

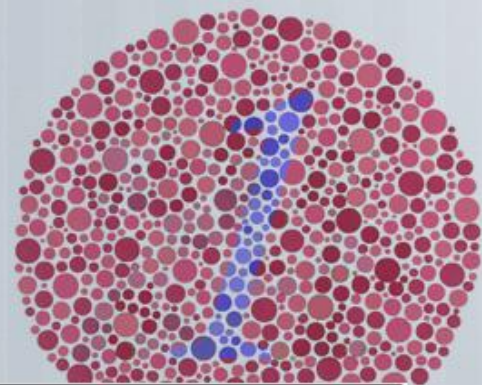
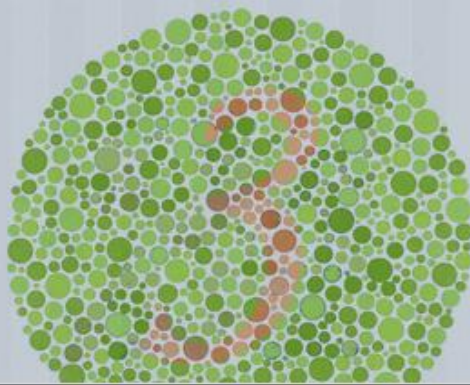
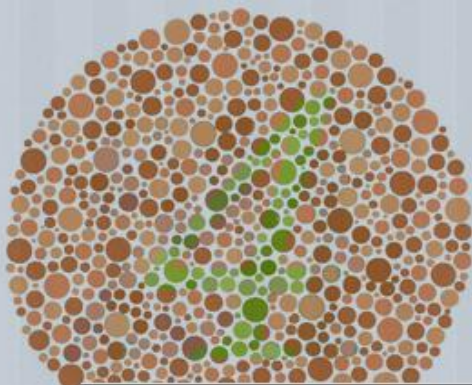
Lids, Lacrimal, and Orbital Disorders



431
Teams
medical students

Ophthalmology Team

Done by : Abdullah Alkhoraiji



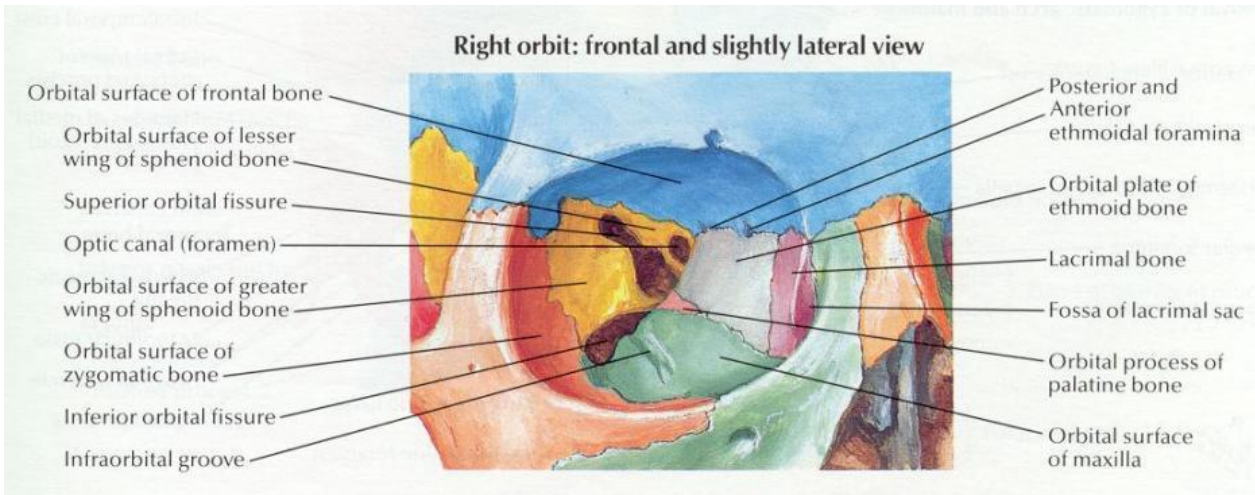
From slides Doctor's Notes Team's Notes From the book Important

Goals and objectives

Orbit : Anatomy and evaluation techniques –Orbital trauma –Proptosis

Lids : Anatomy and evaluation techniques –Trauma –Lesions –Malpositions

- **Anatomy**



Bones

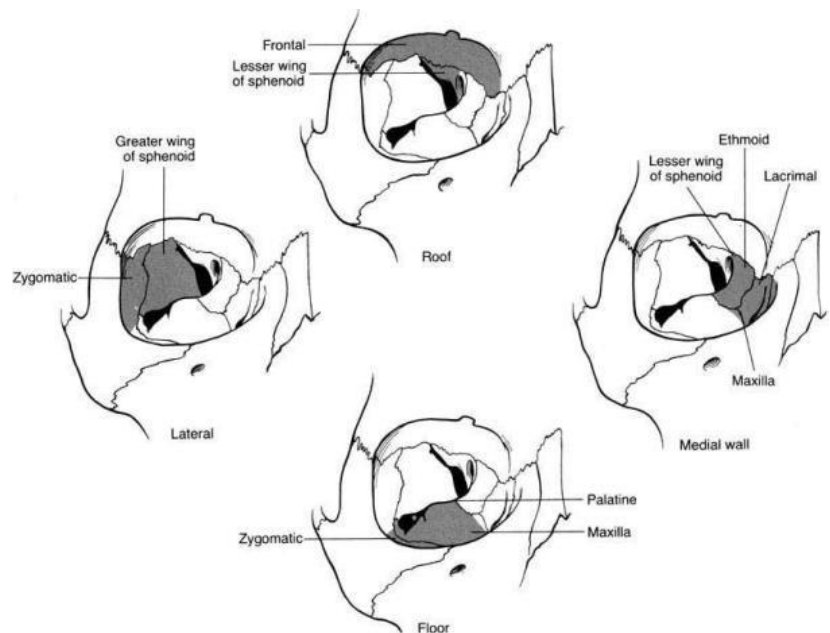
The bony orbit is cone shaped.

Lateral wall: zygomatic and sphenoidal bone

The roof: frontal and sphenoidal bones

Medial wall: maxillary bone, lacrimal bone, ethmoidal and sphenoidal bones.

The floor: maxillary and zygomatic bones and the far back is made from the palatine bone.

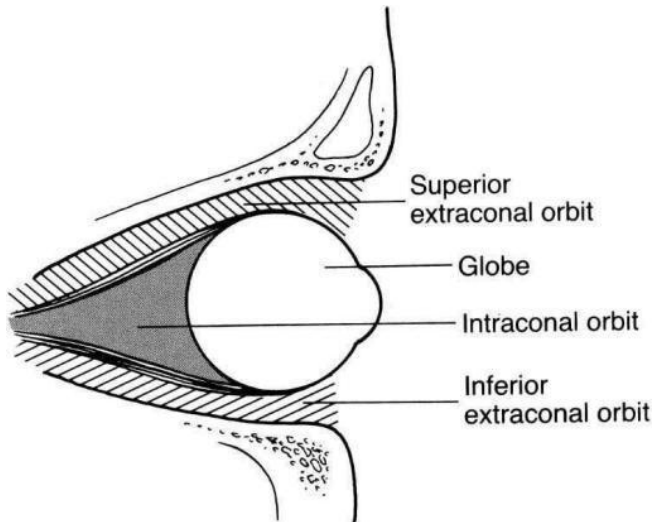


Which one of these is the strongest? The lateral wall, because the eyes are in most danger from the lateral side.

