The STUMPED Mnemonic

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

What is the purpose of the mnemonic, ie, what does it help to remember?
The DDx for a cloudy cornea in an infant
The STUMPED Mnemonic

Start here
The STUMPED Mnemonic

- Sclerocornea
- T
- U
- M
- P
- E
- D

Next
The STUMPED Mnemonic

- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
  
  *(Tears in Descemet’s membrane works too)*
- **U**
- **M**
- **P**
- **E**
- **D**
The STUMPED Mnemonic

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

The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- M
- P
- E
- D
Q/A

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

The STUMPED Mnemonic
Q/A

The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- Metabolic disorders
- Peters anomaly
- E
- D
The STUMPED Mnemonic

- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)  
  \( \text{(CHED = congenital hereditary endothelial dystrophy)} \)
- **D**  
  \( \text{(Edema works too)} \)
The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
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The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea
How does sclerocornea present?

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%).

Another congenital corneal abnormality is strongly associated with sclerocornea. What is it?

Cornea plana

The STUMPED Mnemonic

- Sclerocornea
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The STUMPED Mnemonic

Sclerocornea
Q

1. **Sclerocornea**
2. **Trauma** (e.g., from forceps, etc.)
3. **Ulcer**
4. **Metabolic disorders**
5. **Peters anomaly**
6. **Endothelial dystrophy (CHED)**
7. **Dermoid of the cornea**

**The STUMPED Mnemonic**

How does sclerocornea present? The name says it all—the cornea looks like sclera? Is it the case that corneal tissue has been literally replaced by scleral tissue?
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Is it the case that corneal tissue has been literally replaced by scleral tissue? 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.”

1. **Sclerocornea**
2. **Trauma (e.g., forceps)**
3. **Ulcer**
4. **Metabolic disorders**
5. **Peters anomaly**
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Is it the case that corneal tissue has been literally replaced by scleral tissue? 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.” In fact, the Peds book goes so far as to suggest the term should be avoided entirely. Caveat emptor.
How does sclerocornea present?
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Does it present unilaterally, or bilaterally?

The STUMPED Mnemonic

- **S**clerocornea
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The STUMPED Mnemonic
<table>
<thead>
<tr>
<th>A</th>
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**What is the defining feature of cornea plana?**
Values in the 30-35D range are common.
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43D, give or take.
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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?

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.

The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
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The STUMPED Mnemonic

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The STUMPED Mnemonic

Corneal haze 2ndry to birth trauma
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- Dermoid of the cornea
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The STUMPED Mnemonic

Do these traumatic Descemet breaks tend to run vertically, or horizontally?
- **Sclerocornea**
- **Trauma (endothelial; ie, from forceps)**

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

**The STUMPED Mnemonic**
The STUMPED Mnemonic

Vertical Descemet’s breaks after birth trauma
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?

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

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Vertically
Sclerocornea

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Another congenital condition is associated with Descemet’s breaks—what is it?
Congenital glaucoma

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The STUMPED Mnemonic

- Sclerocornea
- Trauma (endothelial injury from forceps)

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

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

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**Breaks in Descemet’s/endothelium**

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

- Vertically

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

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How does endothelial damage lead to a cloudy cornea?

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

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Sclerocornea

Trauma (such as delivery 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)

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

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

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

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

The STUMPED Mnemonic

- Dermoid of the cornea
- Endothelial dystrophy (CHED)
The STUMPED Mnemonic

Horizontal Descemet’s breaks in congenital glaucoma
Sclerocornea

Trauma (endothelial, 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)

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The STUMPED Mnemonic

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

- Breaks in Descemet's/endothelium

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

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

Trauma ( endothelial damage from forceps )

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Dermoid of the cornea

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The STUMPED Mnemonic

H orizontal IOP Haab

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

Haab's striae
With what syndrome is corneal dermoid associated?

