

Primary Cerebral Hydatid Cyst in an Adult Female Presenting with Seizures and Hemiparesis: A Case Report

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Abstract

Hydatid disease is a rare parasitic disease caused by the larval stage of *Echinococcus granulosus*. It is endemic in many areas including the Middle-East and the Mediterranean countries. It mainly affects the liver and the lungs but can rarely affect other organs including the brain (Neurohydatidosis).

Intracranial hydatid cysts account for 0.5-3% of all the cases of hydatid disease and contribute to 1-2% of all the intracranial space occupying lesions.

We report a case of a 27 year-old female patient who presented with hemiparesis and seizures and was found to have a giant primary intracranial hydatid cyst arising in the right parietal lobe.

Keywords: Hydatid cyst; Echinococcus; Neurohydatidosis; MRI

Introduction

Hydatid disease is a rare parasitic disease caused by the larval stage of *Echinococcus granulosus*. It is endemic in many areas including the Middle-East and the Mediterranean countries. It mainly involves the liver and the lungs but rarely can affect other organs involving the brain (Neurohydatidosis) [1]. Intracranial hydatid cysts account for 0.5-3% of all the cases of hydatid disease and contribute to 1-2% of all the intracranial space occupying lesions [2].

Case Report

A 27-year-old female patient, married with 2 offsprings and with no relevant medical history presented to the Emergency Room with focal seizures on the left side of the body lasting for 5 minutes with secondary generalization.

The patient's condition started 2 weeks prior to admission with headache, nausea, projectile vomiting and blurring of vision in both eyes. The patient then started to have parasthesia of the left side of the body that was followed by left hemiparesis in the day prior to admission.

Neurological assessment was done; the patient was in a post-ictal state and hardly obeying commands. Cranial Nerves examination showed bilateral papilledema and left facial palsy. Motor examination showed left sided weakness of Medical Research Council (MRC) Grade 4. Deep Tendon Jerks were brisk and plantar response was extensor on the affected side. There were neither meningeal signs nor incoordination.

Urgent CT Brain revealed a right parietal cystic lesion with mild mass effect and midline shift. MRI Brain with contrast was done in the same day and also showed an intraxial cystic lesion the right parietal lobe measuring (12×11×10 cm) causing mild mass effect and midline shift. There was no perilesional edema, no enhancement after Gadolinium injection nor hemorrhage or calcifications (Figures 1-3).

The patient later gave history of ingestion of food that may have been contaminated by fecal matter from dogs several years ago. Neurohydatidosis was first in the differential diagnosis.

CT chest and Ultrasound abdomen and pelvis were normal. Laboratory investigations showed mild leucocytosis (13,000/cu.mm) with eosinophilia, normal hemoglobin and platelet count. The enzyme-linked immunosorbent assay (ELISA) for Echinococcus was done and it was negative. Liver and Renal function tests were normal.

Patient underwent total excision of the cyst with utmost care to avoid its rupture using Dowling-Orlando technique and she had no post-operative complications. The histopathology of the excised cyst revealed dead scolices of *E. granulosus* which further confirmed the diagnosis. Albendazole (15 mg/kg) was initiated for one month period in addition to antiepileptic drugs (Carbamazepine 400 mg twice daily). In follow up visit 1 month later the patient showed improvement of her neurological condition with no recurrence of seizures. Examination showed that there was no papilledema, motor power of MRC Grade 4+, brisky reflexes and a mute plantar response.

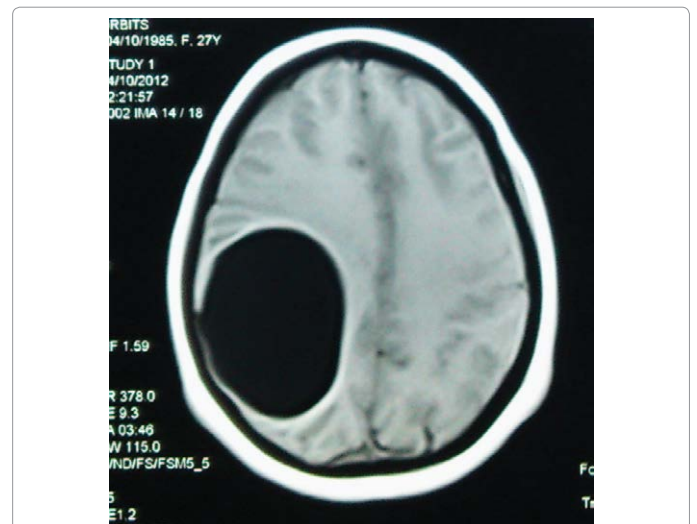


Figure 1: T1-weighted axial MRI brain showing intra-axial giant cyst in the right parietal lobe with mild midline shift.

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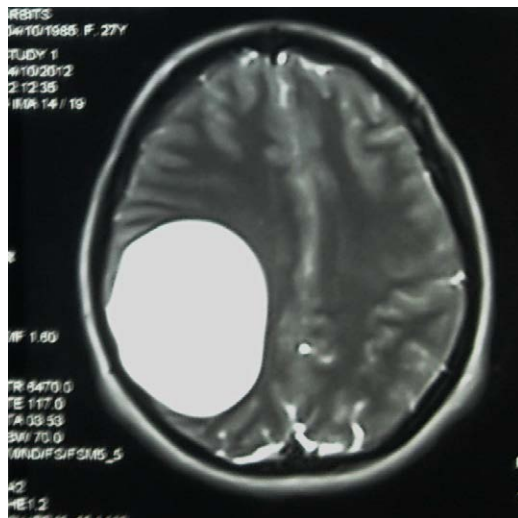


Figure 2: T2-weighted axial MRI brain showing intra-axial giant cyst in the right parietal lobe.



