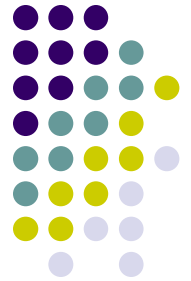


Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?



A

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?
Blepharoptosis



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?



A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

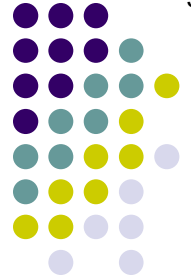
Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

Q

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

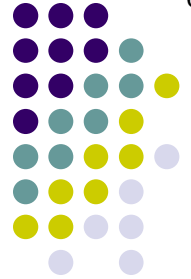
What is the formal definition of ptosis?

Inferodisplacement of the upper lid

*What is **pseudoptosis**?*

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

*What is **pseudoptosis**?*

Apparent inferodisplacement of the lid secondary to a non-lid condition



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

*What is **pseudoptosis**?*

Apparent inferodisplacement of the lid secondary to a non-lid condition

The Plastics book lists a number of causes of pseudoptosis that might mimic acquired ptosis—what are they?

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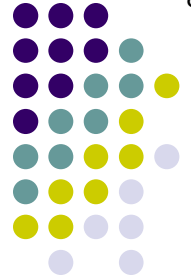
--?

--?

--(There are others, of course)

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

*What is **pseudoptosis**?*

Apparent inferodisplacement of the lid secondary to a non-lid condition

The Plastics book lists a number of causes of pseudoptosis that might mimic acquired ptosis—what are they?

- Microphthalmia
- Hypotropia
- Brow ptosis/dermatochalasis
- Enophthalmos
- Contralateral retraction
- (There are others, of course)

Acquired Ptosis

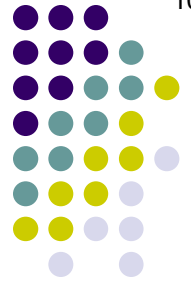


Microphthalmia



Hypotropia

Pseudoptosis



Acquired Ptosis



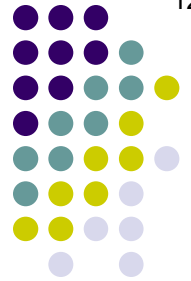
An extreme example of pseudoptosis in right eye due to lid retraction in the contralateral eye in a patient with thyroid eye disease

Pseudoptosis: Contralateral lid retraction

Acquired Ptosis



Pseudoptosis: Enophthalmos



Acquired Ptosis



Pseudoptosis due to dermatochalasis. The redundant eyelid skin falls beyond the eyelid margins, but the actual position of the upper lid margin is normal.

Pseudoptosis: Dermatochalasis



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two very general forms of ptosis?



A

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

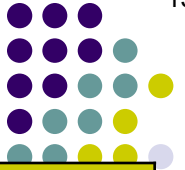
Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two very general forms of ptosis?

Congenital and acquired



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Lid-related observations in the ptosis patient

?

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A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Q

Acquired Ptosis

What does MRD stand for in this context?

Minimum required observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

What are the two very general forms of ptosis?
Congenital and acquired

*In evaluating a ptosis pt, six observations/measurements should be made.
What are they?*

A

Acquired Ptosis

What does MRD stand for in this context?
Margin-reflex distance

Key observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

What are the two very general forms of ptosis?
Congenital and acquired

*In evaluating a ptosis pt, six observations/measurements should be made.
What are they?*

Q

Acquired Ptosis

What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

Key observations in the ptosis patient

MRD₁

MRD₂

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

A

Acquired Ptosis

What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

Six observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Q

Acquired Ptosis

What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is...

MRD2 is...

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Six observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

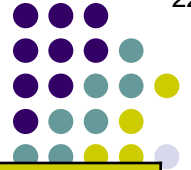
Upper lid crease position

Levator function

Presence of lagophthalmos

A

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is...the distance between the reflex and the upper-lid margin

MRD2 is...

What are the two very general forms of ptosis?

Congenital and acquired

Six observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

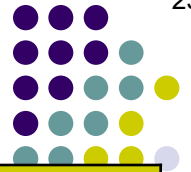
Presence of lagophthalmos

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Q

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is...the distance between the reflex and the upper-lid margin

MRD2 is...

What is the normal value for MRD1?

Six observations in the ptosis patient

MRD1

MRD2

Lid crease height

Upper lid crease position

Levator function

Presence of lagophthalmos

What are the two very general forms of ptosis?

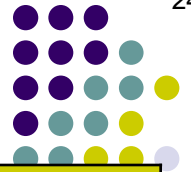
Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

A

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is...the distance between the reflex and the upper-lid margin

MRD2 is...

What is the normal value for MRD1?

4.5 mm (per the BCSC Plastics book)

Six observations in the ptosis patient

MRD1

MRD2

Lid crease height

Upper lid crease position

Levator function

Presence of lagophthalmos

What are the two very general forms of ptosis?

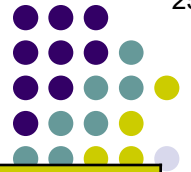
Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Q

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is... the distance between the reflex and the upper-lid margin

MRD2 is

What if the ptosis is so significant that the reflex is not visible, ie, it is hidden by the ptotic upper lid?

Observations in ptosis patient

MRD1

MRD2

Lid crease position

Lid function

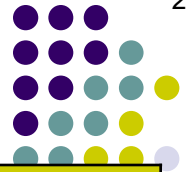
Lid function

Exophthalmos

made.

A

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is... the distance between the reflex and the upper-lid margin

MRD2 is

What if the ptosis is so significant that the reflex is not visible, ie, it is hidden by the ptotic upper lid?

Then the MRD1 is defined as the distance the upper lid has to be **elevated** in order for the reflex to be seen, and is assigned a **negative** value. So, eg, if the upper-lid margin has to be elevated 2 mm in order for the reflex to be seen, MRD1 is -2 mm.

Observations in ptosis patient

MRD1

MRD2

Crease height

Crease position

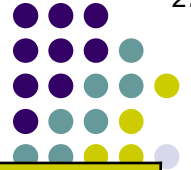
Function

Gophthalmos

made.

Q

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is...the distance between the reflex and the upper-lid margin

MRD2 is...

What are the two very general forms of ptosis?

Congenital and acquired

Key observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

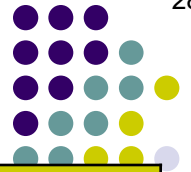
Presence of lagophthalmos

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

A

Acquired Ptosis



What does MRD stand for in this context?

Margin-reflex distance

To what does the word reflex refer?

The corneal light reflex

What are these specific measurements?

MRD1 is...the distance between the reflex and the upper-lid margin

MRD2 is...the distance between the reflex and the **lower**-lid margin

What are the two very general forms of ptosis?

Congenital and acquired

Key observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

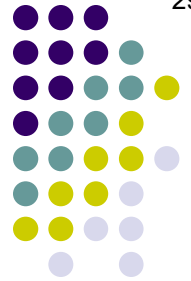
Upper lid crease position

Levator function

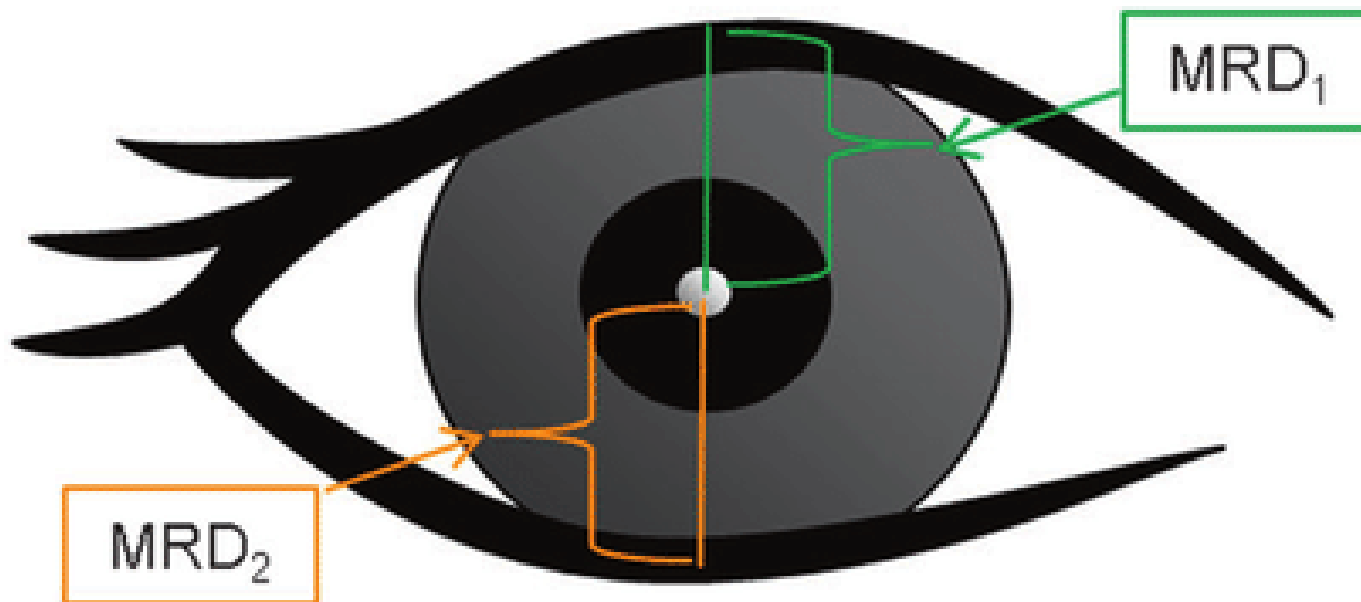
Presence of lagophthalmos

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?



Acquired Ptosis



MRD1&2

Q

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

How is vertical fissure height quantified?

What are the types of ptosis?

Congenital

In evaluation of ptosis, what are the key measurements?

What are they?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

mos

A

Acquired Ptosis



Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

mos

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

How is vertical fissure height quantified?

It is the distance between the upper- and lower-lid margins

What are the causes of acquired ptosis?

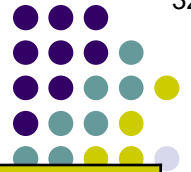
Congenital

In evaluation of ptosis, what are the key observations?

What are they?

Q

Acquired Ptosis



Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

mos

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

How is vertical fissure height quantified?

It is the distance between the upper- and lower-lid margins

What are the causes of acquired ptosis?

Congenital

What is the relationship between vertical fissure height and MRD1/MRD2?

In evaluation of ptosis, what are the key measurements?

What are they?

A

Acquired Ptosis



Lid-related observations in the ptosis patient

MRD1

+

MRD2

=

Vertical fissure height

Upper lid crease position

mos

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

How is vertical fissure height quantified?

It is the distance between the upper- and lower-lid margins

What a

Congen

What is the relationship between vertical fissure height and MRD1/MRD2?

Assuming all have been measured correctly, vertical fissure height will be equal to $MRD1 + MRD2$

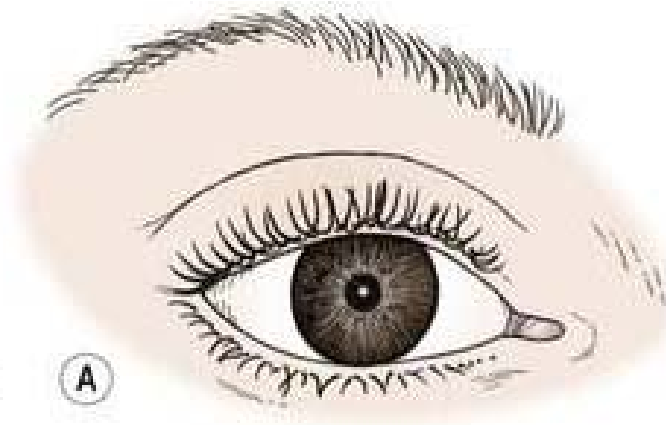
In eval

What are they?

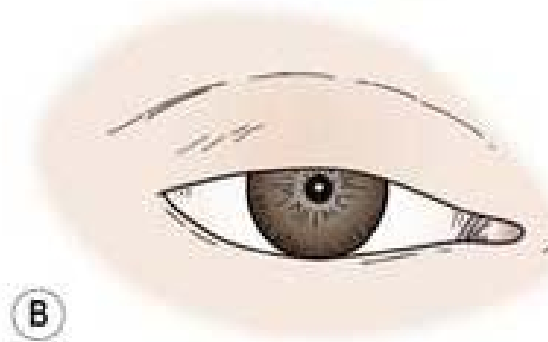


Acquired Ptosis

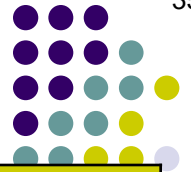
Normal
 $MRD_1 = 4 \text{ mm}$
 $MRD_2 = 5 \text{ mm}$
~~Palpebral fissure = 9~~
 Vertical fissure height



Upper lid ptosis
 $MRD_1 = 2 \text{ mm}$
 $MRD_2 = 5 \text{ mm}$
~~Palpebral fissure = 7~~
 Vertical fissure height



MRD and vertical fissure height



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the causes of ptosis?
Congenital

In evaluation of ptosis, what are the key observations?
What are the key observations?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Anatomically speaking, what structures create the upper lid crease?

