

Intracranial abscess diagnosis

1. Clinical Presentation Patients with an intracranial abscess often present with a combination of:

General symptoms: Fever, headache, nausea, vomiting. Neurological deficits: Depending on location, symptoms may include focal weakness, cranial nerve palsies, aphasia, ataxia, or seizures. Signs of increased intracranial pressure: Papilledema, altered mental status, drowsiness, or coma in severe cases. Classic triad: Fever, headache, and focal neurological deficit (only present in ~20-30% of cases).

2. Imaging Studies CT Scan with Contrast: First-line imaging; reveals a ring-enhancing lesion with central hypodensity and surrounding vasogenic edema. MRI with Gadolinium: More sensitive than CT; shows rim-enhancing lesions with restricted diffusion in diffusion-weighted imaging (DWI), helping differentiate from other ring-enhancing lesions (e.g., metastases, glioblastoma, or neurocysticercosis). MR Spectroscopy (MRS): Can help differentiate abscess from tumors by detecting elevated lactate and reduced N-acetylaspartate (NAA).

3. Laboratory Tests Blood cultures: Positive in ~30-50% of cases; help identify causative organisms. Inflammatory markers: Elevated C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). CSF analysis (via lumbar puncture): Generally not recommended due to risk of herniation; may show elevated protein, normal to low glucose, and pleocytosis if performed in select cases.

4. Microbiological Diagnosis Stereotactic biopsy or aspiration is the gold standard for obtaining microbiological diagnosis and guiding targeted antibiotic therapy.

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