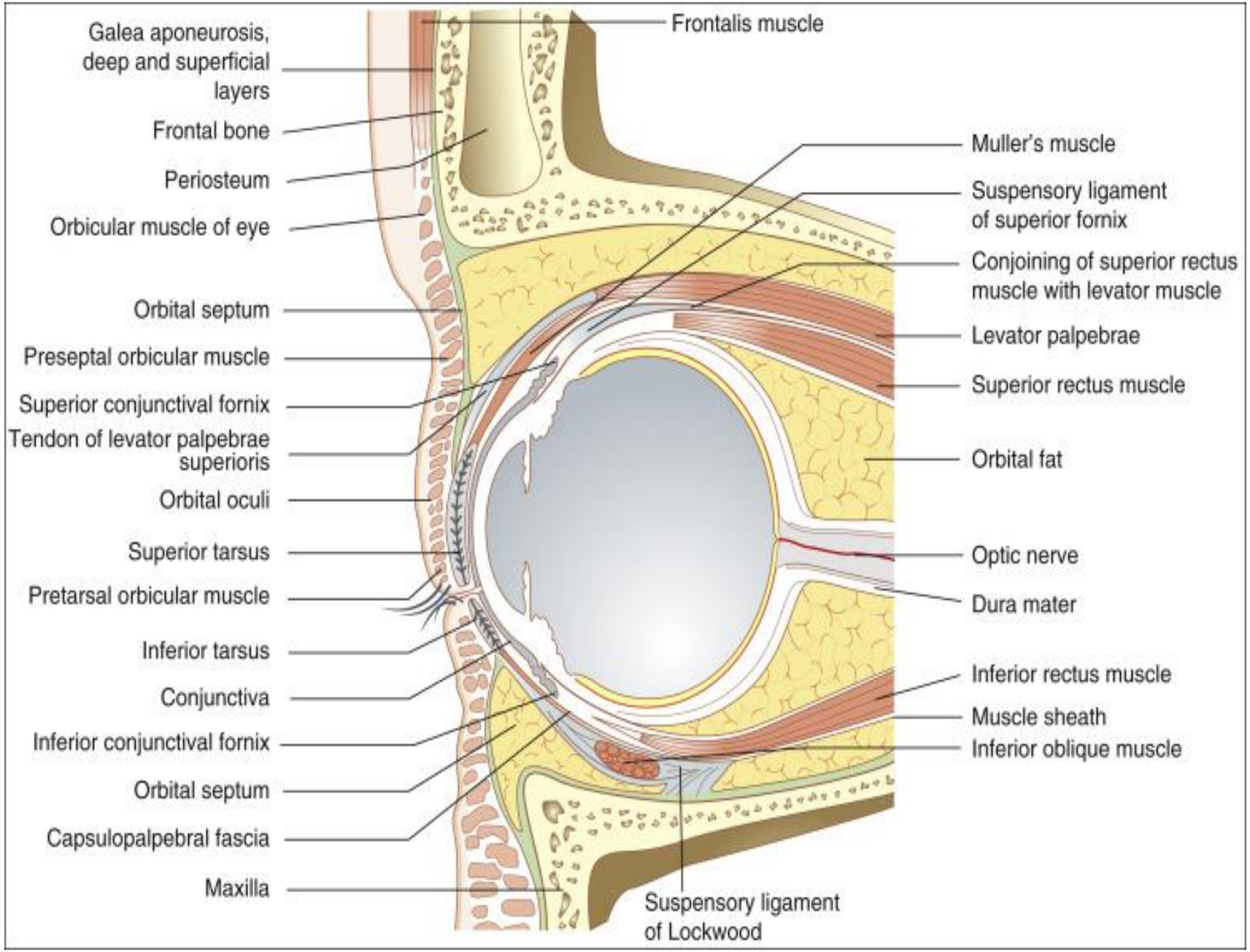
