounds an awful lot like 'a circumferential tear in the far periphery due to blunt trauma,' ie, a giant retinal tear. Are these simply two names for the same thing?

The essential difference associated with a full

What is a retinal dialysis?

A circumferential disinsertion of the peripheral retina from the ora serrata

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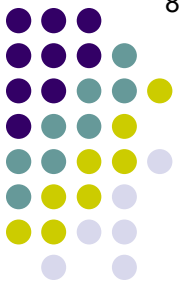
Giant Tears

Holes

Dialyses

What is a giant retinal tear? Where are they located? What is the cause?

A circumferential tear extending at least 90° (3 clock-hours). In the far periphery.
Blunt trauma, usually.



Retinal Detachment Overview

Retinal Detachment

'A circumferential disinsertion of the peripheral retina due to blunt trauma' sounds an awful lot like 'a circumferential tear in the far periphery due to blunt trauma,' ie, a giant retinal tear. Are these simply two names for the same thing?

Definitely not. Recall that in a giant retinal tear, tension produced by the vitreous causes a rent in the retina as the posterior attachment of the vitreous 'peels' anteriorly.

The essential difference
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What is a retinal dialysis?

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Giant Tears

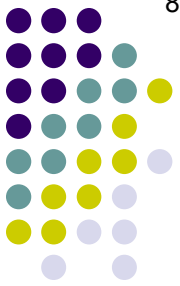
Holes

Dialyses

What is a giant retinal tear? Where are they located? What is the cause?

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Blunt trauma, usually.



Retinal Detachment Overview

Retinal Detachment

'A circumferential disinsertion of the peripheral retina due to blunt trauma' sounds an awful lot like 'a circumferential tear in the far periphery due to blunt trauma,' ie, a giant retinal tear. Are these simply two names for the same thing?

Definitely not. Recall that in a giant retinal tear, tension produced by the vitreous causes a rent in the retina as the posterior attachment of the vitreous 'peels' anteriorly. In contrast, in retinal dialysis the tension applied by the vitreous causes the retina at the ora to peel *posteriorly*.

The essential difference
associated with a full

What is a retinal dialysis?

A circumferential disinsertion of the peripheral retina from the ora serrata

What is the inciting event?

Usually blunt trauma (although it can occur spontaneously in predisposed eyes)

Giant Tears

Holes

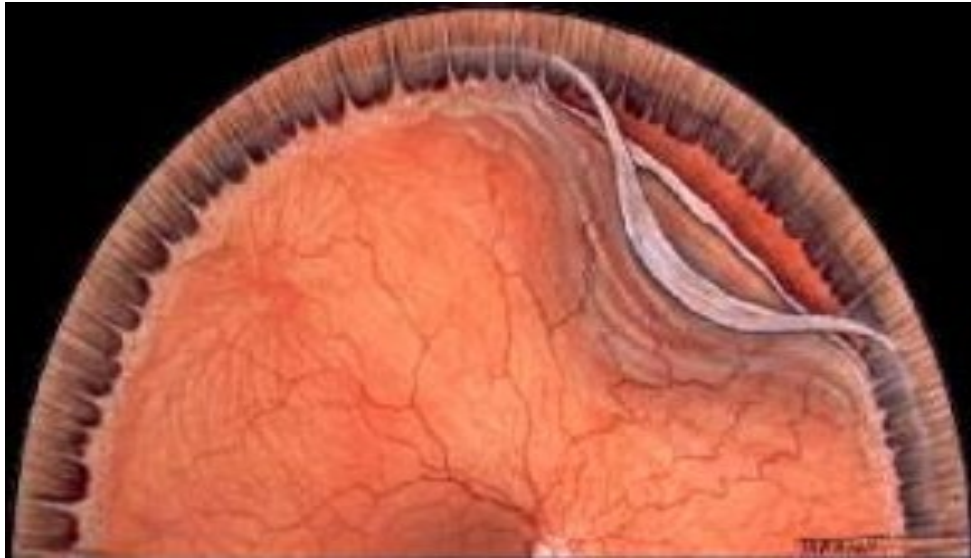
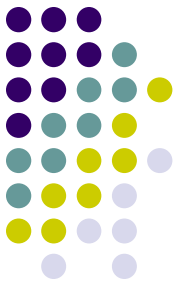
Dialyses

What is a giant retinal tear? Where are they located? What is the cause?

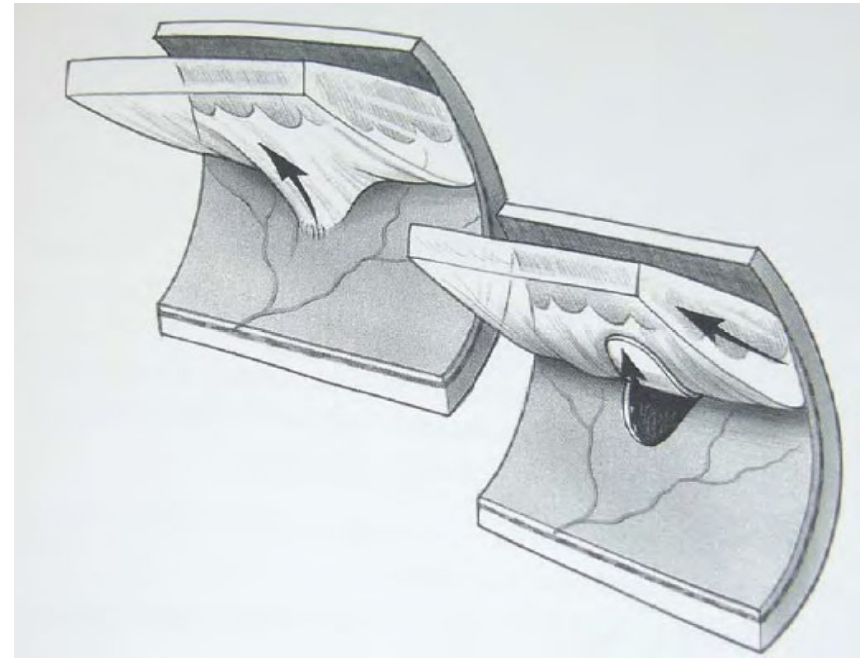
A circumferential tear extending at least 90° (3 clock-hours). In the far periphery.

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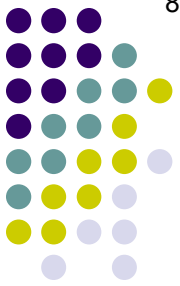
Retinal Detachment Overview



Retinal dialysis: Retina peels away from vitreous base



Horseshoe tear: Retina peels *toward* vitreous base



Retinal Detachment Overview

Retinal Detachment

'A circumferential disinsertion of the peripheral retina due to blunt trauma' sounds an awful lot like 'a circumferential tear in the far periphery due to blunt trauma,' ie. a giant retinal tear. Are these simply two different names for the same thing?

Definitely not. In a giant retinal tear, the retina is torn, and the vitreous is pulled into the tear. In a retinal dialysis, the retina is simply detached from the underlying tissue, and the vitreous remains in place.

*Uncertain about the anatomy of the vitreous?
No worries—it will be covered in detail shortly*

The essential difference is that a giant tear is associated with a full-thickness retinal tear, while a dialysis is not.

What is a retinal dialysis?

A circumferential disinsertion of the peripheral retina from the ora serrata

What is the inciting event?

Usually blunt trauma (although it can occur spontaneously in predisposed eyes)

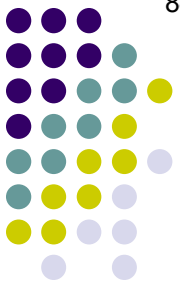
Giant Tears

Holes

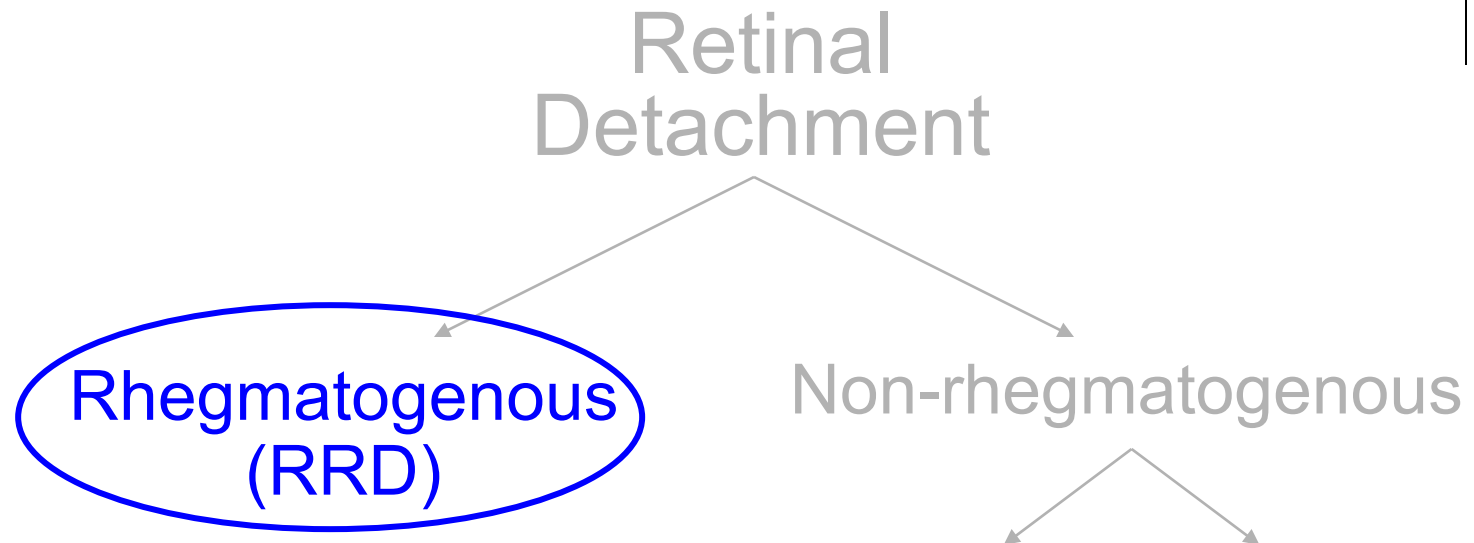
Dialyses

What is a giant retinal tear? Where are they located? What is the cause?

A circumferential tear extending at least 90° (3 clock-hours). In the far periphery. Blunt trauma, usually.

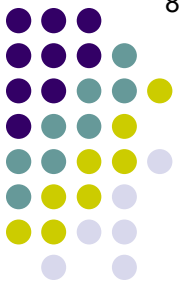


Retinal Detachment Overview

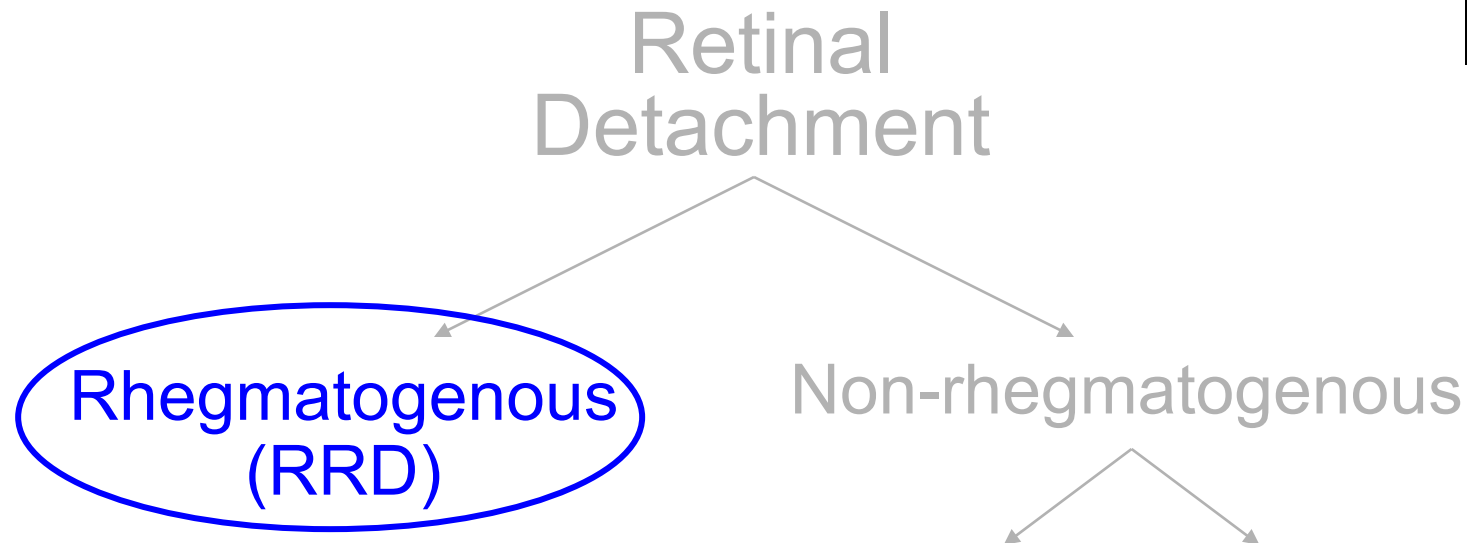


The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

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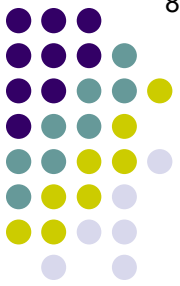


Retinal Detachment Overview

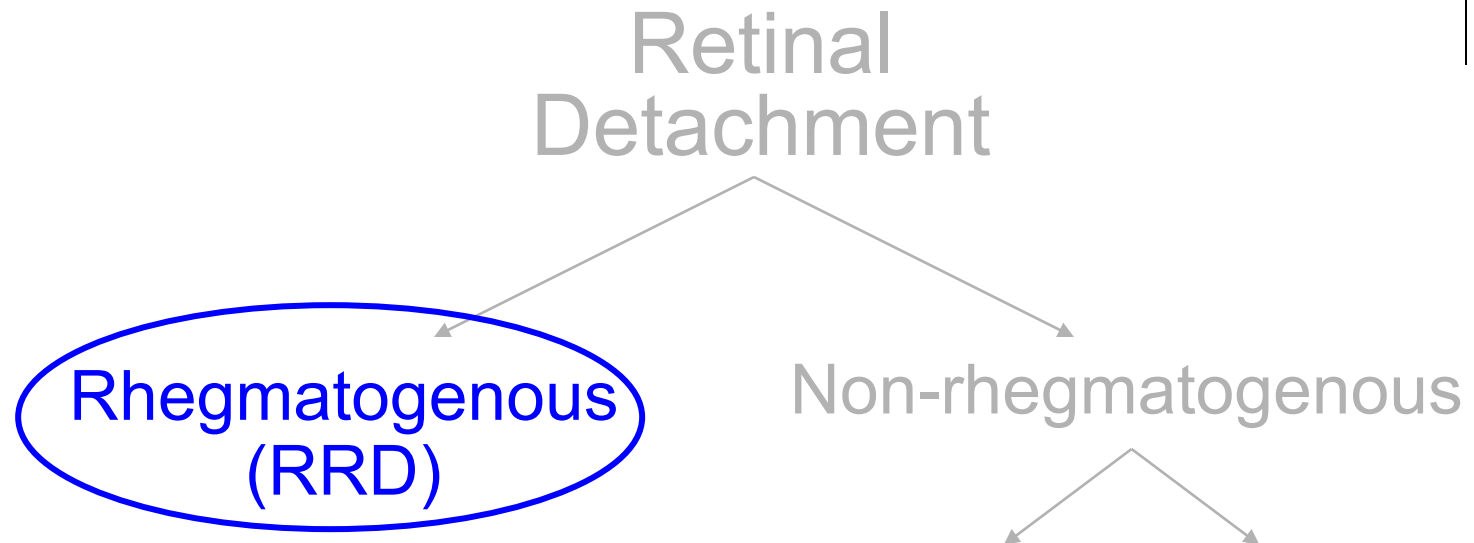


The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

- Posterior vitreous detachment (PVD)
- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)?

--Myopia?

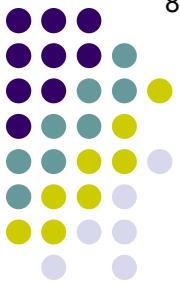
--Lattice degeneration?

--Cataract surgery?

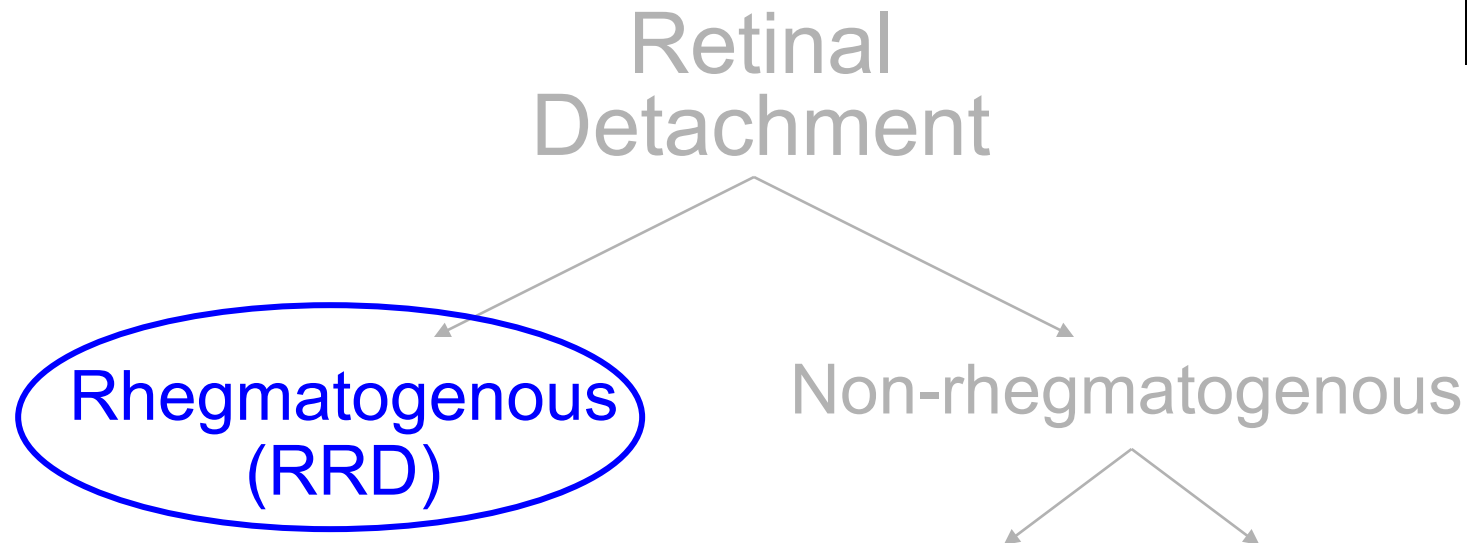
--Trauma?

--Hx RRD in fellow eye?

Of these, which is the biggest risk factor?



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--**Posterior vitreous detachment (PVD)**

--Myopia

--Lattice degeneration

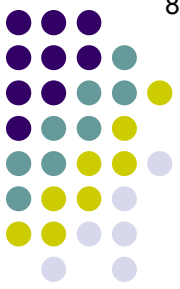
--Cataract surgery

--Trauma

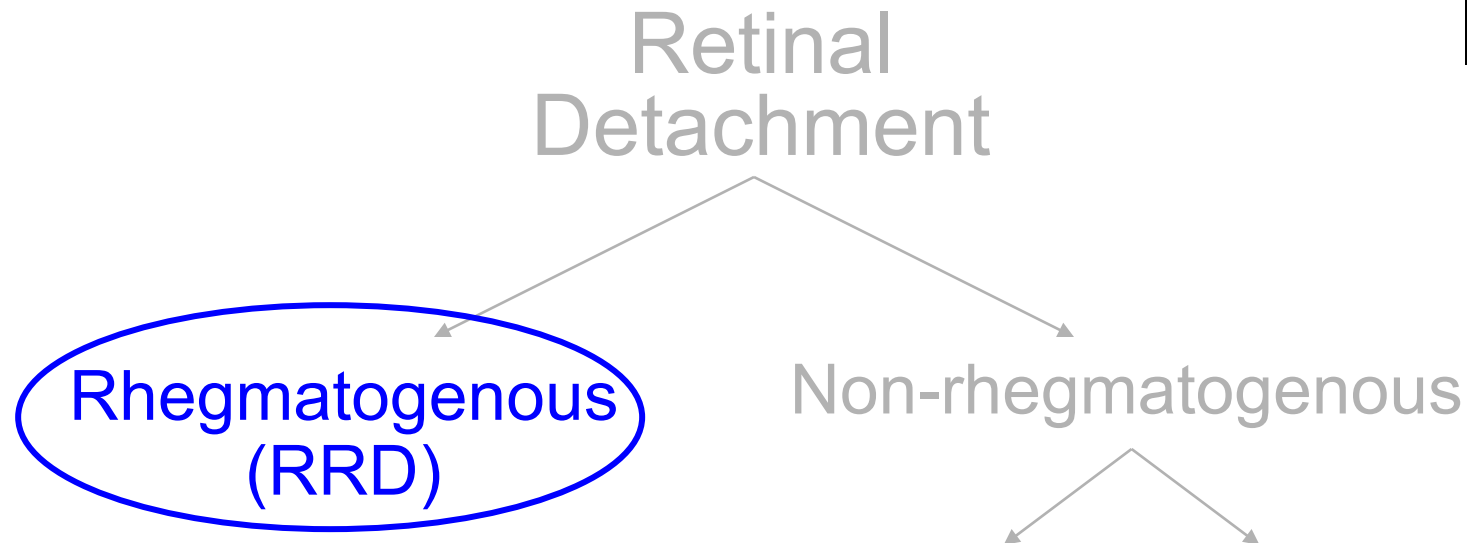
--Hx RRD in fellow eye

Of these, which is the biggest risk factor?

PVD



Retinal Detachment Overview



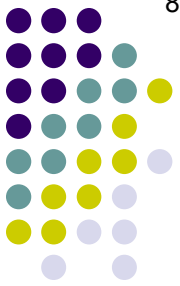
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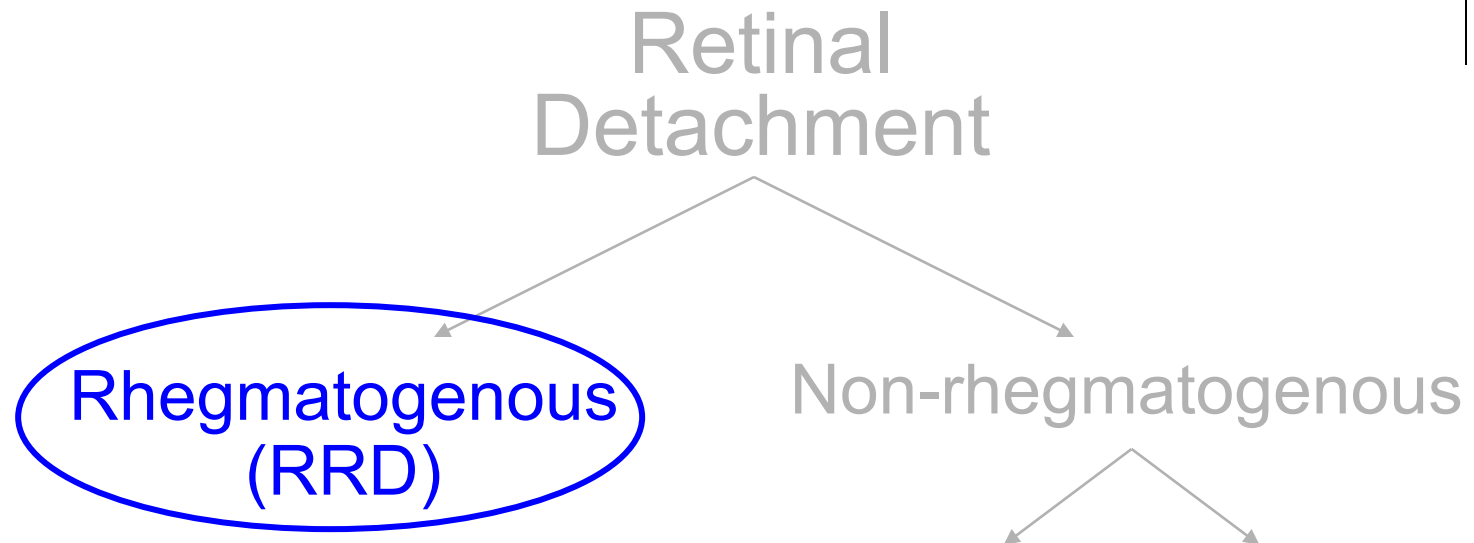
- Myopia
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What are the five major locations of vitreous attachment in the eye?

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-
-
-
-



Retinal Detachment Overview



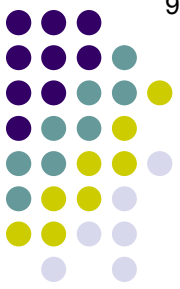
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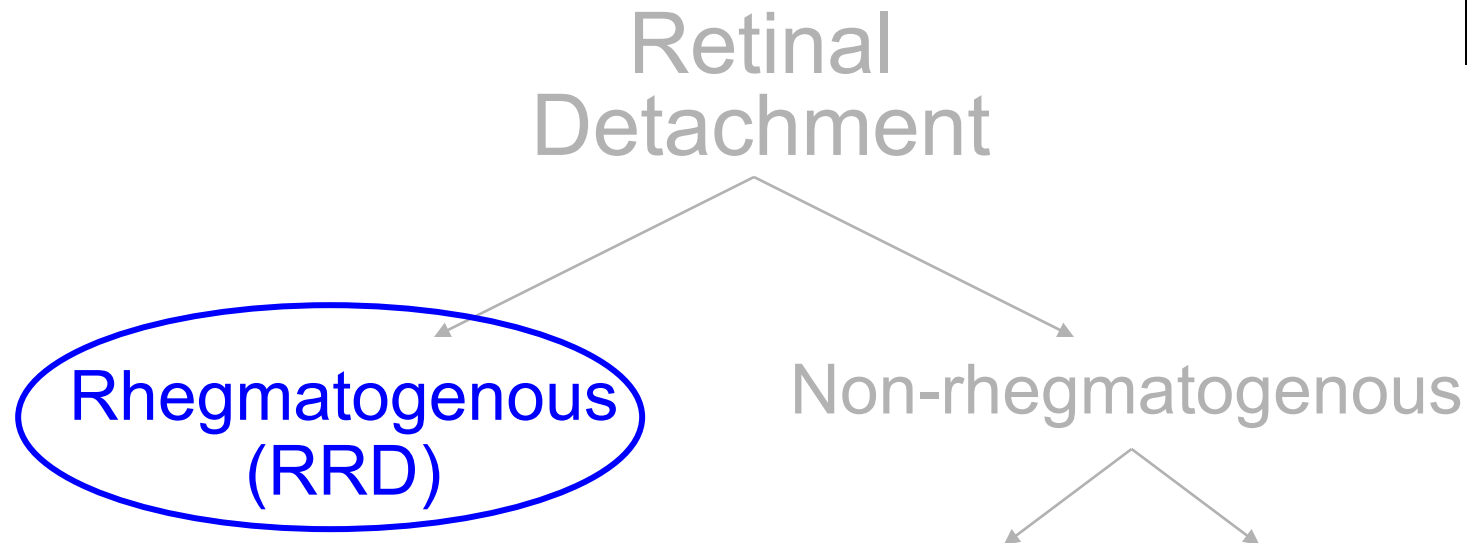
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- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye

What are the five major locations of vitreous attachment in the eye?

- The posterior lens capsule
- The ora serrata
- Major retinal vessels
- The macula
- The optic nerve head



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)

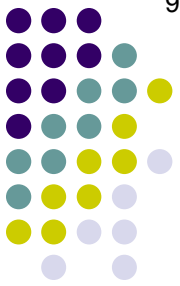
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What are the five major locations of vitreous attachment in the eye?

