

Clinical Image

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Double rim sign: Typical appearance of brain abscess

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Description

A 5-year-old child with no particular history consulted for tonic-clinical generalized seizures of recent onset, all evolving in a febrile context. The clinical examination revealed a slight disorientation, but there was no localized neurological deficit. An MRI was performed 72 h after the onset of the symptomatology. Cerebral masses were highlighted on this MRI in relation to cerebral abscesses (Figure 1).

Discussion

Cerebral abscesses are intracranial suppurations in a neofomed cavity, often insidious with a non-specific clinical presentation. They can develop by contiguity or by hematogenous route. The majority of cases of brain abscesses are polymicrobial, with a predominance of streptococci and strict anaerobes. In case of suspected brain abscess, brain imaging is necessary, with a preference for MRI. If this examination is not available within 24 hours, a CT scan is performed.

The characteristics of brain abscesses on MRI are well described; demonstrating a central portion appearing as T1 hyposignal/T2 hypersignal and a peripheral portion (capsule) appearing as T1 iso or hypersignal and T2/Flair hyposignal.

Although peripheral enhancement of lesions is not specific to imaging, diffusion-weighted sequences showing central diffusion restriction are essential for the diagnosis of brain abscess (Figure 1) [1].

Another very discriminating sign of brain abscesses; the double rim sign; on susceptibility-weighted imaging (SWI) and T2, it consists of two concentric rims surrounding the central cavity, one of which is hypointense and the inner one relatively more hyperintense (Figure 1) [2].

The double rim sign is seen on MRI in 75% of brain abscesses and is very useful in differentiating an abscess from a necrotic tumor (glioblastoma, metastasis) [2].

References

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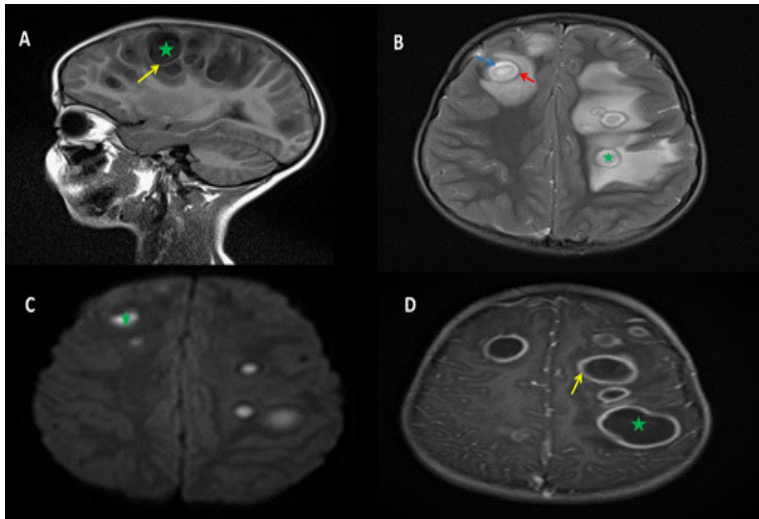


Figure 1: MRI sagittal section T1 weighted sequence (A) showing multiple rounded masses with hypointense content (green star) and a slight hyperintense rim (yellow arrow), on a T2 axial sequence (B) the content is hyperintense with a double rim sign consisting of a hypointense outer rim (red arrow) and a hypersignal inner rim (blue arrow) relative to the center of the lesion, there is perilesional edema. The lesions show a true diffusion restriction on diffusion sequences (C) and ring enhancement on T1 post contrast (D).