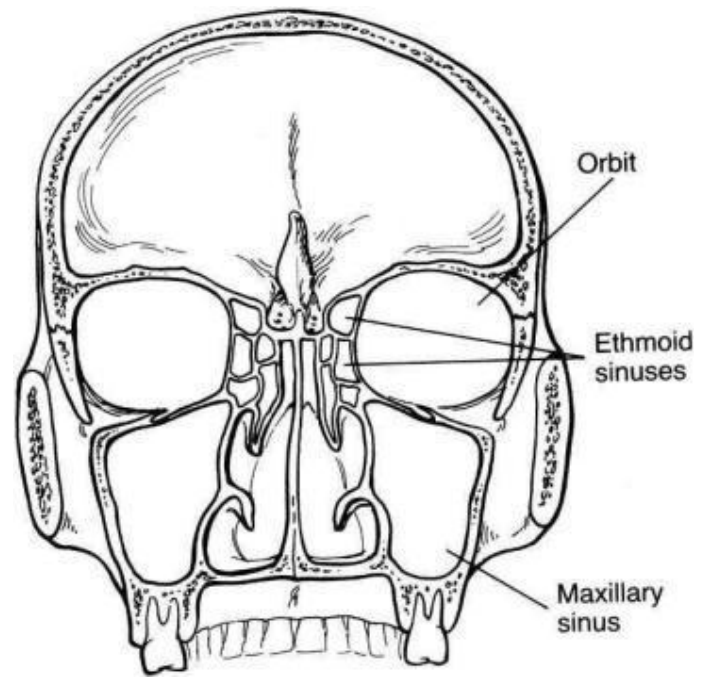
Which one is the weakest? The floor

What other name is there for the ethmoidal bone? Lamina Papyracea (paper like)

Orbital Compartments



Sinuses



The orbit is surrounded by 4 sinuses.

1. Maxillary sinus (formed at birth)
2. Ethmoidal sinus (formed at birth)
3. Frontal sinus (formed at the age of 5 and above)
4. Sphenoid sinus (formed at the age 1 or 2)

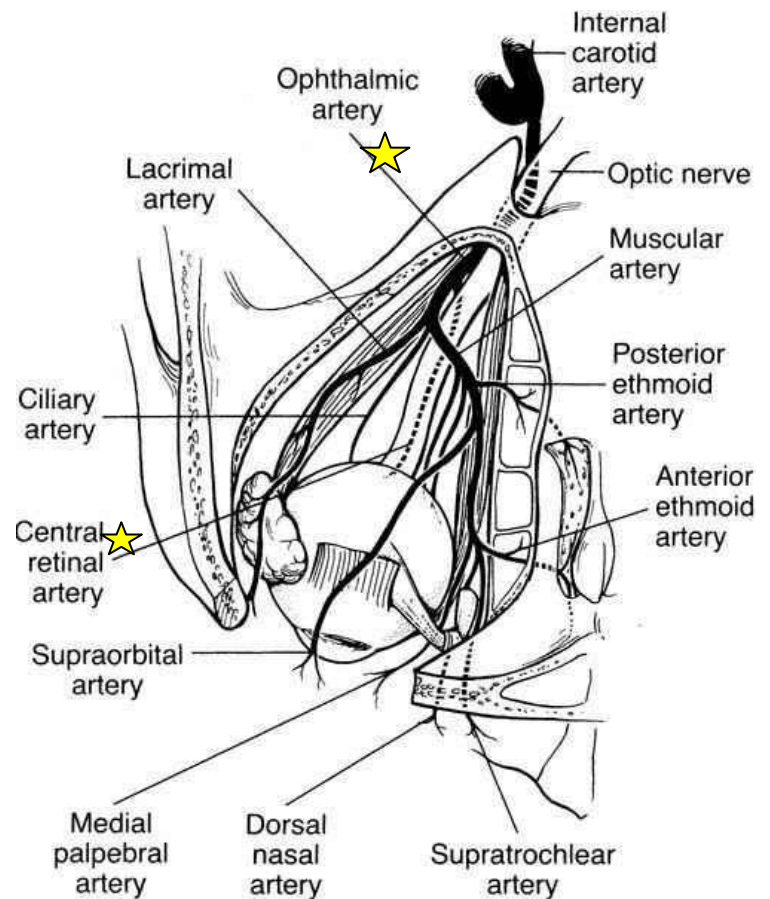
In Trauma, children are more prone to orbital roof fractures, because they don't have frontal sinus, because theoretically frontal sinuses are assumed to have cushioning effect on the orbital roof in trauma.

Blood supply

The blood supply of the orbit is coming from **the ophthalmic artery**: first branch of the internal carotid artery.

It gets inside the orbit through **superior and inferior ophthalmic fissures**

Central retinal artery is a branch of the ophthalmic artery. It is extremely important because if we cut it, it will lead to total blindness. (Because it has no collaterals). It passes through the optic nerve.



Annulus of Zinn

is a form of condensed fibrous tissue. It is the origin of all the recti muscles.

- All the extraocular muscles origin from the orbital Apex except the **Anterior Oblique Muscle** which originates behind the inferior orbital rim, near the nasolacrimal duct.

Function of the following nerves:

Lacrimal Nerve: going to the Lacrimal Gland

Abducent Nerve: supplies the lateral rectus.

Trochlear Nerve: supplies the superior oblique muscles. It is outside the annulus of zinn just like the superior oblique muscles.

Nasociliary Nerve: supplies the tip of the nose, ciliary muscles and the cornea

Frontal Nerve: it is a sensory nerve. Its name will change to *supra orbital nerve* that supplies the entire skull to the back.

- So a patient with supra orbital nerve injury (or frontal nerve injury) will complain of numbness in this area.

Superior Division of oculomotor: supplies the superior rectus and levator palpebrae

Inferior Division: supplies the medial and inferior rectus.

(Hutchinson's Sign: when the tip of the nose and the eyes are involved in herpetic infections).

- **Evaluation (7 P's)**

1- Pain

2- Palpation

3- Past medical history

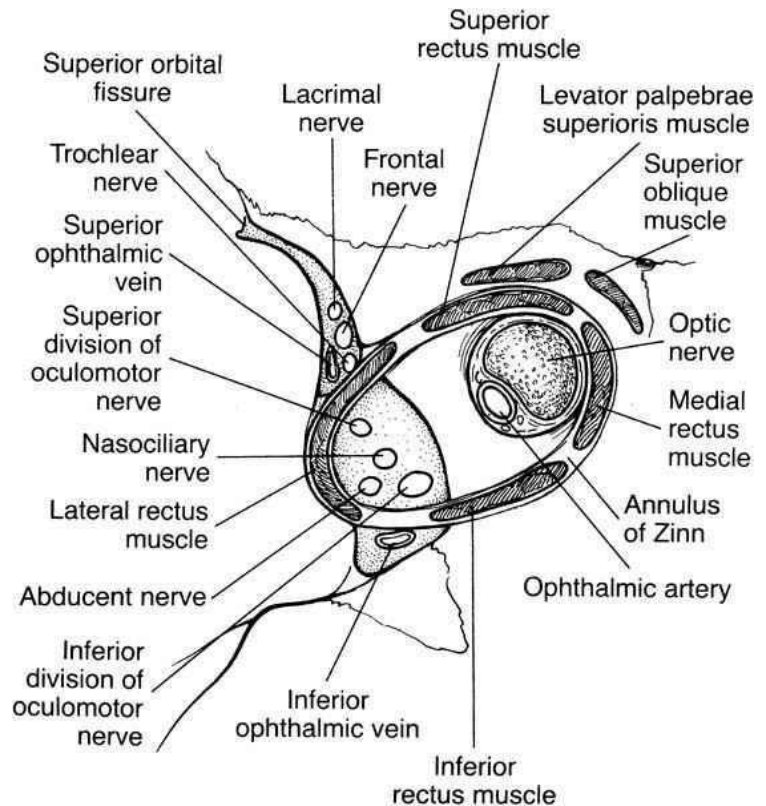
4- Progression

5- Pulsation

6- Proptosis : is bulging of the eyes.