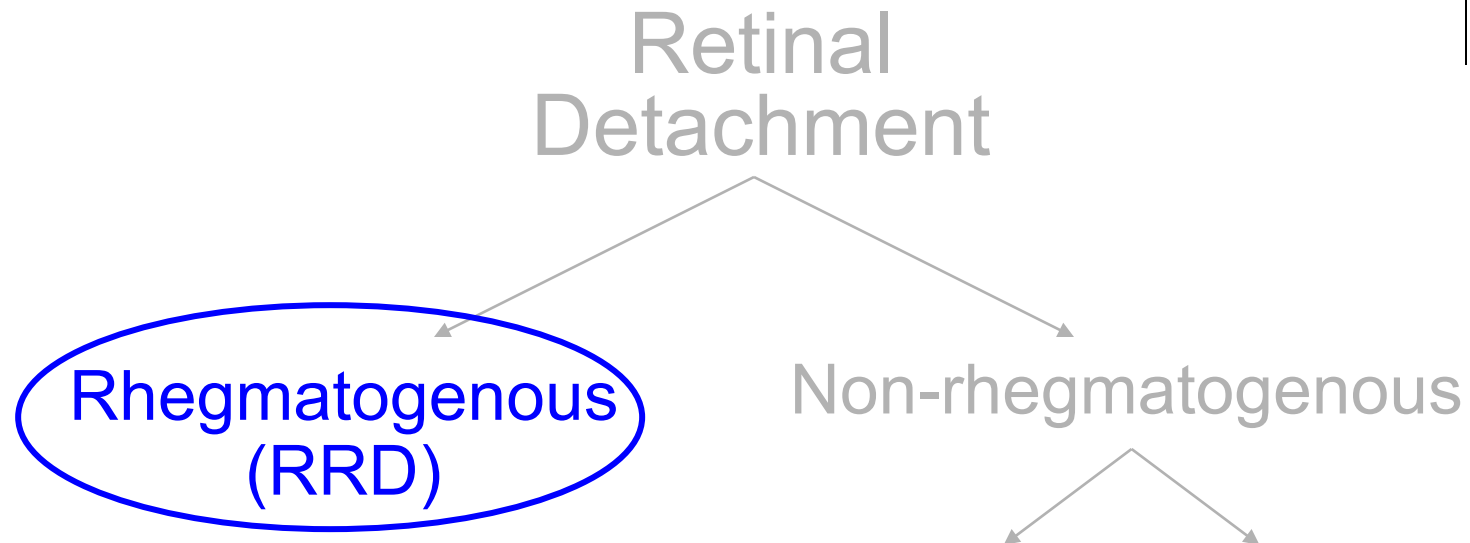
--The posterior lens capsule

The ora serrata

In what manner (configuration) is the vitreous attached to the lens capsule?



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)

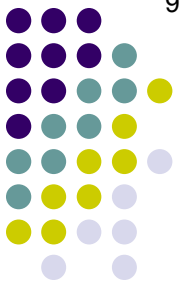
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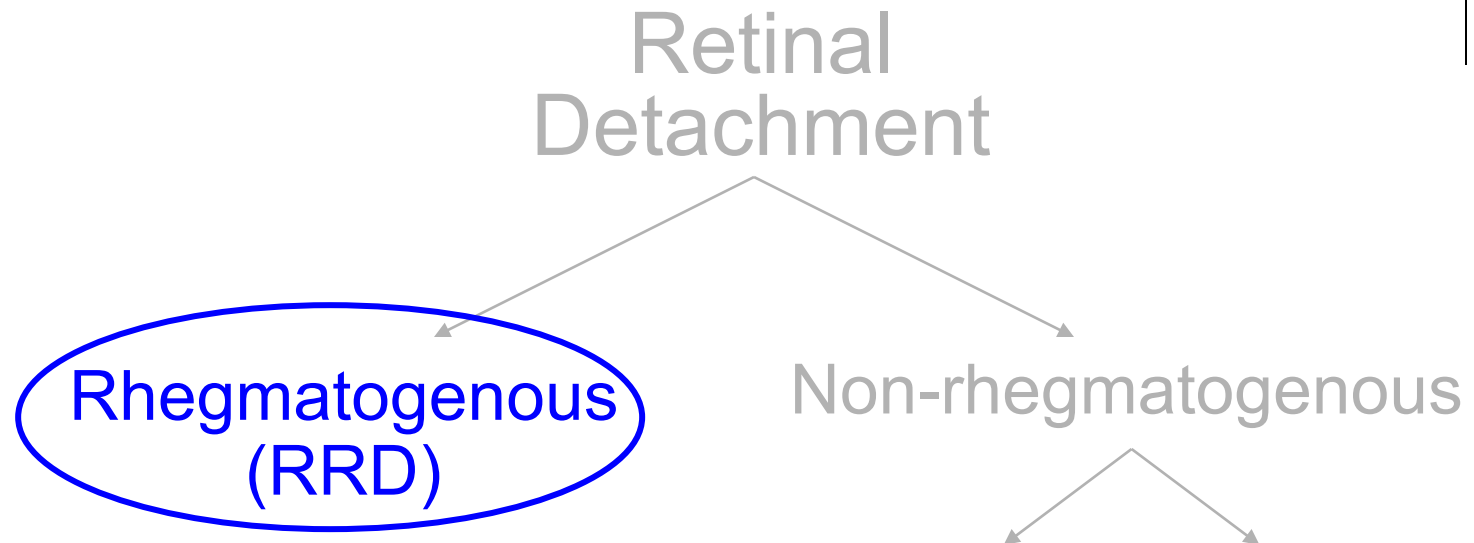
--The posterior lens capsule

--The ora serrata

In what manner (configuration) is the vitreous attached to the lens capsule?
In the form of a ring



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)

- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye

What are the five major locations of vitreous attachment in the eye?

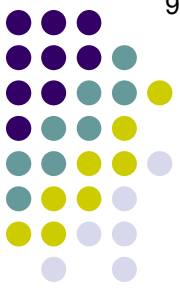
--The posterior lens capsule

--The ora serrata

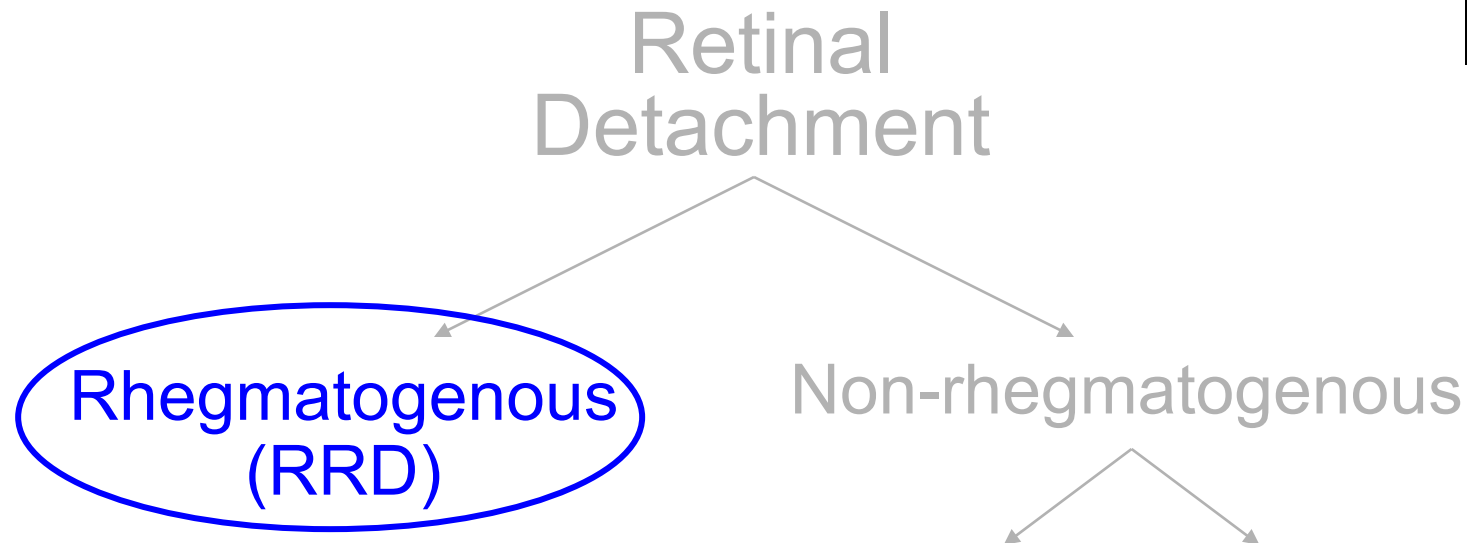
In what manner (configuration) is the vitreous attached to the lens capsule?

In the form of a ring

What is the eponymous name for this ring-shaped attachment?



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)

- Myopia
- Lattice degeneration
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- Trauma
- Hx RRD in fellow eye

What are the five major locations of vitreous attachment in the eye?

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--The ora serrata

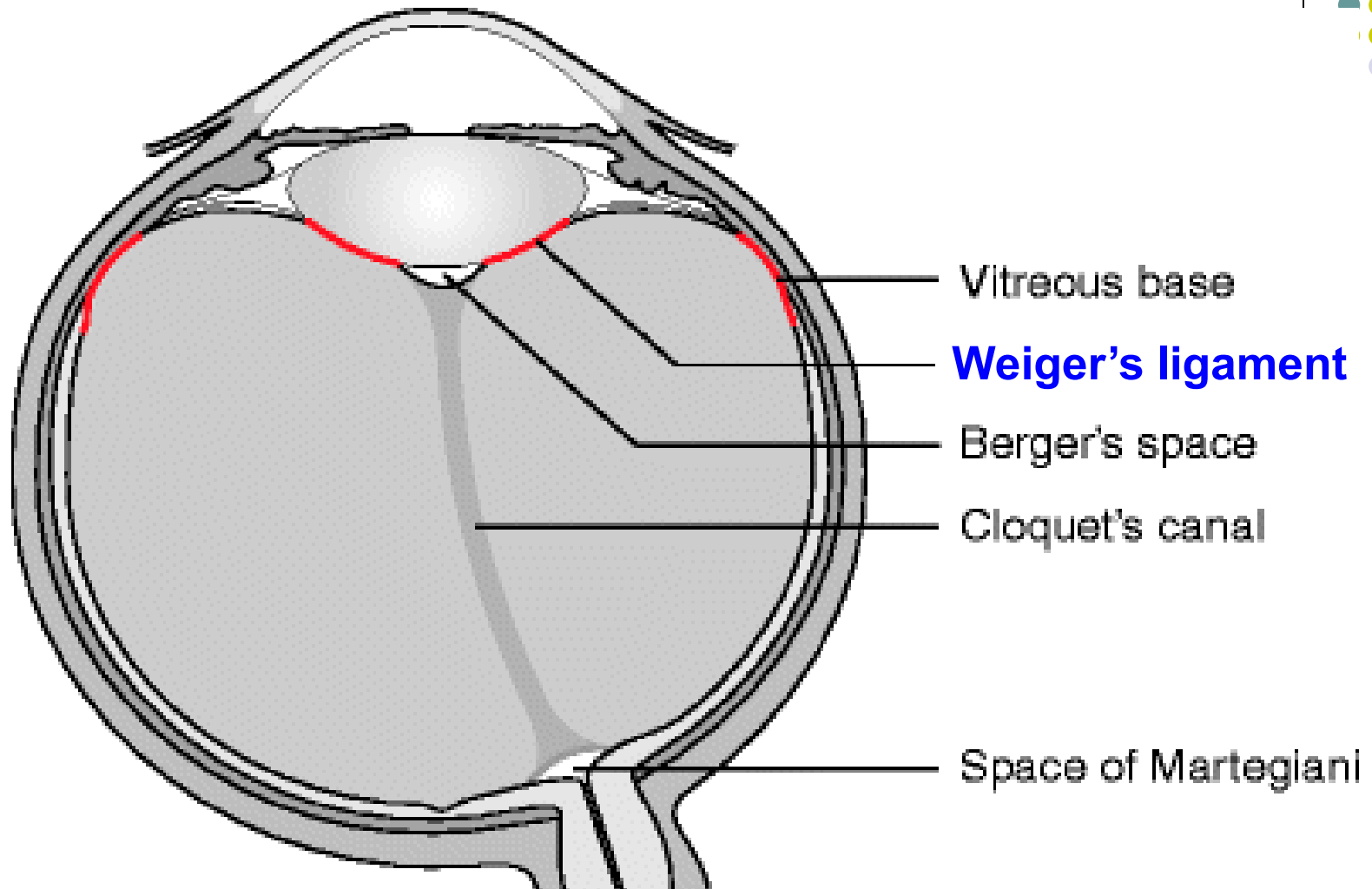
In what manner (configuration) is the vitreous attached to the lens capsule?

In the form of a ring

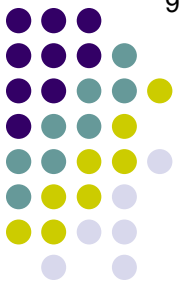
What is the eponymous name for this ring-shaped attachment?

Wieger's ligament

Retinal Detachment Overview



Vitreous attachments



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous (RRD)

Non-rhegmatogenous

In what manner (configuration) is the vitreous attached to the ora serrata?

The AAO Preferred Practice

--**Posterior vitreous detachment**

--Myopia

--Lattice degeneration

--Cataract surgery

--Trauma

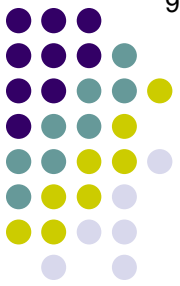
--Hx RRD in fellow eye

--**The ora serrata**

--Major retinal vessels

--The macula

--The optic nerve head



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

In what manner (configuration) is the vitreous attached to the ora serrata?

In a band-like manner extending # mm anteriorly (ie, onto the # of the ciliary body) and # mm posteriorly (ie, onto the #)

two words

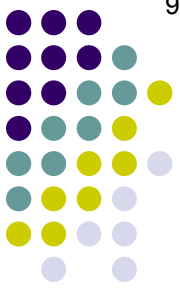
two different words

The AAO Preferred Practice Pattern
--**Posterior vitreous detachment**

- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye

--**The ora serrata**

- Major retinal vessels
- The macula
- The optic nerve head



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

In what manner (configuration) is the vitreous attached to the ora serrata?
In a band-like manner extending 2 mm anteriorly (ie, onto the pars plana of the ciliary body) and 3 mm posteriorly (ie, onto the peripheral retina)

The AAO Preferred Practice

--**Posterior vitreous detachment**

--Myopia

--Lattice degeneration

--Cataract surgery

--Trauma

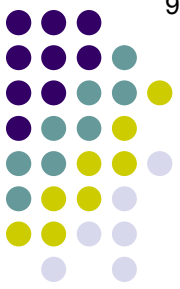
--Hx RRD in fellow eye

--**The ora serrata**

--Major retinal vessels

--The macula

--The optic nerve head



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

In what manner (configuration) is the vitreous attached to the ora serrata?
In a band-like manner extending 2 mm anteriorly (ie, onto the pars plana of the ciliary body) and 3 mm posteriorly (ie, onto the peripheral retina)

What is the name for this band-shaped attachment?

--The ora serrata

--Major retinal vessels

--The macula

--The optic nerve head

The AAO Preferred Practice

--Posterior vitreous detachment

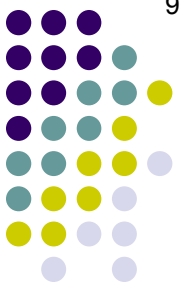
--Myopia

--Lattice degeneration

--Cataract surgery

--Trauma

--Hx RRD in fellow eye



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

In what manner (configuration) is the vitreous attached to the ora serrata?
In a band-like manner extending 2 mm anteriorly (ie, onto the pars plana of the ciliary body) and 3 mm posteriorly (ie, onto the peripheral retina)

What is the name for this band-shaped attachment?
The **vitreous base**

--The ora serrata

--Major retinal vessels

--The macula

--The optic nerve head

The AAO Preferred Practice

--Posterior vitreous detachment

--Myopia

--Lattice degeneration

--Cataract surgery

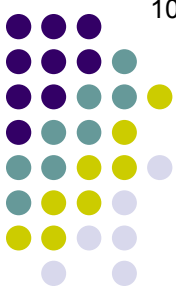
--Trauma

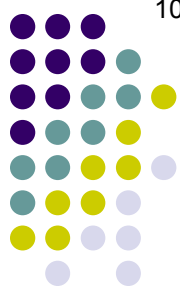
--Hx RRD in fellow eye

Retinal Detachment Overview



The vitreous base





Retinal Detachment Overview

Retinal Detachment

How does a PVD begin, and how does it proceed?

Rhegma
(F...)

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)

- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye

What are the five major locations of vitreous attachment in the eye?

- The posterior lens capsule
- The ora serrata
- Major retinal vessels
- The macula
- The optic nerve head



Retinal Detachment Overview

Retinal Detachment

Rhegmal
(F)

How does a PVD begin, and how does it proceed?
The vitreous first detaches from the perifoveal macula

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

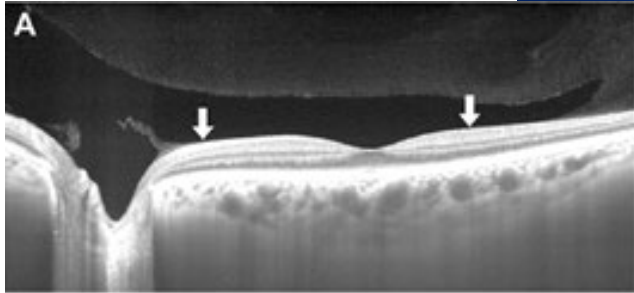
--Posterior vitreous detachment (PVD)

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What are the five major locations of vitreous attachment in the eye?

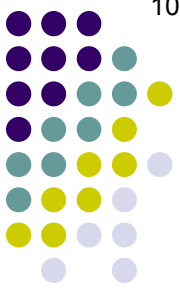
- The posterior lens capsule
- The ora serrata
- Major retinal vessels
- The macula (perifoveal first)**
- The optic nerve head

Retinal Detachment Overview

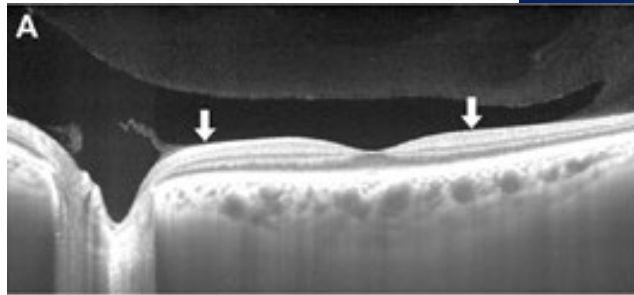


Pre-PVD

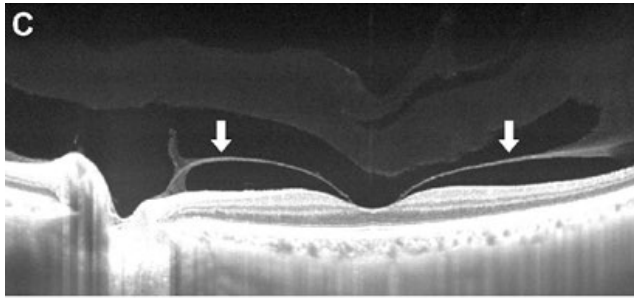
Evolution of a PVD. Arrows indicate the location of the posterior vitreous face



Retinal Detachment Overview



Pre-PVD



Perifoveal detachment

Evolution of a PVD. Arrows indicate the location of the posterior vitreous face





Retinal Detachment Overview

Retinal Detachment

Rhegma

How does a PVD begin, and how does it proceed?

The vitreous first detaches from the perifoveal macula, followed by the vessels.

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--**Posterior vitreous detachment (PVD)**

- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye

What are the five major locations of vitreous attachment in the eye?

- The posterior lens capsule
- The ora serrata
- Major retinal vessels**
- The macula (perifoveal first)
- The optic nerve head



Retinal Detachment Overview

Retinal Detachment

Rhegms

How does a PVD begin, and how does it proceed?

The vitreous first detaches from the perifoveal macula, followed by the vessels. It next detaches from the fovea.

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

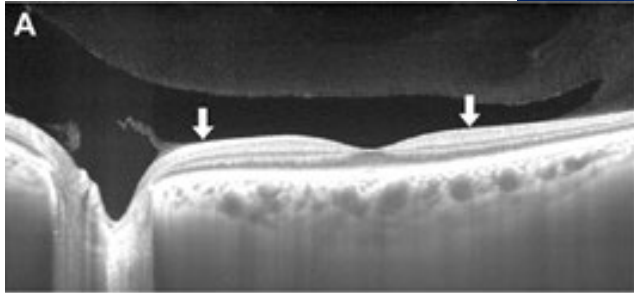
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- Trauma
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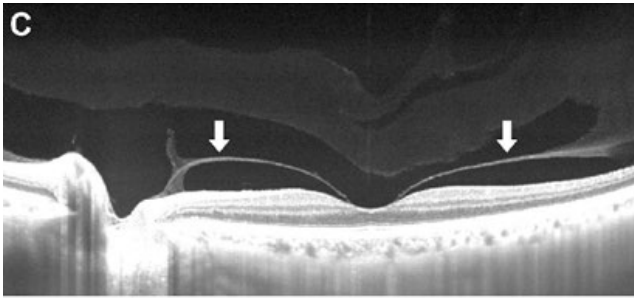
What are the five major locations of vitreous attachment in the eye?

- The posterior lens capsule
- The ora serrata
- Major retinal vessels
- The macula (perifoveal first, **fovea later**)
- The optic nerve head

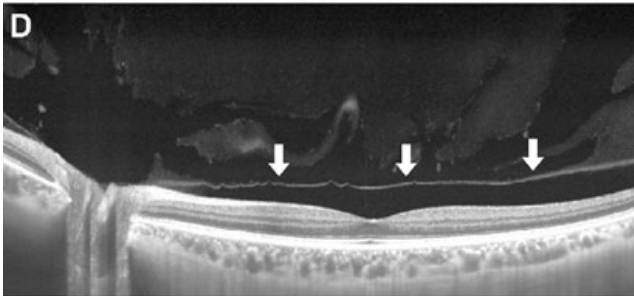
Retinal Detachment Overview



Pre-PVD



Perifoveal detachment



Foveal detachment

Evolution of a PVD. Arrows indicate the location of the posterior vitreous face





Retinal Detachment Overview

Retinal Detachment

Rhegma

How does a PVD begin, and how does it proceed?

The vitreous first detaches from the perifoveal macula, followed by the vessels. It next detaches from the fovea. Finally, once it has peeled loose from the mid-peripheral retina, it comes off the ONH.

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

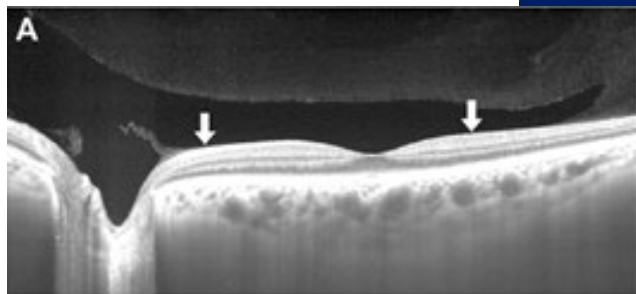
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- Cataract surgery
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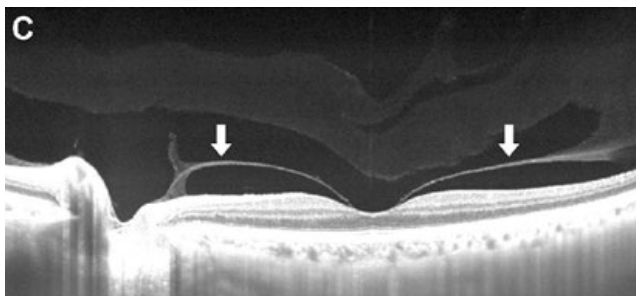
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- The optic nerve head

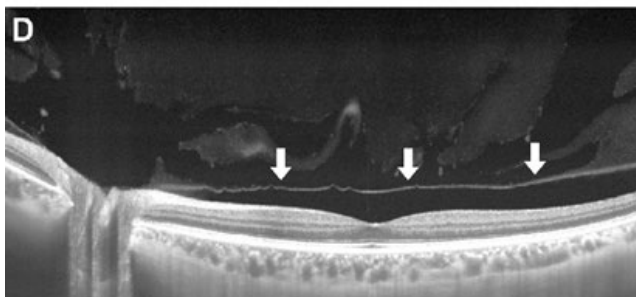
Retinal Detachment Overview



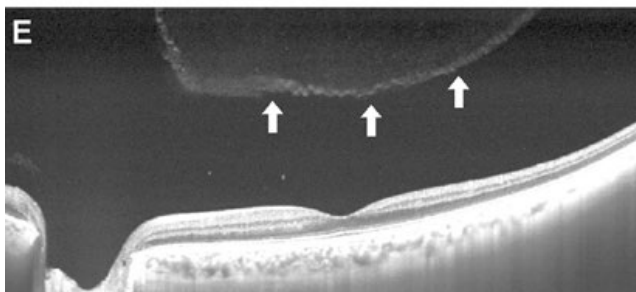
Pre-PVD



Perifoveal detachment



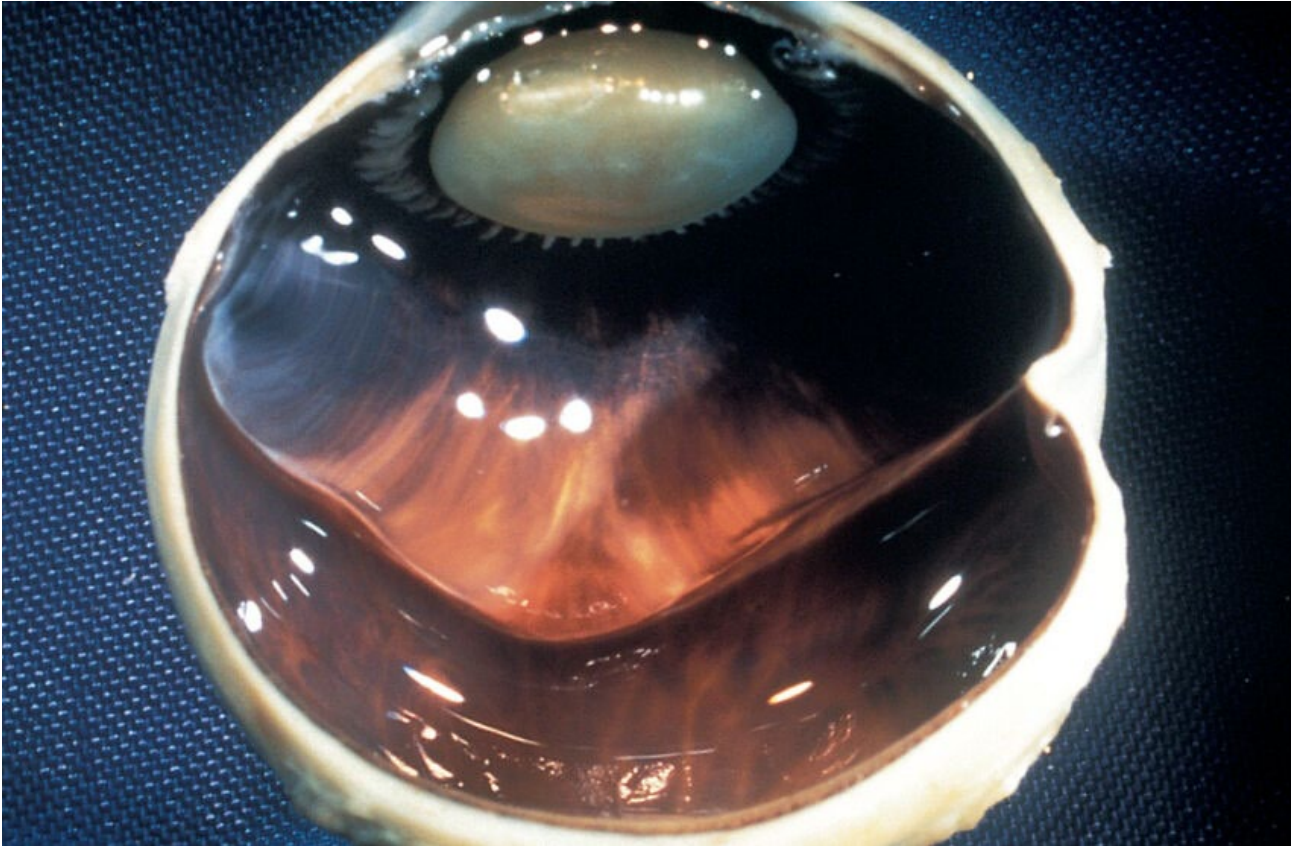
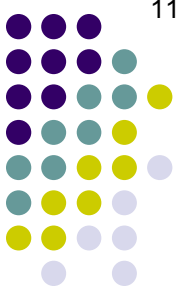
Foveal detachment



ONH detachment (completed PVD)

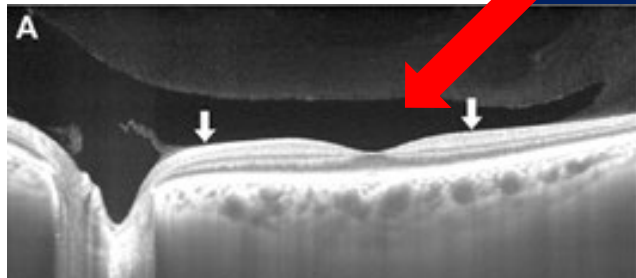
Evolution of a PVD. Arrows indicate the location of the posterior vitreous face

Retinal Detachment Overview



Gross photograph showing a posterior vitreous detachment. Retraction of the vitreous from the posterior retina is seen.