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the causes of ptosis?

Congenital

In evaluation of ptosis, what are the key observations?

What are the key observations?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

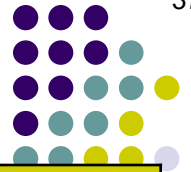
Levator function

Anatomically speaking, what structures create the upper lid crease?

As the aponeurosis of the levator muscle approaches the tarsal plate, it splits into *anterior* and *posterior* portions. The anterior portion consists of fine tendrils of aponeurotic material, some of which will attach to the skin overlying the superior margin of the tarsus.

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

What are the causes of ptosis?

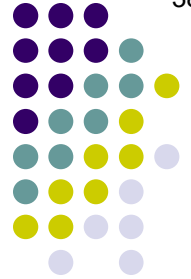
Congenital

In evaluation

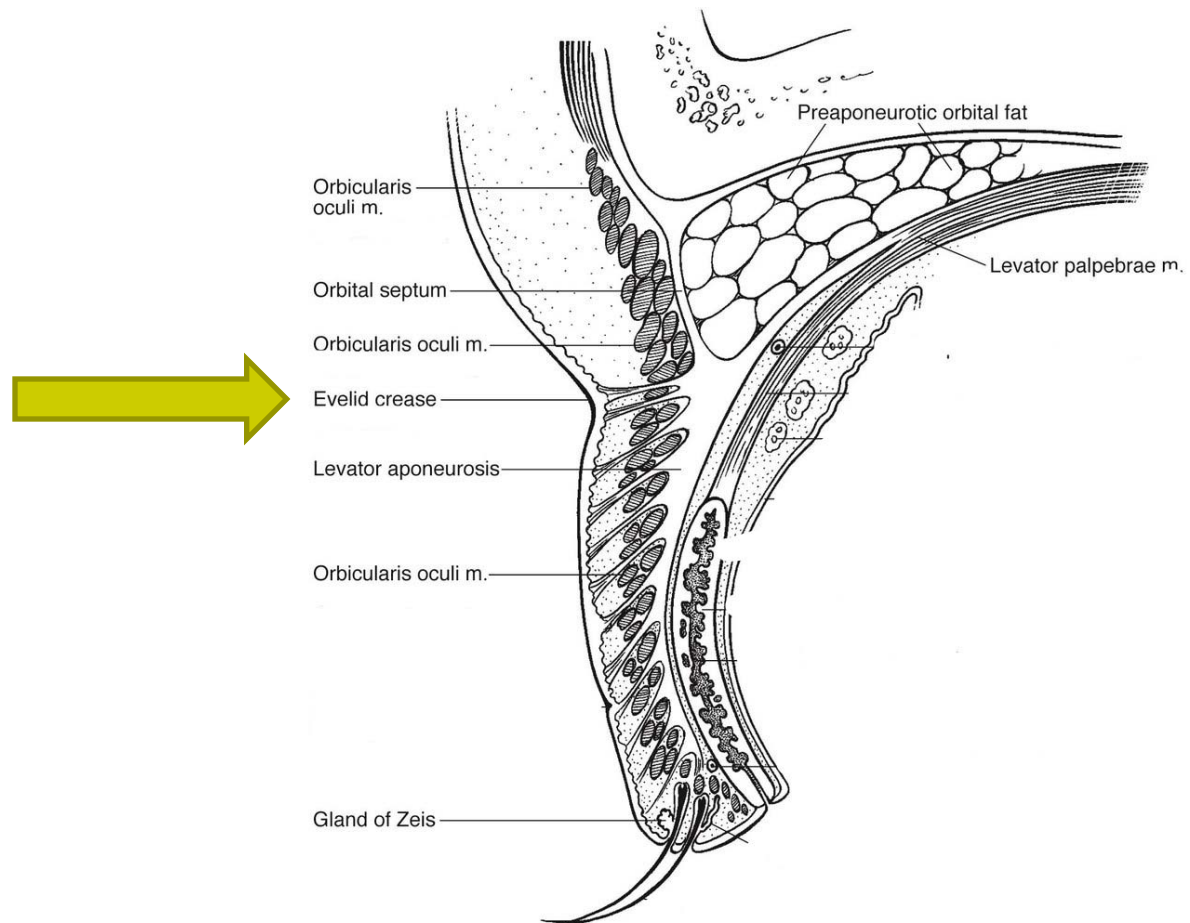
What are the signs of ptosis?

Anatomically speaking, what structures create the upper lid crease?

As the aponeurosis of the levator muscle approaches the tarsal plate, it splits into *anterior* and *posterior* portions. The anterior portion consists of fine tendrils of aponeurotic material, some of which will attach to the skin overlying the superior margin of the tarsus. These attachments draw the skin inward, thereby producing the eyelid **crease**. This indrawing of skin causes the skin, muscle and fat superior to the crease to 'overhang;' this overhang is called the eyelid **fold**.



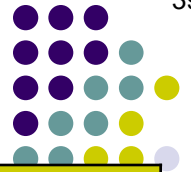
Acquired Ptosis



Eyelid crease

A

Acquired Ptosis



Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What an... Anatomically speaking, what structures create the upper lid crease?

Congen... As the aponeurosis of the levator muscle approaches the tarsal plate, it splits into anterior and **posterior portions**. The anterior portion consists of fine tendrils of

In evalu... (In case you were wondering: The **posterior** portion of the aponeurosis inserts on the tarsal plate.)

What an... the eyelid **crease**. This indrawing of skin causes the skin, muscle and fat superior to the crease to 'overhang;' this overhang is called the eyelid **fold**.

Q

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is the formal definition of ptosis?
How is upper lid crease position quantified?

Congenital

In evaluation

What is

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

of lagophthalmos

be made.

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is the formal definition of ptosis?

Congenital **How is upper lid crease position quantified?**
By measuring the distance between it and the upper-lid margin

In evaluation of acquired ptosis, what should be made.

What is the

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

of lagophthalmos



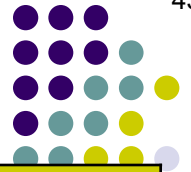
Acquired Ptosis



Lid crease measurement

Q

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is the formal definition of ptosis?

Congenital *How is upper lid crease position quantified?*
By measuring the distance between it and the upper-lid margin

In evaluation of acquired ptosis, what measurements should be made?

What are typical values for this measure?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

of lagophthalmos

A

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is the formal definition of ptosis?

Congenital By measuring the distance between it and the upper-lid margin

In evaluation What are typical values for this measure?

Well, the *Plastics* book only gives values for Caucasians...

Lid-related observations in the ptosis patient

MRD1

MRD2

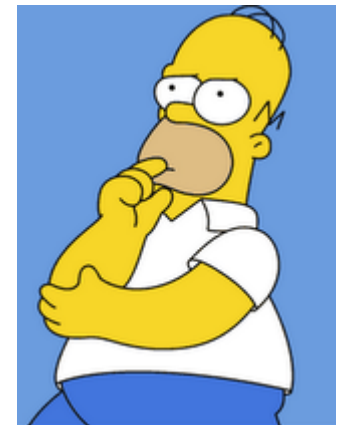
Vertical fissure height

Upper lid crease position

Levator function

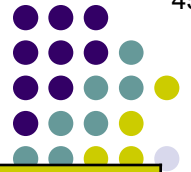
of lagophthalmos

be made.



Q

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is

Congenital

In evaluation

What is

How is upper lid crease position quantified?

By measuring the distance between it and the upper-lid margin

What are typical values for this measure?

Well, the *Plastics* book only gives values for Caucasians... those values are # to # for males, # to # for females.

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

of lagophthalmos

be made.

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is the formal definition of ptosis?

Congenital By measuring the distance between it and the upper-lid margin

In evaluation of ptosis, what measurements should be made?

What are typical values for this measure?
Well, the *Plastics* book only gives values for Caucasians...
those values are 8-9 mm for males, 9-11 mm for females.

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

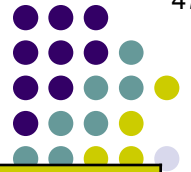
Upper lid crease position

Levator function

of lagophthalmos

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What is the formal definition of ptosis?

Congenital By measuring the distance between it and the upper-lid margin

In evaluation What are typical values for this measure?

Well, the *Plastics* book only gives values for Caucasians... those values are 8-9 mm for males, 9-11 mm for females.

The book goes on to say the crease "is typically lower or obscured in the Asian eyelid, with or without ptosis."

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

of lagophthalmos

be made.



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two very general forms of ptosis?

Congenital

How is levator function quantified?

In evaluation

What are

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

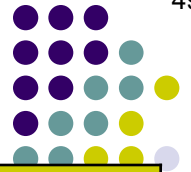
Levator function

Presence of lagophthalmos

be made.

A

Acquired Ptosis



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In evaluation

What are

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

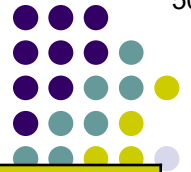
How is levator function quantified?

It is the distance between the locations of the upper-lid margin when the pt is in down- and upgaze

be made.

Q

Acquired Ptosis



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Congenital

In evaluation

What are

How is levator function quantified?

It is the distance between the locations of the upper-lid margin when the pt is in down- and upgaze

What range is considered normal?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

be made.

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

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What are the two very general forms of ptosis?

Congenital

In evaluation

What are

How is levator function quantified?

It is the distance between the locations of the upper-lid margin when the pt is in down- and upgaze

What range is considered normal?

12-15 mm

Lid-related observations in the ptosis patient

MRD1

MRD2

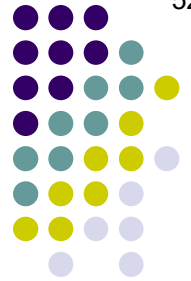
Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

be made.



Acquired Ptosis



Levator function measurement

Q

Acquired Ptosis



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In evaluation

What are

What range is considered normal?

12-15 mm

What important qualifier is placed on measuring levator function?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

be made.

Q/A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

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Congenital and acquired

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It is the distance between the locations of the upper-lid margin when the pt is in down- and upgaze

In evaluation

What are

What range is considered normal?

12-15 mm

What important qualifier is placed on measuring levator function?

The measurement must be performed in way that prevents the **orbicularis oculi** muscle from assisting lid elevation

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

be made.

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

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What are the two very general forms of ptosis?

Congenital and acquired

How is levator function quantified?

It is the distance between the locations of the upper-lid margin when the pt is in down- and upgaze

In evaluation

What are

What range is considered normal?

12-15 mm

What important qualifier is placed on measuring levator function?

The measurement must be performed in way that prevents the frontalis muscle from assisting lid elevation

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

be made.



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two types of ptosis?

Congenital and acquired

What is lagophthalmos?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of **lagophthalmos**

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

A

Acquired Ptosis



What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two

Congenital and acquired

What is lagophthalmos?

Failure of the lids to close completely

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

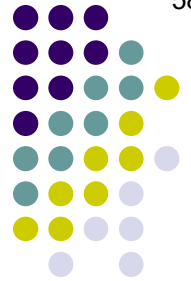
Upper lid crease position

Levator function

Presence of **lagophthalmos**

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?



Acquired Ptosis



Lagophthalmos OD (look carefully)

Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

Of these six, which measurement does the Plastics book single out as being the most useful/important?

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Lid-related observations in the ptosis patient

MRD1?

MRD2?

Vertical fissure height?

Upper lid crease position?

Levator function?

Presence of lagophthalmos?

A

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

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Of these six, which measurement does the Plastics book single out as being the most useful/important?

MRD1

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

Lid-related observations in the ptosis patient

MRD1!

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

Blepharoptosis

What is the formal definition of ptosis?

Inferodisplacement of the upper lid

What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements

What are they?

*In evaluating a ptosis pt, six **non-lid** observations/measurements should be made.*

What are they?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

?

?

?

?

?

?

A

Acquired Ptosis

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Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs

Q

Acquired Ptosis

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Inferodisplacement of the upper lid

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Congenital and acquired

In the context of a ptosis eval, what pupil finding would be particularly noteworthy?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

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Acquired Ptosis

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Congenital and acquired

In the context of a ptosis eval, what pupil finding would be particularly noteworthy?

Anisocoria

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs



Acquired Ptosis



Ptosis with anisocoria

Q

Acquired Ptosis

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Inferodisplacement of the upper lid

What are the two very general forms of ptosis?

Congenital and acquired

In the context of a ptosis eval, what pupil finding would be particularly noteworthy?

Anisocoria

If the pupil on the ptotic side is the smaller one, what dx rises to the top?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs

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Horner syndrome

Lid-related observations in the ptosis patient

MRD1

MRD2

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Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

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Corneal sensitivity

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Acquired Ptosis



Horner syndrome

Q

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Horner syndrome

*If the pupil on the ptotic side is the **larger** one, what dx rises to the top?*

Lid-related observations in the ptosis patient

MRD1

MRD2

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Horner syndrome

*If the pupil on the ptotic side is the **larger** one, what dx rises to the top?*

CN3 palsy

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs



Acquired Ptosis



CN3 palsy



Q

Acquired Ptosis

What is the 'proper' term for eyelid ptosis?

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What is the formal definition of ptosis?

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What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements

What are they?

In evaluating a ptosis pt, six observations/measurements

What is Bell's phenomenon?

