Adequacy of Diagnostic Workup and Management of Patients with Orbital Cellulitis – Are We Following National Clinical Guidelines?

Aishah Z Mughal[1], Shilpa Divakaran[2], Yohanna Takwoingi[2]

[1]University of Birmingham, [2]City & Sandwell Hospitals NHS Trust, Birmingham, UK

UNIVERSITY OF BIRMINGHAM

NHS

Sandwell and West Birmingham Hospitals NHS Trust

1. Objectives

Orbital (post-septal) cellulitis refers to infection of soft tissues **posterior** to the orbital septum, including fat and muscle within the bony orbit.

Orbital cellulitis is associated with **severe complications** e.g. optic neuropathy, cavernous sinus thrombosis & intracranial abscess formation[1,2].

Rapid diagnosis and **prompt treatment** is essential to minimise complications and **optimise outcomes[3].**

Clinical Guidelines

ENT UK Guidelines recommend:

- Baseline investigations (bloods and endonasal swab) are performed at admission
- Urgent ophthalmology assessment and daily review during admission
- CT orbit sinuses and brain are **only** indicated if: CNS involvement, clinical eye signs, unable to examine eye, failure to improve after 48 hours of IV antibiotics

Aim:

*To **assess** appropriateness of diagnostic workup and **evaluate** adequacy of orbital cellulitis management against national UK guidelines.*

2. Methods

Clinical audit at City and Sandwell Hospitals NHS Trust.

Patients admitted with suspected orbital cellulitis **01/01/2020 – 25/07/2021.** Included both paediatric and adult patients

Electronic health records were collected → presence of investigations at admission, time until imaging, details of management

Statistical analysis was performed using SPSS V.27

3. Results

71 patients were included in clinical audit from 01/01/2020 – 25/07/2021

63.4% of patients were male.

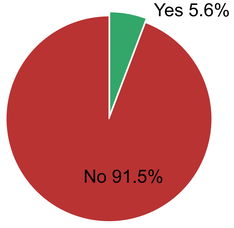
Median (IQR) age at admission: **18.3 (IQR 7- 49) years**
- Paediatric – 35 (49.3%)
- Adult – 36 (50.7%)

Imaging	N = 71
Imaging performed	
Yes	39 (54.9%)
No	32 (45.1%)
Imaging modality	
Contrast CT	37 (94.9%)
MRI	1 (2.5%)
CT head	1 (2.5%)
Time to imaging, hours [median (IQR)]	5 (3-10.5)

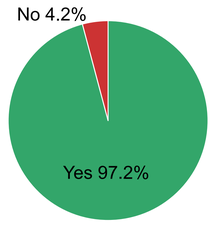
Table 1: Imaging modalities performed in suspected orbital cellulitis patients

- Of **71 patients** with suspected orbital cellulitis:
  - 10 confirmed orbital cellulitis
  - 10 acute sinusitis
  - 51 preseptal cellulitis

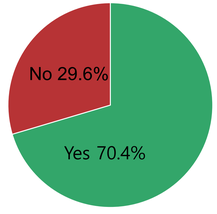
Endonasal swab performed?



Bloods performed at admission?



Ophthalmology review performed?



20 patients (28.2%) received imaging without ANY indications

All patients with **confirmed orbital cellulitis** received imaging – 100% compliance
- 9/10 – contrast enhanced CT orbit, sinus and brain
- 1/10 – MRI scan

- Of 10 patients with CT confirmed orbital cellulitis:
  - All patients (100%) were treated with **IV antibiotics**
  - 6 patients requires **surgical intervention** for evacuation of orbital collection

4. Conclusion & Recommendations

- **Conclusion -** orbital cellulitis management is adequate but further improvement is needed to ensure:
  - All patients possess specific indications for imaging
  - Patients receive thorough baseline diagnostic work-up

Emphasise importance of rapid diagnostic work-up (particularly **endonasal swab**) in suspected orbital cellulitis patients amongst clinicians

Online reminders for clinicians to ensure **ophthalmology reviews** are performed in confirmed orbital cellulitis patients

Re-audit annually to assess improvement in guideline implementation

5. References

1. Lee S, Yen MT. Management of preseptal and orbital cellulitis. Saudi J Ophthalmol. 2011 Jan;25(1):21-9. doi: 10.1016/j.sjopt.2010.10.004. Epub 2010 Dec 10. PMID: 23960899; PMCID: PMC3729811.
2. Baldwin, Andrew (ed.), *Oxford Handbook of Clinical Specialties*, 11 edn, Oxford Medical Handbooks, (Oxford, 2020; online edn, Oxford Academic, 1 Oct. 2020),
3. ENT UK. Orbital Cellulitis Management Guidelines – For Adults & Paeds. 2017. ENT UK Guidelines

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