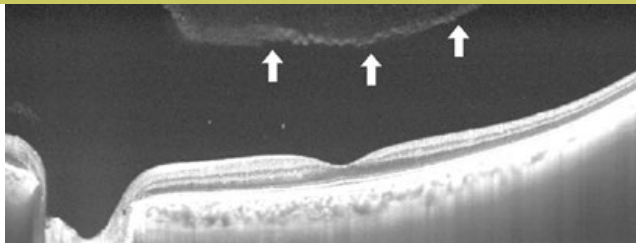
Retinal Detachment Overview



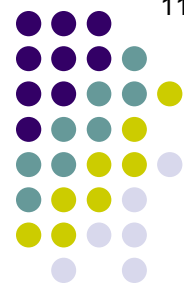
Pre-PVD

Hol up—this (red arrow) sure looks like a PVD. What's going on here?

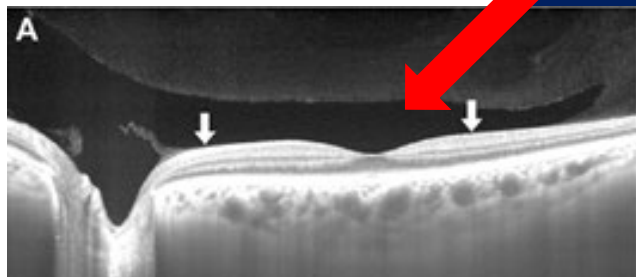
PVD. Arrows indicate the anterior vitreous face



Completed PVD



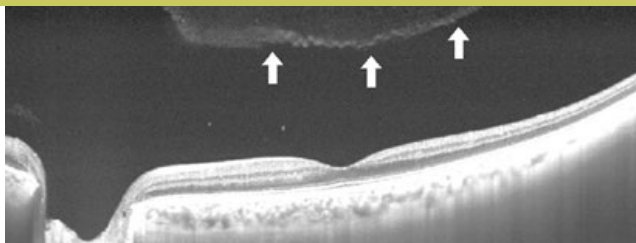
Retinal Detachment Overview



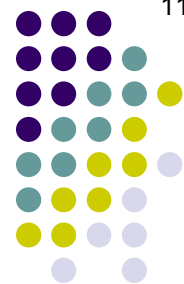
Pre-PVD

Hol up—this (red arrow) sure looks like a PVD. What's going on here?
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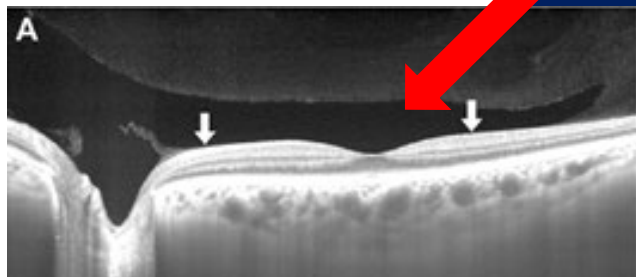
PVD. Arrows indicate the anterior vitreous face



Completed PVD



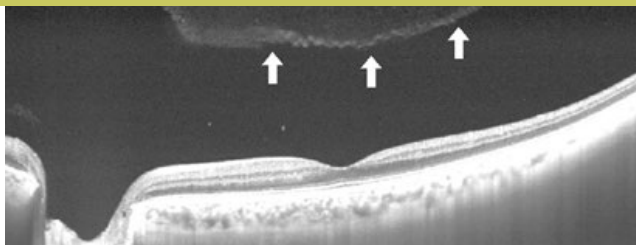
Retinal Detachment Overview



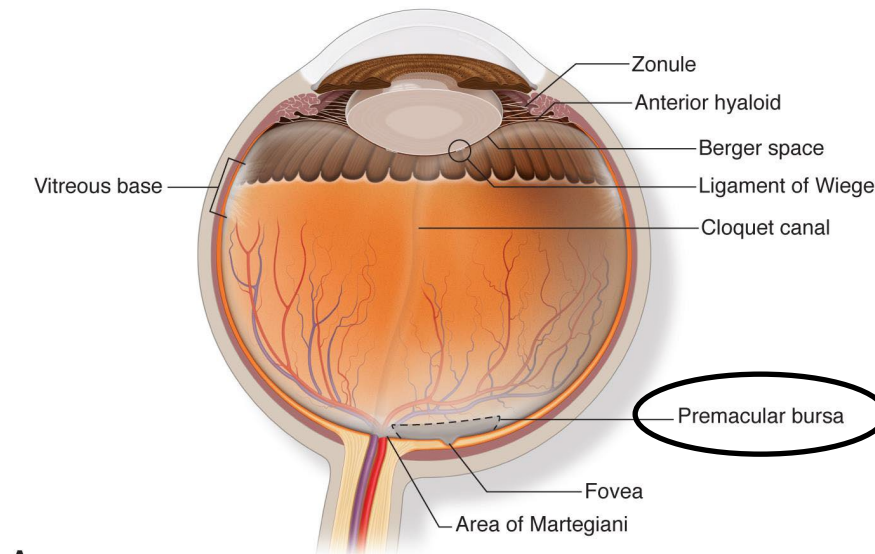
Pre-PVD

Hol up—this (red arrow) sure looks like a PVD. What's going on here?
 The image is labeled correctly, ie, the white arrows are indicating the location of the vitreous face. The optically empty space between the formed vitreous and the macula is the *premacular bursa* (aka the *precortical vitreous pocket*).

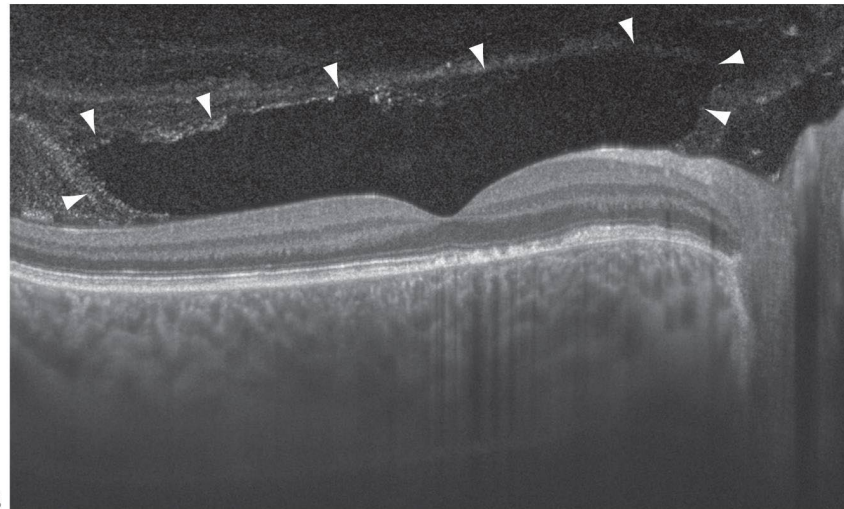
PVD. Arrows indicate the anterior vitreous face



Completed PVD

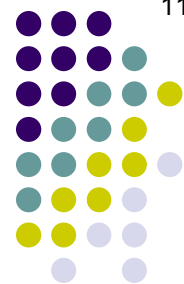


A

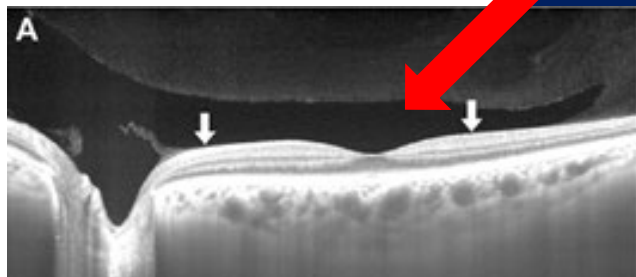


B

A, Anatomical features of the vitreous. A prominent area of liquefaction of the premacular vitreous gel is called the **premacular bursa**. **B**, SS-OCT image of posterior vitreous and macula region demonstrates the signal void in the vitreous cavity in front of the macula that represents the premacular bursa (arrowheads).



Retinal Detachment Overview

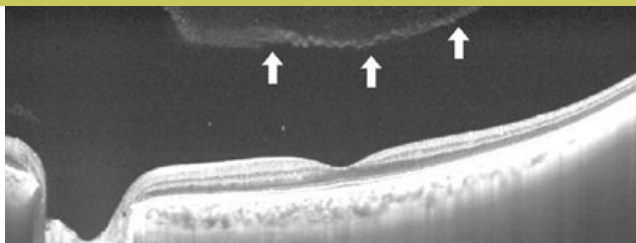


Pre-PVD

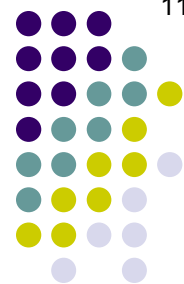
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What material occupies the bursa?

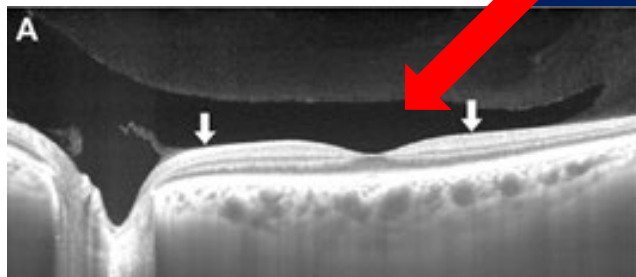
PVD. Arrows indicate the anterior vitreous face



Completed PVD



Retinal Detachment Overview

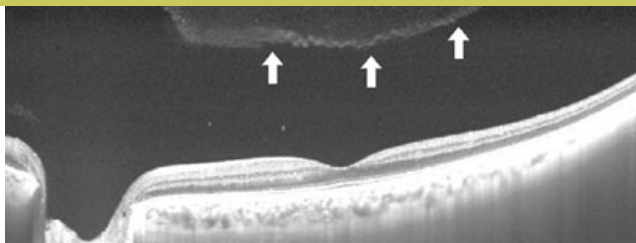


Pre-PVD

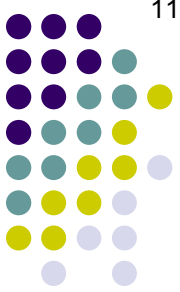
Hol up—this (red arrow) sure looks like a PVD. What's going on here?
 The image is labeled correctly, ie, the white arrows are indicating the location of the vitreous face. The optically empty space between the formed vitreous and the macula is the *premacular bursa* (aka the *precortical vitreous pocket*).

What material occupies the bursa?
 Liquefied vitreous

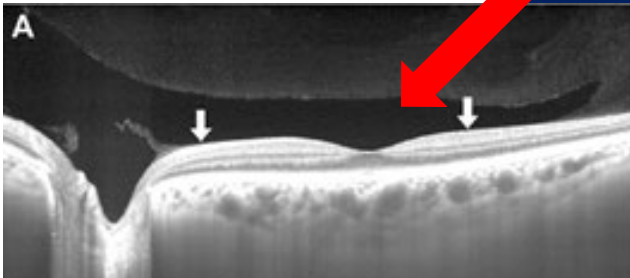
PVD. Arrows indicate the anterior vitreous face



Completed PVD



Retinal Detachment Overview



Pre-PVD

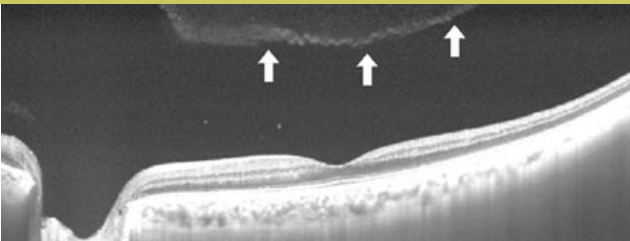
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What purpose does the bursa serve?

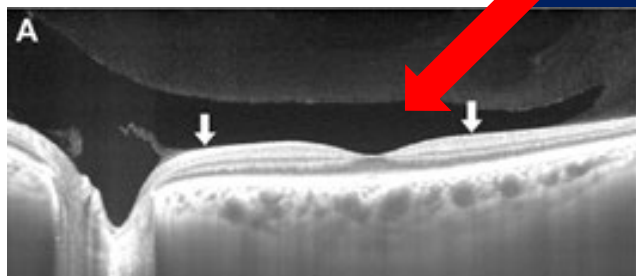
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Completed PVD



Retinal Detachment Overview



Pre-PVD

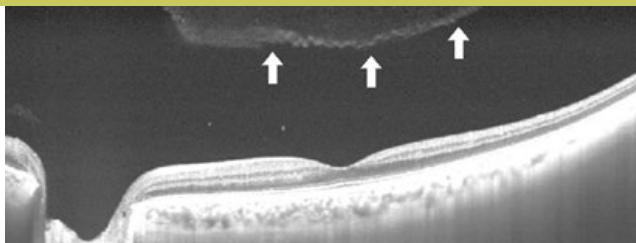
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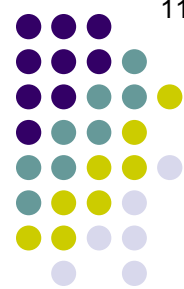
What purpose does the bursa serve?

The absence of formed vitreous in this region means that torsional forces in the vitreous will not be transmitted directly to the macula, thus reducing traction on it



Completed PVD

PVD. Arrows indicate the anterior vitreous face



Retinal Detachment Overview

Retinal Detachment

Rhegma

How does a PVD begin, and how does it proceed?

The vitreous first detaches from the perifoveal macula, followed by the vessels. It next detaches from the fovea. Finally, once it has

What about Wieger's ligament and the base? When do they detach in a PVD?

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

--Posterior vitreous detachment (PVD)

- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma
- Hx RRD in fellow eye

What are the five major locations of vitreous attachment in the eye?

--**The posterior lens capsule?**

--**The ora serrata?**

--Major retinal vessels

--The macula

--The optic nerve head



Retinal Detachment Overview

Retinal Detachment

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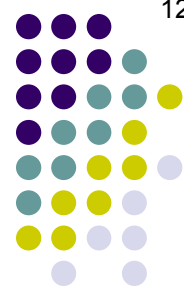
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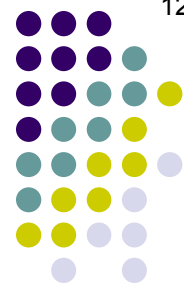
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Retinal Detachment Overview

Retinal Detachment

Rhegma

OK then, is there such a thing as an **anterior** vitreous detachment?

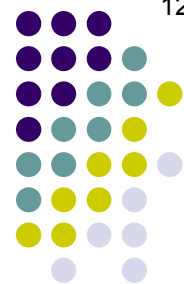
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Retinal Detachment Overview

Retinal Detachment

Rhegma

OK then, is there such a thing as an **anterior** vitreous detachment?

Yes. As noted above, the base never detaches.

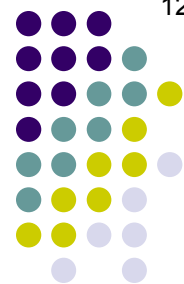
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Retinal Detachment Overview

Retinal Detachment

Rhegma

OK then, is there such a thing as an **anterior vitreous detachment**?

Yes. As noted above, the base never detaches. However, there are occasions when Wieger's lets go, and this is the definition of an anterior detachment.

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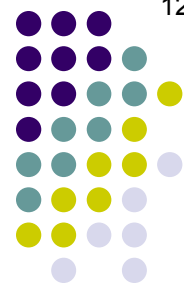
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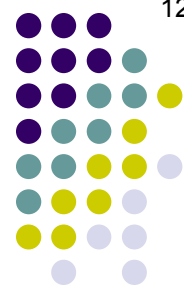
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Retinal Detachment

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Under what circumstances does such an anterior detachment occur?

Usually in the course of an intracapsular cataract extraction (ICCE), which has long fallen out of favor except under the most unusual of clinical circumstances

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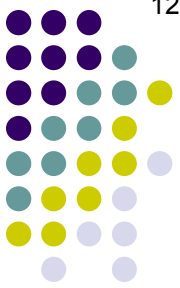
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Retinal Detachment Overview



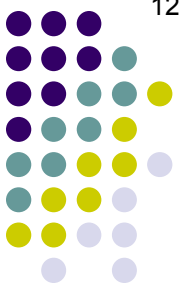
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Retinal Detachment Overview



Retinal

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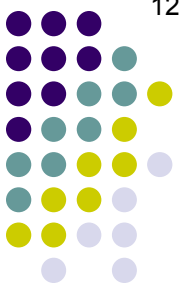
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Retinal Detachment Overview



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When (ie, in what age range) do PVDs typically occur?

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What group of otherwise normal eyes often detach at a younger age?

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Retinal Detachment Overview

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When (ie, in what age range) do PVDs typically occur?

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PVDs can be divided into two groups based on an important clinical characteristic. What are these groups?

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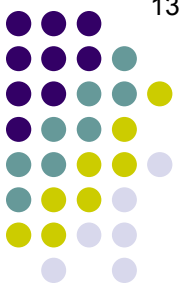
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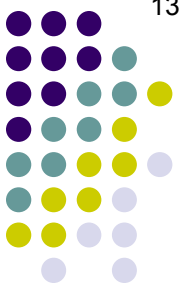
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Retinal Detachment Overview

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Why is the symptomatic/asymptomatic distinction clinically important?

per age?

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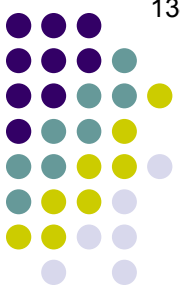
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Retinal Detachment Overview

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When (ie, in what age range) do PVDs typically occur?

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Why is the symptomatic/asymptomatic distinction clinically important?

Because symptomatic pts are at significantly higher risk of an RRD

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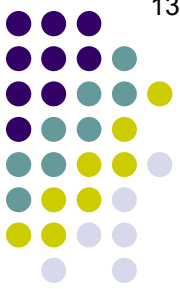
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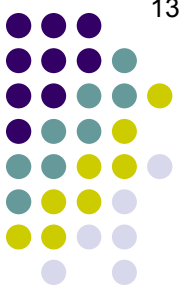
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Retinal Detachment Overview

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When (ie, in what age range) do PVDs typically occur?

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Photopsias and floaters

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What are photopsias?

Symptomatic and

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Retinal Detachment Overview

What are photopsias?

Flashes of light

When (ie, in what age group)?
45-65

Why is the symptom important?
Because symptomatic

What symptoms are associated with RRD?
Photopsias and floaters

How can RRD be diagnosed?

What are the risk factors for RRD?

Symptomatic and asymptomatic

The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

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Retinal Detachment Overview

What are photopsias?

Flashes of light

What causes photopsias?

When (ie, in what age group) do photopsias occur?

Why is the symptom important?
Because symptomatic photopsias are a warning sign of retinal detachment.

What symptoms are associated with photopsias?
Photopsias and floaters.

How can photopsias be diagnosed?

What are the risk factors for photopsias?
Symptomatic photopsias and floaters.

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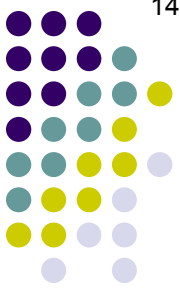
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Retinal Detachment Overview

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Flashes of light

What causes photopsias?

Mechanical stimulation of the retina (this is why you 'see stars' if you bang your head or rub your eyes)

Photopsias

Symptomatic

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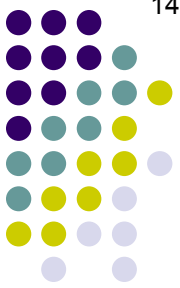
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Photopsias

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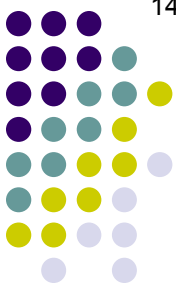
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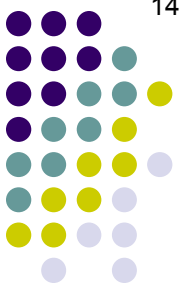
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Are photopsias more noticeable under bright, or low-light conditions?

When (ie, in what age group) do photopsias typically occur?

Why is the symptom more noticeable in low-light conditions?

What symptoms are associated with photopsias?

What are these symptoms called?

What are these symptoms called?

Photopsias

Symptomatic

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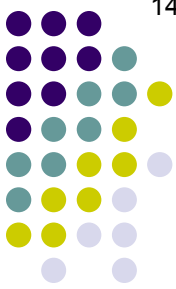
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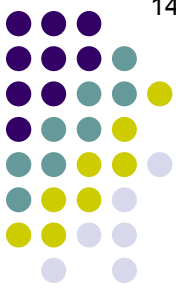
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Retinal Detachment Overview

When pts report seeing floaters, are they actually seeing floaters?

When (ie, in what age range) do floaters typically occur?
45-65

Why is the symptomatic/asymptomatic distinction important?
Because symptomatic pts are more likely to have a retinal tear or detachment.

What symptoms are being reported?
Photopsias and **floaters**

PVDs can be divided into two groups. What are these groups?

Symptomatic and asymptomatic

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Retinal Detachment Overview

When pts report seeing floaters, are they actually seeing floaters?
No--it is physically impossible to see floaters

When (ie, in what age range) do floaters typically occur?
45-65

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Symptomatic and asymptomatic

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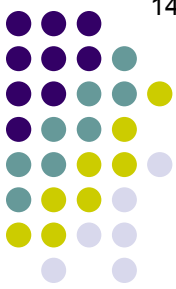
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Retinal Detachment Overview

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Why is it impossible to see floaters?

When (ie, in what age range) do floaters typically occur?

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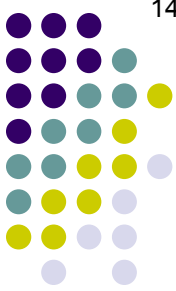
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Why is it impossible to see floaters?

For two reasons:

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No--it is physically impossible to see floaters

Why is it impossible to see floaters?

For two reasons:

--As floaters are located within the vitreous, there is no incident light reflected from them toward the macula

--Even if incident light **was** present, there is no refractive apparatus between the floaters and the fovea to produce an image

When (ie, in what age range) do floaters typically appear?
45-65

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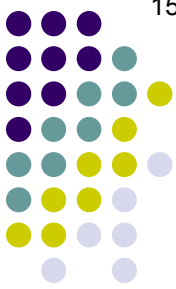
--Myopia

--Lattice degeneration

--Cataract surgery

--Trauma

--Hx RRD in fellow eye



Retinal Detachment Overview

When pts report seeing floaters, are they actually seeing floaters?

No--it is physically impossible to see floaters

Why is it impossible to see floaters?

For two reasons:

--As floaters are located within the vitreous, there is no incident light reflected from them toward the macula

--Even if incident light **was** present, there is no refractive apparatus between the floaters and the fovea to produce an image

*OK then, what **are** pts seeing when they report floaters?*

When (ie, in what age range) do floaters typically occur?
45-65

Why is the symptomatic/asymptomatic distinction important?
Because symptomatic pts are more likely to have a retinal tear or detachment

What symptoms are being reported?
Photopsias and **floaters**

PVDs can be divided into symptomatic and asymptomatic groups. What are these groups?

Symptomatic and asymptomatic

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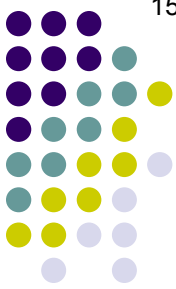
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*OK then, what **are** pts seeing when they report floaters?*

They are seeing the *shadows* floaters produce when they block light heading towards the macula

When (ie, in what age range) do floaters typically appear?
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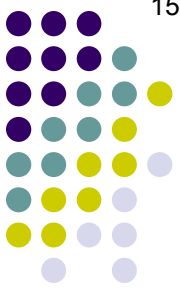
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Retinal

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A What are they?

V --

B --

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What symptoms are being referenced here?

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PVDs can be divided into two groups based on an important clinical characteristic.

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Photopsias and **floaters**

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The AAO Preferred Practice Pattern

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The AAO Preferred Practice Pattern

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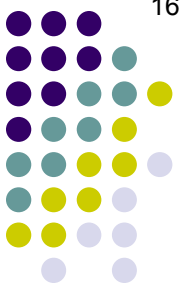
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What does 'epipapillary glial tissue' refer to?

The attachment of the posterior vitreous face to the retina encircling the optic disc. When it comes loose during a PVD, this tissue often forms a large ring-shaped floater.

Retinal D

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A **Wilder** ring

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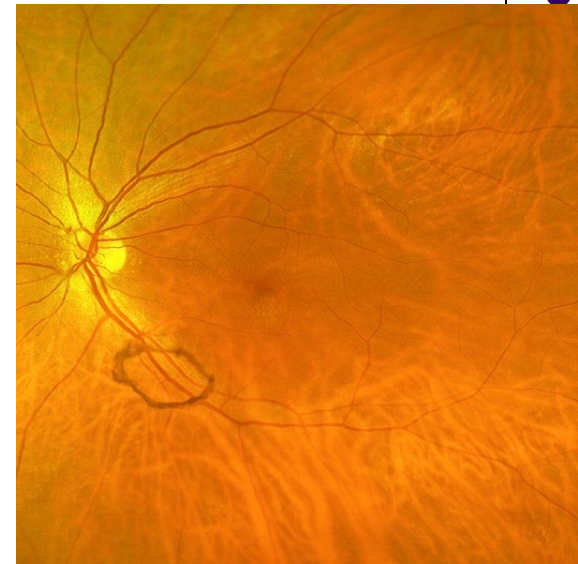
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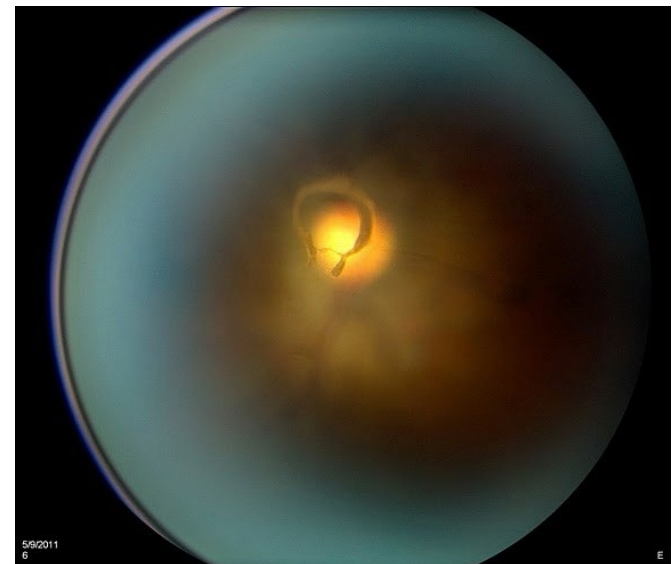
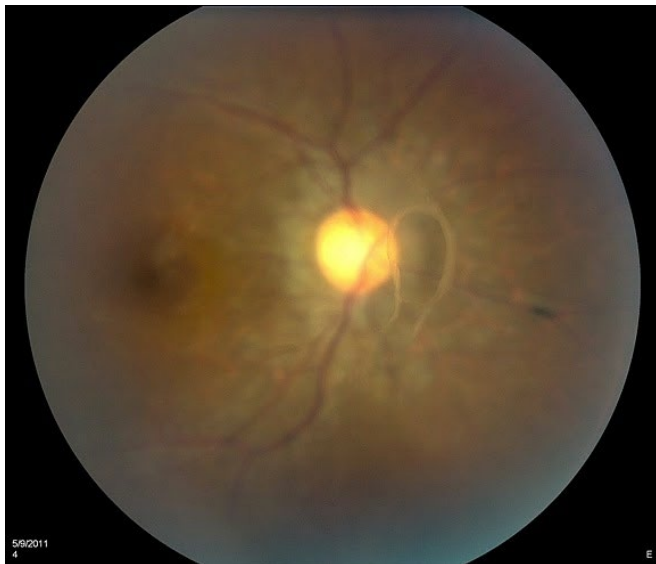
What is the eponymous name for this ring-shaped floater?

A **Weiss ring**

Retinal Detachment Overview



Weiss ring





Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous (RRD)

Non-rhegmatogenous

Is myopia a significant risk factor?