Lid-related observations in the ptosis patient

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MRD2

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Upper lid crease position

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Visual acuity

Refractive error

EOMs

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What are they?

In evaluating a ptosis pt, six observations/measurements

What is Bell's phenomenon?

A reflex in which unsuccessful lid closure cause the globe to roll up and laterally

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

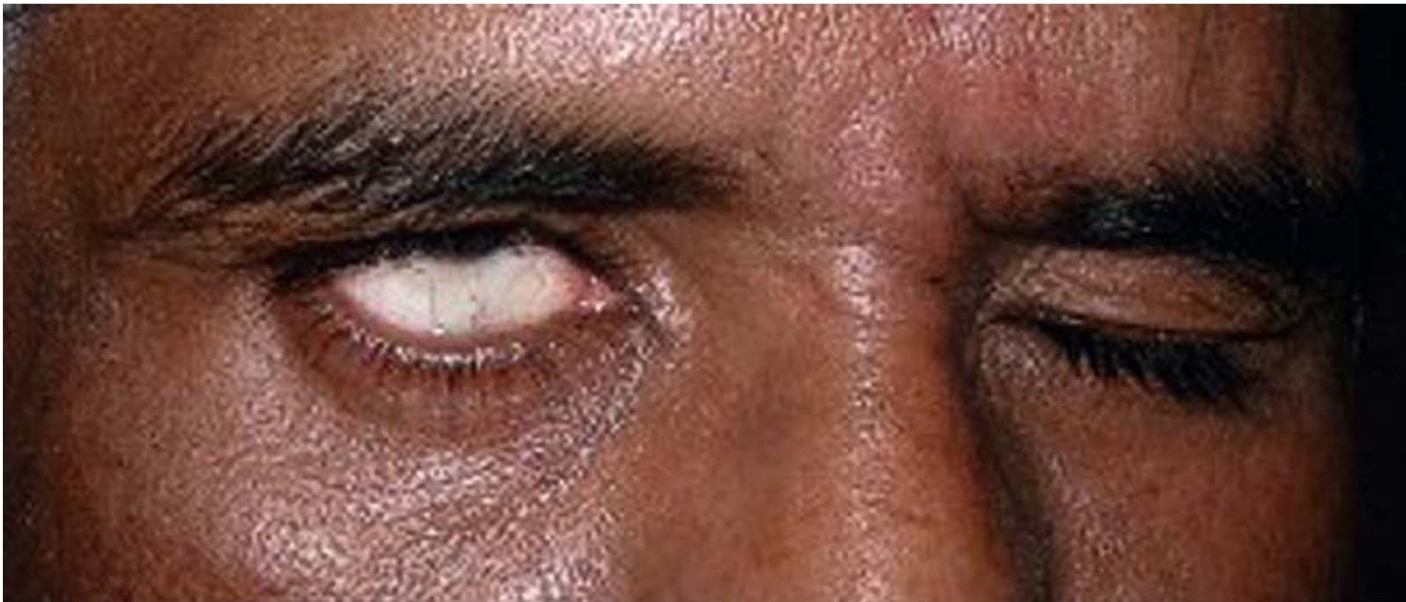
Visual acuity

Refractive error

EOMs



Acquired Ptosis



Bell's phenomenon

Q

Acquired Ptosis

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Why must corneal sensitivity and Bell's phenomenon be assessed?

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs

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What are the two very general forms of ptosis?

Congenital and acquired

In evaluating a ptosis pt, six observations/measurements

Why must corneal sensitivity and Bell's phenomenon be assessed?

Ptosis often necessitates lid-elevation surgery, which may leave the ocular surface exposed. Thus, it is of paramount importance that the surgeon be aware of the status of the eye regarding corneal sensitivity and Bell's phenomenon, as these factors play a vital role in surface health.

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs

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What are they?*

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What are they?*

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs

What EOM issue is of particular concern when evaluating acquired ptosis?

Q/A

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MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

EOMs

What EOM issue is of particular concern when evaluating acquired ptosis?

Looking for evidence of a **III** palsy

A

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MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Bell's phenomenon

Visual acuity

Refractive error

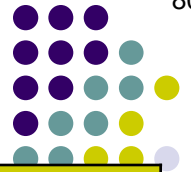
EOMs

What EOM issue is of particular concern when evaluating acquired ptosis?

Looking for evidence of a CN3 palsy

Q

Acquired Ptosis



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What are they?

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MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Reflex tearing

Visual acuity

Refractive error

EOMs

A

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In evaluating a ptosis pt, six observations/measurements should be made.

What are they?

In evaluating a ptosis pt, six non-lid observations/measurements should be made.

What are they?
Ptosis etiology can be classified into 5 or 6 categories. What are they?
 Coming in hot...

Lid-related observations in the ptosis patient

MRD1

MRD2

Vertical fissure height

Upper lid crease position

Levator function

Presence of lagophthalmos

Other things you gotta check

Pupils

Corneal sensitivity

Reflex tearing

Refractive error

EOMs



Q

Acquired Ptosis

<i>General categories of ptosis etiology</i>	
?	
?	
?	
?	
?	
?	

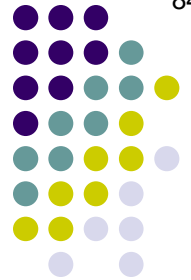
Name the 5-6 categories first...

**A**

Acquired Ptosis

<i>General categories of ptosis etiology</i>	
Myogenic	
<i>Neuromuscular junction</i>	
Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	

Name the 5-6 categories first...



Acquired Ptosis

General categories of ptosis etiology	
Myogenic	
Neurogenic	<p>The reason <i>Neuromuscular junction</i> didn't get its own box will be made clear shortly</p>
Aponeurotic	
Mechanical	
Traumatic	

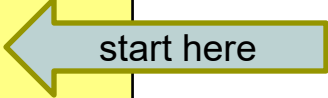
Name the 5-6 categories first...



Q

Acquired Ptosis

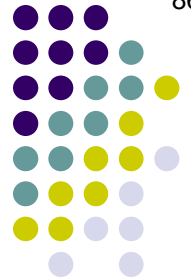
General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	? ?
<i>Neuromuscular junction</i> Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	


 start here

Name the 5-6 categories first...now, ID specific causes of each

A

Acquired Ptosis



<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	

start here

Name the 5-6 categories first...now, ID specific causes of each



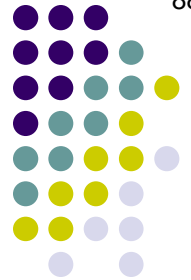
Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neurogenic	Neuromuscular junction ?; ?
Aponeurotic	
Mechanical	
Traumatic	

next

Name the 5-6 categories first...now, ID specific causes of each



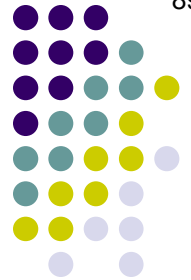
A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neuromuscular junction	MG; botulism
Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	


 next

Name the 5-6 categories first...now, ID specific causes of each



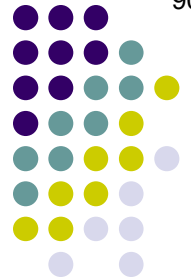
Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i> ? ?
Aponeurotic	
Mechanical	
Traumatic	


 etc

Name the 5-6 categories first...now, ID specific causes of each



A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i> CN3 palsy Horner's
Aponeurotic	
Mechanical	
Traumatic	

Name the 5-6 categories first...now, ID specific causes of each



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i>
Neurogenic	CN3 palsy Horner's
Aponeurotic	?
Mechanical	
Traumatic	

Name the 5-6 categories first...now, ID specific causes of each



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Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i>
Neurogenic	CN3 palsy Horner's
Aponeurotic	Aponeurotic dehiscence
Mechanical	
Traumatic	

Name the 5-6 categories first...now, ID specific causes of each



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i>
Neurogenic	CN3 palsy Horner's
Aponeurotic	Aponeurotic dehiscence
Mechanical	? ?
Traumatic	

Name the 5-6 categories first...now, ID specific causes of each

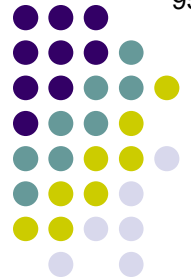


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General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i>
Neurogenic	CN3 palsy Horner's
Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Name the 5-6 categories first...now, ID specific causes of each

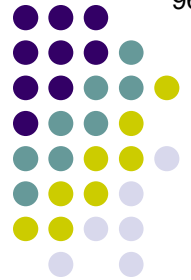


Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neuromuscular junction	MG; botulism
Neurogenic	CN3 palsy Horner's
	neurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

So what's going on with these categories?
The issue is a conflict among the *BCSC* books:

Name the 5-6 categories first...now, ID specific causes of each



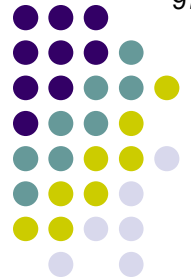
Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
<p>Myogenic</p> <p>Neuromuscular junction</p> <p>Neurogenic</p>	<p>CPEO</p> <p>Myotonic dys</p> <p>MG</p> <p>MG</p> <p>CN3 pals</p> <p>Horner's</p>
	neurotic dehiscence
Mechanical	Large chalazion
	Neoplasm
Traumatic	

The *Plastics* book does not have *Neuromuscular junction* as a category. Instead, it puts MG into **both** the *Myogenic* and *Neurogenic* categories.

So what's going on with these categories?
The issue is a conflict among the *BCSC* books:

Name the 5-6 categories first...now, ID specific causes of each



Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neuromuscular junction	MG MG
Neurogenic	CN3 palsy Horner's
	neurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

So what's going on with these categories?
The issue is a conflict among the *BCSC* books:

In contrast, the *Neuro* book **does** include *Neuromuscular junction* as a category, and puts MG there

Name the 5-6 categories first...now, ID specific causes of each



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i> CN3 palsy Horner's
Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?



A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
<i>Neuromuscular junction</i> Neurogenic	<i>MG; botulism</i> CN3 palsy Horner's
Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile



Q

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile

**A**

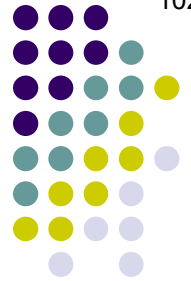
Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

It means it has stretched, and/or disinserted its normal attachment site

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile



Q

Acquired Ptosis

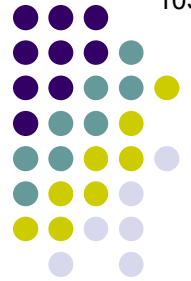
What does it mean to say the aponeurosis has dehiscence?

It means it has stretched, and/or disinserted its normal attachment site

What is the most common cause?

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile



A

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

It means it has stretched, and/or disinserted its normal attachment site

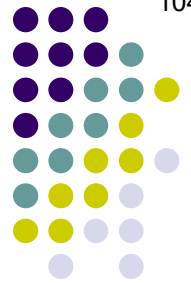
What is the most common cause?

Birthdays

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?

Aponeurotic dehiscence, by a mile



Q

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

It means it has stretched, and/or disinserted its normal attachment site

What is the most common cause?

Birthdays

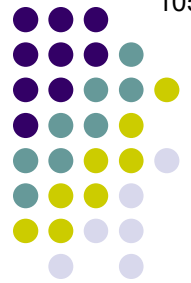
Two other causes are notorious for producing aponeurotic dehiscence in younger individuals—what are they?

--?

--?

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile



A

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscence?

It means it has stretched, and/or disinserted its normal attachment site

What is the most common cause?

Birthdays

Two other causes are notorious for producing aponeurotic dehiscence in younger individuals—what are they?

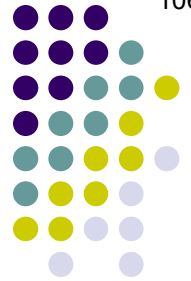
--Eye rubbing

--Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?

Aponeurotic dehiscence, by a mile



Q

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

It means it has **stretched, and/or disinserted** its normal attachment site

What is Birthday Stretching/disinsertion leads to a classic exam finding (other than ptosis, duh)—what is it?

Two other causes are notorious for producing aponeurotic dehiscence in younger individuals—what are they?

--Eye rubbing

--Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile

Q/A

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

It means it has **stretched, and/or disinserted** its normal attachment site

What is Birthday? *Stretching/disinsertion leads to a classic exam finding (other than ptosis, duh)—what is it?*

The lid crease is low vs high

Two other causes are notorious for producing aponeurotic dehiscence in younger individuals—what are they?

--Eye rubbing

--Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile

A

Acquired Ptosis

What does it mean to say the aponeurosis has dehiscenced?

It means it has **stretched, and/or disinserted** its normal attachment site

What is *Stretching/disinsertion leads to a classic exam finding*
 Birthday *(other than ptosis, duh)—what is it?*

The lid crease is high

Two other causes are notorious for producing aponeurotic dehiscence in younger individuals—what are they?

--Eye rubbing

--Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
 Aponeurotic dehiscence, by a mile

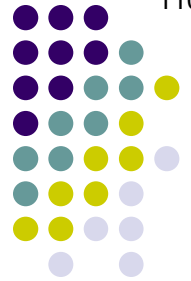


Acquired Ptosis



Note the elevated lid creases due to dehiscence of the levator aponeurosis. There is compensatory frontalis over-activation, causing elevation of the brows.

