

The Orbit

Presented by :

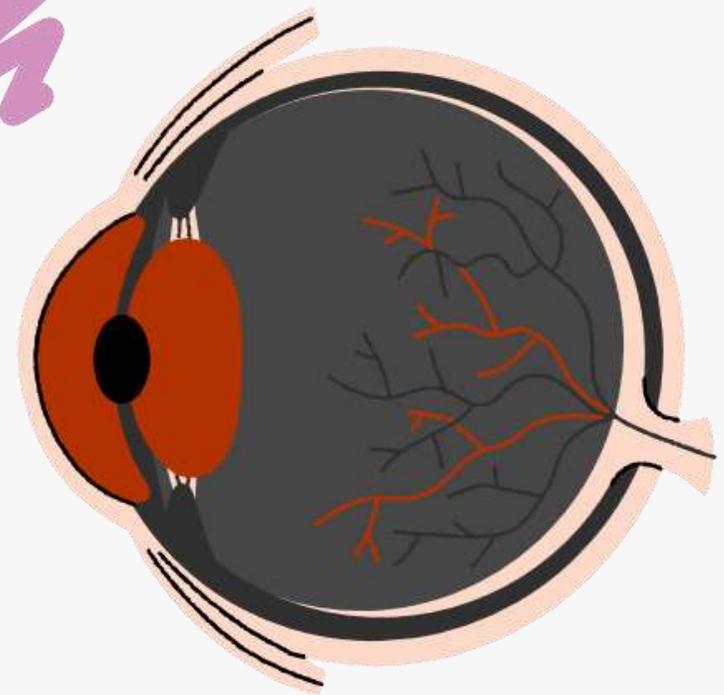
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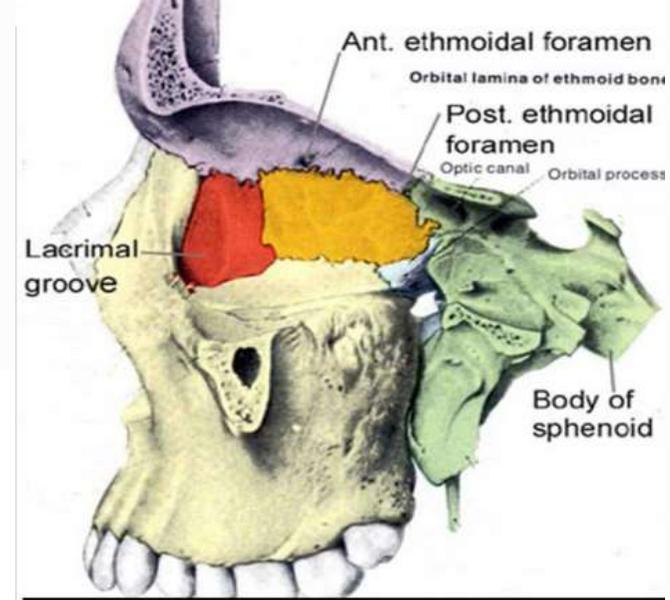
mohammad takhaineh