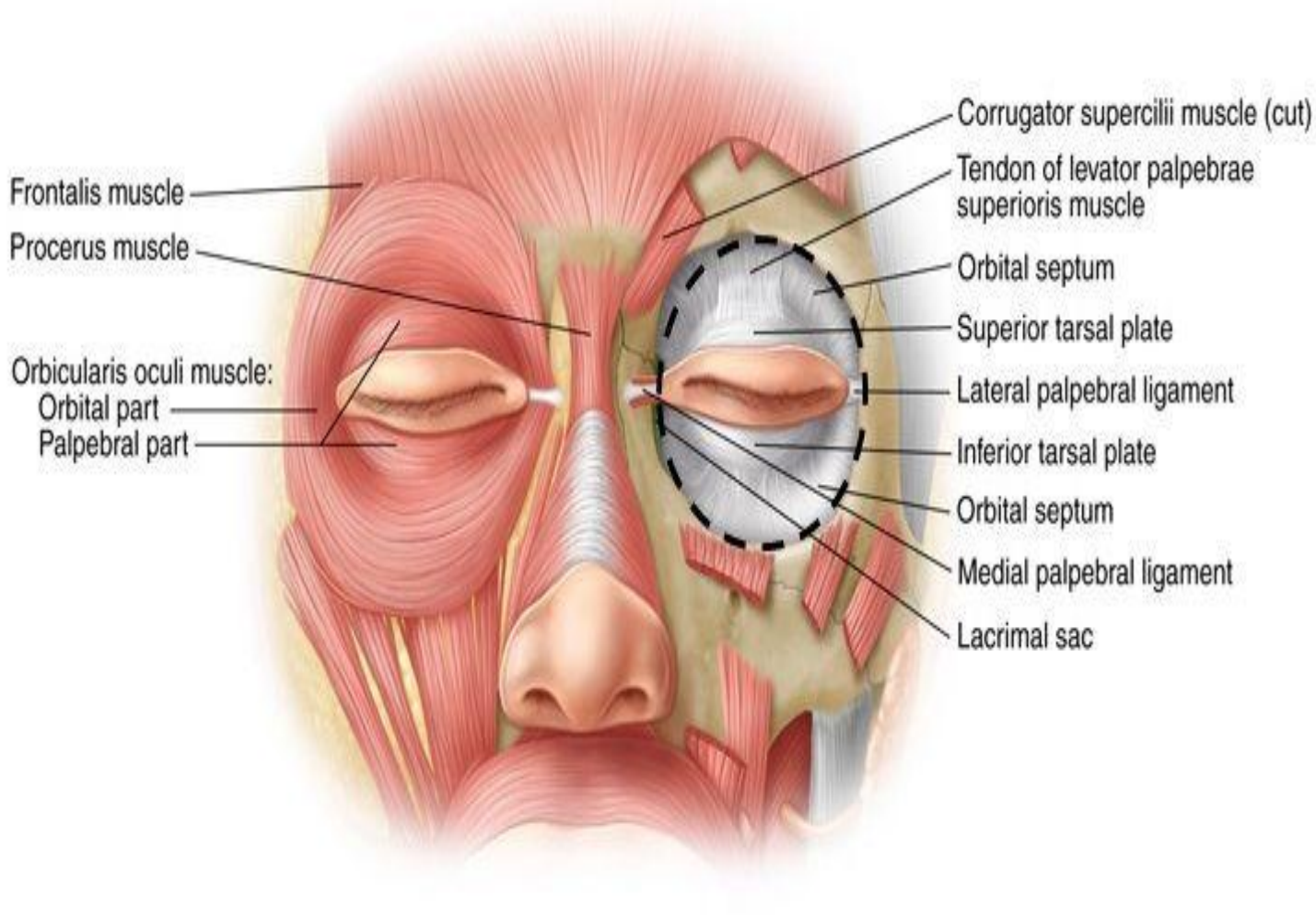

