



PRIMARY INTRACRANIAL HYDATID CYST: CASE REPORT OF AN UNUSUAL CASE

Neurosurgery

Dr. Ram Parajiya	Senior Resident, Department Of Neurosurgery, Jawaharlal Nehru Medical College, Belagavi, Karnataka, India.
Dr. Prakash Mahantshetti	Professor, Department Of Neurosurgery, Jawaharlal Nehru Medical College, Belagavi, Karnataka, India.
Dr. Nikhita Kalyanshetti	Assistant Professor, Department Of Anaesthesia, Jawaharlal Nehru Medical College, Belagavi, Karnataka, India.

ABSTRACT

Hydatid cysts most commonly involve the liver and lungs, the central nervous system (CNS) is affected in only 2-3% of cases. Intracranial hydatid cysts are most commonly seen in endemic areas, including parts of the Mediterranean, South America, the Middle East, and Central Asia, where livestock farming is prevalent. The parasitic eggs are typically ingested through contaminated water or food, which is a key point for epidemiological understanding. (1, 2) This case report presents a rare case of an intracranial hydatid cyst in a 40-year-old female who presented with persistent headache, nausea and giddiness for 15 days. Imaging studies was suggestive of a hydatid cyst or abscess. Diagnosis was confirmed by histopathology report after surgical excision. Treatment was initiated with albendazole therapy. The patient showed significant improvement post-treatment, emphasizing the importance of considering hydatid cysts in the differential diagnosis for patients with neurological symptoms.

KEYWORDS

CASE DESCRIPTION

A 40-year-old female with no significant past medical history presented to the OPD with complaints of persistent headaches and nausea for the past two weeks. Neurological examination revealed no significant deficits and reflexes were normal. MRI of the brain showed a well-defined T2 hyperintense and FLAIR hypointense peripherally enhancing lesion measuring 6.4(AP)x3.7(ML)x4.5(CC) cms in right parieto-temporo-occipital region with fluid-fluid level, internal septations, non-enhancing mural component and adjacent perilesional oedema with peripheral rim of diffusion restriction and mass effect, effacement midline shift to left, subfalcine and uncus herniation. (Figure 1). Chest X ray and USG abdomen and Pelvis were normal.

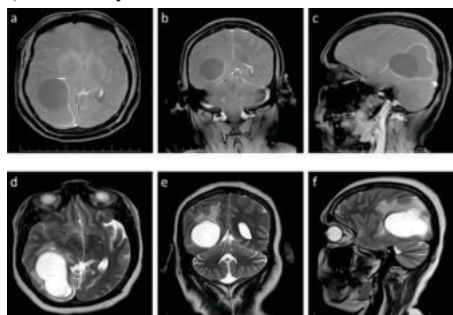


Figure 1: MRI brain showing lesion in right parieto-temporo-occipital region.

The patient underwent right temporo-parietal craniotomy and excision of lesion. Lesion was cystic with smooth glistening translucent greyish surface and soft in consistency. (Figure 2)

During the surgery, there was no cyst rupture, cavity was washed with betadine solution and the patient tolerated the surgery well.



Figure 2: Intraoperative image showing cyst

Histopathology report showed fragments of parasitic cyst wall composed of lamellated eosinophilic membranous structures representing parasitic ectocyst lined by germinal layer at places. (Figure 3) Small fragments of delicate endocyst with a few scolex structures of hydatid cyst were also seen.

Albendazole therapy was initiated postoperatively to prevent recurrence.

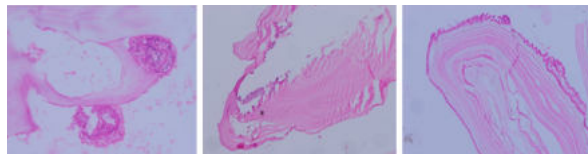


Figure 3: Histopathology image of sample showing hydatid cyst disease.

DISCUSSION

Genus *Echinococcus* has four species that can cause infection in humans; namely: *E. granulosus*, *E. multilocularis*, *E. vogeri* and *E. oligarthus*. *E. granulosus* is the most common. Human is an accidental host and does not play a role in the biological cycle of the worm. Intracranial hydatid cysts typically caused by the larval stage of *E. granulosus*. While the liver and lungs are the most common sites of infection, intracranial hydatid cysts are a rare and serious manifestation of this disease. (3)

Intracranial hydatid cysts are most commonly observed in children, and their clinical presentation can vary significantly depending on the location and size of the cyst. However, the symptoms are often nonspecific, making diagnosis challenging. (4) Our case presented with persistent headaches and nausea.

Radiological imaging, particularly MRI, plays a crucial role in diagnosing intracranial hydatid cyst. The cyst's position in the brain varies, but most are often supratentorial, and lesions are typically isolated. (5) In our case, MRI showed a well-defined T2 hyperintense and FLAIR hypointense peripherally enhancing lesion in right parieto-temporo-occipital region with fluid-fluid level, internal septations.

The differential diagnosis for intracranial cystic lesions includes other parasitic infections (e.g., cysticercosis), neoplasms, abscesses, and benign cysts. In our case, radiological characteristics led to a strong suspicion of hydatid disease. Serological tests, though not always definitive, can aid in confirming the diagnosis. (6)

The surgical approach to managing cerebral hydatid cysts aims to remove the cysts while minimizing the risk of rupture and preventing recurrence. One of the techniques is Dowling-Orlando technique in which warm saline instilled to deliver the cyst with hydrostatic assistance without rupture. The cyst is removed using hydrostatic assistance. (7) Another technique is PAIR (puncture, aspiration, injection of protoscolicidal agent and reaspiration); which is an alternative for patients who are not suitable candidates for open surgery. (8)

The medical management with anti-parasitic agents aim to reduce cyst growth and minimize complications. While surgery remains the gold standard for large or complicated cysts, medical therapy is an important adjunct. Albendazole is first line broad-spectrum benzimidazole drug acts by inhibiting the polymerization of tubulin, disrupting microtubule formation which reduces cyst size and can cause the degeneration of the cyst wall, leading to its eventual calcification. It also inhibits the development of daughter cysts within the hydatid cyst. Corticosteroids are also added to reduce the inflammatory cascade due to death of the cysts or the rupture of hydatid cysts. (9, 10)

Post operatively our patient was started on Albendazole and corticosteroids (dexamethasone) along with prophylactic antiepileptics.

CONCLUSION

Cerebral hydatid cysts, though rare, require early recognition for effective management. MRI plays a crucial role in diagnosis, enabling accurate visualization of cysts. Surgical removal remains the primary treatment, while adjunctive therapy with albendazole is essential to reduce recurrence. This case emphasizes the importance of combining imaging, surgery, and antiparasitic treatment for optimal outcomes in patients with cerebral hydatid cysts.

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