

MANAGEMENT OF ORBITAL CELLULITIS AND ORBITAL ABSCESS (ADULTS AND CHILDREN)

PROFILE	
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1.0 Introduction

Bacterial orbital cellulitis is a medical emergency that, if not treated urgently, may lead to blindness and even death. Acute sinusitis is the most common source of infection but trauma, lid infections or endogenous spread may also contribute.

An integrated multi-disciplinary strategy is key to successfully managing this disease. Close coordination between ENT, Ophthalmology, Paediatrics (for children), Imaging and Microbiology is needed to ensure optimal care for these patients.

Any patient with suspected orbital cellulitis should receive the first dose of antibiotic intravenously at the earliest opportunity (before sending for scans etc) and an ophthalmic assessment should be arranged as soon as practically possible if the patient is admitted via ENT or Paediatrics.

2.0 Aim/Purpose

The aim of the guideline is to provide recommendations to assist in the management of orbital cellulitis.

3.0 Definitions

Orbital septum	This is a dense fibrous membrane that originates from the periosteum of the orbital rim peripherally fuses with the tarsal plates centrally and separates the orbital contents from the eyelids
Orbital cellulitis	Orbital cellulitis is an extremely serious infectious process that directly or indirectly affects orbital contents behind the orbital septum.
Pre-septal cellulitis	This is a more common but less serious infection of the skin and soft tissues of the eyelids anterior to the orbital septum. Occasionally pre-septal cellulitis can progress to orbital cellulitis

4.0 Pathophysiology

Three main mechanisms are recognised:

4.1 Spread from surrounding sinuses. Ethmoid sinuses are the most common source of infection followed by frontal sinus.

4.2 Direct injury to orbit

4.3 Endogenous spread in immuno-compromised patients

5.0 Criteria for admission

All patients with a clinical diagnosis of orbital cellulitis **MUST** be admitted and an ophthalmic opinion sought as soon as possible.

For patients that are difficult to examine (young children) and orbital cellulitis cannot be ruled out, they should also be admitted and started on IV antibiotics.

6.0 Management

The management of orbital cellulitis and sinusitis differ in adults and children.

7.1 Children

Children are admitted under the joint care of paediatrics / ENT / Ophthalmology. The role of the paediatrician is to co-ordinate care, monitor the general health of the patient and prescribe and administer antibiotics. The majority of children (under the age of 9) develop orbital cellulitis secondary to ethmoidal sinusitis/sub-periosteal abscess following an upper respiratory infection. The infection tends to be due to a single aerobic organism e.g. *Strep pneumoniae*, *Moraxella catarrhalis* and *Haemophilus influenzae* (under the age of 5). Therefore metronidazole should only be given based on culture results or if polymicrobial infection is suspected (history of chronic sinus disease, trauma etc)

A majority of very young children respond to conservative management and do not need sinus or abscess drainage unless vision is threatened. A CT scan may be delayed for 18 - 24 hours to observe response to therapy when optic nerve is not compromised.

7.2 Adults

In adults the infection maybe polymicrobial and anaerobes may also be present where there is a history of chronic sinus disease. Pre-disposing history is more varied and surgical drainage of sinuses and abscess is more frequently required.

A CT scan is to be arranged at the earliest after administration of the first dose of intravenous antibiotics. If vision is deteriorating rapidly the orbit must be surgically decompressed as soon as possible.

The commonest organisms isolated from blood, the paranasal sinuses or abscess are:

- Streptococcal species such as *Streptococcus milleri*, *pyogenes*, *pneumoniae*
- *Staphylococcus aureus*,
- *Haemophilus influenzae* (type b)

7.0 Choice of surgery

Drainage of a sub-periosteal abscess is urgently required except in very young children, where response to intravenous antibiotic therapy can be monitored for 24 hours.

The main surgical objective is to drain the pus adequately, reduce intra-orbital tension and obtain samples for culture. Send sample of pus rather than pus swab to microbiology.

8.0 Implementation

A copy of the guidelines will be made available on the intranet

9.0 Audit

Audit compliance with guidelines following 18 months of implementation of guideline

10.0 References

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Management of Orbital Cellulitis in Adults and Children

