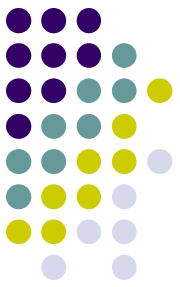


Q

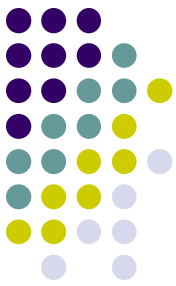
The STUMPED Mnemonic



1

- S
- T
- U
- M
- P
- E
- D

What is the purpose of the mnemonic, ie, what does it help to remember?



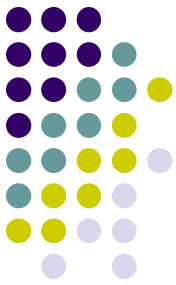
A

The STUMPED Mnemonic

- S
- T
- U
- M
- P
- E
- D

What is the purpose of the mnemonic, ie, what does it help to remember?

The DDx for a cloudy cornea in an infant



Q

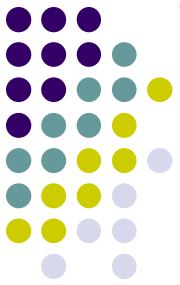
The STUMPED Mnemonic

- **S**
- T
- U
- M
- P
- E
- D



Q/A

The STUMPED Mnemonic



- Sclerocornea

- T



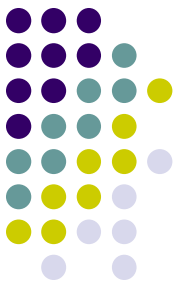
- U

- M

- P

- E

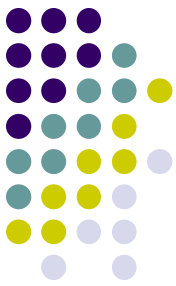
- D



A


The STUMPED Mnemonic

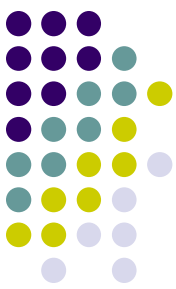
- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- U (*Tears in Descemet's membrane* works too)
- M
- P
- E
- D




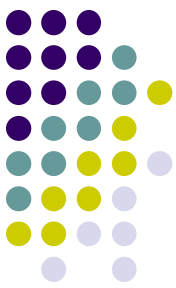
Q


The STUMPED Mnemonic

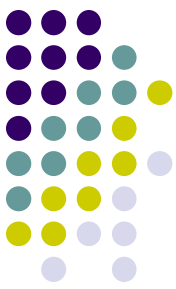
- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U** 
- M
- P
- E
- D




- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M** 
- **P**
- **E**
- **D**



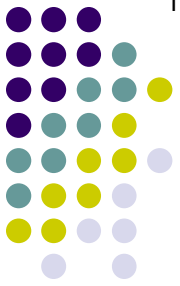
- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P** ← 
- **E**
- **D**



- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E** 
- **D**

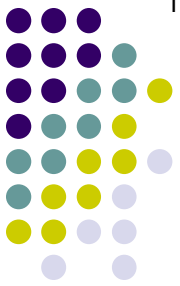
A

The STUMPED Mnemonic




- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D** (*Edema* works too)

(CHED = congenital hereditary endothelial dystrophy)



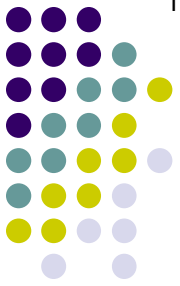
Q

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- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D** 

A

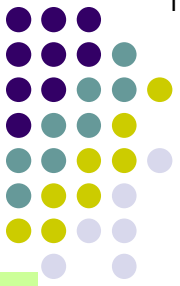
The STUMPED Mnemonic



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- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D**ermoid of the cornea

Q

The STUMPED Mnemonic

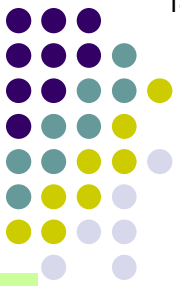


How does sclerocornea present?

- **Sclerocornea**
- Trauma (endothelial injury)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

A

The STUMPED Mnemonic

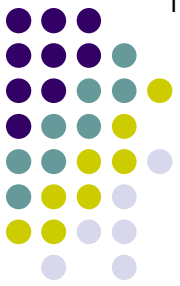


How does sclerocornea present?

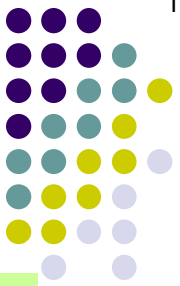
The name says it all—the cornea looks like sclera

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- Ulcer
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The STUMPED Mnemonic



Sclerocornea



Q

The STUMPED Mnemonic

How does sclerocornea present?

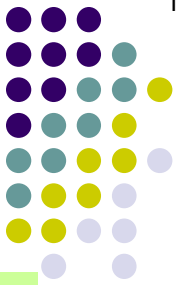
The name says it all—the cornea ^{is} looks like sclera?

Is it the case that corneal tissue has been literally replaced by scleral tissue?

- **Sclerocornea**
- Trauma (e)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

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The STUMPED Mnemonic



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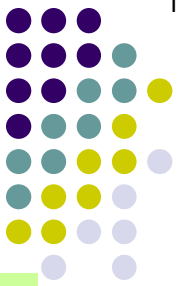
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Depends on who you ask, unfortunately. The *Cornea* book asserts that such corneas have undergone “scleralization.” However, the *Peds* book states that the cornea merely ‘resembles’ sclera, pointedly noting that the term ‘sclerocornea’ is “descriptive” and “does not suggest causation.”

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The STUMPED Mnemonic



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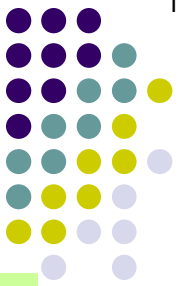
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Q

The STUMPED Mnemonic

- **Sclerocornea**

- Trauma (endothelial injury)

- Ulcer

- Metabolic disorders

- Peters anomaly

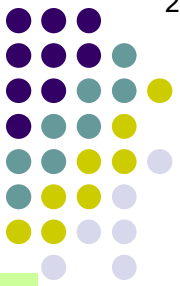
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Does it present unilaterally, or bilaterally?



A

The STUMPED Mnemonic

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The name says it all—the cornea looks like sclera

Does it present unilaterally, or bilaterally?

It is bilateral in the vast majority of cases (>90%)

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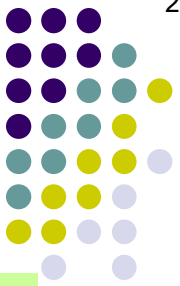
- Ulcer

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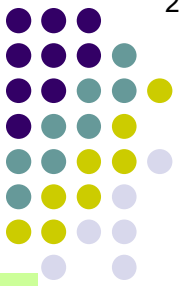
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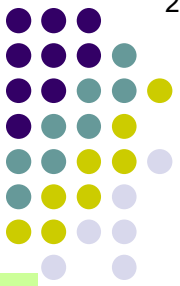
Cornea plana

- Metabolic disorders

- Peters anomaly

- Endothelial dystrophy (CHED)

- Dermoid of the cornea



Q

The STUMPED Mnemonic

- **Sclerocornea**

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- Ulcer

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- Peters

- Endot

- Derm

How does sclerocornea present?

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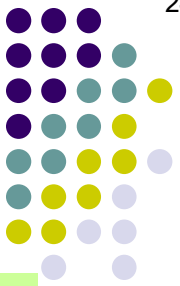
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What is the defining feature of cornea plana?



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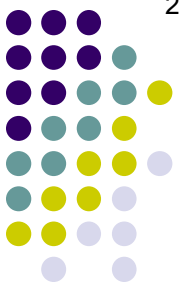
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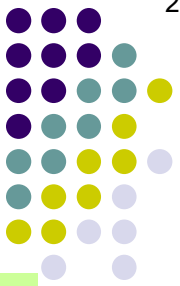
What is the defining feature of cornea plana?

The cornea is markedly flatter than normal

The STUMPED Mnemonic



Cornea plana



Q

The STUMPED Mnemonic

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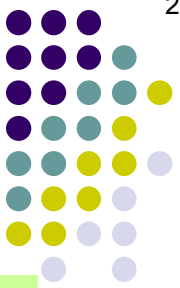
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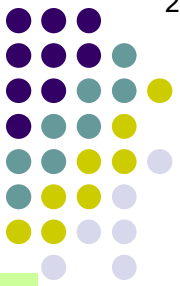
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43D, give or take



Q

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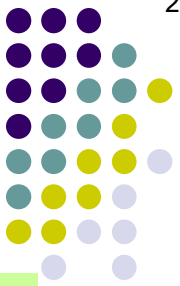
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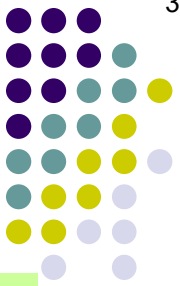
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There's no set cutoff, but suffice to say plana corneas are **much** flatter than 43D



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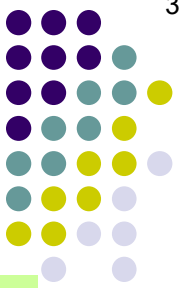
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OK, what would be a typical power of a plana cornea?



A

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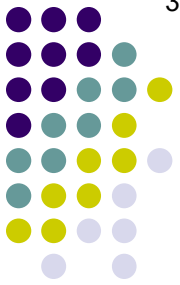
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OK, what would be a typical power of a plana cornea?

Values in the 30-35D range are common



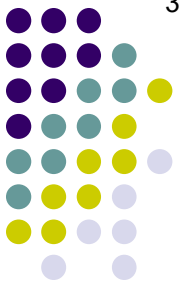
Q

The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial; ie, from forceps)

Does this sort of birth trauma tend to be unilateral, or bilateral?

- Dermoid of the cornea



A

The STUMPED Mnemonic

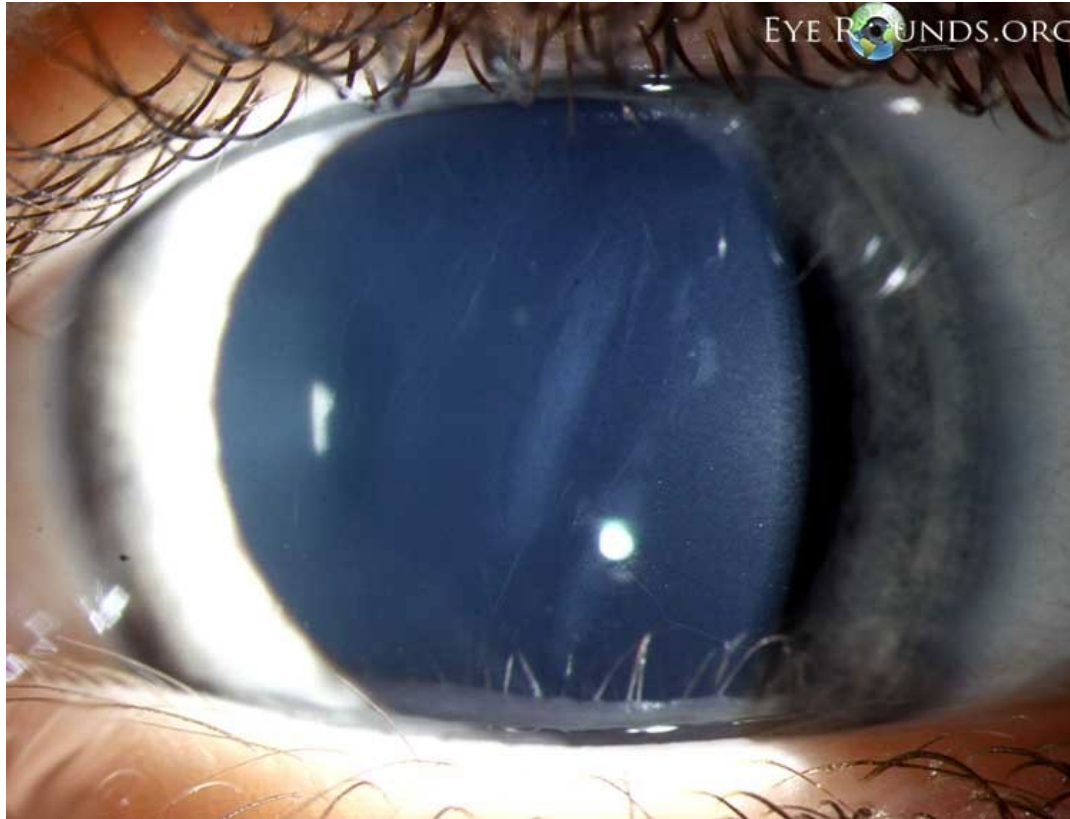
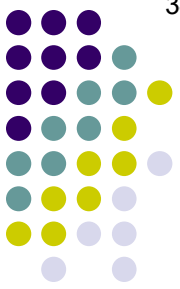
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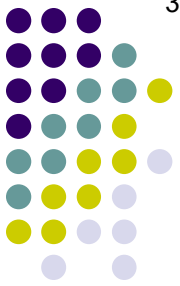
It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

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The STUMPED Mnemonic



Corneal haze 2ndry to birth trauma



Q

The STUMPED Mnemonic

- Sclerocornea

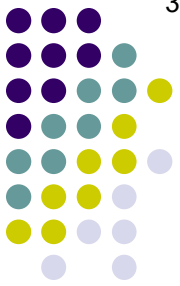
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It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

- *At what point post-partum does the traumatized cornea become cloudy?*

- Dermoid of the cornea



A

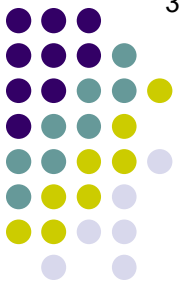
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Usually within a day or two

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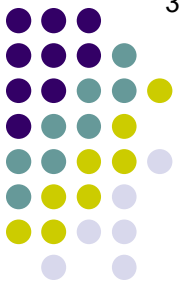
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- *How does endothelial damage lead to a cloudy cornea?*

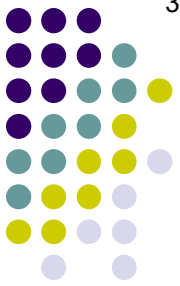
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Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy
- Dermoid of the cornea



Q

The STUMPED Mnemonic

- Sclerocornea

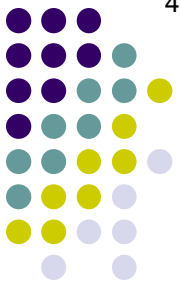
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Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

Do these traumatic Descemet breaks tend to run vertically, or horizontally?