Galea aponeurosis, deep and superficial layers
Frontal bone
Periosteum
Orbicular muscle of eye
Orbital septum
Preseptal orbicular muscle
Superior conjunctival fornix
Tendon of levator palpebrae superioris
Orbital oculi
Superior tarsus
Pretarsal orbicular muscle
Inferior tarsus
Conjunctiva
Inferior conjunctival fornix
Orbital septum
Capsulopalpebral fascia
Maxilla
Frontalis muscle
Muller's muscle
Suspensory ligament of superior fornix
Conjoining of superior rectus muscle with levator muscle
Levator palpebrae
Superior rectus muscle
Orbital fat
Optic nerve
Dura mater
Inferior rectus muscle
Muscle sheath
Inferior oblique muscle
Suspensory ligament of Lockwood



7-57 Orbit, Anterior View I, C. Muscles and Orbital Septum

- **What is meaning of V.A. 20/2OO ?**

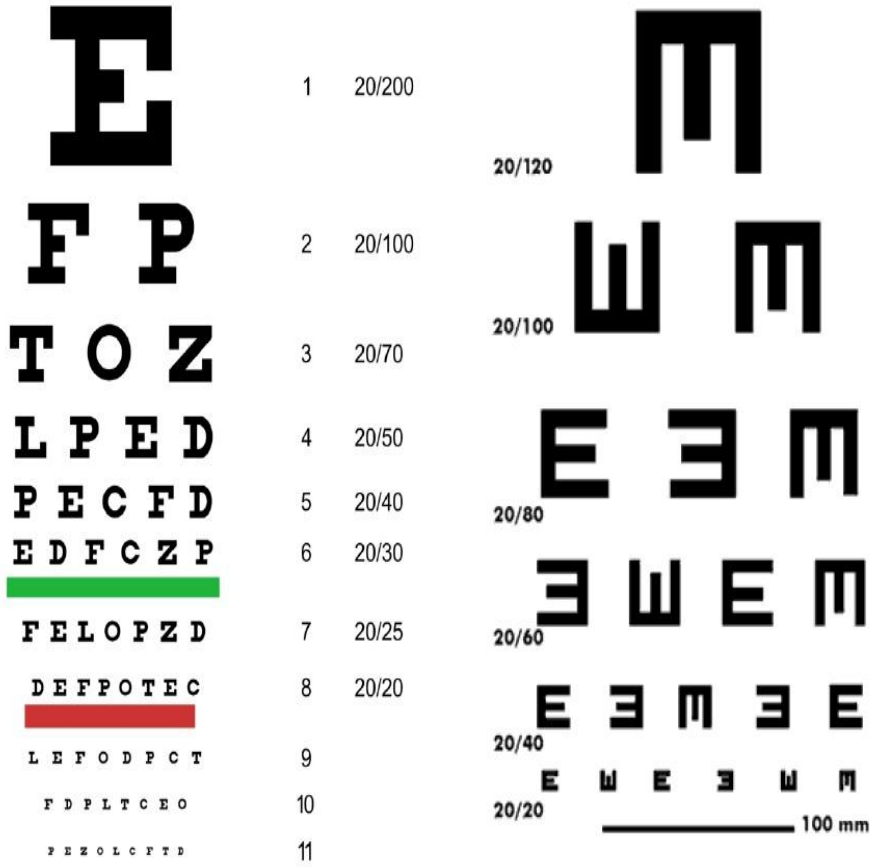


Figure 1: Snellen chart with alphabet (left) and single letter E (right)

