

Brain Abscess in Adults - Microbiology Summary Clinical Guideline

Reference number: CG-ANTI/2023/072

Clinical concerns re brain abscess (altered mental status, fever, focal neurological deficit, headache, neck stiffness, seizure, vomiting, etc.)



Investigation

- Radiology:
 - CT head
- Microbiology:
 - Blood cultures x 2
- Blood sciences:
 - FBC, CRP, lactate, U&Es, and LFTs



Collaborate with the neurosurgical registrar/consultant on call in Nottingham



Treatment

- Empiric, intravenous antibiotics (please note, page 2)



Treatment

- ± Surgical intervention
 - Needle aspiration or excision
 - ± Biopsy for microbiology and histology



Treatment

- Directed, intravenous antibiotics (please note, microbiology full clinical guideline, pages 4 and 5)

Review date: November 2026

Empiric, intravenous antibiotics

	First line	Second line, if immediate rapidly evolving or non-immediate with systemic involvement penicillin allergy
If there is: (i) <u>no</u> past medical history of acute or chronic otitis media; and (ii) if there are <u>no</u> symptoms, no signs, and no radiological findings of middle ear infectious disease	Metronidazole 500 mg 8 hourly; and Ceftriaxone 2 g 12 hourly	Chloramphenicol 25 mg/kg 6 hourly (NB maximums of 2 g 6 hourly and of 8 g within 24 hours)
If there is: (i) past medical history of acute or chronic otitis media; and/or (ii) symptoms, signs, or radiological findings of <u>middle ear infectious disease</u>	Meropenem 2 g 8 hourly	Metronidazole 500 mg 8 hourly; and Ciprofloxacin 400 mg 8 hourly; and Linezolid* 600 mg 12 hourly
If history of <u>penetrating traumatic injury to the brain or post-operative (neurosurgery) brain abscess</u>	Meropenem 2 g 8 hourly; and Linezolid* 600 mg 12 hourly	Metronidazole 500 mg 8 hourly; and Ciprofloxacin 400 mg 8 hourly; and Linezolid* 600 mg 12 hourly
* If linezolid is contraindicated, vancomycin (dose as per hospital guidelines), target pre dose level 15-20 mg/l		

NB Empiric, intravenous antibiotics: [chloramphenicol](#)

Treatment regimens in adults	Central nervous system infection: chloramphenicol 12.5-25 mg/kg 6 hourly (NB maximums of 2 g 6 hourly and of 8 g within 24 hours)
Cautions	BNF : "With intravenous use avoid repeated courses and prolonged treatment"
Interactions	Please review the BNF for an up-to-date and comprehensive list of interactions
Rare or very rare side-effects	BNF : "With parenteral use aplastic anaemia (reversible or irreversible, with reports of resulting leukaemia)"
Renal impairment <ul style="list-style-type: none"> • GFR 25-50 ml/min • GFR 10-25 ml/min • GFR < 10 ml/min 	Dose as in normal renal function Dose as in normal renal function Dose as in normal renal function
Hepatic impairment	BNF : "With intravenous use... manufacturer advises caution (increased risk of bone-marrow depression) – monitor plasma- chloramphenicol concentration... manufacturer advises consider dose reduction"
Therapeutic drug monitoring (TDM) <ul style="list-style-type: none"> • Recommended • First TDM • Sample • Level • Repeat 	Yes, in discussion with the microbiology consultant Before and after 3 rd or 4 th dose 1-2 ml serum, pre and post (2 hours) dose Pre dose < 10 mg/l; post dose 10-25 mg/l 5-7 days