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NEURO-IMAGES

Aneurysmal dilatation of torcular herophili

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A 5-year-old boy with a single seizure-like episode was referred for magnetic resonance (MR) imaging. Neurological examination and electroencephalography were normal. On MR imaging, fusiform dilatation of the torcular herophili (TH) was seen. On T1-weighted imaging, no high signal compatible with subacute sinus thrombosis was noted. Axial T2-weighted images better delineated the extent of the dilatation (Fig. 1). On contrast-enhanced MR angiography, no feeding arteries or draining veins compatible with vein of Galen aneurysmal malformation (VGAM) were revealed. MR venography showed vortex-like flow in the TH with patency of all sinuses (Fig. 2a, b). TH is a connection point that is formed by the confluence of the superior sagittal sinus, straight sinus and occipital sinus. The superficial and the deep cerebral venous system intermix in the torcula. TH has a few morphological variations due to dominancy of the transverse sinus and existence of the occipital sinus [1]. Not including secondary dilatation, aneurysmal dilatation of TH is very rare and there are only two published case reports [2, 3]. Its radiological differential diagnosis includes dural arteriovenous fistula, VGAM, and sinus thrombosis, and meningioma may be encountered. A dural AV-fistula usually presents with pulsatile tinnitus or with hemorrhage, and it has feeding arteries and draining veins. VGAM is not a true aneurysm, but an embryonic arteriovenous shunt located in the midline. It consists of multiple feeding arteries that drain directly into an enlarged venous pouch [4]. Aneurysmal dilatation of the true vein of Galen is a distinct entity and is caused by an arteriovenous malformation. It is secondary to high-flow venous drainage into the vein of Galen. Sinus thrombosis can have a variable density and signal intensity based on the maturation level of the clot. On contrast-enhanced scans, the empty delta sign in dural

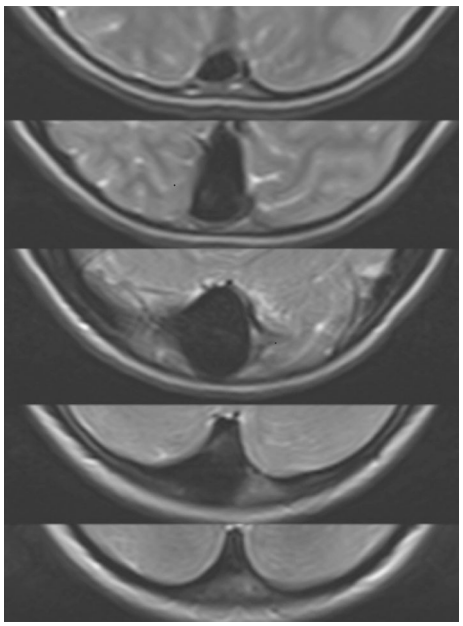

Fig. 1 Axial T2-weighted sections from superior to inferior demonstrate aneurysmal dilatation of torcular herophili

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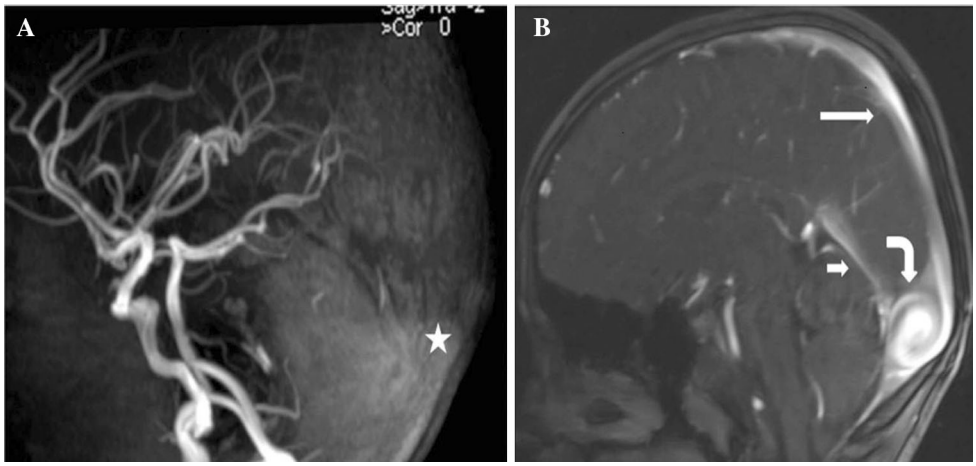

Fig. 2 **a** On contrast-enhanced MR angiography, any feeding artery or draining vein directed to the region of the torcular herophili (*star*) was not detected. **b** Sagittal MR venography revealed patent superior (*long arrow*) and inferior (*short arrow*) sagittal sinuses. A contrast vortex was seen in the aneurysmal dilatation of torcular herophili (*curved arrow*). A small caliber occipital sinus was also noted

sinus where contrast outlines a triangular-shaped filling defect is diagnostic. Meningioma usually appears as dural-based mass isointense to gray matter on both T1- and T2-weighted imaging. It shows intense contrast enhancement on both MR and computed tomography imaging with dural tail in most cases. It is important to be aware of aneurysmal dilatation of TH, because it is a rare congenital variation and must not be diagnosed as abnormality.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical standard This descriptive single case report does not require institutional review board/ethi commitee approval.

Informed Consent Informed consent was obtained

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