The AAO P

--Posterior

--**Myopia**

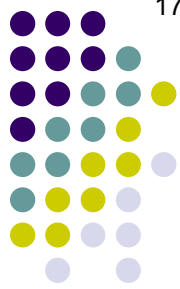
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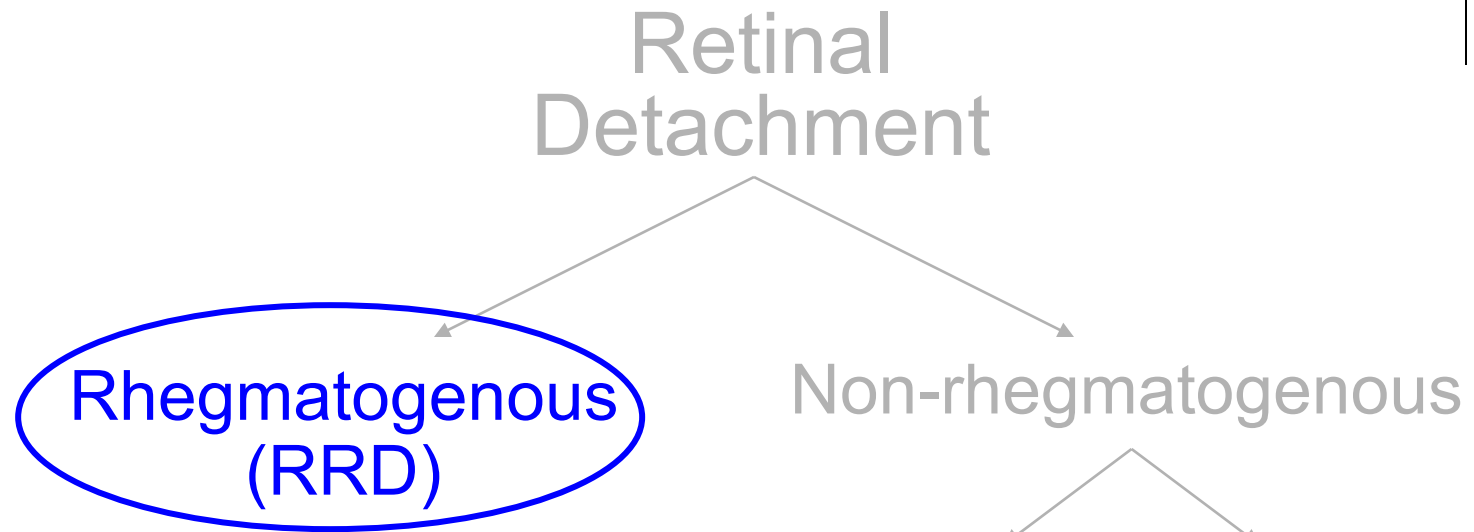
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ctors--what are they?



Retinal Detachment Overview



The AAO P

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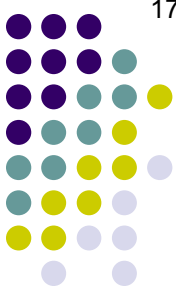
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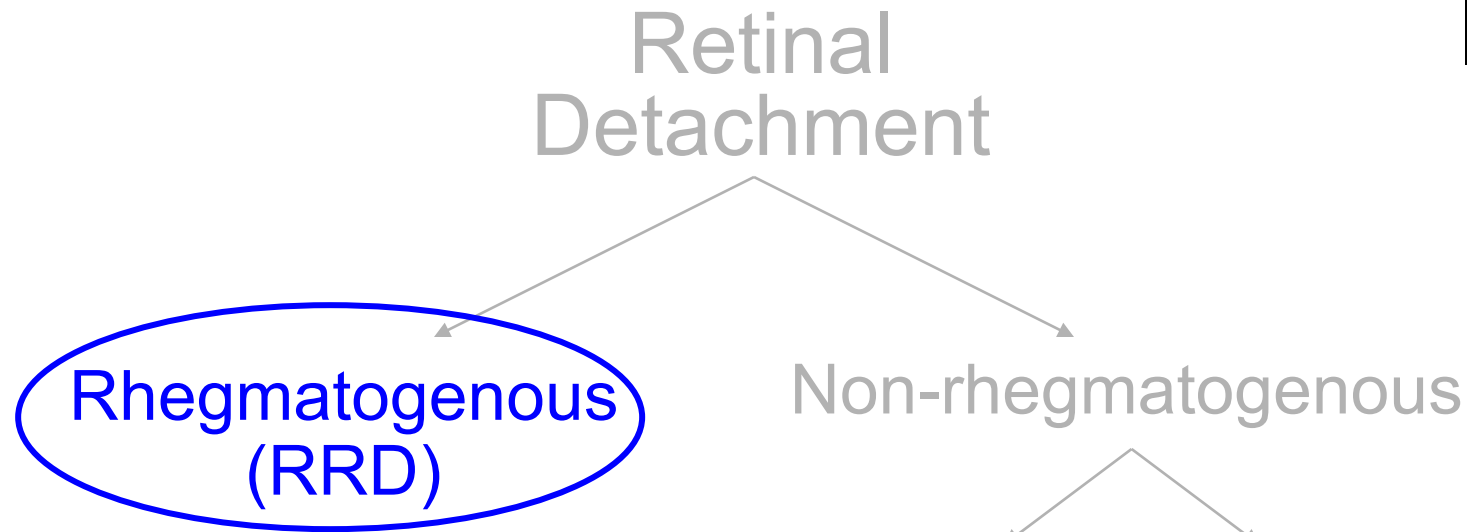
Is myopia a significant risk factor?

Yeah buddy. Over half of RRDs occur in myopic eyes!

actors--what are they?



Retinal Detachment Overview



The AAO P

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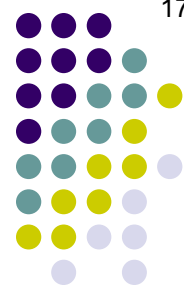
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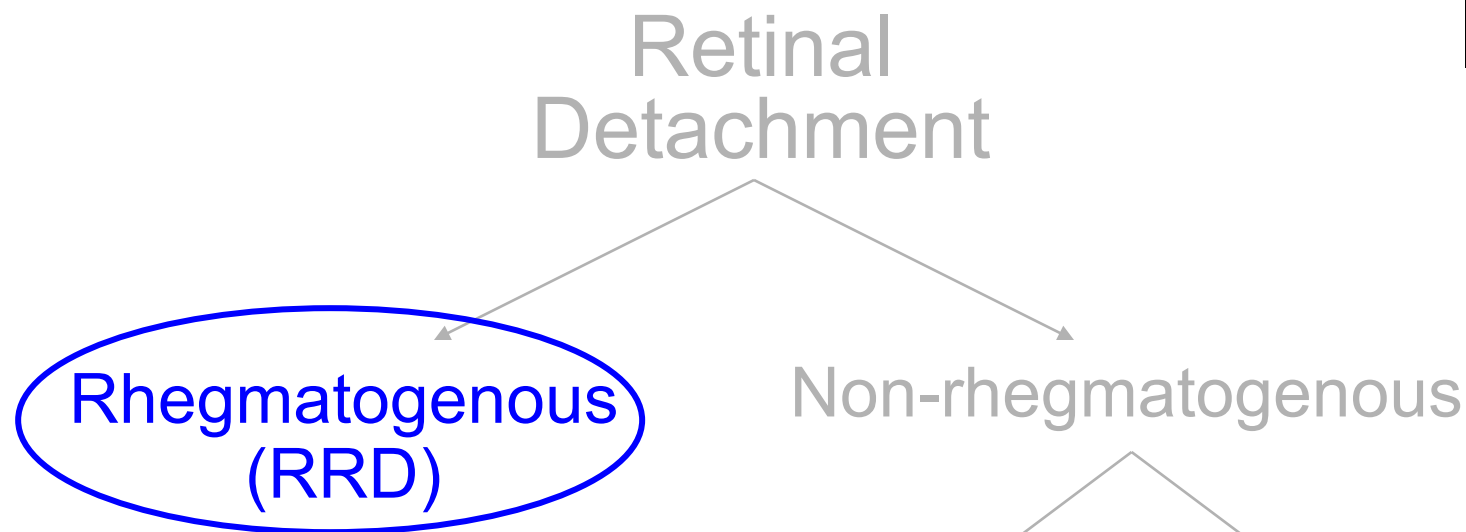
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Is RRD risk proportional to the degree of myopia?

Factors--what are they?



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Retinal Detachment

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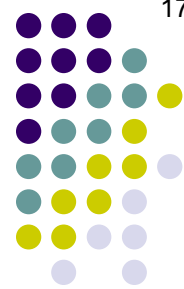
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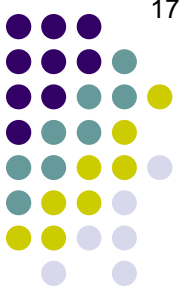
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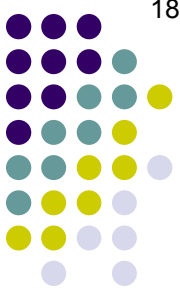
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How prevalent is lattice in the population?

The AAO Preferred Practice

- Posterior vitreous detachment
- Myopia
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- Trauma
- Hx RRD in fellow eye

...e they?



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Non-rhegmatogenous

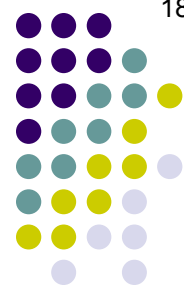
How prevalent is lattice in the population?

Quite--it is found in %-% of the population

...e they?

The AAO Preferred Practice

- Posterior vitreous detachment
- Myopia
- Lattice degeneration**
- Cataract surgery
- Trauma
- Hx RRD in fellow eye



Retinal Detachment Overview

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The AAO Preferred Practice

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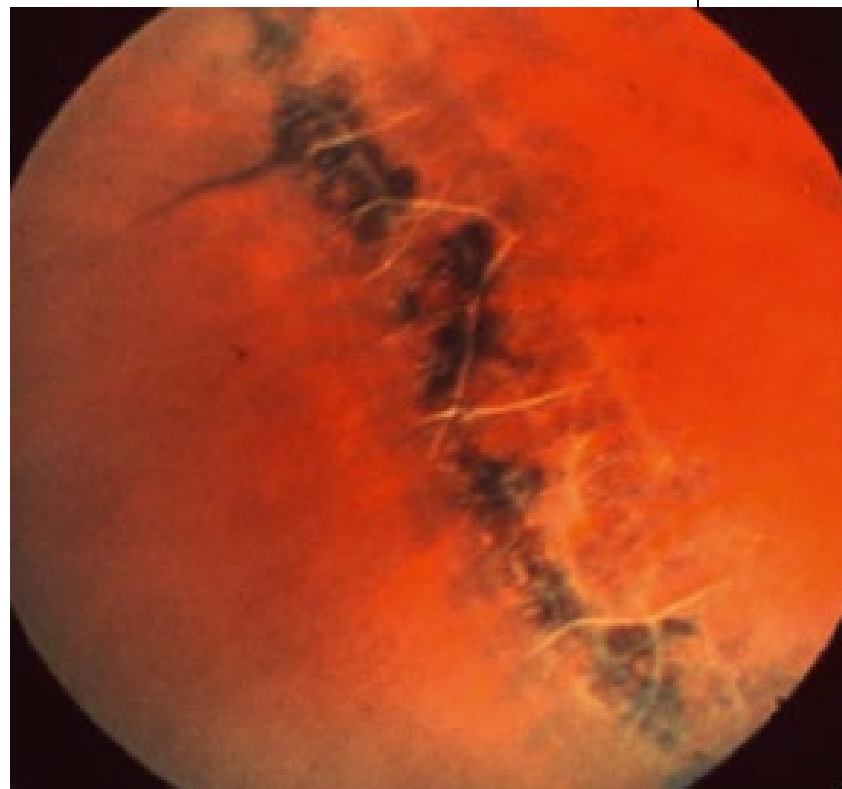
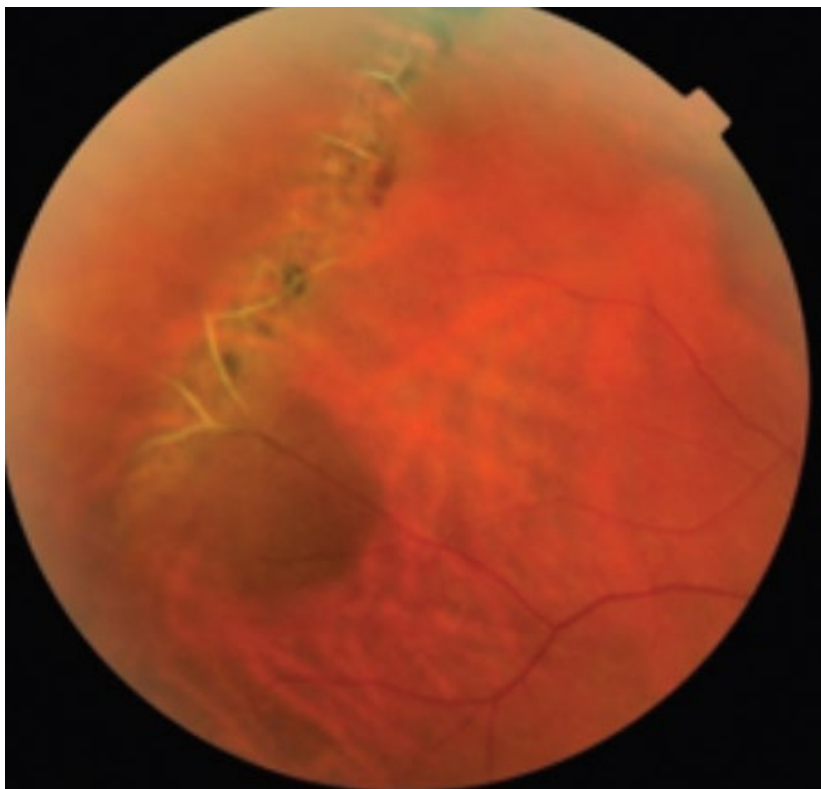
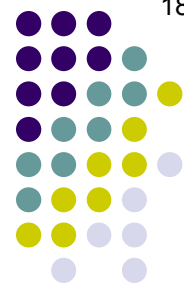
--**Lattice degeneration**

--Cataract surgery

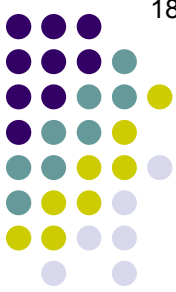
--Trauma

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Retinal Detachment Overview



Lattice degeneration



Retinal Detachment Overview

Retinal Detachment

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The AAO Preferred Practice

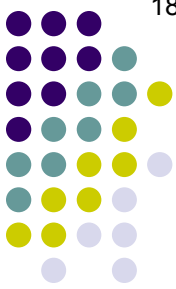
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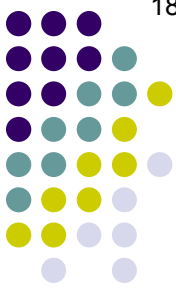
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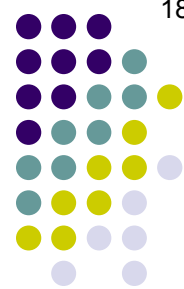
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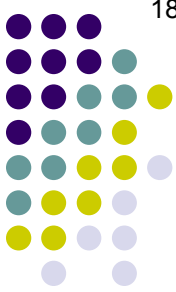
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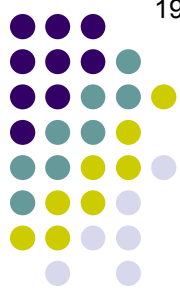
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Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous

Non-rhegmatogenous

There are three clinically important aspects to the structure of lattice degeneration--what are they?

- 1)
- 2)
- 3)

--Myopia

--**Lattice degeneration**

--Cataract surgery

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Retinal Detachment

Rhegmatogenous

Non-rhegmatogenous

There are three clinically important aspects to the structure of lattice degeneration--what are they?

- 1) A focal area of retina for which the three words is missing;
- 2)
- 3)

--Myopia

--**Lattice degeneration**

--Cataract surgery

--Trauma

--Hx RRD in fellow eye

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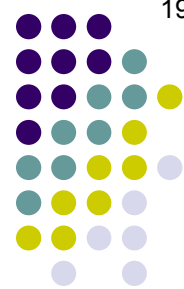
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Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous

Non-rhegmatogenous

There are three clinically important aspects to the structure of lattice degeneration--what are they?

- 1) A focal area of retina for which the **internal limiting membrane** is missing;
- 2)
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--Myopia

--**Lattice degeneration**

--Cataract surgery

--Trauma

--Hx RRD in fellow eye

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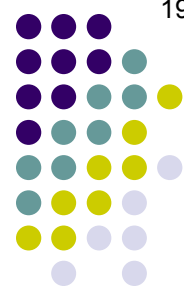
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Retinal Detachment

Rhegmatogenous

Non-rhegmatogenous

There are three clinically important aspects to the structure of lattice degeneration--what are they?

- 1) A focal area of retina for which the **internal limiting membrane** is missing;
- 2) a pocket of two words overlying this retinal lesion; and
- 3)

--Myopia

--**Lattice degeneration**

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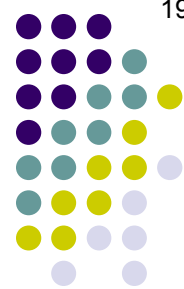
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Retinal Detachment

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Non-rhegmatogenous

There are three clinically important aspects to the structure of lattice degeneration--what are they?

- 1) A focal area of retina for which the **internal limiting membrane** is missing;
- 2) a pocket of **liquefied vitreous** overlying this retinal lesion; and
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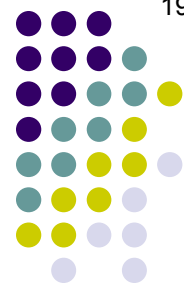
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Retinal Detachment

Rhegmatogenous

Non-rhegmatogenous

There are three clinically important aspects to the structure of lattice degeneration--what are they?

- 1) A focal area of retina for which the **internal limiting membrane** is missing;
- 2) a pocket of **liquefied vitreous** overlying this retinal lesion; and
- 3) abnormally firm one word between the edges of the retina lesion and the walls of the overlying pocket of liquefied vitreous

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--**Lattice degeneration**

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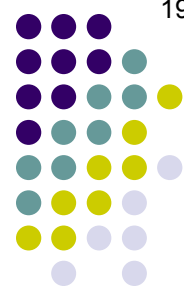
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Non-rhegmatogenous

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- 2) a pocket of **liquefied vitreous** overlying this retinal lesion; and
- 3) abnormally firm **adhesion** between the edges of the retina lesion and the walls of the overlying pocket of liquefied vitreous

--Myopia

--**Lattice degeneration**

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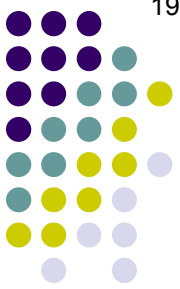
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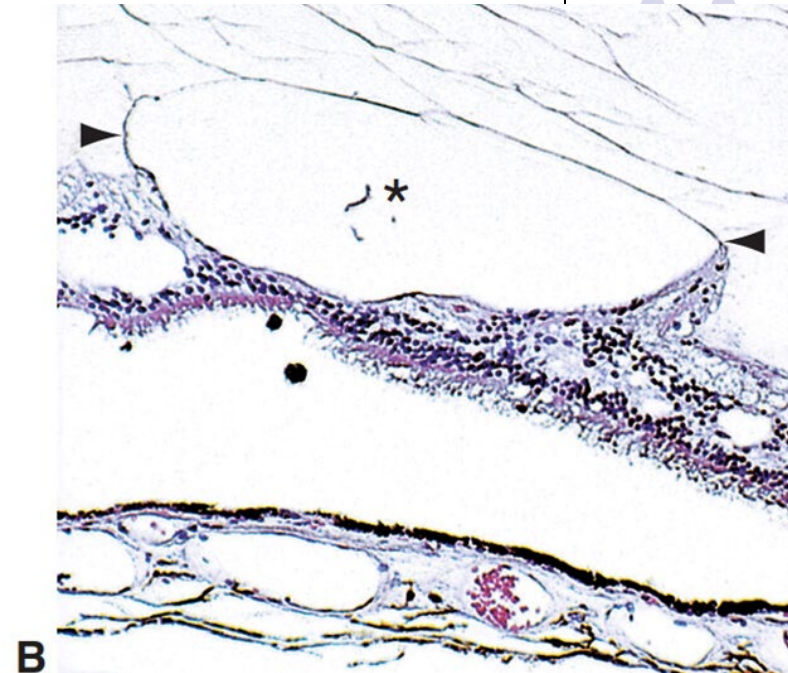
Retinal Detachment Overview



A, Lattice degeneration appears clinically as prominent sclerotic vessels (*arrows*) in a wicker or lattice pattern.

Lattice degeneration

Retinal Detachment Overview



A, Lattice degeneration appears clinically as prominent sclerotic vessels (*arrows*) in a wicker or lattice pattern.
 B, The vitreous directly over the lattice degeneration is liquefied (*asterisk*), but formed vitreous remains adherent at the margins (*arrowheads*) of the degenerated area. The internal limiting membrane is discontinuous, and the inner retinal layers are atrophic.

Lattice degeneration



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous

Non-rhegmatogenous

There are three types of retinal tears (with subsequent rhegmatogenous RD) result from traction on these abnormal vitreo-retinal adhesions. What are they?

3) abnormally firm **adhesion** between the edges of the retina lesion and the walls of the overlying pocket of liquefied vitreous

--Myopia

--**Lattice degeneration**

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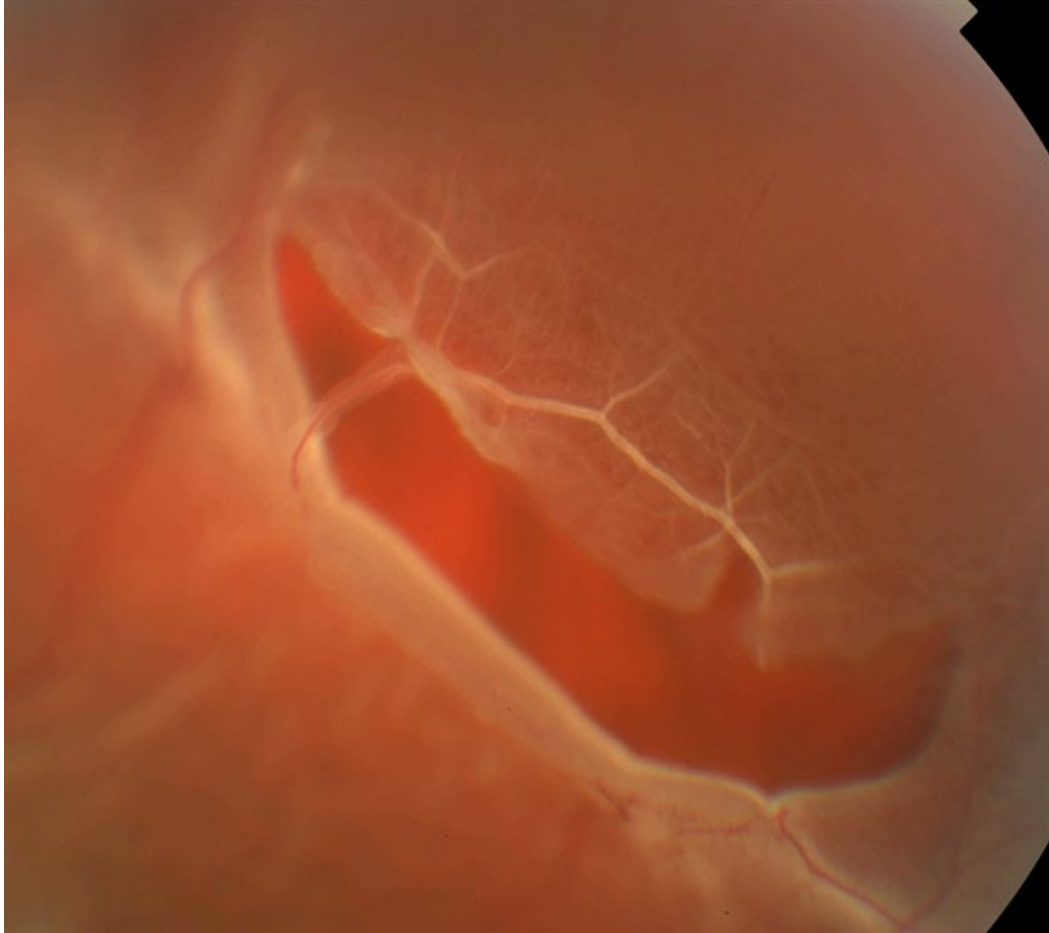
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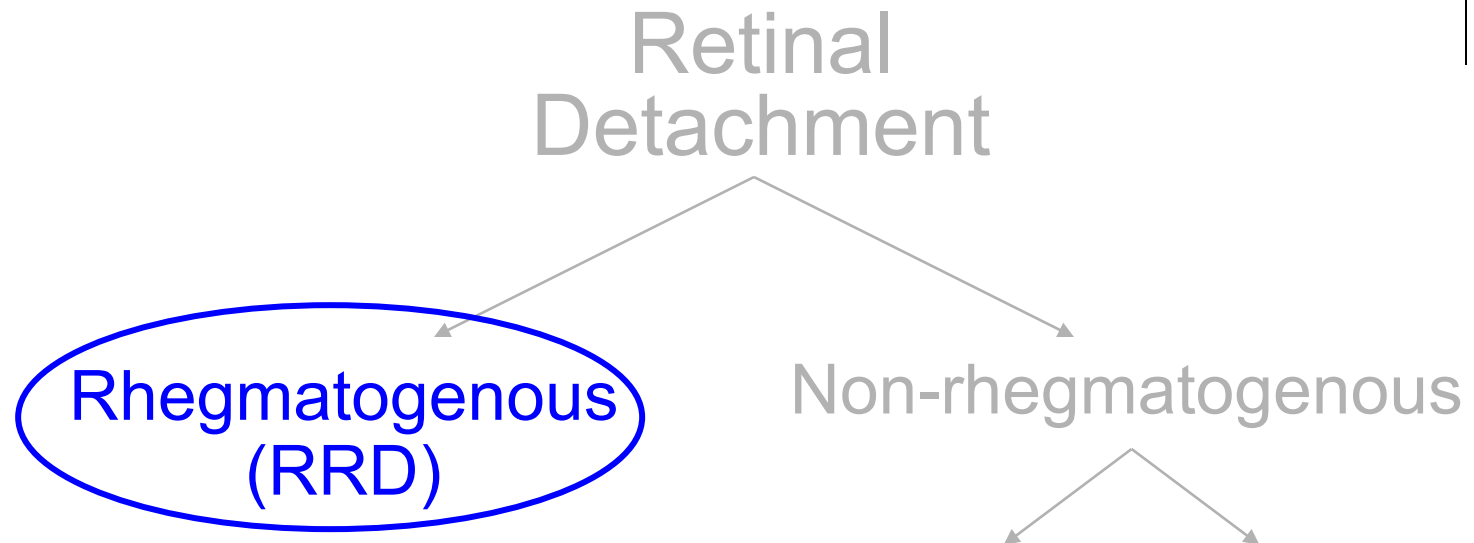
Retinal Detachment Overview



Retinal tear at the posterior edge of lattice



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors, what are they?

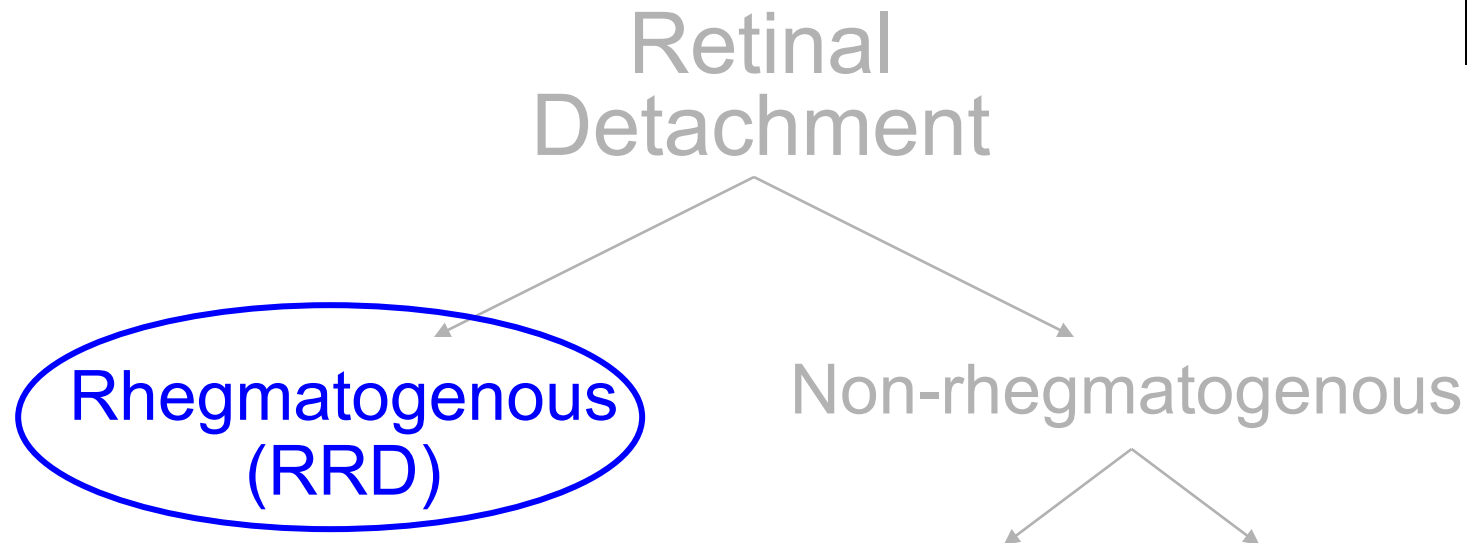
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Who is at greater risk for RRD after cataract surgery...