7- Periorbital changes

Exophthalmus:
thyroid related.



1. Pain

- Infection
- Inflammation (orbital)
- Hemorrhage (orbital)
- Malignant Lacrimal Gland Tumor



2. Progression

If progression is Minutes to Hours:

A patient comes with proptosis (or any orbital pathology) for minutes or hours.

What do you think of?

- Hemorrhage (minutes to hours)
- Lymphangioma (abnormal lymphatic vessels that tend to have bleeding inside them)
- Varices (upon valsalva maneuver)
- Orbital emphysema**: air around the eye.



How do we get air around the eye? Fractures

Why do we worry about orbital emphysema? Whenever there is a fracture in the orbit, the air will move from the sinuses to the orbit. Thus the orbital pressure will go very high, and the air will compress the **central retinal artery**, which will lead to **retinal ischemia**. That's why whenever you have a patient in the emergency **with orbital fracture so ask him not to blow the nose to prevent the orbital emphysema (so that the pressure won't increase in the sinuses and the air goes into the eyes and around them).**

If progression is Days to Weeks

(You don't need to remember this, they're all examples)

- **Children:** capillary hemangioma, rhabdomyosarcoma, retinoblastoma, neuroblastoma, leukemia (tumors in general)
- **Inflammatory disease:** idiopathic orbital inflammatory disease, thrombophlebitis, thyroid orbitopathy, recurrent inflamed dermoid
- **Infection:** orbital cellulitis, abscess, cavernous sinus thrombosis
- **Trauma, post surgical, hemorrhage:** orbital hemorrhage, lymphangioma
- **Malignancy:** rhabdomyosarcoma, metastatic tumors, granulocytic sarcomas, adenoid cystic carcinoma
- **Carotid-cavernous (C-C) fistula:** Part of The carotid artery's course is to pass through the cavernous sinus. In trauma, the sinus will be building up a high blood pressure, leading to congestion of the eye, because the ophthalmic vein drains in the cavernous sinus. Then any blood coming from the eye will be congested.

- **eyelids anatomy :**

From outside:

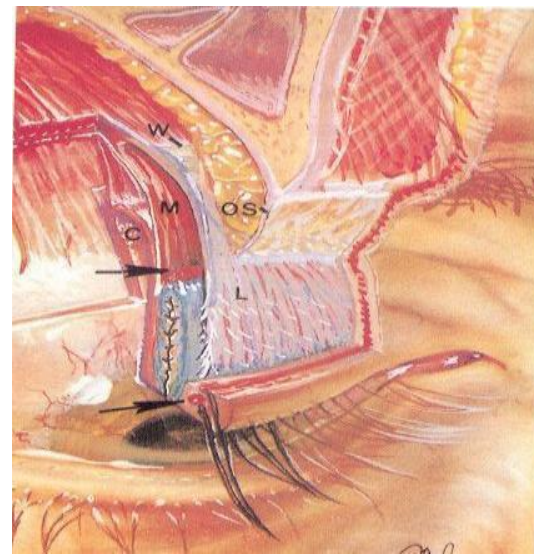
skin => **orbicularis muscle** => (os) **Orbital Septum**: a dense fibrous tissue from the orbital rim going all the way to the tarsals => **orbital fat** => **pre opneurotic fat** => **Aponeurosis** => **muller muscle** => **conjunctiva**.

Meibomian glands: around 30 in the upper lid and 20 to 25 in the lower lid.

The important thing is the **Orbital septum** (boundary of the orbit).

-Anything behind the orbital septum = orbit = intra orbit

-Anything anterior to the orbital septum = extra orbit= preseptal.



- **Infections:**

Preseptal Cellulitis (extraorbital)

Vision, motility, pupils, VF, disc are **Within Normal Limit**.

Globe itself is **not proptotic**. They are usually healthy people with normal vital signs

Cause: insects bites, sinuses or infection in the sweat glands or meibomian glands, or abrasions.

Treatment: oral antibiotics. and send them home. (expect children under 1 year we admitted them because they can't monitor them self properly)

Treat properly else can develop orbital abscess, brain abscess, cavernous sinus thrombosis and can die.

Orbital Cellulitis

90% secondary to sinus disease (most of the time ethmoidal sinus)

They look **sick**, and **may have a fever**.

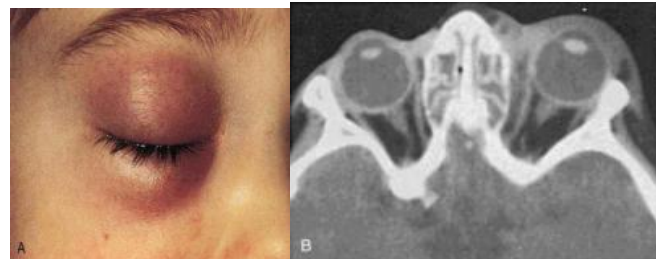
Vision, motility, and pupils are usually not normal, and **proptosis**. If they have **lid swelling** and **redness** suspect orbital cellulitis.

high risk of morbidity and mortality.

- **Orbital abscess**
- **Brain abscess**
- **Cavernous Sinus Thrombosis**

Treatment: They need to be **admitted for IV** antibiotics and close observation.

If they have an abscess collection => they need surgery.



- **Allergic Eyelid Swelling:**

Allergic swellings are very common, mainly due to insect bites.

History: The patient usually wakes up with it.



- **The signs for infection in the eye: slight redness, hotness, and tenderness**

We have 2 types of hemangioma:

1. Capillary hemangioma: usually in children.

Main indication of treatment is to **preserve vision**: treat the child in the left picture to prevent **amblyopia** like the right picture because his vision is not mature yet.

(For vision maturation, the eye input should be intact). The younger the child the more critical the case is and the more important the treatment is.

How to treat?

- Propranolol** (beta blocker) it will shrink it.
- If no response: Steroids either Injected into the lesion or systemic
- surgery.

2. Cavernous hemangioma: In adults usually



Capillary Hemangioma



Amblyopia



If Progression from Months to Years

- Dermoidcysts
- Benign mixed tumors
- Neurogenictumors
- Cavernous hemangioma
- Lymphoma
- Fibrous histiocytoma
- Osteoma
- Lipoma
- Glioma
- Meningioma

3. Proptosis

Primary proptosis: orbital neoplasms usually unilateral

Bilateral proptosis: seen in inflammatory(thyroid eye disease), immune processes or systemic diseases.

- **Inflammatory**
 - Thyroid disease – **most common cause**
 - Orbital pseudotumor
 - Wegener granulomatosis
- **Infection** (orbital abscess, cellulitis)
- **Vascular**
 - Orbital hemorrhage
 - Lymphangioma(sudden)
 - C-C fistula
 - Orbital varices-proptosiswith Valsalva
- **Tumor**
 - Benign:** cavernous hemangioma, lymphangioma
 - Malignant:** adenoid cystic carcinoma, lymphoma, glioma
 - Contiguous:** sinus, intracranial nasopharynx, skin
 - Metastatic -lymphoma, leukemia, neuroblastoma
 - Rhabdomyosarcoma

- **Inflammation**

- 1- **Graves' Disease**

– Most common cause of unilateral or bilateral proptosis

– May occur with any thyroid status (hyperthyroid or hypothyroid)

– The eye disease is not controlled by thyroid ablation. (Why?)