A

The STUMPED Mnemonic

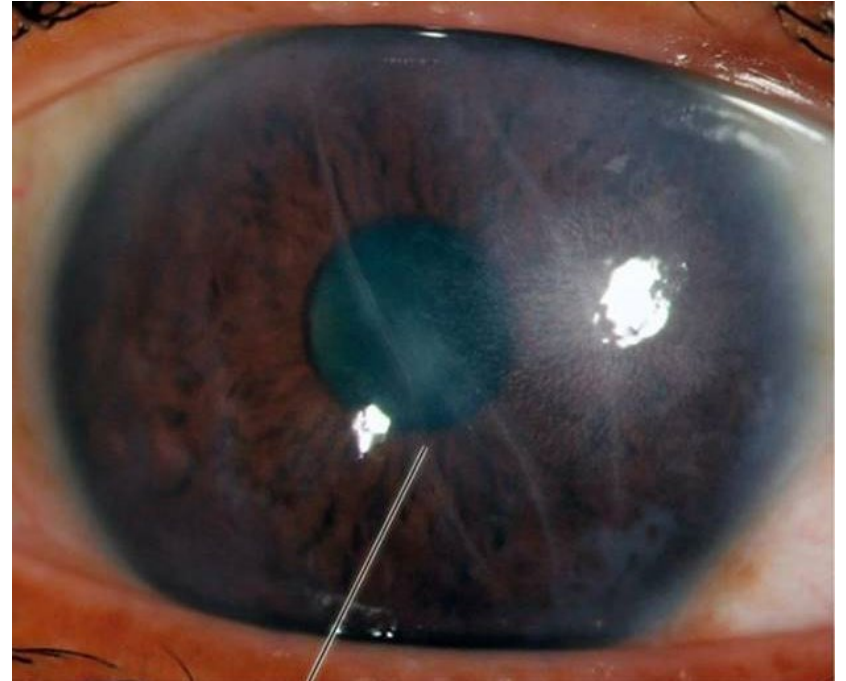
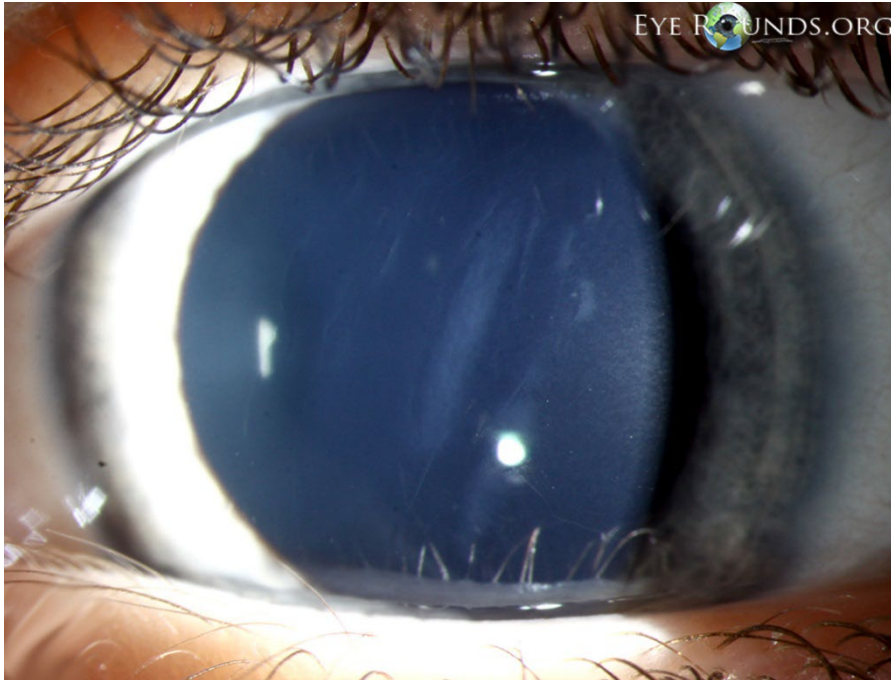
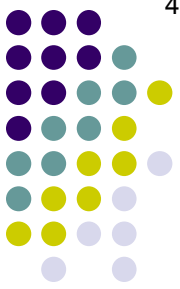
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Usually within a day or two
- *How does endothelial damage lead to a cloudy cornea?*
Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

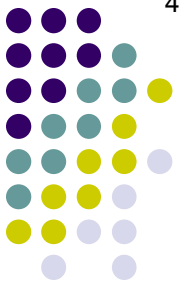
Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically

Vertical
agina

The STUMPED Mnemonic



Vertical Descemet's breaks after birth trauma



Q

The STUMPED Mnemonic

- Sclerocornea

- Trauma (endothelial; ie, from forceps)

- *Does this sort of birth trauma tend to be unilateral, or bilateral?*
It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

Another congenital condition is associated with Descemet's breaks—what is it?

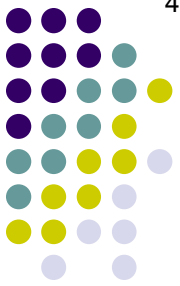
Edematous cornea become cloudy?

- *How does endothelial damage lead to a cloudy cornea?*

Breaks in Descemet's/endothelium

allow the cornea to become edematous, and thus hazy

Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically



Q

The STUMPED Mnemonic

- Sclerocornea

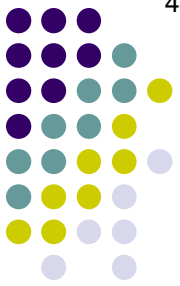
- Trauma (endothelial; ie, from forceps)

- *Does this sort of birth trauma tend to be unilateral, or bilateral?*
It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

- *Another congenital condition is associated with Descemet's breaks—what is it?*
Congenital glaucoma

- *How does endothelial damage lead to a cloudy cornea?*
Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

- *Do these traumatic Descemet breaks tend to run vertically, or horizontally?*
Vertically



Q

The STUMPED Mnemonic

- Sclerocornea

- Traumatic Descemet's breaks (from forceps)

Do these traumatic Descemet breaks tend to run vertically, or horizontally?

Do these traumatic Descemet breaks tend to be unilateral, or bilateral?

It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

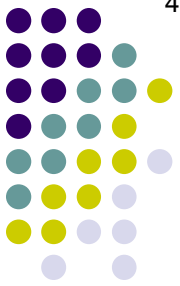
Another congenital condition is associated with Descemet's breaks—what is it?

Congenital glaucoma

How does endothelial damage lead to a cloudy cornea?

Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically



A

The STUMPED Mnemonic

● Sclerocornea

● Traumatic Descemet's breaks (from forceps)

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Horizontally

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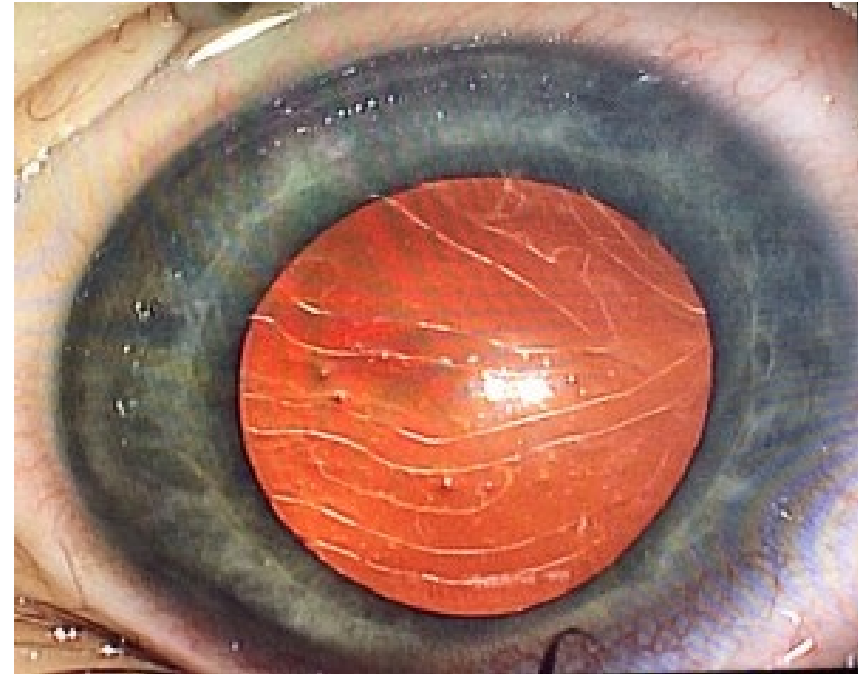
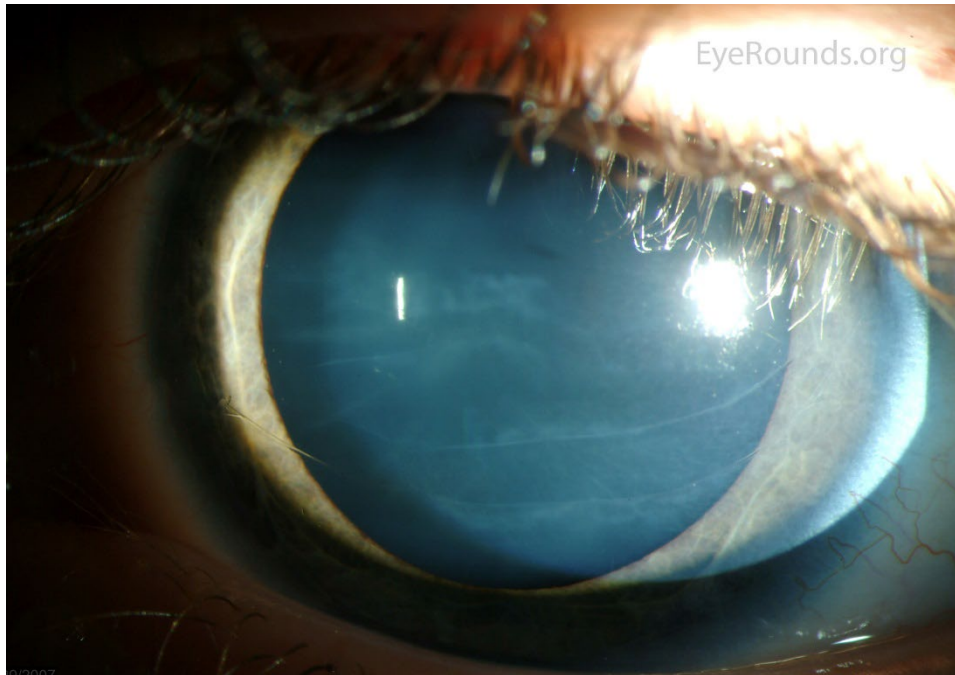
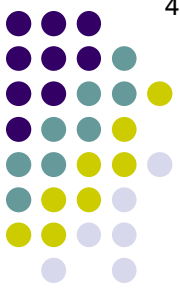
Congenital glaucoma

How does endothelial damage lead to a cloudy cornea?

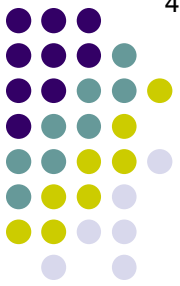
Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically

The STUMPED Mnemonic



Horizontal Descemet's breaks in congenital glaucoma



Q

The STUMPED Mnemonic

What is the eponymous name for the Descemet's breaks associated with congenital glaucoma?

• Sclerocornea

• Traumatic Descemet breaks (from forceps)

Do these traumatic Descemet breaks tend to run vertically, or horizontally?

Horizontally

Does it tend to be unilateral, or bilateral?

It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

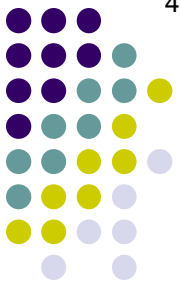
Another congenital condition is associated with Descemet's breaks—what is it?

Congenital glaucoma

How does endothelial damage lead to a cloudy cornea?

Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically



A

The STUMPED Mnemonic

What is the eponymous name for the Descemet's breaks associated with congenital glaucoma?
Haab's striae

Horizontal
igh IOP
Haab

- Sclerocornea

- Traumatic Descemet breaks (from forceps)

Do these traumatic Descemet breaks tend to run vertically, or horizontally?

Horizontally

Do these traumatic Descemet breaks tend to be unilateral, or bilateral?

It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

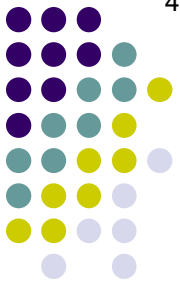
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Congenital glaucoma

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Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically

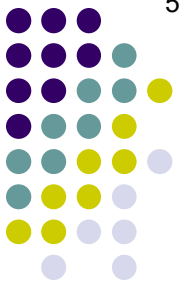


Q

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

- **Dermoid of the cornea**



A

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

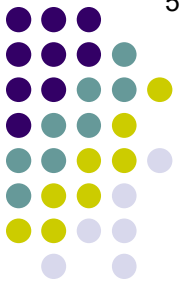
Goldenhar syndrome

Mnemonic: *Goldenhar*

Goldenhar

**O
L
D
E
N
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R**

- **Dermoid of the cornea**



Q

What is the incidence of Goldenhar?

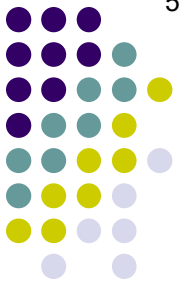
With what syndrome is cor

Goldenhar syndrome

- **Dermoid of the cornea**

Goldenhar

**O
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R**



A

What is the incidence of Goldenhar?
About 1/4000 live births

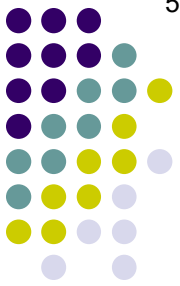
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Goldenhar syndrome

- **Dermoid of the cornea**

Goldenhar

**O
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Q

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About 1/4000 live births

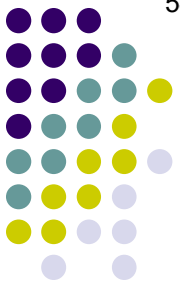
What is its inheritance pattern?

With what syndrome is cor
Goldenhar syndrome

- **Dermoid of the cornea**

Goldenhar

**O
L
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H
A
R**



A

With what syndrome is cor

Goldenhar syndrome

What is the incidence of Goldenhar?

About 1/4000 live births

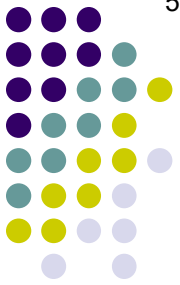
What is its inheritance pattern?

It is sporadic

- **Dermoid of the cornea**

Goldenhar

**O
L
D
E
N
H
A
R**



Q

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

What is the incidence of Goldenhar?

About 1/4000 live births

What is its inheritance pattern?

