CASE REPORT

HYDATID CYST OF BRAIN

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ABSTRACT

Echinococosis (which is often referred as hydatid disease) is an infection caused by larval stage of Echinococcus granulosus complex, E multiocularis or E vogeli. When it lodges in the brain, a solitary cyst (hydatid cyst) develops. Hydatid cyst of the brain is a slow growing mass that does not invade the brain. Surgical removal of the intact and unruptured cyst is advised in all cases for preventing local recurrence that may require further surgery and long term treatment with parasiticidal agents. We report a five years old male child who presented with headache, difficulty in walking with ataxic gait and unable to maintain posture and tremors in hand. MRI showed a giant hydatid cyst which was removed by a neuro surgeon and patient was successfully discharged.

KEY WORDS: Hydatid Cyst, Echinococcosis, Echinococcus granulosus; Echinococcus multilocularis; Brain.

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INTRODUCTION

Brain involvement with hydatid disease occurs in 1-2% of all Echinococcus granulosus infections. Cerebral hydatid cysts are usually supratentorial, whereas infratentorial lesions are quite rare. The definite hosts of echinococcus are various carnivores, the common being the dog. All mammals (more often sheep and cattle) are intermittent hosts. Humans get infected through faeco-oral route by ingestion of food or milk contaminated by dog faeces.[1] The embryos pass through the wall of the gut into the portal system and are carried to the liver where most larvae get entrapped and encysted. Some may reach the lungs and occasionally, some may pass through the capillary filter of the liver and lungs and get entry into the systemic circulation. These may even reach the brain.[2,3] Intracranial hydatid cysts are commonly solitary. Multiple intracranial cysts are rare.[2,3] Due to insidious onset of clinical symptoms, patients are diagnosed late. Intracranial hydatid cyst may also be classified as primary or secondary. The primary cysts are formed as a result of direct infestation of the larvae in the brain without demonstrable involvement of other organs. The secondary multiple cysts results from spontaneous, traumatic or surgical rupture of the primary intracranial hydatid cyst and they lack brood capsule and scolices.[2] The patients with intracranial hydatid cysts usually present with focal neurological deficit and features of raised intracranial pressure; the latter may be due to the large size or due to interference with pathway of CSF flow.[3] Surgically intact cyst excision is the ideal treatment. Medical treatment with albendazole seems to be beneficial both pre and post-operatively. Present case is reported to determine the clinical presentation of a hydatid cyst.

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CASE HISTORY

A five years old boy was referred from Kabul, Afghanistan with generalized intermittent headache and progressive gait ataxia for one year, left sided weakness for seven months with few episodes of seizures for the last few weeks. He was in a good general state of health, fully conscious and oriented in time, space and person. He had left sided weakness with power 3/5 in left upper and lower limbs. Reflexes on both sides were exaggerated with extensor planter response. Sensory system was intact. Systemic examination was unremarkable. There was history of

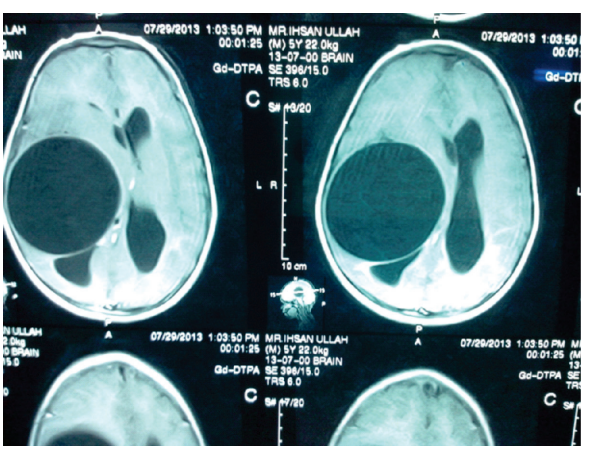

Figure 1: T1 weighted MR Scan of brain five years boy showing large hydatid cyst in the right temporoparietal region with significant mass effect.