(There are thyroid antigens that attract the antibodies. Also, there are similar antigens around the eye. If we remove the thyroid gland, we are removing the antigens of the thyroid gland, but there is still antibodies circulating around the eye. So they will still attack the eye.)



Grave's disease is in 3 places: Eyes, thyroid and pretibial (pretebial myxoedema).

What are the signs of thyroid eye disease?

- Lid lag
- Lid retraction
- Lid swelling
- Exophthalmus
- Strabismus
- Decrease vision
- Conjunctival injection

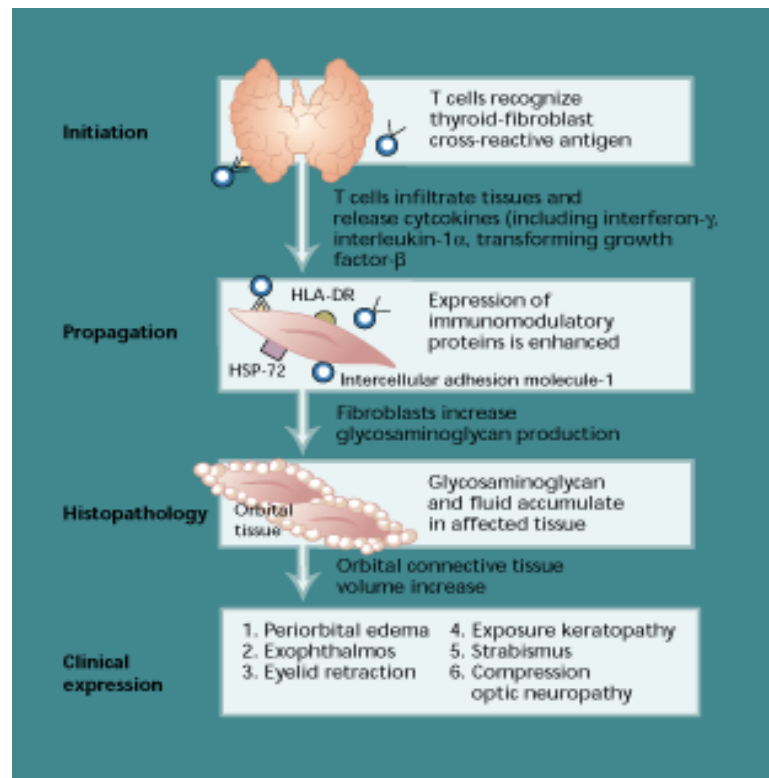
Q: Why do I care about thyroid eye disease as an ophthalmologist? why do I need to treat it?

Because of these 4 complications:

1. **Exposure keratopathy** (Dry cornea); because the eye is bulging and not closing well.
2. **Strabismus** ; because of enlarged extraocular muscle
3. **Compressive optic neuropathy.** (because the optic nerve is compressed from the large extraocular muscle)
4. **cosmetic**

Treatment options

- Steroids.
- Radiation.
- optic nerve decompression.



- 2- **Idiopathic Orbital Inflammation**

- orbital pseudotumor
- myositis
- prompt response to steroids
- OU or systemic → think vasculitis (*except in kids)

- 3- **Sarcoidosis**

- lacrimal gland

- 4- **Vasculitis**

- GCA, PAN, SLE
- Wegener's granulomatosis

- **Lymphoproliferative Disorders**

* **Lymphoid hyperplasia and lymphoma (the most common orbital tumors).**

- 20% of all orbital mass lesions
- salmon patch appearance
- molds to orbital structures
- 50% arise in lacrimal fossa
- 17% bilateral



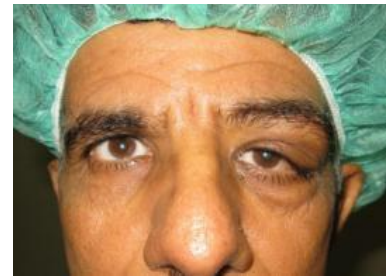
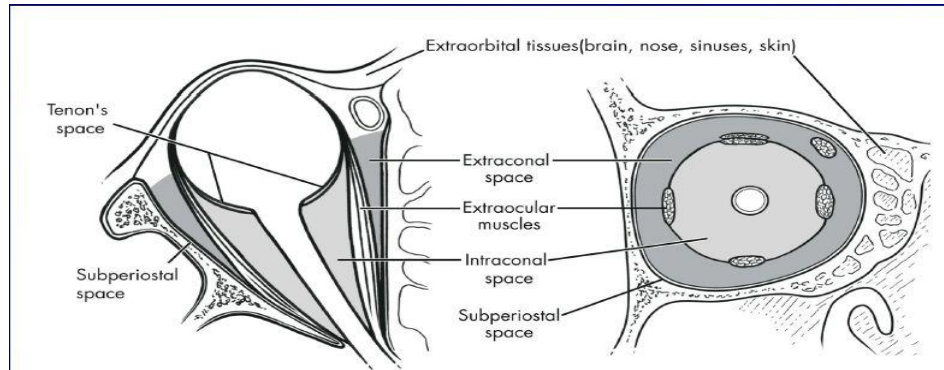
***Plasma cell tumors**

***Histiocytic disorders**

-macrophage based d/o

Proptosis

- Axial
- Non-axial
- Pulsital



Pseudoproptosis:



Most common cause of enophthalmus (sunken of the eyes)=> Fracture

4. Palpation



5. Pulsation

Clinical correlation

–With bruits

Cavernous carotid fistula

Orbital arteriovenous fistula

Dural arteriovenous(a-v) fistula



–Without bruits

Meningoencephaloceles

Neurofibromatosis

Orbital roof defect (condition after surgical removal of orbital roof, sphenoid wing dysplasia)

6. Periorbital Changes



(this patient had a skin tumor that was removed from his cheeks. But it recurred with orbital extension)

Encephalocele

• Rhabdomyosarcoma

Most common primary orbital malignancy of childhood

Average age: 7-8 (but can happen in more than 8 years and even adult)

Sudden onset and rapid evolution of unilateral proptosis

90% survival

It's not very common, but it is life threatening.

So whenever you have a child with sudden onset of unilateral proptosis, take it seriously! It could be **rhabdomyosarcoma**.

If you referred the child early(before metastasis happen), the survival is 90%.



7. Past Medical History

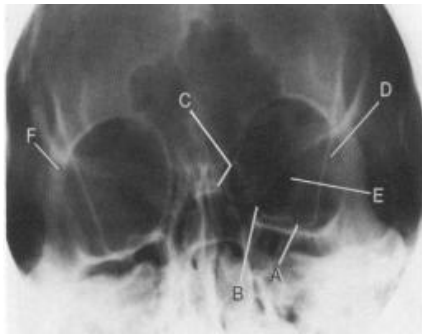
- **Imaging Options**

- 1- **Plain films**

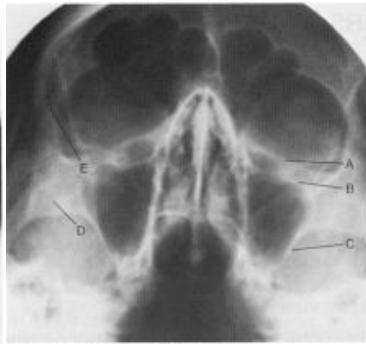
(Normally we don't do it, unless there is a suspicion of foreign body.)

Quick , Rule out foreign bodies and Infrequently used

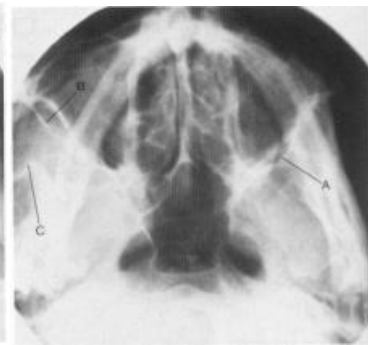
Caldwell's view



Waters' view



Base view



- 2- **CT scan**

(Most of the time we take it because it is good as it shows us the bone and soft tissue. "Now we think ten times before ordering a CT scan for a child, unless he really needs it due to radiation")



Axial cut. There is a mass behind the eye.

