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Letter to Editor

A rare cause of intracranial mass lesion: Imaging of brain hydatid cyst

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Dear Editor,

Cerebral hydatid cyst is a rare parasitic infection caused by the larval forms of Echinococcus granulosus or E. multilocularis. These lesions usually present as isolated, slow-growing, cystic masses, commonly situated in the cerebral hemispheres of children and young adults. They are often seen in the vascular border zones of the anterior and middle cerebral arteries, predominantly within the parietal lobes. Intracranial involvement represents only about 1–2% of all hydatid disease cases.[1] Diagnosis based solely on symptoms and routine labs can be difficult, making imaging critical for differentiating hydatid cysts from other intracranial cystic pathologies. Common symptoms include persistent headache, vomiting, seizure episodes, and signs of increased intracranial pressure due to the lesion's space-occupying nature.[2] Neuroimaging using CT or MRI is mainly used for diagnosis. CT typically reveals a well-demarcated, low-density cyst with no post-contrast enhancement or perilesional changes. MRI offers better tissue contrast and usually shows a homogenous cyst that appears hypo-intense on T1 and hyper-intense on T2-weighted images.[3-5] Serological testing may support the diagnosis. The primary mode of treatment is surgical excision, ideally without rupturing the cyst and minimizing risks of anaphylaxis or recurrence. Anti-parasitic medication such as albendazole is used pre- and post-operatively to lower the chance of recurrence and manage systemic involvement.

A 28-year-old man, weighing 52 kg, presented to the emergency department with a 3-month history of worsening headaches and occasional vomiting. He also reported one episode of generalized tonic-clonic movements involving all limbs, lasting around 20 seconds. There was no history of trauma, or fever or other significant symptoms. Neurologically, he had intact reflexes and motor function with no focal deficits. His vital signs were stable: pulse rate of 80 bpm, BP 124/68 mmHg, SpO_2 at 98%, and temperature 37.6°C. Routine blood tests, including complete blood counts showed no abnormalities. Non contrast computed tomography (NCCT) showed a well-defined, cystic lesion in the left fronto-parietal lobe, with minimal perilesional edema and no signs of calcification. Post-contrast T1-weighted axial and coronal MRI scans demonstrated a large intra-axial cystic lesion (~11x11x10 cm) with incomplete ring enhancement and compression of the left lateral ventricle. T2-weighted coronal imaging revealed a well-circumscribed, hyper-intense cyst (**Figure 1**). Further screening for systemic hydatid disease via chest X-ray and abdominal ultrasound revealed no abnormalities.

The surgical removal of the cyst was done through a left parietal craniotomy. The cyst was removed completely intact, avoiding its intraoperative rupture. Histopathology confirmed infection with Echinococcus granulosus. Postoperatively, albendazole therapy was initiated, and recovery was uneventful. Interestingly, although most literature reports non-enhancing cysts on MRI, our case showed partial ring enhancement, indicating that variations can occur. In conclusion, neuroimaging plays a crucial role in the identification/diagnosis and management of cerebral

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hydatid cysts. Recognizing hallmark imaging features is vital for timely diagnosis and surgical planning. The superior resolution of MRI makes it the modality of choice. Early intervention can significantly reduce morbidity and prevent complications.

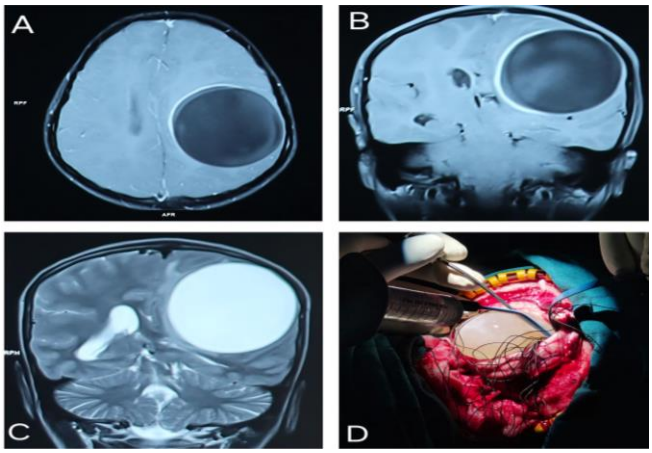

Figure 1: A): Axial T1 weighted MRI Brain showing incomplete ring-enhancing cystic lesion in left front-parietal lobe. **B):** Coronal T1 weighted MRI Brain showing incomplete ring-enhancing lesion. **C):** Coronal T2 weighted MRI Brain showing well defined hyperintense cystic lesion. **D):** Intraoperative image of the hydatid cyst

1. Declaration of Patient Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images

2. Conflict of Interest

None.

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