Orbital Disorders

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(PERI)ORBITAL CELLULITIS

ORBITAL CELLULITIS - *infection of orbital tissues (posterior to **orbital septum**)*

PERIORBITAL (S. PRESEPTAL) CELLULITIS - *infection of periorbital skin and eyelid (anterior to **orbital septum**).*

Sources of infection:

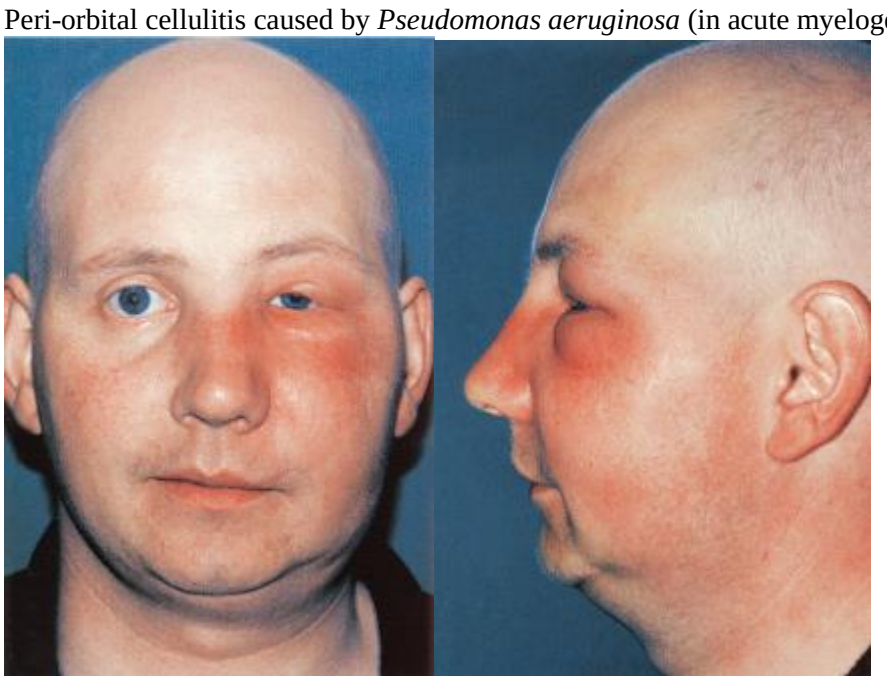
a) **extension** from paranasal sinuses (ethmoid sinusitis – 90% cases!!!), teeth
b) introduced via **orbital trauma / surgery** (most commonly - *S. aureus* and *S. pyogenes*).
c) **hematogenous spread** from bacteremia (most commonly - *Haemophilus influenzae* type b, *Streptococcus pneumoniae*).