Figure 3: T2-weighted coronal MRI brain showing intra-axial giant cyst in the right parietal lobe.

Discussion

Hydatid disease is a rare disease caused by the larval stage of the cestode *Echinococcus granulosus*. It is endemic in many areas in the globe including the Middle-East and the Mediterranean countries [1].

The main host is the dog. Humans could be accidental intermediate hosts if they ingested food contaminated with eggs from the faeces of the infected animal. The eggs hatch inside the intestines and the oncospheres penetrate its walls, they reach the portal circulation and then reach the liver where they can cause cystic lesions. They can move to reach the lung. After those two filters some could still make it to the systemic circulation and could reach the brain [3].

They are most commonly (about 50-75%) seen in children and young adults [4]. The liver is the most common organ involved (77%), followed by the lungs (43%) [5].

Intracranial hydatid cysts are rare and occurs in only (0.5-3%) of all the cases of hydatid disease. They contribute to (1-2%) of all the intracranial space occupying lesions [2]. Most of cerebral hydatid cysts

are located in supratentorial structures in the vascular territory of Middle Cerebral Artery affecting parietal lobe [6].

Brain hydatid cysts can be primary or secondary. Primary hydatid cysts occur as a result of direct invasion of larva that managed and filtered via liver and lung to the brain and they are usually solitary and they are fertile. Secondary hydatid cysts occur as a result of rupture of primary cysts in others organs then reaching by embolization to the brain and they are usually multiple and infertile [7].

Cysts develop insidiously, usually being asymptomatic initially. The most common presenting symptoms are headache and vomiting due to elevated intracranial pressure [8]. Other common presentations include focal deficits, papilledema, ataxia, hemiparesis and disturbed conscious level. Seizures are not a very common presentation of such disease [1,9].

Diagnosis of cerebral hydatid disease is based mainly on neuroimaging and could be supported with serological tests (ELISA have a sensitivity of 85%) and confirmed only with histopathological studies [10].

MRI is considered superior to CT in the diagnosis and in pre-operative assessment. MR imaging of Neurohydatidosis reveals a well-defined, circumscribed, solitary, spherical, intra-axial cystic lesion. Cysts lie in the territory of the middle cerebral artery commonly in parietal lobe. They show no enhancement with Gadolinium, no calcification and typically no surrounding oedema. They show no communication to the ventricles or to subarachnoid space. They can cause mass effect, midline shift and hydrocephalus [11-13].

The definitive management of a cerebral hydatid cyst is surgical removal of the entire cyst with utmost care to avoid its rupture. The preferred method is by using Dowling-Orlando technique. Medical treatment using Albendazole alone or in combination with praziquantal may be administered post-operatively for 3-6 months. Medical treatment alone may be used in patients who are not eligible for surgery or in the case of recurrence, but it is not as effective as surgical management in primary hydatid cyst of brain [14].

Conclusion

Neurohydatidosis is a rare entity and should be considered in the differential diagnosis of intracranial cysts. Although it is more common in children it can also affect adults. MRI is superior in diagnosis and in pre-operative assessment. Serological tests are supportive in diagnosis and could be normal. Surgical excision with utmost care followed by medical treatment with Albendazole seems to be the most effective regimen.

References

1. Budke CM (2006) Global socioeconomic impact of Cystic echinococcosis. *Emerg Infect Dis* 12: 296-303.
2. Trivedi A, Shukla S, Singh K, Sharma V (2007) Giant intracranial hydatid cyst. *J Pediatr Neurosci* 2: 72-74.
3. Kovoor JME, Thomas RD, Chandrashekar HS, Jayakumar PN, Pillai S, et al. (2007) Neurohydatidosis. *Australas Radiol* 51: 406-411.
4. Cavusoglu H, Tuncer C, Ozdilmaç A, Aydin Y (2009) Multiple Intracranial Hydatid cysts in a boy. *Turk Neurosurg* 19: 203-207.
5. Erashin Y, Muthuer S, Guzelbag E (1993) Intracranial hydatid cysts in children. *Neurosurgery* 33: 219-225.
6. Arora SK, Aggarwal A, Datta V (2014) Giant primary cerebral hydatid cyst: A rare cause of childhood seizure. *J Pediatr Neurosci* 9: 73-5.
7. Polat P, Kantarci M, Alper F (2003) Hydatid disease from head to toe. *Radiographics* 23: 475-94.

8. Mala R, Ananth ML, Nagaraju BN, Rao CV (2014) Intracranial hydatid cysts- some rare presentations of cases. J NTR Univ Health Sci 3: 263-266.
9. Sengul G, Cakir M, Calikoglu C, Duman S, Zeynal M, et al. (2012) Cerebral Hydatid Disease: Clinical Analysis of Ten Cases. J Neurol Sci-Turk 29: 754-760.
10. Binesh F, Mehrabani M, Navabii H (2011) Primary brain hydatosis. BMJ Case Rep.
11. Tuzun M and Hekimođlu B (1998) Hydatid disease of the CNS. imaging features. AJR 171: 1497-1500.
12. El-Shamam O, Amer T, El-Atta MA (2004) Magnetic resonance imaging of simple and infected hydatid cysts of the brain. Magn Reson Imaging 22: 1339-1340.
13. Ravalji M, Kumar S, Shah AK, Vaghela DU, Makwana GJ, et al. (2006) CT and MRI features of the typical and atypical intracranial hydatid cysts: Report of five cases. Indian J Radiol Imaging 16: 727-732.
14. Reddy DR (2009) Managing cerebral and cranial hydatid disease. Neurol India 57: 116-118.