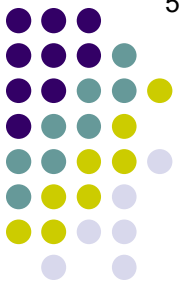
It is sporadic

Is there a sex predilection?

- **Dermoid of the cornea**

Goldenhar

**O
L
D
E
N
H
A
R**



Q/A

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

What is the incidence of Goldenhar?

About 1/4000 live births

What is its inheritance pattern?

It is sporadic

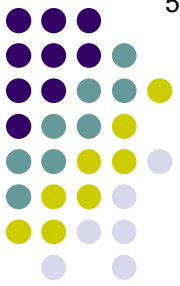
Is there a sex predilection?

Yes, **M v F** are **# x** as likely to be affected

- **Dermoid of the cornea**

Goldenhar

**O
L
D
E
N
H
A
R**



A

With what syndrome is cor

Goldenhar syndrome

What is the incidence of Goldenhar?

About 1/4000 live births

What is its inheritance pattern?

It is sporadic

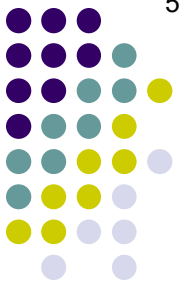
Is there a sex predilection?

Yes, males are twice as likely to be affected

- **Dermoid of the cornea**

Goldenhar

**O
L
D
E
N
H
A
R**



Q

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

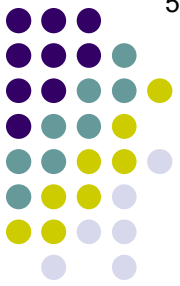
What is Goldenhar's noneponymous name?

Answer starts with an 'O'

Goldenhar

**O
L
D
E
N
H
A
R**

- **Dermoid of the cornea**



A

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

What is Goldenhar's noneponymous name?

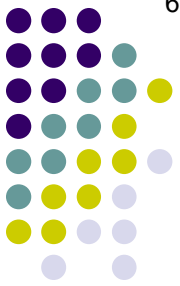
Oculo-Auriculo-Vertebral (OAV) syndrome

Told ya

Goldenhar
OAV syndrome

L
D
E
N
H
A
R

- **Dermoid of the cornea**



Q

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

What is Goldenhar's noneponymous name?

Oculo-Auriculo-Vertebral (OAV) syndrome

What other ocular/periorcular abnormalities are common in Goldenhar?

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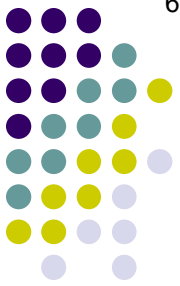
One answer starts with an 'L'

The other with a 'D'

Goldenhar
OAV syndrome

**L
D
E
N
H
A
R**

- **Dermoid of the cornea**



A

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

What is Goldenhar's noneponymous name?

Oculo-Auriculo-Vertebral (OAV) syndrome

What other ocular/periocular abnormalities are common in Goldenhar?

--Lid coloboma

--Duane syndrome

One answer starts with an 'L'

The other with a 'D'

Goldenhar

OAV syndrome

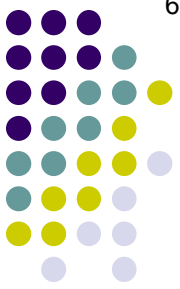
Lid coloboma

Duane syndrome

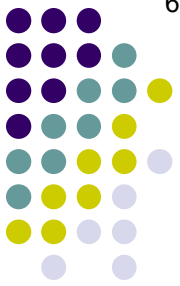
**E
N
H
A
R**

- **Dermoid of the cornea**

The STUMPED Mnemonic



Goldenhar syndrome: Lid coloboma



Q

The STUMPED Mnemonic

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Goldenhar syndrome

What is Goldenhar's noneponymous name?

Oculo-Auriculo-Vertebral (OAV) syndrome

What other ocular/periocular abnormalities are common in Goldenhar?

--Lid coloboma

--**Duane syndrome**

Briefly, what is Duane syndrome?

- **Dermoid of the cornea**

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

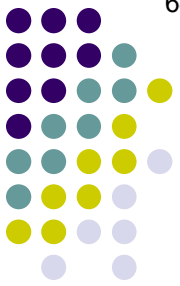
E

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A

The STUMPED Mnemonic

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--**Duane syndrome**

Briefly, what is Duane syndrome?

A motility disorder with the following key findings:

--At least some limitation of horizontal movement

--Attempted adduction causes the globe to retract, and may cause it to up- or downshoot

- **Dermoid of the cornea**

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

E

N

H

A

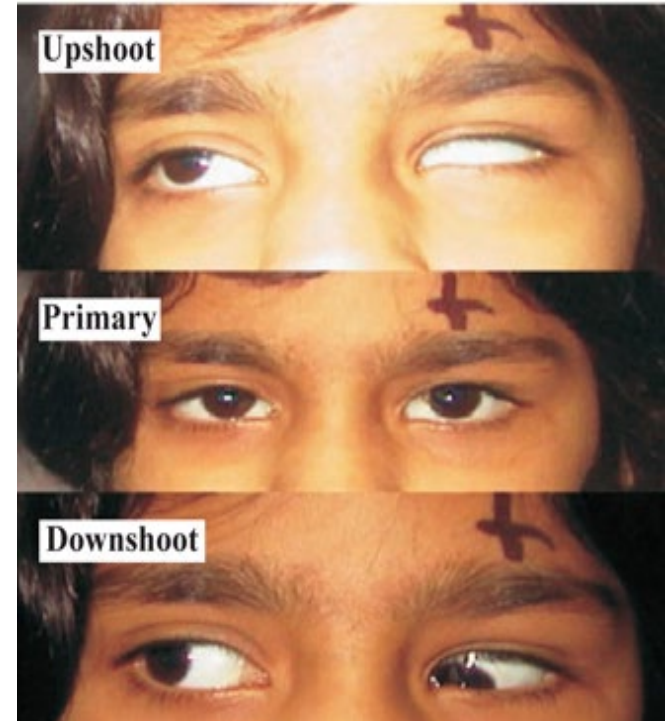
R



Horizontal movement limitation

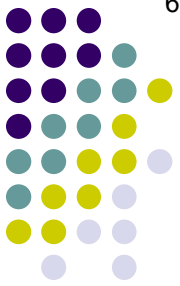


Globe retraction



Duane syndrome

Upshoot/downshoot



Q

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

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--At least some limitation of horizontal movement

--Attempted adduction causes the globe to retract, and may cause it to up- or downshoot

What is the cause?

- **Dermoid of the cornea**

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

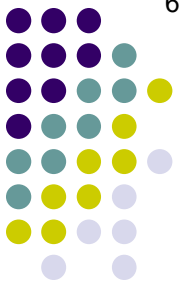
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A

The STUMPED Mnemonic

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Goldenhar syndrome

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A motility disorder with the following key findings:

--At least some limitation of horizontal movement

--Attempted adduction causes the globe to retract, and may cause it to up- or downshoot

What is the cause?

The nucleus for cranial nerve VI is missing, and the lateral rectus is innervated by cranial nerve III

● Dermoid of the cornea

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

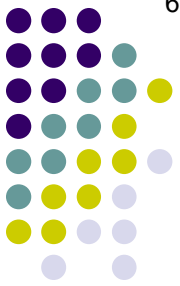
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Q

The STUMPED Mnemonic

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Goldenhar syndrome

What is Goldenhar's noneponymous name?

Oculo-Auriculo-Vertebral (OAV) syndrome

What other ocular/periocular abnormalities are common in Goldenhar?

--Lid coloboma

--Duane syndrome

*What **nonocular** findings are usually present?*

--

--

One answer starts with an 'E'

● **Dermoid of the**

The other with a 'H'

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

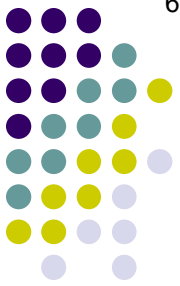
E

Nothing starts w/ 'N'

H

A

R



A

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

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What other ocular/periocular abnormalities are common in Goldenhar?

--**Lid coloboma**

--**Duane syndrome**

*What **nonocular** findings are usually present?*

--**Ear abnormalities** (pre-auricular appendages; aural fistulae)

--**Hemifacial microsomia** (maxillary/mandibular hypoplasia)

One answer starts with an 'E'

● **Dermoid of the**

The other with a 'H'

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

Ear abnormalities

Nothing starts w/ 'N'

Hemifacial microsomia

A

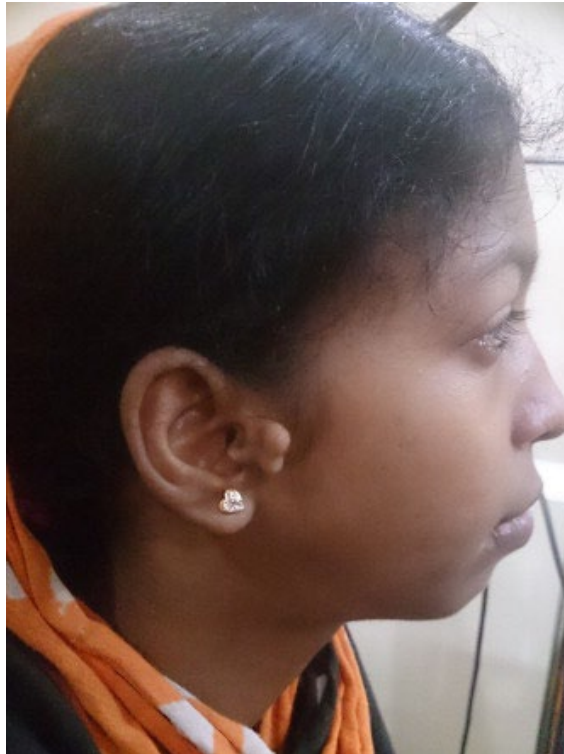
R



The STUMPED Mnemonic



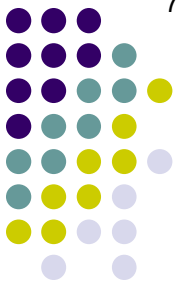
Ear abnormalities



Goldenhar syndrome



Hemifacial microsomia



Q

The STUMPED Mnemonic

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Goldenhar syndrome

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Where are epibulbar dermoids commonly located in Goldenhar?

● **Dermoid of the cornea**

Etc.

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

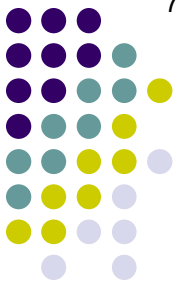
Ear abnormalities

Nothing starts w/ 'N'

Hemifacial microsomia

A

R



A

The STUMPED Mnemonic

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At the limbus

● **Dermoid of the cornea**

Etc.

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

Ear abnormalities

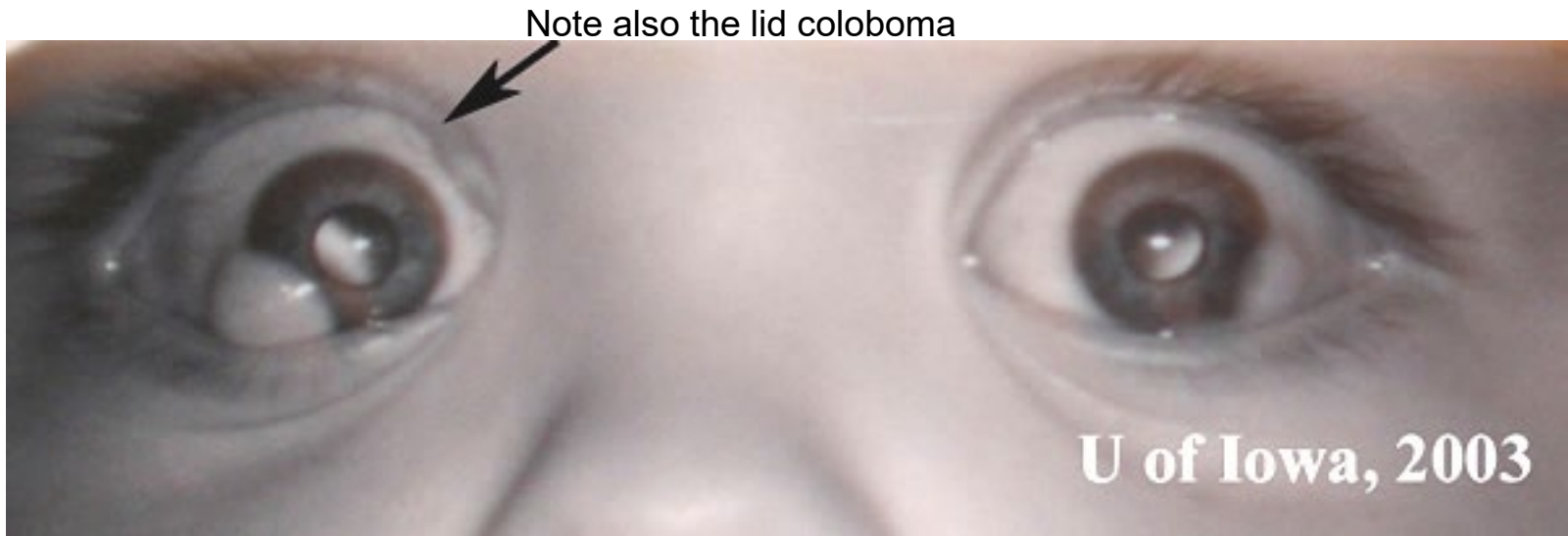
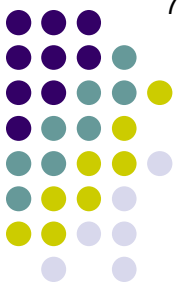
Nothing starts w/ 'N'

Hemifacial microsomia

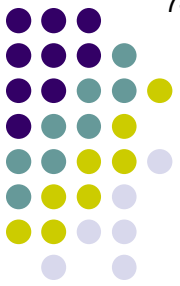
At the limbus

R

The STUMPED Mnemonic



Goldenhar syndrome: Limbal (epibulbar) dermoids OU



Q

The STUMPED Mnemonic

With what syndrome is corneal dermoid associated?

Goldenhar syndrome

What is Goldenhar's noneponymous name?

Oculo-Auriculo-Vertebral (OAV) syndrome

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Where are epibulbar dermoids commonly located in Goldenhar?

At the limbus

Are Goldenhar pts cognitively impaired?

● **Dermoid of the cornea**



Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

Ear abnormalities

Nothing starts w/ 'N'

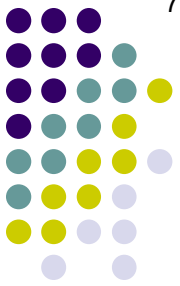
Hemifacial microsomia

At the limbus

R

A

The STUMPED Mnemonic



With what syndrome is corneal dermoid associated?

