Brendan O'Brien
NEUROSURGERY

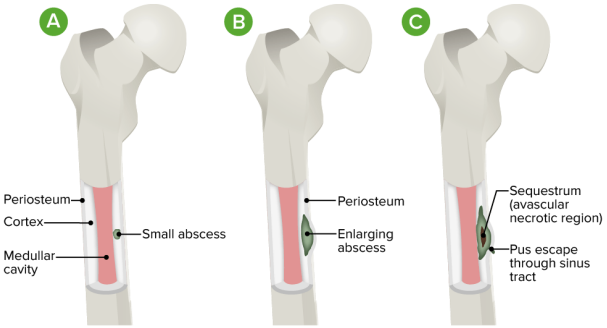
Neurosurgeon and Complex Spinal Surgeon
MBBS Hons FRACGP FRACS MAICD

A: 378 Victoria Parade, East Melbourne VIC 3002
T: 03 9417 5033
F: 03 9960 2763
E: admin@brendanobrien.com.au

Osteomyelitis

Infection of the bone as may occur in the skull or spine is called osteomyelitis. In general, treatment of osteomyelitis involves a long period of intravenous antibiotics prescribed by the infectious diseases team. The neurosurgery team may become involved in the following ways:

- Direct tissue diagnosis via a bone/tissue biopsy.
- Operative removal of the infected bone to prevent further spread of infection and allow antibiotics to work.
- Stabilisation of the spine in cases where the infection causes spinal instability through fractures.



CAUSES

Osteomyelitis may occur via one of three ways:

- Direct spread from adjacent infected regions i.e. infection in the ear, the eye or the sinuses.
- Spread from distant infected regions through the bloodstream e.g. urinary tract, lung and bone infections.
- Direct implantation of bacteria into the brain substance e.g. post-trauma, skull fractures or surgery.

SIGNS & SYMPTOMS

Patients with osteomyelitis may be septic if associated with a brain or epidural abscess.
They may show:

- **Systemic symptoms** – There may be normal signs of infection with swinging fevers, hot/cold flushes and drenching sweats. There may not be any systemic symptoms with chronic osteomyelitis.

- Localised symptoms depending on the site of infection.

- **Cranial osteomyelitis** – Localised headache and signs of inflammation may be evident (i.e. swelling, redness, increased temperature). Headaches, nausea and vomiting may occur if there is associated brain abscess or subdural empyema.

- **Spinal osteomyelitis** – There will be pain localised to the level of infection. There may be neurological deficits from spinal fractures and compression of the spinal cord, or compression from an epidural abscess.

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INVESTIGATIONS

Blood Tests
These will include an FBE to demonstrate increasing white cell counts or sometimes anaemia in the case of chronic osteomyelitis, electrolytes to rule out multi-organ failure and at least 3 blood cultures performed as part of a septic screen for exclusion of systemic infection.

Microbiological Analysis
Microbiological analysis of the infected bone is important to target antibiotic treatment.

Radiological Test

- Plain X-Rays – this may be normal however may demonstrate subtle signs of acute or chronic osteomyelitis.
- MRI – this may assist in the diagnosis of any associated epidural or subdural abscesses. The T2 weighted images will demonstrate the degree of oedema in the affected bone and give a marker of chronicity.
- Bone Scans – a bone scan used in conjunction with the above tests will help in the diagnosis of the age of the osteomyelitis.