Strengths	Weakness	Protocols
<ul style="list-style-type: none"> • spatial resolution • bone - fractures - bone destruction - calcification • quick-emergencies - trauma • cheaper 	<ul style="list-style-type: none"> • radiation: 1-2 cGy • soft tissue definition • contrast iodinated - allergy • may need MRI anyway - (not cheaper) 	<ul style="list-style-type: none"> • axial and coronal • +/-contrast



multiple fractures.



enlarge multiple recti muscles.

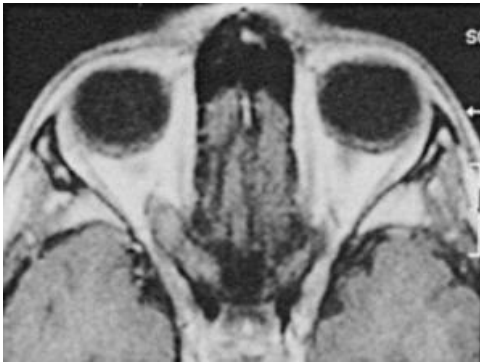


Unilateral enlargement of rectus muscle.

3- MRI

We use it when we are sure that we're dealing with soft tissue lesion.

Strengths	Weakness	Protocols
<ul style="list-style-type: none"> • -Tissue - T1:anatomy - T2:pathology • No radiation 	<ul style="list-style-type: none"> • magnetic pacemakers, surgical clips • claustrophobia 	<ul style="list-style-type: none"> • Axial/coronal/sagittal • Gadolinium contrast - non-iodinated - allergies RARE • orbital lesions - fat suppression



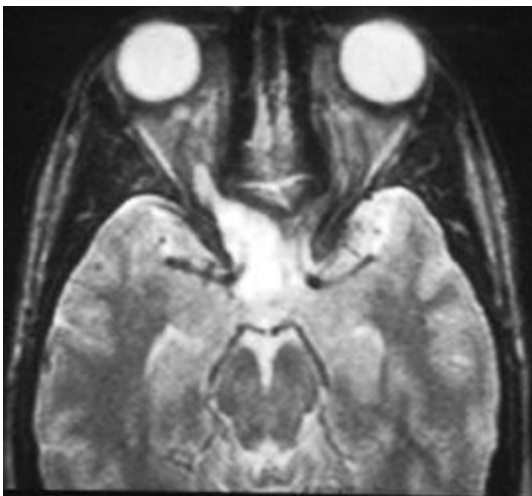
Fluids appear dark in T1, and white in T2.

The eye is filled with fluid like, so if the eyes are white => T2

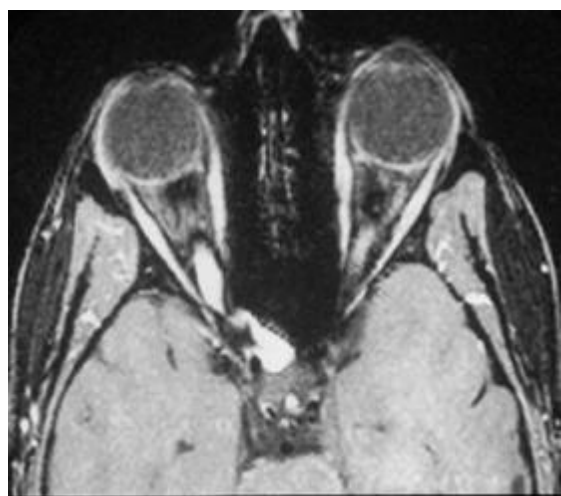
If the eyes are black => T1

Q: Name of study? T1 or T2?

Axial/coronal/sagittal? Contrast? Lesion?



T2



T1

4- Ultrasound

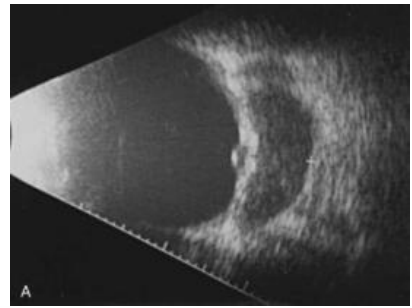
It is not very good for deep orbital tissue.

Dynamic

Less expensive +/-

Availability variable.

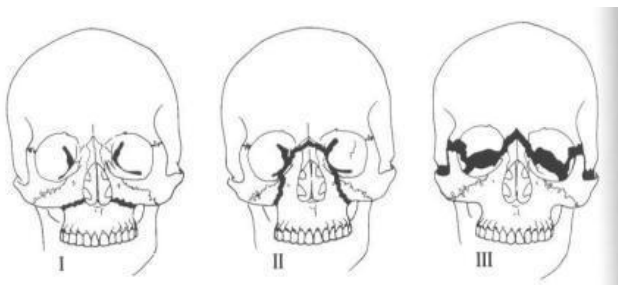
- to measure the length of the eyeball prior cataract surgery to estimate the power of the artificial lens that is to be implanted into the eye.



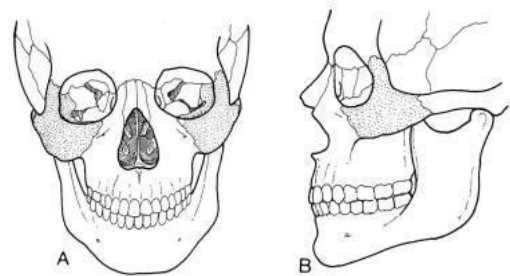
• Facial trauma and fractures

- ZMC fracture
- Wall and floor fractures
 - medial wall-lamina papyracea
 - orbital floor-blow out vs rim involvement
- Midfacial fractures
- lateral wall and orbital roof-less common
- Optic canal fractures
- traumatic optic neuropathy

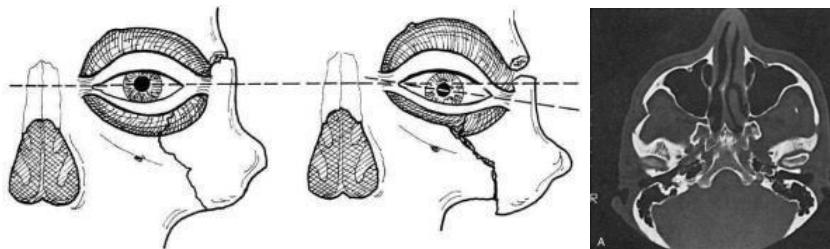
*LeForte Fractures



*Zygoma



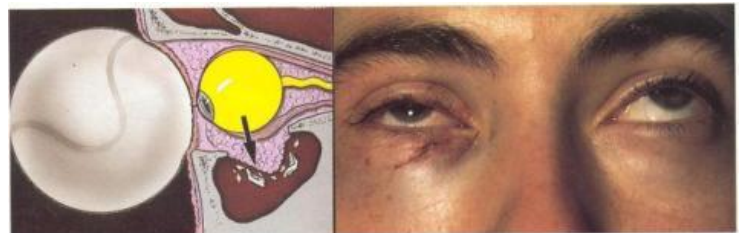
*ZMC Fractures



*Floor Fractures

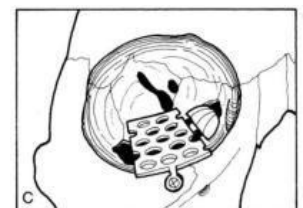
he can't look up and will have double vision.

