

Intracranial cystic lesion in basal cisterns

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PART A

A 33-year-old woman presented to our institution with worsening symptoms of vomiting, severe headache, blurred vision and drowsiness, all symptoms compatible with increased intracranial pressure. Fundoscopy revealed bilateral papillary oedema.

She was referred to our department for an MRI brain scan. A midline cystic lesion in basal cisterns was re-

vealed to be the cause of obstructive hydrocephalus (Fig. 1., 2., 3.). The lesion was endoscopically resected by the neurosurgeons of our institution and the specimen was sent for pathologic evaluation. Post-operational follow-up MRI scans were performed which showed no remnants and gradual total remission of hydrocephalus.



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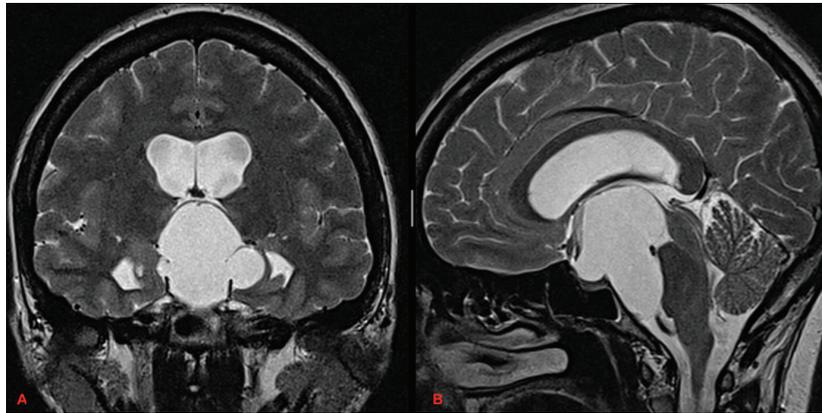


Fig. 1. Coronal (A) and sagittal view (B) T2 weighted imaging.

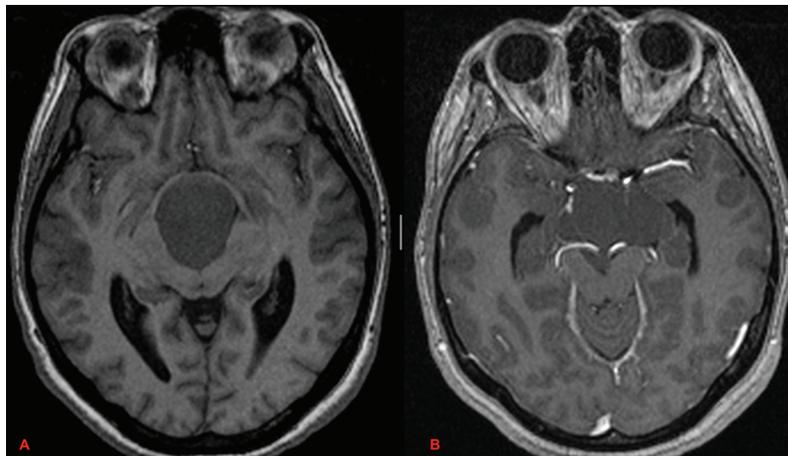


Fig. 2. Axial view T1 weighted imaging, pre- (A) and post-contrast (B).

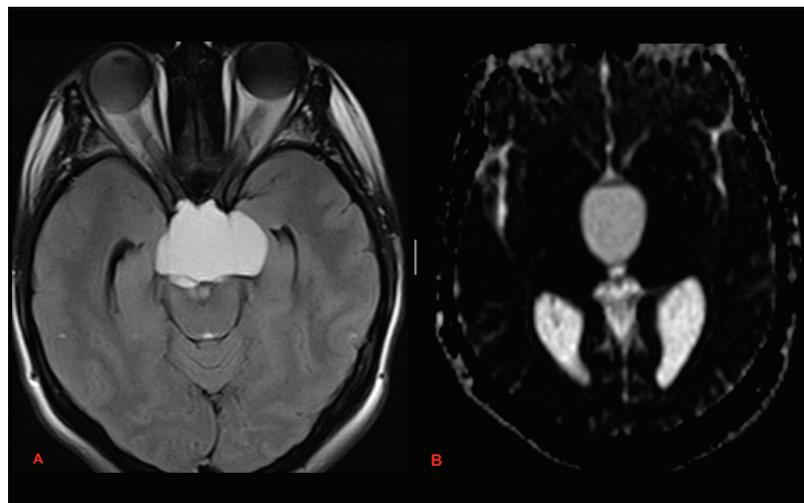


Fig. 3. Axial view, FLAIR (A) and ADC-map (B) imaging.

PART B

Diagnosis: Epidermoid cyst filling the suprasellar, interpeduncular and prepontine cistern

The endoscopically resected cystic lesion was pathologically identified as an epidermoid cyst. The lesion expanded the suprasellar, interpeduncular and prepontine cistern, significantly elevating the floor of the third ventricle and exerting pressure on ventral pons and optic chiasm (Fig. 2.). Epidermoid cyst's wall was almost imperceptible on imaging. Its content displayed signal intensity (SI) identical to CSF on T2 sequences (Fig. 1.), slightly higher SI than CSF on T1 (Fig. 2.), distinctively high SI on FLAIR (Fig. 3A), and slightly diminished values of apparent diffusion coefficient on ADC map, namely a faint but present restriction of diffusion (Fig. 3B). Neither cyst wall enhancement was present, nor remodelling of adjacent bone structures (Fig. 2B, 1B).

