

Hydatid Cyst of Brain – A Rare Case Report – A Clinician’s Dilemma

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Case Report

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ABSTRACT

Intracranial Hydatid cysts are extremely rare, accounting for only 1-2% of all intracranial space occupying lesions, even in countries where this disease is endemic. We report a case of Hydatid cyst of brain in 22 yr old women in the post natal period presented with intermittent headache, vomiting and seizures. This case is presented for its rare location in the frontal lobe and also for its occurrence in the post natal period, presenting with seizures. In highly endemic areas a cystic lesion anywhere in the brain, the possibility of Hydatid cyst has to be considered.

INTRODUCTION

The hydatid or water cyst, a parasitic disease in man and animals was well known to the Medical fraternity since the time of Hippocrates. Hydatid cyst is a parasitic disease caused by *Echinococcus Granulosa*. Man is an intermediate host infected accidentally. Liver and lungs are the usual sites of predilection, where as other organs are rarely involved. Intra cranial hydatid cysts are extremely rare, accounting for only 1-2% of all intracranial space occupying lesions even in countries where this disease is endemic like the Middle East, Mediterranean countries, South America, North Africa and Australia^[1,2].

In India, the Hydatid disease is more commonly seen in the Kurnool district of Andhra Pradesh, Madurai district of Tamil Nadu and in Punjab. The Incidence of intracranial hydatid in India is 0.2%. Hydatid cysts are associated with great morbidity in people of Khammam and Nalgonda districts of Andhra Pradesh. Well-established sources of infection seem to be present in these areas^[3]. Families have no knowledge about *Echinococcus* infection, its source or modes of infection. Even today, in developing countries and in endemic areas they cause significant morbidity and mortality.

CASE REPORT

A 22yr old female who had delivered a baby by caesarian section presented to the Neuro Surgery department, King George Hospital, Vishakapatnam with complaints of intermittent headache and vomiting for a period of 9 months. She was admitted in the Neuro Surgery ward, where subsequently she developed seizures. On clinical examination the patient was conscious and coherent, vitals were stable, and there was no fever or any focal neurological deficit. Blurring of vision was present and fundal examination showed grade I papilledema. All the cranial nerves were normal, motor and sensory systems were intact, and other systems were normal. Basing on these features a clinical diagnosis of cortical venous thrombosis was made.

An MRI scan was done which showed a well defined cystic lesion of size 8.5x7x6cm in the right frontal lobe and similar areas in the left frontal lobe (Fig 1). The cyst was hypointense on T1 weighted images and hyperintense on T2 weighted images with suppressed Flair images. The density of cyst fluid was similar to CSF. There was mass effect in the form of subfalcine herniation, mild tentorialtonsillar herniation and mid line shift towards left. The following possibilities were considered, porencephalic cyst, neuroepithelial cyst, cystic neoplasm and parasitic cyst. CT scan of thorax and abdomen did not show any lung or liver lesions. Routine laboratory tests were within normal limits.

The intraoperative findings showed that the dura was tense and on opening the dura a single cyst of size

8x6cm was seen in the right frontal lobe. The whole cyst was delivered from the cranium with partial rupture. The dura was closed and osteoplastic flap was repositioned and the wound was closed in layers. Intraoperative diagnosis was towards parasitic cyst, as the cyst wall contained small concretions and sand like particles. Patient was administered with broad spectrum antibiotics, anticonvulsants, steroids and albendazole. The patient recovered and was discharged.

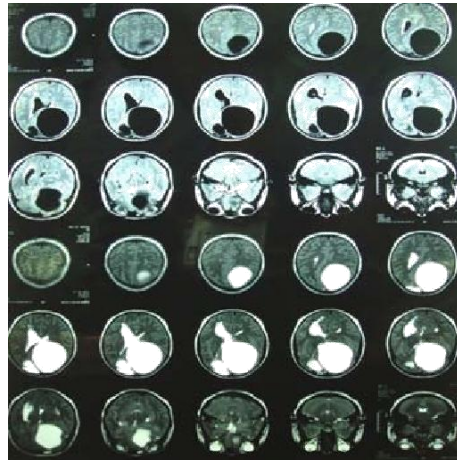


Figure 1: MRI - Well defined cystic lesion, with CSF signal intensity (8.5x7.0x6.0 cm) at right frontal lobe and similar areas at left frontal lobe. Mass effect in the form of sub falcine herniation, mild tentorial, tonsillar herniation and mid line shift towards left.

Cyst of size 8x7x6 cm in partial cut open state was received for histopathological examination. The cyst wall was of variable thickness with sand like particles. Microscopic examination revealed cyst wall with multiple scolices with hooklets of *Echnococcusgranulosa* and adjacent reactive gliosis. The histopathological features were consistent with Hydatid cyst of brain (Fig 2&3).