--Males, or females?



Retinal Detachment Overview

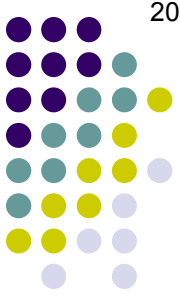


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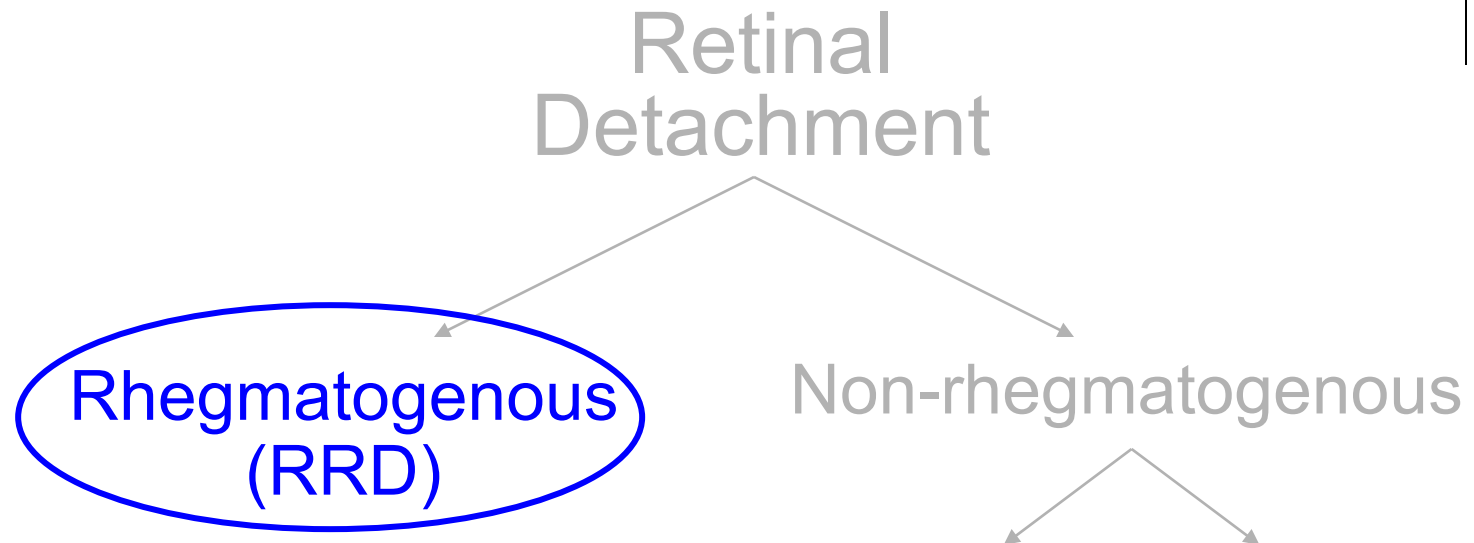
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Retinal Detachment Overview



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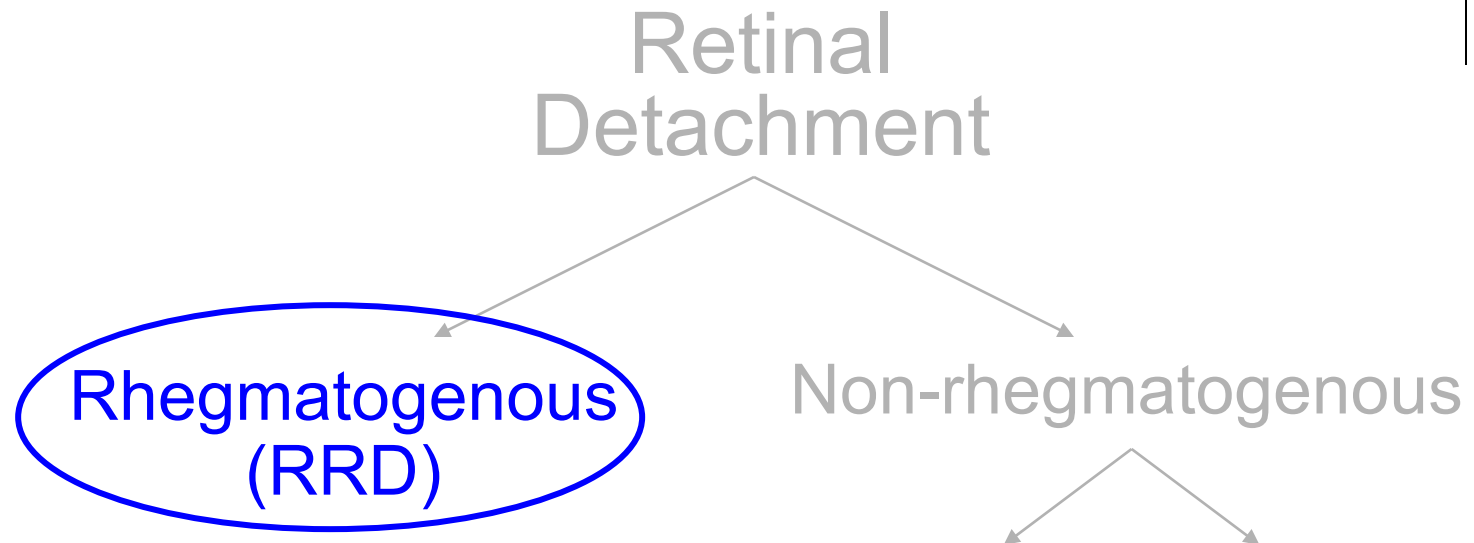
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- Younger, or older individuals?



Retinal Detachment Overview



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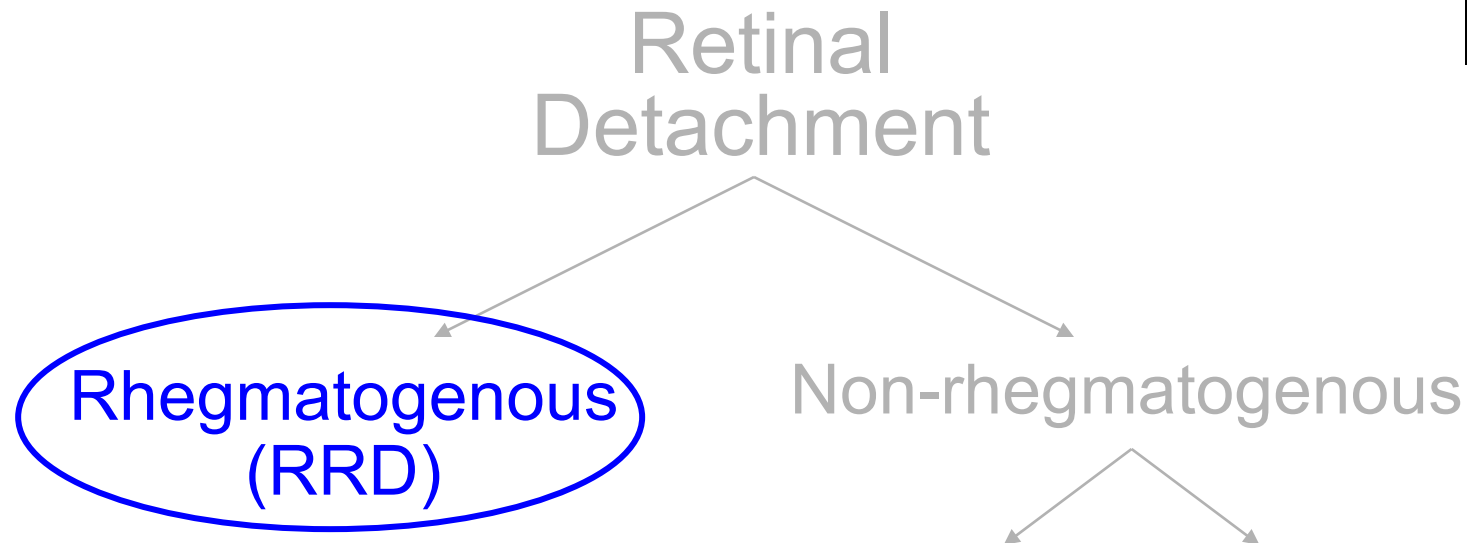
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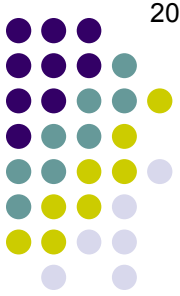


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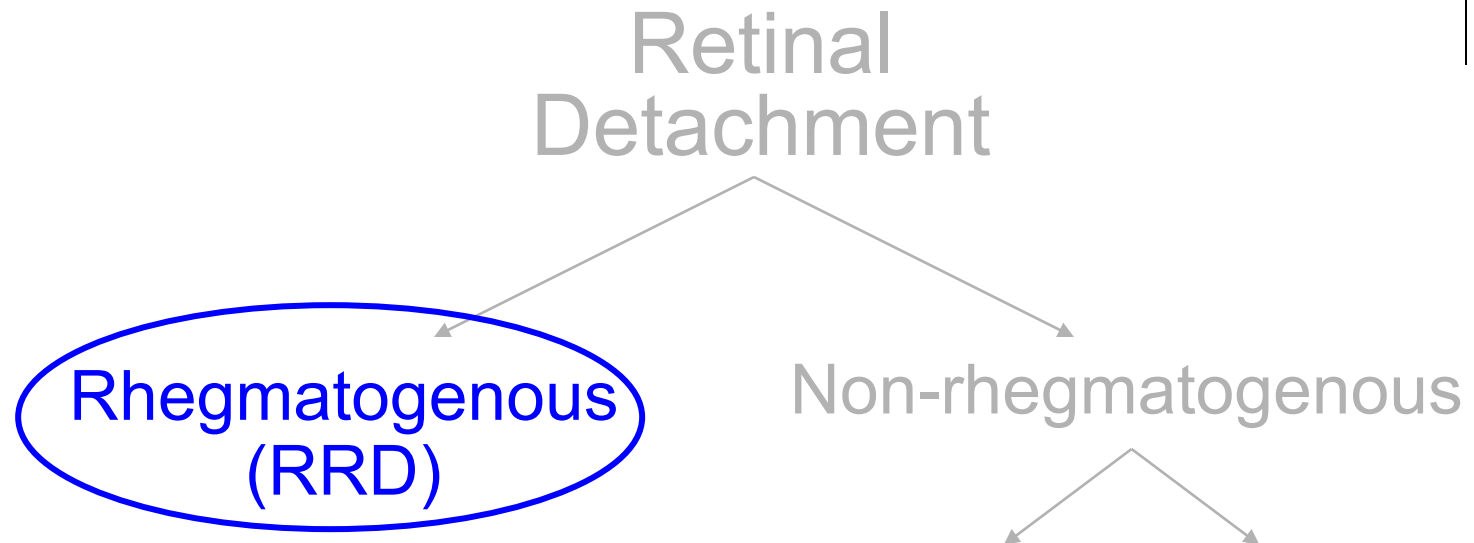
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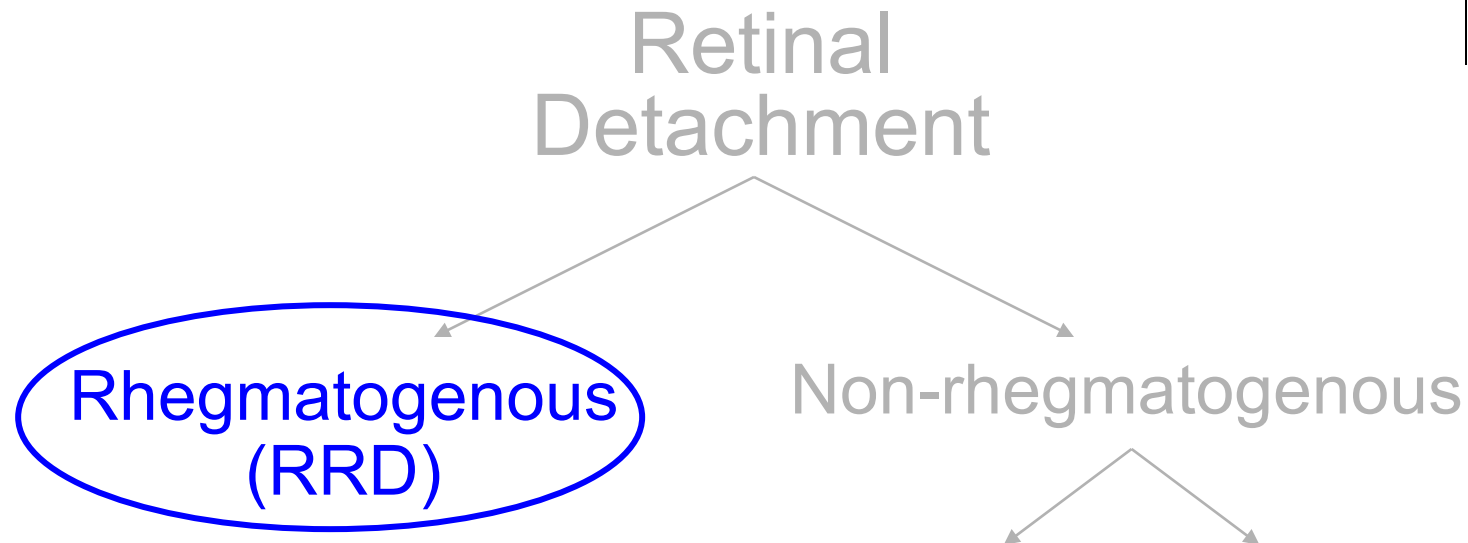
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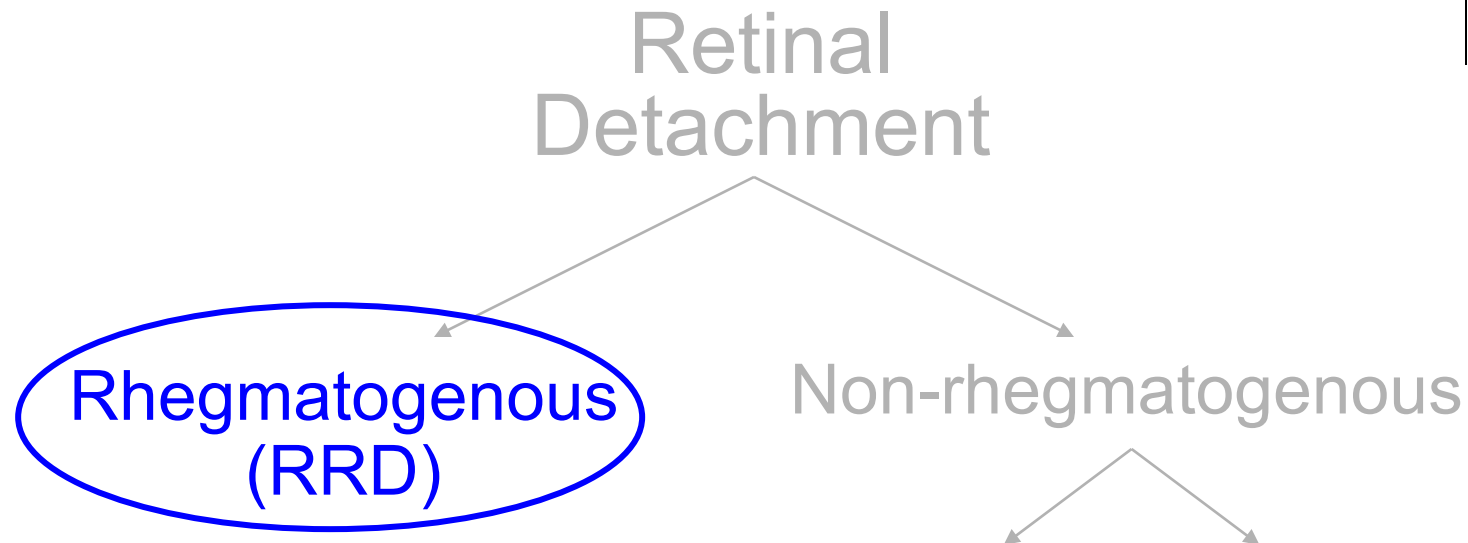
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What intraop event significantly increases the risk of RRD?



Retinal Detachment Overview



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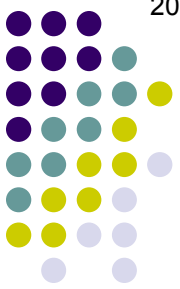
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Rupture of the posterior capsule



Retinal Detachment Overview

Retinal

Are we talking about blunt, or penetrating trauma?

R

The AAO P

--Posterior v

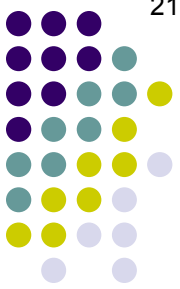
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Retinal Detachment Overview

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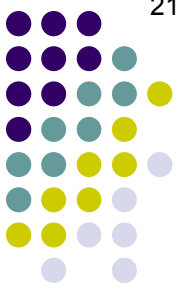
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Retinal Detachment Overview

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--?

The AAO P

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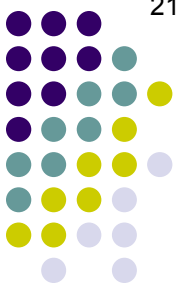
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The AAO P

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Retinal Detachment Overview

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--A break in the retina *adjacent* to the injury site = a injury

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The AAO P

--Posterior v

--Myopia

--Lattice de

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Retinal Detachment Overview

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--A break in the retina *adjacent* to the injury site = a **coup** injury

--A break in the retina *opposite* to the injury site = a **contrecoup** injury

The AAO P

--Posterior v

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Young people have a higher rate of eye trauma than do older individuals. If a young person sustains a break-producing injury, is it expected that they will have an RRD soon thereafter?

The AAO P

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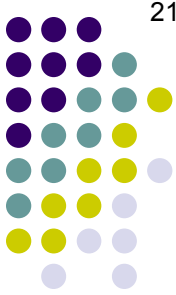
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No, only about % present in the immediate post-injury period.

The AAO P

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No, only about 10% present in the immediate post-injury period

The AAO P

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--Myopia

--Lattice de

--Cataract s

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--Hx RRD in



Retinal Detachment Overview

Retinal

Are we talking about blunt, or penetrating trauma?

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If blunt trauma causes a retinal break, it typically happens in one of two places relative to the site of the trauma. Where are those two places? What term is used to refer to each sort of injury?

--A break in the retina *adjacent* to the injury site = a **coup** injury

--A break in the retina *opposite* to the injury site = a **contrecoup** injury

Young people have a higher rate of eye trauma than do older individuals. If a young person sustains a break-producing injury, is it expected that they will have an RRD soon thereafter?

No, only about 10% present in the immediate post-injury period. Only about % will present within the first 8 months.

The AAO P

--Posterior

--Myopia

--Lattice de

--Cataract s

--**Trauma**

--Hx RRD in



Retinal Detachment Overview

Retinal

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Because young people's vitreous is formed (ie, not yet liquefied), it is not able to flow through an open retinal break

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Why the delay?

Because young people's vitreous is formed (ie, not yet liquefied), it is not able to flow through an open retinal break. Only later, if/when trauma-induced vitreous damage leads to liquefaction, will a young person experience an RRD.

The AAO P

--Posterior

--Myopia

--Lattice de

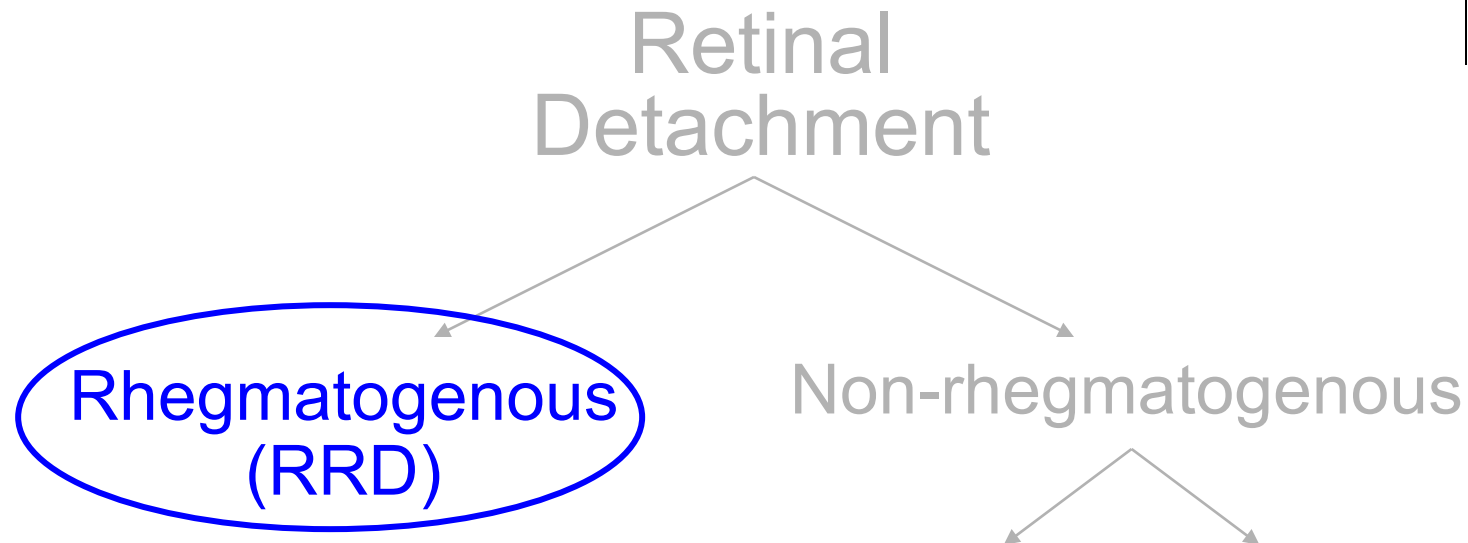
--Cataract s

--**Trauma**

--Hx RRD in



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

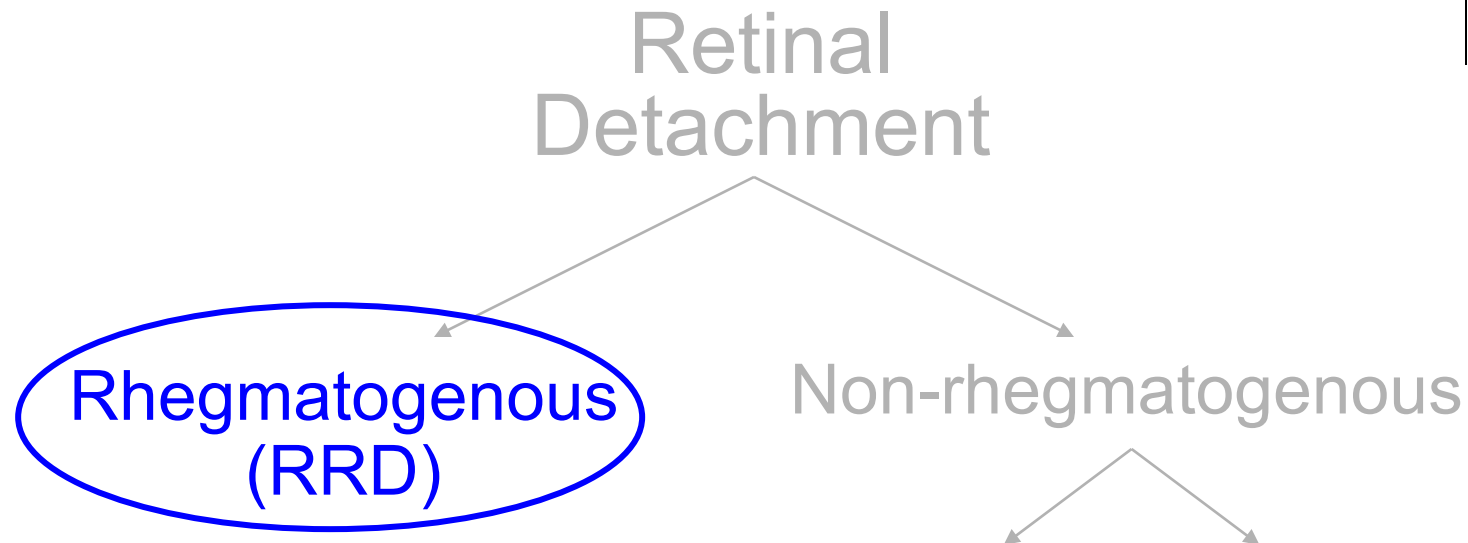
- Posterior vitreous detachment (PVD)
- Myopia
- Lattice degeneration
- Cataract surgery
- Trauma

--Hx RRD in fellow eye

What effect does a history of nontraumatic RRD in one eye have on the lifetime risk of experiencing a nontraumatic RRD in the fellow eye?



Retinal Detachment Overview



The AAO Preferred Practice Pattern for RRD lists five risk factors--what are they?

- Posterior vitreous detachment (PVD)
- Myopia
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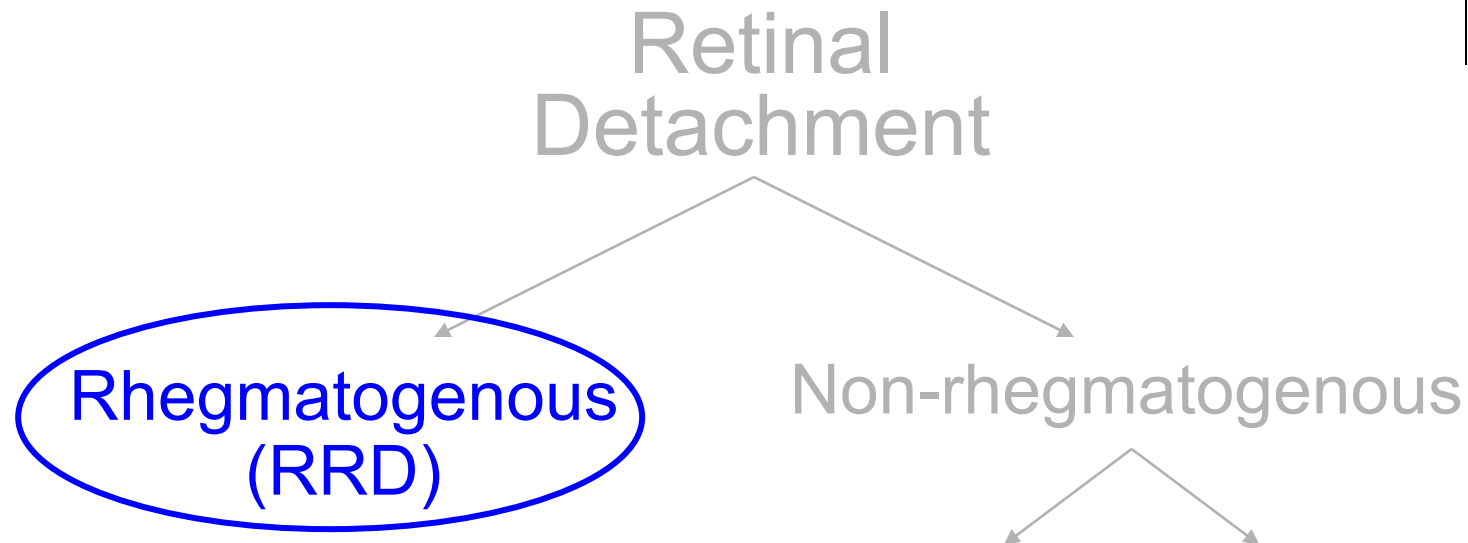
What effect does a history of nontraumatic RRD in one eye have on the lifetime risk of experiencing a nontraumatic RRD in the fellow eye?

