Divide the lesions into their respective categories

Retinal Lesions...

...Predisposing to RD  ...NOT Predisposing to RD

Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration
Divide the lesions into their respective categories

**Retinal Lesions...**

...Predisposing to RD  ...NOT Predisposing to RD

- Lattice
- Cobblestone degeneration
- Vitreoretinal tufts
- Meridional folds
- RPE hyperplasia
- Enclosed ora bays
- RPE hypertrophy
- Peripheral cystoid degeneration

Before we start, some background info. What are the three classes of retinal detachment (RD)?
Retinal Lesions…

…Predisposing to RD  …NOT Predisposing to RD

Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

Before we start, some background info. What are the three classes of retinal detachment (RD)? Exudative, tractional and rhegmatogenous
Before we start, some background info. What are the three classes of retinal detachment (RD)? Exudative, tractional and rhegmatogenous

Looking over the list of lesions above, which of the three is this slide-set concerned with?

Retinal Lesions…

…Predisposing to RD …NOT Predisposing to RD

Lattice
Cobblestone degeneration
Vitreoretinal tufts
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RPE hyperplasia
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RPE hypertrophy
Peripheral cystoid degeneration

Divide the lesions into their respective categories
Retinal Lesions…

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Before we start, some background info. What are the three classes of retinal detachment (RD)? Exudative, tractional and rhegmatogenous

Looking over the list of lesions above, which of the three is this slide-set concerned with? Rhegmatogenous
Retinal Lesions...

...Predisposing to RD

Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

...NOT Predisposing to RD

(OK, now start here and work your way down the list, placing each in the appropriate column)
Retinal Lesions...

...Predisposing to RD

Lattice

Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

...NOT Predisposing to RD
Divide the lesions into their respective categories

Retinal Lesions...

...Predisposing to RD
- Lattice

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Retinal Lesions...

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Retinal Lesions...

...Predisposing to RD

- Lattice
- Vitreoretinal tufts
- Meridional folds

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- Cobblestone degeneration
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- Enclosed ora bays
- RPE hypertrophy
- Peripheral cystoid degeneration
Retinal Lesions…

…Predisposing to RD

Lattice
Vitreoretinal tufts
Meridional folds

…NOT Predisposing to RD

Cobblestone degeneration
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
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Divide the lesions into their respective categories

Retinal Lesions...

…Predisposing to RD
- Lattice
- Vitreoretinal tufts
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- Cobblestone degeneration
- RPE hyperplasia
- RPE hypertrophy
- Peripheral cystoid degeneration
Retinal Lesions...

...Predisposing to RD

- Lattice
- Vitreoretinal tufts
- Meridional folds
- Enclosed ora bays

...NOT Predisposing to RD

- Cobblestone degeneration
- RPE hyperplasia
- RPE hypertrophy
- Peripheral cystoid degeneration

Divide the lesions into their respective categories
Divide the lesions into their respective categories

Retinal Lesions...

...Predisposing to RD

Lattice
Vitreoretinal tufts
Meridional folds
Enclosed ora bays

...NOT Predisposing to RD

Cobblestone degeneration
RPE hyperplasia
RPE hypertrophy
Peripheral cystoid degeneration
Lattice

Cobblestone degeneration

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

--Actually prevents RD extension

--RD usually 2° to tractional tear at posterior edge of lesion

--Black and flat

--Small peripheral retinal elevations 2° to vitreous or zonular traction

--Present in 100% of adults >20 y.o.

--Spiculated appearance

--Islands of pars plana epithelium surrounded by retina

--Redundant linear retinal elevations

(As before, let’s start at the top and work down the list)
**Retinal Lesions: Matching**

- **Lattice**
  - Cobblestone degeneration
  - Vitreoretinal tufts
  - Meridional folds
  - RPE hyperplasia
  - Enclosed ora bays
  - RPE hypertrophy
  - Peripheral cystoid degeneration

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  --Spiculated appearance

  --Islands of pars plana epithelium surrounded by retina

  --Redundant linear retinal elevations
How common is lattice degeneration?

Lattice degeneration is found in 5-10% of the population. It is more common in myopic eyes. The vitreous may prevent RD extension by adhering to the posterior edge of the retinal lesion and causing a tractional tear. Papillary-like protrusions of the RPE may be present in 100% of adults over 20 years of age. The RPE exhibits a spiculated appearance. Islands of pars plana epithelium surrounded by retina may be present. Redundant linear retinal elevations may be present.

Retinal Lesions: Matching

- How common is lattice degeneration?
- Lattice degeneration is found in 5-10% of the population.
- It is more common in myopic eyes.
- The vitreous may prevent RD extension by adhering to the posterior edge of the retinal lesion and causing a tractional tear.
- Papillary-like protrusions of the RPE may be present in 100% of adults over 20 years of age.
- The RPE exhibits a spiculated appearance.
- Islands of pars plana epithelium surrounded by retina may be present.
- Redundant linear retinal elevations may be present.
How common is lattice degeneration?
Quite--it is found in 5-10% of the population.

- Lattice
- Cobblestone degeneration
- Vitreoretinal tufts
- Meridional folds
- RPE hyperplasia
- Enclosed ora bays
- RPE hypertrophy
- Peripheral cystoid degeneration

- Black and flat
- Small peripheral retinal elevations 2° to vitreous or zonular traction
- Present in 100% of adults >20
- Spiculated appearance
- Islands of pars plana epithelium surrounded by retina
- Redundant linear retinal elevations

Peripheral cystoid degeneration patients RD extension results to tractional tear at posterior edge of lesion
Lattice degeneration

Cobblestone degeneration

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

How common is lattice degeneration? Quite—it is found in 5-10% of the population

When present, how likely is lattice to be bilateral?--Black and flat

--Small peripheral retinal elevations 2° to vitreous or zonular traction

--Present in 100% of adults >20

--Spiculated appearance

--Islands of pars plana epithelium surrounded by retina

--Redundant linear retinal elevations

Peripheral cystoid degeneration prevents RD extension to tractional tear at posterior edge of lesion
A/Q

Retinal Lesions: Matching

How common is lattice degeneration?
Quite--it is found in 5-10% of the population

When present, how likely is lattice to be bilateral?
Quite--it is bilateral in % to % of lattice pts

Cobblestone degeneration

Vitreoretinal tufts
--Black and flat

Meridional folds
--Small peripheral retinal elevations 2° to vitreous or zonular traction

RPE hyperplasia
--Present in 100% of adults >20

Enclosed ora bays
--Spiculated appearance

RPE hypertrophy
--Islands of pars plana epithelium surrounded by retina

Peripheral cystoid degeneration
--Redundant linear retinal elevations
Lattice degeneration

Cobblestone degeneration

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

How common is lattice degeneration?
Quite--it is found in 5-10% of the population

When present, how likely is lattice to be bilateral?
Quite--it is bilateral in 1/3 to 1/2 of lattice pts

Retinal Lesions: Matching

--Black and flat

--Small peripheral retinal elevations 2° to vitreous or zonular traction

--Present in 100% of adults >20

--Spiculated appearance

--Islands of pars plana epithelium surrounded by retina

--Redundant linear retinal elevations
**Retinal Lesions: Matching**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>Is it more common in myopic, or hyperopic eyes?</td>
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</tr>
<tr>
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</tr>
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Is it more common in myopic, or hyperopic eyes?
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Peripheral cystoid degeneration—Actually prevents RD extension
RD usually 2° to tractional tear at posterior edge of lesion

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Enclosed ora bays—Spiculated appearance
RPE hypertrophy—Islands of pars plana epithelium surrounded by retina
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Quite—it is found in 5-10% of the population

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Retinal Lesions: Matching

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Quite--it is found in 5-10% of the population

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Myopic

Is it sporadic, or familial?

