

## Preseptal and Orbital Cellulitis in Children

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### Key Amendments

Date	Amendment	Approved by
19 <sup>th</sup> Nov 2020	Document extended for 1 year	Paediatric QIM/Dr J West
26th March 2021	Approved with no amendments	Paediatric QIM

### Introduction

***N.B. Please see flow chart on page 4 of this guideline***

The orbital septum is a nearly impervious barrier to spread of infection from the preseptal to orbital area. Infection and inflammation confined to the eyelids and structures *anterior* to the orbital septum is referred to as **preseptal** (or periorbital) **cellulitis**. Whereas, infection of the orbital soft tissue *posterior* to the orbital septum is known as **orbital cellulitis** and most commonly occurs as a complication of sinusitis. Orbital cellulitis is potentially life threatening as there is a risk of direct extension to the brain. Other complications associated with orbital cellulitis include orbital abscess, subperiosteal abscess, brain abscess, meningitis, optic neuritis, cavernous sinus thrombosis and blindness.

The most likely organisms include *Strep pyogenes*, *Strep pneumoniae* & *Staph aureus*. Over 5 years of age *Staph aureus* is most common. Anaerobes are unusual. *Haemophilus influenzae* type b is a very uncommon cause of orbital cellulites since HiB immunisation.

### Key Amendments to this Guideline

Date	Amendment	Approved by (name of committee or group approving)
20/05/2018	Second to last bullet point regarding metronidazole. Table amended removing early metronidazole use and advising discussion with microbiology.	Paediatric QI Meeting
February 2019	Replaced flow chart	Paediatric QIM

### Preseptal & Orbital Cellulitis

#### Preseptal Cellulitis

More common in younger children. Usually caused by *Strep pyogenes*, *Strep pneumoniae* or *Staph aureus*.

**Secondary to:** Infection affecting the skin or adjacent structure e.g. hordoeum (stye) or conjunctivitis, trauma, insect bite or upper respiratory tract infection (may lead to bacteraemic periorbital cellulitis).

**Associated findings:** Swelling, erythema, oedema, warmth, and tenderness. (Globe unaffected therefore no other ocular signs or symptoms.)

### **Orbital Cellulitis**

Is an **OCULAR EMERGENCY** and more common in older children. It can be caused by *Streptococcus* spp (including *Strep milleri*, pneumococcus and group A beta haemolytic streptococcus), *Staph aureus* and more rarely *Haemophilus influenzae*, anaerobes or *Neisseria meningitidis*.

**Secondary to:** Spread of infection from surrounding structures –sinusitis (particularly ethmoid sinus), trauma, surgery and blood-borne spread

**Associated findings:** Pain, conjunctival oedema, erythema, warm lid, flu-like symptoms, pyrexia, meningism, proptosis, restricted ocular motility, reduced visual acuity, and abnormal pupil reflexes.

### **Indications for admission**

Most patients with periorbital swelling will require admission. The only safe patient to send home is one with minimal upper lid oedema, a normal eye examination and **none** of the features below.

- Proptosis
- Diplopia
- Restricted ocular motility
- Reduced visual acuity
- Abnormal pupil reflexes
- Full eye examination not possible
- Toxic or systemically unwell
- Central nervous system signs or symptoms (drowsiness, vomiting, headache, seizure or cranial nerve lesion).

**CT scanning** should be used as an adjunct to clinical findings. Indications for CT:

- Central signs
- Unable to accurately assess vision
- Proptosis
- Restricted ocular motility
- Deteriorating visual acuity
- Bilateral oedema
- No improvement/deterioration at 24 hours
- Swinging pyrexia not resolving at 24-48 hours

**Lumbar puncture** should be considered in some high risk cases (see flow chart). Not if focal neurology present. Lumbar puncture should be deferred until after the CT scan. Consider particularly in children <12 months old as often difficult to appreciate meningeal signs.