It increases it by about %

--Hx RRD in fellow eye



Retinal Detachment Overview

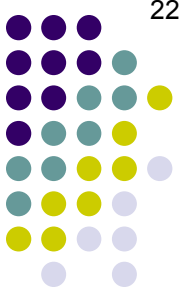


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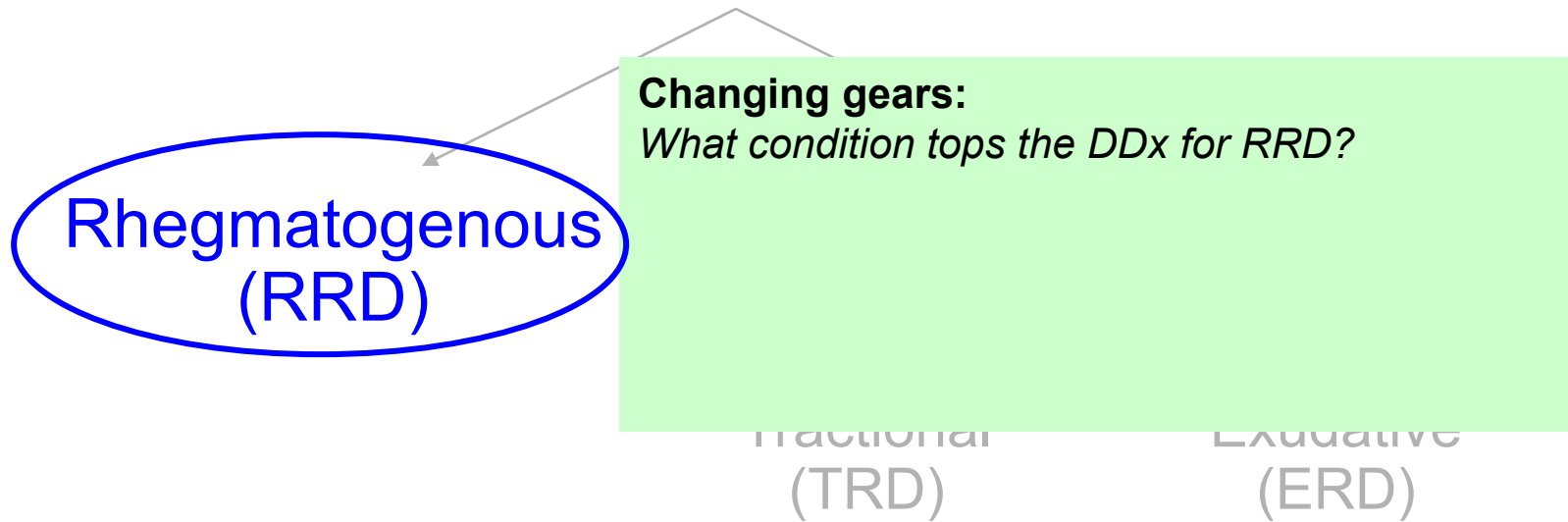
--Hx RRD in fellow eye

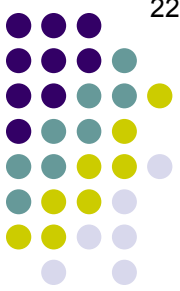
What effect does a history of nontraumatic RRD in one eye have on the lifetime risk of experiencing a nontraumatic RRD in the fellow eye?
It increases it by about 10%



Retinal Detachment Overview

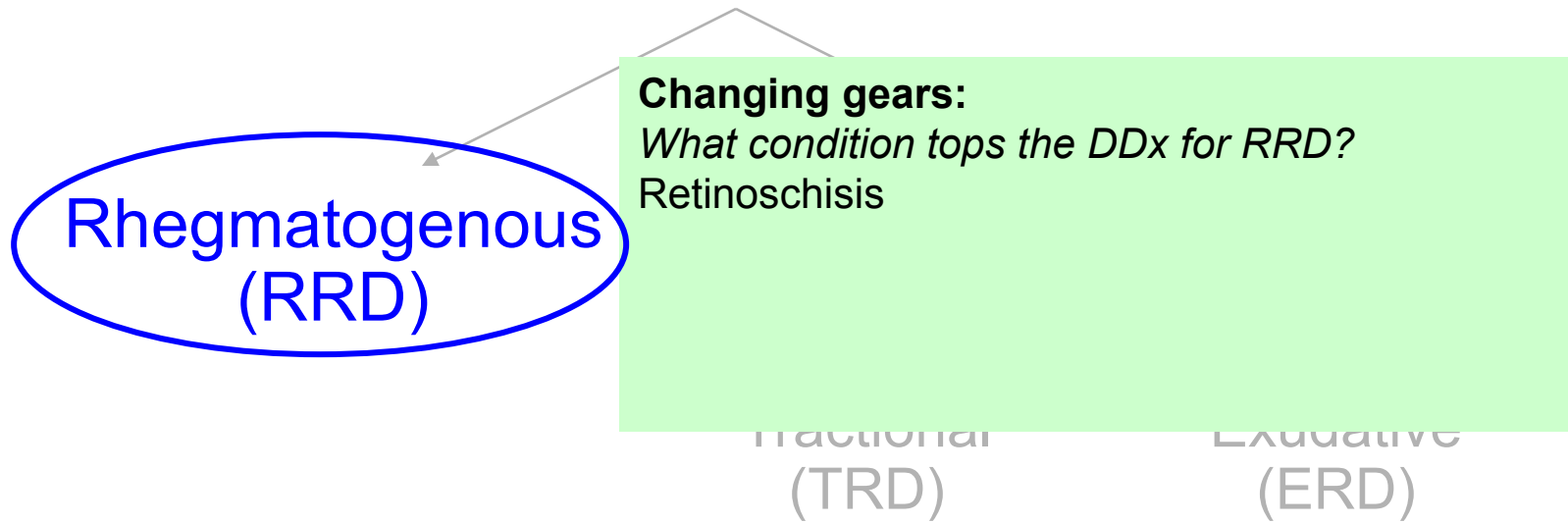
Retinal Detachment





Retinal Detachment Overview

Retinal Detachment





Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
(RRD)

Changing gears:

What condition tops the DDx for RRD?

Retinoschisis

To what does the term retinoschisis refer?

Transcortical
(TRD)

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous
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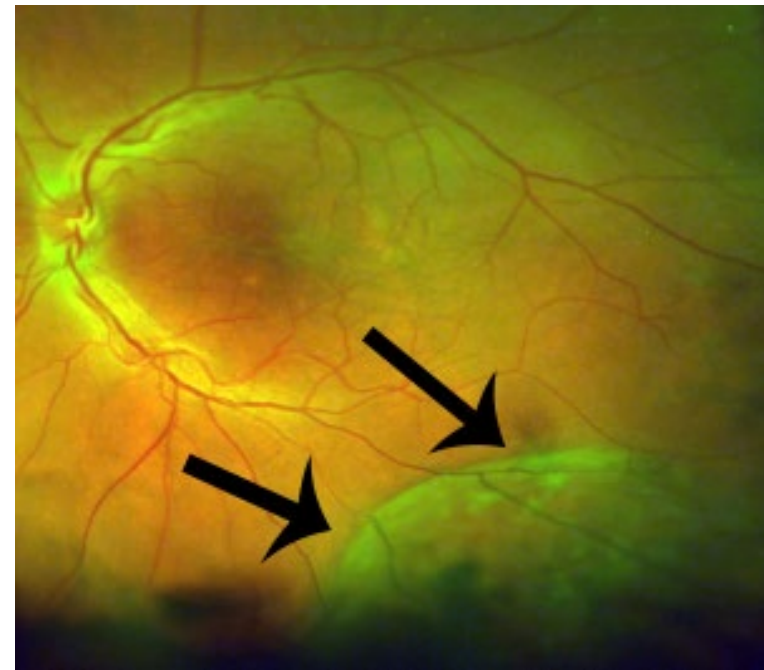
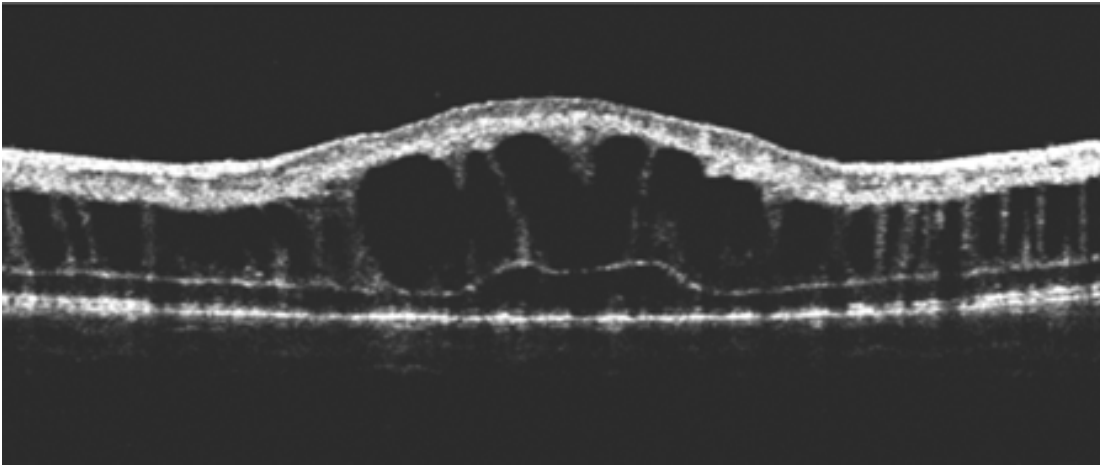
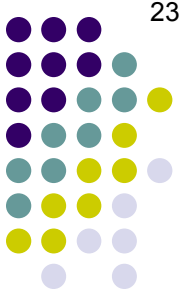
It refers to a splitting of the neurosensory retina within one of its layers

Transductional
(TRD)

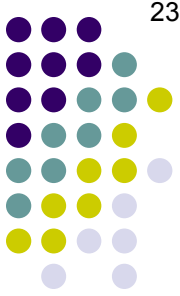
Exudative
(ERD)

Retinal Detachment Overview

230



Retinoschisis



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

Retinoschisis

To what does the term retinoschisis refer?

It refers to a splitting of the neurosensory retina.

Rhegmatogenous
(RRD)

	Surface appearance		
RRD	?		
Schisis			



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

Retinoschisis

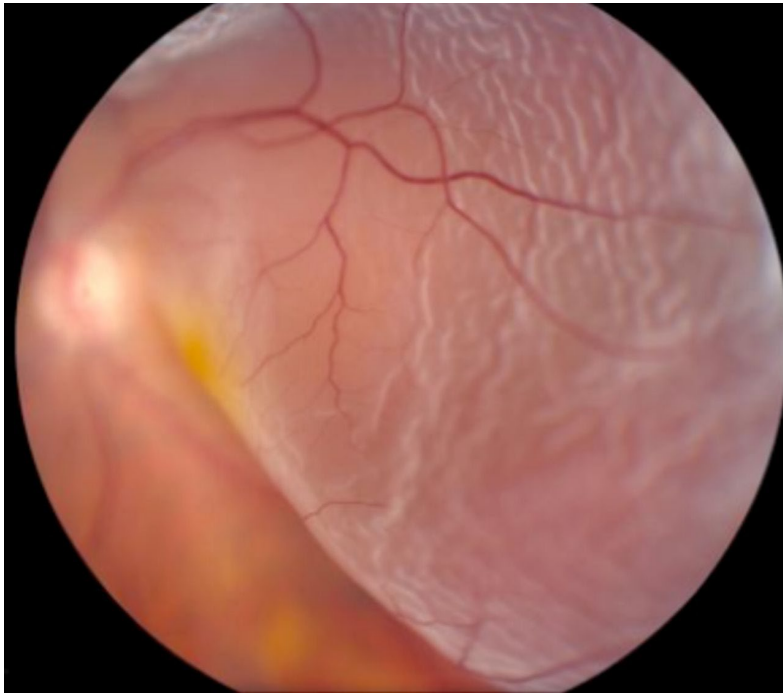
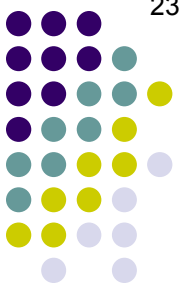
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Rhegmatogenous
(RRD)

	Surface appearance		
RRD	Corrugated		
Schisis			

Retinal Detachment Overview



RRD: Corrugated surface



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

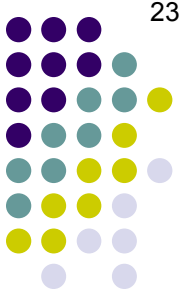
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Rhegmatogenous
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RRD	Corrugated		
Schisis	?		



Retinal Detachment Overview

Retinal Detachment

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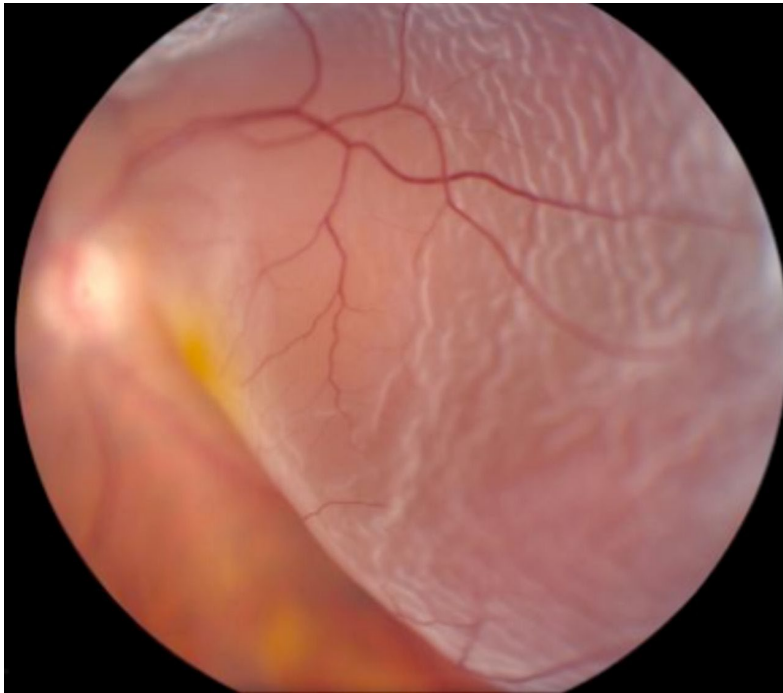
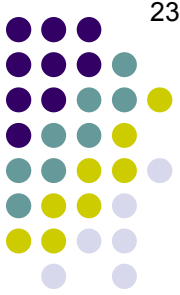
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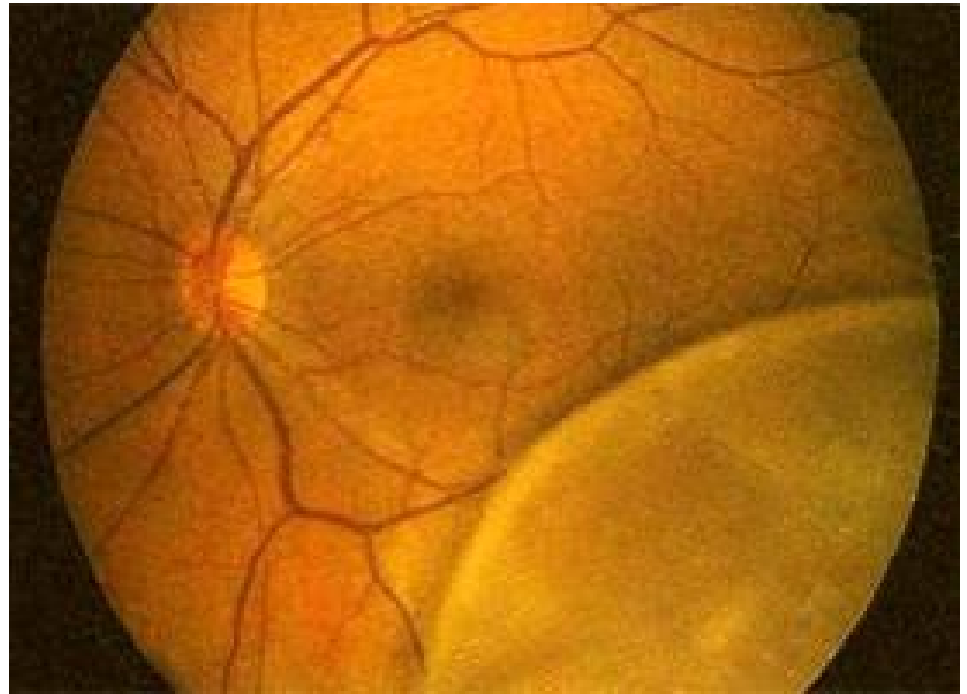
Rhegmatogenous
(RRD)

	Surface appearance		
RRD	Corrugated		
Schisis	Smooth		

Retinal Detachment Overview



RRD: Corrugated surface



Retinoschisis: Smooth surface



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

Retinoschisis

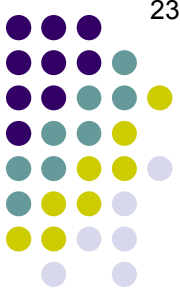
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Rhegmatogenous
(RRD)

	Surface appearance		
RRD	Smooth Corrugated		

There is a situation in which an RRD will have a smooth surface—what is it?



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

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Rhegmatogenous
(RRD)

	Surface appearance		
Longstanding RRD	Smooth Corrugated		

There is a situation in which an RRD will have a smooth surface—what is it?
A **longstanding** rhegmatogenous RD



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

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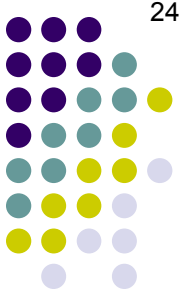
It refers to a splitting of the neurosensory retina.

Rhegmatogenous
(RRD)

	Surface appearance		
Longstanding RRD	Smooth Corrugated		

There is a situation in which an RRD will have a smooth surface—what is it?

A **longstanding** rhegmatogenous RD. In such cases, the retina eventually 'thins out,' resulting in a smoother, more schisis-like appearance.



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

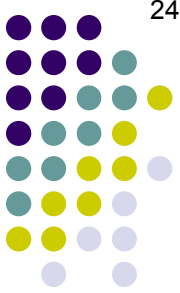
Retinoschisis

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Rhegmatogenous
(RRD)

	Surface appearance	Heme/pigment in the vitreous?	
RRD	Corrugated	?	
Schisis	Smooth		



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

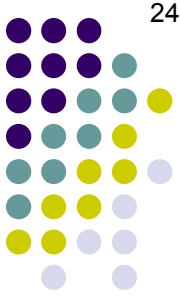
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Rhegmatogenous
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RRD	Corrugated	Yes	
Schisis	Smooth		



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous (RRD)

Changing gears:

What condition tops the DDx for RRD?

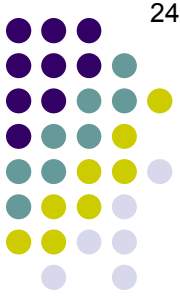
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	Surface appearance	Heme/pigment in the vitreous?	
RRD	Corrugated	Yes	
Schisis			

What is the eponymous name for the presence of pigment in the anterior vitreous as a sign of RRD?



Retinal Detachment Overview

Retinal Detachment

Rhegmatogenous (RRD)

Changing gears:

What condition tops the DDx for RRD?

Retinoschisis

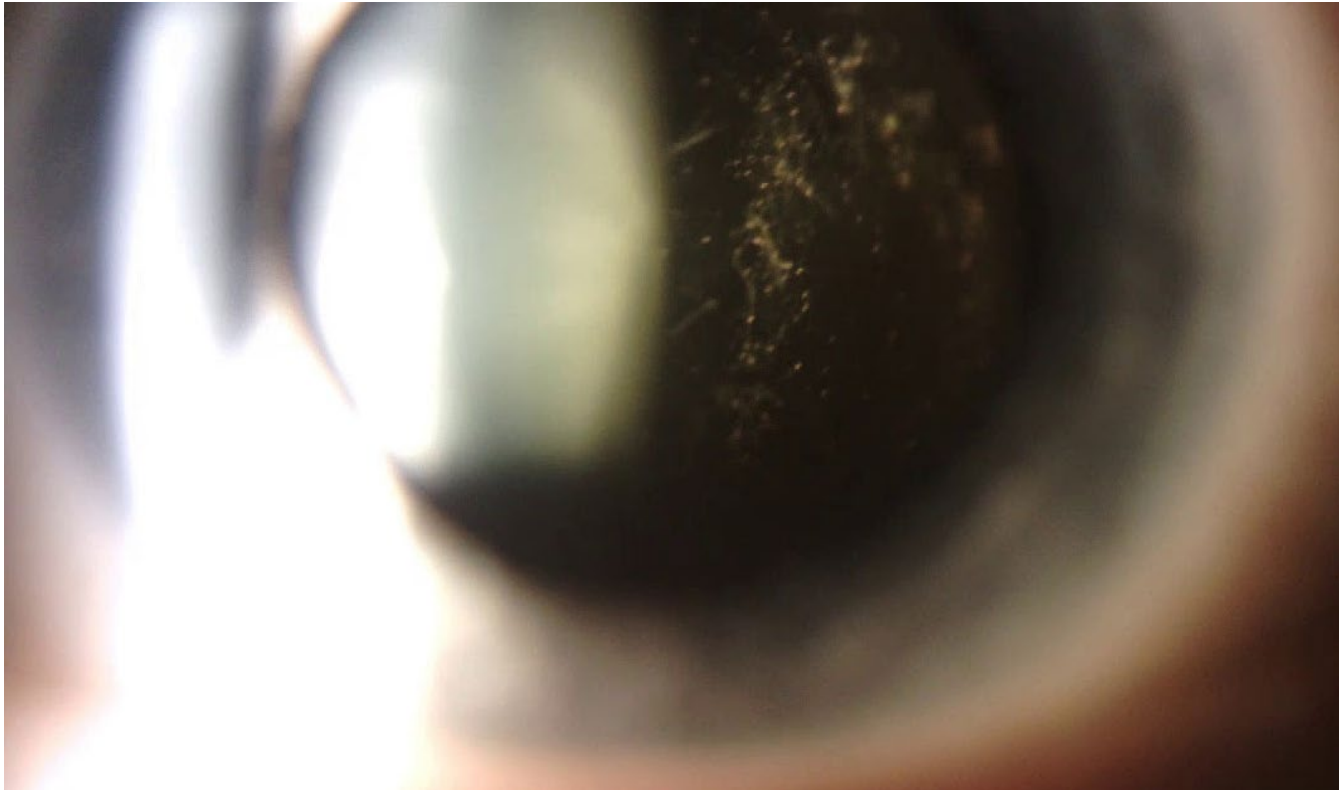
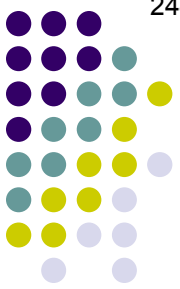
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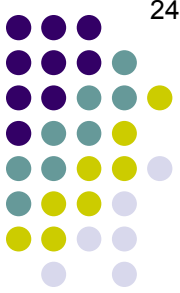
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RRD	Corrugated	Yes	
Schisis			

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Shafer's sign

Retinal Detachment Overview



Shafer's sign



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

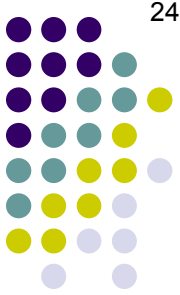
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Rhegmatogenous
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RRD	Corrugated	Yes	
Schisis	Smooth	?	



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Retinal Detachment

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	<i>Surface appearance</i>	<i>Heme/pigment in the vitreous?</i>	
RRD	Corrugated	Yes	
Schisis	Smooth	No	



Retinal Detachment Overview

Retinal Detachment

Changing gears:

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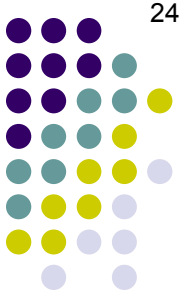
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Rhegmatogenous
(RRD)

	<i>Surface appearance</i>	<i>Heme/pigment in the vitreous?</i>	<i>Relative or absolute scotoma?</i>
RRD	Corrugated	Yes	?
Schisis	Smooth	No	



Retinal Detachment Overview

Retinal Detachment

Changing gears:

What condition tops the DDx for RRD?

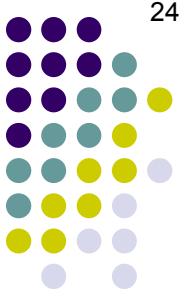
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Rhegmatogenous
(RRD)

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RRD	Corrugated	Yes	Relative
Schisis	Smooth	No	



Retinal Detachment Overview

Retinal Detachment

Changing gears:

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Rhegmatogenous
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RRD	Corrugated	Yes	Relative
Schisis	Smooth	No	?



Retinal Detachment Overview

Retinal Detachment

Changing gears:

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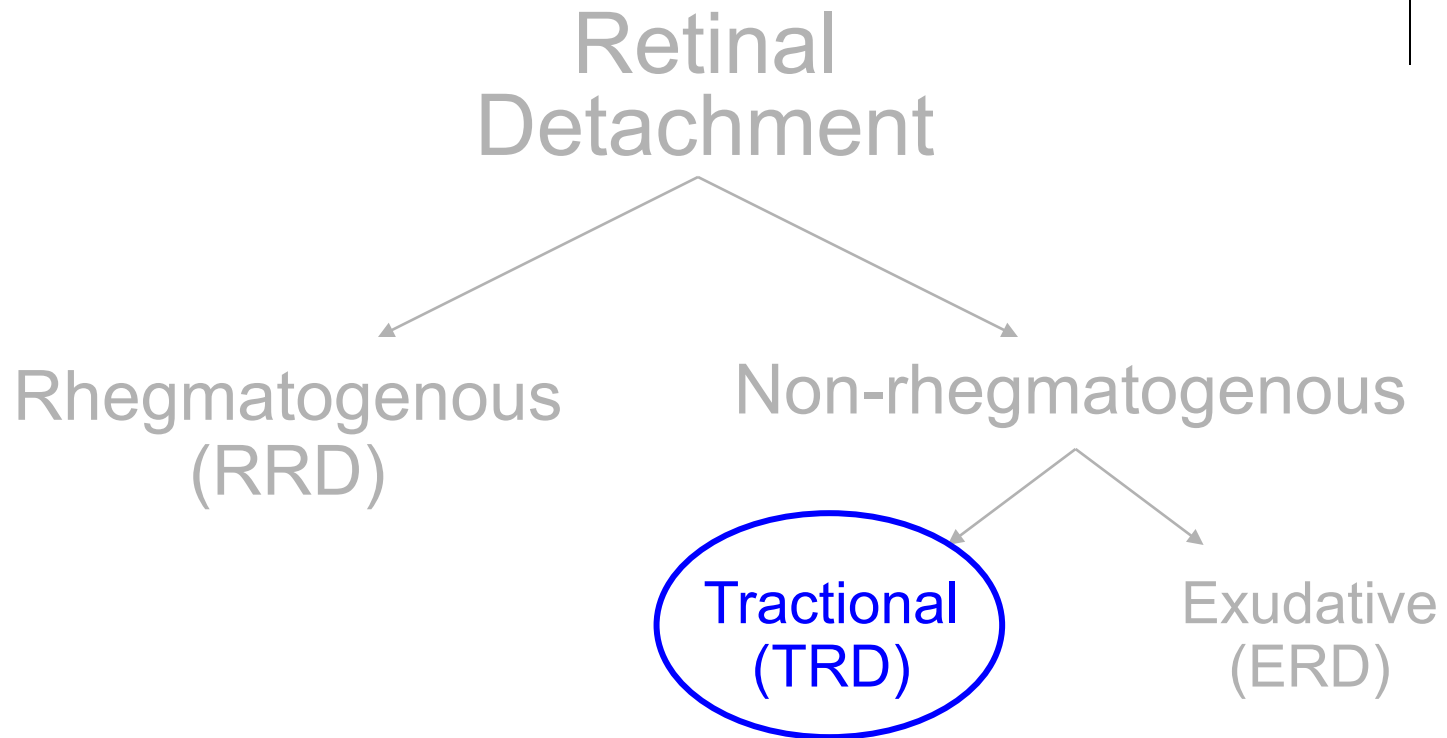
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Rhegmatogenous
(RRD)

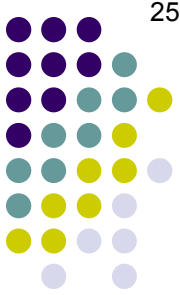
	<i>Surface appearance</i>	<i>Heme/pigment in the vitreous?</i>	<i>Relative or absolute scotoma?</i>
RRD	Corrugated	Yes	Relative
Schisis	Smooth	No	Absolute



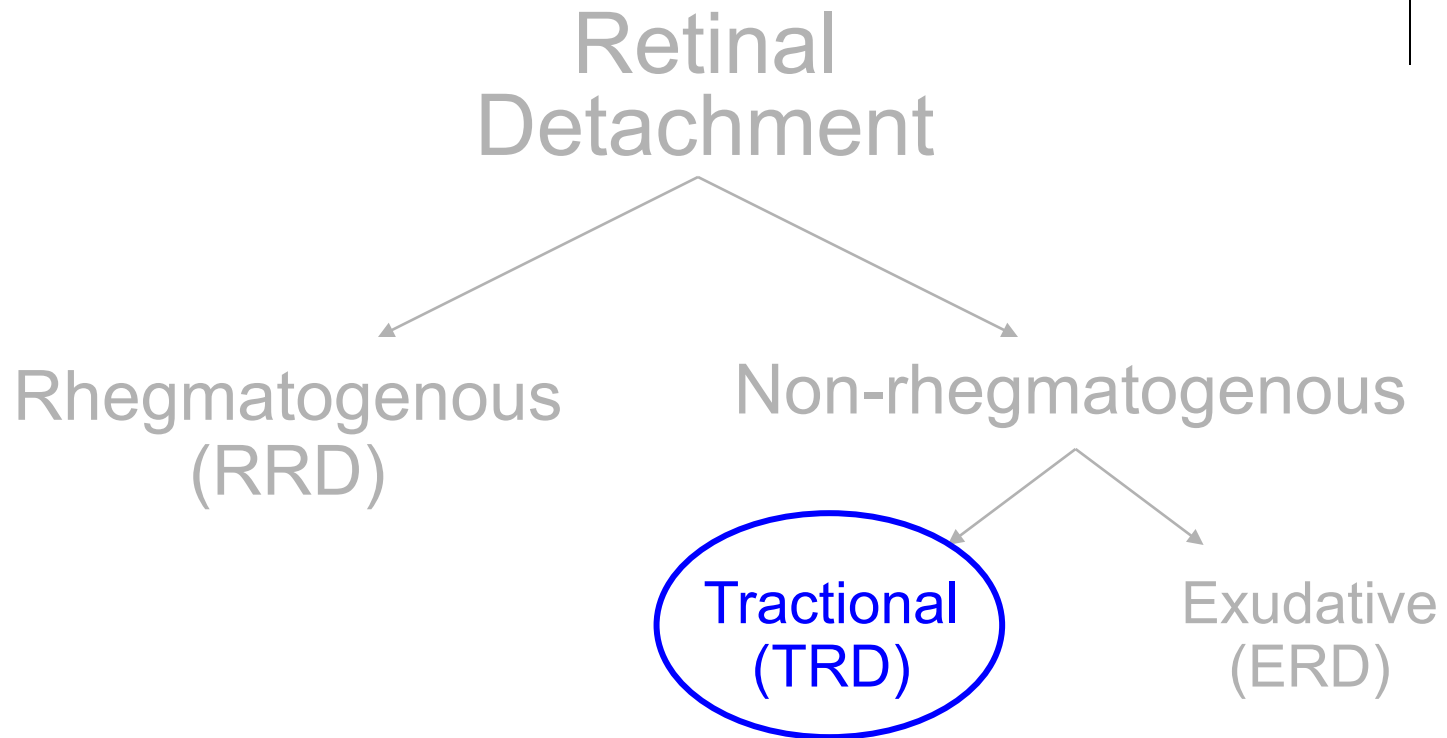
Retinal Detachment Overview



What is the underlying pathophysiology in TRD?