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--Small peripheral retinal elevations 2° to vitreous or zonular traction

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RPE hypertrophy
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Is it sporadic, or familial?
While not inevitable, a familial predisposition is often found

Retinal Lesions: Matching

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RPE hyperplasia

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Peripheral cystoid degeneration

How does lattice degeneration affect RD extension?
Actually prevents RD extension

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Small peripheral retinal elevations 2° to vitreous or zonular traction

Present in 100% of adults >20

Spiculated appearance

Islands of pars plana epithelium surrounded by retina

Redundant linear retinal elevations
Lattice degeneration: Note the retinal thinning, which is characterized by a color change. There are also pigment clumps and crosshatching of sclerotic vessels.
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 adhesion between the edges of the retina lesion and the walls of the overlying pocket of liquefied vitreous.

Retinal tears (with subsequent rhegmatogenous RD can result from traction on these abnormal vitreoretinal adhesions.)
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;
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Enclosed ora bays --Spiculated appearance

RPE hypertrophy --Islands of pars plana epithelium surrounded by retina

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---

There are three clinically important aspects to the structure of lattice degeneration:

1. **Lattice**: Actually prevents RD extension.
2. **Cobblestone degeneration**: RD usually $2^\circ$ to tractional tear at posterior edge of lesion.
3. **Enclosed ora bays**: Spiculated appearance.
4. **RPE hypertrophy**: Islands of pars plana epithelium surrounded by retina.
5. **Peripheral cystoid degeneration**: Redundant linear retinal elevations.

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Retinal Lesions: Matching
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;
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Retinal tears (with subsequent rhegmatogenous RD can result from traction on these abnormal vitreo-retinal adhesions.

**Eyes**

- **Lattice**
- **Cobblestone degeneration**
- **Enclosed ora bays**
- **RPE hypertrophy**
- **Peripheral cystoid degeneration**

**Retinal Lesions: Matching**

1. --Actually prevents RD extension
2. --RD usually 2° to tractional tear at posterior edge of lesion
3. --Spiculated appearance
4. --Islands of pars plana epithelium surrounded by retina
5. --Redundant linear retinal elevations
There are three clinically important aspects to the structure of lattice degeneration--what are they?

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2) a pocket of **liquefied vitreous** overlying this retinal lesion
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RPE hypertrophy

Peripheral cystoid degeneration

**Cobblestone degeneration**

---Actually prevents RD extension

---RD usually 2° to tractional tear at posterior edge of lesion

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---Islands of pars plana epithelium surrounded by retina

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Retinal Lesions: Matching

- Lattice
- Cobblestone degeneration
- Enclosed ora bays
- RPE hypertrophy
- Peripheral cystoid degeneration

- Actually prevents RD extension
- RD usually 2° to tractional tear at posterior edge of lesion
- Spiculated appearance
- Islands of pars plana epithelium surrounded by retina
- Redundant linear retinal elevations
Figure 16-3  Lattice degeneration. A, Color fundus photograph of lattice degeneration as viewed without scleral indentation. Vascular sheathing is apparent where the vessel crosses the area of lattice. Characteristic white lattice lines are visible. B, Color fundus photograph of another example of lattice degeneration demonstrates associated hyperpigmentation, which is commonly observed. (Part A used with permission from Byer NE. Peripheral Retina in Profile: A Stereoscopic Atlas. Torrance, CA: Criterion Press; 1982.)
There are three clinically important aspects to the structure of lattice degeneration—what are they?

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Retinal tears (with subsequent rhegmatogenous RD) can result from traction on these abnormal vitreo-retinal adhesions.
Retinal tear at the posterior edge of lattice degeneration
Lattice

Cobblestone degeneration

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

Retinal Lesions: Matching

Q

--Actually prevents RD extension

--RD usually 2° to tractional tear at posterior edge of lesion

--Black and flat

--Small peripheral retinal elevations 2° to vitreous or zonular traction

--Present in 100% of adults >20 y.o.

--Spiculated appearance

--Islands of pars plana epithelium surrounded by retina

--Redundant linear retinal elevations
A

Retinal Lesions: Matching

Lattice

Cobblestone degeneration

--Actually prevents RD extension

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

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--Present in 100% of adults >20 y.o.

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--Islands of pars plana epithelium surrounded by retina

--Redundant linear retinal elevations
Cobblestone degeneration

- Small discrete white/yellow areas, often with a thin rim of hypertrophic RPE. The areas are often closely confluent (hence their harkening to the appearance of cobblestone).
- Found anterior to the equator, often close to the ora.

What is the ophthalmoscopic appearance of cobblestone (aka paving-stone) degeneration?

Lattice

- Actually prevents RD extension

Cobblestone degeneration

- RD usually 2° to tractional tear at posterior edge of lesion

Peripheral cystoid degeneration

- Isolated posterior minute brown/white lesions

What is the histological essence of cobblestone degeneration?

- Focal areas of atrophic outer retina/RPE/choriocapillaris
- Remaining retinal layers are fused to the underlying Bruch's membrane

How do they prevent extension of RD?

- Because they involve fusion of the neurosensory retina to Bruch's, they do not allow liquid vitreous to proceed through their location

RP E-hypertrophy

- Isolated posterior minute brown/white lesions
- Islands of pars plana epithelium surrounded by retina

Peripheral cystoid degeneration

- Redundant linear retinal elevations
What is the ophthalmoscopic appearance of cobblestone (aka paving-stone) degeneration?

Small discrete white/yellow areas, often with a thin rim of hypertrophic RPE. The areas are often closely confluent (hence their harkening to the appearance of cobble- or pavingstones). They are found anterior to the equator, often close to the ora serrata.
Figure 16-10  Gross appearance of paving-stone degeneration. (Used with permission from Green WR. Pathology of the retina. In: Frayer WC, ed. Lancaster Course in Ophthalmic Histopathology, unit 9, Philadelphia: FA Davis; 1988:181.)
What is the ophthalmoscopic appearance of cobblestone (aka paving-stone) degeneration?
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What is the ora serrata?

The junction between the peripheral retina and the pars plana of the ciliary body.
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Ora serrata

Pars plana of ciliary body

Peripheral retina
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What is the histological essence of cobblestones?
**Cobblestone degeneration**

---

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Small discrete white/yellow areas, often with a thin rim of hypertrophic RPE. The areas are often closely confluent (hence their harkening to the appearance of cobble- or pavingstones). They are found anterior to the equator, often close to the ora serrata.

