



Chemical Meningitis due to Post-Traumatic Rupture of an Intracranial Dermoid Cyst

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Keywords

Whiplash; Concussion; Headache; Aseptic meningitis

Clinical Image

A 24-year-old woman with a history of polycystic ovarian syndrome presented with acute onset of headaches, neck stiffness, arm paresthesia and attention deficits immediately following a whiplash injury sustained during a motor vehicle collision. She was discharged from the ER on the day of the accident with a diagnosis of whiplash and concussion after a normal CT of the cervical spine.

Her symptoms continued two months later and an MRI brain (Figure 1 and 2) showed a heterogeneous cystic lesion in the suprasellar space as well as punctate T1 hyperintense foci in the subarachnoid space suggestive of lipid particles from a ruptured dermoid cyst. She underwent subtotal transsphenoidal resection of the lesion (with pathology consistent with a dermoid cyst) but had persistent headaches with migrainous features as well as continued cognitive complaints and paresthesias in the arms bilaterally. Her neurologic exam was normal aside from attentional deficits.

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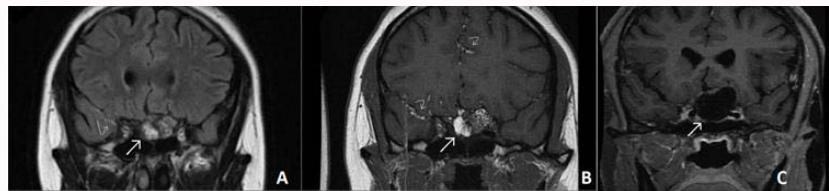


Figure 1: MRI coronal views of the dermoid cyst (straight arrow) and subarachnoid sulcal cholesterol deposits (curved arrows) on FLAIR (A), non-contrast T1 (B) and Fat-suppressed non-contrast T1 (C) sequences. Notice the deposits disappear on Fat-suppressed sequencing, consistent with their lipid nature.

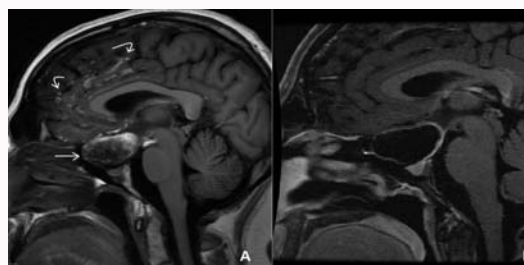


Figure 2: MRI Sagittal views of the dermoid cyst (straight arrow) and subarachnoid sulcal cholesterol deposits (curved arrows) on non-contrast T1 (A), Fat-suppressed non-contrast T1 (B) sequences. Again, notice the deposits disappear on Fat-suppressed sequencing.

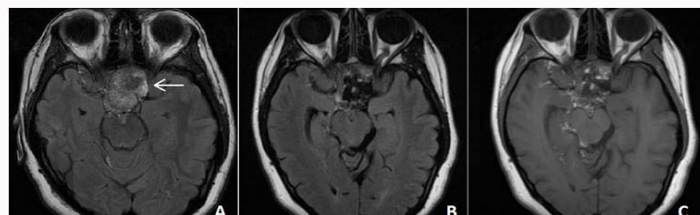


Figure 3: MRI Axial views of the dermoid cyst (straight arrow) on preoperative FLAIR (A), postoperative FLAIR (B) and non-contrast T1 (C) sequences.

Post-operative imaging (Figure 3) showed persistent abnormal signal in the subarachnoid space consistent with lipid particles. Her spinal cord imaging did not show any subarachnoid dermoid cyst components irritating radicular nerves as the etiology of her paresthesia. Although she refused a lumbar puncture, her headaches were attributed to persistent chemical meningitis based on clinical and imagery findings.

Dermoid cysts are rare, benign, embryological tumors containing fat, hair and other debris. They occur near the midline and typically present with mass effect but can rarely present with recurrent

meningitis or hydrocephalus due to spontaneous or more rarely post-traumatic rupture [1]. In the case presented here, we cannot definitively link the motor vehicle collision to the cyst rupture but our clinical judgment and her presentation suggests this causality [2].

References

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2. Ramlakhan R, Candy S. Traumatic rupture of an intracranial dermoid cyst. *Radiol Case Rep.* 2015;10(1):1053.