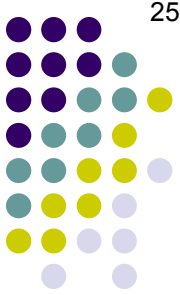


Retinal Detachment Overview



What is the underlying pathophysiology in TRD?

Vitreoretinal elements pulling hard enough on the neurosensory retina to distract it from its normal position apposing the RPE



Retinal Detachment Overview

What is the most common cause of these vitreoretinal membrane?

Retinal Detachment

Non-rhegmatogenous

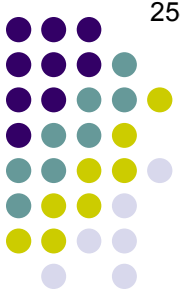
Tractional (TRD)

Exudative (ERD)

What is the underlying pathophysiology in TRD?

Vitreoretinal elements

pulling hard enough on the neurosensory retina to distract it from its normal position apposing the RPE



Retinal Detachment Overview

What is the most common cause of these vitreoretinal membrane?

Proliferative retinopathy (eg, PDR; CRVO; BRVO)

Retinal Detachment

Non-rhegmatogenous

Tractional
(TRD)

Exudative
(ERD)

What is the underlying pathophysiology in TRD?

Vitreoretinal elements

pulling hard enough on the neurosensory retina to distract it from its normal position apposing the RPE



Retinal Detachment Overview

Retinal Detachment

What is the most common cause of these vitreoretinal membrane?

Proliferative retinopathy (eg, PDR; CRVO; BRVO)

What is another, completely different sort of common cause?

Non-rhegmatogenous

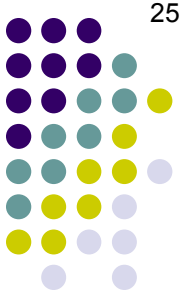
Tractional
(TRD)

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What is the underlying pathophysiology in TRD?

Vitreoretinal elements

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Retinal Detachment Overview

Retinal Detachment

What is the most common cause of these vitreoretinal membrane?

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What is another, completely different sort of common cause?

Penetrating trauma

Non-rhegmatogenous

Tractional
(TRD)

Exudative
(ERD)

What is the underlying pathophysiology in TRD?

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Retinal Detachment Overview

Retinal Detachment

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Penetrating trauma

Does penetrating trauma lead to proliferative retinopathy?

Non-rhegmatogenous

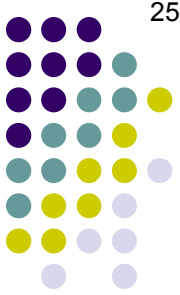
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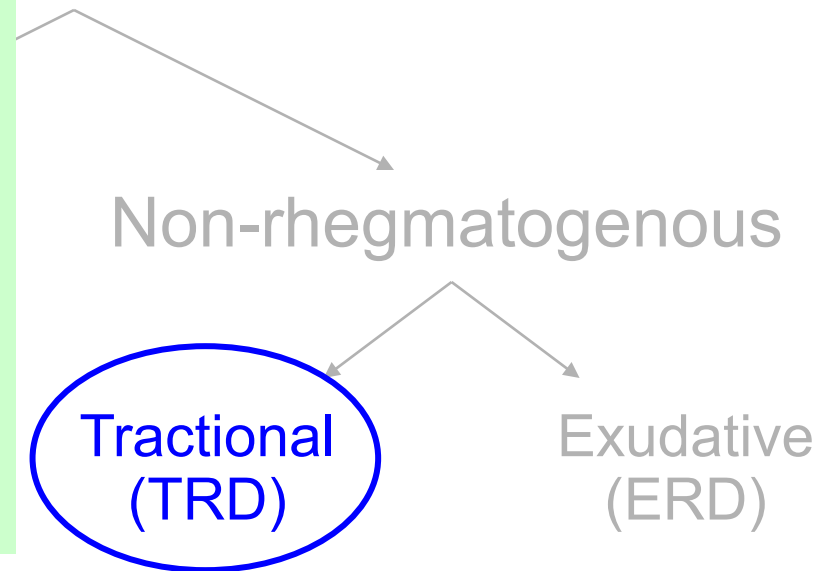
Vitreoretinal elements

pulling hard enough on the neurosensory retina to distract it from its normal position apposing the RPE



Retinal Detachment Overview

Retinal Detachment



What is the most common cause of these vitreoretinal membrane?

Proliferative retinopathy (eg, PDR; CRVO; BRVO)

What is another, completely different sort of common cause?

Penetrating trauma

Does penetrating trauma lead to proliferative retinopathy?

No, it leads to proliferative **vitreoretinopathy**

What is the underlying pathophysiology in TRD?

Vitreoretinal elements

pulling hard enough on the neurosensory retina to distract it from its normal position apposing the RPE

How does proliferative retinopathy lead to TRD?

What is the most common vitreoretinal membrane?

Proliferative retinopathy

(BRVO)

What is another, completely common cause?

Penetrating trauma

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**Tractional
(TRD)**

Exudative
(ERD)

What is the underlying pathophysiology in TRD?

Vitreoretinal elements

pulling hard enough on the neurosensory retina to distract it from its normal position apposing the RPE

How does proliferative retinopathy lead to TRD?

Recall that, by definition, PDR vessels break through the internal limiting membrane (ILM), which means they are in contact with the posterior hyaloid face of the vitreous. Some vessels will use the posterior hyaloid as a 'scaffold' on which to grow.

What is the most common vitreoretinal membrane?

Proliferative retinopathy

(BRVO)

What is another, completely common cause?

Penetrating trauma

Does penetrating trauma lead to proliferative retinopathy?

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How does proliferative retinopathy lead to TRD?

Recall that, by definition, PDR vessels break through the internal limiting membrane (ILM), which means they are in contact with the posterior hyaloid face of the vitreous. Some vessels will use the posterior hyaloid as a 'scaffold' on which to grow. Further, remember that proliferative vessels don't travel solo--they bring glial and other fibroblastic-type cells along. These fellow-travelers provide a contractile element to the neovascular fronds.

What is the most common vitreoretinal membrane?

Proliferative retinopathy

(BRVO)

What is another, completely common cause?

Penetrating trauma

Does penetrating trauma lead to proliferative retinopathy?

No, it leads to proliferative **vitreoretinopathy**

**Tractional
(TRD)**

Exudative
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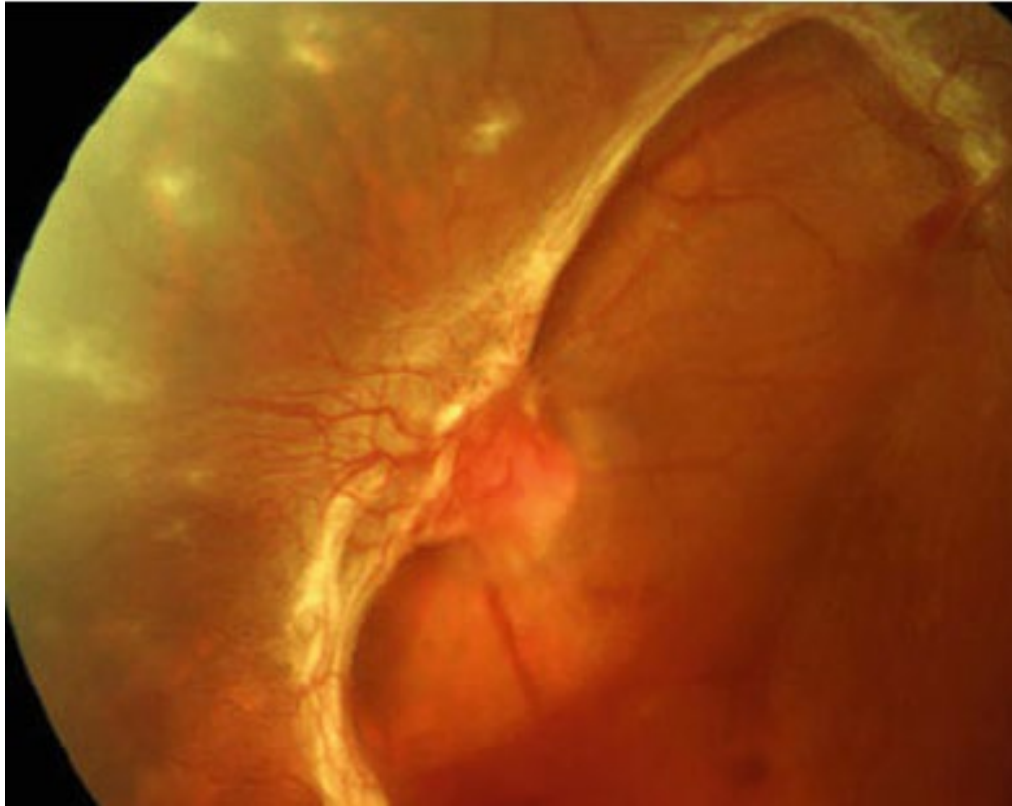
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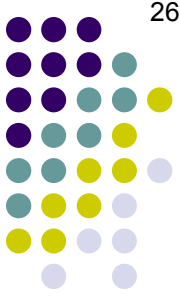
Vitreoretinal elements

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Retinal Detachment Overview



TRD. Note the vessels crawling up on and into the vitreous



To be clear: When we refer to penetrating trauma, what structure specifically is being penetrated?

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Non-rhegmatogenous

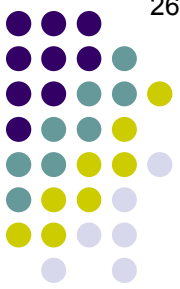
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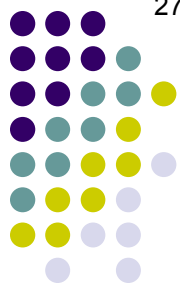
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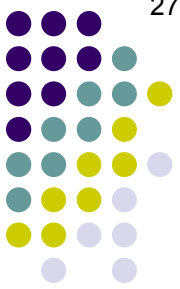
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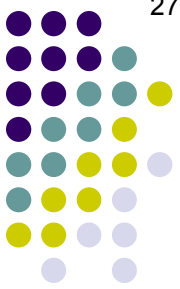
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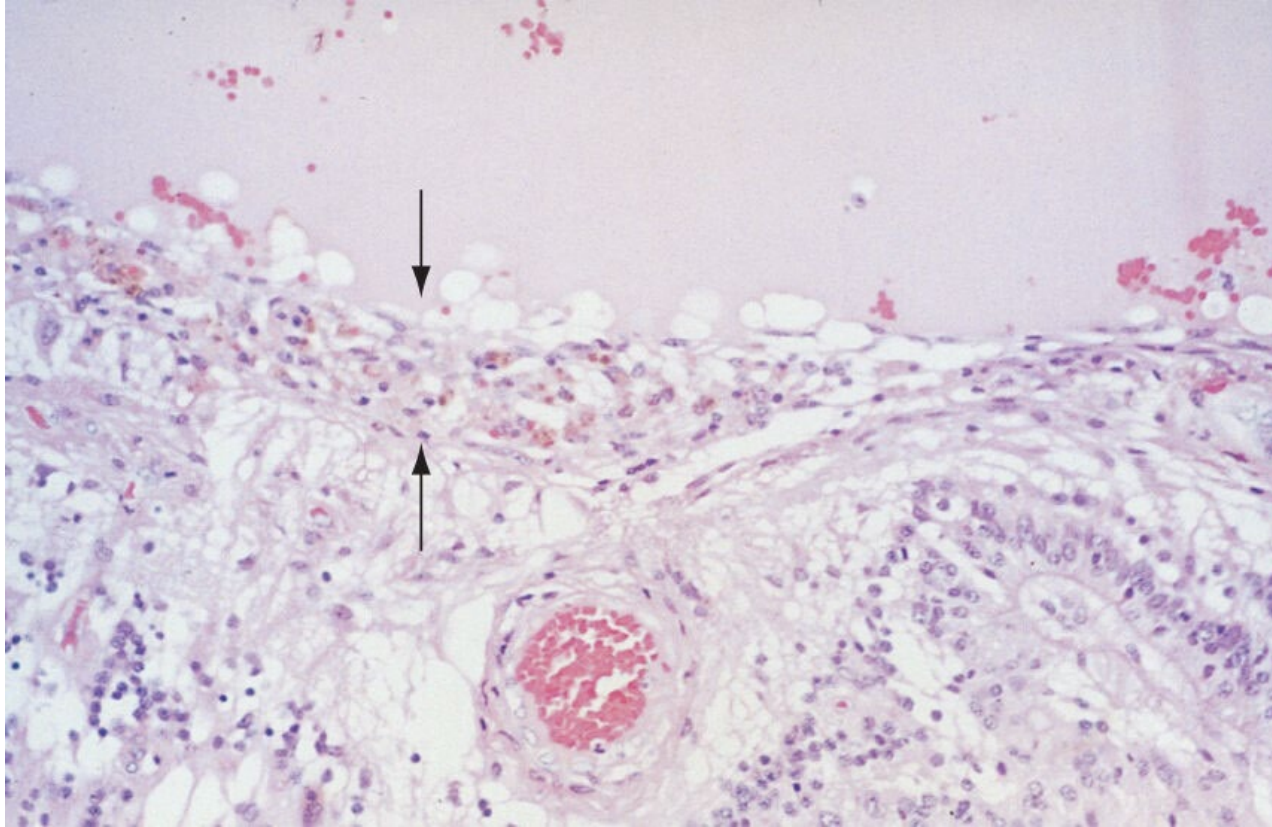
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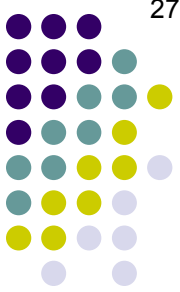
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Retinal Detachment Overview



Preretinal membrane (*area between arrows*) on the surface of the retina, secondary to proliferative vitreoretinopathy

PVR



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Tractional
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So you can see how penetrating (NS retina) trauma can lead to PVR and TRD--the traumatic break provides the pathway by which the contractile cells can access the vitreous.

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What is a retinal detachment?
common to
Penetrating

Rhegmatogenous (RRD)

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PVR is the #1 cause of long-term RRD surgery failure

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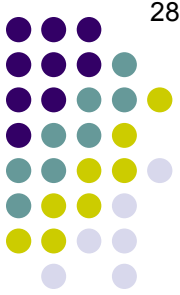
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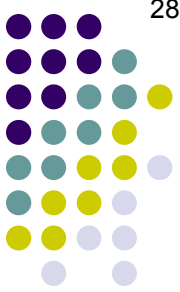


In a nutshell, what is going on in ERD?

matogenous

Exudative
(ERD)

Retinal Detachment Overview



Retinal

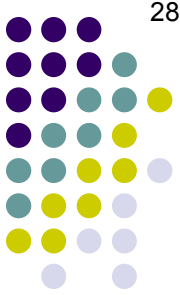
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The accumulation of fluid in the potential space between the NS retina and the RPE

matogenous

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Retinal Detachment Overview



Retinal

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Under normal circumstances, what prevents fluid from accumulating there?

matogenous

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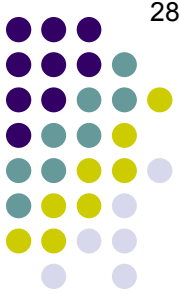
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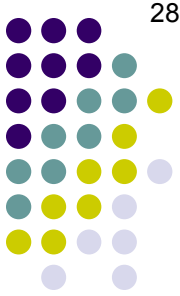
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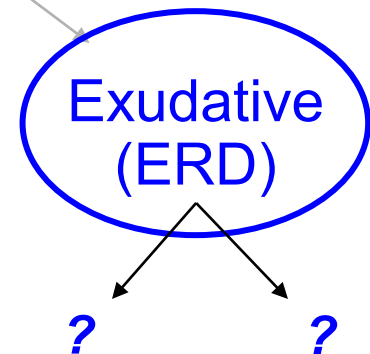
That it is due to either:

- ?
- ?

or

(or a combo of both)

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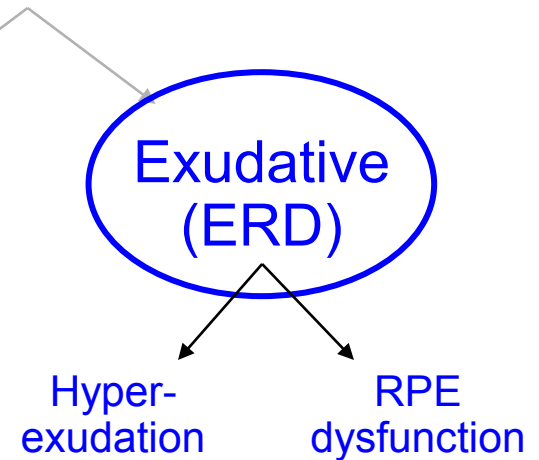
The pumping action of the RPE

This implies what about the underlying pathophysiology of ERD?

That it is due to either:

--a rate of fluid accumulation too high for the RPE to keep up; or
--a failure of RPE pumping function
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matogenous





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What two broad categories of dz are commonly associated with hyperexudation?

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matogenous

RD?

Exudative
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Hyper-
exudation

RPE
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?

?



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- Neoplastic

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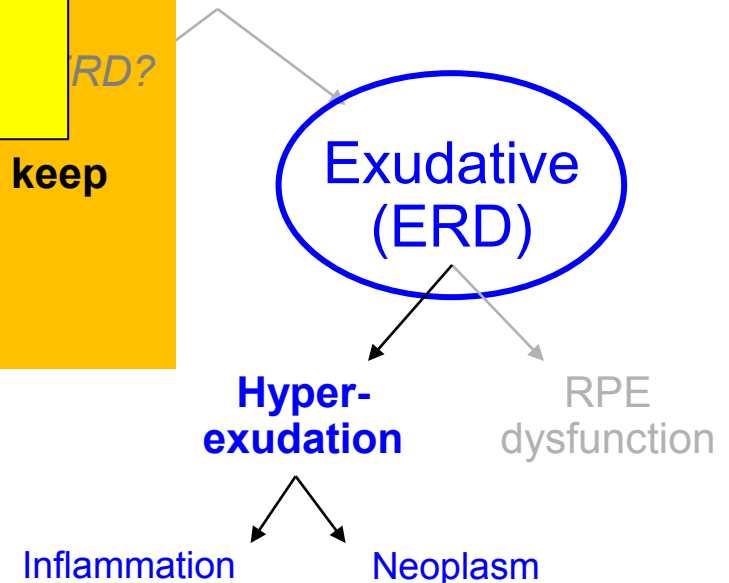
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matogenous

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--Vogt-Koyanagi-Harada (VKH)

--Posterior scleritis

--Malignant hypertension

--Toxemia of pregnancy

matogenous

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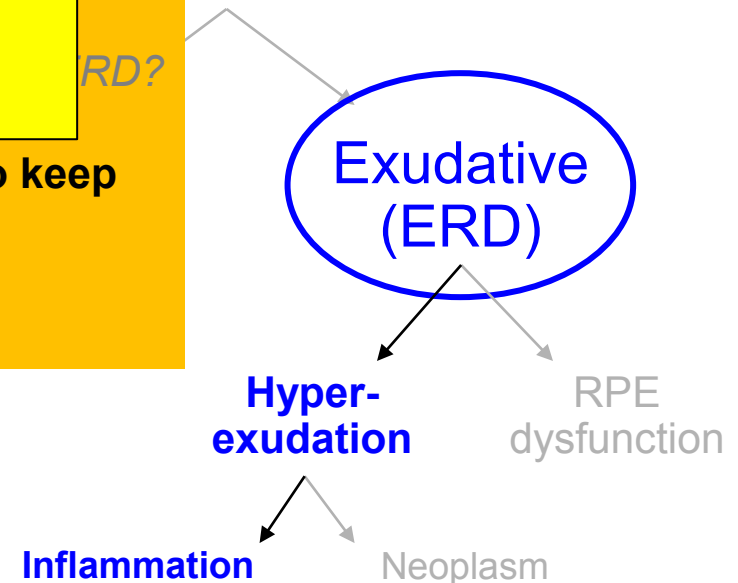
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RPE dysfunction

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And given VKH is in the DDx, what other condition must be considered as well?

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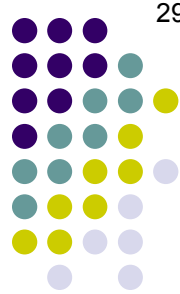
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--Inflammatory

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And given VKH is in the DDx, what other condition must be considered as well?

SO--sympathetic ophthalmia. (If you don't understand why SO must be included, check out the VKH/SO slide-set.)

What inflammatory conditions are associated with ERD?

--Vogt-Koyanagi-Harada (VKH)

--Posterior scleritis

--Malignant hypertension

--Toxemia of pregnancy

matogenous

RD?

**Exudative
(ERD)**

**Hyper-
exudation**

RPE
dysfunction

Inflammation

Neoplasm

Retinal Detachment Overview



Retinal

In a nutshell, what is going on in ERD?

The accumulation of fluid in the potential space between the NS retina and the RPE

Under normal circumstances, what prevents fluid from accumulating there?

What two broad categories of dz are commonly associated with hyperexudation?

--Inflammatory

--Neoplastic

--a rate of fluid accumulation too high for the RPE to keep up; or

--a failure of RPE pumping function (or a combo of both)

Which broad categories of neoplasms are associated with ERD?

--

--

matogenous

RD?

Exudative (ERD)

Hyper-exudation

RPE dysfunction

Inflammation

Neoplasm

?

?

Retinal Detachment Overview



Retinal

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Which broad categories of neoplasms are associated with ERD?

--Choroidal

--Metastases

matogenous

RD?

Exudative (ERD)

Hyper-exudation

RPE dysfunction

Inflammation

Neoplasm

Choroidal

Metastatic

Retinal Detachment Overview



Retinal

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matogenous

RD?

Exudative (ERD)

Hyper-exudation

RPE dysfunction

Inflammation

Neoplasm

Choroidal

Metastatic

Which broad categories of neoplasms are associated with ERD?

What are the two most common causes for each?

--Choroidal, especially ? and ?

--Metastases, especially ? and ?

Retinal Detachment Overview



Retinal

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--a rate of fluid accumulation too high for the RPE to keep up; or

--a failure of RPE pumping function (or a combo of both)

Which broad categories of neoplasms are associated with ERD?

What are the two most common causes for each?

--Choroidal, especially **hemangioma** and **melanoma**

--Metastases, especially **breast** and **lung**

matogenous

RD?

Exudative (ERD)

Hyper-exudation

RPE dysfunction

Inflammation

Neoplasm

Choroidal

Metastatic

Retinal Detachment Overview



Retinal

In a nutshell, what is going on in ERD?

The accumulation of fluid in the potential space between the NS retina and the RPE

Under normal circumstances, what prevents fluid from accumulating there?

The pumping action of the RPE

This implies what about the underlying pathophysiology of ERD?

That it is due to either:

--a rate of fluid accumulation too high for the RPE to keep up; or

--a failure of RPE pumping function

(or a combo of both)

matogenous

**Exudative
(ERD)**

Hyper-
exudation

**RPE
dysfunction**

?

Inflammation

Neoplasm

Choroidal

Metastatic

What condition, often but not always associated with ERD, is a classic example of RPE dysfunction?

Retinal Detachment Overview



Retinal

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matogenous

**Exudative
(ERD)**

Hyper-
exudation

**RPE
dysfunction**

CSC

Inflammation

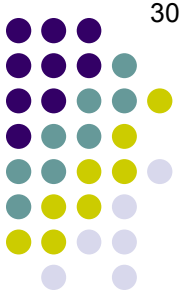
Neoplasm

Choroidal

Metastatic

*What condition, often but not always associated with ERD,
is a classic example of RPE dysfunction?*

Central serous chorioretinopathy (CSC)



Retinal Detachment Overview

Retinal

In a nutshell, what is going on in ERD?

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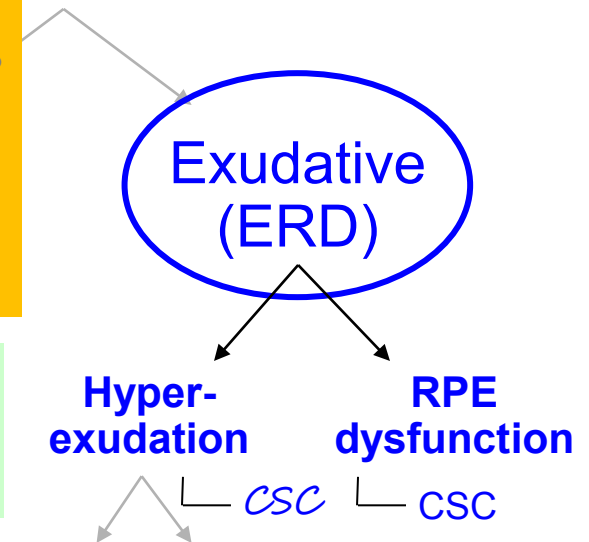
That it is due to either:

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(or a combo of both)

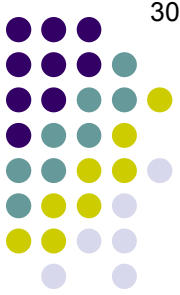
matogenous



What condition, often but not always associated with ERD, is a classic example of RPE dysfunction?