SYMPTOMS & SIGNS

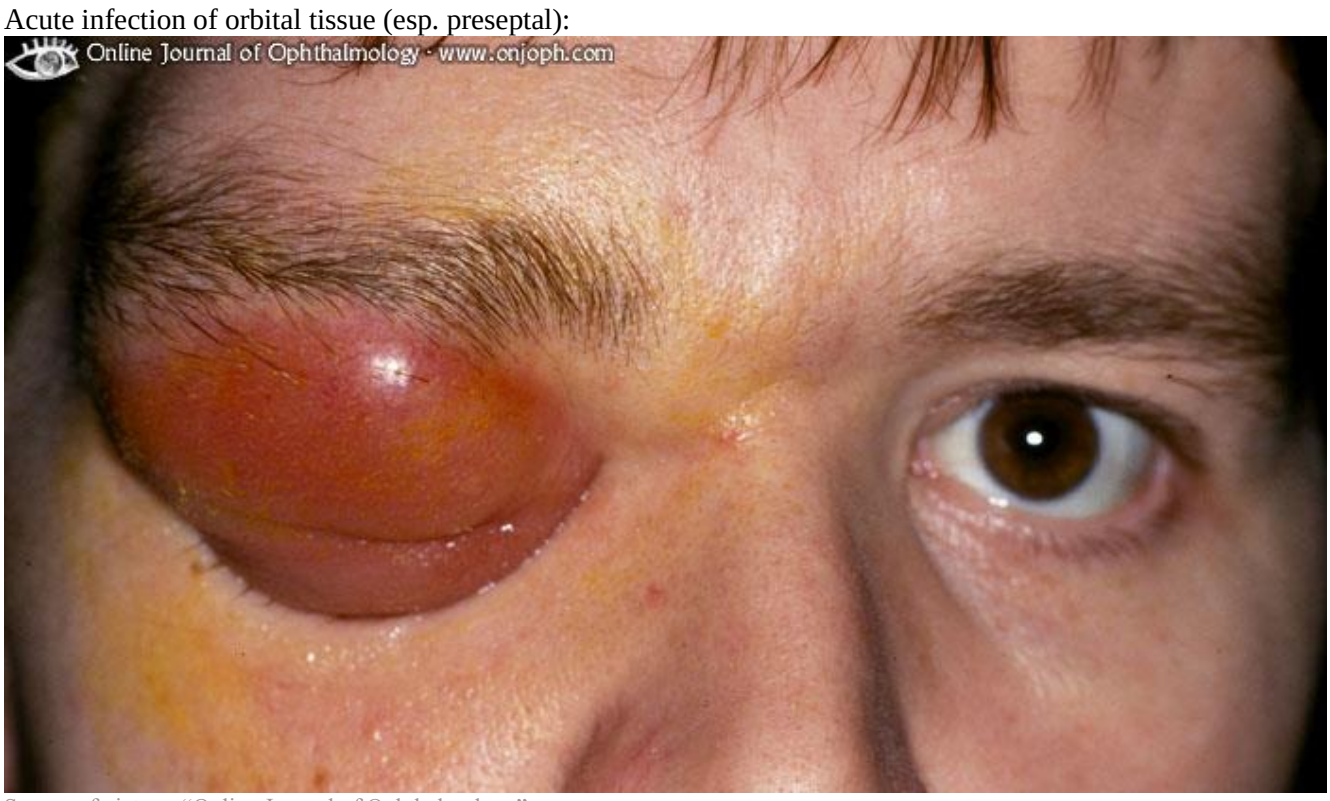
- primarily ***children*** (periorbital cellulitis < 5 yr of age, orbital cellulitis > 5 yr).
- > 90% unilateral.
- extreme orbital pain, **exophthalmos** (with painful resistance to globe retropulsion)*, **painful ophthalmoplegia***, eyelid-conjunctival redness & swelling, decreased visual acuity*, nasal discharge.

*absent in PERIORBITAL CELLULITIS

Peri-orbital cellulitis caused by *Pseudomonas aeruginosa* (in acute myelogenous leukemia):