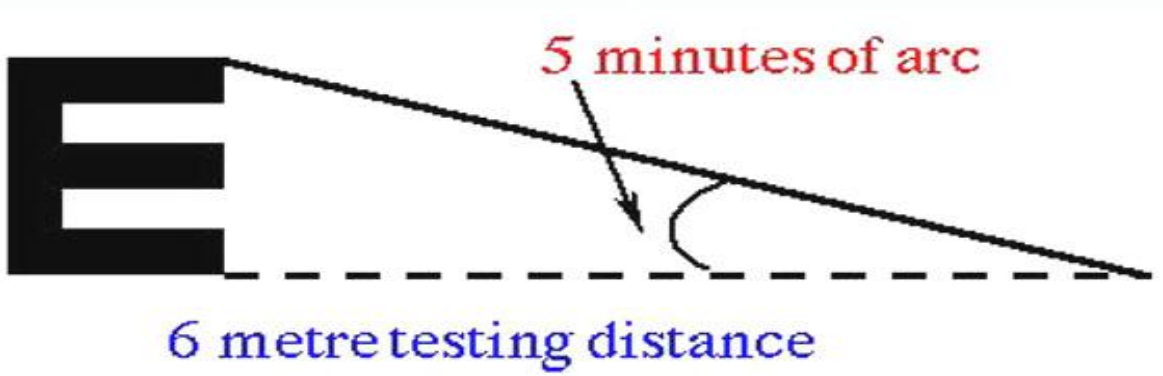
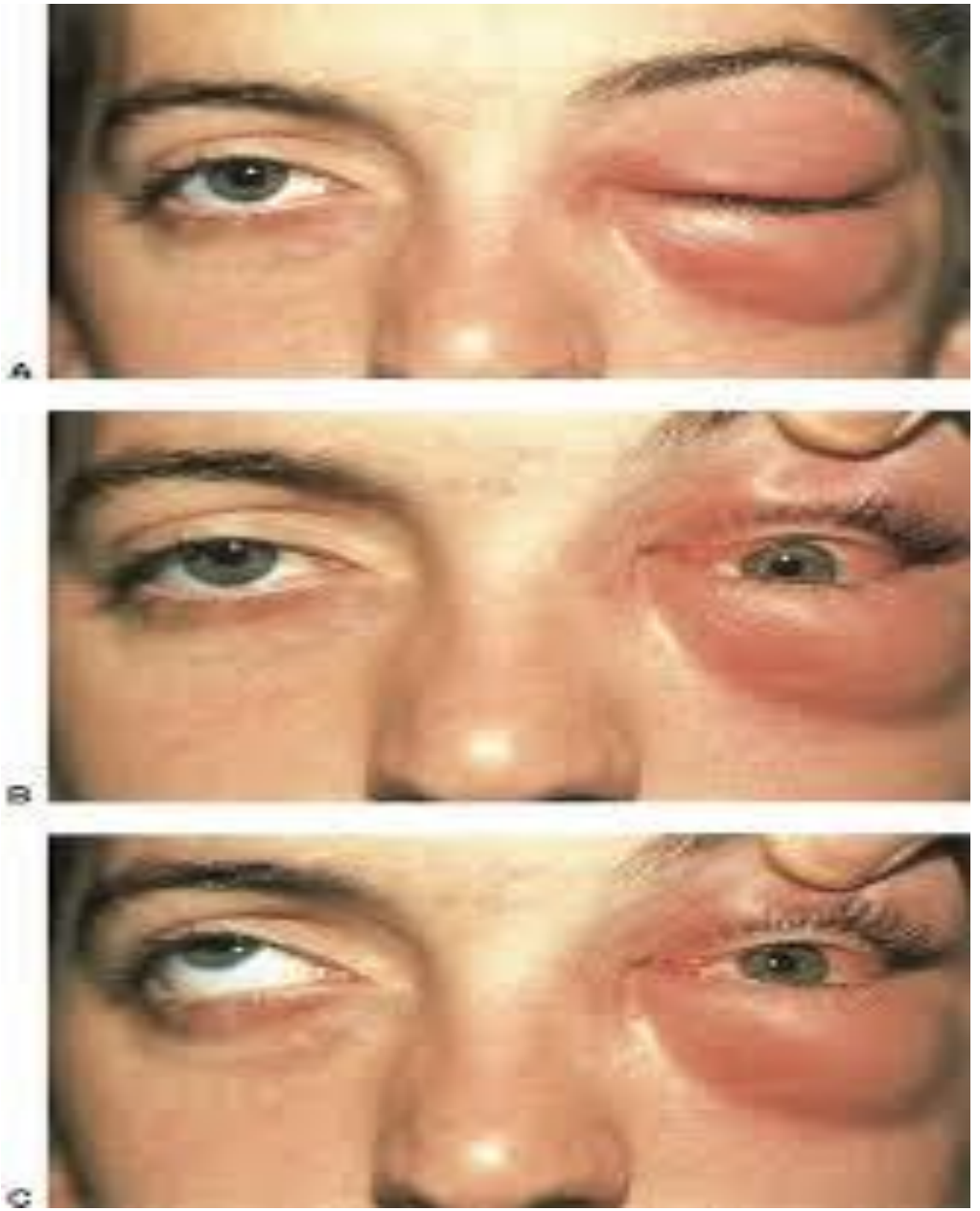


