

Brain abscess diagnosis

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Modern-day imaging techniques such as CT and MRI allow the prompt confirmation of the clinical diagnosis of [brain abscess](#) ¹⁾. CT is commonly used for diagnosing abscesses in adults, because of its general availability and high specificity after contrast enhancement; it is more useful in older children than in neonates, in whom high water content of the brain reduces the contrast between normal and injured tissue. Diffusion-weighted MRI and post-contrast MRI have been gaining increasing importance in the evaluation of brain infections and abscesses because of its high sensitivity and specificity ^{2) 3)}.

Specimens obtained during surgery or stereotactic computerized axial tomography (CT) guided aspiration should be sent for aerobic, anaerobic, mycobacterial and fungal culture and, when indicated, for protozoa.

Laboratory Studies

Routine laboratory studies are not helpful for the diagnosis of [brain abscess](#). [Leukocytosis](#) may be absent; in some series about 40% of patients have a normal peripheral [white blood cell](#) count. Acute-phase reactants are moderately helpful but nonspecific.

C-reactive protein

The [C-reactive protein](#) level is elevated in almost all patients, but the [sedimentation](#) rate can be only moderately elevated and sometimes is normal.

Blood cultures

Samples for [blood cultures](#) should be obtained in all suspected cases; although the yield is low, a positive result can be extremely valuable.

Head computed tomography

[Head computed tomography](#) with contrast during stage 1 (early [cerebritis](#)) may show only [edema](#)—an area of hypodensity—which may or may not enhance with contrast. If done very early in the course of infection, a contrast-enhanced CT may be normal. During later stages, there is the development of a space-occupying lesion with a hypodense center and later a ring-enhancing rim, which is often surrounded by a large area of [edema](#). Occasionally, ring enhancement can be seen with late cerebritis; delayed administration of contrast that fills in the central hypodensity is suggestive that the lesion is still in the cerebritis stage. Although contrast-enhanced CT scanning is considered sensitive for the detection of brain abscesses, it is not specific. Brain abscesses tend to have smooth thin-walled capsules, whereas tumors tend to have more irregular capsules. There are additional characteristics of brain tumors, but some overlap exists with brain abscesses. It is important to note that brain abscesses and [brain tumors](#) may have an identical appearance on the CT scan.

Brain abscess magnetic resonance imaging

[Brain abscess magnetic resonance imaging](#)

1)

Sheehan JP et al. (2008) Brain abscess in children. *Neurosurgical Focus* 24, E6.

2)

Castillo M (1999) Imaging brain abscesses with diffusion-weighted and other sequences. *American Journal of Neuroradiology* 20, 1193–1194.

3)

Ciurea AV et al. (1999) Neurosurgical management of brain abscesses in children. *Child's Nervous System* 15, 309–331.

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