Involutional aponeurotic ptosis



Q

Acquired Ptosis

What does it mean to say **the aponeurosis has dehiscenced**?
 It means it has stretched, and/or disinserted its normal attachment site

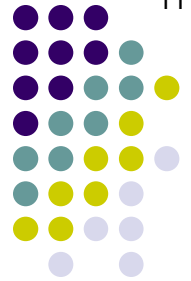
So the levator aponeurosis is jacked up—what about the levator muscle itself?

What is
 Birthda

Two other
 younger individuals—what are they?
 --Eye rubbing
 --Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
 Aponeurotic dehiscence, by a mile



A

Acquired Ptosis

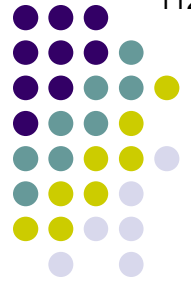
What does it mean to say **the aponeurosis has dehiscid**?
 It means it has stretched, and/or disinserted its normal attachment site

What is **So the levator aponeurosis is jacked up—what about the levator muscle itself?**
 Birthda Absent another dz process, it is unaffected

Two ot
 younger individuals—what are they?
 --Eye rubbing
 --Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
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Which is the most common cause of acquired ptosis?
 Aponeurotic dehiscence, by a mile



Q

Acquired Ptosis

What does it mean to say **the aponeurosis has dehiscenced**?
 It means it has stretched, and/or disinserted its normal attachment site

What is the levator aponeurosis? So the levator aponeurosis is jacked up—what about the levator muscle itself?
 Birthdate Absent another dz process, it is unaffected

What does this imply about levator function in aponeurotic ptosis?

Two other causes of acquired ptosis in younger individuals—what are they?
 --Eye rubbing
 --Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
 Aponeurotic dehiscence, by a mile

A

Acquired Ptosis

What does it mean to say **the aponeurosis has dehiscenced**?
It means it has stretched, and/or disinserted its normal attachment site

What is the levator aponeurosis? So the levator aponeurosis is jacked up—what about the levator muscle itself?
Birthdate Absent another dz process, it is unaffected

What does this imply about levator function in aponeurotic ptosis?
Two other causes? It is expected to be within the normal range

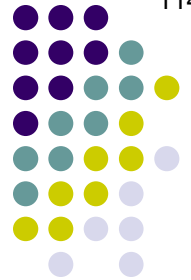
younger individuals—what are they?

--Eye rubbing

--Prolonged rigid contact lens wear

Aponeurotic	Aponeurotic dehiscence
Mechanical	Large chalazion Neoplasm
Traumatic	

Which is the most common cause of acquired ptosis?
Aponeurotic dehiscence, by a mile



Q

Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
Myogenic	CPEO Myotonic dystrophy
Neurogenic	What does CPEO stand for?
Aponeurotic	
Mechanical	
Traumatic	

Neuromuscular junction

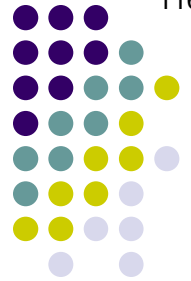


A

Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
Myogenic	CPEO Myotonic dystrophy
Neurogenic	<p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p>
Aponeurotic	
Mechanical	
Traumatic	

Neuromuscular junction



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	

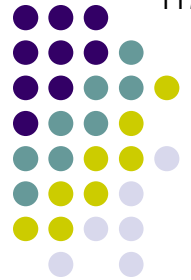
Neuromuscular junction

What does CPEO stand for?

Chronic progressive external ophthalmoplegia

In one word, what sort of dz is CPEO?

A myopathy

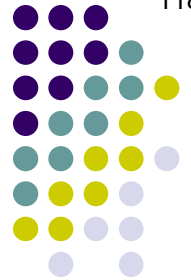


A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	<p>What does CPEO stand for?</p> <p>Chronic progressive external ophthalmoplegia</p> <p>In one word, what sort of dz is CPEO?</p> <p>A mitochondrial myopathy</p>
Aponeurotic	
Mechanical	
Traumatic	

Neuromuscular junction



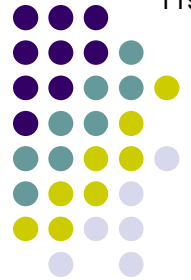
Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	<p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p> <p>In one word, what sort of dz is CPEO? A mitochondrial myopathy</p>
Aponeurotic	<p>What does muscle biopsy reveal?</p>
Mechanical	
Traumatic	

Q/A

Acquired Ptosis

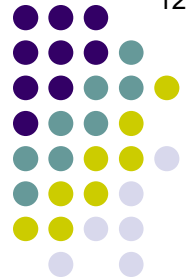


General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	<p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p> <p>In one word, what sort of dz is CPEO? A mitochondrial myopathy</p>
Aponeurotic	<p>What does muscle biopsy reveal? The classic three words you heard about in med school</p>
Mechanical	
Traumatic	

A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p> <p>Neuromuscular junction</p> <p>Neurogenic</p> <p>In one word, what sort of dz is CPEO? A mitochondrial myopathy</p> <p>Aponeurotic</p> <p>What does muscle biopsy reveal? The classic ragged red fibers you heard about in med school</p> <p>Mechanical</p>
Traumatic	



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	

Neuromuscular junction

What does CPEO stand for?

Chronic progressive external ophthalmoplegia

In one word, what sort of dz is CPEO?

A mitochondrial myopathy

In broad terms, what is the chief clinical finding in CPEO?



A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	

Neuromuscular junction

What does CPEO stand for?

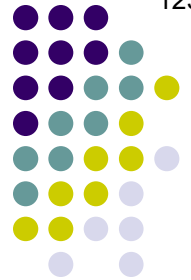
Chronic progressive external ophthalmoplegia

In one word, what sort of dz is CPEO?

A mitochondrial myopathy

In broad terms, what is the chief clinical finding in CPEO?

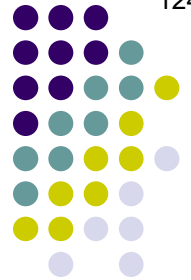
It is of bilateral, symmetric, relentlessly progressive paralysis of the extraocular muscles



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	<p>What does CPEO stand for?</p> <p>Chronic progressive external ophthalmoplegia</p> <p>At what age does CPEO begin to manifest?</p>
Aponeurotic	<p>What is the underlying mechanism in CPEO?</p>
Mechanical	<p>It is of bilateral, symmetric, relentlessly progressive</p> <p>paralysis of the extraocular muscles</p>
Traumatic	

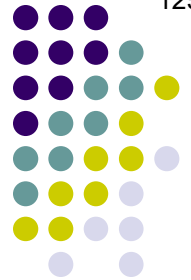


A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	<p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p> <p>At what age does CPEO begin to manifest? Usually in the second decade</p>
Aponeurotic	<p>What is the pathogenesis of CPEO? It is of bilateral, symmetric, relentlessly progressive</p>
Mechanical	<p>paralysis of the extraocular muscles</p>
Traumatic	

Neuromuscular junction



Q

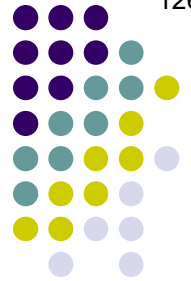
Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neurogenic	<p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p> <p>At what age does CPEO begin to manifest? Usually in the second decade</p>
Aponeurotic	<p>What is the most common presenting symptom?</p>
Mechanical	<p>What is the most common presenting symptom? It is of bilateral, symmetric, relentlessly progressive</p> <p>paralysis of the extraocular muscles</p>
Traumatic	

Neuromuscular junction

A

Acquired Ptosis



General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p><i>What does CPEO stand for?</i> Chronic progressive external ophthalmoplegia</p> <p><i>At what age does CPEO begin to manifest?</i> Usually in the second decade</p> <p><i>What is the most common presenting symptom?</i> Ptosis</p> <p><i>What is the inheritance pattern in CPEO?</i> It is of bilateral, symmetric, relentlessly progressive</p> <p>paralysis of the extraocular muscles</p>
Neurogenic	
Aponeurotic	
Mechanical	
Traumatic	



Acquired Ptosis

1998



1999



2000



2002



2003



2004



Erin O'Malley, MD
U of Iowa 2004

CPEO

Q

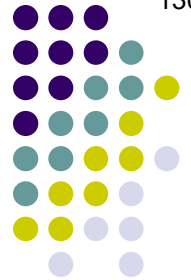
Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p>What does CPEO stand for?</p> <p>Chronic progressive external ophthalmoplegia</p>
Neurogenic	<p>At what age does CPEO begin to manifest?</p> <p>Usually in the second decade</p> <p>How is levator function?</p>
Aponeurotic	<p>What is the most common symptom?</p> <p>Ptosis</p>
Mechanical	<p>It is of bilateral slowly progressive nature</p> <p>paralysis</p>
Traumatic	

A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p>
Neurogenic	<p>At what age does CPEO begin to manifest? Usually in the second decade</p>
Aponeurotic	<p>How is levator function? Poor</p> <p>What is the symptom? Ptosis</p> <p>What is the underlying mechanism? It is of bilateral, slowly progressive nature</p>
Mechanical	<p>paralysis</p>
Traumatic	



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neurogenic	What does CPEO stand for? Chronic progressive external ophthalmoplegia At what age does CPEO begin to manifest? Usually in the second decade
Aponeurotic	How is levator function? Poor What is the symptom?
Mechanical	Ptosis What is the etiology? It is of bilateral slowly progressive paralysis How is Bell's phenomenon?
Traumatic	

A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p>What does CPEO stand for? Chronic progressive external ophthalmoplegia</p>
Neurogenic	<p>At what age does CPEO begin to manifest? Usually in the second decade</p>
Aponeurotic	<p>How is levator function? Poor</p> <p>What is the symptom? Ptosis</p>
Mechanical	<p>How is Bell's phenomenon? Absent</p> <p>What is the etiology? It is of bilateral, slowly progressive paralysis</p>
Traumatic	

A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p>What do you know about CPEO? Chronic</p> <p>Do CPEO pts c/o diplopia? No</p>
Neurogenic	<p>At what age does it usually present?</p>
Aponeurotic	<p>What is the poor prognosis?</p> <p>Ptosis</p> <p>How is Bell's phenomenon?</p> <p>How is it progressing in CPEO?</p>
Mechanical	<p>It is of bilateral nature</p> <p>How is Bell's phenomenon?</p> <p>Absent</p> <p>How is it progressing in CPEO?</p> <p>How is it progressing in CPEO?</p> <p>How is it progressing in CPEO?</p>
Traumatic	



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neurogenic	What do you see? Chronic At what age? Usually in childhood
Aponeurotic	What is the poor vision? Ptosis How is Bell's phenomenon? Absent
Mechanical	It is of bilateral nature paralysis
Traumatic	

Neuromuscular junction

Do CPEO pts c/o diplopia?
No

Why not?

Bleeding in CPEO?

Highly progressive
lesions

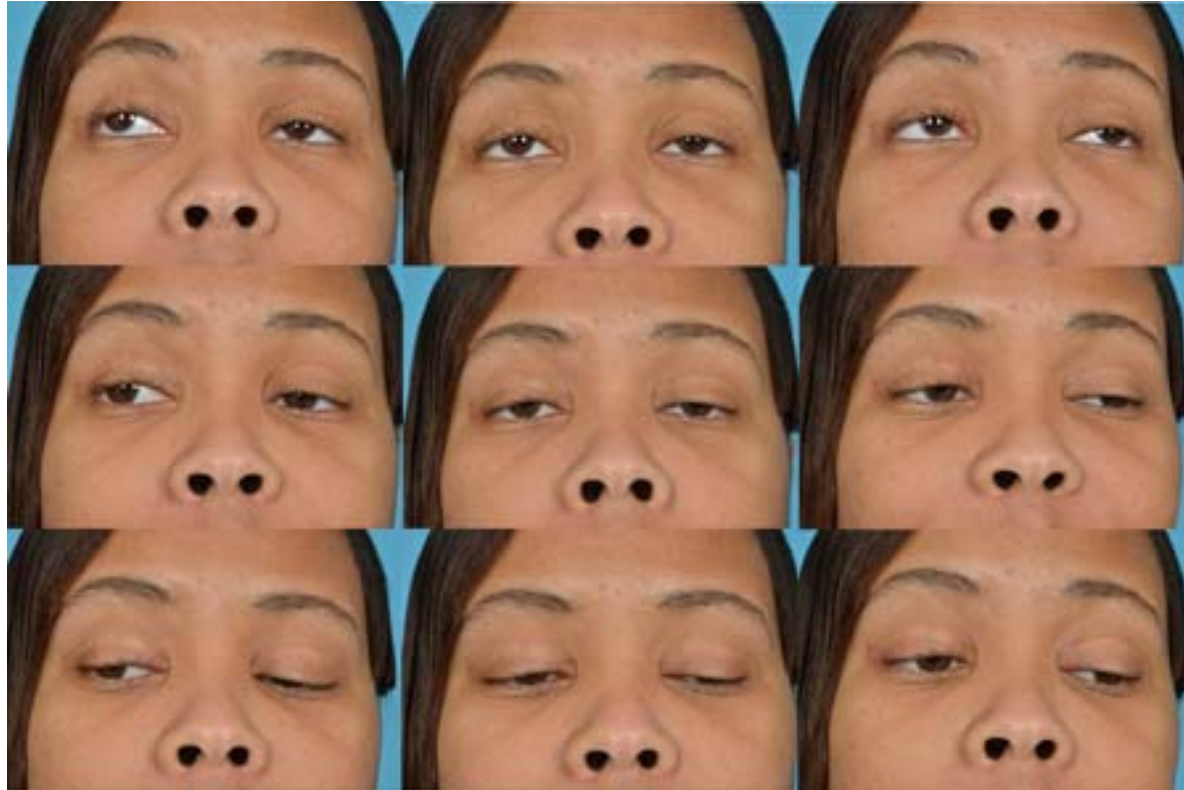
A

Acquired Ptosis

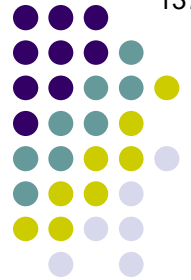
General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p> <p>What do you know about CPEO? Chronic</p> <p>Do CPEO pts c/o diplopia? No</p>
Neurogenic	<p>At what age does it usually present? Usually in childhood</p> <p>Why not? Because the ophthalmoplegia is symmetric, so the eyes tend to remain in alignment throughout</p>
Aponeurotic	<p>What is the poor prognosis?</p> <p>Ptosis</p> <p>How is Bell's phenomenon? Absent</p> <p>How is it progressing in CPEO? Progressively progressive</p>
Mechanical	<p>It is of bilateral nature</p> <p>paralysis</p> <p>les</p>
Traumatic	



Acquired Ptosis



CPEO: Symmetric ophthalmoplegia



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neuromuscular junction	<p>What do you do? Do CPEO pts c/o diplopia?</p>

You see a teen with a hx of progressive bilateral ptosis and reduced EOMs. During ROS, mom mentions that he is healthy other than "he has fainting spells occasionally." What should you do?

