

ED QUICK QUIZ

WHAT IS THE DIAGNOSIS?

BACKGROUND

A 46 year old woman presents to A&E with a two day history of a painful, swollen left eye. She has had chills and shivering at home but otherwise feels well. Her vision is unaffected. Past medical history: type 2 diabetes mellitus.

Examination

There is conjunctival injection and proptosis of the left eye with erythema of the eyelid. Observations: HR 95, BP 130/60, RR 16, SpO2 96% air, temperature 38.6 degrees.



Visual Acuity is 6/8 bilaterally.

Her pupils are equal and reactive to light.

Eye movements are painful but there is no ophthalmoplegia or diplopia.

QUESTIONS

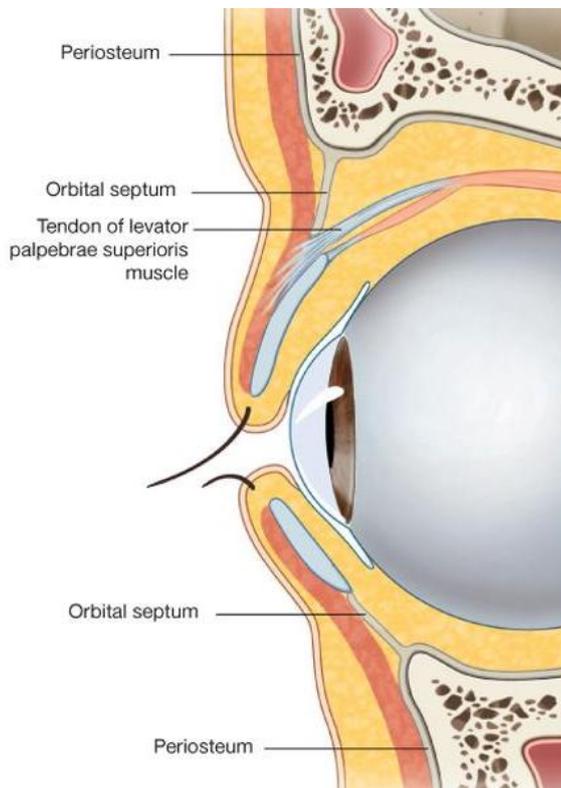
1. How would you differentiate between orbital cellulitis and periorbital cellulitis?
2. What are the complications of orbital cellulitis?
3. How will you manage her?

ANSWERS & DISCUSSION

1. Orbital vs Periorbital Cellulitis

Orbital cellulitis: an infection involving contents of the orbit (fat, ocular muscles) **posterior to the orbital septum**. It is life and vision threatening and more common in children.

Periorbital cellulitis (preseptal cellulitis): an infection involving tissues **anterior to the orbital septum**. It is usually a mild disease and rarely leads to serious complications. It is more common than orbital cellulitis.



The orbit is a cone-shaped structure lined by periosteum and surrounded by the paranasal sinuses (frontal, ethmoid and maxillary). The anterior boundary of the orbit is the orbital septum which extends from the periosteum to the tarsal plates.

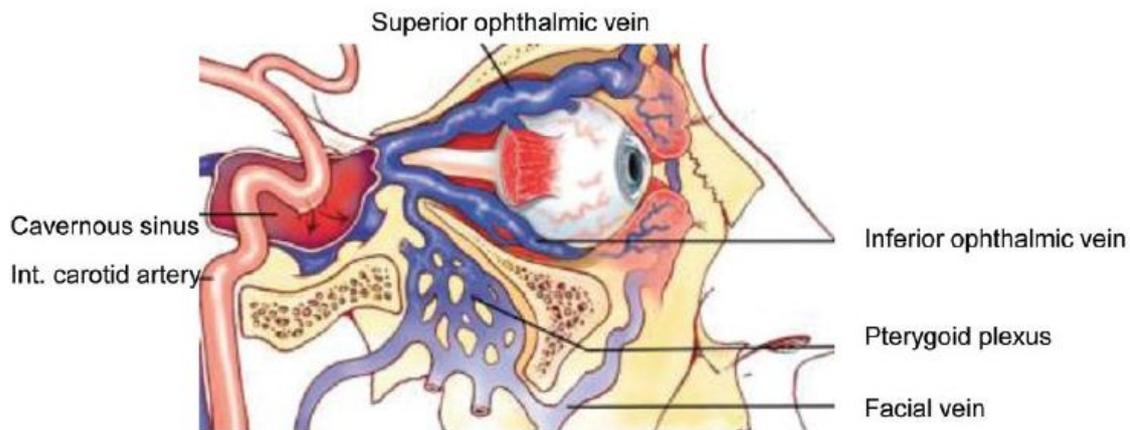
The division between the orbit and the ethmoid sinus is the lamina papyracea which is thin and contains perforations for the passage of nerves and blood vessels – orbital infection usually extends from the ethmoid sinus. Infection in the orbit may extend intracranially via the superior and inferior veins which drain into the cavernous sinus and manifests as meningitis, epidural/extradural empyema or intracranial abscess.

Clinical Features of Orbital and Periorbital Cellulitis

| Clinical Feature | Periorbital | Orbital |
|---------------------------------|-------------|---------------------|
| Eyelid swelling/erythema | Present | Present |
| Eye pain/tenderness | Possible | Present |
| Pain with eye movement | No | Present |
| Proptosis | No | Usually present |
| Ophthalmoplegia | No | Often present |
| Vision impairment | No | Possible |
| Chemosis | Rare | Possible |
| Fever | Possible | Usually present |
| Leucocytosis | Present | Usually more severe |

2. Complications of Orbital Cellulitis

Orbital cellulitis is a life and vision threatening condition with a mortality of 1-2% and loss of vision in 3-11% of cases. Subperiosteal and orbital abscesses are often difficult to detect as the clinical features they produce, such as proptosis, pain on eye movement and compression of the optic nerve, are similar to those of orbital cellulitis. However, these clinical features are usually more severe and are less likely to respond well to antibiotics. Intracranial extension through the foramen in which the optic nerve and ophthalmic vessels pass may cause intracranial infections or cavernous sinus thrombosis.



Inflammation of the optic nerve due to surrounding infection may produce optic neuritis and pressure on the central retinal artery may cause occlusion with ischaemia.

| Complication | Clinical Features |
|----------------------------------|--|
| Intracranial infection | Headache, N&V, meningism, neurology |
| Cavernous sinus thrombosis | Headache, bilateral proptosis, diplopia, ptosis, facial pain |
| Optic neuritis | Visual impairment, absent pupillary reflex, RAPD |
| Central retinal artery occlusion | Monocular vision loss, retinal pallor |
| Subperiosteal abscess | Difficult to detect |
| Orbital abscess | Difficult to detect |

1. Management

This lady has evidence of orbital cellulitis – proptosis, pain on eye movement and fever. Blood cultures are often negative but isolating a pathogen from the orbit is not possible unless surgery is undertaken - blood cultures may be the only chance of identifying the organism. CT orbit may detect abscesses and aid in the diagnosis if clinical signs are equivocal but is seldom undertaken in A&E. If the patient has signs of intracranial infection urgent CT should be undertaken.

Give IV clindamycin 600mg qds and IV ceftriaxone 2g od for 21 days (vancomycin, ciprofloxacin and clindamycin if penicillin allergic). In a child use IV cefotaxime and flucloxacillin. Refer to ophthalmology.