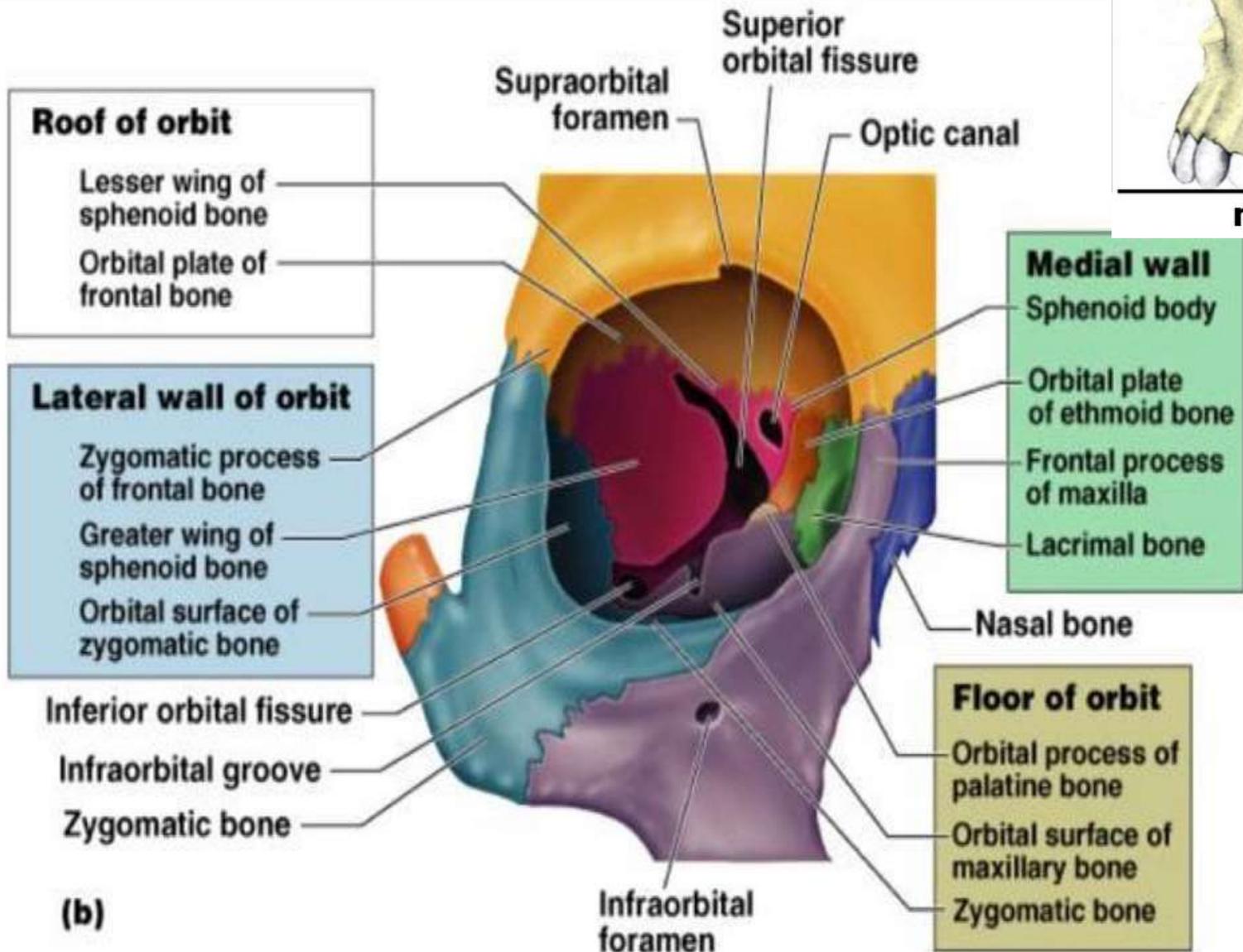
orbits

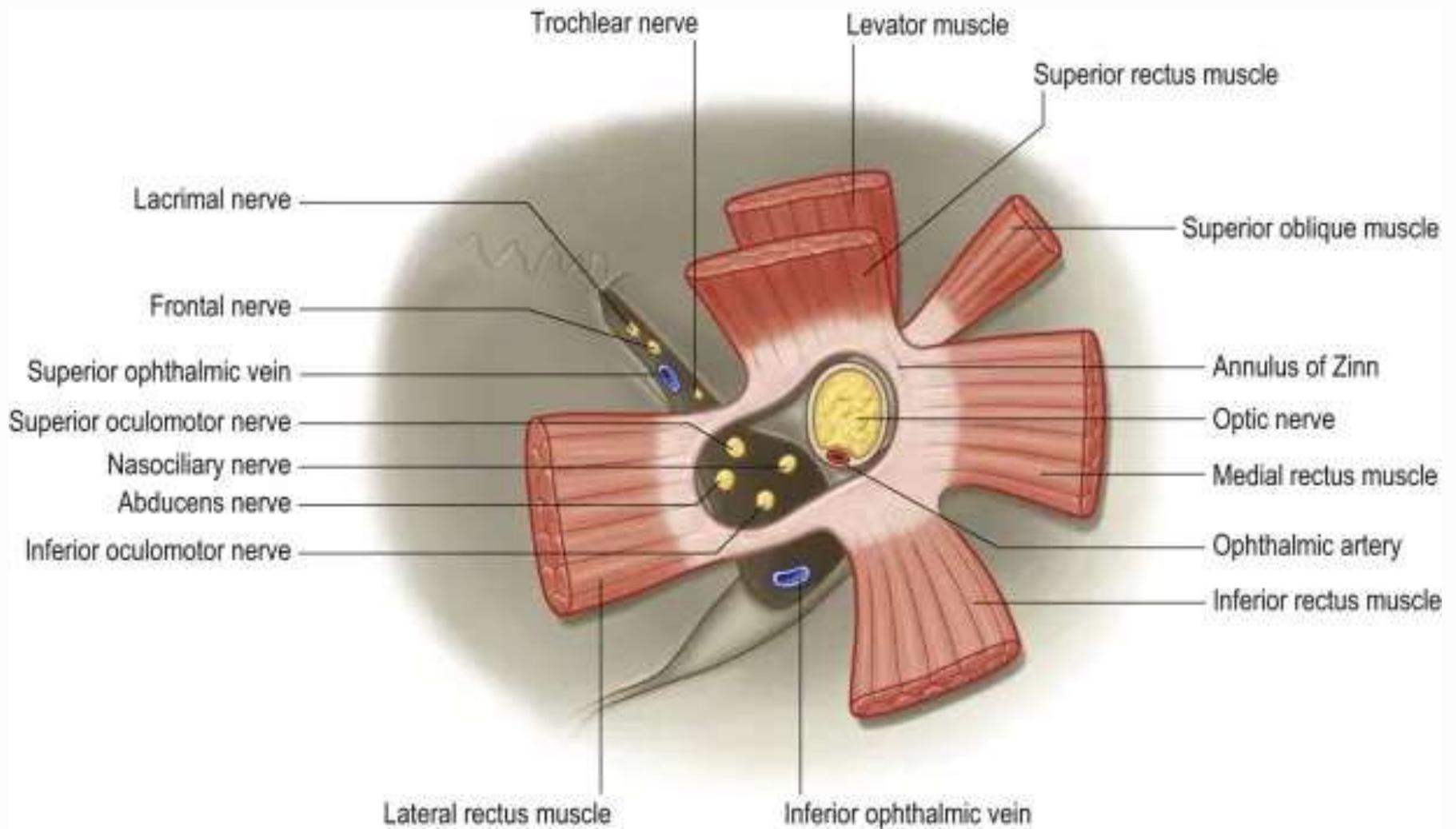
are bony structures of the skull that house the globe, extraocular muscles, nerves, blood vessels, lacrimal apparatus, and adipose tissue.

orbital cavity :pyramidal space with base ,apex and 4walls



medial wall





Functions of the orbit :

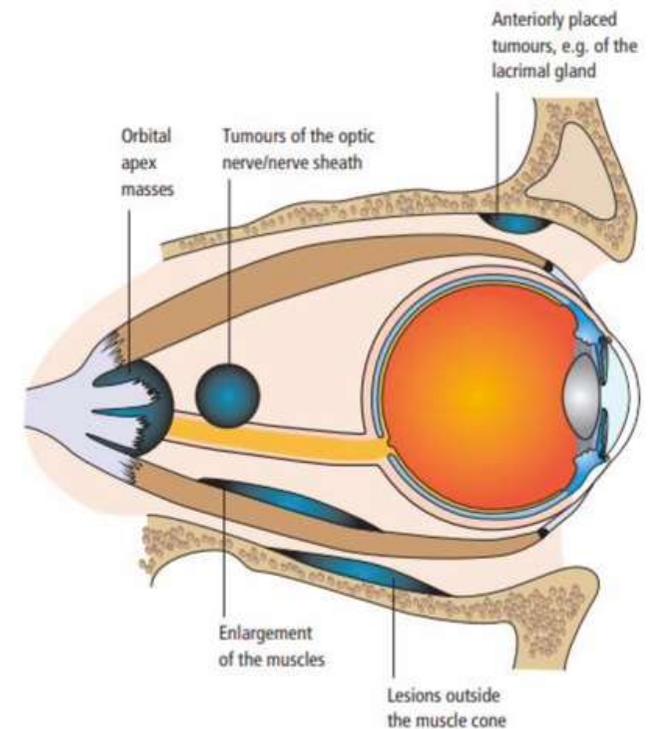
- Protection of the globe
- Attachment which stabilize the eye and ocular movements
- Foramina for the transmission of nerves and vessels

Clinical presentation

- Proptosis
- Enophthalmos
- Pain
- Eye lid and conjunctival changes .
- Diplopia
- Vision and optic nerve
- Disorder of EOM

Proptosis (Exophthalmos)

- Protrusion of the eyes caused by space occupying lesion .
- **Axial** when the globe is displaced directly forward ,mostly caused by a lesion within the muscle cone ,e.g **optic nerve meningioma**
- **Non-axial** when the globe is displaced to one side ,the lesion here mostly is outside the muscle cone ,e.g ethmoidal sinus tumour will cause temporal displacement .