- **Dermoid of the cornea**

The STUMPED Mnemonic
With what syndrome is corneal dermoid associated?
Goldenhar syndrome

Dermoid of the cornea

Mnemonic: Goldenhar
The STUMPED Mnemonic

- Q: With what syndrome is corneal dermoid associated?
  - Goldenhar syndrome

- S: What is its noneponymous name?
  - Oculo-Auriculo-Vertebral (OAV) syndrome

- T: Where specifically are dermoids commonly located in Goldenhar?
  - At the limbus

- U: What other ocular/periocular abnormalities are common in Goldenhar?
  - Upper lid colobomas
  - Duane syndrome

- M: Are they cognitively impaired?
  - A minority (5-15%) have mental retardation

- P: What nonocular findings are usually present?
  - Hemifacial microsomia (maxillary/mandibular hypoplasia)
  - Ear abnormalities (pre-auricular appendages; aural fistulae)

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

- D: What is its inheritance pattern?
  - It is sporadic

- R: Is there a sex predilection?
  - Yes, males are twice as likely to be affected
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**Goldenhar OAV syndrome**

- Lid colobomas
- Duane syndrome
- Ear abnormalities

Nothing starts with 'N'

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Goldenhar

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Goldenhar syndrome

G
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Goldenhar

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Dermoid of the cornea

Answer starts with an ‘O’

Goldenhar

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Are they cognitively impaired?
A minority (5-15%) have mental retardation

The STUMPED Mnemonic

- Goldenhar
- OAV syndrome
- Lid colobomas
- Duane syndrome
- Ear abnormalities
- Nothing starts w/ 'N'
- Hemifacial microsomia
- At the limbus
- Retardation in 5-15%

One answer starts with an ‘L’

The other with a ‘D’

- Dermoid of the cornea
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’

● Dermoid of the cornea
The STUMPS Mnemonic

Goldenhar syndrome: Lid coloboma
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What other ocular/periocular abnormalities are common in Goldenhar?
- Lid coloboma
- 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

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
The STUMPED Mnemonic

With what syndrome is corneal dermoid associated? Goldenhar syndrome

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● Dermoid of the cornea
The STUMPED Mnemonic:

- Horizontal movement limitation
- Globe retraction
- Upshoot/downshoot

Duane syndrome
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Dermoid of the cornea

The STUMPED Mnemonic

Goldenhar 
OAV syndrome
Lid coloboma
Duane syndrome
Enhar 

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What nonocular findings are usually present?
--
--

Dermoid of the cornea

Goldenhar
OAV syndrome
Lid coloboma
Duane syndrome
E
Nothing starts w/ ‘N’
H
A
R

One answer starts with an ‘E’
The other with a ‘H’
With what syndrome is corneal dermoid associated?
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What nonocular findings are usually present?
--Ear abnormalities (pre-auricular appendages; aural fistulae)
--Hemifacial microsomia (maxillary/mandibular hypoplasia)

Goldenhar
OAV syndrome
Lid coloboma
Duane syndrome
Ear abnormalities
Hemifacial microsomia
A
R

Dermoid of the cornea

The STUMPED Mnemonic

One answer starts with an ‘E’
The other with a ‘H’
The STUMPED Mnemonic

Ear abnormalities

Hemifacial microsomia

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Where are epibulbar dermoids commonly located in Goldenhar?

Dermoid of the cornea
With what syndrome is corneal dermoid associated?
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What nonocular findings are usually present?
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Where are epibulbar dermoids commonly located in Goldenhar?
At the limbus

● Dermoid of the cornea
Goldenhar syndrome: Limbal (epibulbar) dermoids OU

The STUMPED Mnemonic

Note also the lid coloboma
**With what syndrome is corneal dermoid associated?**
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**Where are epibulbar dermoids commonly located in Goldenhar?**
At the limbus

**Are Goldenhar pts cognitively impaired?**
A minority (5-15%) have mental retardation

---

**Dermoid of the cornea**

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**The STUMPED Mnemonic**

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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%
The STUMPED Mnemonic

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

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

Mucopolysaccharidosis (MPS)

In a nutshell, what is a mucopolysaccharidosis?

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

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

- Hurler
- Scheie
- Morquio syndromes

How is the cloudy MPS cornea managed?

Via transplantation—either PK, or DALK
The STUMPED Mnemonic

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What organelle is responsible for breaking down mucopolysaccharides?

- Sclera
- Trauma
- Ulcer
- Metabolic disorders
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What organelle is responsible for breaking down mucopolysaccharides?
Lysosomes

What are some examples of metabolic disorders?
- Hurler syndrome
- Scheie syndrome
- Morquio syndrome

What is Peters anomaly?
An anomaly of the cornea characterized by the absence or abnormal development of the anterior segment of the eye.