A

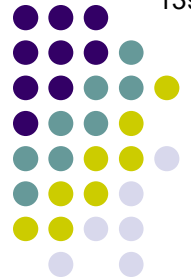
Acquired Ptosis



General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neuromuscular junction	<p>What do you do if you see a patient with CPEO?</p> <p>Do CPEO pts c/o diplopia?</p>

You see a teen with a hx of progressive bilateral ptosis and reduced EOMs. During ROS, mom mentions that he is healthy other than "he has fainting spells occasionally." What should you do?

Arrange urgent Cardiology eval



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neuromuscular junction	<p>What do you do? Do CPEO pts c/o diplopia?</p>

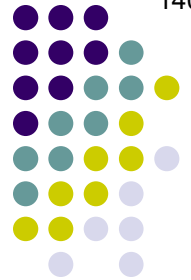
You see a teen with a hx of progressive bilateral ptosis and reduced EOMs. During ROS, mom mentions that he is healthy other than “he has fainting spells occasionally.” What should you do?

Arrange urgent Cardiology eval

Based on the hx, what is your concern vis a vis his ‘fainting spells’?

A

Acquired Ptosis

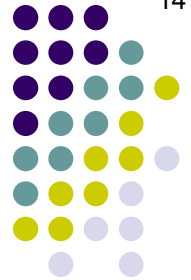


General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neuromuscular junction	<p>What do you do? Do CPEO pts c/o diplopia?</p>

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Based on the hx, what is your concern vis a vis his 'fainting spells'?
That he is having syncopal episodes 2ndry to heart block



Q

Acquired Ptosis

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Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>

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Based on the hx, what is your concern vis a vis his 'fainting spells'?
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What is your working diagnosis?

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Acquired Ptosis



General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>

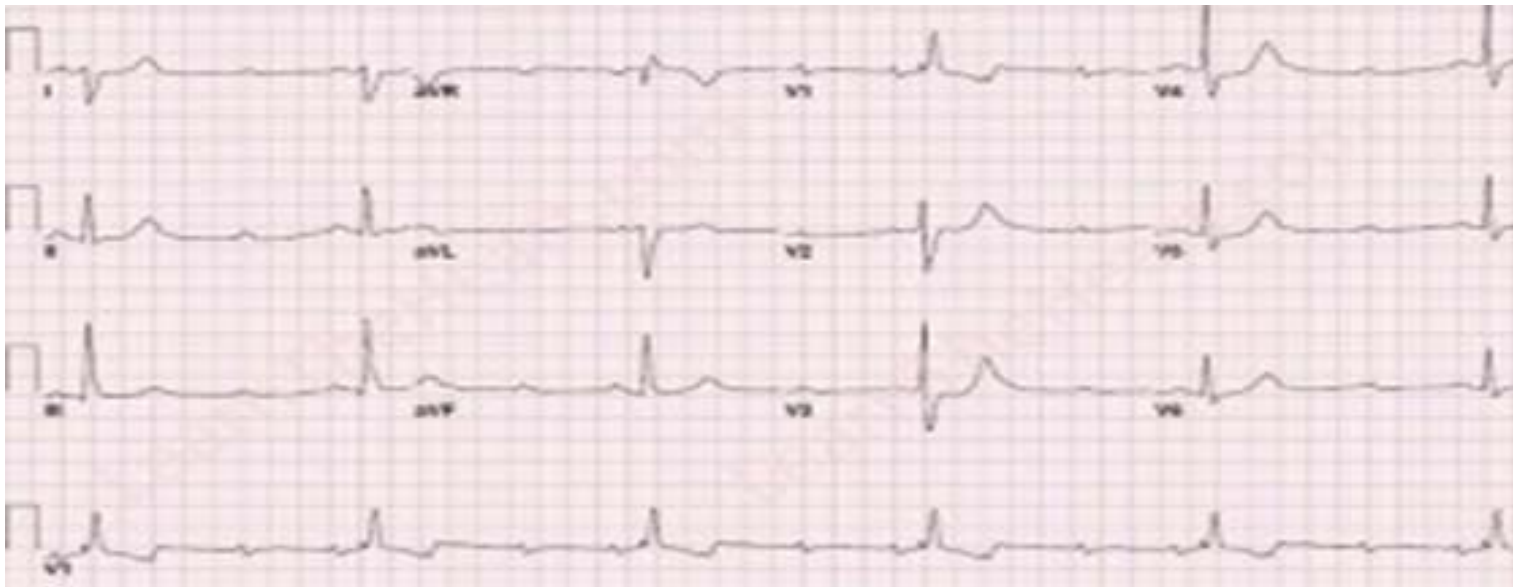
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Arrange urgent Cardiology eval

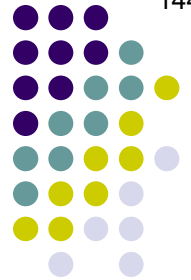
Based on the hx, what is your concern vis a vis his 'fainting spells'?
That he is having syncopal episodes 2ndry to heart block

What is your working diagnosis?
Kearns-Sayre syndrome (KSS)

Acquired Ptosis



KSS: Complete heart block in a 15 y.o.



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	<p>CPEO</p> <p>Myotonic dystrophy</p>
Neuromuscular junction	<p>What do you do if you see a ptosis? Do CPEO pts c/o diplopia?</p>

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Based on the hx, what is your concern vis a vis his 'fainting spells'?
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Kearns-Sayre syndrome (KSS)

KSS has three hallmarks, two of which are CPEO and cardiac conduction abnormalities. What is the third?

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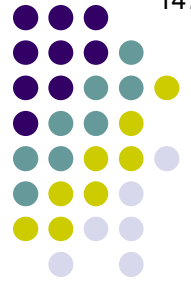
What is your working diagnosis?
Kearns-Sayre syndrome (KSS)

KSS has three hallmarks, two of which are CPEO and cardiac conduction abnormalities. What is the third?
Pigmentary retinopathy

Acquired Ptosis



KSS: Pigmentary retinopathy



Q

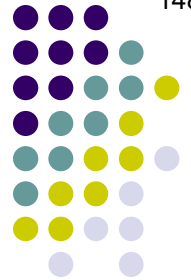
Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
Myogenic	Myotonic dystrophy

In a nutshell, what sort of condition is myotonic dystrophy?

Q/A

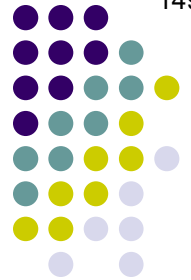
Acquired Ptosis



<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
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In a nutshell, what sort of condition is myotonic dystrophy?

An inherited (AD
AR
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**A**

Acquired Ptosis

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Acquired Ptosis



Myotonic dystrophy



Q

Acquired Ptosis

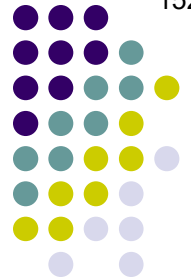
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What are its ocular manifestations?

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A

Acquired Ptosis

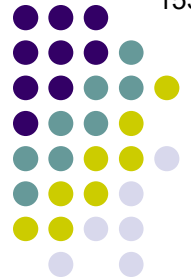
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What are its ocular manifestations?

- Bilateral symmetric ptosis
- Ophthalmoplegia
- Pigmentary retinopathy
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How is the lens involved in myotonic dystrophy?



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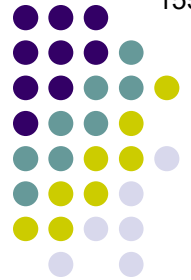
What are its ocular manifestations?

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--**Cataracts**

How is the lens involved in myotonic dystrophy?

It is cataractous at an early age, with a unique appearance



Q

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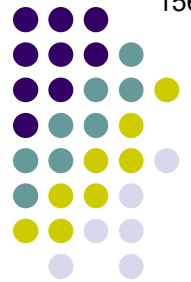
--Pigmentary retinopathy

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It is cataractous at an early age, **with a unique appearance**

What is the appearance of these cataracts?



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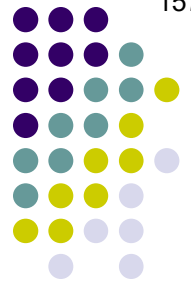
--**Cataracts**

How is the lens involved in myotonic dystrophy?

It is cataractous at an early age, **with a unique appearance**

What is the appearance of these cataracts?

They appear as iridescent, polychromatic crystal in the lens cortex



Q

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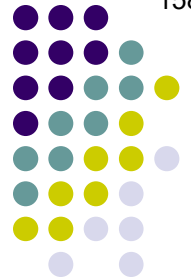
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By what descriptive term is the classic myotonic-dystrophy cataract known?

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Acquired Ptosis



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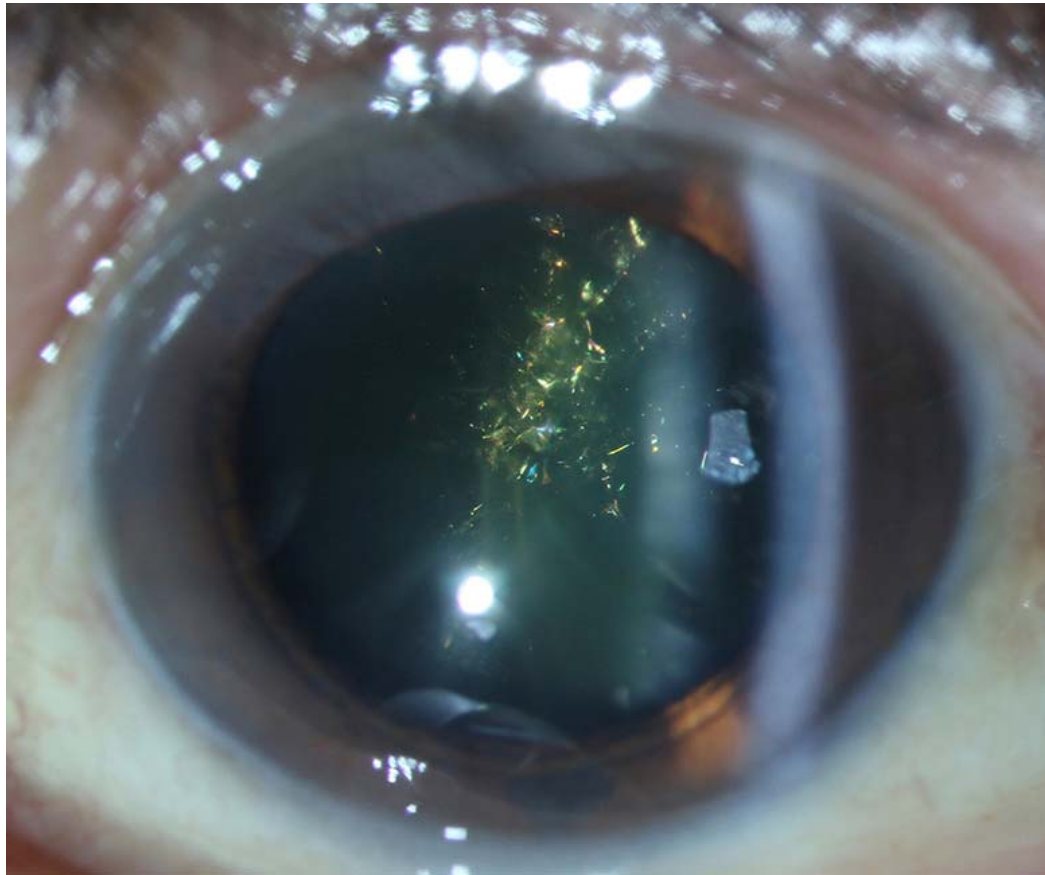
They appear as iridescent, polychromatic crystal in the lens cortex

By what descriptive term is the classic myotonic-dystrophy cataract known?