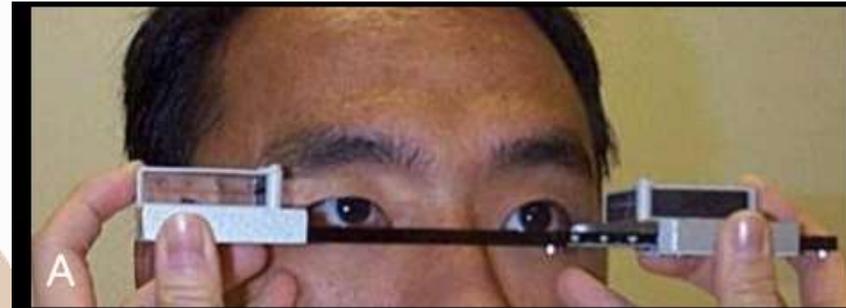


Proptosis

Exophthalmometry

(Hertel and others) Any reading $> 20\text{mm}$ or difference $> 2-3\text{mm}$

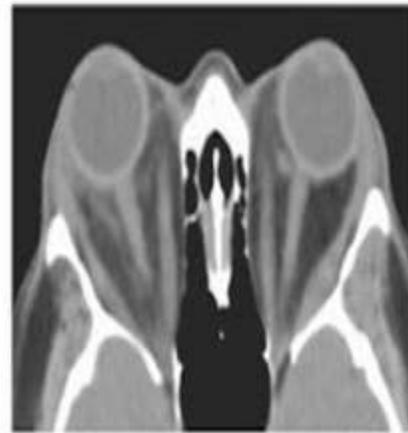
- It should be measured in an erect and supine positions



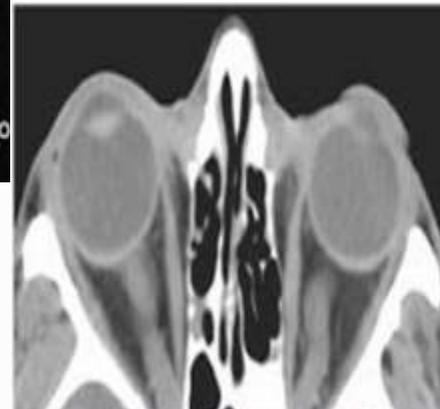
Ver
HF



generalized enlargement of the extraocular muscles with marked bilateral proptosis



marked bilateral proptosis and asymmetric involvement of the extraocular muscles with expansion of the orbital fat bilaterally



Normal

Tra>Co





Proptosis and associated features

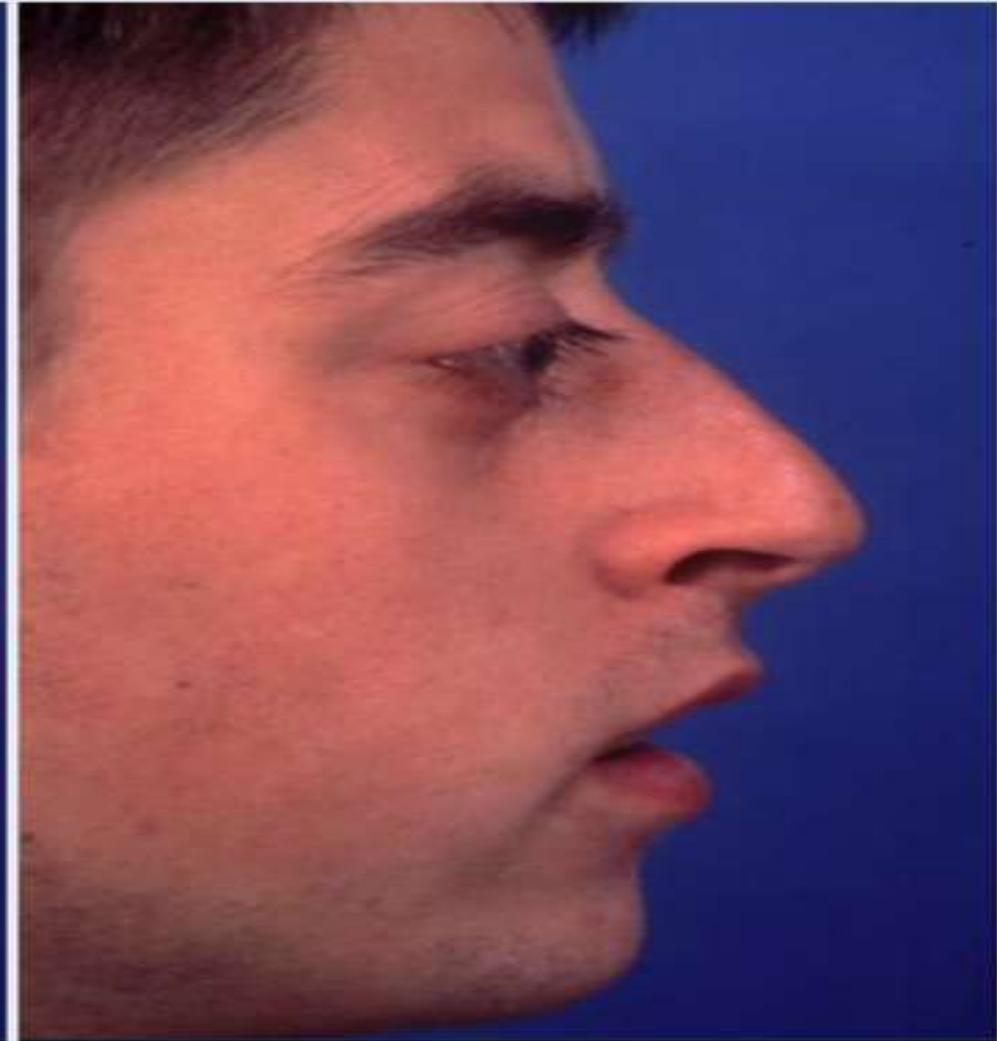
- Transient proptosis induced by Valsalva maneuver is a sign of **orbital varices** .
- Slow onset proptosis : Benign orbital tumour
- Rapid onset proptosis : malignant tumours ,inflammatory disorders and CCS fistula (carotid cavernous sinus)
- Pain : Infective conditions

Isolated orbital varices

Intermittent proptosis



**Non-pulsatile, without
a bruit**



**Precipitated or
accentuated by
Valsalva manoeuvre**

Enophthalmos

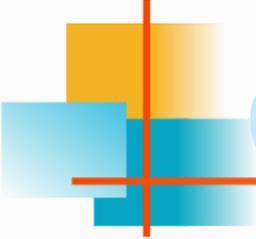
Backward displacement of the globe.