Figure 4. For a visual acuity of 6/6 (20/20), the whole letter subtends an angle of 5 minutes of arc at the eye, and is viewed at 6 metres (20 feet).

What is your diagnosis ?



What is your diagnosis?

Figure 2 Periorbital cellulitis (right side)

- Children with red swollen eyes frequently present to emergency. Some patients will have ***orbital cellulitis***, a condition ***that*** *requires immediate diagnosis and treatment*.
  Orbital cellulitis can be confused with the less severe, but more frequently encountered, **periorbital cellulitis**, which requires less aggressive management.
  Delayed recognition of the signs and symptoms of orbital cellulitis can lead to serious complications such as **blindness**, **meningitis** and **cerebral abscess**.

- **What are the symptoms/sings of Preseptal and orbital cellulitis** ?

Symptom/Sign	Preseptal Cellulitis	Orbital Cellulitis
Eyelid edema	+	+
Eyelid erythema	+	+
Eyelid tenderness	+	+
Fever	+/-	+/-
Leukocytosis	+/-	+/-
Ophthalmoplegia	-	+
Pain with extraocular movements	-	+
Proptosis	-	+/-
Vision impairment	-	+/-

PRESEPTAL CELLULITIS

- Inflammation of the cellular tissue anterior to the orbital septum.
- swelling of the lids
- eythema
- no chemosis
- no proptosis
- no restriction of movements
- visual function is normal.
- treated with oral antibiotics, anti-inflammatory agents.
- resolution is quick and complete.

Preorbital (preseptal) cellulitis:

- More common than orbital cellulitis.
- begins *anteriorly* → get spread to eye lids.
- Etiology:

→Conjunctivitis

→Chalazion, hordeolum

→Allergic reaction

→Local infection/trauma eg insect bites, puncture wounds (cat bites e.g.)

→Dacryocystitis

→conditions such as erysipelas or impetigo.

→ Rarely bacteremia

Pre-septal and Orbital Cellulitis

- Bacterial infection
- Preseptal usually follows periorbital trauma or dermal infection
- Orbital most commonly secondary to ethmoidal sinusitis

Preseptal	Orbital
•Staphylococcus aureus and Staphylococcus epidermidis Streptococcus	•Strep pneumoniae and pyogenes, Staph aureus Haemophilus influenzae, anaerobes

- **How is orbital cellulitis diagnosed** ?