(Blow out fracture: a fracture of the walls or floor of the orbit. Some of the tissue will get inside and get entrapped. It is **common among children**).



(So whenever you have a patient with orbital trauma, you need to look at the eyes motility and make sure the eye is not ruptured, to rule out this condition.)

We need to operate on him as soon as possible, because if the muscle is kept entrapped for a long time, it will lead to ischemia and fibrosis, which will be affected on the long term.



Find the fracture



Optic canal



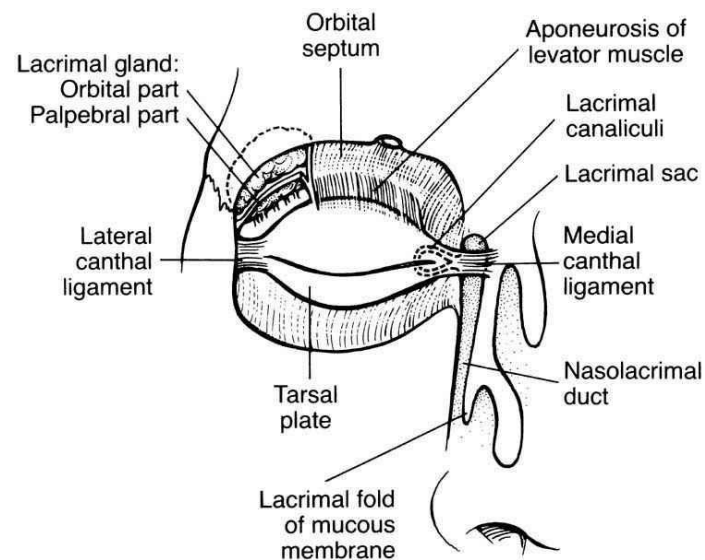
May be with or without displaced bony fragments

Lacrimal Glands:

Anterior superior lateral part of the orbit
It has two parts: orbital and palpebral part.

The nasolacrimal duct is the continuation of the lacrimal sac. It descends to open into the inferior nasal meatus, below the inferior turbinate. They start in the upper and lower **punctums**, to the upper and lower **canaliculi**, **lacrimal sac** then **nasolacrimal duct**.

Normally the canalization of the nasolacrimal duct should be completed at birth. However, some children will have a delay of the canalization of the duct: **Congenital nasolacrimal duct obstruction** (They present with **tearing and discharge**).



Why do they have tearing?

The tears cannot pass through the lacrimal drainage system because of the obstruction, there is a membrane obstructing the system not allowing it to drain.

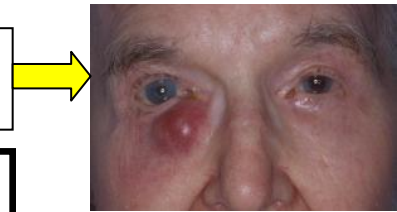
Why do they have discharge?

1) The tears will come and stagnate in the area of obstruction => which will give a good medium for infections. So they will present with discharge and infection.

2) The lacrimal sac is lined by mucus secreting cells, similar to the mucus secreting cells in the nasal mucosa. So in these children, it will drain back to the eye.



Fluid stagnation in nasolacrimal duct due to improper canalization, this stagnation causes it to be a good medium for infection



If a child comes with tearing and discharge => we think of **congenital nasolacrimal duct obstruction**.

If a child comes only with tearing => we think of: **congenital abcess – congenital glaucoma – eye lashes are irritated.**(anything that irritates the eye)

What happens if we do not treat them?
Acute infection => Abcess => orbital cellulitis

How to examine the nasolacrimal ducts?

In adults: We pass a cannula all the way to the lacrimal sac, and then we inject the fluid.

In children: We put a flourescein dye (orange dye) then wait for 5 minutes. The dye should disappear from the eye. However, if there was an obstruction, the dye will stagnate inside the eye.

(it won't help to differentiate between nasolacrimal duct obstruction or canalicular obstruction.)

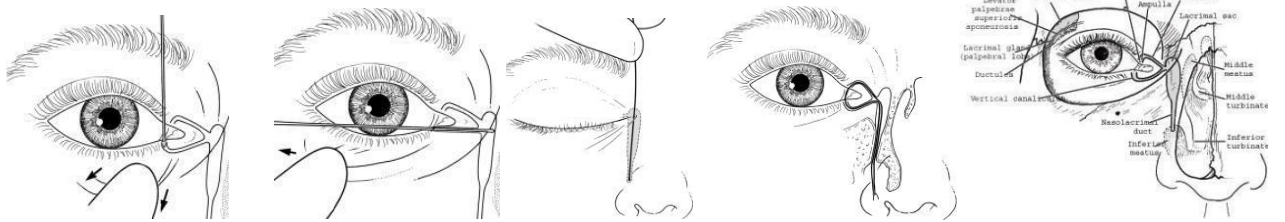


How to treat it?

Usually we ask the family to wait until the age of 1 year + **massage** for the lacrimal sac. (Ask the mother to put the finger under the medial canthal ligament and push (this will compress the lacrimal sac because the lacrimal sac is behind the medial canthal sac).

When the pressure increases in the lacrimal sac, hopefully it will rupture the membrane. If it didn't improve in 1 year => we recommend **probing**.

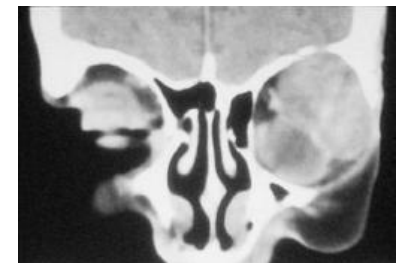
A small probe is introduced through the upper or lower punctum based on the place of obstruction and is advanced to the lacrimal drainage system, until it resolves the obstruction. (Sometimes we put a stent, to prevent the membrane from reforming we keep it for a few months.)



Lacrimal Gland Masses:

- Inflammatory
 - Sarcoidosis
 - Orbital Pseudotumor
 - Vasculitis
- Non-inflammatory
 - Lymphoproliferative
 - Epithelial neoplasms

Not mentioned by Doctor



Pleomorphic adenoma

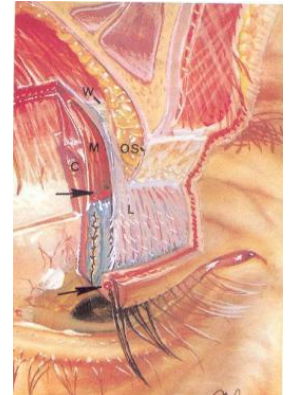
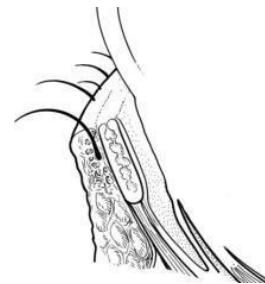
Lacrimal gland fossa lesions

Orbital pseudotumor	duration days to chronic	painful- yes	Ultrasound reflectivity: low	CT: localized or diffuse, molds to bone and globe	Management: systemic steroids, XRT
lymphoma	months	no	low	homogenous, oblong, molds to globe/bone	XRT, CTX (systemic disease)
pleomorphic adenoma (benign mixed tumor)	often > 1 year	no	medium to high, regular internal structure	well circumscribed, globular, possible bony expansion or excavation	complete excision with capsule without biopsy
Adenoid cystic carcinoma, malignant epithelial tumors	< 1 year	yes (perineural invasion)	medium to high, irregular internal structure	round to oval mass with bony erosion	incisional biopsy, await permanent sections; exenteration

Not mentioned by Doctor

Eyelids

- Anatomy
- Trauma
- Lid lesions
- Lid malpositions



Eyelid Trauma:

Types:

- Blunt
- Sharp/penetrating

Classification: (the most important things to pay attention to in any eyelid trauma)

- lid margin : not involved
- involved* => **if involved it will have an abnormal alignment**

causing corneal irritation therefore will need suturing.