Causes :

- Orbital wall fracture.
- Cicatrizing Metastatic tumor as breast Ca.
- Pseudo enophthalmos as in Horner.



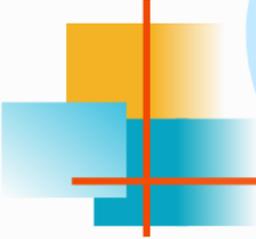




Pain

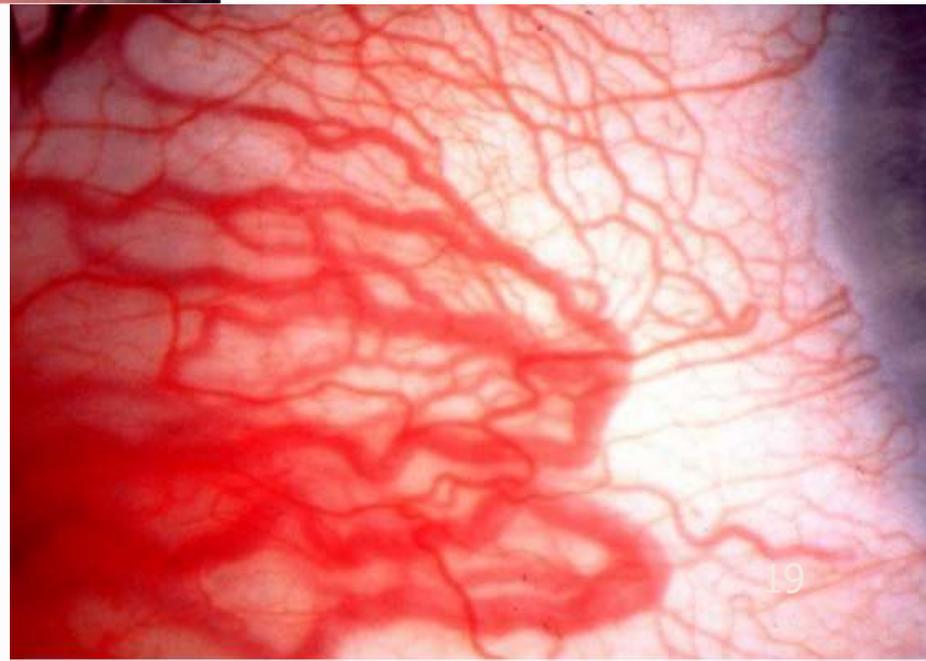
Mostly associated with:

- infective causes.
- Inflammatory disorders.
- Rapidly progressing tumours.

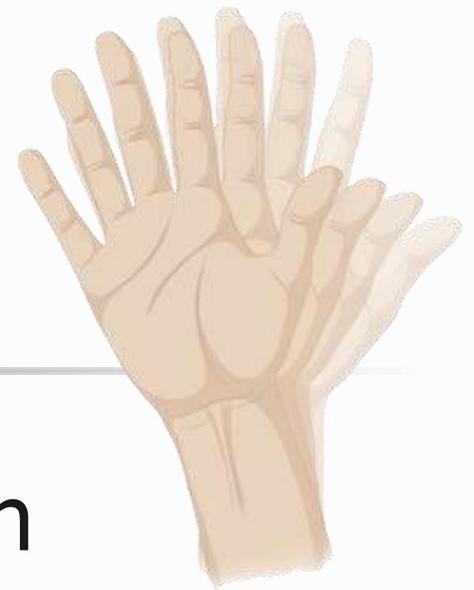


Eye lid and conjunctival changes

- Conjunctival injection(Enlargment of the conjunctiva's blood vessels also known as blood shoot eyes).Causes: inflammatory and infective causes as in orbital and preseptal cellulitis.
- Injection and chemosis with CCS fistula.
- Dysthyroid ophthalmopathy .

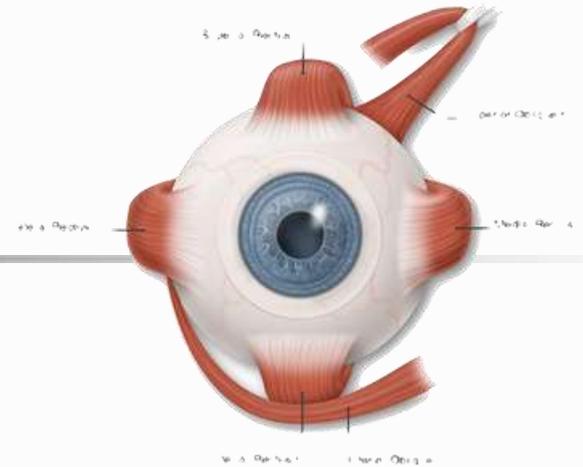


Diplopia



- Direct muscle involvement as in myositis and dysthyroid eye disease, causing diplopia that is worse in gaze direction opposite to the affected muscle . Nerve involvement : Diplopia worse in the direction of the affected muscle .