What is endothelial dystrophy (CHED)?
A disorder affecting the endothelial cells of the cornea, characterized by the accumulation of deposits on the corneal surface.

What is a dermoid of the cornea?
A congenital growth on the surface of the cornea, often covered with skin or hair.
The STUMPED Mnemonic

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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? Lysosomes

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

Metabolic disorders

Peters anomaly

Endothelial dystrophy (CHED)

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Lysosomes

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.
The STUMPED Mnemonic

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Mucopolysaccharidosis (MPS)

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

Lysosomes

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Lysosomes

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

Lysosomal storage diseases

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

Indeed it is
The STUMPED Mnemonic

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Lysosomes

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- **Sclerocornea**
- **Trauma (endothelial; ie, from forceps)**
- **Ulcera**
- **Metabolic disorders**
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The STUMPED Mnemonic

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Metabolic disorders

- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea
The STUMPED Mnemonic

MPS (Hurler syndrome)
The STUMPED Mnemonic

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

In a nutshell, what is a mucopolysaccharidosis?
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Do these syndromes present with cloudy corneas at birth?
Hurler, Scheie, and Morquio syndromes
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.

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.

Hurler, Scheie, and Morquio syndromes

Metabolic disorders

Peters anomaly

Endothelial dystrophy (CHED)

Dermoid of the cornea
The STUMPED Mnemonic

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How is the cloudy MPS cornea managed?

Metabolic disorders

Peters anomaly
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The STUMPED Mnemonic

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Metabolic disorders

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The Peds book mentions three MPSs by (eponymous) name—what are they?
Hurler, Scheie, and Morquio syndromes

What do these stand for?
PK:
DALK:

How is the cloudy MPS cornea managed?
Via transplantation—either PK, or DALK

Metabolic disorders

Peters anomaly

Endothelial dystrophy (CHED)

Dermoid of the cornea
The STUMPED Mnemonic

A

Sclerocornea

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

The Peds book mentions three MPSs by (eponymous) name—what are they?
Hurler, Scheie, and Morquio syndromes

What do these stand for?
PK: Penetrating keratoplasty
DALK: Deep anterior lamellar keratoplasty

Metabolic disorders

Peters anomaly

Endothelial dystrophy (CHED)

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

- Peters anomaly
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In three words, what sort of condition is Peters anomaly?
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- **Peters anomaly**
- **Endothelial dystrophy (CHED)**
- **Dermoid of the cornea**
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? Neurocristopathy, which means it arises secondary to the failure of neural-crest cells to migrate and/or differentiate properly.

- **Peters anomaly**
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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](https://en.wikipedia.org/wiki/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**
Peters anomaly

Endothelial dystrophy (CHED)

Dermoid of the cornea
In three words, what sort of condition is Peters anomaly?
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How does it present?

- **Peters anomaly**
- **Endothelial dystrophy (CHED)**
- **Dermoid of the cornea**
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)
- Dermoid of the cornea
In three words, what sort of condition is Peters anomaly?
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What specific abnormalities are commonly present?

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- **Endothelial dystrophy (CHED)**
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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.

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

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.

- **Peters anomaly**
- **Endothelial dystrophy (CHED)**
- **Dermoid of the cornea**
Peters anomaly: Small, cataractous, misshapen lens
The STUMPED Mnemonic

This image shows complete corneal opacification thought clinically to be sclerocornea

Peters anomaly
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
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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To which category does Peters anomaly belong?
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.

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

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?
Let’s take a moment to overview the anterior segment dysgenesis. 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.

**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).
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.

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

Anterior segment dysgenesis

Peripheral
- Posterior embryotoxon
- Axenfeld-Rieger syndrome

Central
- Posterior keratoconus
- Peters anomaly

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? 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.

