



Neuroradiology / Neuroradiologie

Congenital and Acquired Conditions of the Mesial Temporal Lobe: A Pictorial Essay

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Abstract

Purpose: Our goal is to pictorially review a wide spectrum of congenital and acquired conditions affecting the medial aspect of the temporal lobe.

Conclusion: After completing this article, the reader will have knowledge of the imaging appearance of diverse developmental, malformative, and acquired lesions of the mesial temporal lobe, which will be useful when evaluating pathology in this location.

Résumé

Objectif : Notre objectif consiste à examiner un large éventail d'images d'affections congénitales et acquises touchant la face interne du lobe temporal.

Conclusion : Au terme de cet article, le lecteur sera en mesure de mieux connaître les aspects d'imagerie propres aux lésions développementales, malformatives et acquises du lobe temporal mésial et d'en tirer parti lorsqu'il évaluera les affections touchant cette région.

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Key Words: Hippocampus; Malrotation; Gyral pattern; Focal cortical dysplasia; Hippocampal sclerosis; MRI

The mesial temporal lobe is a small potentially epileptogenic part of the brain involved in memory processes. Accordingly, it is important to know the anatomy and pathology affecting that reduced area. Our goal is to pictorially review a wide spectrum of congenital and acquired conditions affecting the medial aspect of the temporal lobe.

Radiological Anatomy of the Mesial Temporal Lobe

The mesial temporal lobe includes various small structures located in the medial portion of the temporal lobe

(Figure 1). It is necessary to know its anatomic relationships to understand the different diseases affecting this brain area.

Congenital Conditions

Developmental Cysts

Cysts arising directly from mesial temporal structures are the choroid fissure cyst and hippocampal sulcus remnant cyst [1,2]. However, cysts arising from other locations, such as middle cranial fossa epidermoid cyst, may also compress the mesial temporal lobe (Figure 2) [3]. Choroid fissure cysts are benign intracranial lesions located at the choroid fissure. These lesions are usually neuroepithelial cysts or arachnoid cysts. Thus, the diagnosis is based on location instead of a distinct pathological condition. They are usually

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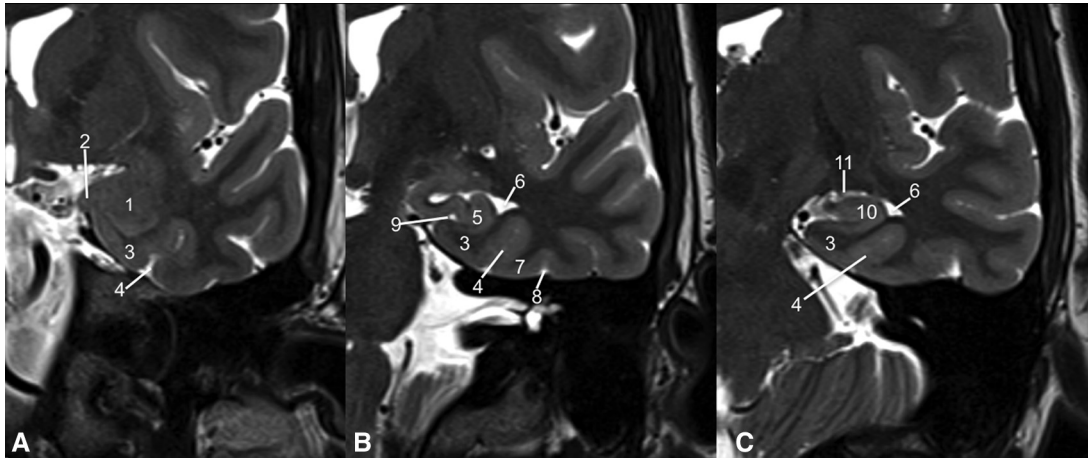


Figure 1. Normal radiological anatomy of the mesial temporal lobe. Coronal T2-weighted magnetic resonance image at (A) amygdala, (B) hippocampal head and (C) hippocampal body sections. 1. Amygdala, 2. uncus, 3. parahippocampal gyrus, 4. collateral sulcus, 5. hippocampal head, 6. temporal horn of lateral ventricle, 7. fusiform gyrus, 8. temporo-occipital sulcus, 9. hippocampal fissure, 10. hippocampal body, 11. choroid fissure.

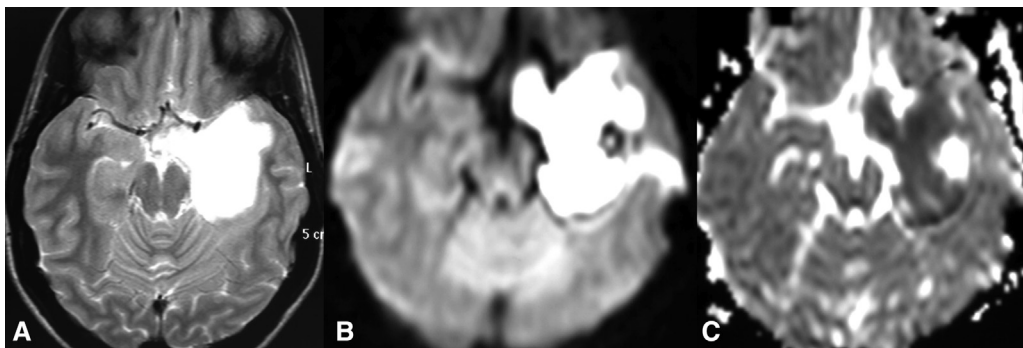


Figure 2. Epidermoid cyst. Axial T2-weighted image (A) shows an extra-axial CSF-like mass compressing left mesial temporal lobe. Diffusion-weighted imaging (DWI) (B) and apparent diffusion coefficient (ADC) map (C) show restricted diffusion.

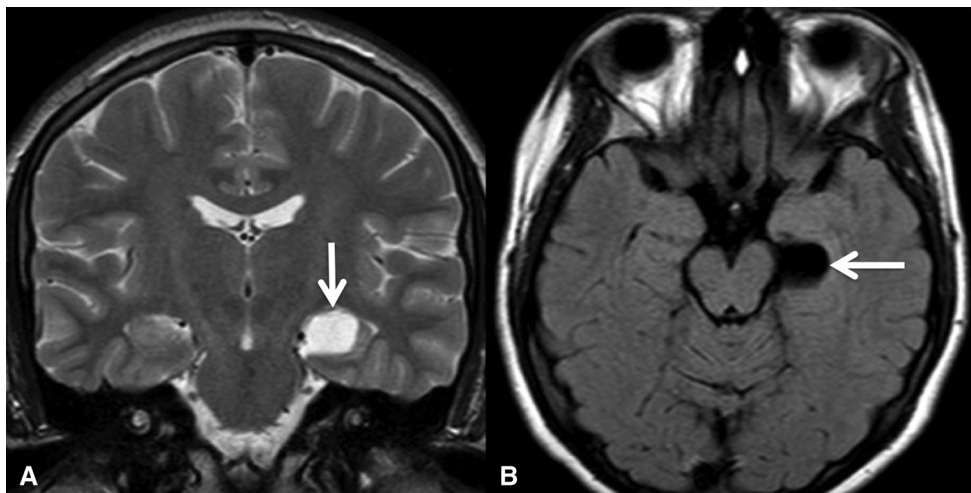


Figure 3. Left choroidal fissure cyst. Coronal T1-weighted (A) and Axial T2 FLAIR images (B) show a cerebrospinal fluid isointense lesion in the left choroid fissure (arrows).

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