Disorders of EOM

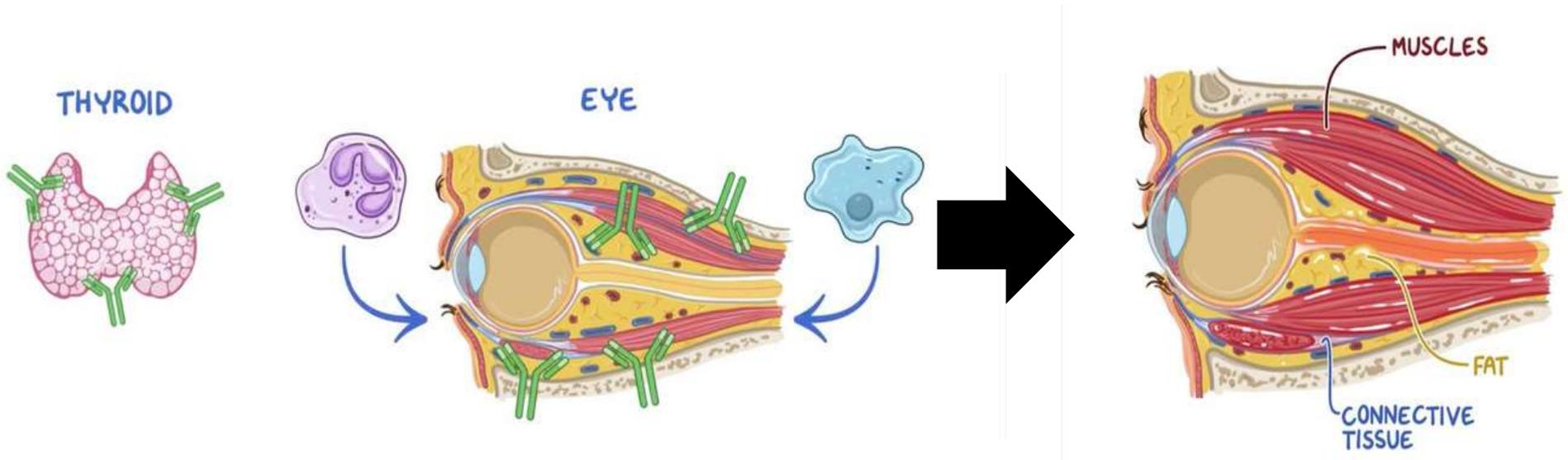


- .**Dysthyroid** eye disease
- .Ocular **myositis**
- .**Rhabdomyosarcoma** : rapidly growing tumor in children



Dysthyroid eye disease pathogenesis

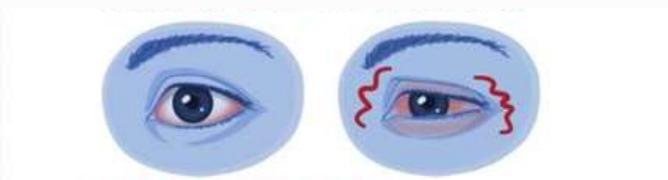
Dysthyroid Eye Disease, also known as Thyroid Eye Disease (TED) or Graves' Ophthalmopathy, is an autoimmune inflammatory disorder affecting the orbit.



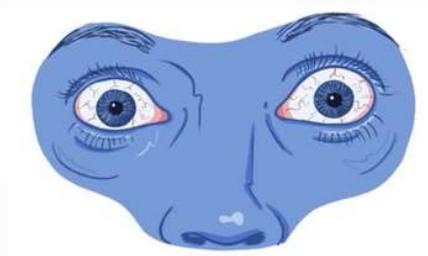
Dysthyroid eye disease Symptoms & signs

A. Symptoms from Inflammation and Swelling

Pain and redness



Exophthalmos



B. Symptoms from Muscle Dysfunction and Compression

Diplopia



Eyelid Retraction and Lid Lag



C. Symptoms from Complications:

↓ **Visual Acuity :**

1. Keratopathy
2. Optic Nerve Compression
3. Macular Edema

Dysthyroid eye disease treatment

- Artificial tears and lubricating ointments



- Corticosteroids



- Orbital Radiotherapy 

- Orbital Decompression Surgery

- Strabismus (Eye Muscle) Surgery

- Eyelid Surgery



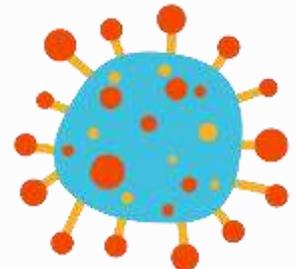
Infective disorders

- Orbital cellulitis .
- Perseptal cellulitis.
- Orbital mucocele .



Orbital cellulitis

- Is a serious condition that may cause blindness and may spread and cause brain abscess .
- Infection mostly arises from adjacent Para nasal sinus mostly **Ethmoid**
- Most common microorganism is H.Influenzae in children .



Orbital cellulitis

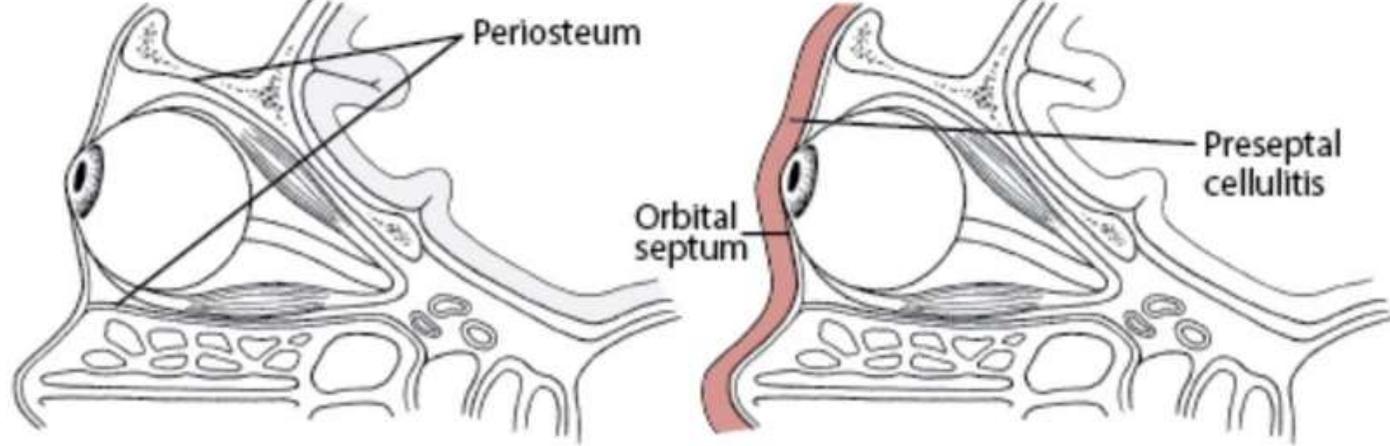
Symptoms & signs

- Painful red eye.
- Peri-orbital inflammation and swelling .
- Reduced eye motility .
- Possible reduced VA .
- Systemic illness and fever .
- Investigations may include CT and MRI