- canthal tendon involved* *call ophthalmology : they attach the eyes to the bones
- canalicula involved*

Lid Laceration with Canalicular Involvement:



Before repair after repair

Lid margin spared:

Skin and orbicularis only -> skin sutures.

FAT protrusion= septum violated.

There is a very high chance the orbit has been injured.

-DO NOT suture the orbital septum.

Blepharitis

Inflammation of the eyelashes, it usually happens secondary to staph.

Treatment: topical antibiotics and eyelid hygiene.

It is very difficult to eradicate.



Herpes Zoster Ophthalmicus

It is less common in our area.

Treat it with oral antiviral agents.



Lid Lesions:

Sty: (inflammation around the eye lashes, either from sweat glands or sebaceous glands.)

Treatment: Warm compressions with topical antibiotics.

(We give antibiotics but it can improve by itself.)



Chalazion: (granulomatous inflammatory lesion caused by obstruction of meibomian glands, which leading to accumulation of the sebaceous secretion from the meibomian glands.)

Treatment: it will resolve by itself. But if it does not improve after 1 month, we drain it.



Xantholasma

(You need to screen for **hyperlipidemia**)



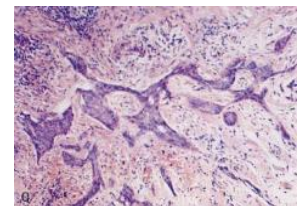
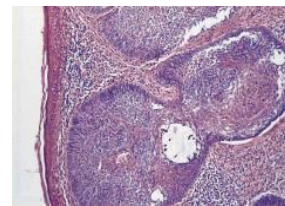
Basal Cell:

- 90-95% of malignant eyelid tumors
- Lower lid and medial canthal areas
- Nodular and morpheaform types
- Medial canthal lesions can be problematic
- 3% mortality



Squamous Cell:

- 40x less common than BCC
- More aggressive
- perineural invasion
- Most arise from pre-existing lesions
- Variable presentation



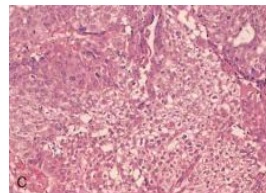
Morpheaform

Nodular



Sebaceous Adenocarcinoma:

- Highly malignant
- 2x more common in upper lid
- Multicentric
- Separate upper and lower lid lesions in 6-8%
- Pagetoid spread



Not mentioned by Doctor

Not mentioned by Doctor

Not mentioned by Doctor

Eyelid Malpositions

1. Ectropion
2. Entropion
3. Blepharoptosis
4. Retraction



1. Ectropion

Outward turning of lid margin

Types:

- Congenital
- Involucional aging is the most common cause of it
- Paralytic (in case of patients with facial palsy)
- Cicatricial (scarring)
- Mechanical



2. Entropion

Inversion of the lid margin

(Most common cause is **trachoma**)

What's the causative organism?

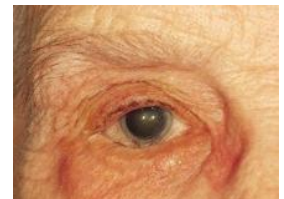
Chlamydia (bacteria) => its main difference than other types of bacteria is that it has no cell wall.

How does trachoma cause entropion?

Usually this is an active infection acquired during childhood. If it is not treating properly it will cause conjunctiva scarring. Whenever the conjunctiva is short, it will pull the lid margin toward the eye. It used to be an endemic infection, but now we rarely see it.

Types:

- Cicatricial
- Involucional
- Congenital
- Acute-spastic



Trichiasis

One single eyelash or two are misdirected toward the eye. The rest are ok. (If the whole lid margin is turning toward the eye, we call it: **entropion**)



3. Blepharoptosis

Drooping or inferior displacement of the upper lid

* Classification:

- **Congenital** vs **acquired**
- **Myogenic** (like abnormal levator muscle), **aponeurotic** (the tendon is stretched), **neurogenic** (from the 3rd nerve), **mechanical** (a mass in the eyelid), or **traumatic** (trauma to the muscle)
- **Evaluation**

a) Myogenic ptosis

Congenital

-Dysgenesis of levator

Acquired

-Localized or diffuse disease

-Muscular dystrophy

-CPEO

-MG

-Oculopharyngeal dystrophy



This child has right congenital ptosis. He is lifting his chin up so he can see from both eyes. We can't leave him like this; we need to do surgery because he may develop neck problems.

Generally in children, whenever the eyelid is blocking the eye -> we need to do surgery to prevent amblyopia.

In adults, we just fix it because patients want to see from both eyes, but it will not cause amblyopia.

b) Aponeurotic

- Most common form of ptosis

(The muscle is normal but the tendon is stretched, usually happens with aging.)

- High lid crease with normal levator function



c) Neurogenic

Acquired and congenital forms

Acquired:

-3rd nerve palsy **

-Horner syndrome

-Myasthenia gravis



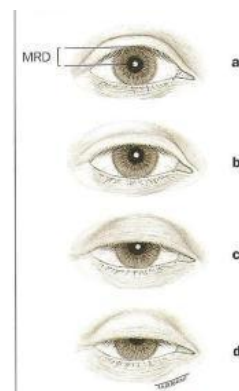
Levator Function (this is the way we evaluate the muscle)

We ask the patient to look all the way down, and then we measure how much they go up. Normally it should be 15 cm and above, like in this picture.

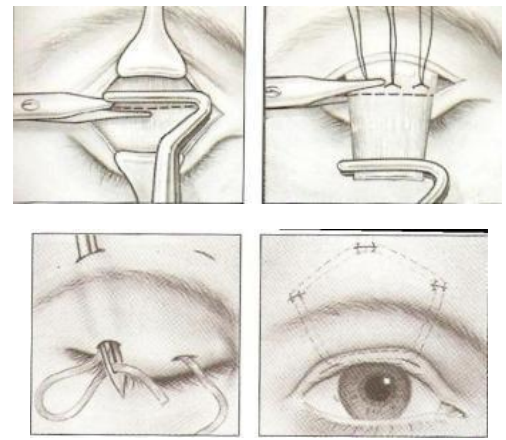


Treatment:

- Mild ptosis, good levator function: Mullerectomy
- Any ptosis, reasonable levator function: Levator resection
- Severe ptosis, poor levator function: Frontalis suspension



Mullerectomy



Dermatochalasis:

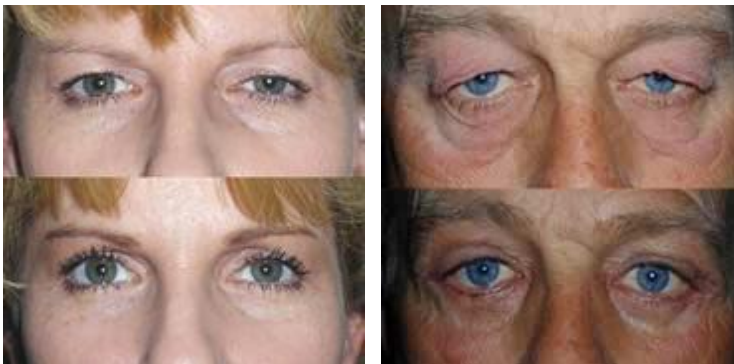


Dermatochalasis:

(psuedoptosis: excessive skin in the eyelid. But the eyelid position is normal)

This is a very common condition; we usually do surgery for it.

