BACTERIAL MENINGITIS

The CNS emergency · antibiotics before the scan

DON'T
delay abx

MANAGEMENT PATHWAY

1. **Blood cultures**
2. **CT only if indicated**
3. **Antibiotics + dexamethasone**
4. **Lumbar puncture**
5. **Monitor / repeat LP**
6. **Duration by organism**

Recognise: fever + headache + neck stiffness + altered mental status (triad often incomplete) · photophobia · seizures · focal deficit · purpuric rash. CT first IF: immunocompromised, focal deficit, new seizure, papilloedema, ↓ GCS.

CSF INTERPRETATION

	Bacterial	Viral	TB / fungal
Opening pressure	↑↑	normal	↑
White cells	1000-5000, neutrophils	10-500, lymphocytes	lymphocytes
Glucose (CSF:serum)	low (< 0.4)	normal	low
Protein	high (often > 100 mg/dL)	mildly high	high
Gram stain / PCR	positive 60-90%	HSV / enterovirus PCR	AFB, GeneXpert

EMPIRIC THERAPY

adult, community-acquired

Drug	Dose	Covers / when
Ceftriaxone	2 g IV q12h	Pneumococcus, meningococcus, H. influenzae
+ Vancomycin	25-30 mg/kg load → trough 15-20	Resistant pneumococcus
+ Ampicillin	2 g IV q4h	Listeria: age > 50, immunosuppressed, pregnant
+ Aciclovir	10 mg/kg IV q8h	If HSV encephalitis suspected
Dexamethasone	0.15 mg/kg IV q6h × 4 d	BEFORE / with 1st dose; continue only if pneumococcal

MONITOR & COMPLICATIONS

- Not improving at 48 h → repeat LP (resistant pneumococcus)
- Raised ICP, seizures, SIADH / hyponatraemia
- Late: abscess, hydrocephalus, venous thrombosis

PUBLIC HEALTH & DURATION

- Meningococcus / H. influenzae: NOTIFY + droplet isolation 24 h
- Contacts: ciprofloxacin or rifampicin prophylaxis
- Duration: meningococcus 7 d · pneumococcus 10-14 d · Listeria ≥ 21 d

NEUROPROTECTION (raised ICP / seizures): head up 30°, treat seizures (benzodiazepine + levetiracetam), analgesia + normocapnia, avoid hypotonic fluids; CSF diversion / neurosurgery for hydrocephalus. If any doubt about HSV encephalitis, add aciclovir.

PATHOGEN-DIRECTED (once identified): Pneumococcus → ceftriaxone (+ vancomycin if resistant) 10-14 d · Meningococcus → ceftriaxone 7 d · Listeria → ampicillin + gentamicin ≥ 21 d · H. influenzae → ceftriaxone 7-10 d · GNB / post-neurosurgical → meropenem ± aminoglycoside ~21 d.

PEARLS & PITFALLS

- Give antibiotics within the hour - never delay them for a CT or LP; take blood cultures first.
- Add ampicillin for Listeria in anyone over 50, pregnant or immunosuppressed.
- Give dexamethasone before or with the first antibiotic dose; it only helps if given early.
- Not improving at 48 h? Repeat the LP and reconsider a resistant organism or a complication.

References: IDSA Bacterial Meningitis (Tunkel) · ESCMID ABM 2016 · de Gans & van de Beek, NEJM 2002.

Educational aid; verify doses against local protocol and patient factors.