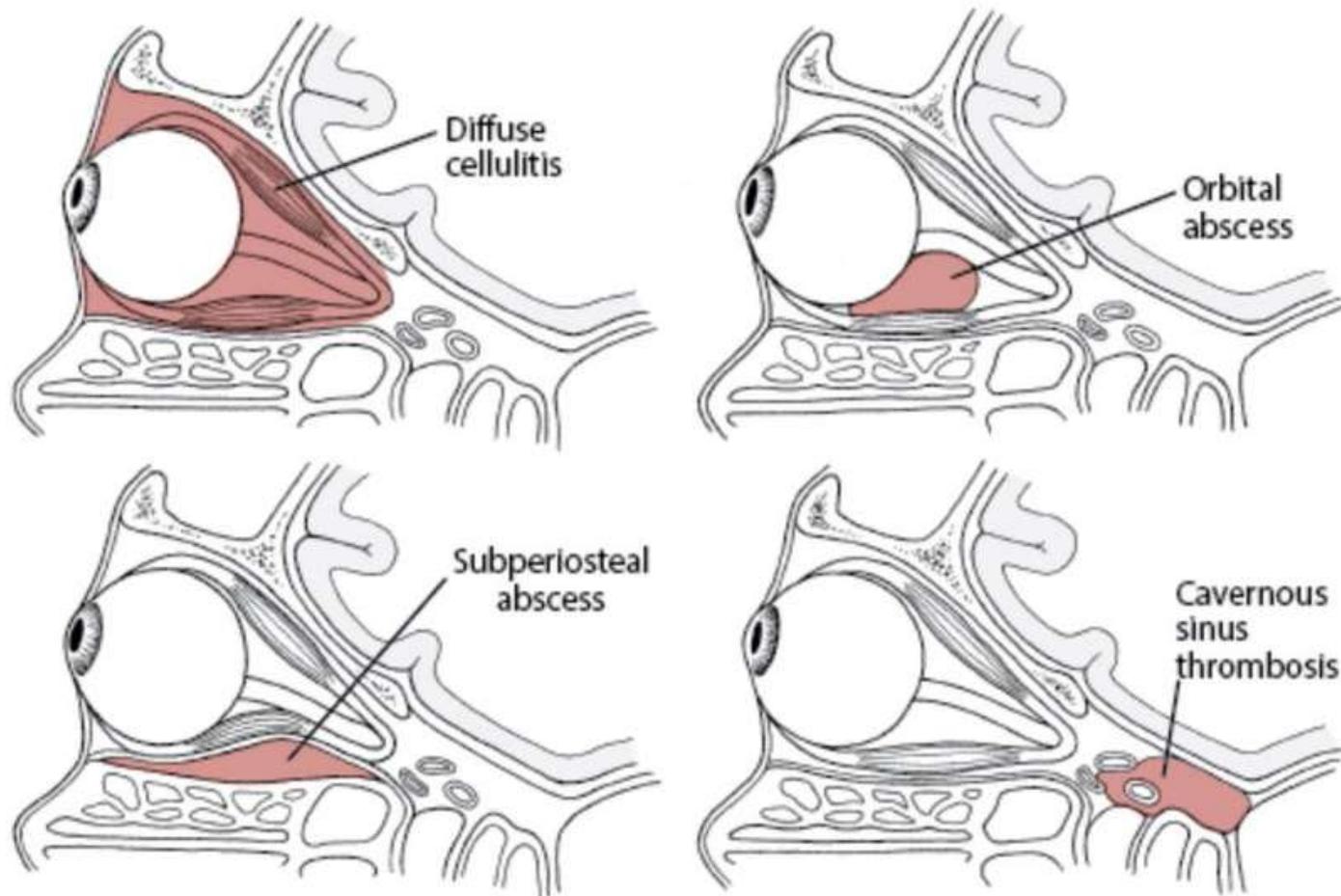
Orbital cellulitis management

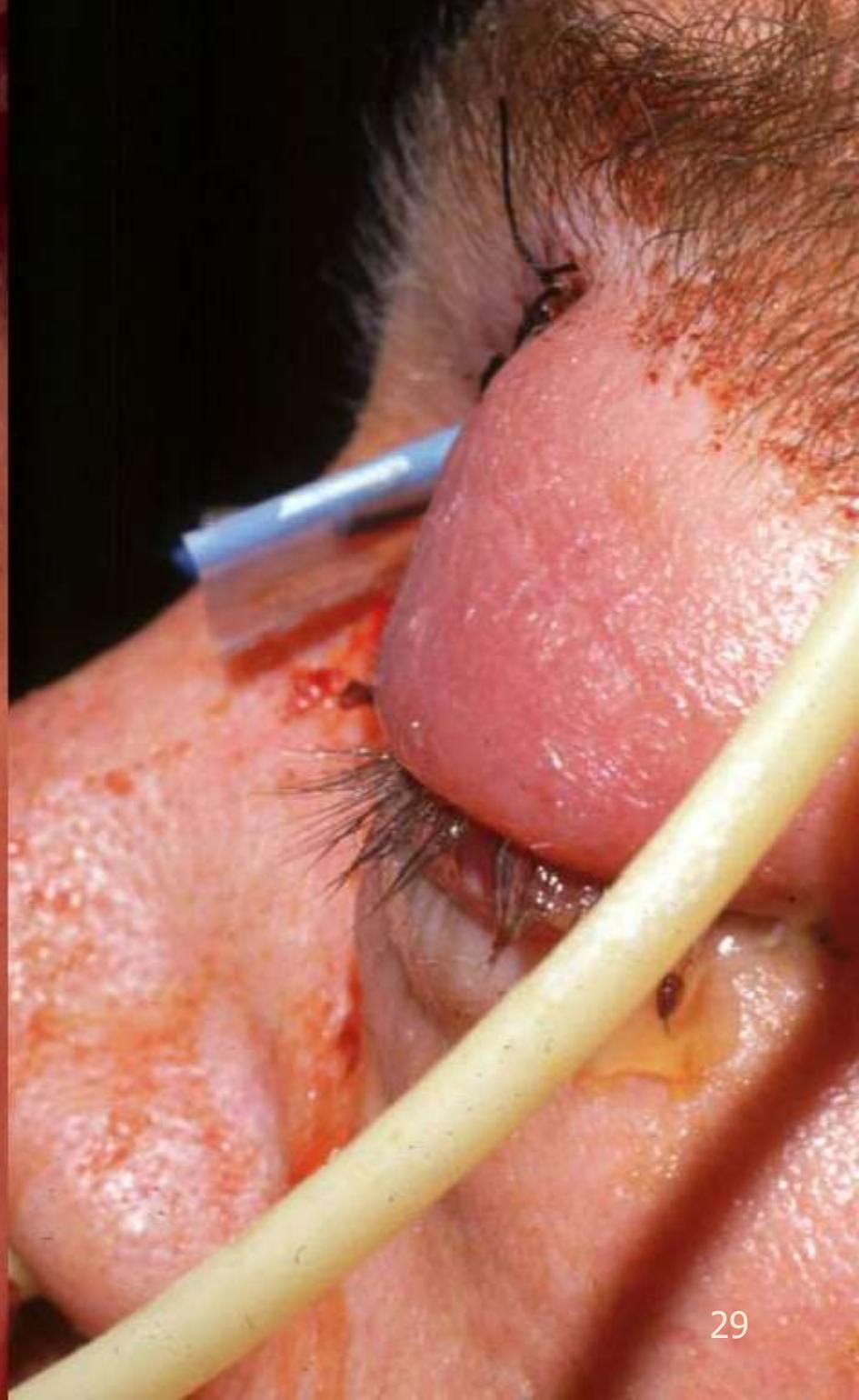
- Admission IV antibiotics
- Abscess drainage Orbital
- decompression ENT and
- neurosurgical help
-