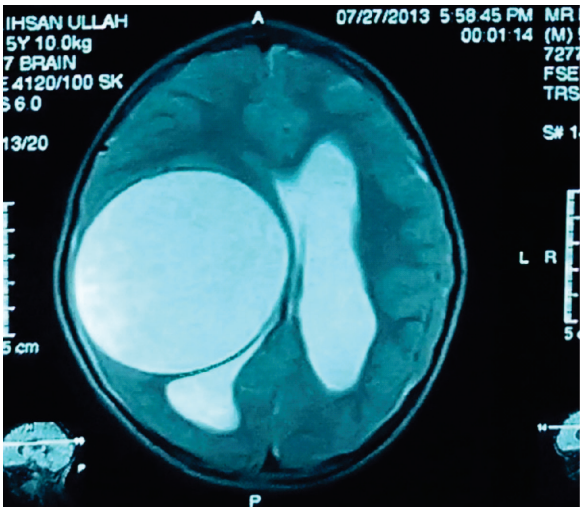

Figure 2: T2 weighted MR Scan of brain five years boy showing large hydatid cyst in the right temporoparietal region with significant mass effect.

direct contact with dog; his father was a sheep dealer and they had many cattle at home and also dogs to look after them. Chest x-ray was normal. MRI scan of the skull with and without contrast showed very large, well defined extra axial cystic lesion in the right temporoparietal region with significant mass effect, surrounding edema and midline shift. (Fig. 1-2)

A neurosurgeon excised the cyst with operating time of three & a half hours with uneventful recovery from the surgery and was kept in ICU for few days. He took peri-operative corticosteroids in tapering dose for eight days and on complete recovery was discharged. He was put on albendazole regimen (10 mg/kg twice daily) for 3 months.

DISCUSSION

Hydatid disease is endemic in middle east, Mediterranean countries, South America, North Africa and Australia. Giant intracranial HC is very rare, with reported incidence of 1-2% of all cases with hydatid cyst. Cerebral HC is more common in pediatric population, probably related to a patent ductus arteriousus.[4-7]

Intracranial HC are frequently located in parietal lobe, in supratentorial compartment.[8,9] Other less common sites are skull, cavernous sinus, eye ball, pons, skull, extra dural, cerebellum and ventricles.[10-14] Intracranial HC are slow growing and become symptomatic when very large. The growth rate of HC has been reported between 1-5 cm per year to 10 cm.[15]

Solitary intracranial HC's are common than multiple intracranial cysts.[17] Intracranial HC may also be classified as primary or secondary. Primary cysts are formed as a result of direct infestation of brain without evidence of involvement of other organs. Primary cysts are fertile as they contain scolices and brood capsules. Rupture of primary cyst usually results in recurrence. Secondary intracranial cysts are infertile and risk of recurrence after their rupture is minor.

The patient with a solitary giant intracranial HC usually presents with progressive focal neurological deficit and features of raised intracranial pressure[5]. Presentation is usually sub acute. A minority of patients may also have seizures. CT and MRI reveal distinctive features of solitary HC. Very large rounded cystic lesion which is isodense and isointense respectively to CSF with no rim enhancement should raise the suspicion of HC. MR spectroscopy and MR diffusion weighted imaging might help in diagnosis of intracranial HC.[17-19]

A variety of surgical techniques is used for removal of the HC's.[20] One option is direct puncture and aspiration of the cyst fluid through a small hole in the cyst wall, and expulsion of the cyst through a small cortical incision over cyst. The popular technique is Dowling's technique of hydro dissection.[21] Accidental or intentional rupture of the cyst may result in spillover of the contained fluid and scoleses. This complication may result in severe anaphylaxis, and soiling of the neighboring tissues with potentially infective scolex heads; hence, it is to be avoided. Albendazole is a broad spectrum oral antihelminthic drug, which acts by blocking the glucose uptake of the larvae and the adult worms. The glycogen storage is depleted, thereby decreasing the ATP formation that results in the death of the parasite.

Long-term follow-up confirms that intracranial HC's should always be surgically removed without rupture as the outcome remains excellent in these cases. Correct preoperative diagnosis is vital for the successful outcome of surgery. A high index of suspicion is therefore required in endemic areas despite the availability of advanced neuro-imaging. Medical treatment with albendazole seems is beneficial both pre- and post-operatively.

CONCLUSION

In this current article an attempt has been made to create awareness of this type of condition for the preliminary diagnosis of Hydatid cysts. Intracranial Hydatid cysts though rare but can be seen even in children. The theme of research is that a high index of suspicion and proper management can prevent life threatening consequences.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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