Indian Journal of Medical Specialities

Volume 6, Issue 4, October–December 2015, Pages 170–172

Case Report

Intracranial hydatid cyst – A rare manifestation of Echinococcus infestation

Sudhir Bhandari[a], , , C.L. Naval[b], Vishal Gupta[b], Sandeep Jain[b], Suresh Yadav[b]

[a] Senior Professor, SMS Medical College & attached Hospitals, Medicine, D 126 A, Krishna Marg, University Road, Bapu Nagar, Jaipur, Rajasthan 302015, India

[b] SMS Medical College & attached Hospitals, India

Received 8 July 2015, Accepted 10 July 2015, Available online 9 September 2015

Show less

doi:10.1016/j.injms.2015.07.006

Abstract

Hydatid disease is a parasitic disease caused by the larval stage of *Echinococcus granulosus*. It mainly affects the liver and lungs and 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 26-year-old female patient who presented with seizures and was found to have multiple giant intracranial hydatid cysts.

Keywords

Hydatid cyst; Echinococcus; Neurohydatidosis; ELISA for Echinococcus

1. Introduction

Hydatid disease is a parasitic disease caused by the larval stage of *Echinococcus granulosus*. *E. granulosus* can be manifested in humans who act as intermediate host by the development of cysts in the liver, lungs, heart, and brain. Cerebral hydatid disease is very rare and occurs in about 2% of all echinococcal cases. The most common sites of involvement are the cerebral parenchyma and subarachnoid spaces.

2. Report of case

2.1. Case and discussion

A 27-year-old, non-vegetarian, married female patient, with no relevant medical history presented to the emergency room with focal seizures on the right side of the body lasting for 5 min which evolved to generalized tonic-clonic seizures. Patient also had history of headache and nausea for one month. On neurological examination, patient was in postictal state and did not obey commands. Cranial nerve examination was normal. Reflexes were normal with plantar bilaterally extensor. There were neither signs of meningeal irritation nor incoordination.

Laboratory investigations showed mild leucocytosis (13,400/cu.mm) with normal hemoglobin and platelet count. Liver and renal function tests were normal. MRI brain was done that showed large well-defined T2 hyperintense lesion (41 mm × 48 mm × 48 mm) with multiple intra-lesional well-defined cysts in left fronto-parietal lobe and basal ganglia

causing effacement of ipsilateral ventricle. Similar kind of lesion was also noted superio-posterior to it in left parietal lobe cortex, measuring (73 mm × 45 mm) – which was suggestive of multiple hydatid cyst of brain (Fig. 1). CT chest and Ultrasound abdomen and pelvis were normal. The enzyme-linked immune sorbent assay (ELISA) for Echinococcus was done and it was borderline (1:16).

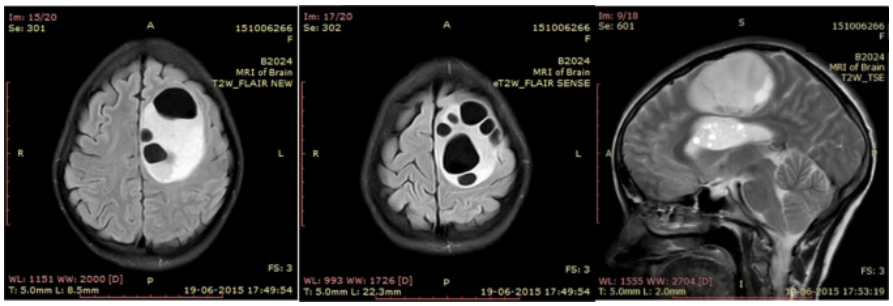

Fig. 1.
Large well-defined T2 hyperintense lesion (41 mm × 48 mm × 48 mm) with multiple intralesional well-defined cysts in left fronto-parietal lobe and basal ganglia causing effacement of ipsilateral ventricle. Similar kind of lesions are also noted supero-posterior to it in left parietal lobe cortex, measuring 73 mm × 45 mm – findings are suggestive of multiple hydatid cyst.

Figure options

The patient was non-vegetarian and MRI brain showed multiple hydatid cysts, so neurohydatidosis was considered as the first differential diagnosis.