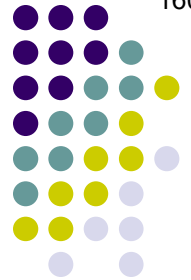
'Christmas tree cataract'



Acquired Ptosis



Myotonic dystrophy: Cataract



Q

Acquired Ptosis

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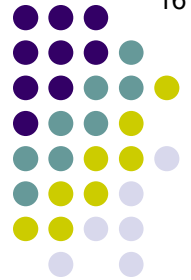
By what descriptive term is the classic myotonic-dystrophy cataract known?

'Christmas tree cataract'

Are they visually significant?

A

Acquired Ptosis



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What is the appearance of these cataracts?

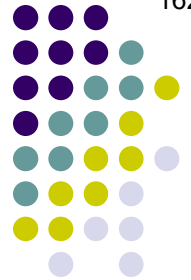
They appear as iridescent, polychromatic crystal in the lens cortex

By what descriptive term is the classic myotonic-dystrophy cataract known?

'Christmas tree cataract'

Are they visually significant?

Yes—over time, a total cortical cataract will develop, along with a PSC



Q

Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
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What are its ocular manifestations?

- Bilateral symmetric ptosis
- Ophthalmoplegia
- Pigmentary retinopathy
- Cataracts

What are its classic nonocular findings?

-
-
-
-
-



A

Acquired Ptosis

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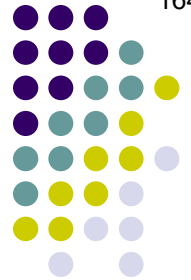
An inherited (AD) progressive systemic condition that results in ophthalmoplegia

What are its ocular manifestations?

- Bilateral symmetric ptosis
- Ophthalmoplegia
- Pigmentary retinopathy
- Cataracts

What are its classic nonocular findings?

- Myotonia
- Characteristic facies
- Frontal balding
- Cardiac conduction issues
- Low intelligence



Q

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What are its ocular manifestations?

- Bilateral symmetric ptosis
- Ophthalmoplegia
- Pigmentary retinopathy
- Cataracts

What are its other manifestations?

- Myotonia**
- Characteristic hand grip
- Frontal balding
- Cardiac conduction defects
- Low intelligence

What is myotonia?



A

Acquired Ptosis

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What are its o

What is myotonia?

The inability of a muscle to relax after contraction

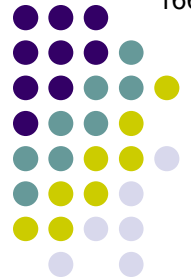
--**Myotonia**

--Characteristic

--Frontal bald

--Cardiac con

--Low intelligence



Q

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--Low intelligence

What is myotonia?

The inability of a muscle to relax after contraction

What is the classic story for recognizing a pt suffers from myotonia?



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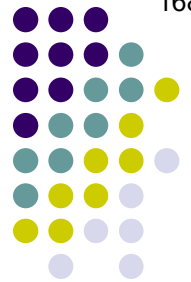
--Low intelligence

What is myotonia?

The inability of a muscle to relax after contraction

What is the classic story for recognizing a pt suffers from myotonia?

When you greet them in clinic, the handshake is prolonged because they have difficulty letting go



Q

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- Ophthalmoplegia
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- Cataracts

What are its classic nonocular

- Myotonia
- Characteristic facies**
- Frontal balding
- Cardiac conduction issues
- Low intelligence

By what descriptive term is the classic myotonic-dystrophy facies known?



A

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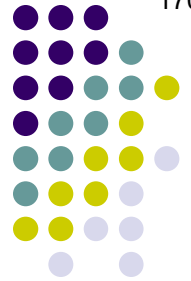
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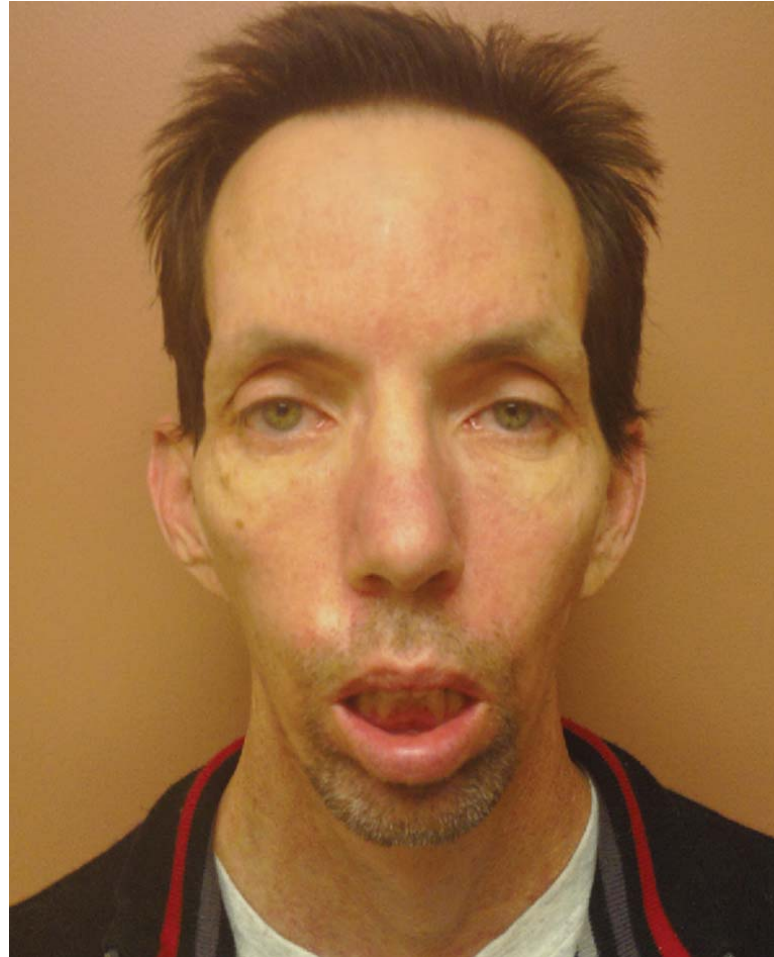
By what descriptive term is the classic myotonic-dystrophy

facies known?

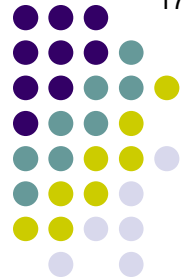
'Hatchet face'



Acquired Ptosis



Myotonic dystrophy: 'Hatchet face'



Q

Acquired Ptosis

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'Hatchet face'

What changes lead to this appearance?



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'Hatchet face'

What changes lead to this appearance?

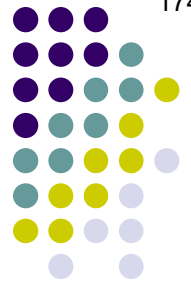
Wasting of the temporalis and masseter muscles



Acquired Ptosis



Myotonic dystrophy: 'Hatchet face' 2ndry to temporalis/masseter wasting



Q

Acquired Ptosis

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- Characteristic facies
- Frontal balding**
- Cardiac conduction issues
- Low intelligence

To what does the term frontal balding refer?



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- Characteristic facies
- Frontal balding**
- Cardiac conduction disease
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To what does the term frontal balding refer?

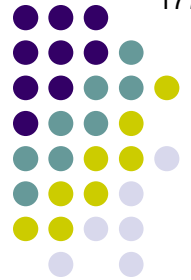
Just what it sounds like—a specific pattern of hair loss



Acquired Ptosis



Myotonic dystrophy: Frontal balding



Q

Acquired Ptosis

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Ptosis, ophthalmoplegia, pigmentary retinopathy, cardiac issues...

What does that sound like?

- Characteristic facies
- Frontal balding
- Cardiac conduction issues**
- Low intelligence



A

Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
Myogenic	CPEO Myotonic dystrophy

In a nutshell, what sort of condition is myotonic dystrophy?

An inherited (AD) progressive systemic condition that results in ophthalmoplegia

What are its ocular manifestations?

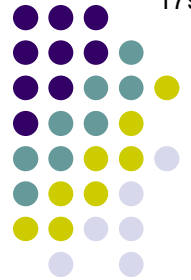
- Bilateral symmetric ptosis**
- Ophthalmoplegia**
- Pigmentary retinopathy**
- Cataracts

Ptosis, ophthalmoplegia, pigmentary retinopathy, cardiac issues...

What does that sound like?

It sounds like CPEO (specifically KSS)

- Characteristic facies
- Frontal balding
- Cardiac conduction issues**
- Low intelligence



Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
Myogenic	CPEO Myotonic dystrophy

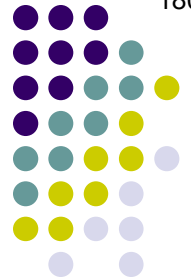
So upon encountering a young-adult pt with bilateral ptosis, pigmentary retinopathy and cardiac conduction issues, don't jump straight to CPEO...

What are its ocular manifestations?

- Bilateral symmetric ptosis** ←
- Ophthalmoplegia** ←
- Pigmentary retinopathy** ←
- Cataracts

What are its classic nonocular findings?

- Myotonia
- Characteristic facies
- Frontal balding
- Cardiac conduction issues** ←
- Low intelligence



Acquired Ptosis

<i>General categories of ptosis etiology</i>	<i>Specific causes of acquired ptosis within each category</i>
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So upon encountering a young-adult pt with bilateral ptosis, pigmentary retinopathy and cardiac conduction issues, don't jump straight to CPEO...

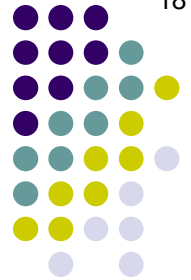
Be sure to check for signs/symptoms of myotonic dystrophy first!

What are its ocular manifestations?

- Bilateral symmetric ptosis
- Ophthalmoplegia
- Pigmentary retinopathy
- Cataracts** ←

What are its classic nonocular findings?

- Myotonia** ←
- Characteristic facies** ←
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So upon encountering a young adult pt with bilateral ptosis, pigmentary retinopathy and **cardiac conduction issues** don't jump straight to CPEO. Be sure to check for signs/symptoms of myotonic dystrophy first!

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What are its classic nonocular findings?

Speaking of cardiac conduction issues—when an eye dentist encounters those words, four conditions should come to mind (although admittedly, one of them probably needn't stay there for long).

- Low intelligence

No question yet—proceed when ready



Acquired Ptosis

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So upon encountering a young-adult pt with bilateral ptosis, pigmentary retinopathy and **cardiac conduction issues** don't jump straight to CPEO. Be sure to check for signs/symptoms of myotonic dystrophy first!

What are its ocular manifestations?

- Bilateral symmetric ptosis
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- Pigmentary retinopathy

Myotonic dystrophy

KSS

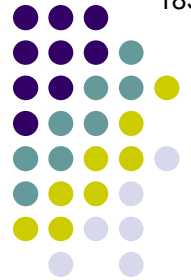
?

?

What are its classic nonocular findings?

Speaking of cardiac conduction issues—when an eye dentist encounters those words, four conditions should come to mind (although admittedly, one of them probably needn't stay there for long). Two are CPEO/KSS and myotonic dystrophy. What are the other two?

- Low intelligence



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So upon encountering a young-adult pt with bilateral ptosis, pigmentary retinopathy and **cardiac conduction issues** don't jump straight to CPEO
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Myotonic dystrophy

KSS

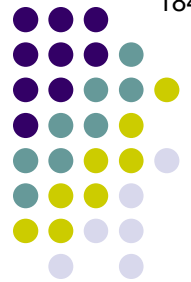
LHON

Leigh syndrome

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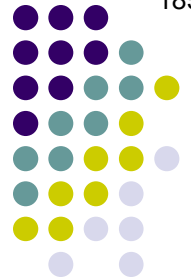
LHON

Leigh syndrome

What does LHON stand for in this context?

Speaking of cardiac words, four conditions probably need to be considered. What are the other three?

--LOW T



Acquired Ptosis

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What does LHON stand for in this context?
Leber's hereditary optic neuropathy

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KSS

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What does LHON stand for in this context?
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How does it present?

Speaking of cardiac words, four conditions probably need to be considered.
What are the cardiac manifestations?

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What are the clinical features of LHON?