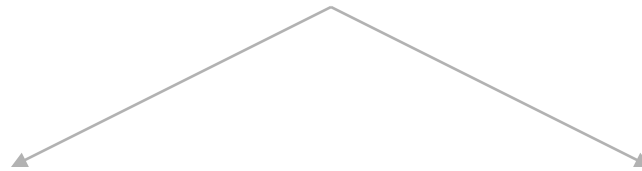
Central serous chorioretinopathy (CSC)

(Note: ERD in CSC is not due **solely** to RPE dysfunction—choroidal hyperpermeability is a component as well)



Retinal Detachment Overview

Retinal Detachment



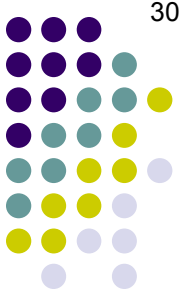
We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is..

two words

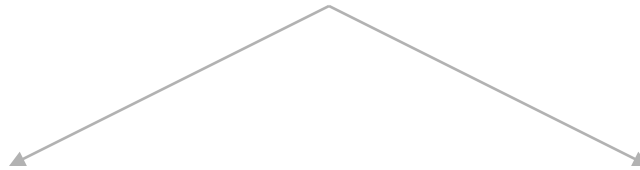
togenous

Exudative
(ERD)

Retinal Detachment Overview



Retinal Detachment

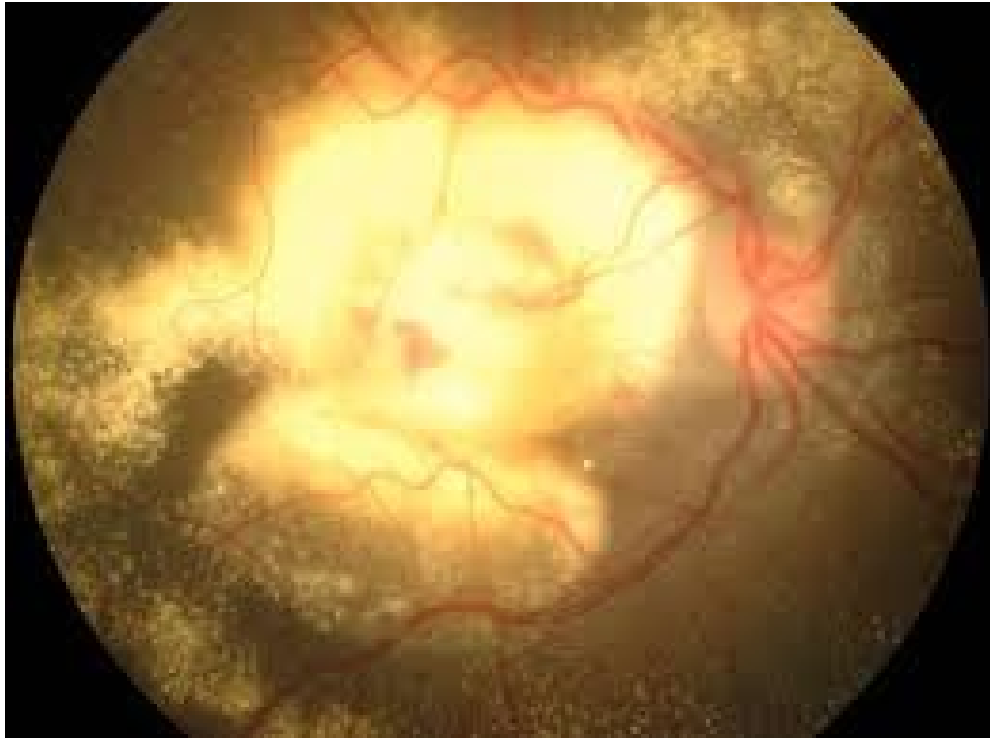
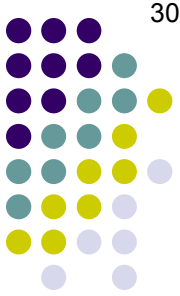


*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**.*

Exudative

Exudative
(ERD)

Retinal Detachment Overview

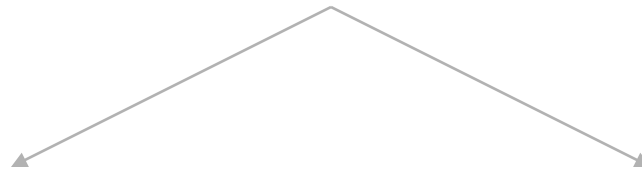


Coats disease: ERD



Retinal Detachment Overview

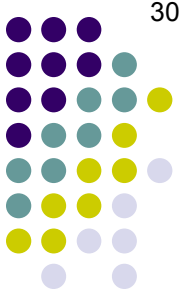
Retinal Detachment



*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard: --Age of presentation?*

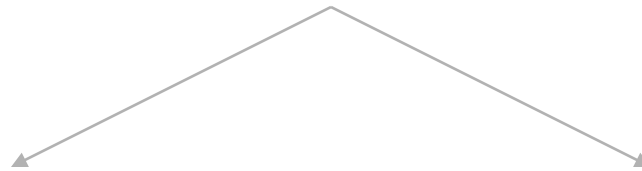
Tractional

Exudative
(ERD)



Retinal Detachment Overview

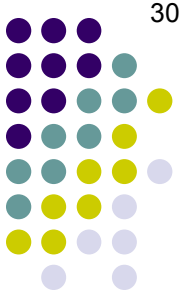
Retinal Detachment



*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:
--Age of presentation? **5 years***

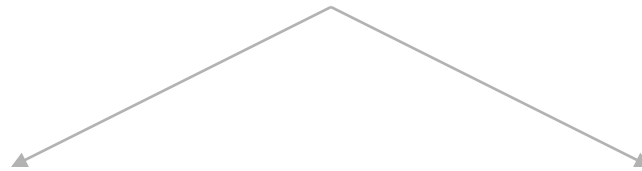
Tractional

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment



*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:*

- Age of presentation? **5 years***
- Gender?*

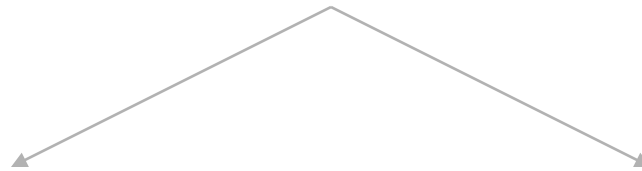
Tractional

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment

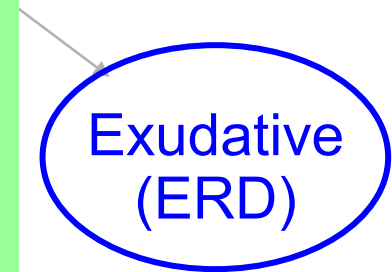


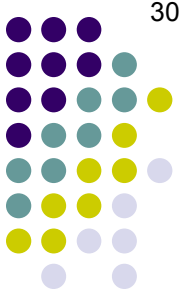
*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:*

- Age of presentation? **5 years***
- Gender? **Male***

Exudative

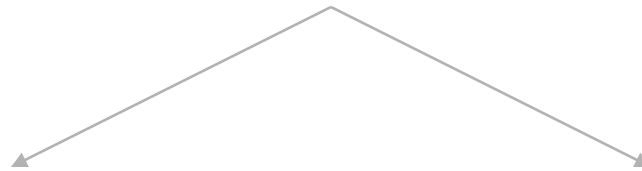
Exudative
(ERD)





Retinal Detachment Overview

Retinal Detachment

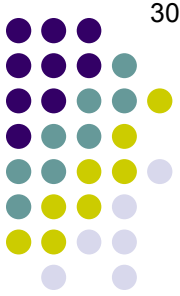


*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:*

- Age of presentation? **5 years***
- Gender? **Male***
- Laterality?*

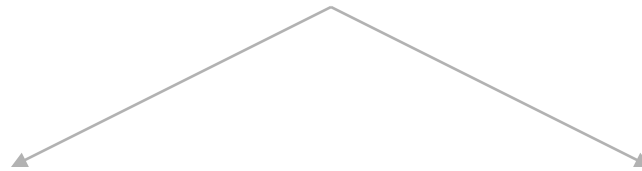
Exudative

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment

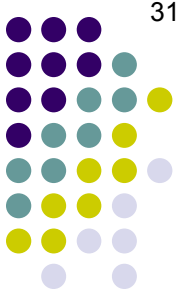


*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:*

- Age of presentation? **5 years**
- Gender? **Male**
- Laterality? **Unilateral**

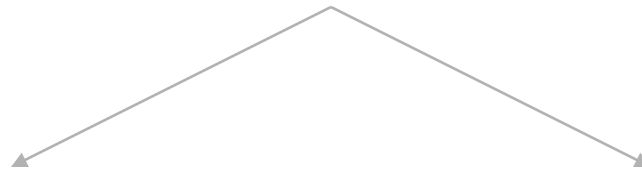
togenous

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment



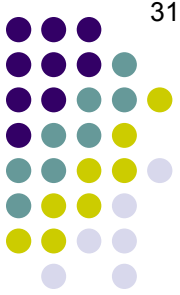
*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:*

- Age of presentation? **5 years***
- Gender? **Male***
- Laterality? **Unilateral***
- Presenting sign?*

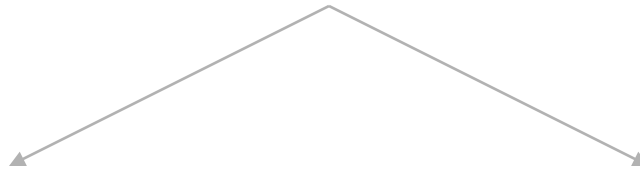
Exudative

Exudative
(ERD)

Retinal Detachment Overview



Retinal Detachment

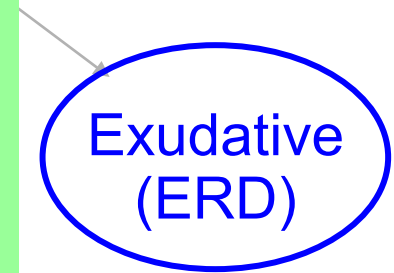


*We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:*

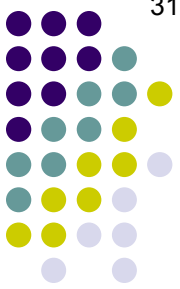
- Age of presentation? **5 years**
- Gender? **Male**
- Laterality? **Unilateral**
- Presenting sign? **Leukocoria**

Exudative

Exudative
(ERD)



Retinal Detachment Overview

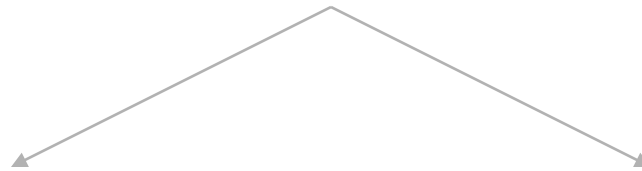


Coats disease: Leukocoria



Retinal Detachment Overview

Retinal Detachment



We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:

- Age of presentation? **5 years**
- Gender? **Can Coats present in adulthood?**
- Laterality? **Unilateral**
- Presenting sign? **Leukocoria**

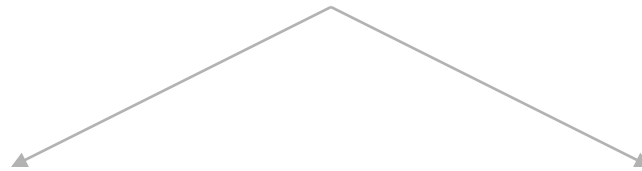
togenous

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment



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- Age of presentation? **5 years**
- Gender? **Can Coats present in adulthood? Yes**
- Laterality? **Unilateral**
- Presenting sign? **Leukocoria**

Exudative

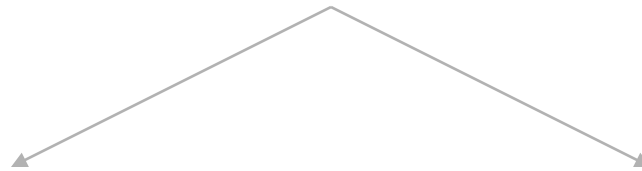


Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment



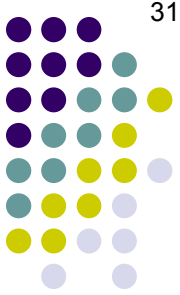
We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:

- Age of presentation? **5 years**
- Gender? **Male**
- What percent of cases are male?
- Presenting sign? **Leukocoria**

Exudative

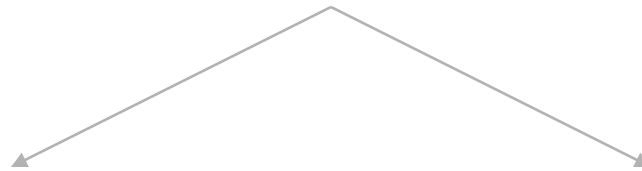
Exudative
(ERD)





Retinal Detachment Overview

Retinal Detachment



We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:

- Age of presentation? **5 years**
- Gender? **Male**
- What percent of cases are male? **About 70-80%**
- Presenting sign? **Leukocoria**

Exudative

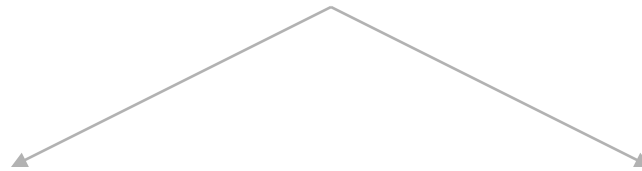
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Retinal Detachment Overview

Retinal Detachment



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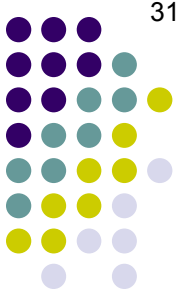
--Gender? **Male**

--Laterality? **Unilateral**

What percent of cases are unilateral?

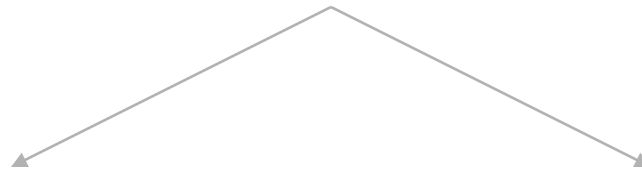
Exudative

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment



We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:

--Age of presentation? **5 years**

--Gender? **Male**

--Laterality? **Unilateral**

What percent of cases are unilateral? **About 70-80%**

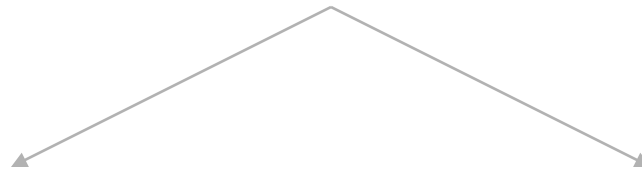
Tractional

Exudative
(ERD)



Retinal Detachment Overview

Retinal Detachment



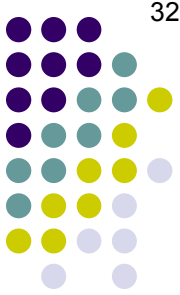
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- Age of presentation? **5 years**
- Gender? **Male**
- Laterality? **Unilateral**
- Presenting sign? **Leukocoria**

Exudative

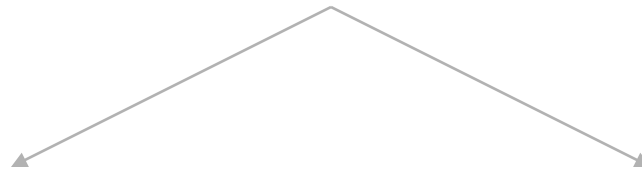


What feared condition is Coats on the DDx for?



Retinal Detachment Overview

Retinal Detachment



We can't talk about ERD without mentioning an extremely OKAP-worthy condition associated with it...Questions about this condition could be Retina-based or Peds-based...That condition is...**Coats disease**. In that regard:

--Age of presentation? **5 years**

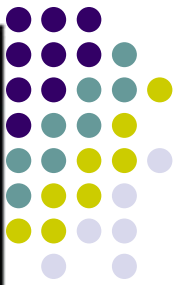
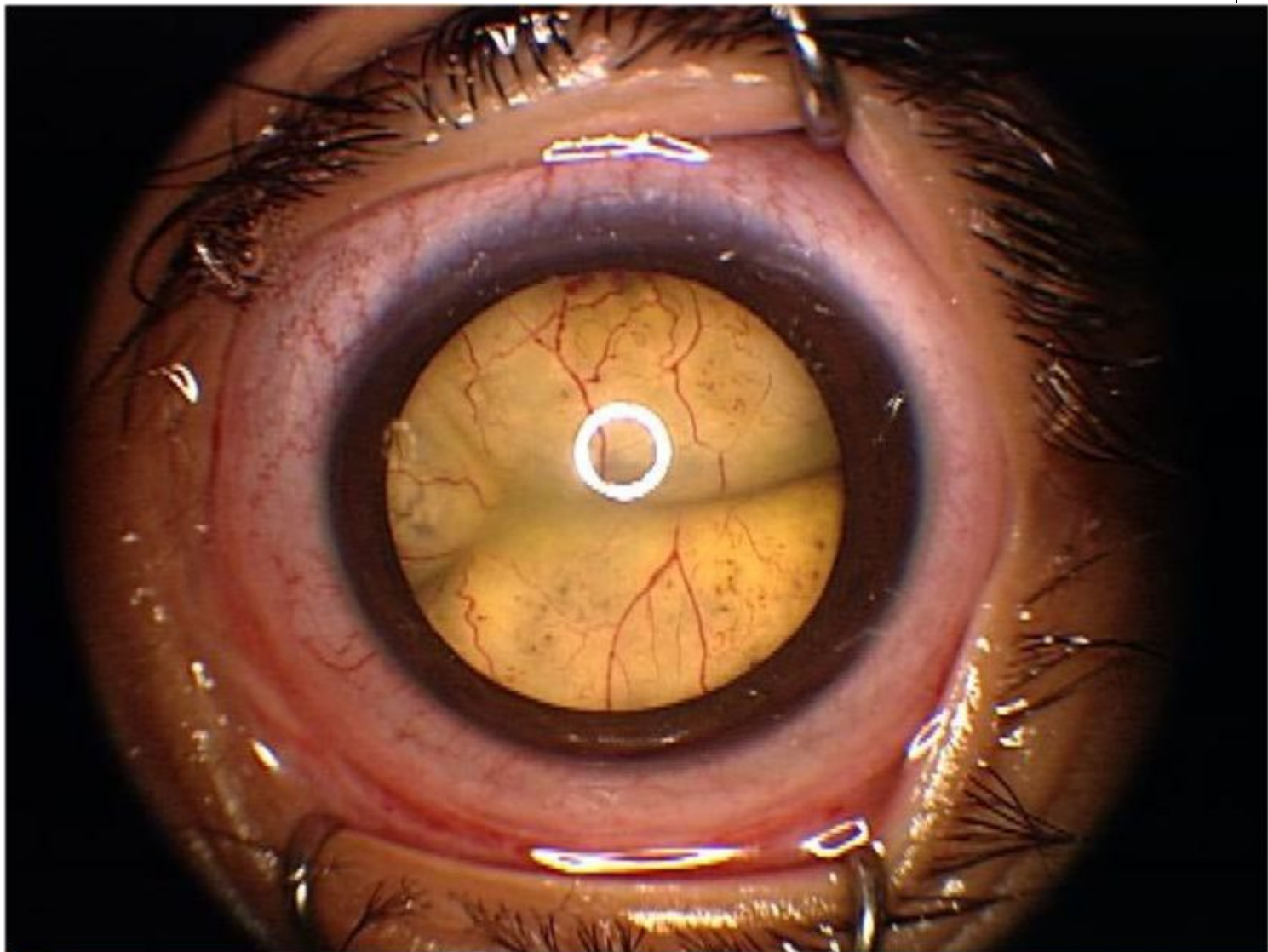
--Gender? **Male**

--Laterality? **Unilateral**

--Presenting sign? **Leukocoria**

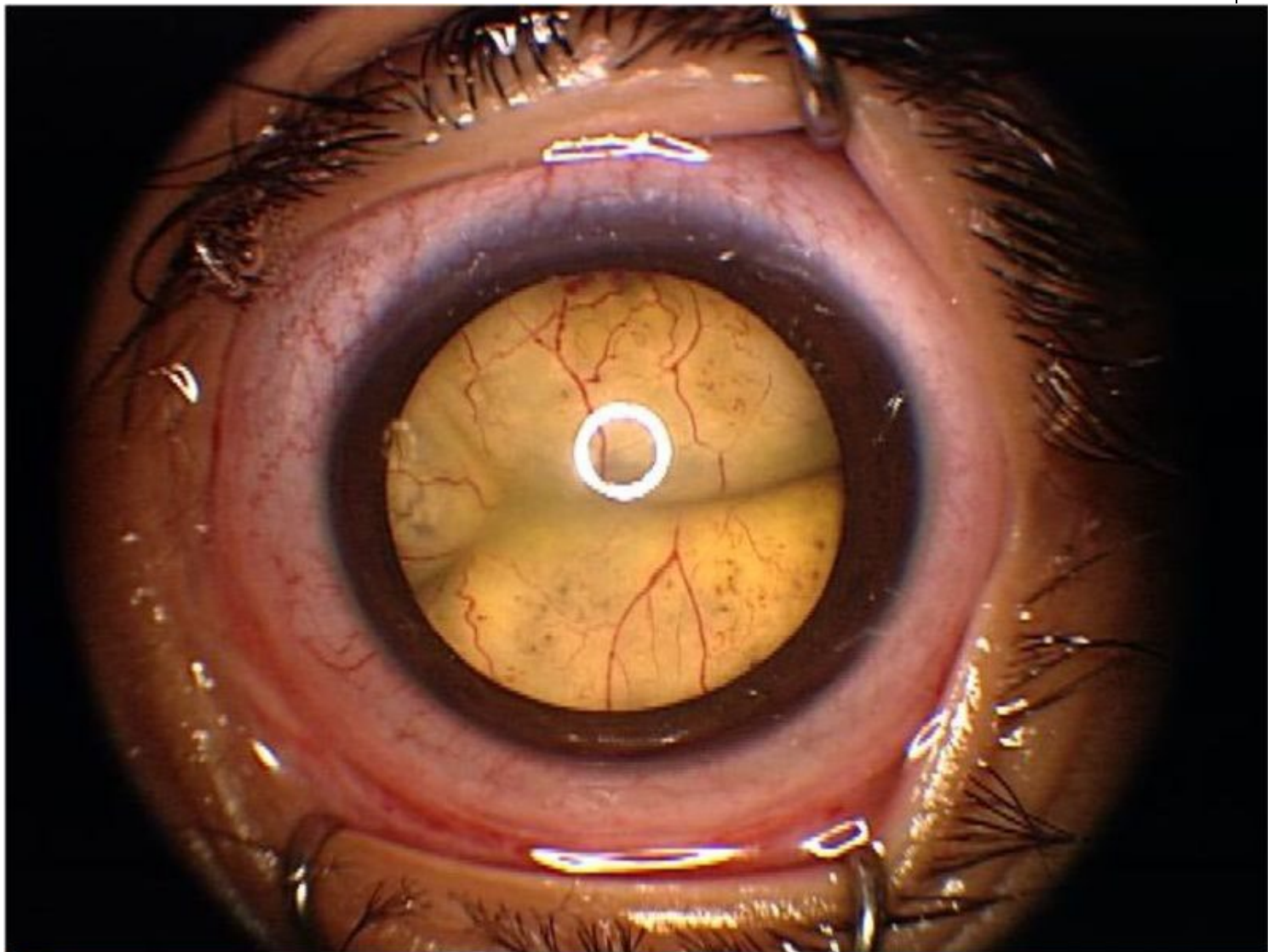
Exudative
(ERD)

What feared condition is Coats on the DDx for? **Retinoblastoma**



Medscape

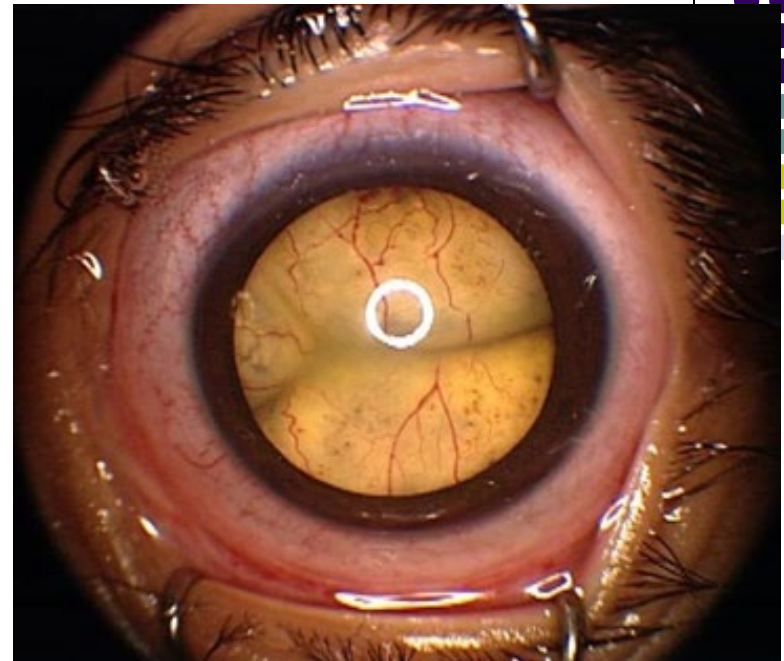
Is it Coats, or exophytic Rb?



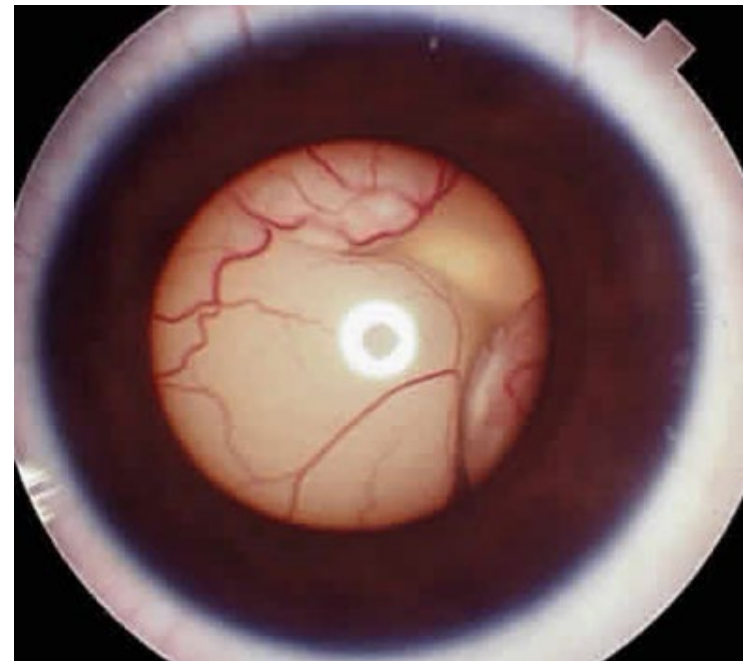
Medscape

Coats. Note the vascular anomalies

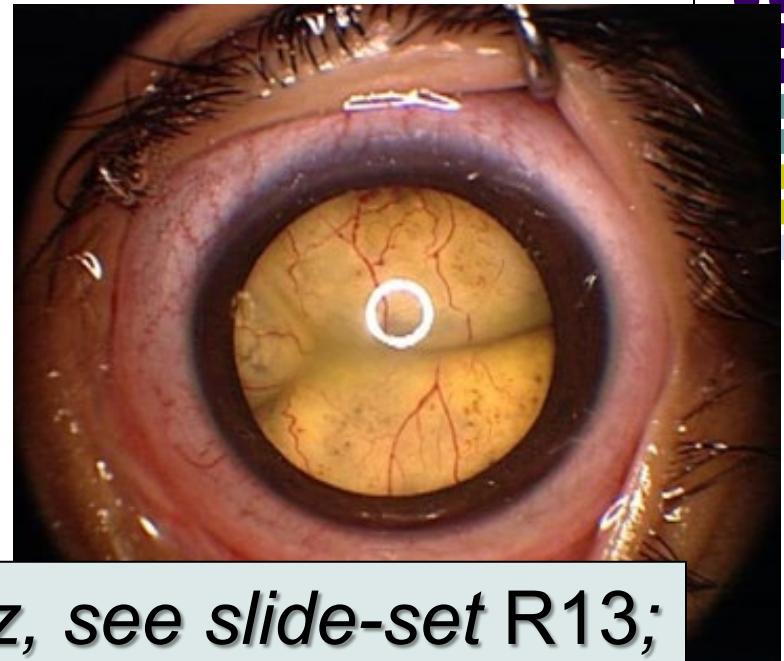
In Coats, the retinal vessels are dilated,
with microaneurysms and telangiectasias.
(Note also the yellow hue.)



In Rb, the retinal vessels
are normal in appearance.



In Coats, the retinal vessels are dilated,
with microaneurysms and telangiectasias.
(Note also the yellow hue.)



*For more on Coats dz, see slide-set R13;
on differentiating Coats from Rb, R1*

In Rb, the retinal vessels
are normal in appearance.