Goldenhar syndrome

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Oculo-Auriculo-Vertebral (OAV) syndrome

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--**Hemifacial microsomia** (maxillary/mandibular hypoplasia)

Where are epibulbar dermoids commonly located in Goldenhar?

At the limbus

Are Goldenhar pts cognitively impaired?

A minority (~10%) have mental retardation

● **Dermoid of the cornea**

Goldenhar

OAV syndrome

Lid coloboma

Duane syndrome

Ear abnormalities

Nothing starts w/ 'N'

Hemifacial microsomia

At the limbus

Retardation in ~10%





Q

The STUMPED Mnemonic

The Peds book mentions one specific sort of metabolic disorder—what is it?

- Scler
- Trau
- Ulce
- **Metabolic disorders**
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



A

The STUMPED Mnemonic

The Peds book mentions one specific sort of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)

- Scler
- Trau
- Ulce
- **Metabolic disorders**
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



Q

The STUMPED Mnemonic

The Peds book mentions one specific sort of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)

In a nutshell, what is a mucopolysaccharidosis?

- Scler
- Trau
- Ulce
- **Metabolic disorders**
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



A

The STUMPED Mnemonic

The Peds book mentions one specific sort of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)

In a nutshell, what is a mucopolysaccharidosis?

An inherited condition in which mucopolysaccharides cannot be metabolized, and subsequently accumulate to toxic levels

- Scler
- Trau
- Ulce
- **Metabolic disorders**
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



Q

The STUMPED Mnemonic

The Peds book mentions one specific sort of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)

In a nutshell, what is a mucopolysaccharidosis?

An inherited condition in which **mucopolysaccharides** cannot be metabolized, and subsequently accumulate to toxic levels

What organelle is responsible for breaking down mucopolysaccharides?

- Scler
- Trau
- Ulce
- **Metabolic disorders**
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



A

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Q

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Are mucopolysaccharides the only substance lysosomes are responsible for breaking down?

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Are mucopolysaccharides the only substance lysosomes are responsible for breaking down?

No, they also break down lipids, glycoproteins and other molecules, and other metabolic disorders result in *their* accumulation

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Q

The STUMPED Mnemonic

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What is the general term for inherited metabolic disorders involving lysosomal dysfunction?

Lysosomes

*What organs
Are mucopoly
for breaking d*

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● Scler

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In a nutshell, what is a mucopolysaccharidosis?

An inherited condition in which certain substances called
mucopolysaccharides (MPS) build up in the body and subsequently accumulate in various organs.

What is the general term for inherited metabolic disorders involving lysosomal dysfunction?

They are called **lysosomal storage diseases**

What organ?

Lysosomes

Are mucopolysaccharides broken down by lysosomes?

No, they also break down lipids, glycoproteins and other molecules, and other metabolic disorders result in *their* accumulation

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What organs?

Are mucopolysaccharidoses for breaking down?

So, is it the case that the MPSs are simply one subtype of lysosomal storage disease?

No, they also break down lipids, glycoproteins and other molecules, and other metabolic disorders result in *their* accumulation

● Scler

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What is the general term for inherited metabolic disorders involving lysosomal dysfunction?

They are called **lysosomal storage diseases**

Lysosomes

So, is it the case that the MPSs are simply one subtype of lysosomal storage disease?

Indeed it is

What organs are involved in breaking down these substances?

No, they also break down lipids, glycoproteins and other molecules, and other metabolic disorders result in *their* accumulation

- Scler
- Trau
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The STUMPED Mnemonic

Q

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Hurler, Scheie, and Morquio syndromes

- Scler

- Trau

- Ulce

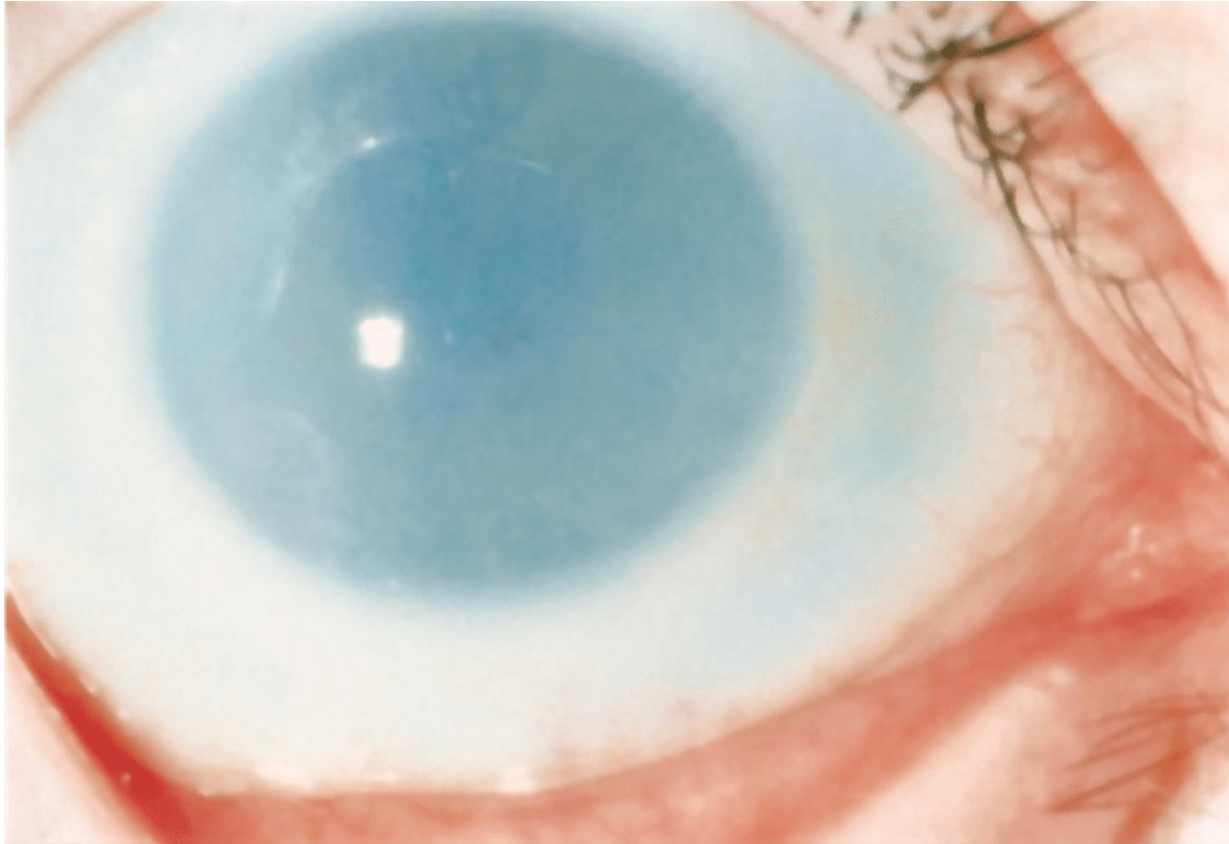
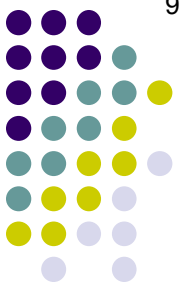
- **Metabolic disorders**

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The STUMPED Mnemonic



MPS (Hurler syndrome)



Q

The STUMPED Mnemonic

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In a nutshell, what is a mucopolysaccharidosis?

An inherited condition in which mucopolysaccharides cannot be metabolized,

Do these syndromes present with cloudy corneas at birth?

- Sclerotic corneas (MPS)
- Trauma (MPS)
- Ulcer (MPS)
- **Metabolic disorders**
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

(MPS) name—which ones?

Hurler, Scheie, and Morquio syndromes



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Do these syndromes present with cloudy corneas at birth?

No, significant cloudiness takes 6 weeks to 24 months or so to develop, depending upon the syndrome

What are the names of the three (or four) syndromes? (or, which ones?) name—which ones?

● **Hurler, Scheie, and Morquio syndromes**

● Ulcer

● **Metabolic disorders**

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Q

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How is the cloudy MPS cornea managed?

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Hurler, Scheie, and Morquio syndromes

How is the cloudy MPS cornea managed?

Via transplantation—either PK, or DALK

- **Metabolic disorders**
- Peters anomaly
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Q

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Hurler, Scheie, and Morquio

What do these stand for?

PK:

DALK:

How is the cloudy MPS cornea managed?

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The Peds book mentions three MPSs by (anonymous) name— which ones?

Hurler, Scheie, and Morquio

What do these stand for?

PK: Penetrating keratoplasty

DALK: Deep anterior lamellar keratoplasty

How is the cloudy MPS cornea managed?

Via transplantation—either **PK, or DALK**

- Scler

- Trau

- Ulce

- **Metabolic disorders**

- Peters anomaly

- Endothelial dystrophy (CHED)

- Dermoid of the cornea



Q

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



A

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?
It is a classic exemplar of an anterior segment dysgenesis

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



Q

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?
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In one word, what sort of condition is it?

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- Endothelial dystrophy (CHED)
- Dermoid of the cornea



Q/A

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an anterior segment dysgenesis

In one word, what sort of condition is it?

It is a [redacted] which means it arises secondary to the failure of [two-words] cells to migrate and/or differentiate properly

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



A

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an anterior segment dysgenesis

In one word, what sort of condition is it?

It is a neurocristopathy, which means it arises secondary to the failure of neural-crest cells to migrate and/or differentiate properly

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



Q

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an anterior segment dysgenesis

How does it present?

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



A

The STUMPED Mnemonic

In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an anterior segment dysgenesis

How does it present?

As a corneal opacity at birth (duh, it's in the STUMPED mnemonic). The opacity ranges in severity from a faint haze to an opaque, elevated and vascularized mess.

- **Peters anomaly**
- Endothelial dystrophy (CHED)
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Q

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What specific abnormalities are commonly present?

- **Peters anomaly**
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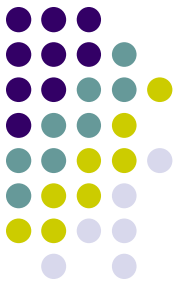
As a corneal opacity at birth (duh, it's in the STUMPED mnemonic). The opacity ranges in severity from a faint haze to an opaque, elevated and vascularized mess.

What specific abnormalities are commonly present?

There is a defect in the posterior central cornea, including the absence of Descemet's and subjacent endothelium. Adhesions extending from the iris to the posterior corneal defect are often present.

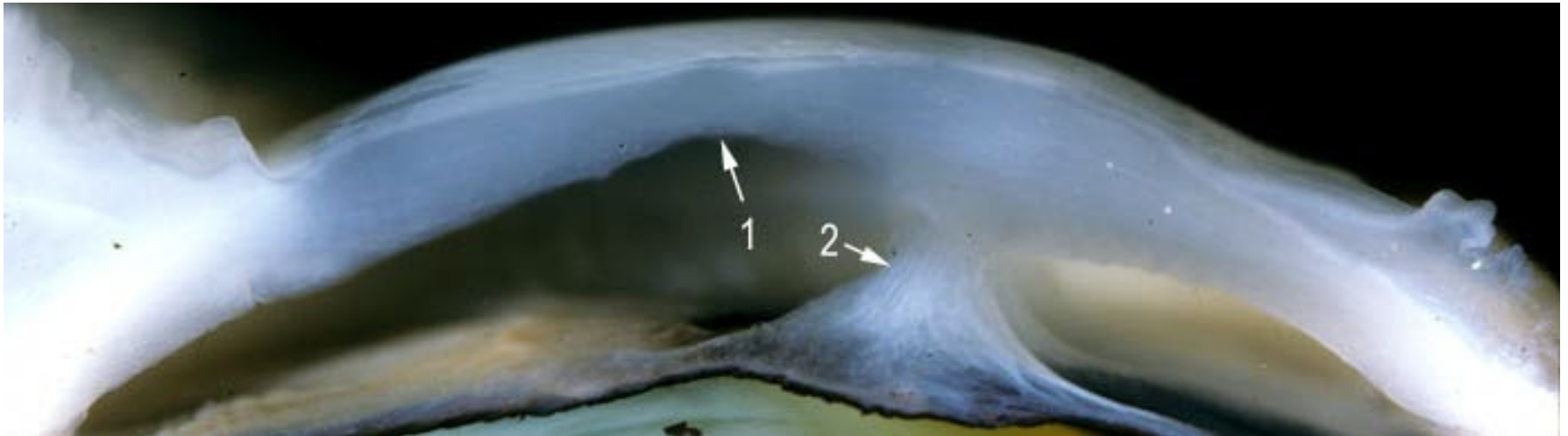
- **Peters anomaly**
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The STUMPED Mnemonic



1. Defect of the posterior central cornea, including the absence of Descemet's and subjacent endothelium

2. Adhesions extending from the iris to the posterior corneal defect



Peters anomaly

A

The STUMPED Mnemonic



In three words, what sort of condition is Peters anomaly?

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How does it present?

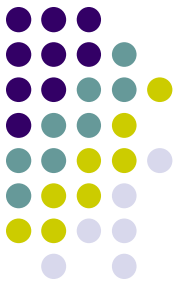
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What specific abnormalities are commonly present?

There is a defect in the posterior central cornea, including the absence of Descemet's and subjacent endothelium. Adhesions extending from the iris to the posterior corneal defect are often present. The lens may be small, cataractous and misshapen, and may be adherent to the defect in the posterior cornea.