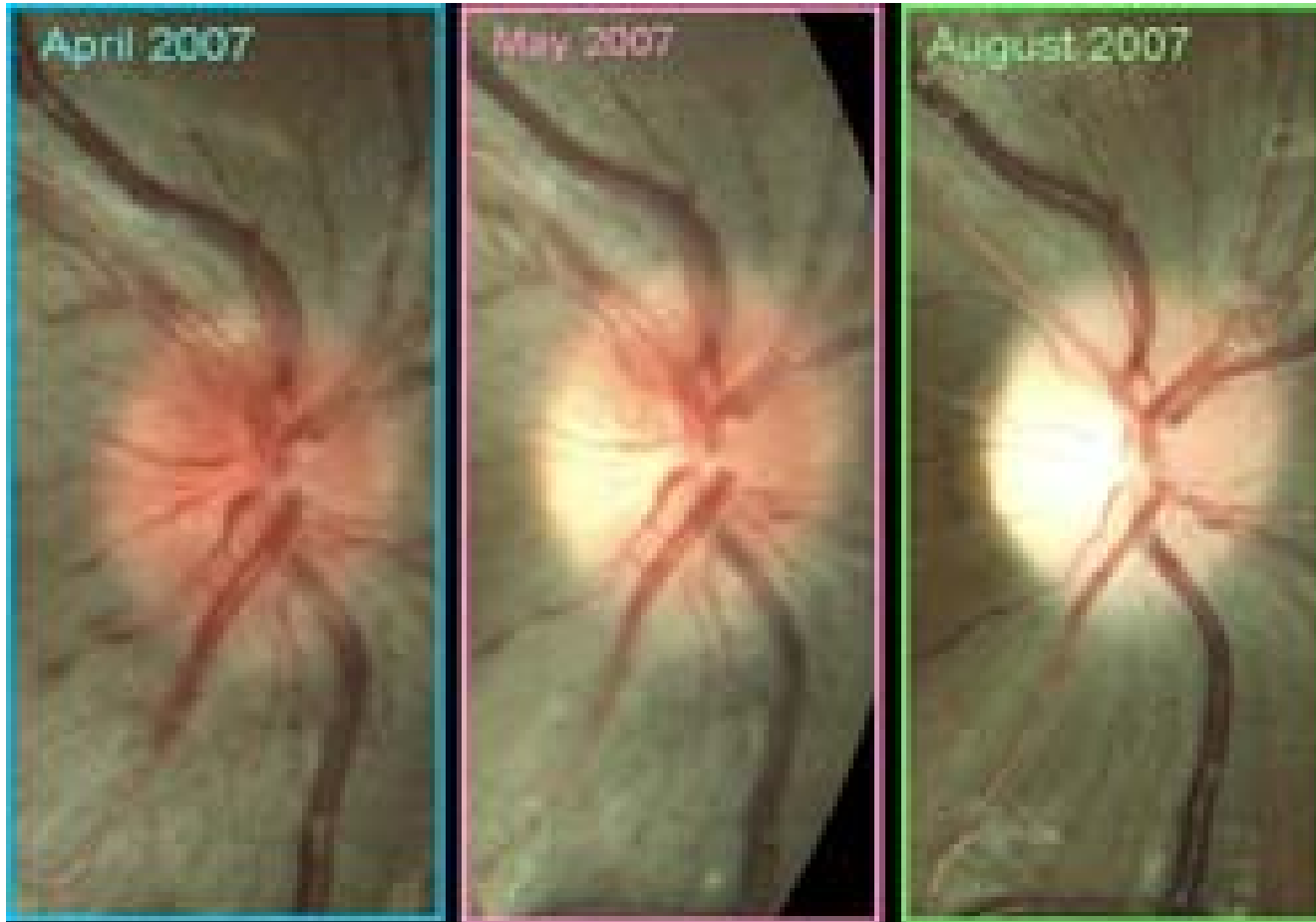
--LOW T

How does it present?

With decreased vision (initially unilateral, but the fellow eye is inevitably affected as well) in the second to fourth decade

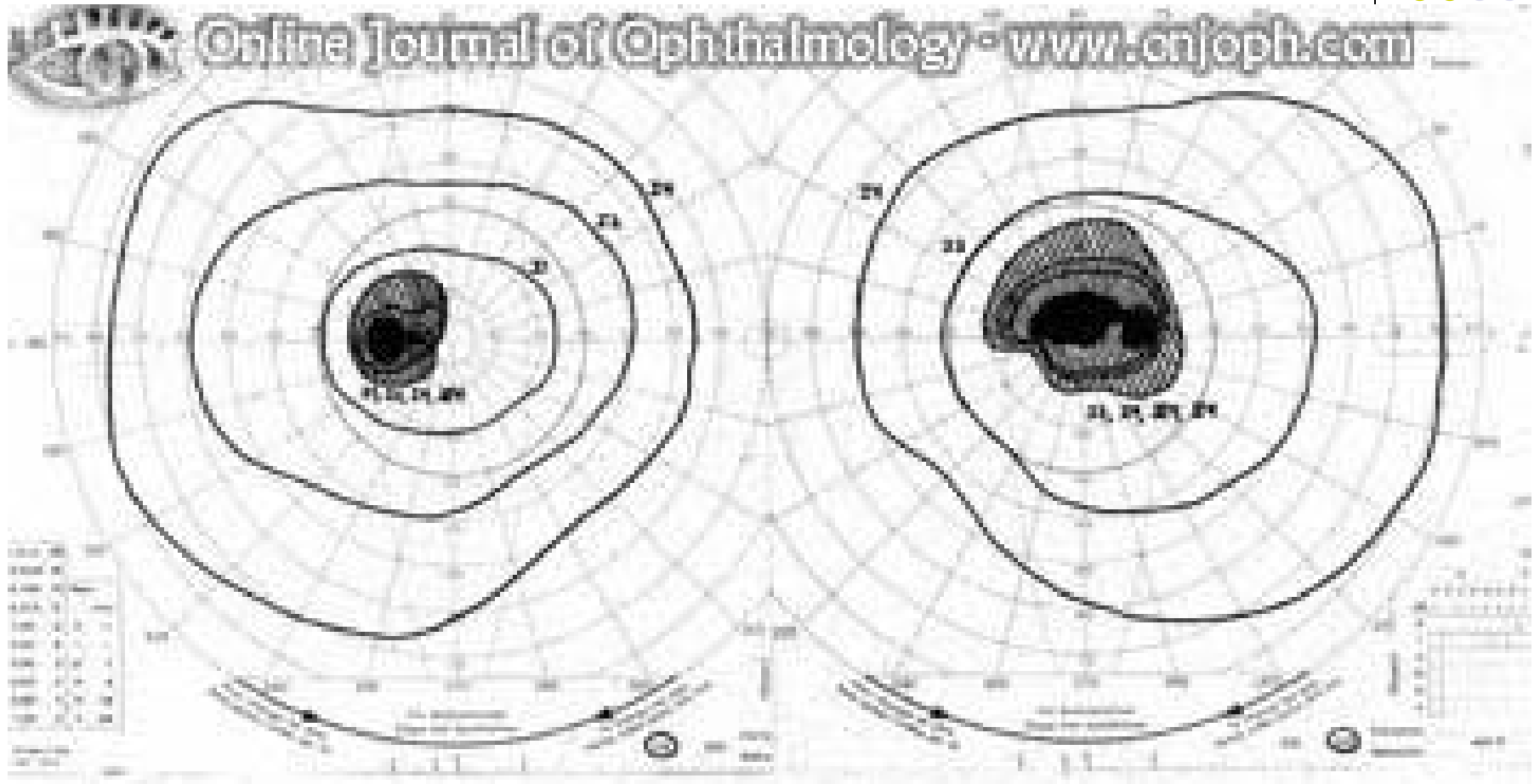


Acquired Ptosis

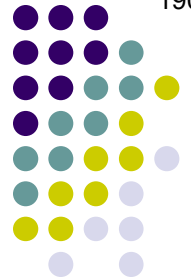


LHON: Progression of ONH atrophy

Acquired Ptosis



LHON: Central/cecocentral scotomata



Acquired Ptosis

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Does it have a gender predilection?



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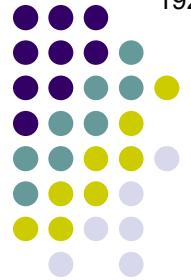
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Does it have a gender predilection?
Yes, about 90% of pts are male



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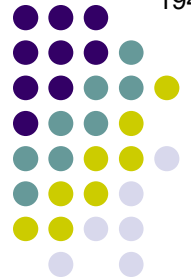
Leigh syndrome

What are its classic nonocular findings?

Speaking of cardiac conduction issues—words, four conditions should come to mind (probably shouldn't stay there for long). Two are obvious. What are the other two?

- Low intelligence

Leigh syndrome is the one you can probably forget. (It has a full entry in *Eyewiki*, but receives only one mention—in a Table—in the *BCSC*.)



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LHON

Leigh syndrome

What are its classic nonocular findings?

Speaking of cardiac conduction issues—words, four conditions should come to mind (probably shouldn't stay there for long). Two of them are already on the list. What are the other two?

- Low intelligence

Leigh syndrome is the one you can probably forget. (It has a full entry in *Eyewiki*, but receives only one mention—in a Table—in the *BCSC*.) It is a mitochondrial condition that presents in childhood with cognitive and motor decline, ophthalmoplegia, and optic atrophy.



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neuromuscular junction	<u>MG</u> ; botulism

In one word, what sort of condition is myasthenia gravis (MG)?

An condition

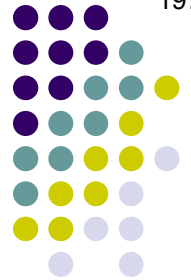


A

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In one word, what sort of condition is myasthenia gravis (MG)?
An immunologic condition



Q

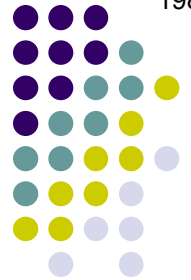
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What is the immunologic issue in MG?



Q/A

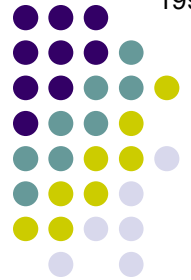
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What is the immunologic issue in MG?

The presence of antibodies against the receptors of the neuromuscular junction



A

Acquired Ptosis

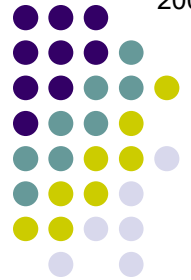
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A

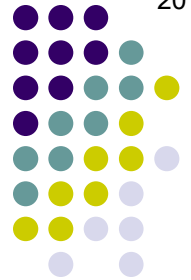
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What is the immunologic issue in MG?

The presence of antibodies against the acetylcholine receptors of the neuromuscular junction. These Ab induce destruction of the receptors, producing the muscular weakness characteristic of the dz.



Q

Acquired Ptosis

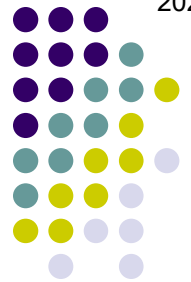
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What are the two clinical hallmarks of MG?



A

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What are the two clinical hallmarks of MG?

--**Variability:** Both the structures involved as well as the severity of weakness will fluctuate throughout the day, and from day to day.

--**Fatigability:** Weakness worsens with use, and improves with rest.



Acquired Ptosis

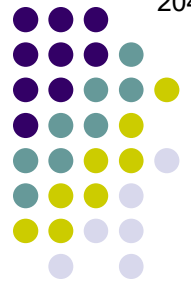
Initial upward gaze



Prolonged upward gaze



MG: Fatigability



Q

Acquired Ptosis

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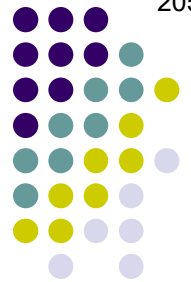
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What is the immunologic issue in MG?

The presence of antibodies against the acetylcholine receptors of the neuromuscular junction. These Ab induce destruction of the receptors, producing the muscular weakness characteristic of the dz.

Does it tend to be worse earlier in the day, or later?

Fluctuability: Both the structures involved as well as the severity of weakness will fluctuate throughout the day, and from day to day.
--*Fatigability:* Weakness worsens with use, and improves with rest.



A

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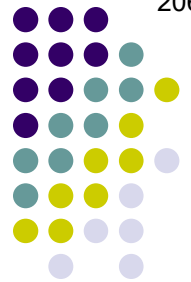
The presence of antibodies against the acetylcholine receptors of the neuromuscular junction. These Ab induce destruction of the receptors, producing the muscular weakness characteristic of the dz.

Does it tend to be worse earlier in the day, or later?

Later

variability. Both the structures involved as well as the severity of weakness will fluctuate throughout the day, and from day to day.

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Q

Acquired Ptosis

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In one word, what sort of condition is myasthenia gravis (MG)?

An autoimmune condition

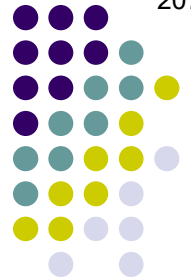
What is the most common presenting sign of MG?

Weakness of the extraocular muscles due to the destruction of the acetylcholine receptors of the neuromuscular junction, producing the muscular weakness characteristic of the dz.

What are the two clinical hallmarks of MG?

--**Variability:** Both the structures involved as well as the severity of weakness will fluctuate throughout the day, and from day to day.

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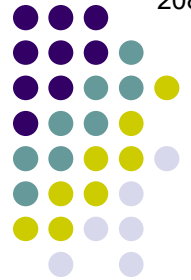
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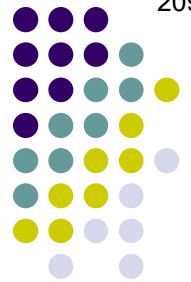
Is the ptosis unilateral, or bilateral?

autoantibodies against the acetylcholine receptors of the neuromuscular junction, leading to the destruction of the receptors, producing the muscular weakness characteristic of the dz.