Epidermoid cysts are the most common congenital intracranial lesion, representing 0,2-1,8% of all intracranial tumours [1, 2]. These ectodermal inclusion cysts are formed due to aberrant migration of cutaneous epithelial

cells during embryogenesis. Their epithelial wall desquamates producing an increasing keratinous and cholesteric content. Owing to their slow growth, symptoms become present usually in adulthood [2]. Up to 50% develop in the cerebellopontine angle (the third commonest CPA tumour after acoustic schwannoma and meningioma) and up to 25% in the parasellar area [3, 4]. They insinuate within cisterns encasing, rather than displacing, nerves and arteries, while they do not remodel adjacent bone structures [2].

As in our case, epidermoid cysts typically resemble CSF on T1 and T2, restrict diffusion and fail to suppress on FLAIR, while arachnoid cysts are identical to CSF on all sequences, do not restrict diffusion, displace neurovascular structures and scallop adjacent bone. Additionally, the nine-times rarer dermoid cysts are mostly midline, contain dermal appendages and glands, and thus resemble fat on imaging. Neurocysticercosis cysts as well as cystic neoplasms often enhance and inflict oedema and gliosis on the surrounding brain [2, 5]. **R**



KEY WORDS

Epidermoid cyst; arachnoid cyst; dermoid cyst; intracranial cystic lesion; extra-axial lesion; MRI

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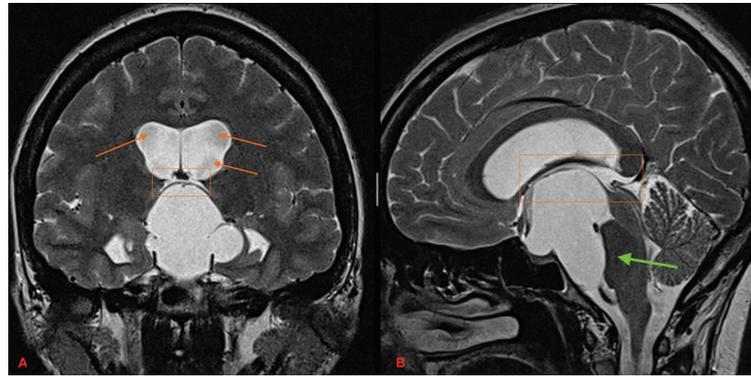


Fig. 1. Coronal view at the level of Monroe foramina (A) and mid-sagittal (B) T2 weighted imaging. Epidermoid cyst's content is iso-intense to CSF. The third ventricle (box in A and B) is extremely narrowed as its floor is significantly elevated by the underlying epidermoid cyst. Hyperdynamic flow (turbulence) of CSF in lateral ventricles is indicated (orange arrows on A) by flow-voids. The normal frontal convexity of the pons is inverted due to the epidermoid cyst (green arrow on B).

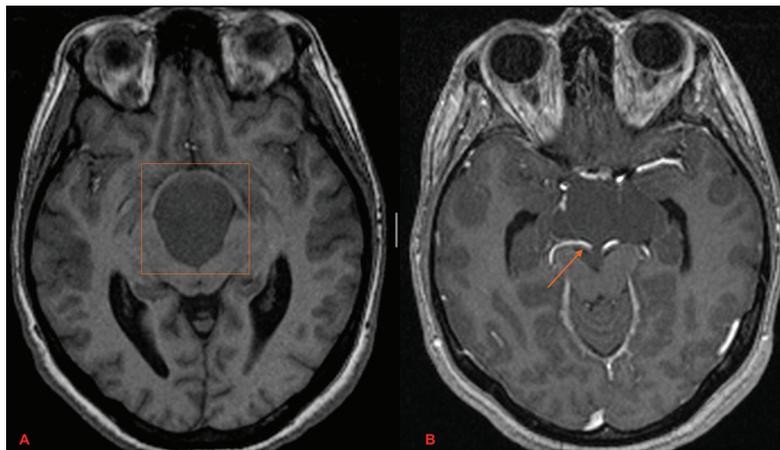


Fig. 2. Axial view T1 weighted imaging, pre- (A) and post-contrast (B). Epidermoid cyst seems slightly hyperintense compared to CSF. Vessels are encased into the lesion, rather displaced, as proximal posterior cerebral arteries are indicated (arrow on B) passing through the cyst.

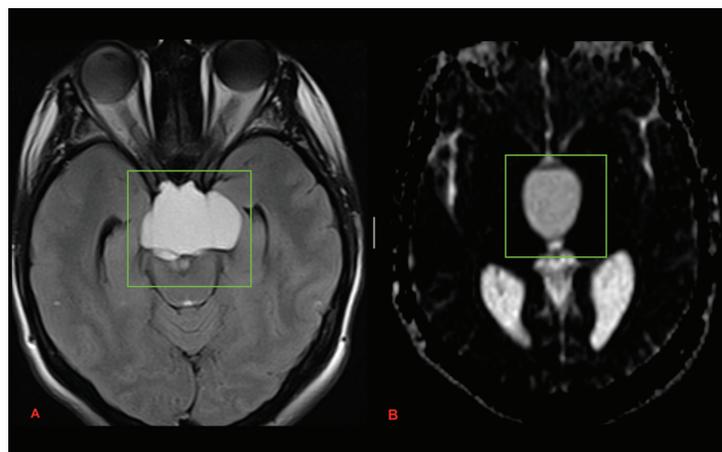


Fig. 3. Axial view FLAIR (A) and ADC-map (B) imaging. Epidermoid cyst's content is hyper-intense compared to the expected nulled CSF signal on FLAIR imaging (A). Epidermoid cyst's content typically restricts diffusion (hyperintense on DWI, hypointense on ADC map), although in this case, only a mild restriction of diffusion was present, as indicated by a slightly lower Apparent Diffusion Coefficient (hypointense on ADC-map, B).