

Intracranial epidermoid cyst: Magnetic resonance imaging features

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A 27-year-old young male presented with a five-year history of headache and seizures with recent onset tingling and numbness in the right upper limb. Magnetic resonance imaging (MRI) revealed a large nonenhancing well-marginated extra-axial mass in the left frontotemporal region. On T1-weighted image the lesion showed mixed intensity reticulated appearance with interspersed hyperintense areas and it was hyperintense on T2-weighted (T2W) and diffusion-weighted images (DWI) [Figure 1]. At surgery, a cyst with viscous, pearly white contents was removed. Microscopic examination of the cyst revealed keratinizing squamous epithelium with keratinous debris arranged in laminated layers with many anucleate squames [Figure 2].

Epidermoids are rare benign, congenital, developmental tumors, usually located in the cerebellopontine angle and parasellar regions. The epidermoid cysts are thin walled and lined by stratified squamous epithelium.

The typical MR image appearance of epidermoid tumors is hypo- to slight hyperintense on T1W images, iso- to hyperintense on T2W images, and hyperintense on

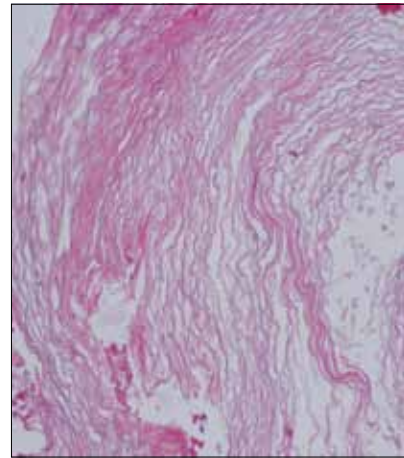


Figure 2: Histopathological section of the resected specimen showing lamellar keratin flakes with many anucleate squames. H and E stain.

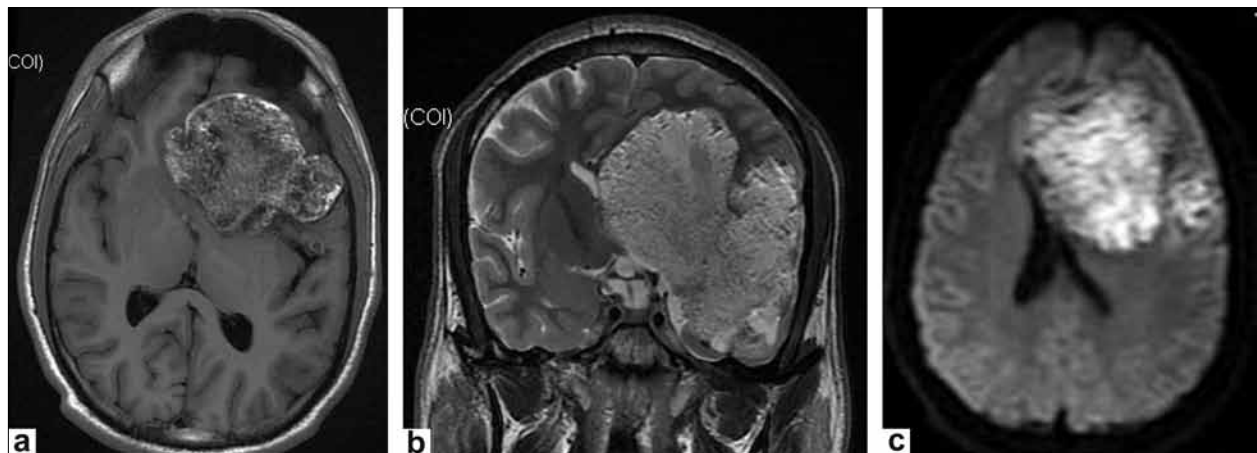


Figure 1: Magnetic resonance and diffusion-weighted images of the brain in a 27-year-old man with epidermoid cyst. (a) Axial T1W MR image showing a lobulated extra-axial mass in left frontotemporal region with a reticulated honeycomb-like pattern of hyperintensity; (b) Coronal T2W MR image showing hourglass configuration of the large mass with heterogenous hyperintense signal pattern; (c) Diffusion-weighted image (b value=1000) showing predominantly hyperintense signal of the lesion

DWI.^[1,2] Uncommonly on T1W images the epidermoids are hyperintense and on T2W images are of low signal intensity. Rarely on computed tomography (CT) epidermoids are hyperdense or calcified.^[1,2,3]

No definite relation between signal intensity on T1W images and the concentration of cholesterol and triglycerides within epidermoids has been found. However, high concentration of protein is thought to be responsible for an increase in signal intensity on T1W images.^[2,3]

In this patient, the unusual MR imaging characteristics on T1W images may be explained by the high protein concentration with lamellar keratin flakes causing the honeycomb-like reticulated appearance. MRI with DW imaging is helpful to distinguish epidermoids from other cystic tumors, improving the specificity of diagnosis.^[4]

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References

1. Gualdi GF, Di Biasi C, Trasimeni G, Pingi A, Vignati A, Maira G. Unusual MR and CT appearance of an epidermoid tumor. *AJNR Am J Neuroradiol* 1991;12:771-2.
2. Kallmes DF, Provenzale JM, Cloft HJ, McClendon RE. Typical and atypical MR imaging features of intracranial epidermoid tumours. *AJR Am J Roentgenol* 1997;169:883-7.
3. Ochi M, Hayashi K, Hayashi T, Morikawa M, Ogino A, Hashmi R, *et al.* Unusual CT and MR appearance of an epidermoid tumour of the cerebellopontine angle. *AJNR Am J Neuroradiol* 1998;19:1113-5.
4. Aribandi M, Wilson NJ. CT and MR imaging features of intracerebral epidermoid- a rare lesion. *Br J Radiol* 2008;81:e97-9.

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