Cerebral Abscess

May occur within the cerebral hemispheres (often multiple @ junction of the white and grey matter unless temporal lobe) or cerebellum (usually solitary).
Commonly, development is gradual with three phases recognisable:

- Invasion - headache, nausea, slight CSF changes
- Latent - transient attacks of headache, malaise, etc.
- Manifest - localising signs, CSF pressure effects

Epidemiology

Bacterial abscesses are more common in the developing world e.g. *Mycobacterium* & *Salmonella*.

Aetiology

Haematogenous spread – SBE, cyanotic CHD, chronic pulmonary sepsis / bronchiectasis

- Spp: *Streptococcus*, *Staph*, Coliforms, *Bacteroides*, *Nocardia*, *Aspergillus*

Direct implantation of organisms - usually, trauma, neurosurgery, e.g. *Staph*.
Local extension from adjacent foci – OM, mastoiditis, frontal sinusitis, orbital cellulitis
Impaired immunity -

- Nocardial infection, toxoplasmosis is most common in patients with AIDS.
- Fungal abscesses, incl mucormycosis, almost always assoc with DM, RF, ↓immunity

Bacterial meningitis - most common cause of cerebral abscess in neonates and infants.
Organisms include *Citrobacter, Proteus, Pseudomonas,* and *Serratia* species, as well as *S aureus.*

Clinical Features:

Onset usually over 2-3 weeks; in the immunosuppressed, more rapid. Characteristically:

- Headache is 1st symptom, may portend ↑ICP and may be assoc with vomiting & drowsiness.
- Fever
- Characteristics of the infective source - whether local or distant site
- Focal neurological signs:
    - Frontal lobe – memory/attention impairment; rarely hemiparesis±dysphasia & fits
    - Temporal lobe - nominal dysphasia (more often if on L), homonymous upper quadrantanopia from involvement of lower fibres of optic radiation
    - Cerebellar – occipital headache; ataxia; cerebellar signs; neck stiffness

Investigations

- Bloods: FBC, UEC, Blood cultures, toxoplasmosis serology
- CXR - to identify pulmonary src
- MRI or CT + contrast,
    - Typically central necrotic area of ↓ (CT) or ↑ (MRI) signal density with surrounding area of cerebral oedema. ± Mass effect. Smooth ring enhancement with contrast.
    - May also show subdural or extradural empyema or sinus / mastoid infections

Management

Antibiotics: Empirical **cefotaxime** or **ceftazidime**, **metronidazole** and **flucloxacillin**
Abscess drainage
Treatment of primary infection source

Prognosis

Mortality rate ~5% if ABx before coma.
Long-term neuro morbidity (hemiparesis, dysphasia, visual field defects) in 50%. Seizures >30%.