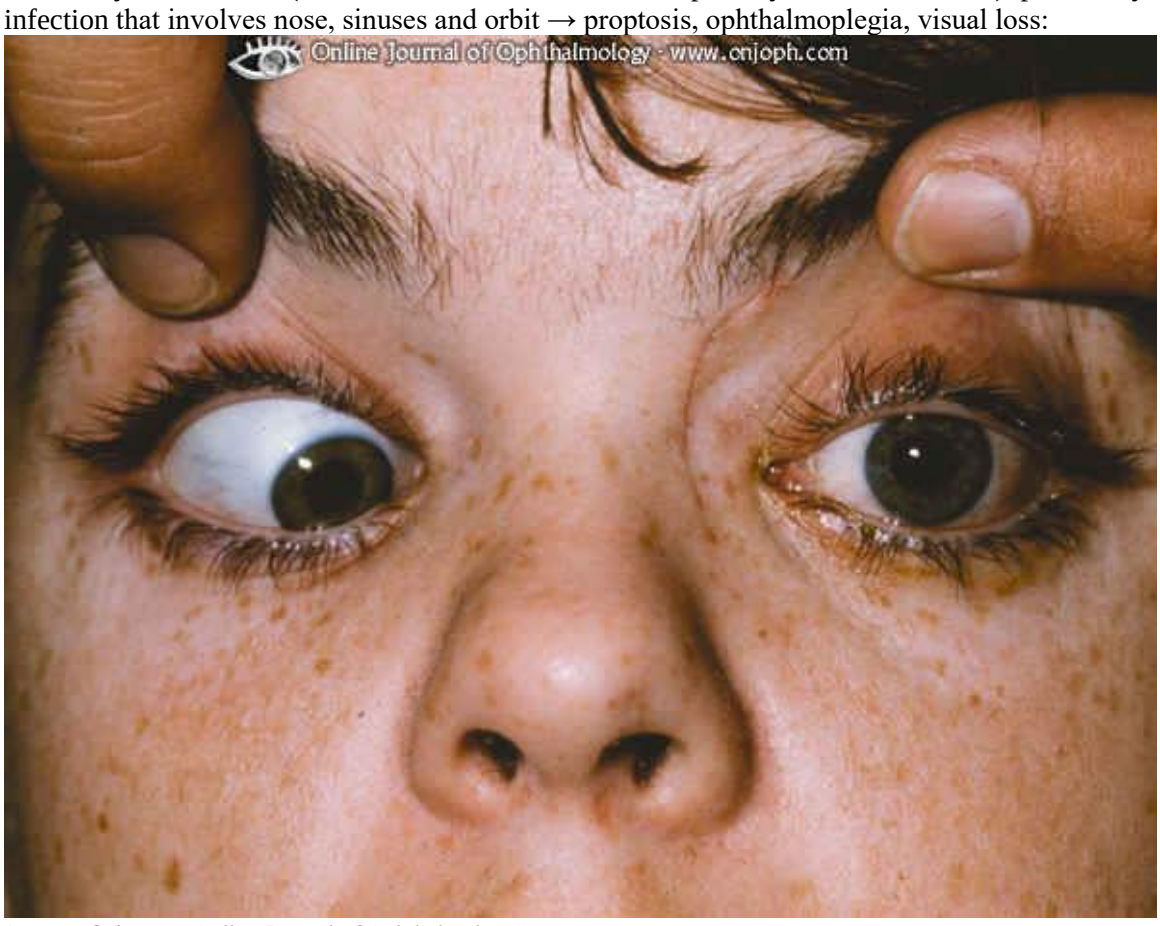


Acute infection of orbital tissue (esp. preseptal):



Source of picture: "Online Journal of Ophthalmology" >>

Mucormycosis of orbit (uncontrolled diabetes mellitus, especially with ketoacidosis); potentially fatal fungal infection that involves nose, sinuses and orbit → proptosis, ophthalmoplegia, visual loss:



Source of picture: "Online Journal of Ophthalmology" >>

- fever & malaise, *progressing rapidly to prostration*!

- complications:
    1) **vision loss** (from optic neuritis, increased intraocular pressure, ischemia)
    2) thrombophlebitis of orbital veins → **cavernous sinus thrombosis** (dilation of episcleral vessels is first sign!)
    3) **panophthalmitis**
    4) infection **spread to meninges / brain**.

  N.B. orbital veins (drain from middle third of face, including paranasal sinuses) have no valves - allow infection passage both anterograde and retrograde!

DIAGNOSIS

X-ray of sinuses, **CT** of orbit
Blood cultures (positive only in 33%)
Needle aspiration of orbit is contraindicated!
Indications for **CSF culture:**
1) infant < 1 yr with no external focus of infection
2) suspected spread to CNS

TREATMENT

- **antibiotics** i/v ASAP (e.g. CEFUROXIME, CEPHALEXIN, CEFAZOLIN, NAFCILLIN).
  in preantibiotic era mortality rate was 17% (20% of survivors were blind in affected eye!)
- if secondary to sinusitis – add nasal decongestants.
- if infection does not respond to antibiotics in 48-72 h or if suppuration is suspected → **incision & drainage**.

EXOPHTHALMOS (PROPTOSIS)

- *eyeball protrusion.*

ETIOLOGY

1. **Orbital** inflammation, edema, infiltration (e.g. hyperthyroidism), tumors, injuries, hemorrhage, orbital pseudotumor (non-neoplastic cellular infiltration and proliferation, e.g. Wegener's granulomatosis), shallow orbits.
2. **Cavernous sinus thrombosis, carotic-cavernous fistula** (pulsating exophthalmos with orbital bruit).
3. **Eyeball enlargement** (e.g. congenital glaucoma, unilateral high myopia).

- causes of PSEUDOPROPTOSIS - lid retraction, unilateral high myopia, facial asymmetry, contralateral enophthalmos.

If orbital pressure is eccentric → eyeball deviation, diplopia.
Globe exposure can lead to *corneal drying, infection (exposure keratitis), ulceration*!!!

DIAGNOSIS

HERTEL exophthalmometer - formal measurement of position of anterior corneal surface in relation to lateral orbit wall.

- if proptosis is > 2 millimeters - **space-occupying orbit lesion** must be suspected.

Etiological diagnosis: CT / MRI of orbit, thyroid studies.

TREATMENT

Etiology determines therapy.

- cornea should be protected from exposure.
- surgical orbital decompression.

BIBLIOGRAPHY for ch. "Ophthalmology" → follow this LINK >>