(Before and after surgery)



The procedure's name is **blepharoplasty**.

It is a very common cosmetic procedure



Brow ptosis

This patient has a normal eyelid position. But the brow is ptotic.



Brow ptosis

Right brow ptosis, lid opening is ok, with normal lid margins.

- **Abnormal Eyelid Movements**

- Blepharospasm
- Hemifacial spasm
- 7th nerve palsy

1. Blepharospasm

(Suddenly and without control, the eye is closed like this)

Involuntary tonic, spasmodic contraction of orbicularis

We don't know the cause.

- dermatochalasis-rubbing
- brow ptosis-frontalisspasm
- blepharoptosis-levatordehiscence
- ectropion/entropion
- dry eye



Before diagnosing this condition, we have to rule out any eye irritation problems, like foreign body or lashes inside the eye or dryness. We need to treat all of this first.

If the patient still has the same problem => we label it as blepharospasm

2. Hemifacial Spasm

- Intermittent contractions of the entire side of face
- Present during sleep
- Compression of 7th nerve at the level of the brain stem
- MRI evaluation

We need to order MRI in these patients to rule out 7th nerve compression

There is a common normal condition called **myokymia**:
When only one eyelid is twitching. It is normal and it does not indicate any pathological process.
If it involved both (Upper and lower eyelids) => you need to think of hemifacial spasm.

3. 7th nerve palsy

Location of lesion:

Supranuclear, brain stem, peripheral

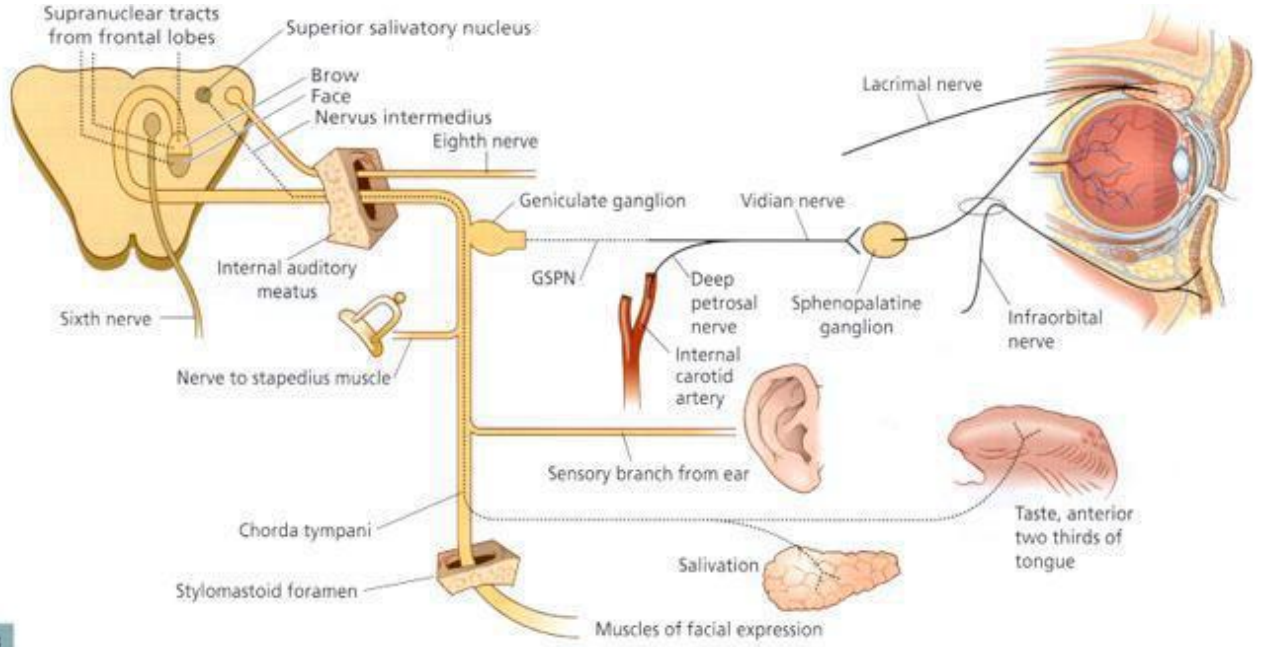
Cause of paralysis:

-Bell's - Infection - Infarct - Demyelination - Neoplasm - Trauma - Miscellaneous.

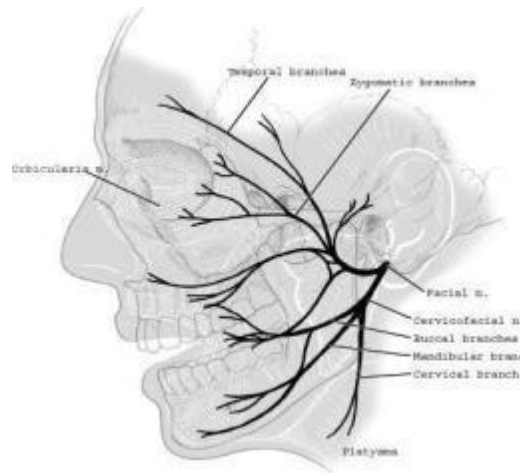
How do these patients present?

- **Inability to close the eye (Lagophthalmos)** (because orbicularis muscle gets paralyzed because its supplied by the facial nerve)
- **Ectropion**
- **Brow ptosis** (because the facial nerve supplies the frontalis muscle)
- **Tearing** (because the eye can not close well, so they cannot pump the tear from the eye to the nose.)
- **Exposure keratitis** (because the eye can not close well) **so we need to lubricate the eyes**

Course of the 7th Nerve



B



Botox in Ophthalmology

We use it to treat blepharospasm and hemifacial spasm. Also we use it to treat strabismus.

- **Botulinum Toxin**

Clostridium botulinum

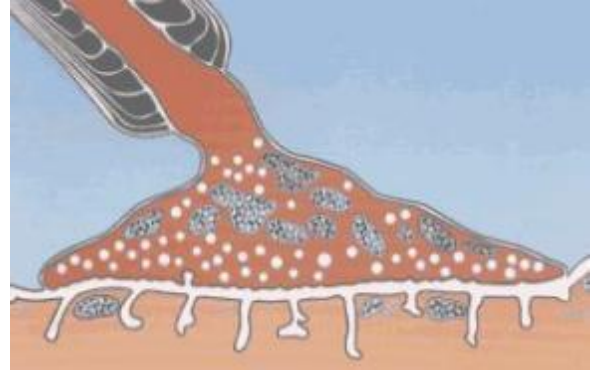
Neurotoxin types A,B,C1,D,E,F,G

Botox = Botulinum Toxin A (it's **the most common type we use**)

Blocks the release of acetylcholine

Onset 3 days

Peak effect 1-2 weeks Duration 6-12 weeks



USES:

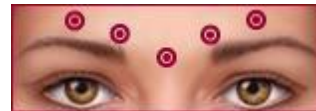
1) Blepharospasm



2) Strabismus (We inject the lateral rectus muscle to be weak. So the eye will be straight.)



3) Glabellar Botox



4) Botox for Crow's-Feet



CASES:

(I couldn't find the pictures of these cases)

1. A child presented with proptosis in the left eye. Brought by his family who noticed the eye is abnormal a week ago. They waited for few days but it didn't improve so they brought him to us. What do you think happened?

Any child with proptosis => we need to think of **rhabdomyosarcoma**.

2. An 11 year old boy came with pain and redness in the right eye for 3 days. What do you think is going on with him?

(Description of the eye: red, swollen, proptosis)

Diagnosis : Orbital cellulitis due to ethmoidal sinusitis.

What to do for this patient?

Admit and give IV antibiotics and close observation.