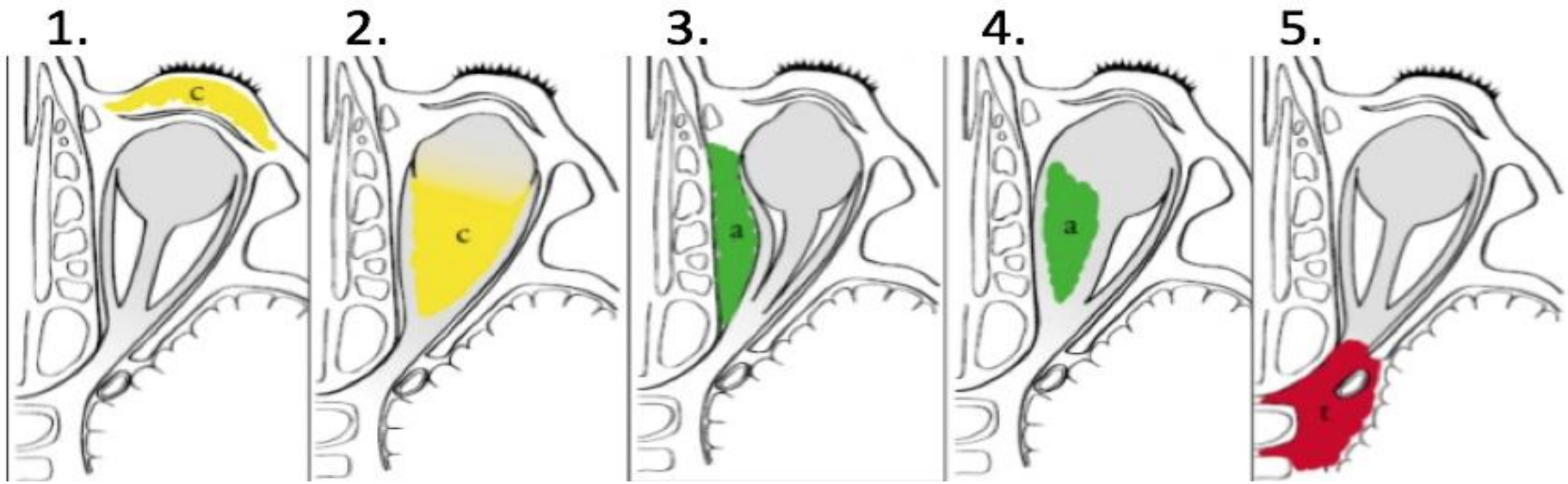
The diagnosis of orbital cellulitis is **based on clinical examination.** The presence of orbital signs such as proptosis, pain with eye movements, ophthalmoloplegia, optic nerve involvement as well as fever and leukocytosis confirm the diagnosis.