---

**What is the histological essence of cobblestones?**
They are focal areas of atrophic outer retina/RPE/choriocapillaris. The remaining retinal layers are fused to the underlying Bruch’s membrane.

---

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**What is the histological essence of cobblestones?**
They are focal areas of atrophic outer retina/RPE/choriocapillaris. The remaining retinal layers are fused to the underlying Bruch’s membrane.

**How do they prevent extension of an RD?**
Because they involve fusion of the neurosensory retina to Bruch’s membrane, they do not allow liquid vitreous to proceed through their location.
Cobblestone degeneration

What is the ophthalmoscopic appearance of cobblestone (aka paving-stone) degeneration?
Small discrete white/yellow areas, often with a thin rim of hypertrophic RPE. The areas are often closely confluent (hence their harkening to the appearance of cobble- or pavingstones). They are found anterior to the equator, often close to the ora serrata.

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Peripheral cystoid degeneration

RPE hypertrophy

Enclosed ora bays

Peripheral cystoid degeneration

--Actually prevents RD extension

--RD usually 2° to tractional tear at posterior edge of lesion

Black and flat

Small peripheral retinal elevations 2° to vitreous or zonular traction

Present in 100% of adults >20 y.o.

Spiculated appearance

Islands of pars plana epithelium surrounded by retina

Redundant linear retinal elevations
Vitreoretinal tufts

Lattice

Cobblestone degeneration

Meridional folds

RPE hyperplasia

Enclosed ora bays

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--Islands of pars plana epithelium surrounded by retina
--Redundant linear retinal elevations
Vitreoretinal tufts are known also by what name?

- Lattice
- Cobblestone degeneration
- Meridional folds
- RPE hyperplasia

**Vitreoretinal tufts**

- Actually prevents RD extension
- RD usually 2° to tractional tear at posterior edge of lesion
- Black and flat
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Retinal Lesions: Matching

Q
Lattice
Cobblestone degeneration
Meridional folds
RPE hyperplasia

Vitreoretinal tufts

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Vitreoretinal tufts are known also by what name?
Peripheral retinal tufts
Vitreoretinal tufts are known also by what name?
Peripheral retinal tufts

What are vitreoretinal tufts composed of?

- Lattice
- Cobblestone degeneration
- Meridional folds
- RPE hyperplasia
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- Vitreoretinal tufts --Actually prevents RD extension
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- --Black and flat
- --Small peripheral retinal elevations 2° to vitreous or zonular traction

Vitreoretinal tufts

Wait --Both the Matching answer and the one above referenced zonules. What gives?
Vitreoretinal tufts are known also by what name?
Peripheral retinal tufts

What are vitreoretinal tufts composed of?
They are highly focal areas of glial hyperplasia firmly attached to both the vitreous face/zonules and the retina. Because of the strength of these attachments, traction arising in the vitreous (or zonules) will elevate the retina. If sufficient traction is applied, the retina will break, resulting in a hole or horseshoe tear.
Figure 16-7  Color photograph of a gross eye specimen shows a cluster of white surface nodules with characteristic gross appearance and location of noncystic retinal tufts. (Used with permission from Foos RY, Silverstein RN, eds. System of Ocular Pathology. Vol. 3. Los Angeles: iPATH Press; 2004.)
Lattice --Actually prevents RD extension

Cobblestone degeneration --RD usually 2° to tractional tear at posterior edge of lesion

**Vitreoretinal tufts** --Black and flat

Meridional folds --Small peripheral retinal elevations 2° to vitreous or zonular traction

RPE hyperplasia

**Vitreoretinal tufts are known also by what name?**
Peripheral retinal tufts

**What are vitreoretinal tufts composed of?**
They are highly focal areas of glial hyperplasia firmly attached to both the vitreous face/zonules and the retina. Because of the strength of these attachments, traction arising in the vitreous (or zonules) will elevate the retina. If sufficient traction is applied, the retina will break, resulting in a hole or horseshoe tear.

*Wait--both the Matching answer and the one above referenced zonules. What gives?*
Lattice
Cobblestone degeneration
Meridional folds
RPE hyperplasia
Enclosed ora bays
Peripheral cystoid degeneration

Vitreoretinal tufts

--Actually prevents RD extension
--RD usually 2° to tractional tear at posterior edge of lesion
--Black and flat
--Small peripheral retinal elevations 2° to vitreous or zonular traction

Vitreoretinal tufts are known also by what name?
Peripheral retinal tufts

What are vitreoretinal tufts composed of?
They are highly focal areas of glial hyperplasia firmly attached to both the vitreous face/zonules and the retina. Because of the strength of these attachments, traction arising in the vitreous (or zonules) will elevate the retina. If sufficient traction is applied, the retina will break, resulting in a hole or horseshoe tear.

Wait--both the Matching answer and the one above referenced zonules. What gives?
There are three subtypes of vitreoretinal tufts, one of which bridges between the retina and the zonules, not vitreous.
Color photo of a gross eye specimen shows a small zonular traction tuft (*arrow*) with cystic base. Note that the tuft points anteriorly toward the peripheral lens.
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

---Actually prevents RD extension
---RD usually 2° to tractional tear at posterior edge of lesion
---Black and flat
---Small peripheral retinal elevations 2° to vitreous or zonular traction
---Present in 100% of adults >20 y.o.
---Spiculated appearance
---Islands of pars plana epithelium surrounded by retina
---Redundant linear retinal elevations
Retinal Lesions: Matching

Lattice
- Cobblestone degeneration
- Vitreoretinal tufts
- Meridional folds
- RPE hyperplasia
- Enclosed ora bays
- RPE hypertrophy
- Peripheral cystoid degeneration

---
- Actually prevents RD extension
- RD usually 2° to tractional tear at posterior edge of lesion
- Black and flat
- Small peripheral retinal elevations 2° to vitreous or zonular traction
- Present in 100% of adults >20 y.o.
- Spiculated appearance
- Islands of pars plana epithelium surrounded by retina
- Redundant linear retinal elevations
Lattice
Cobblestone degeneration
Vitreoretinal tufts

Meridional folds
--Actually prevents RD extension
--RD usually 2° to tractional tear at posterior edge of lesion
--Black and flat
--Small peripheral retinal elevations 2° to vitreous or zonular traction

How are meridional folds oriented?

Peripheral systolic degeneration
--Redundant linear retinal elevations

Retinal Lesions: Matching

[Other retinal lesions mentioned in the document are not explicitly listed here.]
Retinal Lesions: Matching

- Lattice
- Cobblestone degeneration
- Vitreoretinal tufts
- Meridional folds
- Enclosed ora bays
- RPE hyperplasia
- Peripheral cystoid degeneration

**How are meridional folds oriented?**
Anterior-posterior. Think of them as 'ridges of retina' that start at the ora and run posteriorly a millimeter or two.