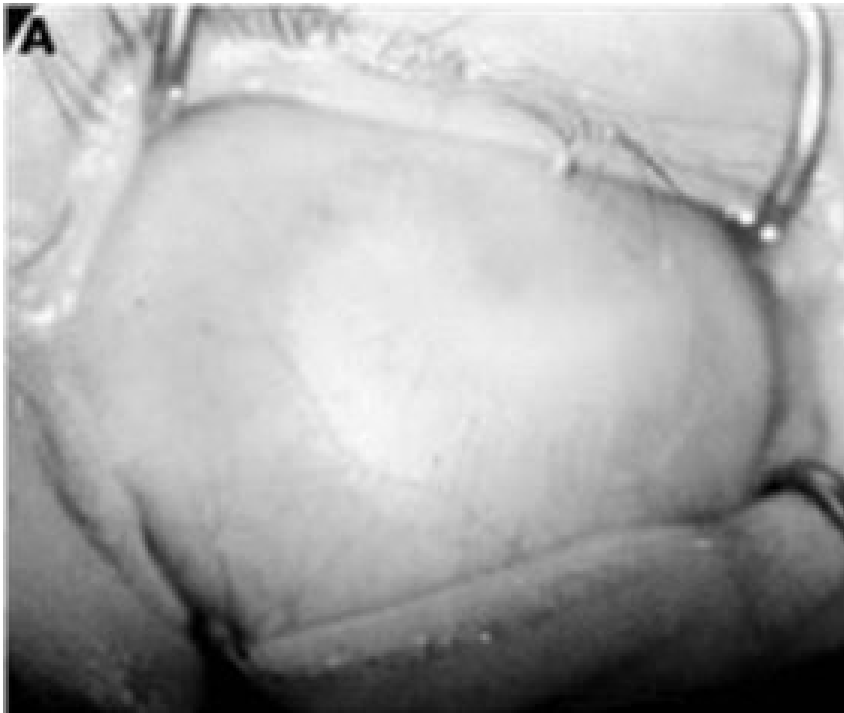
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The STUMPED Mnemonic



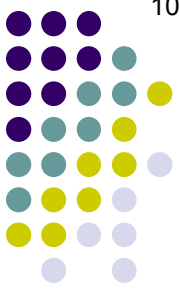
Peters anomaly: Small, cataractous, misshapen lens

The STUMPED Mnemonic

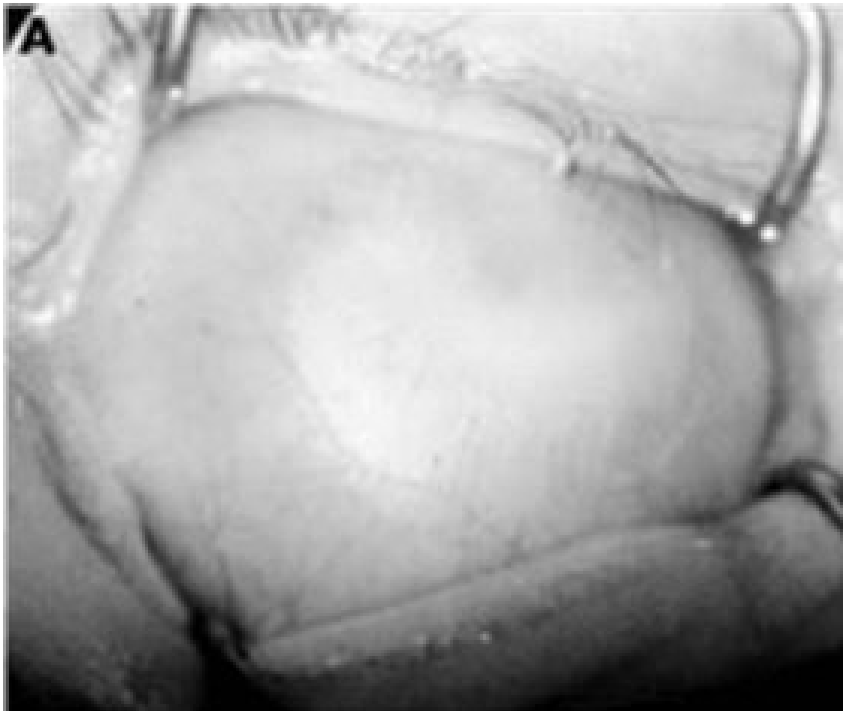


This image shows complete corneal opacification
thought clinically to be sclerocornea

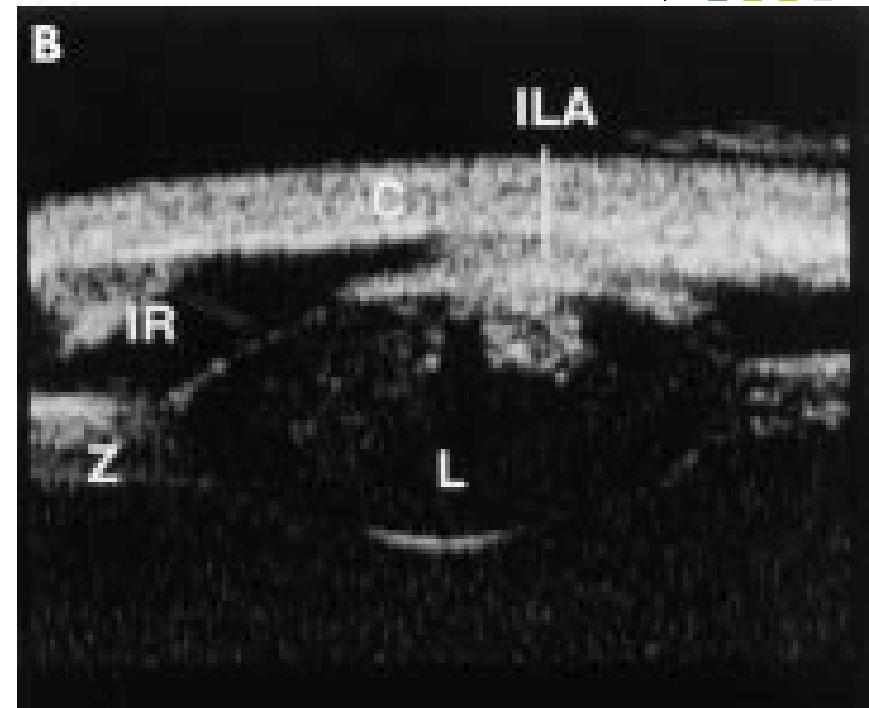
Peters anomaly



The STUMPED Mnemonic



This image shows complete corneal opacification thought clinically to be sclerocornea



UBM of the same eye shows keratolenticular adhesion (ILA), aniridia with an iris stump (IR), and a small lens, revealing the correct diagnosis as Peters anomaly. **This case demonstrates the importance of a complete anterior segment exam with UBM to make an accurate diagnosis.**

Peters anomaly

Q

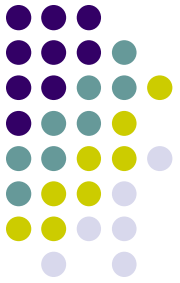
The STUMPED Mnemonic

Anterior segment dysgenesis

*A very basic
anatomic distinction*

?

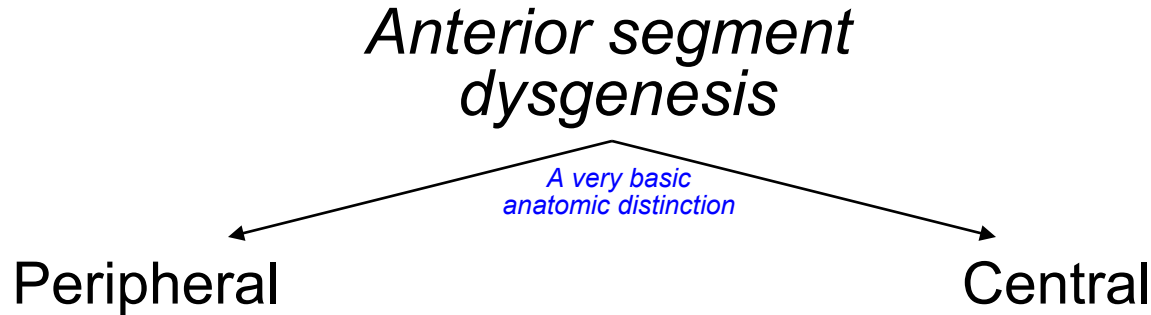
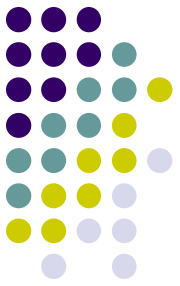
?



Let's take a moment to overview the anterior segment dysgeneses. We divvy them up into two broad categories based on a very basic anatomic consideration—what is that consideration?

A

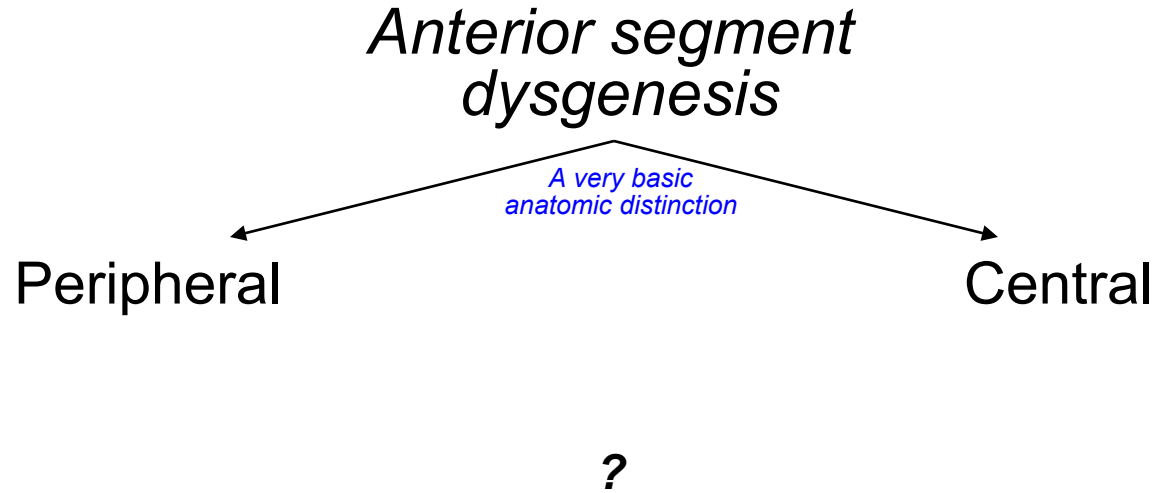
The STUMPED Mnemonic



*Let's take a moment to overview the anterior segment dysgeneses. We divvy them up into two broad categories based on a very basic anatomic consideration—what is that consideration? It is whether the dysgenesis involves the **peripheral** vs **central** portion of the anterior segment*

Q

The STUMPED Mnemonic

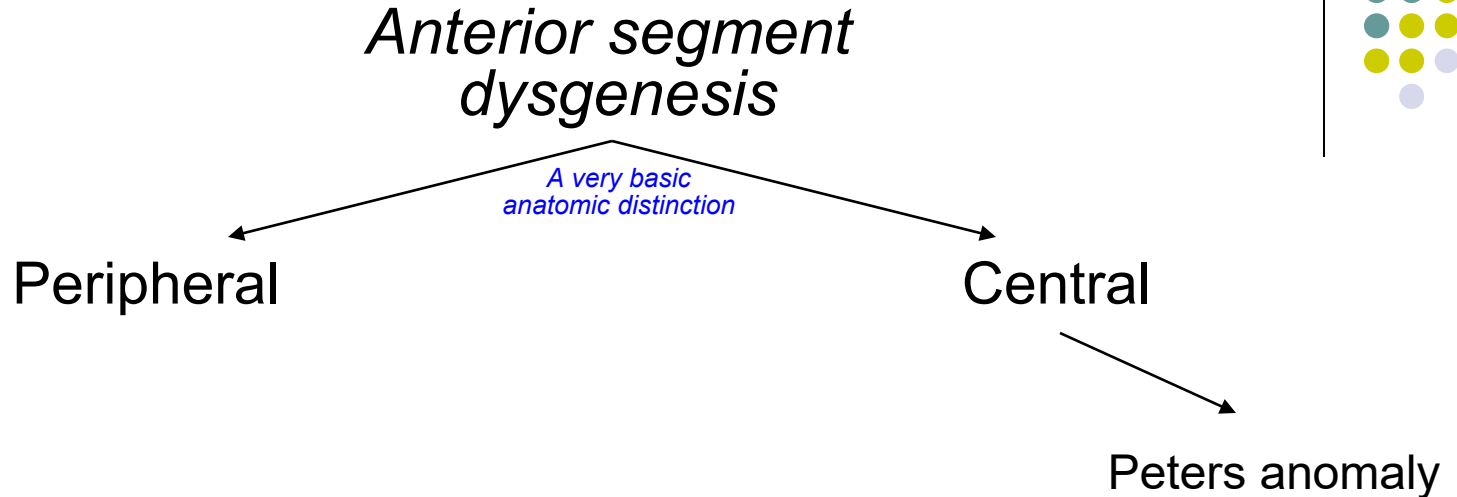
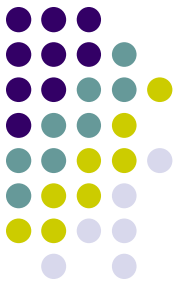


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To which category does Peters anomaly belong?

A

The STUMPED Mnemonic

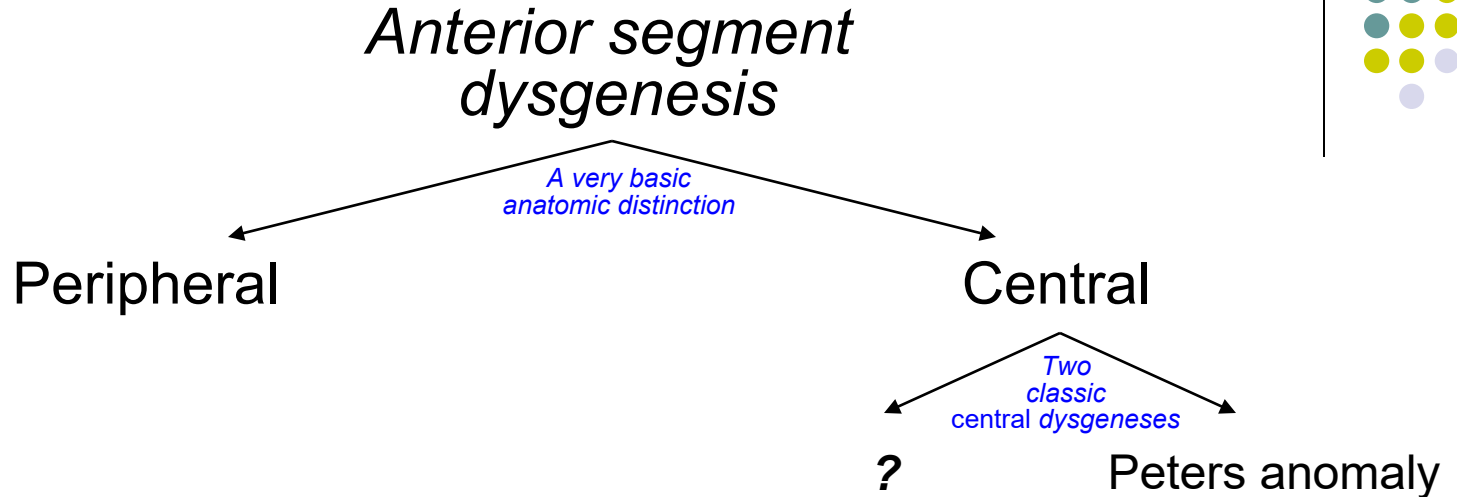
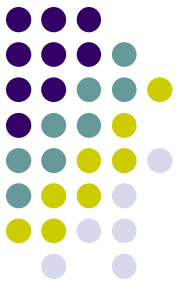


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To which category does Peters anomaly belong?
Peters is a **central** form of anterior segment dysgenesis

