Bahrain Medical Bulletin, Vol.25, No. 2, June 2003

Intracranial Hydatid Cysts: Diagnosis and Treatment

Abdullah Al-Akayleh, MD*

The authors present five cases of intracranial hydatid cysts managed at the neurosurgical department between 1993-2002. The average age of presentation was 9.4 years. Four patients (80%) were in the first decade of life. Main presentations were headache, vomiting, blurring of vision and focal neurological deficit. Radiological investigation included computerised tomography (CT) and magnetic resonance (MR). Two patients had multiple intracranial cysts. Two patients had cyst in the lateral ventricle. The commonest location was in the parietal lobe (4 cases). Total excision of the cyst was done in three cases. Recurrence was seen in two cases as result of rupture of the cyst during the first surgery.

Bahrain Med Bull 2003;25(2):91-94.

Hydatid disease is caused by echinococcus granulosus (dog tapeworm) produces hydatid disease in man and in other animals (more often being sheep and cattle) and is endemic in sheep rearing areas, its larval form is called hydatid cyst. Ingestion of food or milk contaminated by the ova infects man. The eggs release embryos in the stomach. The embryos pass through the liver and systemic circulation. The hydatid disease is more commonly seen in the north of Jordan. The incidence of intracranial hydatid cyst in Jordan has not been reported.

METHODS

We prospectively analysed five cases of intracranial hydatid cysts managed between 1993-2002. We have analyzed their mode of presentation, radiological features, type of surgery and recurrence.

RESULTS

Five cases of intracranial hydatid treated during the period of 1993-2002 represented an incidence of 0.04% of all space occupying lesions operated during that period. The average age of presentation was 9.4 years. Four patients (80%) were between 9-12 years and one case was thirty years old. The male to female ratio was 3:2. All patients came from rural area. The clinical features varied depending on the location of cyst in the brain. Raised intracranial pressure was the commonest finding in all the cases. Seizures were presented in two cases. The diagnosis of hydatid was suspected pre-operatively in all cases and all necessary precautions to prevent rupture and dissemination of hydatid were taken at the surgery. During surgical resection, rupture of the cyst occurred in two cases. Following rupture, anaphylactic reaction was not

* Department of Neurology
King Hussein Medical Centre
Amman
Jordan

seen (Fig 1). One patient had a solitary cyst in the lateral ventricle (Fig 2) and another had a large solitary cyst in the parietal lobe (Fig 3).

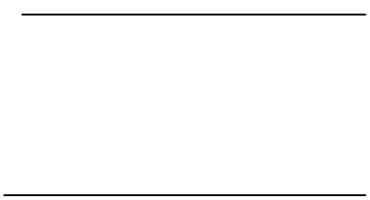

Figure 1. CT Scan showing no rupture of the cyst

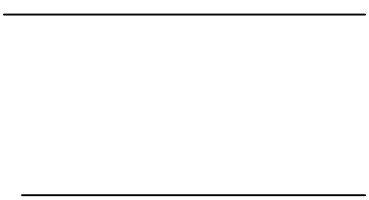

Figure 2. CT scan showing a solitary cyst in the lateral venricle

Figure 3. CT scan showing a large solitary cyst in the parietal lobe

Figure 4. CT scan showing multiple cysts in the temperoparietal lobe

Figure 5. CT scan showing fronto Occipital lobe cyst

Figure 6. CT scan showing associated hydatid cyst in the spleen

Two patients, one with multiple cysts in the temporoparietal lobe (Fig 4) and the second with fronto occipital lobe cyst (Fig 5), have recurrence of hydatid cyst and presented with multiple cysts after 6-12 months of first surgery, both cases were re-operated. The second case had chest and abdominal CT scan which revealed associated hydatid cyst in the spleen (Fig 6). The two cases died as a result of the disease. The radiological investigation of other cases failed to reveal any associated hydatid cyst in lungs and abdomen. Albendazole (10mg/kg) was given for six months in all cases. All patients have been followed up for one and half year.

DISCUSSION

Intracranial hydatid disease is rare. The reported incidence is 1-2%[1]. Hydatid disease is endemic in the Middle East, Mediterranean countries, South America, North Africa and Australia[2]. Cerebral hydatid disease is more common in paediatric population[1,3]. Intracranial hydatid cysts are more frequently located in the supratentorial compartment. The parietal lobe is the commonest site and was seen in four cases in the present series. The other less common sites reported are skull[4], cavernous sinus[5], eyeball[6], pons[7], extradural[8], cerebellum and ventricles[9].

Solitary hydatid cyst in the lateral ventricle is relatively rare site for intracranial hydatid cyst. There is no consensus on the growth rate of the hydatid cyst of the brain and has been variably reported between 1.5-10 /year[1,10], multiple intracranial hydatid cysts, are rare[5,10].

The patients with intracranial hydatid cysts usually present with focal neurological deficit and features of raised intracranial pressure due to interference with pathway of CSF flow[11]. All patients in the present series had focal neurological deficit and feature of raised intracranial pressure, two patients had seizures. MRI and CT scan, characteristically show hydatid as a spherical, well defined, non-enhancing cystic lesion without peripheral oedema[12,13]. Fine rim of peripheral enhancement with perilesional oedema may be seen in the presence of active inflammation[14].

The treatment of hydatid cyst is surgical and the aim of the surgery is to excise the cyst in toto without rupture to prevent recurrence and anaphylactic reaction. Various surgical options were summarized by Iniquez[15].

Albendazole therapy is given in a daily dose of 10 mg/kg, taken three times for four months. It is a broad spectrum oral antihelminthic drug, which acts by blocking glucose uptake of the larva and adult worm. The glycogen storage is depleted thereby decreasing the ATP formation resulting in death of the parasite. Golematis et al[16] found that with the use of albendazole the large cyst decreased in size, while the smaller ones disappeared.

Erashin et al[17] and Basel[18] reported better effectiveness of the drug therapy in recurrent cases and cases with rupture at surgery.

CONCLUSION

Five cases of intracranial hydatid cysts presented. Total excision was done in three cases. Recurrence was seen in two cases.

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