- --Actually prevents RD extension
- --RD usually 2° to tractional tear at posterior edge of lesion
- --Black and flat
- --Small peripheral retinal elevations 2° to vitreous or zonular traction
- --Redundant linear retinal elevations
How are meridional folds oriented?
Anterior-posterior. Think of them as ‘ridges of retina’ that start at the ora and run posteriorly a millimeter or two.

With what common (at the ora) retinal findings are they associated?

- Lattice
  --Actually prevents RD extension

- Cobblestone degeneration
  --RD usually 2° to tractional tear at posterior edge of lesion

- Vitreoretinal tufts
  --Black and flat

- Meridional folds
  --Small peripheral retinal elevations 2° to vitreous or zonular traction

- Enclosed ora bays

- RPE hypertrophy

- Peripheral cystoid degeneration
  --Actually prevents RD extension

- Retinal Lesions: Matching

- Redundant linear retinal elevations
  --Redundant linear retinal elevations
**How are meridional folds oriented?**
Anterior-posterior. Think of them as 'ridges of retina' that start at the ora and run posteriorly a millimeter or two.

**With what common (at the ora) retinal findings are they associated?**
Dentate processes and ora bays

---

**Retinal Lesions: Matching**

Lattice -- Actually prevents RD extension

Cobblestone degeneration -- RD usually 2° to tractional tear at posterior edge of lesion

Vitreoretinal tufts -- Black and flat

**Meridional folds** -- Small peripheral retinal elevations 2° to vitreous or zonular traction

Peripheral cystoid degeneration -- Redundant linear retinal elevations
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

--Actually prevents RD extension
--RD usually $2^\circ$ to tractional tear at posterior edge of lesion
--Black and flat
--Small peripheral retinal elevations $2^\circ$ to vitreous or zonular traction

How are meridional folds oriented?
Anterior - posterior. Think of them as 'ridges of retina' that start at the ora and run posteriorly a millimeter or two.

With what common (at the ora) retinal finding are they associated?
Dentate processes and ora bays

Dentate processes look like very pointy teeth (hence the word *dentate*)

--Redundant linear retinal elevations
Lattice

Cobblestone degeneration

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

---Actually prevents RD extension

---RD usually 2° to tractional tear at posterior edge of lesion

---Black and flat

---Small peripheral retinal elevations 2° to vitreous or zonular traction

---Present in 100% of adults >20 y.o.

---Spiculated appearance

---Islands of pars plana epithelium surrounded by retina

---Redundant linear retinal elevations

---How are meridional folds oriented?

Anterior-to-posterior. Think of them as ‘ridges of retina’ that start at the ora and run posteriorly a millimeter or two.

---With what common (at the ora) retinal finding are they associated?

Dentate processes and ora bays

Ora bays look like inlets of water (hence the word bay)

Dentate processes look like very pointy teeth (hence the word dentate)

Peripheral cystoid degeneration

---Redundant linear retinal elevations
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

---
Actually prevents RD extension

---
RD usually 2° to tractional tear at posterior edge of lesion

---
Black and flat

---
Small peripheral retinal elevations 2° to vitreous or zonular traction

---
Present in 100% of adults >20 y.o.

---
Spiculated appearance

---
Islands of pars plana epithelium surrounded by retina

---
Redundant linear retinal elevations

---
How are meridional folds oriented?
Anterior-posterior. Think of them as 'ridges of retina' that start at the ora and run posteriorly a millimeter or two.

---
With what common (at the ora) retinal finding are they associated?
Dentate processes and ora bays

---
Meridional folds are elevated ridges of retina within a dentate process

---
Ora bays look like inlets of water (hence the word bay)

---
Dentate processes look like very pointy teeth (hence the word dentate)

---
Peripheral cystoid degeneration

---
--Redundant linear retinal elevations
Meridional fold (*large white arrow*)

- Dentate process
- Ora bay
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds

--- Actually prevents RD extension
--RD usually 2° to tractional tear at posterior edge of lesion
--Black and flat
--Small peripheral retinal elevations 2° to vitreous or zonular traction

How are meridional folds oriented?
Anterior-posterior. Think of them as ‘ridges of retina’ that start at the ora and run posteriorly a millimeter or two.

With what common (at the ora) retinal findings are they associated?
Dentate processes and ora bays

How do meridional folds increase the risk of an RD?

--Redundant linear retinal elevations

Peripheral cystoid degeneration
Q/A

**Retinal Lesions: Matching**

- Lattice
  - Actually prevents RD extension
- Cobblestone degeneration
  - RD usually 2° to tractional tear at posterior edge of lesion
- Vitreoretinal tufts
  - Black and flat
- **Meridional folds**
  - Small peripheral retinal elevations 2° to vitreous or zonular traction

---

**How are meridional folds oriented?**
Anterior-posterior. Think of them as ‘ridges of retina’ that start at the ora and run posteriorly a millimeter or two.

**With what common (at the ora) retinal findings are they associated?**
Dentate processes and ora bays

**How do meridional folds increase the risk of an RD?**
The vitreous base straddles these structures, and post-PVD traction at the end of the fold can lead to a horseshoe tear

---

**Peripheral cystoid degeneration**

---

**Peripheral cystoid degeneration**

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**Peripheral cystoid degeneration**

---

**Peripheral cystoid degeneration**
How are meridional folds oriented?
Anterior-posterior. Think of them as ‘ridges of retina’ that start at the ora and run posteriorly a millimeter or two.

With what common (at the ora) retinal findings are they associated?
Dentate processes and ora bays

How do meridional folds increase the risk of an RD?
The vitreous base straddles these structures, and post-PVD traction at the posterior end of the fold can lead to a horseshoe tear

Lattice -- Actually prevents RD extension
Cobblestone degeneration -- RD usually 2° to tractional tear at posterior edge of lesion
Vitreoretinal tufts -- Black and flat
Meridional folds -- Small peripheral retinal elevations 2° to vitreous or zonular traction
Peripheral cystoid degeneration -- Redundant linear retinal elevations
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

--Actually prevents RD extension
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--Spiculated appearance
--Islands of pars plana epithelium surrounded by retina
--Redundant linear retinal elevations
A

Retinal Lesions: Matching

Lattice

Cobblestone degeneration

Vitreoretinal tufts

Meridional folds

RPE hyperplasia

Enclosed ora bays

RPE hypertrophy

Peripheral cystoid degeneration

--Actually prevents RD extension

--RD usually 2° to tractional tear at posterior edge of lesion

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--Small peripheral retinal elevations 2° to vitreous or zonular traction

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--Redundant linear retinal elevations
Lattice --Actually prevents RD extension
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Vitreoretinal tufts --RD usually 2° to tractional tear at posterior edge of lesion
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RPE hyperplasia --Small peripheral retinal elevations 2° to vitreous or zonular traction
Enclosed ora bays --Present in 100% of adults >20 y.o.
RPE hypertrophy --Spiculated appearance
Peripheral cystoid degeneration --Islands of pars plana epithelium surrounded by retina
-Redundant linear retinal elevations
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

Retinal Lesions: Matching

--Actually prevents RD extension
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--Present in 100% of adults >20 y.o.
--Spiculated appearance
--Islands of pars plana epithelium surrounded by retina
--Redundant linear retinal elevations
**Retinal Lesions: Matching**

**Enclosed ora bays**

- **RPE hypertrophy**
- **Peripheral cystoid degeneration**
- **How does an enclosed ora bay differ from the sort we encountered previously?**
  - It differs in that it is 'cut off' from the rest of the pars plana by retina.
- **How do enclosed ora bays increase the risk of an RD?**
  - The vitreous base straddles these structures, and post-PVD traction on the retina at the posterior end of the bay can lead to a tear.

