Staphylococcal Osteomyelitis with Endogenous Endophthalmitis

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Bacterial Endogenous Endophthalmitis

- A review of two cases of *Staphylococcus aureus* endogenous endophthalmitis

- To demonstrate staphylococcal bacteraemia can lead to metastatic infections including endophthalmitis and osteomyelitis, presenting in the eye clinic
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**Risk Factors**
- Chronic disease (diabetes), altered immunity
- Surgery, in-dwelling lines, IV drug abuse
71, Female – Unilateral Endogenous Endophthalmitis

- Presents with **left eye floaters/ reduced vision**

- No predisposing illness/surgery/PMHx

- Chronic neck pain

- **1/52 history of neck pain/stiffness**

- Systemic enquiry:
  - Apyrexial
  - Malaise, fatigue
  - No skin/urinary/GI/resp symptoms
6/9
Normal examination
6/192
Vitritis ++
Focal retinitis
71, Female – Unilateral Endogenous Endophthalmitis

MSSA Sepsis with ocular spread (day 1)
Fever, CRP 369, ESR 124, +VE blood cultures
CXR/urine/echo - NAD

Treatment
Empirical IV Ceftrixanone
IV Teicoplanin and PO Rifampicin

Neck pain
Suspected osteomyelitis
Epidural abscess at C2 with para-spinal collection surrounding c2-4 joints. Facet joint destruction at C3/4

CONSERVATIVE MANAGEMENT
65, Male—Bilateral Endogenous Endophthalmitis

- Local eye unit: anterior/intermediate uveitis diagnosed
- 2/52 history of severe lower back pain with intermittent fever
- No co-morbidities/risk factors
65, Male—Bilateral Endogenous Endophthalmitis

- Local eye unit: anterior/intermediate uveitis (non-infectious)

- 2/52 history of severe lower back pain with intermittent fever

- No co-morbidities/risk factors

Referred to MREH

Worsening vision and severe uveitis
65, Male—Bilateral Endogenous Endophthalmitis

- Local eye unit: anterior/intermediate uveitis diagnosed
- 2/52 history of severe lower back pain with intermittent fever
- No co-morbidities/risk factors

**Deterioration**
- Sepsis
- Acute urinary retention
- Lower limb weakness, leg pain and mobility reduced
- Wrist septic arthritis
Count fingers
Vitritis +++
No focal retinitis seen
6/36 → 1/60
Vitritis ++
Haemorrhagic retinitis/vasculitis
65, Male– Bilateral Endogenous Endophthalmitis

Disseminated Community Acquired MRSA Sepsis
Fever, CRP 333, ESR 90, WCC>20
MRSA culture +ve: Urine, blood, wrist, skin swabs
Vitreous Taps: MRSA +ve

Treatment- MRSA Sepsis
IV Vancomycin + PO Rifampicin (6/52)
2x Intravitreal Vancomycin (OS)

Back pain with progressive neurology & spinal compression
Thoracic and lumbar osteomyelitis (T8/9 AND L4/5) with discitis.

CONSERVATIVE MANAGEMENT
Outcomes

Conservative treatment:
• Prolonged systemic antibiotics >3/12

Eyes:
• Full visual recoveries
• No long-term complications

Case 2 - disseminated MRSA:
• Prolonged, stormy admission
• Mobility issues, chronic back pain
**S Aureus Vertebral Osteomyelitis**

**Pyogenic spinal infections:** *S aureus* is the leading cause (affinity for bone matrix) (2-16% MRSA)

**Sources:** HAEMATOGENOUS, direct inoculation or contiguous spread

**Diagnosis:** Can be difficult and is often delayed

**Morbidity and Mortality:** 2-17% mortality reported, prolonged hospital admissions, chronic pain

**Haematogenous spread sources:**
- GU
- Others: resp, cutaneous, oral cavity, endocarditis, cardiac devices/indwelling lines
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**Red Flags:**
- Persistent back pain +/- Fever
- **Raised CRP/ESR +/- WCC**
- MRI is critical imaging modality
Endogenous Bacterial Endophthamitis

**HAEMATOGENOUS SPREAD TO EYE:**
- EYE: Local focus vs disseminated infection

**Poor visual prognosis:** Worse than exogenous endophthalmitis

**Mortality:** Up to 40% reported

**Diverse clinical spectrum and low incidence → Lack of consensus on management**
- Systemic therapy +/- local treatment
- Vitrectomy
- EVS does not apply

**Complications**
- RD, cataract, significant visual impairment, hypotony, phthisis
Difficulties in Management

Delayed diagnosis
- Eye symptoms minimal/not-recognised
- Unconscious/sedated patients

Delivering the therapy:
- Bedside examination and intravitreal therapy
- Delays administering treatment
- Unsuitable for vitrectomy
Conclusions
Endogenous Bacterial Endophthalmitis

• Rapid clinical course, time span is limited

• Prompt investigation and treatment (using multi-disciplinary teams) can achieve favourable visual and systemic outcomes.

• Systemic and intravitreal antibiotics without vitrectomy can be successful.

• Clinical suspicion and awareness is paramount – initial presentation may be with ophthalmic features.