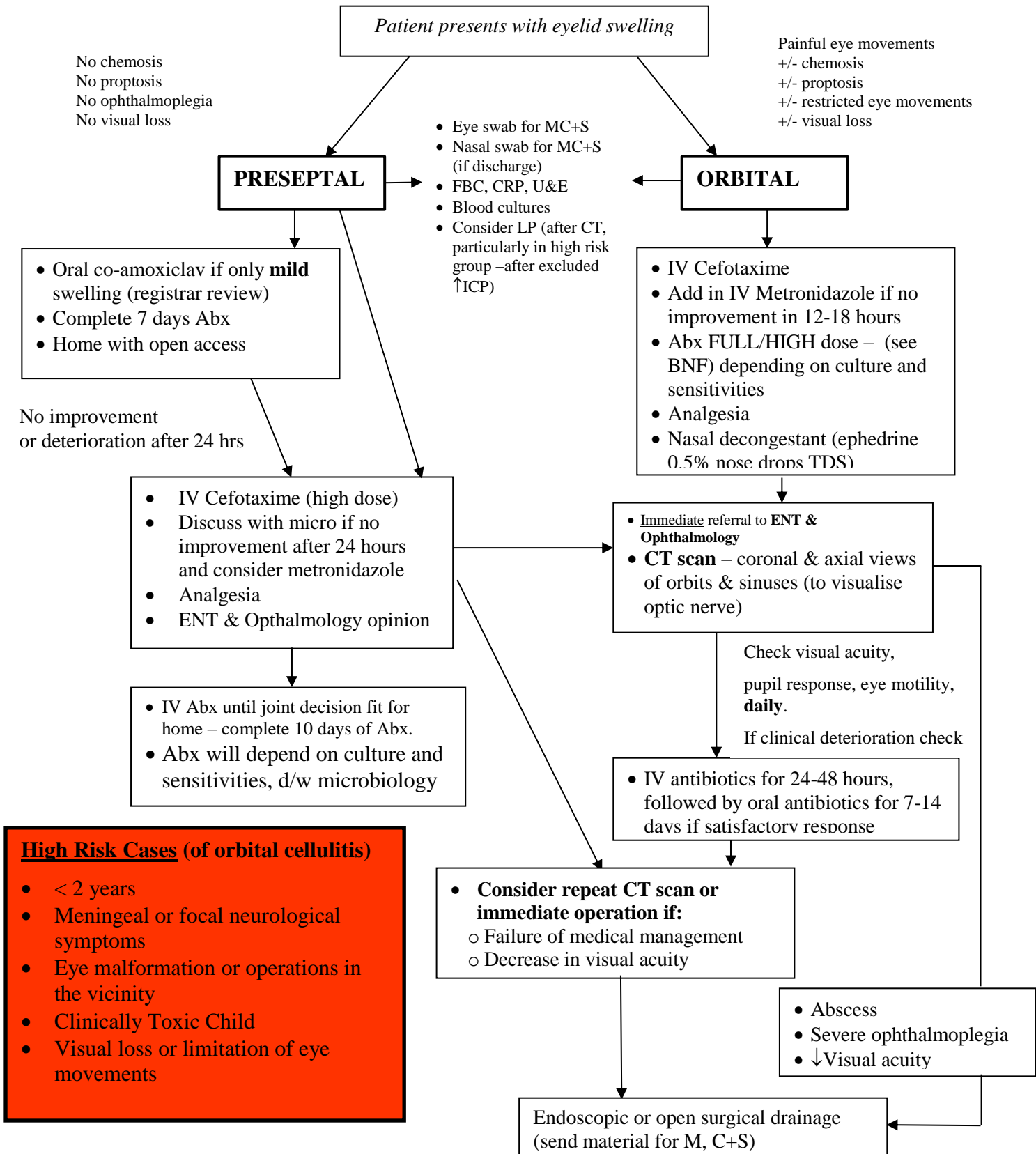
**Antibiotics** – see flow chart for protocol. (Doses as per latest BNF for Children.)

- For preseptal cellulitis, if penicillin allergy, use oral clarithromycin.
- For orbital cellulitis, or IV therapy for preseptal cellulitis and penicillin allergy, discuss with Microbiologist.
- IV Ceftriaxone could be used as an alternative to IV Cefotaxime to allow once daily treatment, or for home IV therapy if considered appropriate.
- The infection is usually due to a single aerobic organism in children e.g. *Strep pneumoniae*, *Moraxella catarrhalis* & *Haemophilus influenza* (under the age of 5 years) so metronidazole should only be used based on culture results or polymicrobial infection suspected (e.g. trauma, sinus disease history)
- **Any patient with meningeal involvement will need an extended course of IV antibiotic and should be discussed with microbiology.**

**Surgical drainage** is recommended if:

- CT shows evidence of an abscess.
- Visual acuity worse than 20/60 on initial evaluation.
- Severe orbital complications e.g. blindness or afferent papillary defect.
- Progression of orbital signs and symptoms despite therapy.
- Lack of improvement within 48 hours despite medical therapy.

**FLOWCHART FOR MANAGEMENT OF PRESEPTAL AND ORBITAL CELLULITIS IN CHILDREN**



## REFERENCES

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