**Vitreoretinal tufts**

- **Meridional folds**
- **RPE hyperplasia**
- **Enclosed ora bays**
- **Peripheral cystoid degeneration**
- **Actually prevents RD extension**
- **RD usually 2° to tractional tear at posterior edge of lesion**
- **Present in 100% of adults >20 y.o.**
- **Spiculated appearance**
- **Islands of pars plana epithelium surrounded by retina**
- **Redundant linear retinal elevations**
A

**Retinal Lesions: Matching**

How does an enclosed ora bay differ from the sort we encountered previously?
It differs in that it is ‘cut off’ from the rest of the pars plana by retina.

**Enclosed ora bays**
- RPE hypertrophy
- Peripheral cystoid degeneration

---

**Vitreoretinal tufts**
- RD usually starts 2° to tractional tear at posterior edge of lesion
- Black and flat
- Small peripheral retinal elevations 2° to vitreous or zonular traction

**Enclosed ora bays**
- Present in 100% of adults >20 y.o.
- Spiculated appearance
- Islands of pars plana epithelium surrounded by retina
- Redundant linear retinal elevations

---

**Ora bays**
- Pars plana of the ciliary body
- Peripheral retina

**Enclosed ora bay**
- Pars plana of the ciliary body
- Peripheral retina
Enclosed ora bay (asterisk)
Lattice --Actually prevents RD extension
Cobblestone degeneration
Vitreoretinal tufts --RD usually 2° to tractional tear at posterior edge of lesion

Enclosed ora bays

How does an enclosed ora bay differ from the sort we encountered previously?
It differs in that it is ‘cut off’ from the rest of the pars plana by retina

How do enclosed ora bays increase the risk of an RD?

Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

--Islands of pars plana epithelium surrounded by retina
--Redundant linear retinal elevations
--Present in 100% of adults >20 y.o.
--Spiculated appearance
Lattice -- Actually prevents RD extension
Cobblestone degeneration -- RD usually 2° to tractional tear at posterior edge of lesion
Vitreoretinal tufts

How does an enclosed ora bay differ from the sort we encountered previously? It differs in that it is ‘cut off’ from the rest of the pars plana by retina.

How do enclosed ora bays increase the risk of an RD? The vitreous base straddles these structures, and post-PVD traction on the retina at the posterior end of the bay can lead to a tear.

Enclosed ora bays

RPE hypertrophy -- Islands of pars plana epithelium surrounded by retina
Peripheral cystoid degeneration -- Redundant linear retinal elevations
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
Peripheral cystoid degeneration
RPE hypertrophy
--Actually prevents RD extension
--RD usually 2° to tractional tear at posterior edge of lesion
--Present in 100% of adults >20 y.o.
--Spiculated appearance
--Islands of pars plana epithelium surrounded by retina
--Redundant linear retinal elevations

How does an enclosed ora bay differ from the sort we encountered previously?
It differs in that it is ‘cut off’ from the rest of the pars plana by retina

How do enclosed ora bays increase the risk of an RD?
The vitreous base straddles these structures, and post-PVD traction on the retina at the posterior end of the bay can lead to a tear
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy

Retinal Lesions: Matching

--Actually prevents RD extension
--RD usually 2° to tractional tear at posterior edge of lesion
--Black and flat
--Small peripheral retinal elevations 2° to vitreous or zonular traction
--Present in 100% of adults >20 y.o.
--Spiculated appearance
--Islands of pars plana epithelium surrounded by retina
--Redundant linear retinal elevations

Peripheral cystoid degeneration
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Meridional folds
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

--- Actually prevents RD extension
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--- Islands of pars plana epithelium surrounded by retina
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Retinal Lesions: Matching
Retinal Lesions: Matching

- Lattice
  - Actually prevents RD extension

- Cobblestone degeneration
  - RD usually 2° to tractional tear at posterior edge of lesion

- Vitreoretinal tufts
  - Black and flat

- Meridional folds
  - Small peripheral retinal elevations 2° to vitreous or zonular traction

- RPE hyperplasia
  - Present in 100% of adults >20 y.o.

- Enclosed ora bays
  - Spiculated appearance

- RPE hypertrophy
  - Islands of pars plana epithelium surrounded by retina

- Peripheral cystoid degeneration
  - Redundant linear retinal elevations

?
A

**Retinal Lesions: Matching**

- **Lattice**
  - Actually prevents RD extension

- **Cobblestone degeneration**
  - RD usually 2° to tractional tear at posterior edge of lesion

- **Vitreoretinal tufts**
  - Black and flat

- **Meridional folds**
  - Small peripheral retinal elevations 2° to vitreous or zonular traction

- **RPE hyperplasia**
  - Present in 100% of adults >20 y.o.

- **Enclosed ora bays**
  - Spiculated appearance

- **RPE hypertrophy**
  - Islands of pars plana epithelium surrounded by retina

- **Peripheral cystoid degeneration**
  - Redundant linear retinal elevations
Peripheral cystoid degeneration
There are two subtypes of peripheral cystoid degeneration—what are they?

- Reticular peripheral cystoid degeneration
- Typical peripheral cystoid degeneration

Peripheral cystoid degeneration

Q

Retinal Lesions: Matching

Lattice

- Actually prevents RD extension

Cobblestone degeneration

- RD usually 2° to tractional tear at posterior edge of lesion

Vitreoretinal tufts

- Black and flat

Meridional folds

- Small peripheral retinal elevations 2° to vitreous or zonular traction

RPE hyperplasia

- Present in 100% of adults >20 y.o.

Enclosed ora bays

- Islands of pars plana epithelium surrounded by retina

Peripheral cystoid degeneration

- Redundant linear retinal elevations
There are two subtypes of peripheral cystoid degeneration—what are they?

- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Enclosed ora bays
RPE hyperplasia
Peripheral cystoid degeneration

---Actually prevents RD extension
---RD usually 2° to tractional tear at posterior edge of lesion
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---Small peripheral retinal elevations 2° to vitreous or zonular traction
---Present in 100% of adults >20 y.o.
---Spiculated appearance
---Islands of pars plana epithelium surrounded by retina
---Redundant linear retinal elevations

There are two subtypes of peripheral cystoid degeneration—what are they?
-- Typical peripheral cystoid degeneration?
-- Reticular peripheral cystoid degeneration?

Which form is present in 100% of 20+ individuals?
Retinal Lesions: Matching

Lattice (Cobblestone degeneration)

- Actually prevents RD extension
- RD usually 2° to tractional tear at posterior edge of lesion
- Black and flat
- Small peripheral retinal elevations 2° to vitreous or zonular traction
- Present in 100% of adults >20 y.o.