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

**Posterior embryotoxon** and **Axenfeld-Rieger syndrome**
The STUMPED Mnemonic

- Sclerocornea; not the first letter in this disorder
- Trauma (endothelial; ie, from forceps)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid 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)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea
The STUMPED Mnemonic

CHSD
The STUMPED Mnemonic

- **S**clerocornea; 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

first letter, sort of
The STUMPED Mnemonic

- Sclerocornea; congenital hereditary Stromal dystrophy (CHSD)
- Trauma (endothelial; ie, from forceps)
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- Endothelial dystrophy (CHED);
- Dermoid of the cornea

The mnemonic should be modified to include these as well

Elevated IOP (congenital glaucoma)
The STUMPED Mnemonic

Congenital glaucoma
The STUMPED Mnemonic

- **Sclerocornea; congenital hereditary Stromal dystrophy (CHSD)**
- **Trauma (endothelial; from forceps, etc)**
- **Ulcer**
- **Metabolic disorders**
- **Peters anomaly**
- **Endothelial dystrophy (CHED); elevated IOP**

The mnemonic should be modified to include these as well.

CCT, corneal diameter and IOP are key to differentiating among CHED, CHSD and Congenital glaucoma. Fill in the blanks with the terms increased, decreased, and WNL.

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</tr>
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<td>CHED</td>
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(CCT = Central corneal thickness)
CCT, corneal diameter and IOP are key to differentiating among CHED, CHSD and Congenital glaucoma. Fill in the blanks with the terms increased, decreased, and WNL.

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(CCT = Central corneal thickness)
**The STUMPED Mnemonic**

In one word, why is CCT increased in CHED and congenital glaucoma?

Corneal edema.

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- Corneal diameter
- IOP
- CHED
- CHSD
- Congenital glaucoma
- Increased
- WNL
- Haab striae
- Horizontal breaks in Descemet's and the endothelium

Further, recall that Haab striae will likely be present, and they ain't helping matters.

OK, I get why the endothelium doesn't function properly in a condition called congenital hereditary endothelial dystrophy. But why doesn't it work in congenital glaucoma?

Because the IOP is too high—the endothelium just can't deurgesce fast enough.

Further, recall that Haab striae—horizontal breaks in Descemet's and the endothelium—will likely be present, and they ain't helping matters.

Metabolic disorders
- Peters anomaly

Endothelial dystrophy (CHED); elevated IOP (genital glaucoma)

The mnemonic should be modified to include these as well.
### The STUMPED Mnemonic

In one word, why is CCT increased in CHED and congenital glaucoma? Corneal edema

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Corneal edema

### Explanation

**CHED**
- **CCT**: Increased
- **IOP**: WNL

**Congenital glaucoma**
- **CCT**: Increased
- **IOP**: Increased

**Why is CCT increased in CHED and congenital glaucoma?**
- **Corneal edema**

**Why is the cornea edematous in these two conditions?**
- In each, the cornea's endothelium is unable to maintain corneal deturgescence.

**OK, I get why the endothelium doesn't function properly in a condition called congenital hereditary endothelial dystrophy. But why doesn't it work in congenital glaucoma?**
- Because the IOP is too high—the endothelium just can't deturgescce fast enough.

Further, recall that **Haab striae**—horizontal breaks in Descemet's and the endothelium—will likely be present, and they ain't helping matters.
In one word, why is CCT increased in CHED and congenital glaucoma? Corneal edema

Why is the cornea edematous in these two conditions?

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The mnemonic should be modified to include these as well:

- Sclerocornea; congenital hereditary stromal dystrophy (CHSD)
- Trauma (endothelial; from forceps, etc)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED);
  - Elevated IOP
  - Dermoid of the cornea

In one word, why is CCT increased in CHED and congenital glaucoma?
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Why is the cornea edematous in these two conditions?
Because in each, the cornea’s endothelium is unable to maintain corneal deturgescence.

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The STUMPED Mnemonic

In one word, why is CCT increased in CHED and congenital glaucoma? 
Corneal edema

Why is the cornea edematous in these two conditions? 
Because in each, the cornea’s endothelium is unable to maintain corneal deturgescence

OK, I get why the endothelium doesn’t function properly in a condition called congenital hereditary endothelial dystrophy. But why doesn’t it work in congenital glaucoma?