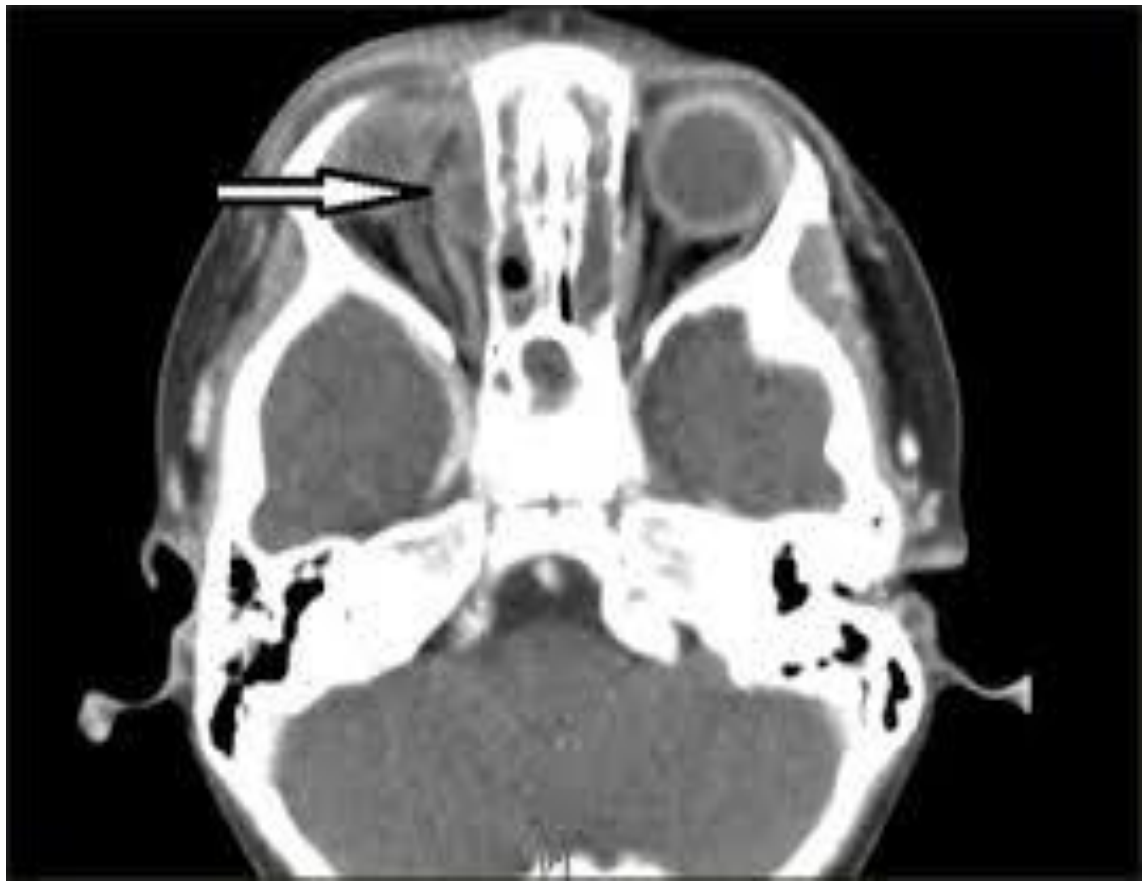
Chandler´s classification

I. Inflammatory edema (preseptal)	Lid edema, no limitation in ocular movement or visual change.
II. Orbital cellulitis (postseptal)	Diffuse orbital infection and inflammation without abscess formation.
III. Subperiosteal abscess	Collection of pus between medial periosteum and lamina papyracea, impaired extraocular movement.
IV. Orbital abscess	Discrete pus collection in orbital tissues, proptosis and chemosis with ophthalmoplegia and decreased vision.
V. Cavernous sinus thrombosis	Bilateral eye findings and worsening of all other previously described findings.

Orbital Complications of Sinusitis

1. Periorbital (Pre-Septal) cellulitis (c)
2. Orbital (Post-septal) cellulitis (c)
3. Subperiosteal Abscess (a)
4. Orbital Abscess (a)
5. Cavernous Sinus Thrombophlebitis (t)






16
W 350 : L 70

DIFFERENCES BETWEEN ORBITAL CELLULITIS AND CAVERNOUS SINUS THROMBOSIS

	ORBITAL CELLULITIS	CAVERNOU SINUS THROMBOSIS
SOURCE	Commonly ethmoid sinuses	Nose, sinuses, orbit, ear or pharynx
ONSET	Slow; starts with oedema of eyelids the inner canthus → chemosis → proptosis	•Abrupt with high fever and chills with near signs of toxaemia •Oedema of eyelids, chemosis and proptosis
CRANIAL NERVE INVOLVEMENT	Involved concurrently with complete ophthalmoplegia	Involved individually and sequentially
LATERALITY	Often involves one eye	Involves both eyes

Differential diagnosis of orbital diseases

- Trauma
- Disorders of extra-ocular muscles (Dysthyroid eye disease and ocular myositis, rhabdomyosacroma)
- Infective disorders (orbital cellulitis and preseptal cellulitis)
- Inflammatory diseases (Sarcoidosis, orbital pseudo-tumors)
- Vascular abnormalities (Carotico-Cavernous sinus fistula, orbital varix, capillary hemangioma)
- Orbital tumors (lacrimal gland tumors, meningioma of the optic nerve, optic nerve glioma, rhabdomyosarcoma)
- Dermoid cysts

Table 1. Criteria for Cellulitis Hospital Admission

The IDSA recommends considering inpatient admission in patients with hypotension and/or the following laboratory findings:

- Elevated creatinine level
- Elevated creatine phosphokinase level (2-3 times the upper limit of normal)
- CRP level >13 mg/L
- Low serum bicarbonate level
- Marked left shift on the CBC with differential

CRP: C-reactive protein; IDSA: Infectious Diseases Society of America.
Source: Reference 4.