Q

The STUMPED Mnemonic



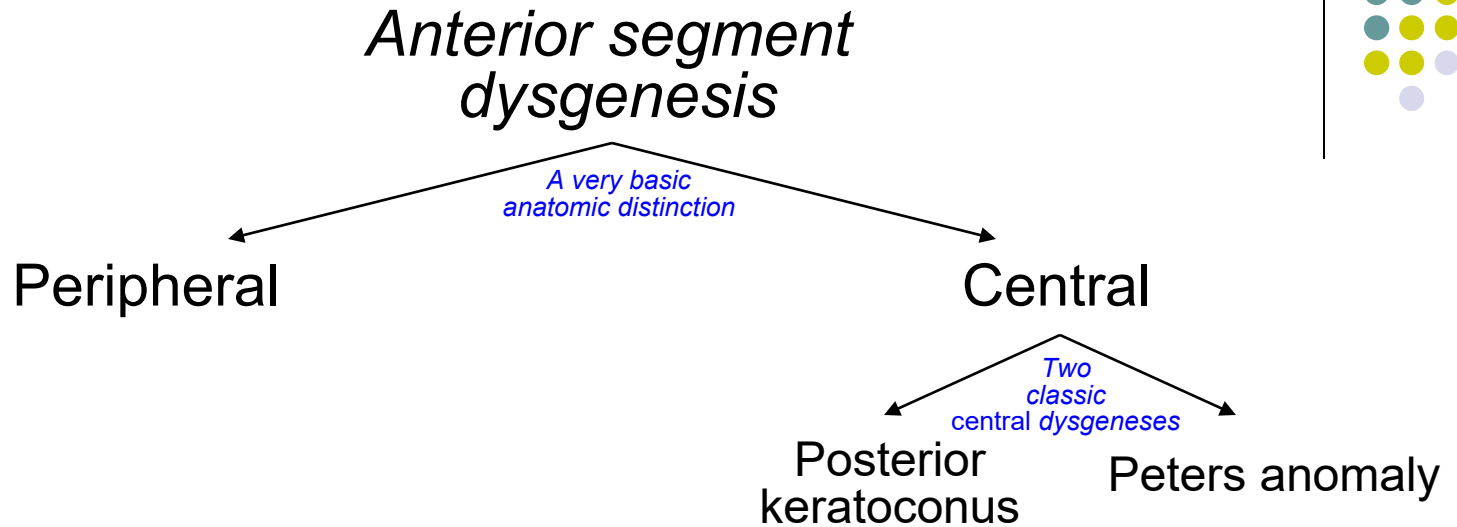
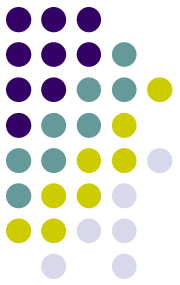
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It is whether the dysgenesis involves the **peripheral** vs **central** portion of the anterior segment

To which category does Peters anomaly belong?
Peters is a **central** form of anterior segment dysgenesis

What is the other classic form of central anterior segment dysgenesis?

A

The STUMPED Mnemonic



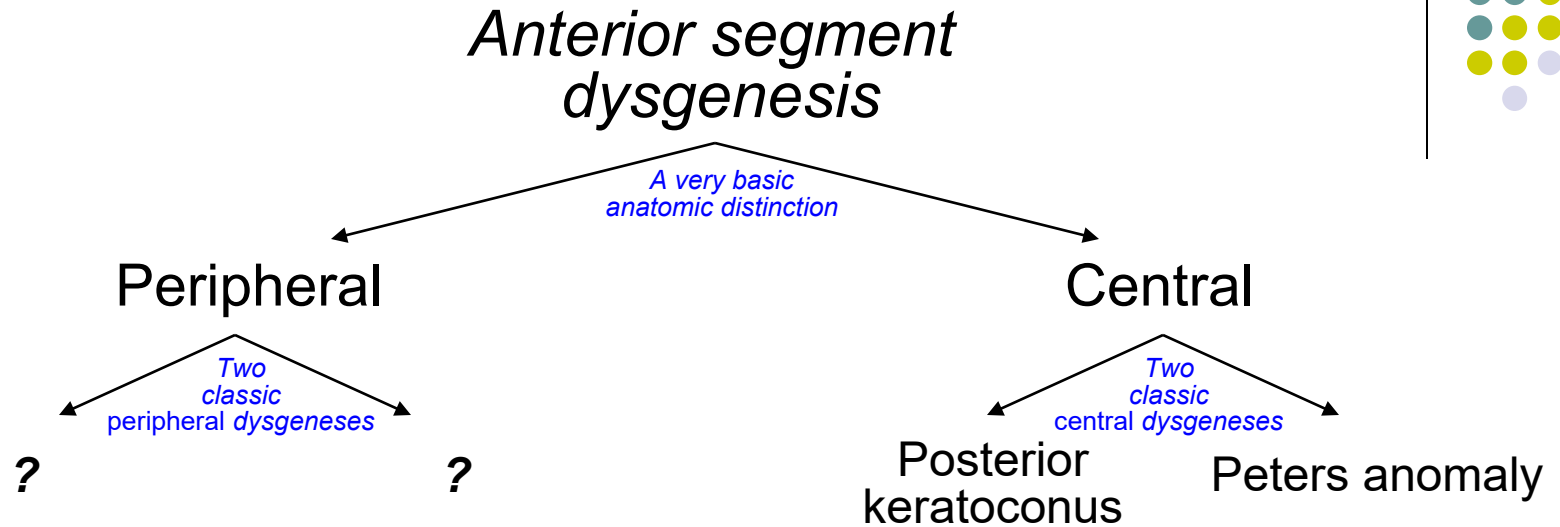
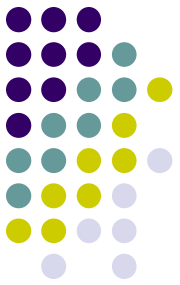
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To which category does Peters anomaly belong?
Peters is a **central** form of anterior segment dysgenesis

What is the other classic form of central anterior segment dysgenesis?
Posterior keratoconus (Note: This is nothing like the anterior form you're familiar with)

Q

The STUMPED Mnemonic



Let's take a moment to overview the anterior segment dysgeneses. We divvy them up into two broad categories based on a very basic anatomic consideration—what is that consideration?
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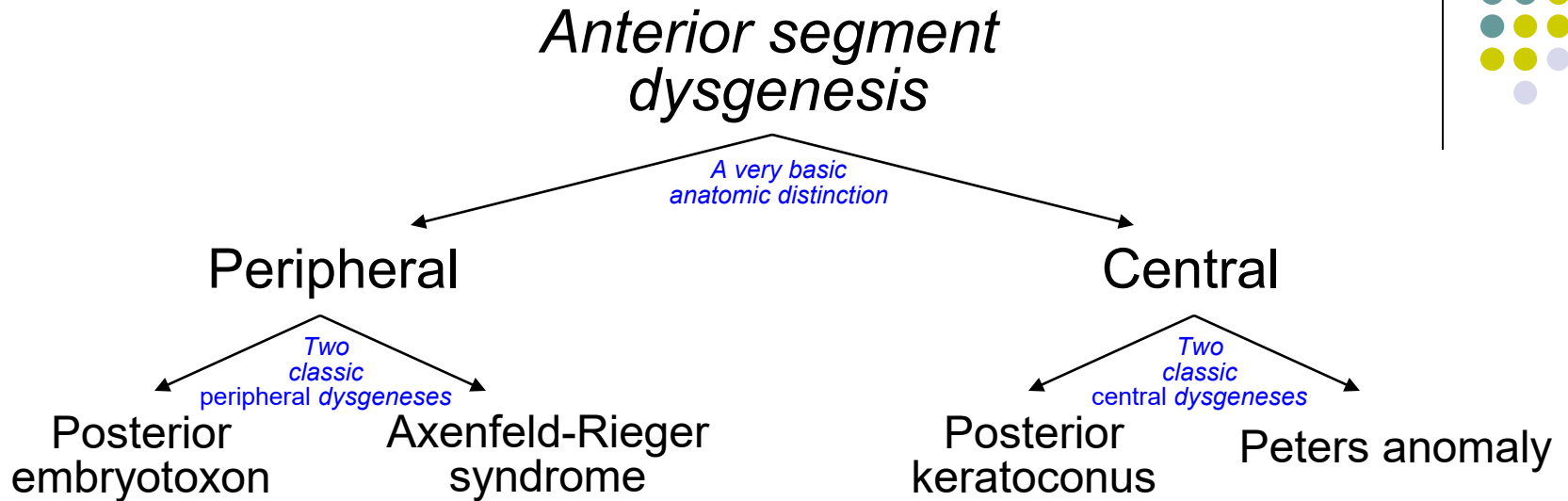
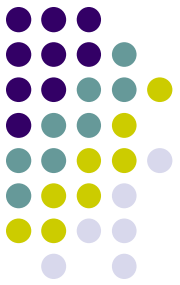
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What is the other classic form of central anterior segment dysgenesis?
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What are the two classic forms of peripheral anterior segment dysgenesis?

A

The STUMPED Mnemonic



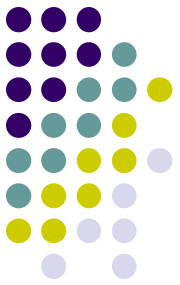
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What is the other classic form of central anterior segment dysgenesis?
Posterior keratoconus (Note: This is nothing like the anterior form you're familiar with)

What are the two classic forms of peripheral anterior segment dysgenesis?
Posterior embryotoxon and **Axenfeld-Rieger syndrome**

The STUMPED Mnemonic



Anterior segment dysgenesis

A very basic
anatomic distinction

Peripheral

Two
classic
peripheral dysgeneses

Posterior
embryotoxon

Axenveld-Rieger
syndrome

Central

Two
classic
central dysgeneses

Posterior
keratoconus

Peters anomaly

For more on anterior segment dysgenesis, see slide-set FELT7

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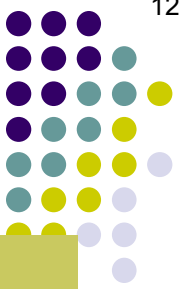
Posterior keratoconus (Note: This is nothing like the anterior form you're familiar with)

What are the two classic forms of peripheral anterior segment dysgenesis?

Posterior embryotoxon and **Axenveld-Rieger syndrome**

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

--?

--?

- Endothelial dystrophy (CHED)
- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

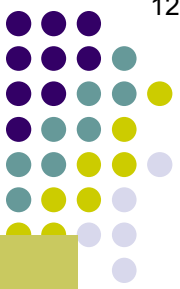
--Fuchs endothelial corneal dystrophy

--Posterior polymorphous corneal dystrophy

- Endothelial dystrophy (CHED)
- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

--Fuchs endothelial corneal dystrophy

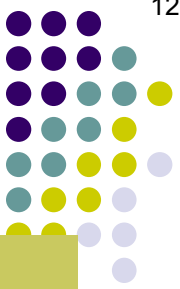
--Posterior polymorphous corneal dystrophy

In CHED, what is seen at the slit lamp?

- Endothelial dystrophy (CHED)
- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

--Fuchs endothelial corneal dystrophy

--Posterior polymorphous corneal dystrophy

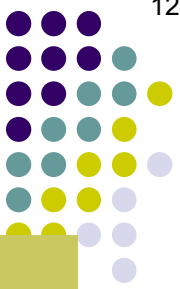
In CHED, what is seen at the slit lamp?

The corneas are diffusely cloudy (described as or)

- Endothelial dystrophy (CHED)
- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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--Posterior polymorphous corneal dystrophy

In CHED, what is seen at the slit lamp?

The corneas are diffusely cloudy (described as '**ground glass**' or '**milky**')

- Endothelial dystrophy (CHED)
- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

--Fuchs endothelial corneal dystrophy

--Posterior polymorphous corneal dystrophy

In CHED, what is seen at the slit lamp?

The corneas are diffusely cloudy (described as '**ground glass**' or '**milky**'), and one word

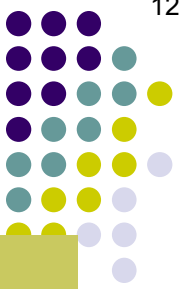
N
e
x
t
Q

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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In CHED, what is seen at the slit lamp?

The corneas are diffusely cloudy (described as '**ground glass**' or '**milky**'), and thickened

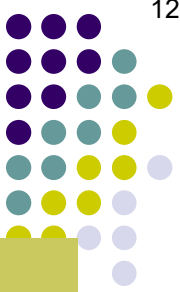
N
e
x
t
Q

- **Endothelial dystrophy (CHED)**

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QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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In CHED, what is seen at the slit lamp? How thickened?

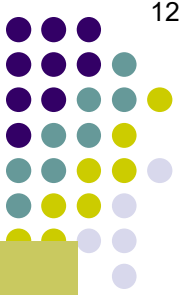
The corneas are diffusely cloudy (desc

thickened

- Endothelial dystrophy (CHED)
- Dermoid of the cornea

QA

The STUMPED Mnemonic



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--Posterior polymorphous corneal dystrophy

In CHED, what is seen at the slit lamp? How thickened?