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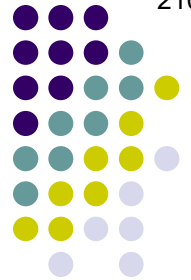
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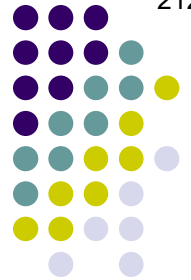
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What med can be added to improve the response?

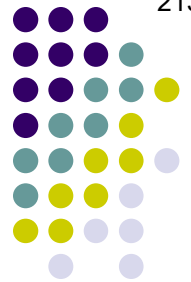
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Does MG-induced ptosis respond well to systemic anticholinesterase meds?

In many cases—no, it doesn't

What med can be added to improve the response?

Steroids

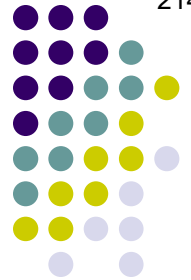
the receptors of the
n of the receptors,

producing the muscular weakness characteristic of the dz.

What are the two clinical hallmarks of MG?

--**Variability**: Both the structures involved as well as the severity of weakness will fluctuate throughout the day, and from day to day.

--**Fatigability**: Weakness worsens with use, and improves with rest.



Q

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neuromuscular junction	MG; botulism

In one word, what sort of condition is myasthenia gravis (MG)?

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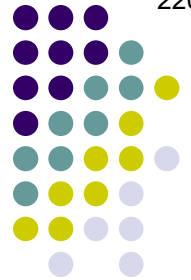
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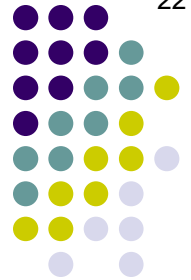
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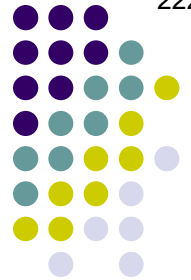
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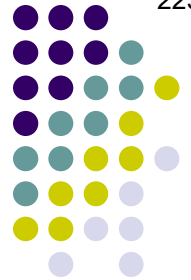
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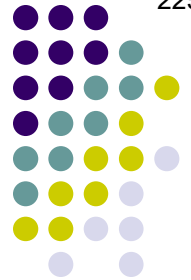
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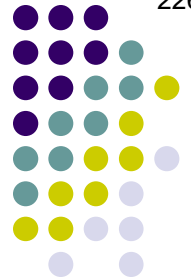
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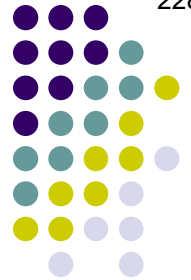


Pre-injection
(Note: The hand is holding her jaw closed)



A few seconds post-injection
(Note: No hand)

MG: Tensilon test



Q

Acquired Ptosis

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Myogenic	CPEO Myotonic dystrophy
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In one word? In the present context, what is the Tensilon test? ?
 An immunological test. A clinic-based test in which Tensilon is given IV, and its effect on the pt's status is assessed.

Tensilon testing is not commonly performed, in part at least because of its potential adverse effects. Of these, which are most disconcerting?

What are the pharmacological effects of edrophonium?
 The neuromuscular transmission is temporarily improved. The receptors, producing the effect, are not blocked.

Pharmacologically, what is edrophonium?
 An acetylcholinesterase inhibitor

What are the clinical effects of edrophonium?
 --Variability of response
 Is it short-, or long-acting?
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In one word? In the present context, what is the Tensilon test?
An immunomodulator? A clinic-based test in which Tensilon is given IV, and its effect on the pt's status is assessed.

What are the potential adverse effects of Tensilon testing?
The most concerning are the effects on the neuromuscular junction.
Tensilon testing is not commonly performed, in part at least because of its potential adverse effects. Of these, which are most disconcerting?
Pts can go into cardiac and/or respiratory arrest

What are the pharmacological properties of edrophonium?
Producing a temporary improvement in the ptosis.
Pharmacologically, what is edrophonium?
An acetylcholinesterase inhibitor

What are the clinical features of MG?
--Variability of weakness
Is it short-, or long-acting?
Short (quite)

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In one word, what is the Tensilon test? In the present context, what is the Tensilon test? ?
 An immunomodulatory agent. A clinic-based test in which Tensilon is given IV, and its effect on the pt's status is assessed.

Why is Tensilon testing not commonly performed, in part at least because of its potential adverse effects. Of these, which are most disconcerting?
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What two clinic-based tests—vastly safer than Tensilon testing—are often performed?

A

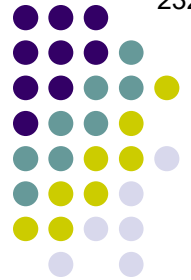
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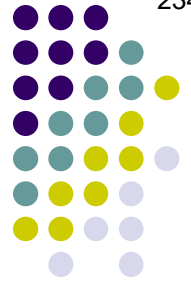
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Sleep test



Acquired Ptosis



MG: Ice-pack test



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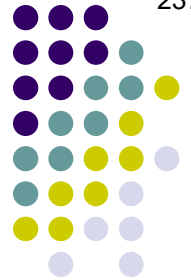
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whereas the sleep test can be used for weakness anywhere



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In one word: In the present context, what is the Tensilon test?

An immunomodulatory agent. Can MG be diagnosed serologically?

What is the Tensilon test?
What is its purpose?
The Tensilon test is used to diagnose Myasthenia Gravis (MG). It involves the administration of a small dose of edrophonium chloride, which temporarily improves muscle strength in patients with MG.

neurotransmitter receptors,

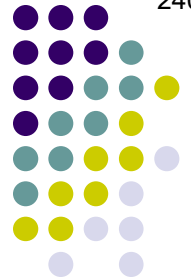
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Yes. However, in cases where dz is limited to the eyes (called *ocular myasthenia*), false-negative results occur in up to half of cases. The point being, interpret negative results with caution.

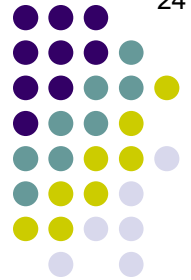
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Answer: About 10% of MG pts harbor an occult neoplasm--what is it?

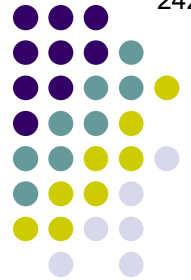
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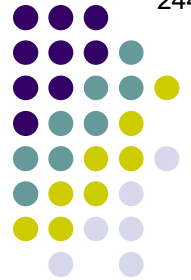
What is a thymoma, and where is it located?

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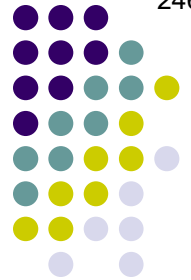
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Thymoma: It is a neoplasm of the **thymus**, which is located in the anterior/superior mediastinum

What sort of organ is the thymus? What is its function?

Sleep test: The pt lies quietly in a darkened room for 20-30 minutes, then their strength is re-assessed (positive test = improvement)



A

Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
Myogenic	CPEO Myotonic dystrophy
Neuromuscular junction	MG; botulism

In one word: In the present context, what is the Tensilon test?

Answer: About 10% of MG pts harbor an occult neoplasm--what is it?
A thymoma

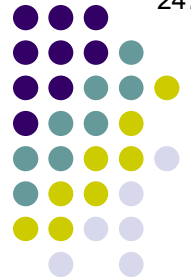
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'Organ in which T cells mature'--how does this dovetail with the pathophysiology of MG?

MG is a disease of autoantibodies, which are produced by B cells. However, B-cell autoantibody production in MG is prompted by a T-cell response to ACh-receptor antigens.

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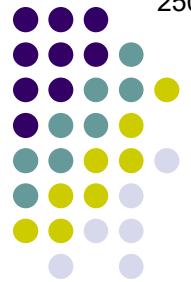
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Ice-pa

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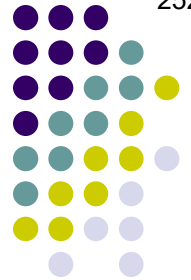
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How is MG-associated thymoma managed?
Ice-pa: If/when an MG pt has a thymoma, what (if anything) should be done about it?

amount of ptosis is re-assessed (positive test = improvement)

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Ice-pa: Thymectomy should be considered in select cases

amount of ptosis is re-assessed (positive test = improvement)

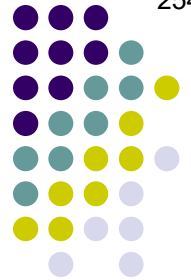
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Q

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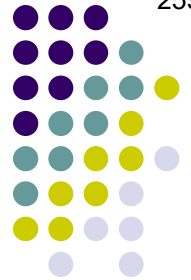
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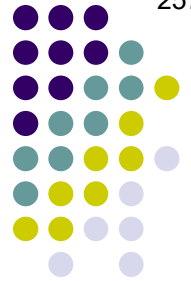
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Q

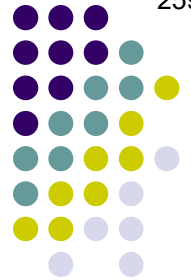
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Q/A

Acquired Ptosis

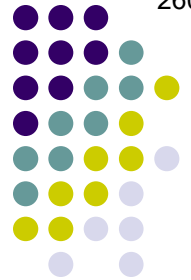
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two words	



A

Acquired Ptosis

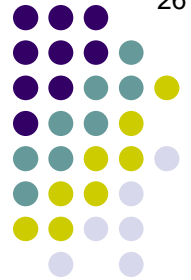
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<p>How long until the effect wears off and the ptosis resolves?</p>	

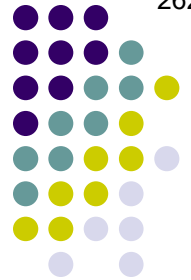


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How long until the effect wears off and the ptosis resolves?
A few weeks or so



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Q/A

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Topical may help



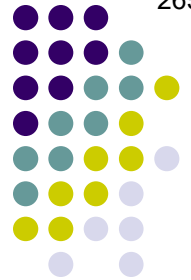
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How do these infants present?



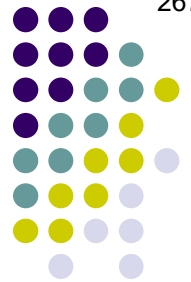
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How do these infants present?

With rapid onset of ptosis, bilateral ophthalmoplegia, dilated fixed pupils and bulbar weakness



Q

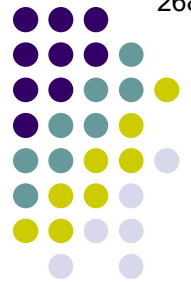
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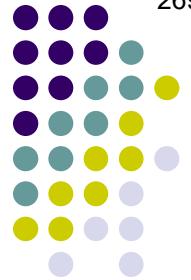
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What is the treatment?

Supportive



Acquired Ptosis

General categories of ptosis etiology	Specific causes of acquired ptosis within each category
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Neurogenic	<p><i>Neuromuscular junction</i> MG; botulism</p> <p>CN3 palsy Horner's</p>
Aponeurotic	Aponeurotic dehiscence
Mechanic	<p><i>Neoplasm</i></p>
Traumatic	

CN3 palsy and Horner syndrome are covered extensively in separate slide-sets

Q

Acquired Ptosis



Why must you always check Bell's phenomenon and corneal sensation prior to ptosis surgery?

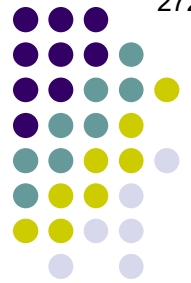
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Why must you always check Bell's phenomenon and corneal sensation prior to ptosis surgery?

Ptosis surgery often results in some degree of corneal exposure. A brisk Bell's provides protection to the ocular surface. Decreased corneal sensation + corneal exposure is a set-up for disaster—the risk of corneal ulceration is very high. The ptosis surgeon should proceed with great caution.



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In evaluating 'unilateral' ptosis, why must you manually elevate the ptotic lid?

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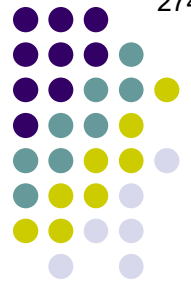


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In evaluating 'unilateral' ptosis, why must you manually elevate the ptotic lid?

Ptosis stimulates increased innervation to the levator muscles in an effort to clear the visual axis. In bilateral but asymmetric ptosis, this may clear the axis of the less-ptotic eye, making it appear normal. Manually elevating the more-ptotic lid removes the stimulus for excess innervation and may reveal a milder but still significant ptosis on the other side. Better to find out now rather than s/p unilateral surgery resulting in a 'new' ptosis in the fellow eye.



Q

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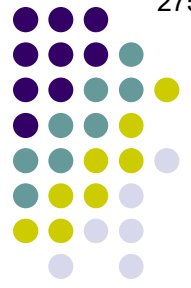
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Give two reasons why the levator muscles receive equal innervation:

- 1)
- 2)



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- 1) Hering's law of equal innervation to yoke muscles
- 2) The CNIII nuclear complex contains one fused subnucleus serving both levator muscles, so they must receive the same neural input