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The STUMPEd Mnemonic

In one word, why is CCT increased in CHED and congenital glaucoma?
Corneal edema

Why is the cornea edematous in these two conditions?
Because in each, the cornea’s endothelium is unable to maintain corneal deturgescence

OK, I get why the endothelium doesn’t function properly in a condition called congenital hereditary endothelial dystrophy. But why doesn’t it work in congenital glaucoma?
Because the IOP is too high—the endothelium just can’t keep up.
The STUMPED Mnemonic

In one word, why is CCT increased in CHED and congenital glaucoma? Corneal edema

Why is the cornea edematous in these two conditions? Because in each, the cornea’s endothelium is unable to maintain corneal deturgescence

OK, I get why the endothelium doesn’t function properly in a condition called congenital hereditary endothelial dystrophy. But why doesn’t it work in congenital glaucoma? Because the IOP is too high—the endothelium just can’t keep up. Further, recall that Haab striae—horizontal breaks in Descemet’s and the endothelium—will likely be present, and these breaks ain’t exactly helping the situation.

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- CHED: Congenital hereditary endothelial dystrophy
- CHSD: Congenital hereditary endothelial dystrophy
- Congenital glaucoma

CCT: Corneal thickness
IOP: Intraocular pressure
WNL: Within normal limits
In one word, why is CCT increased in CHED and congenital glaucoma? Corneal edema

Why is the cornea edematous in these two conditions? Because in each, the cornea’s endothelium is unable to maintain corneal deturgescence

OK, I get why the endothelium doesn’t function properly in a condition called congenital hereditary endothelial dystrophy. But why doesn’t it work in congenital glaucoma? Because the IOP is too high—the endothelium just can’t keep up. Further, recall that Haab striae—horizontal breaks in Descemet’s and the endothelium—will likely be present, and these breaks ain’t exactly helping the situation.
The mnemonic should be modified to include these as well. 

**CCT, corneal diameter** and **IOP** are key to differentiating among **CHED**, **CHSD** and **Congenital glaucoma**. Fill in the blanks with the terms *increased*, *decreased*, and **WNL**.

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CCT, corneal diameter and IOP are key to differentiating among CHED, CHSD and Congenital glaucoma. Fill in the blanks with the terms increased, decreased, and WNL.
Why is corneal diameter increased in congenital glaucoma?

Increased

Congenital glaucoma

Increased
The STUMPED Mnemonic

- Sclerocornea: Congenital Hereditary Stromal Dystrophy (CHSD)
- Trauma (endothelial; from forceps, etc)
- Ulcer
- Metabolic Disorders
- Peters Anomaly
- Endothelial Dystrophy (CHED); Elevated IOP

The mnemonic should be modified to include these as well.

CCT, corneal diameter and IOP are key to differentiating among CHED, CHSD and Congenital glaucoma. Fill in the blanks with the terms increased, decreased, and WNL:

- **CHED**
  - Corneal diameter: Increased
  - IOP: Increased

- **CHSD**
  - Corneal diameter: WNL
  - IOP: WNL

- **Congenital glaucoma**
  - Corneal diameter: Increased
  - IOP: Increased

---

Why is corneal diameter increased in congenital glaucoma? Simple physics—the high IOP stretches the eye wall.

**Buphthalmos**

What does buphthalmos translate to in English? 'Ox's eye'

---

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Why is corneal diameter increased in congenital glaucoma? Simple physics—the high IOP stretches the eye wall.

What is the formal term for eye enlargement secondary to elevated IOP in congenital glaucoma?

Congenital glaucoma
The STUMPED Mnemonic

**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

**What is the formal term for eye enlargement secondary to elevated IOP in congenital glaucoma?**
Buphthalmos

---

*Congenital glaucoma* | Increased | Increased
The STUMPED Mnemonic

Congenital glaucoma: Buphthalmos OD
The STUMPED Mnemonic

- **Sclerocornea:** congenital hereditary, Stromal dystrophy (CHSD)
- **Trauma:** (endothelial; from forceps, etc)
- **Ulcera:**
- **Metabolic disorders**
- **Peters anomaly**
- **Endothelial dystrophy (CHED);**

CCT, corneal diameter and IOP are key to differentiating among CHED, CHSD and Congenital glaucoma. Fill in the blanks with the terms increased, decreased, and WNL.

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**Why is corneal diameter increased in congenital glaucoma?**
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The STUMPED Mnemonic

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What does buphthalmos translate to in English? Ox’s eye.
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