Vitreoretinal tufts

- Redundant linear retinal elevations

Enclosed ora bays

- Spiculated appearance
- Islands of pars plana epithelium surrounded by retina

RPE hyperplasia

- Enclosed

Peripheral cystoid degeneration

- There are two subtypes of peripheral cystoid degeneration—what are they?
  - Typical peripheral cystoid degeneration
  - Reticular peripheral cystoid degeneration

Which form is present in 100% of 20+ individuals?

Typical (that’s why it’s called ‘typical’)
Retinal Lesions: Matching

Lattice

Cobblestone degeneration

Vitreoretinal tufts

--Actually prevents RD extension

RPE hyperplasia

Enclosed ora bays

--RD usually 2° to tractional tear at posterior edge of lesion

RPE hypertrophy

Peripheral cystoid degeneration

--Black and flat

--Small peripheral retinal elevations 2° to vitreous or zonular traction

--Present in 100% of adults >20 y.o.

Which form is present in 100% of 20+ individuals?
Typical (that’s why it’s called ‘typical’)

Where is typical cystoid degeneration found?

Retinal Lesions: Matching

There are two subtypes of peripheral cystoid degeneration—what are they?

- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration

Peripheral cystoid degeneration

--Redundant linear retinal elevations

There are two subtypes of peripheral cystoid degeneration—what are they?

- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration

Enclosed ora bays

There are two subtypes of peripheral cystoid degeneration—what are they?

- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration

Peripheral cystoid degeneration

--Redundant linear retinal elevations

There are two subtypes of peripheral cystoid degeneration—what are they?

- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration

Peripheral cystoid degeneration
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Enclosed ora bays

Retinal Lesions: Matching

- Lattice
- Cobblestone degeneration
- Vitreoretinal tufts
- Enclosed ora bays

---

**Which form is present in 100% of 20+ individuals?**
Typical (that’s why it’s called ‘typical’)

**Where is typical cystoid degeneration found?**
In the far periphery—it starts at the ora and extends several millimeters posteriorly

---

**There are two subtypes of peripheral cystoid degeneration—what are they?**
- **Typical** peripheral cystoid degeneration
- **Reticular** peripheral cystoid degeneration

---

Peripheral cystoid degeneration

---

- Actually prevents RD extension
- RD usually 2° to tractional tear at posterior edge of lesion
- Black and flat
- Small peripheral retinal elevations 2° to vitreous or zonular traction
- Present in 100% of adults >20 y.o.

- Redundant linear retinal elevations

---

- Typical (that’s why it’s called ‘typical’)
- In the far periphery—it starts at the ora and extends several millimeters posteriorly
Typical peripheral cystoid degeneration. (A) Ultra-widefield pseudocolor image (B) High-magnification view (C) Near-Infrared reflectance image (D) SD-OCT
Lattice

Cobblestone degeneration

Vitreoretinal tufts

Which form is present in 100% of 20+ individuals?
Typical (that’s why it’s called ‘typical’)

How prevalent is reticular cystoid degeneration?

RPE hyperplasia

Enclosed ora bays

Peripheral cystoid degeneration

--Actually prevents RD extension

--RD usually 2° to tractional tear at posterior edge of lesion

--Black and flat

--Small peripheral retinal elevations 2° to vitreous or zonular traction

--Present in 100% of adults >20 y.o.

RPE hypertrophy

Peripheral cystoid degeneration—what are they?

-- Typical peripheral cystoid degeneration

-- Reticular peripheral cystoid degeneration

surrounded by retina

--Redundant linear retinal elevations

Peripheral cystoid degeneration

Retinal Lesions: Matching
Retinal Lesions: Matching

Lattice
Cobblestone degeneration
Vitreoretinal tufts

RPE hypertrophy
Enclosed ora bays

Peripheral cystoid degeneration
-
- Actually prevents RD extension
-
- RD usually 2° to tractional tear at posterior edge of lesion
-
- Black and flat
-
- Small peripheral retinal elevations 2° to vitreous or zonular traction
-
- Present in 100% of adults >20 y.o.
-
- Spiculated appearance
- Islands of pars plana epithelium surrounded by retina
-
- Redundant linear retinal elevations

Which form is present in 100% of 20+ individuals?
Typical (that’s why it’s called ‘typical’)

How prevalent is reticular cystoid degeneration?
It is found in ~20% of adults

Retinal Lesions: Matching—what are they?

- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration

There are two subtypes of peripheral cystoid degeneration—what are they?
- Typical peripheral cystoid degeneration
- Reticular peripheral cystoid degeneration

Where is typical cystoid degeneration located?
It is always adjacent and just posterior to a section of the ‘typical’ form

Where is typical cystoid degeneration found?
In the far periphery—it starts at the ora and extends several millimeters posteriorly

How prevalent is reticular cystoid degeneration?
It is found in ~20% of adults
Lattice
Cobblestone degeneration
Vitreoretinal tufts
Vitreous degeneration
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration
-- Actually prevents RD extension
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-- Small peripheral retinal elevations 2° to vitreous or zonular traction
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Retinal Lesions: Matching

There are two subtypes of peripheral cystoid degeneration—what are they?

Typical peripheral cystoid degeneration
Reticular peripheral cystoid degeneration

Which form is present in 100% of 20+ individuals?
Typical (that’s why it’s called ‘typical’)

How prevalent is reticular cystoid degeneration?
It is found in ~20% of adults

Where is reticular cystoid degeneration located?
-- Typical peripheral cystoid degeneration
-- Reticular peripheral cystoid degeneration

Peripheral cystoid degeneration
-- Redundant linear retinal elevations

Islands of pars plana epithelium surrounded by retina

Retinal Lesions: Matching

Lattice
Cobblestone degeneration
Vitreoretinal tufts
RPE hyperplasia
Enclosed ora bays
RPE hypertrophy
Peripheral cystoid degeneration

--Actually prevents RD extension
--RD usually 2° to tractional tear at posterior edge of lesion
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--Small peripheral retinal elevations 2° to vitreous or zonular traction
--Present in 100% of adults >20 y.o.

Typical peripheral cystoid degeneration
Reticular peripheral cystoid degeneration

Peripheral cystoid degeneration

Which form is present in 100% of 20+ individuals? Typical (that’s why it’s called ‘typical’)

How prevalent is reticular cystoid degeneration? It is found in ~20% of adults

Where is reticular cystoid degeneration located? It is always adjacent and just posterior to a section of the ‘typical’ form
Retinal Lesions: Matching

Typical and reticular cystoid degeneration
Typical peripheral cystoid degeneration consists of cystoid spaces in the outer plexiform layer (asterisk) on the lower left (anterior retina). In the upper right (posterior retina), reticular peripheral cystoid degeneration (arrow) is present.
What is a retinal dialysis?

What is a retinal Dialysis?

Horseshoe tear

Operculated hole

Atrophic hole

Lattice
What is a retinal dialysis?
A circumferential disinsertion of the peripheral retina from the ora serrata

Horseshoe tear

Operculated hole

Atrophic hole

Lattice
What is a retinal **Dialysis**?