3. Discussion

Hydatid disease is a rare disease caused by the larval stage of the cestode *E. granulosus*. The main host is the dog. Humans could be accidental intermediate hosts, if they ingested food contaminated with eggs from the feces 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 occur in only 0.5–3% of all the cases of hydatid disease. They contribute to 1–2% of the entire intracranial space occupying lesions. [2] Most of the cerebral 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 are filtered via liver and lung to the brain, and they are usually solitary and fertile. Secondary hydatid cysts occur as a result of rupture of primary cysts in others organs and then reaching by embolization to the brain; they are usually multiple and infertile. Cysts develop insidiously, usually being asymptomatic initially. The most common presenting symptoms are headache and vomiting due to elevated intracranial pressure. [7] Other common presentations include focal deficits, papilledema, ataxia, hemiparesis, and disturbed conscious level. Seizures are not a very common presentation of such disease. [1 and 8] Diagnosis of cerebral hydatid disease is mainly by neuroimaging and could be supported with serological tests (ELISA) which has a sensitivity of 85%, and is confirmed only with histopathological studies. [9] MRI is considered superior to CT in the diagnosis and localization in preoperative assessment of intra cranial space occupying lesion. Cysts lie in the territory of the middle cerebral artery commonly in parietal lobe. They show no calcification and typically no surrounding edema. They show no communication to the ventricles or to subarachnoid space. [10, 11 and 12]

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

praziquantel 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.[12]

4. 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.

Conflicts of interest

The authors have none to declare.

References

1 C.M. Budke, P. Deplazes, P.R. Torgerson
Global socioeconomic impact of cystic echinococcosis
Emerg Infect Dis, 12 (2006), pp. 296–303
View Record in Scopus | Full Text via CrossRef | Citing articles (218)

2 A. Trivedi, S. Shukla, K. Singh, V. Sharma
Giant intracranial hydatid cyst
J Pediatr Neurosci, 2 (2007), pp. 72–74
View Record in Scopus | Citing articles (4)

3 J.M. Kovoor, R.D. Thomas, H.S. Chandrashekhar, P.N. Jayakumar, S. Pillai, S.K. Shankar
Neurohydatidosis
Australas Radiol, 51 (2007), pp. 406–411
View Record in Scopus | Full Text via CrossRef | Citing articles (9)

4 H. Cavuşoğlu, C. Tuncer, A. Ozdilmaç, Y. Aydin
Multiple intracranial hydatid cysts in a boy
Turk Neurosurg, 19 (2009), pp. 203–207
View Record in Scopus | Citing articles (10)

5 Y. Erşahin, S. Mutluer, E. Güzelbağ
Intracranial hydatid cysts in children
Neurosurgery, 33 (1993), pp. 219–224 discussion 224-5

6 S.K. Arora, A. Aggarwal, V. Datta
Giant primary cerebral hydatid cyst: a rare cause of childhood seizure
J Pediatr Neurosci, 9 (2014), pp. 73–75 http://dx.doi.org/10.4103/1817-1745.131495
View Record in Scopus

7 R. Mala, M.L. Ananth, B.N. Nagaraju, C.V. Rao
Intracranial hydatid cysts-some rare presentations of cases
J NTR Univ Health Sci, 3 (2014), pp. 263–266
Full Text via CrossRef

8 G. Şengül, M. Çakir, Ç. Çalikoğlu, S. Duman, M. Zeynal, A. Duman
Cerebral hydatid disease: clinical analysis of ten cases
J Neurol Sci (Turk), 29 (2012), pp. 754–760
View Record in Scopus | Citing articles (1)

9 F. Binesh, M. Mehrabanian, H. Navabii
Primary brain hydatosis
BMJ Case Rep, 2011 (2011) http://dx.doi.org/10.1136/bcr.06.2010.3099

10 M. Tüzün, B. Hekimoğlu
Hydatid disease of the CNS: imaging features
AJR Am J Roentgenol, 171 (1998), pp. 1497–1500
View Record in Scopus | Full Text via CrossRef | Citing articles (45)

11 M. Ravalji, S. Kumar, A.K. Shah, Du Vaghela, G.J. Makwana, K. Singh
CT and MRI features of the typical and atypical intracranial hydatid cysts: report of five cases

Ind J Radiol Imag, 16 (2006), pp. 727–732

View Record in Scopus | Full Text via CrossRef | Citing articles (7)

12 D.R. Reddy
Managing cerebral and cranial hydatid disease
Neurol India, 57 (2009), pp. 116–118

View Record in Scopus | Full Text via CrossRef | Citing articles (9)

Corresponding author. Tel.: +91 9829078844/1412710234; fax: +91 1412719119.

Note to users: Corrected proofs are Articles in Press that contain the authors' corrections. Final citation details, e.g., volume and/or issue number, publication year and page numbers, still need to be added and the text might change before final publication.

Although corrected proofs do not have all bibliographic details available yet, they can already be cited using the year of online publication and the DOI , as follows: author(s), article title, Publication (year), DOI. Please consult the journal's reference style for the exact appearance of these elements, abbreviation of journal names and use of punctuation.

When the final article is assigned to volumes/issues of the Publication, the Article in Press version will be removed and the final version will appear in the associated published volumes/issues of the Publication. The date the article was first made available online will be carried over.