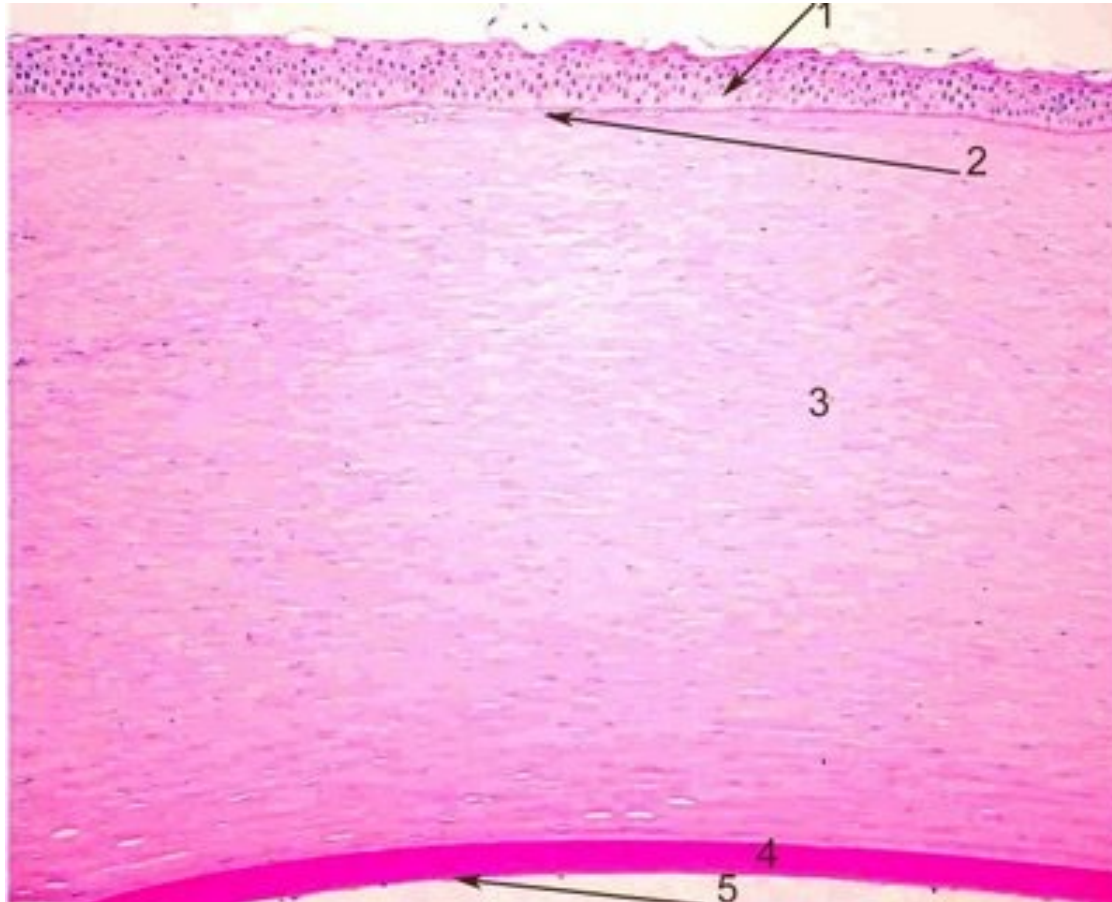
The corneas are diffusely cloudy (desc Like, 2-3 times normal

thickened

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

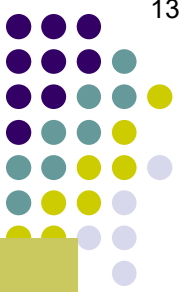
The STUMPED Mnemonic



Congenital hereditary endothelial dystrophy. Get a load of how thicc this cornea is!

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

--Fuchs endothelial corneal dystrophy

--Posterior polymorphous corneal dystrophy

In CHED, what is seen at the slit lamp? How thickened?

The corneas are diffusely cloudy (descemet's membrane thickened)
Like, 2-3 times normal

thickened

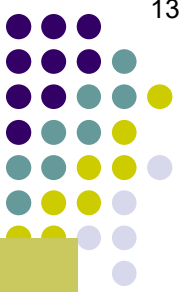
Why is the cornea thickened in CHED?

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



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Why is the cornea thickened in CHED?

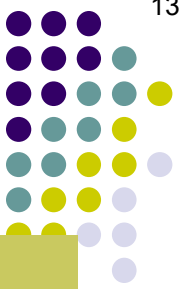
We'll get to that shortly

- **Endothelial dystrophy (CHED)**

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QA

The STUMPED Mnemonic



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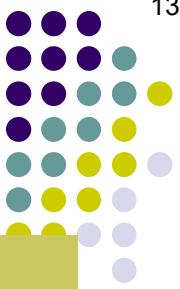
Is vision affected?

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



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Is vision affected?

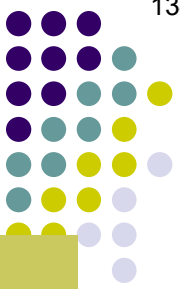
Yes, significantly enough that a sensory may be present

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



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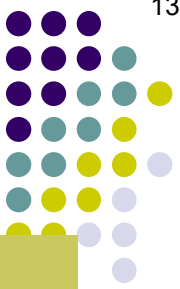
Yes, significantly enough that a sensory nystagmus may be present

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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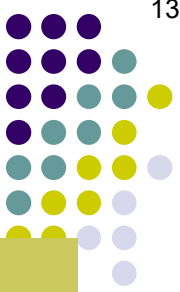
Is it painful?

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



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Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

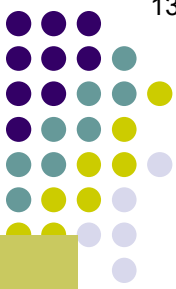
No

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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In CHED, what is seen at the slit lamp?

The corneas are diffusely cloudy (described as '**ground glass**' or '**milky**'), and thickened

Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

No

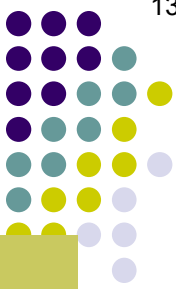
What is the histologic hallmark of CHED on light microscopy?

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is

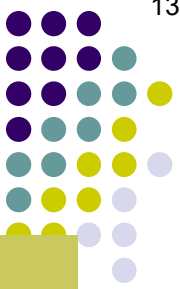
thinned vs
thickened

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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In CHED, what is seen at the slit lamp?

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Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

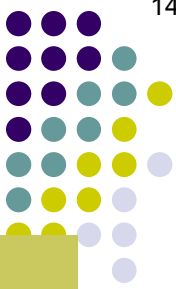
Descemet's is thickened

- **Endothelial dystrophy (CHED)**

- Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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In CHED, what is seen at the slit lamp?

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Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened, and the number of endothelial cells is substantially more
vs
less than normal

● **Endothelial dystrophy (CHED)**

● Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

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Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

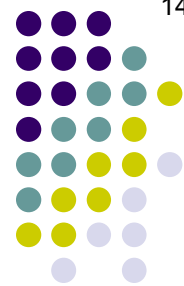
No

What is the histologic hallmark of CHED on light microscopy?

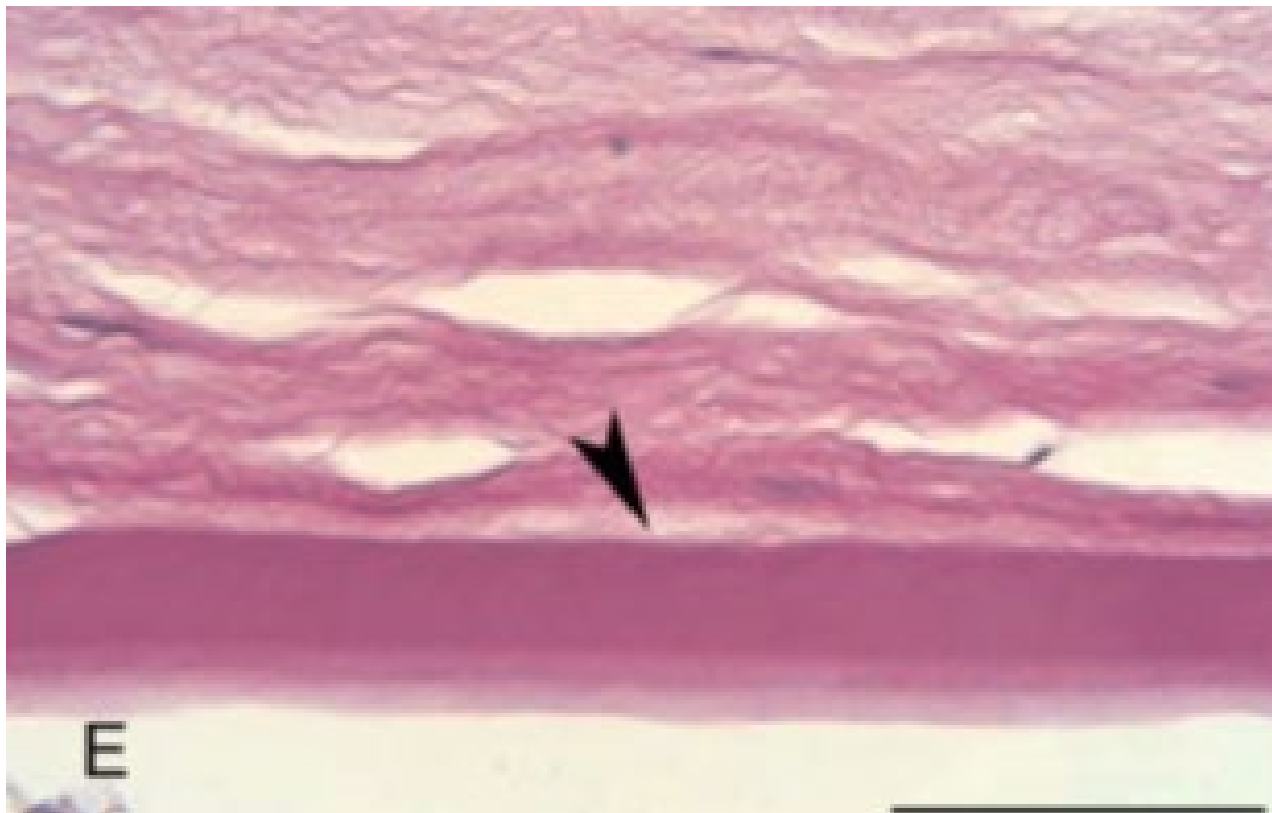
Descemet's is thickened, and the number of endothelial cells is substantially less than normal

● Endothelial dystrophy (CHED)

● Dermoid of the cornea



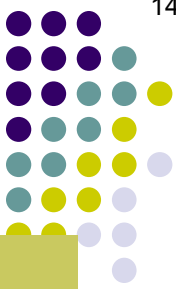
The STUMPED Mnemonic



Congenital hereditary endothelial dystrophy. Thickened Descemet membrane with no visible endothelial cells.

QA

The STUMPED Mnemonic



The Cornea book discusses three endothelial dystrophies. What are the other two?

--CHED

--Fuchs endothelial corneal dystrophy

--Posterior polymorphous corneal dystrophy

In CHED, what is seen at the slit lamp?

The corneas are diffusely cloudy (described as '**ground glass**' or '**milky**'), and thickened

Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

No

The few endothelial cells that are present—are they normal?

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened, and the number of endothelial cells is substantially less than normal

● **Endothelial dystrophy (CHED)**

● Dermoid of the cornea

QA

The STUMPED Mnemonic



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Is vision affected?

Yes, significantly enough that a sensory nystagmus may be present

Is it painful?

No

The few endothelial cells that are present—are they normal?

No, most if not all are atrophic

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened, and the number of endothelial cells is substantially less than normal

● **Endothelial dystrophy (CHED)**

● Dermoid of the cornea

QA

The STUMPED Mnemonic



We have now 'gotten to' the reason CHED corneas are thickened:
The paucity of functioning endothelial cells

The Cornea book di

--CHED

--Fuchs endothelial

--Posterior polymorp

In CHED, what is se

The corneas are diff

Is vision affected?

Yes, significantly enough that a sensor

We'll get to that shortly

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened , and the number of endothelial cells is substantially less than normal

● **Endothelial dystrophy (CHED)**

● Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book di

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We have now 'gotten to' the reason CHED corneas are thickened:

The paucity of functioning endothelial cells

How does a lack of endothelial cells lead to a thicker cornea?

In CHED, what is se

The corneas are diff

Is vision affected?

Yes, significantly enough that a sensor

We'll get to that shortly

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

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We have now 'gotten to' the reason CHED corneas are thickened:

The paucity of functioning endothelial cells

How does a lack of endothelial cells lead to a thicker cornea?

Recall that one of the main functions of the endothelium is maintaining a proper level of corneal

We'll get to that shortly



● **Endothelial dystrophy (CHED)**

● Dermoid of the cornea

QA

The STUMPED Mnemonic



The Cornea book di

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The corneas are diff

Is vision affected?

Yes, significantly enough that a sensor

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

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We have now 'gotten to' the reason CHED corneas are thickened:

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How does a lack of endothelial cells lead to a thicker cornea?

Recall that one of the main functions of the endothelium is maintaining a proper level of corneal hydration

We'll get to that shortly



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The corneas are diff

Is vision affected?

Yes, significantly enough that a sensor

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened , and the number of endothelial cells is substantially less than normal

We have now 'gotten to' the reason CHED corneas are thickened:
The paucity of functioning endothelial cells

How does a lack of endothelial cells lead to a thicker cornea?

Recall that one of the main functions of the endothelium is maintaining a proper level of corneal hydration . The endo accomplishes this by 1) acting as a barrier preventing aqueous ingress, and 2) actively [redacted] the cornea via Na⁺/K⁺/ATPase pumps.

We'll get to that shortly



● **Endothelial dystrophy (CHED)**

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The STUMPED Mnemonic



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In CHED, what is se

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Is vision affected?

Yes, significantly enough that a sensor

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No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened , and the number of endothelial cells is substantially less than normal

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How does a lack of endothelial cells lead to a thicker cornea?

Recall that one of the main functions of the endothelium is maintaining a proper level of corneal hydration . The endo accomplishes this by 1) acting as a barrier preventing aqueous ingress, and 2) actively dehydrating the cornea via Na⁺/K⁺/ATPase pumps.

We'll get to that shortly



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● Dermoid of the cornea

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The STUMPED Mnemonic



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Is vision affected?

Yes, significantly enough that a sensor

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened, and the number of endothelial cells is substantially less than normal

We have now 'gotten to' the reason CHED corneas are thickened:
The paucity of functioning endothelial cells

How does a lack of endothelial cells lead to a thicker cornea?

Recall that one of the main functions of the endothelium is maintaining a proper level of corneal hydration. The endo accomplishes this by 1) acting as a barrier preventing aqueous ingress, and 2) actively dehydrating the cornea via Na⁺/K⁺/ATPase pumps. When the endo count is too low to accomplish these functions, the cornea swells, which in turn thickens it.

We'll get to that shortly

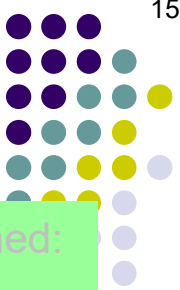


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The STUMPED Mnemonic



The Cornea book di

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Is vision affected?

Yes, significantly enough that a sensor

Is it painful?

No

What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened, and the number of endothelial cells is substantially less than normal

We have now 'gotten to' the reason CHED corneas are thickened:
The paucity of functioning endothelial cells

Can CHED be treated?

When the endo count is too low to accomplish these functions, the cornea swells, which in turn thickens it.

We'll get to that shortly

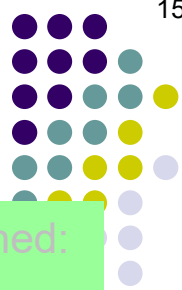


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The STUMPED Mnemonic



The Cornea book di

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Yes, significantly enough that a sensor

Is it painful?

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What is the histologic hallmark of CHED on light microscopy?

Descemet's is thickened, and the number of endothelial cells is substantially less than normal

We have now 'gotten to' the reason CHED corneas are thickened:
The paucity of functioning endothelial cells

Can CHED be treated?