What is a retinal dialysis?
A circumferential disinsertion of the peripheral retina from the ora serrata

What is the inciting event?

Horseshoe tear

Operculated hole

Atrophic hole

Lattice
What is a retinal dialysis?
A circumferential disinsertion of the peripheral retina from the ora serrata

What is the inciting event?
Usually blunt trauma

Horseshoe tear

Operculated hole

Atrophic hole

Lattice
What is a retinal 
**Dialysis**?

A circumferential disinsertion of the peripheral retina from 
the *ora serrata*.

What is the inciting event?
Usually blunt trauma.

In *general terms*, *what is the process by which dialysis 
occurs and proceeds*?
What is a retinal dialysis?
A circumferential disinsertion of the peripheral retina from the ora serrata

What is the inciting event?
Usually blunt trauma

Horseshoe tear

In general terms, what is the process by which dialysis occurs and proceeds?
Compression of the globe produces vitreous-based mechanical stress that gets focused at the ora region. This stress causes several clock-hours of neurosensory retina to ‘let go’ at the ora. After disinserting, the vitreous-based mechanical stress ‘peels’ the NS retina posteriorly, separating it from the underlying RPE
Retinal dialysis
What is a **Horseshoe tear**?
What is a \textbf{Horseshoe tear}?

Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina
Horseshoe tear
**What is a Horseshoe tear?**

Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

Where are they typically found?

Dialysis

Operculated hole

Atrophic hole

Lattice
What is a horseshoe tear? Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

Where are they typically found? In the far periphery, near the ora serrata.
**Dialysis**

**What is a Horseshoe tear?**

*Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina*

**Operculated hole**

*Where are they typically found?*

In the far periphery, near the ora serrata

**Atrophic hole**

*How do they develop?*

**Lattice**

*The flap*

(The black part is the tear itself)
What is a horseshoe tear?
Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

Where are they typically found?
In the far periphery, near the ora serrata.

How do they develop?
A tongue of attached vitreous extends beyond the normal limit of the vitreous base, onto the peripheral retina. Tension on the vitreous gets focused at this site, and the tongue of vitreous tears the retina and peels it back, producing the flap.
Horseshoe tear mechanism
**What is a horseshoe tear?**

Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

**Where are they typically found?**

In the far periphery, near the ora serrata.

**How do they develop?**

A tongue of attached vitreous extends beyond the normal limit of the vitreous base, onto the peripheral retina. Tension on the vitreous gets focused at this site, and the tongue of vitreous tears the retina and peels it back, producing the flap.
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A tongue of attached vitreous extends beyond the normal limit of the vitreous base, onto the peripheral retina. Tension on the vitreous gets focused at this site, and the tongue of vitreous tears the retina and peels it back, producing the flap.
Retinal Lesions: Not Matching

What is a horseshoe tear? Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

Where are they typically found? In the far periphery, near the ora serrata.

How do they develop? A tongue of attached vitreous extends beyond the normal limit of the vitreous base, onto the peripheral retina. Tension on the vitreous gets focused at this site, and the tongue of vitreous tears the retina and peels it back, producing the flap.

‘Vitreous tension tearing the retina and peeling it back’ sounds an awful lot like the description of retinal dialysis we saw a few slides ago. Are these fundamentally the same lesion?

Not at all—in an important sense they are the opposite of one another. In a retinal dialysis, the disinserted retina peels posteriorly, away from the vitreous base. In contrast, in a horseshoe tear the retina peels anteriorly, towards the vitreous base.
What is a horseshoe tear?

Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

Where are they typically found?

In the far periphery, near the ora serrata.

How do they develop?

A tongue of attached vitreous extends beyond the normal limit of the vitreous base, onto the peripheral retina. Tension on the vitreous tears the retina and peels it back, producing the flap.

‘Vitreous tension tearing the retina and peeling it back’ sounds an awful lot like the description of retinal dialysis we saw a few slides ago. Are these fundamentally the same lesion?

Not at all—in fact, in an important sense they are the opposite of one another. In a retinal dialysis, the disinserted retina peels posteriorly, away from the vitreous base.

Retinal Lesions: Not Matching

‘The flap’ (The black part is the tear itself)
What is a horseshoe tear?  
Just what it sounds like—a horseshoe-shaped defect torn in the neurosensory retina.

Where are they typically found?  
In the far periphery, near the ora serrata.

How do they develop?  
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Retinal Lesions: Not Matching

Retinal dialysis: Retina peels *away* from vitreous base

Horseshoe tear: Retina peels *toward* vitreous base
Q

Retinal Lesions: Not Matching

Dialysis

Horseshoe tear

What is an Operculated hole?

Atrophic hole

Lattice
Dialysis

Horseshoe tear

*What is an Operculated hole?*

Atrophic hole

Lattice

*What does operculated mean?*
It means, ‘covered by an operculum’
Dialysis

Horseshoe tear

What is an **Operculated hole**?

Atrophic hole

Lattice

*What does operculated mean?*

It means, ‘covered by an operculum’

*OK, so what’s an operculum?*
What does operculated mean?
It means, ‘covered by an operculum’

OK, so what’s an operculum?
An operculum is a lid, or a cover. Thus, an operculated hole is a full-thickness break in the retina with the missing piece of retina suspended within the vitreous above the break.
Operculated retinal tear/hole: Mechanism

Operculated retinal tear/hole (far right of the pic) with the operculum floating in the vitreous
What is an Operculated hole?
An operculum is a lid, or a cover. Thus, an operculated hole is a full-thickness break in the retina with the missing piece of retina suspended within the vitreous above the break.

How do operculated holes come about?
What is an Operculated hole?

An operculated hole is a full-thickness break in the retina with the missing piece of retina suspended within the vitreous above the break.

What does operculated mean?

It means, ‘covered by an operculum’

OK, so what’s an operculum?

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

How do operculated holes come about?

They often (but not always) start as horseshoe tears, with subsequent amputation of the flap; ie, the operculum is the amputated flap (see above)
What is an Atrophic hole?

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.”
Retinal Lesions: Not Matching

Atrophic retinal hole
What is an **Atrophic hole**?

The *Retina* book say 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.
Figure 16-6  Lattice degeneration with atrophic hole. A, Fundus photograph of lattice degeneration with a small atrophic hole as viewed with scleral depression. B, Fundus photograph of an example of an atrophic hole as may be observed in lattice degeneration without scleral depression. (Part A courtesy of Norman E. Byer, MD.)
Dialysis

Horseshoe tear

Operculated hole

Atrophic hole

(We already know about Lattice)
With respect to retinal breaks, what does it mean to say a pt is ‘symptomatic’?

Symptomatic

Dialysis

Horseshoe tear

Operculated hole

Atrophic hole

Lattice
With respect to retinal breaks, what does it mean to say a pt is ‘symptomatic’?
It means the patient is c/o photopsias and/or floaters

Symptomatic

Dialysis

Horseshoe tear

Operculated hole

Atrophic hole

Lattice
For each retinal break, state whether it should be treated **prophylactically**

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Under what circumstances should you consider treating asymptomatic horseshoe tears?
For each retinal break, state whether it should be treated *prophylactically*

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Under what circumstances should you consider treating asymptomatic horseshoe tears?