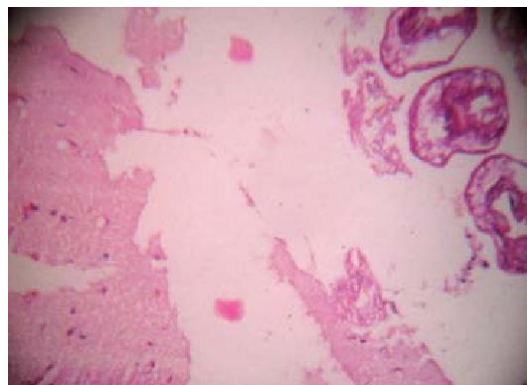


Figure 2: Photomicrograph showing glial tissue and multiple scolices of Echnococcus Granulosa 100x (H&E).



Figure 3: Photomicrograph showing scolix with hooklets of Echnococcus Granulosa 400 x (H&E).

The patient was admitted back with unhealed wound infection of the scalp within 2 months of surgery and a diagnosis of meningitis was made after extensive investigative procedures. The patient succumbed to the disease.

DISCUSSION

Human Echinococcosis is a zoonotic infection transmitted by dogs. It is caused by larval forms of the tape worms of the genus *Echinococcus* found in the small intestine of the carnivore. Human infection is acquired from ingestion of the parasite eggs from infected animals. This relatively benign parasitic disease is characterized by slowly growing cysts most commonly in the liver (50 -70%), lungs (20-30%), and less frequently in the spleen, kidneys, heart, bones, central nervous system and other organs. Developing countries with poor hygiene, where sheep and cattle are raised are high risk areas of acquiring this disease.

Hydatid disease exists in India, the highest prevalence being in Andhra Pradesh and Tamil Nadu than in other parts of the country. A recent study in Delhi showed that approximately 10% of sheeps slaughtered at Delhi slaughter houses were infected with the larval forms of the parasite [4].

Primary intracranial hydatid cyst is common in pediatric population [5]. Secondary or metastatic cerebral hydatidosis, is seen in an older age group, usually middle aged adults. The incidence in pregnancy is as low as 1 in 20,000 to 30,000 [6]. In our case symptoms were noticed after the delivery. Common clinical presentation in adults is blurring of vision and focal neurological deficit, seizures are less common [4]. Our case presented with seizures.

The larva is carried to the brain via the arterial circulation, and is more often supratentorial than infratentorial in location. Most cerebral hydatids are in the white matter, usually in the parietal lobe [1,7]. In our case the cyst is located in the frontal lobe. Other less common sites are skull, cavernous sinus, eye ball, pons, extradural, cerebellum and ventricles. They are most often solitary and grow outward towards the cerebral cortex or inward towards the ventricles [1,8].

A cerebral hydatid cyst is generally larger than a hydatid cyst elsewhere in the body and becomes clinically manifest much earlier in life, because symptoms of increased intracranial pressure from a space occupying lesion occur relatively early in the disease. Review of literature on hydatid cyst in pregnancy revealed that hydatid cysts may grow larger due to decreased cell mediated immunity and humoral effects of the placental steroids [6]. In our case the hydatid cyst was detected in a 9 month post natal women and the size of the cyst being 8x7x6cm.

The cysts in other organs may be too small to be detected by clinical and radiological evaluation. Hence it is difficult to classify the hydatid cyst as primary or secondary. Some of these small cysts may not be discovered until 20-30 yrs after diagnosis of cerebral hydatid disease [8].

Classical features on MRI show a large solitary spherical cyst, with a regular smooth border with density similar to that of CSF. Calcification may or may not be seen. There is usually no rim enhancement or perifocal edema. With contrast, occasional lesions may show ring enhancement, suggesting inflammation [9]. In our case on MRI there was a mass effect in the form of subfalcineherniation, mild tentorialisillar herniation and mid line shift towards left, a rare presentation.

In management of hydatid cyst pre and post-operative administration of albendazole and praziquantal should be considered in order to sterilize the cyst. This decreases the chance of anaphylaxis, tension in the cyst wall, thus reducing the risk of spillage during surgery. In endemic areas, a high index of suspicion and preoperative therapy with albendazole, would decrease the morbidity and mortality.

CONCLUSION

The objective of reporting this case is to highlight the rare presentation of hydatid cyst in the frontal lobe in an adult in the post natal period. Novel diagnostic methods such as MR spectroscopy and MR diffusion weighted images and cerebral angiography would help in the diagnosis of intracranial hydatid cyst, but are expensive. Hence in all cystic lesions of the brain especially in endemic areas, a high index of suspicion, preoperative therapy with albendazole, proper work up and follow up of the cases will go a long way in reducing the the mortality and morbidity of the disease.

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