Severe cases go to transplantation—either full thickness (PK) or endothelial (eg, DSAEK)

When the endo count is too low to accomplish these functions, the cornea swells, which in turn thickens it.

We'll get to that shortly

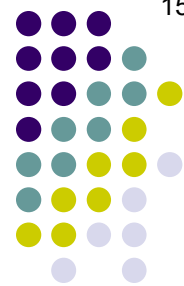


● **Endothelial dystrophy (CHED)**

● Dermoid of the cornea

Q

The STUMPED Mnemonic

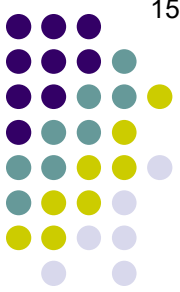


- **Sclerocornea**; not the first letter in this disorder
- **Trauma** (endothelial; ie, from forceps)
- **Ulcer**
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D**ermoid of the cornea

The mnemonic should be modified to include these as well

A

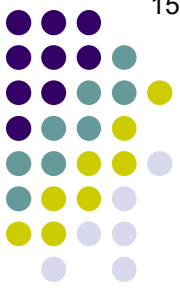
The STUMPED Mnemonic



- **Sclerocornea**; congenital hereditary **S**tromal dystrophy (CHSD)
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D**ermoid of the cornea

The mnemonic should be modified to include these as well

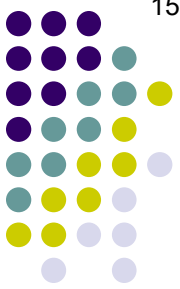
The STUMPED Mnemonic



CHSD

Q

The STUMPED Mnemonic



- **Sclerocornea**; congenital hereditary **S**tromal dystrophy (CHSD)
- **Trauma** (endothelial; ie, from forceps)
- **Ulcer**
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED); E
- **D**ermoid of the cornea

The mnemonic should be modified to include these as well

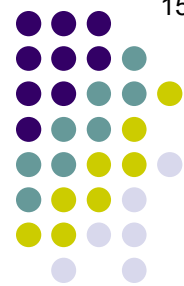
A

The STUMPED Mnemonic



- **Sclerocornea**; congenital hereditary **S**tromal dystrophy (CHSD)
- **Trauma** (endothelial; ie, from forceps)
- **Ulcer**
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED); **E**levated IOP (congenital glaucoma)
- **D**ermoid of the cornea

The mnemonic should be modified to include these as well



The STUMPED Mnemonic

- Sclerocornea; congenital hereditary Stromal dystrophy (CHSD)
- Trauma (endothelial; ie, from forceps)
- *Next we will drill down on distinguishing among CHSD, CHED and primary congenital glaucoma by highlighting key differences in their presentations*
- Peters anomaly
- Endothelial dystrophy (CHED); Elevated IOP (congenital glaucoma)
- Dermoid of the cornea



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	?			
CHSD	?			
Primary congenital glaucoma	?			



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased			
CHSD	Mildly increased			
Primary congenital glaucoma	Variably increased (or WNL, or thin)			

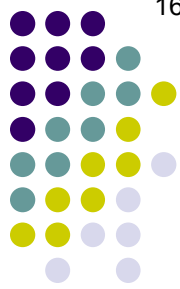


The STUMPED Mnemonic

CCT, corneal diameter, IOP and the presence/absence of tearing & photophobia are key to differentiating among CHED, CHSD, and primary congenital glaucoma. Fill in the blanks below.

	CCT	Corneal diameter	IOP	Tearing/ Photophobia?
CHED	Markedly increased	As just discussed, the CCT is dramatically increased in CHED because of edema 2ndry to lack of adequate endothelial barrier and deturgescence function		
CHSD	Mildly increased			
Primary congenital glaucoma	Variably increased (or WNL, or thin)			

(No question—advance when ready)



The STUMPED Mnemonic

CCT, corneal diameter, IOP and the presence/absence of tearing & photophobia are key to differentiating among CHED, CHSD, and primary congenital glaucoma. Fill in the blanks below.

	CCT	Corneal diameter	IOP	Tearing/ Photophobia?
CHED	Markedly increased			
CHSD	Mildly increased	In CHSD, the cornea is modestly thickened by the presence of the material that causes the cloudiness		
Primary congenital glaucoma	Variably increased (or WNL, or thin)			

(No question—advance when ready)



The STUMPED Mnemonic

CCT, corneal diameter, IOP and the presence/absence of tearing & photophobia are key to differentiating among CHED, CHSD, and primary congenital glaucoma. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased			
CHSD	Mildly increased			
Primary congenital glaucoma	Variably increased (or WNL, or thin)	In congenital glaucoma, corneal thickness depends upon 1) whether the endo is healthy and 2) how high the IOP is		

(No question—advance when ready)



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased	?		
CHSD	Mildly increased	?		
Primary congenital glaucoma	Variably increased (or WNL, or thin)	?		



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

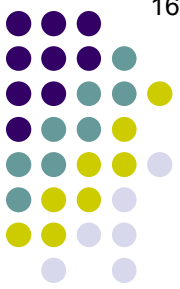
	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased	WNL		
CHSD	Mildly increased	WNL		
Primary congenital glaucoma	Variably increased (or WNL, or thin)	Increased		



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing* & *photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	Corneal Diameter	Intraocular Pressure	Tearing
CHED	<p>Why is corneal diameter increased in congenital glaucoma?</p>		
CHSD			
Primary congenital glaucoma			
	increased (or WNL, or thin)	Increased	



The STUMPED Mnemonic

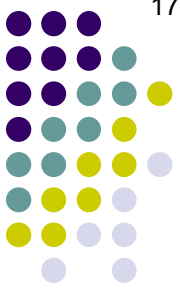
CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing* & *photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	Cornea	IOP	Tearing
CHED	<p>Why is corneal diameter increased in congenital glaucoma? Simple physics—the high IOP s-t-r-e-t-c-h-e-s the eye wall</p>		
CHSD			
Primary congenital glaucoma			
	increased (or WNL, or thin)	Increased	

The STUMPED Mnemonic



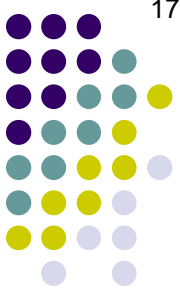
Congenital glaucoma: Increased corneal diameter



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing* & *photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	Cornea	IOP	Tearing
	<p><i>Why is corneal diameter increased in congenital glaucoma?</i> Simple physics—the high IOP s-t-r-e-t-c-h-e-s the eye wall</p>		
CHED	<p><i>What is the formal term for eye enlargement secondary to elevated IOP in congenital glaucoma?</i></p>		
CHSD			
Primary congenital glaucoma			
	increased (or WNL, or thin)	Increased	

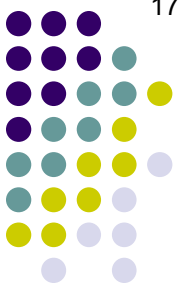


The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing* & *photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	Cornea	Tearing
	<p>Why is corneal diameter increased in congenital glaucoma? Simple physics—the high IOP s-t-r-e-t-c-h-e-s the eye wall</p>	
CHED	<p>What is the formal term for eye enlargement secondary to elevated IOP in congenital glaucoma? Buphthalmos</p>	
CHSD		
Primary congenital glaucoma		
	increased (or WNL, or thin)	Increased

The STUMPED Mnemonic



Congenital glaucoma: Buphthalmos OD



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

		<p><i>Why is corneal diameter increased in congenital glaucoma?</i> Simple physics—the high IOP s-t-r-e-t-c-h-e-s the eye wall</p>		
CHED		<p><i>What is the formal term for eye enlargement secondary to elevated IOP in congenital glaucoma?</i> Buphthalmos</p>		
CHSD		<p><i>What does buphthalmos translate to in English?</i></p>		
Primary congenital glaucoma	increased (or WNL, or thin)	Increased		



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing* & *photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	Corneal Diameter	Intraocular Pressure	Tearing
	<p><i>Why is corneal diameter increased in congenital glaucoma?</i> Simple physics—the high IOP s-t-r-e-t-c-h-e-s the eye wall</p>		
CHED	<p><i>What is the formal term for eye enlargement secondary to elevated IOP in congenital glaucoma?</i> Buphthalmos</p>		
CHSD	<p><i>What does buphthalmos translate to in English?</i> 'Ox's eye'</p>		
Primary congenital glaucoma	increased (or WNL, or thin)	Increased	

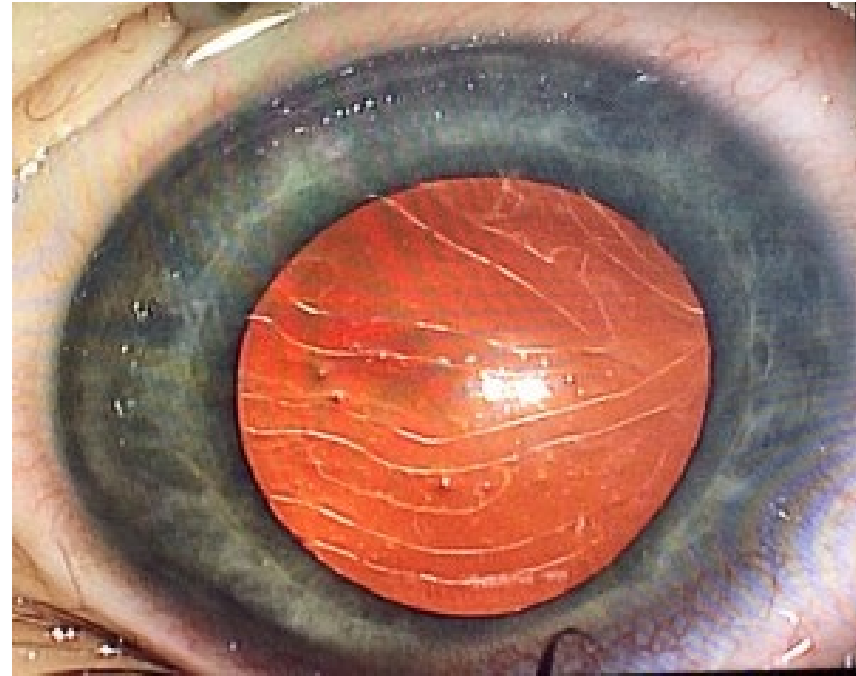
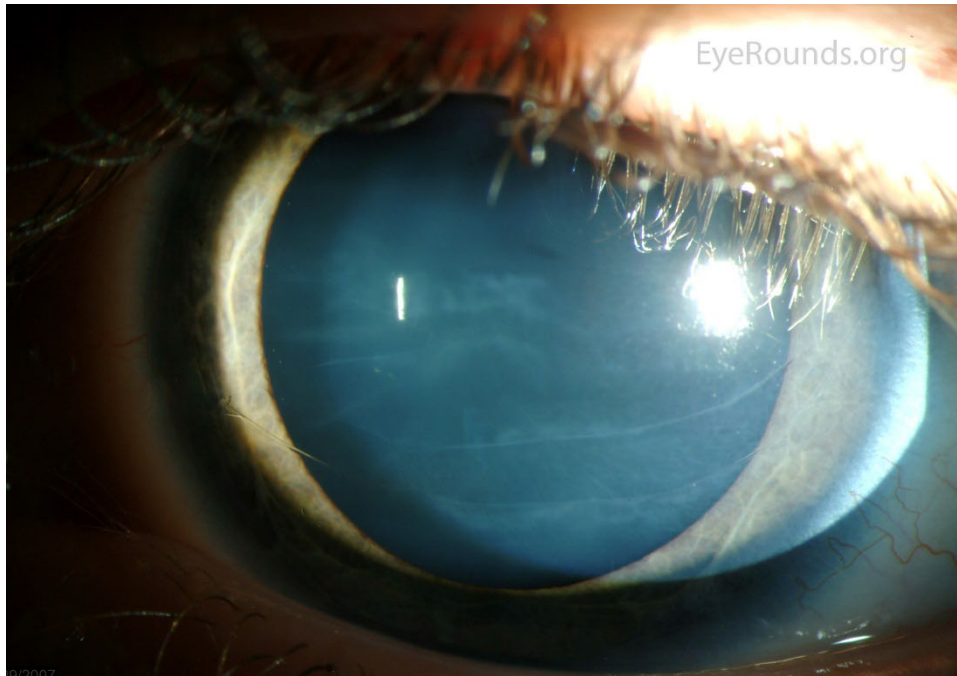
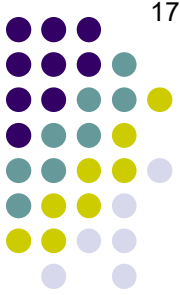


The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing* & *photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	Why is corneal diameter increased in congenital glaucoma? Simple physics—the high IOP s-t-r-e-t-c-h-e-s the eye wall			
CHED	What is the formal term for eye enlargement secondary to increased IOP?			
As mentioned earlier in the slide-set, the high IOP in congenital glaucoma causes <i>Haab's striae</i> —horizontal breaks in Descemet's and the overlying endothelium				
CHSD	What does buphthalmos translate to in English? 'Ox's eye'			
Primary congenital glaucoma	increased (or WNL, or thin)	Increased		

The STUMPED Mnemonic



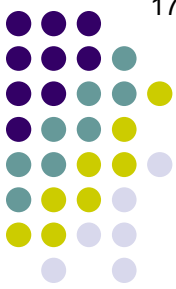
Horizontal Descemet's breaks (*Haab's striae*) in congenital glaucoma



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased	WNL	?	
CHSD	Mildly increased	WNL	?	
Primary congenital glaucoma	Variably increased (or WNL, or thin)	Increased	?	



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

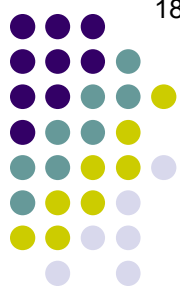
	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased	WNL	WNL	
CHSD	Mildly increased	WNL	WNL	
Primary congenital glaucoma	Variably increased (or WNL, or thin)	Increased	Duh	



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased	WNL	WNL	?
CHSD	Mildly increased	WNL	WNL	?
Primary congenital glaucoma	Variably increased (or WNL, or thin)	Increased	Duh	?



The STUMPED Mnemonic

CCT, *corneal diameter*, *IOP* and the *presence/absence of tearing & photophobia* are key to differentiating among *CHED*, *CHSD*, and *primary congenital glaucoma*. Fill in the blanks below.

	<i>CCT</i>	<i>Corneal diameter</i>	<i>IOP</i>	<i>Tearing/ Photophobia?</i>
CHED	Markedly increased	WNL	WNL	No
CHSD	Mildly increased	WNL	WNL	No
Primary congenital glaucoma	Variably increased (or WNL, or thin)	Increased	Duh	Yes