--If they are associated with [two words]
For each retinal break, state whether it should be treated prophylactically

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Under what circumstances should you consider treating asymptomatic horseshoe tears?

---If they are associated with lattice degeneration
For each retinal break, state whether it should be treated prophylactically.

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Under what circumstances should you consider treating asymptomatic horseshoe tears?

- If they are associated with lattice degeneration
- If the eye is significantly myopic
For each retinal break, state whether it should be treated **prophylactically**

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Under what circumstances should you consider treating asymptomatic horseshoe tears?

--If they are associated with lattice degeneration
--If the eye is significantly myopic
### Q/A

For each retinal break, state whether it should be treated **prophylactically**

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Under what circumstances should you consider treating asymptomatic horseshoe tears?

--If they are associated with lattice degeneration
--If the eye is significantly myopic
--If the eye is... or...
For each retinal break, state whether it should be treated **prophylactically**

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**Under what circumstances should you consider treating asymptomatic horseshoe tears?**

--If they are associated with lattice degeneration
--If the eye is significantly myopic
--If the eye is aphakic or pseudophakic
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For each retinal break, state whether it should be treated **prophylactically**

Under what circumstances should you consider treating asymptomatic horseshoe tears?

- If they are associated with lattice degeneration
- If the eye is significantly myopic
- If the eye is aphakic or pseudophakic
- If there was a hx of retinal detachment in the fellow eye
For each retinal break, state whether it should be treated *prophylactically*.

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*Under what circumstances should you consider treating asymptomatic horseshoe tears?*

--If they are associated with lattice degeneration
--If the eye is significantly myopic
--If the eye is aphakic or pseudophakic
--If there was a hx of retinal detachment in the fellow eye
For each retinal break, state whether it should be treated *prophylactically*

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Under what circumstances should you consider treating symptomatic operculated holes?

--

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For each retinal break, state whether it should be treated **prophylactically**

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Under what circumstances should you consider treating symptomatic operculated holes?
--If there is __three words__ at the edge of the hole
For each retinal break, state whether it should be treated **prophylactically**

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**Under what circumstances should you consider treating symptomatic operculated holes?**
--If there is ongoing vitreous traction at the edge of the hole
--
For each retinal break, state whether it should be treated **prophylactically**

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Under what circumstances should you consider treating **symptomatic operculated holes**?

--If there is ongoing vitreous traction at the edge of the hole
--If the hole is

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For each retinal break, state whether it should be treated prophylactically

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Under what circumstances should you consider treating symptomatic operculated holes?
--If there is ongoing vitreous traction at the edge of the hole
--If the hole is large
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For each retinal break, state whether it should be treated **prophylactically**

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**Under what circumstances should you consider treating symptomatic operculated holes?**

--If there is ongoing vitreous traction at the edge of the hole
--If the hole is large
--If is present
### For each retinal break, state whether it should be treated prophylactically

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**Under what circumstances should you consider treating symptomatic operculated holes?**

--If there is ongoing vitreous traction at the edge of the hole
--If the hole is large
--If vitreous hemorrhage is present
For each retinal break, state whether it should be treated *prophylactically*.

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(Lattice itself can’t be symptomatic—only a lesion associated with it can)
For each retinal break, state whether it should be treated **prophylactically**

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**Under what circumstances should you consider treating lattice?**

- If two words are present
For each retinal break, state whether it should be treated **prophylactically**

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*Under what circumstances should you consider treating lattice?*
- If horseshoe tears are present
- If the eye is [ ] or [ ]
For each retinal break, state whether it should be treated prophylactically.

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Under what circumstances should you consider treating lattice?

- If horseshoe tears are present
- If the eye is aphakic or pseudophakic
- --
For each retinal break, state whether it should be treated **prophylactically**

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| **Lattice**      | n/a         | No (unless…)

**Under what circumstances should you consider treating lattice?**

--If horseshoe tears are present
--If the eye is aphakic or pseudophakic
--If there was a hx of retinal detachment in the fellow eye
For each retinal break, state whether it should be treated **prophylactically**

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**In general, which carries the highest risk of RD?**
Horseshoe tears
For each retinal break, state whether it should be treated **prophylactically**

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**In general, which carries the highest risk of RD?**
Horseshoe tears

**Why?**
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In general, which carries the highest risk of RD? Horseshoe tears.

Why?
Because of *ongoing vitreous traction*.
More Retina Problems of an RD Sort…

- % of eyes harbor a retinal break, but only 1 in [big number] get an RD
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD.
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Goal of RD prophylaxis: Creation of a chorioretinal scar around the break.
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD.

Goal of RD prophylaxis: Creation of a chorioretinal scar around the break.
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD

Goal of RD prophylaxis: **Creation of a chorioretinal scar** around the break

**How does one go about creating the chorioretinal scar?**
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD

Goal of RD prophylaxis: **Creation of a chorioretinal scar** around the break

**How does one go about creating the chorioretinal scar?**
By inducing an inflammatory response in the chorioretinal tissue immediately surrounding the break
More Retina Problems of an RD Sort…

- 6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD
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**How does one go about creating the chorioretinal scar?**
By inducing an inflammatory response in the chorioretinal tissue immediately surrounding the break

**What are the two main surgical approaches for inducing the inflammatory response?**
--
--
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD

Goal of RD prophylaxis: **Creation of a chorioretinal scar** around the break

How does one go about creating the chorioretinal scar?
By inducing an inflammatory response in the chorioretinal tissue immediately surrounding the break

What are the two main surgical approaches for inducing the inflammatory response?
--Laser
--Transscleral cryotherapy
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD

Goal of RD prophylaxis: Creation of a chorioretinal scar around the break

If a flap or horseshoe tear is being prophylaxed, be sure to treat a larger area, especially anterior to the lesion (can pull through a chorioretinal scar)
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD.

Goal of RD prophylaxis: Creation of a chorioretinal scar around the break.

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6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD.

Goal of RD prophylaxis: Creation of a chorioretinal scar around the break.

If a flap or horseshoe tear is being prophylaxed, be sure to treat a larger area, especially anterior to the lesion (continuing traction can pull through a chorioretinal scar).

How far anterior should treatment extend?
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD

Goal of RD prophylaxis: Creation of a chorioretinal scar around the break

If a flap or horseshoe tear is being prophylaxed, be sure to treat a larger area, especially anterior to the lesion (continuing traction can pull through a chorioretinal scar)

How far anterior should treatment extend? As a general rule, all the way to the ora serrata
6% of eyes harbor a retinal break, but only 1 in 12,000 get an RD

Goal of RD prophylaxis: Creation of a chorioretinal scar around the break

If a flap or horseshoe tear is being prophylaxed, be sure to treat a larger area, especially anterior to the lesion (continuing traction can pull through a chorioretinal scar)

How far anterior should treatment extend?
As a general rule, all the way to the ora serrata