Orbital Cellulitis and Its Complications





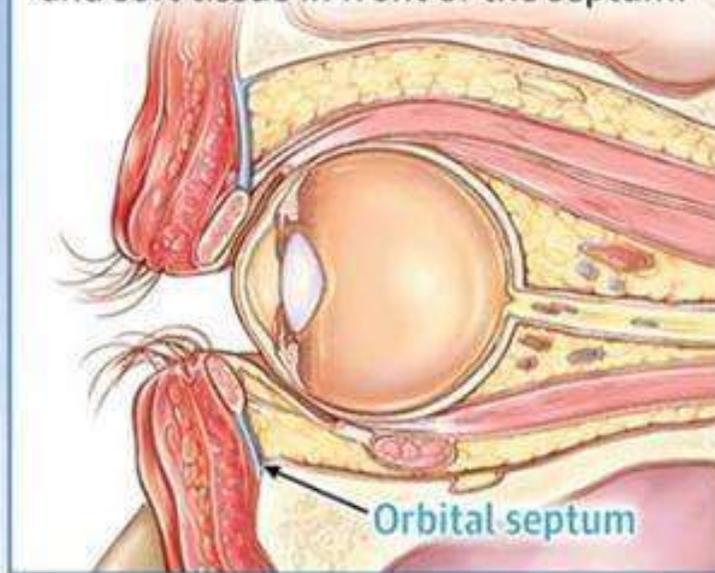


Preseptal cellulitis

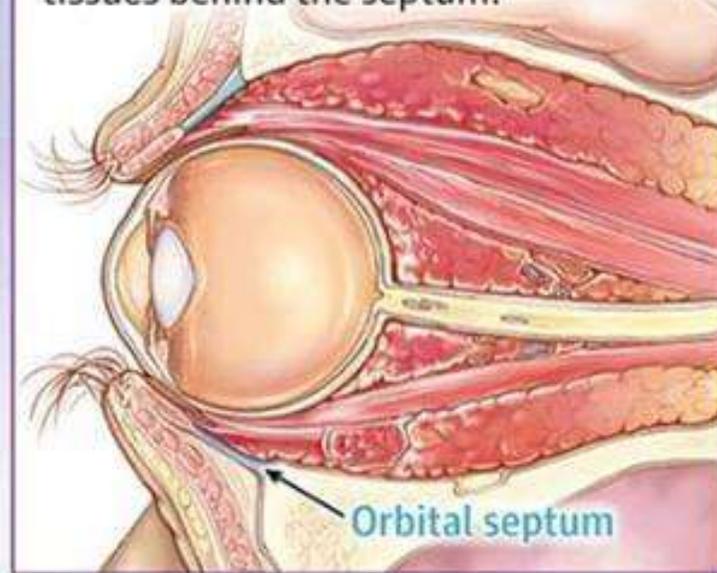
- Involves the tissues anterior to the orbital septum ,mostly affecting the lid
- Preiorbital inflammation and swelling
- No other ocular features of the orbital cellulitis .

Periorbital and orbital cellulitis are infections that affect tissues of the eye in front of and behind the orbital septum.

Periorbital cellulitis affects the skin and soft tissue in front of the septum.



Orbital cellulitis affects deeper tissues behind the septum.



Both infections can present with swelling, redness, fever, or pain, but have specific characteristics that can be used to tell them apart along with imaging.

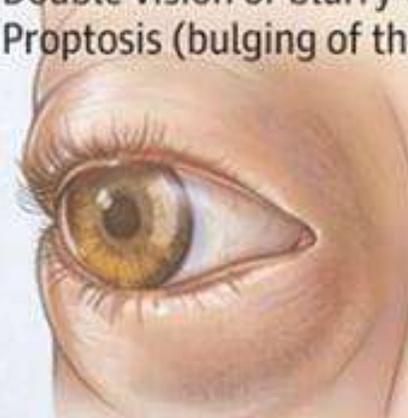
Specific to periorbital cellulitis

- No pain with movement of eye
- Vision is normal



Specific to orbital cellulitis

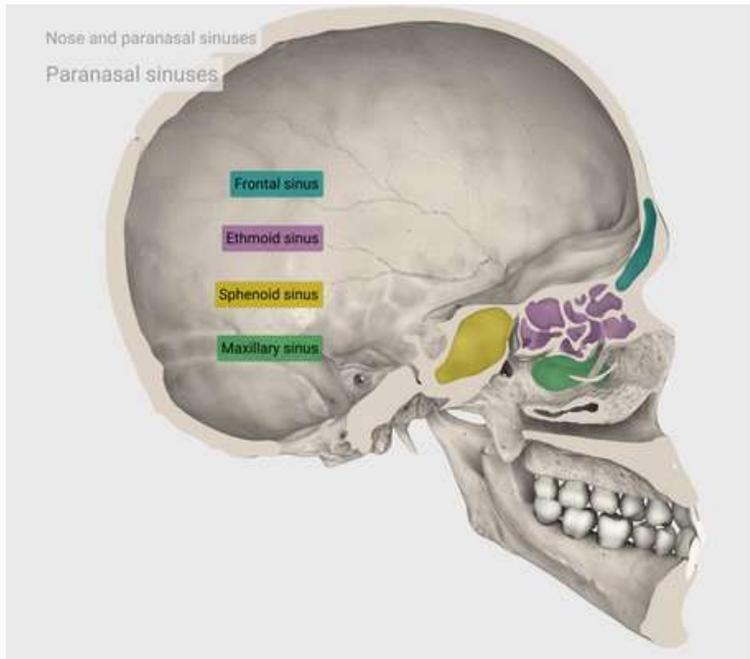
- Pain with movement of eye
- Double vision or blurry vision
- Proptosis (bulging of the eye)