Admission Criteria

- Patients with orbital cellulitis presenting with:
  - Eyelid edema
  - Diplopia
  - Reduced visual acuity
  - Abnormal light reflexes
  - Ophthalmoplegia
  - Proptosis
- Appears toxic
- Eye exam is unable to be completely performed
- Signs of CNS involvement:
  - Lethargy
  - Vomiting
  - Seizures
  - Headache
  - Cranial nerve deficit

- **How do you treat orbital cellulitis** ?

Treatment of cellulitis

- Mild infection: Oral cephalexin or clindamycin for 5-10 days
- Moderate infections: IV cloxacillin /clindamycin
  - Fever
  - Lymphadenopathy
  - Rapid progression
  - Progression of symptoms 24-48 hours of oral therapy
  - Persistence of symptoms 48-72 hours of oral therapy
- Severe infection (Systemic toxicity) : IV cloxacillin/ clindamycin + Vancomycin


A
B


a
b

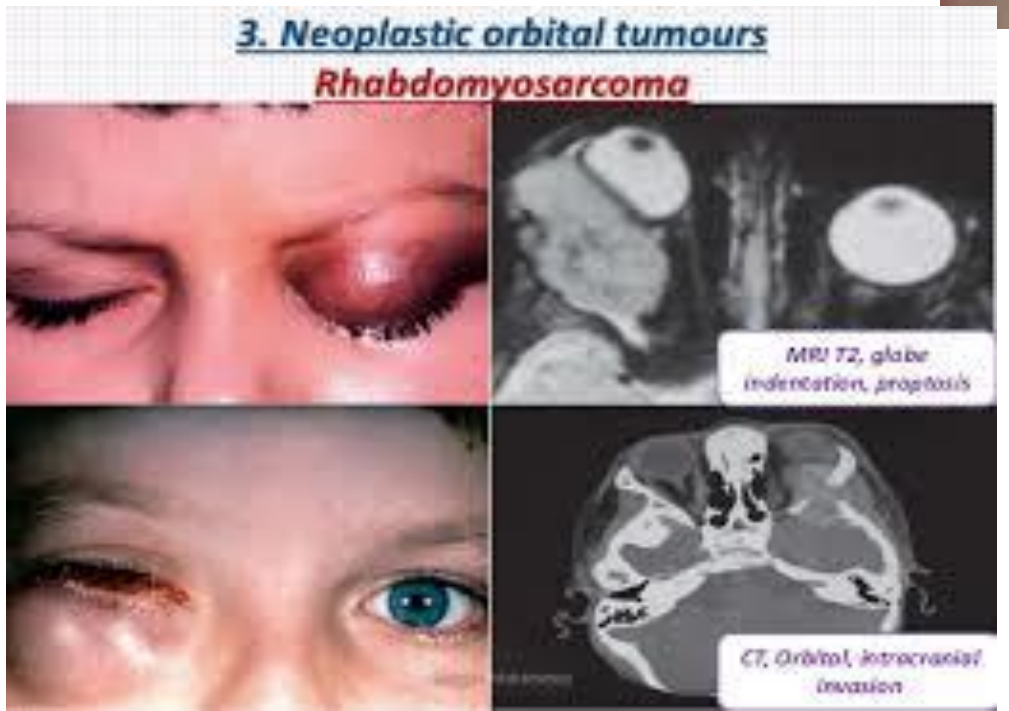

7
8
6
11
3
4
13
3 Distance: 0.48 cm
4 Distance: 0.90 cm
7 Distance: 1.40 cm
8 Distance: 1.64 cm
6 Distance: 0.41 cm
13 Distance: 3.73 cm


EyeRounds.org


a
b


a
b
c
d


Medscape www.medscape.com
Source: Cancer Control © 2004 H. Lee Moffitt Cancer Center and Research Institute, Inc.


3. Neoplastic orbital tumours
Rhabdomyosarcoma
MRI T2, globe indentation, proptosis
CT, Orbital, intracranial invasion