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Intracranial hydatid cyst : a report of two cases with review of literature.

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Abstract:

The authors present two cases of intracranial hydatid cysts managed at the department of Neurosurgery, S.C.B. Medical college, Cuttack. Case no 1 is at the age of 14/f, case no 2 at the age of 25/m. The cases are associated with clinical features of raised intracranial pressure. Radiological investigations included computerised tomography (CT) scan in both the cases. Male (age-25) patient had multiple intracranial cysts. The female patient (age 14) had a solitary cyst in the fronto parietal area. Total excision of the cyst was done in both the cases. Recurrence was not seen in two cases, probably because of non rupture of the cyst during first surgery. The features of this rare disease are retrospectively analyzed in this presentation and the literature is reviewed.

Introduction

Infestation of the larvae of taenia echinococcus is the cause of Hydatid disease. The definite hosts of echinococcus are various carnivores, the common being the dog. All mammals (more often being sheep and cattle) are intermittent hosts. Humans get infected through the faeco-oral route by ingestion of food or milk contaminated by dog faeces containing ova of the parasite or by direct contact with dogs. The eggs lose their enveloping layer in the stomach, releasing the embryos. 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. In India, the hydatid disease is more commonly seen in the Kurnool district of Andhra Pradesh, Madurai district of Tamil Nadu and in Punjab.[1] Various series of intracranial hydatids from India have reported its incidence as 0.2% of all intracranial space occupying lesions. We have analyzed two cases of the hydatid cysts and discussed their mode of presentation, radiological features and outcome. The relevant literature is reviewed.

CASE HISTORY:

The case no 1 with single hydatid cyst presented with headache & intermittent loss of consciousness.

the case no 2 presented with headache & psychiatric (behavioural) disorder.

General Examination

First female patient was received semi conscious with early papilloedema left > right. Second male Patient was received with intractable headache & occasional vomiting.

Systemic Evaluation

No other systemic disorder found.

Radiological Investigation

In CT scan of brain,case no1-Left fronto parietal huge low dense area with mid line shift to right suggestive of large cyst(Hydatid Cyst?).

In case no2-Rt posterior parieto temporal low dense area with multiple saccules & compartments suggestive of multilocular cysts(hydatid cysts?).

Treatment and Management:

The hydatid cysts were totally excised at first surgery in both the cases. During surgical resection, no rupture of cysts occurred.one had multiple cysts and one case had solitary frontal cyst. Diagnosis of hydatid was suspected preoperatively in two of these cases and all necessary precautions to prevent rupture and dissemination of hydatid fluid were taken at the surgery .one with solitary cyst in the frontal lobe and second with multiple cysts in temporoparietal lobe.There was no further recurrence. All patients have shown good recovery & no neurological dysfunction.

Discussion:

Intracranial hydatid disease is rare, with reported incidence of 1-2% of all cases with hydatid disease.[4] Hydatid disease is endemic in the middle east, Mediterranean countries, South America, North Africa and Australia.[5] Cerebral hydatid disease is more common in paediatric population[1],[6] . This high incidence in children is probably related to patent ductus arteriosus.[7] None of the patients in the present series had a patent ductus arteriosus. History of direct contact with dogs is not available in all the cases, as infection can be acquired by

eating contaminated food and milk. In the present series, history of contact with pet dogs was available in two cases.

Intracranial hydatid cysts are more frequently located in the supratentorial compartment. The parietal lobe is the commonest site and was seen in both the cases in the present series. All four cases reported by Dharker et al[8] and three out of five cases of intracerebral hydatid cysts reported by Balasubramaniam et al[9] had parietal lobe involvement. The other less common sites reported are skull,[9] cavernous sinus,[10] eye ball,[11] pons,[12] , skull,[9] extradural,[13] cerebellum and ventricles.[6] Solitary hydatid cyst in the lateral ventricle, as seen in one case in the group of patients being reported, is relatively rare site for intracranial hydatid cyst. The cerebral hydatid cysts are slow growing and present late when they increase in size and become large. There is no consensus on the growth rate of the hydatid cysts of the brain. Intracranial hydatid cysts are commonly solitary. Multiple intracranial cysts are rare. Onal et al[5] found only three cases of multiple cysts in their series of 33 cases and Lunardi et al[7] found 2 cases in their series of 12 cases.

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. In primary multiple cysts, each cyst has a separate pericyst with brood capsule scolices and these originate from multiple larvae affecting brain after crossing the gastrointestinal tract, liver, lungs and right side of heart without affecting them. The primary cysts are fertile as they contain scolices and brood capsules, hence rupture of primary cyst can result in recurrence. The secondary multiple cysts results from spontaneous, traumatic or surgical rupture of the primary intracranial hydatid cyst and they lack brood capsule and scolices. The secondary intracranial hydatid cysts are therefore, infertile and the resultant risk of recurrence after their rupture is negligible. Primary multiple cysts are uncommon and isolated case reports of primary multiple hydatid cysts have appeared in the literature.[15],[16] Nurchi et al[15] while reviewing the literature found only eleven reported cases of primary multiple hydatid cysts. 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. Erashin et al[4] observed that 18 out of 19 cases presented with raised intracranial pressure. Four cases had seizures. All patients in the present series had no focal neurological deficits and only features of raised intracranial pressure. Two patients had characteristically show hydatid cyst as a spherical, well defined, non enhancing cystic lesion without peripheral oedema.[17],[18] The fluid density is generally equal to that of CSF on both CT. A fine rim of peripheral enhancement with perilesional oedema may be seen in the presence of active inflammation.[18] MR scan may show a low density cyst wall[17] and relations with surrounding structures is better delineated than on CT scan. Other reports on MR findings[15],[17] showed similar findings. Kohli et al[19] performed in vivo and in vitro MR spectroscopy (MRS) studies in a patient of intracranial

hydatid cyst. Besides lactate, alanine and acetate, a large resonance for pyruvate was observed. MRS pattern appeared different from the other cystic lesions of brain and they suggested MRS as an adjunct to imaging in the differential diagnosis of intracranial hydatid. Role of MRS in monitoring drug therapy was also highlighted.

Only a few reports are available mentioning the efficacy of drug therapy. Isolated case reports[21],[22] showed complete disappearance of multiple intracranial hydatid cysts with Albendazole therapy in a daily dose of 10 mg/kg, taken three times a day for four months. Albendazole is a broad spectrum oral antihelminthic drug, which act by blocking glucose uptake of the larvae and the adult worm. The glycogen storage is depleted and thereby decreasing the ATP formation resulting in the death of the parasite. Golematis et al[23] analyzed 44 patients who were treated with albendazole and found that the large cysts decreased in the size, while the smaller ones disappeared. Erashin et al[4] reported better effectiveness of the drug therapy in recurrent cases and in cases with rupture at the surgery.

Conclusion:

The treatment of hydatid cyst is surgical and the aim of surgery is to excise the cyst in toto without rupture to prevent recurrence and anaphylactic reaction. Various surgical options as summarized by Arana-Iniquez[20] include, puncture and aspiration of the cyst fluid through a small hole in the cyst wall, cortical incision over cyst and expulsion of hydatid cyst by insufflation of air in the contra lateral ventricle and the most commonly done procedure designed to give birth to the intact cyst by irrigating saline between cyst wall-brain interface. This is possible because of minimal adhesions around the cyst wall.

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