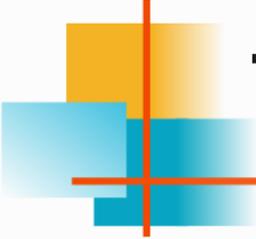


L. Keith

Orbital mucocele

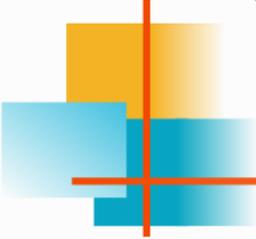
- Arises from accumulated secretions within any of the Para nasal sinuses .
- May need surgical treatment.





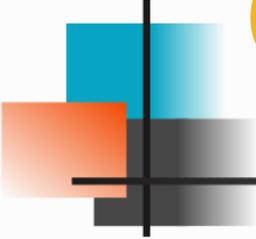
Inflammatory diseases

- Sarcoidosis Orbital
- pseudotumours
- Lymphofibroblastic disorders



Vascular abnormalities

- Carotid cavernous fistula.
- Orbital varices . Capillary
- hemangioma.



Carotid Cavernous Fistula

- Increased venous pressure leading to :
Proptosis
Conjunctival vein dilatation
Reduced eye motility
Raised IOP
- Treatment may be surgical .

Capillary hemangioma

- Extensive lesion around the orbit .
- Spontaneous resolution is the course
- Treatment may be indicated if occluding the visual axis



Orbital tumours

- Lacrimal gland tumours Optic nerve glioma
- Meningioma Lymphoma
- Rhabdomyosarcoma Metastasis :
- neuroblastoma in children Breast,lung
- ,prostate and GIT tumours in adults



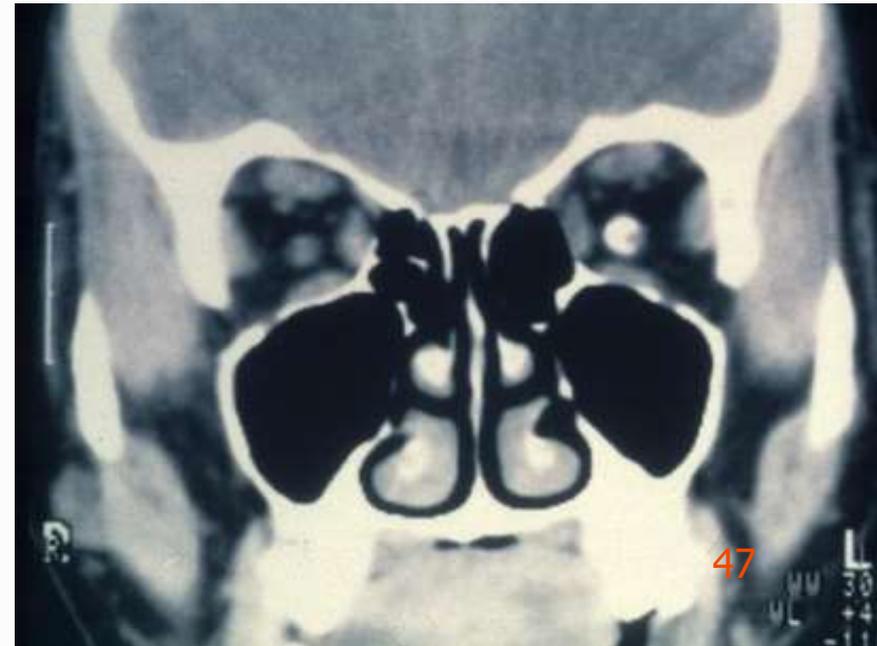
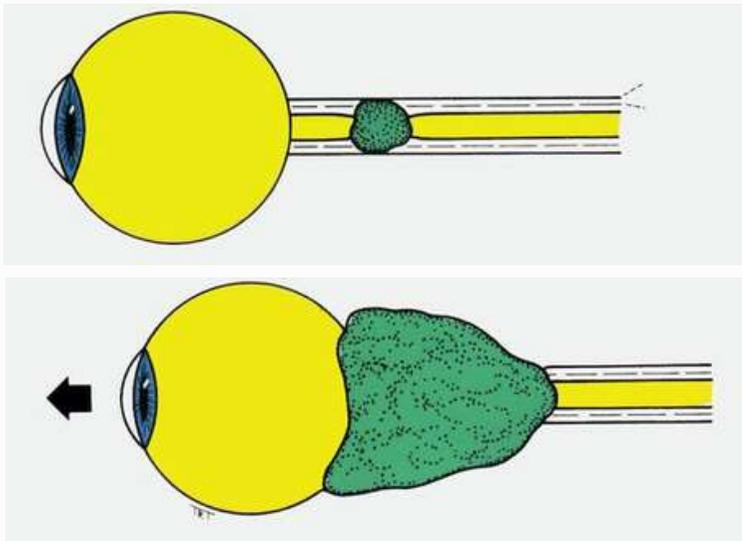
Lacrimal gland tumours

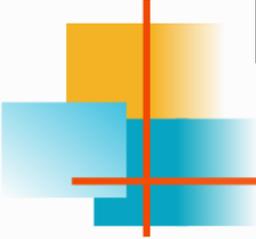
- Malignant carry very poor prognosis
- Benign tumours need complete excision
- Unilateral swelling of the lateral orbit Unilateral
- proptosis: painless in benign tumors and painful in malignant tumors Restricted eye
- movement and diplopia



Optic nerve gliomas and meningioma

- Gliomas are slowly growing tumours ,difficult to treat and may do not need it . Meningioma: rare with good
- response to RT





Lymphoma

- Localized to the orbit with good response to RT Systemic and
- chemotherapy is needed

Dermoid cyst

- Teratoma of epithelial origin May present
- medially ,laterally or superiorly Treatment :
- for cosmetic reasons with excision

