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LEARNING BY IMAGES

A T1-hypointense intracranial dermoid cyst

Cisto dermoide intracraniano hipointenso em T1

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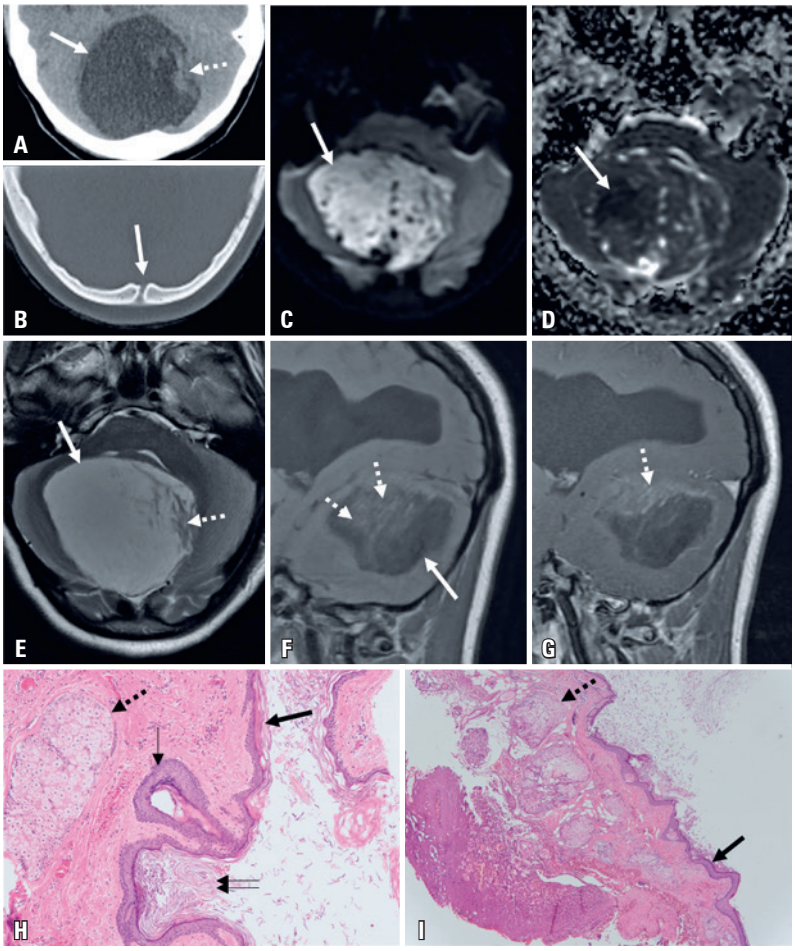

Figure 1. Computed tomography and magnetic resonance illustrating the main imaging features of the dermoid cyst. Microscopy photographs of the lesion. (A) Soft tissue window computed tomography demonstrating the presence of a posterior fossa cystic lesion, mostly hypodense (≈10 Hounsfield Units) (block arrow), with a few slightly denser elements in the left region (≈29 Hounsfield Units) (dotted arrow); (B) Bone window computed tomography demonstrating the presence of a sinus tract, representing a clue to the presence of a possible inclusion cyst; (C and D) Large area of reduced water diffusion, demonstrated by hyperintensity in diffusion-weighted imaging and hypointensity in apparent diffusion coefficient map; (E) Axial T2-weighted image, demonstrating a predominantly T2-hyperintense posterior fossa lesion (block arrow), with a small and irregular superior-posterior T2-isointense region (dotted arrow); (F) Sagittal T1-weighted image, demonstrating a predominantly T1-hypointense posterior fossa lesion (block arrow) with a few superior isointense elements (dotted arrows); (G) Sagittal T1-weighted image, demonstrating the presence of a few linear hyperintense components after gadolinium administration; (H and I) Histology images demonstrating a cystic lesion delineated by a keratinizing squamous epithelium (block arrow) with granular layer (thin arrow), sebaceous glands (dotted arrows) and wet keratin (double arrow), making the diagnosis of dermoid cyst

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A 15-year old women presented with a 6-month history of progressive right-hand tremor with functional impairment, aggravated by a 1-month history of episodic confusion. The patient underwent a computed tomography scan, which revealed a posterior fossa expansive lesion with cerebrospinal fluid-like density and a midline bone discontinuity (Figures 1A and 1B; soft tissue window not shown). A magnetic resonance imaging (MRI) scan (Figures 1C to 1G) was performed after hospital admission, revealing a posterior fossa expansile lesion with predominant T2 hyperintensity, T1 hypointensity, linear and irregular areas of faint enhancement after gadolinium injection, and a large area with reduced water diffusion. Supratentorial images revealed signs of chronic hydrocephalus. The patient underwent surgery revealing a whitish extra-axial capsulated lesion containing dermal appendages, and histology confirmed the diagnosis of a dermoid cyst (Figures 1H and 1I).

Intracranial dermoid cysts are rare lesions, representing less than 0.5% of primary intracranial tumors.[1] They are congenital ectodermal inclusion cysts and tend to occur in the midline.[1] In rarer occasions in which they develop in the posterior fossa, they tend to locate in the vermis or within the fourth ventricle.[1] Dermoid cysts may be asymptomatic for a long time and present with a long history of vague symptoms, most commonly headache.[2,3] Depending on location, they may be associated with focal neurologic *deficits*, seizures, and also recurrent aseptic meningitis.[3]

Dermoid cysts are classically described as T1-hyperintense lesions, and some authors claim that "all" lesions present that MRI signal.[1] These intracranial cysts are also described as lesions without gadolinium enhancement and with apparent diffusion coefficient values similar to brain parenchyma.[1-4] Some reports describe uncommon imaging features, such as T1-hypointensity, reduced water diffusion or gadolinium-enhancing regions.[2-4] A dermal sinus may present as a clinical/imaging clue to the correct diagnosis.[2]

AUTHORS' CONTRIBUTION

Marcos Gil da Veiga: was responsible for the study concept and design, data acquisition and writing. Amets Sagarribay: managed the patient, performed the neurosurgery, had a substantial contribution beyond copy editing, and approved the final draft. Carlos Marques Pontinha: analyzed the pathology, did a critical revision, and approved the final draft. Carla Conceição: was responsible for the magnetic resonance imaging analysis and interpretation, had a substantial contribution beyond copy editing, and approved the final draft.

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