Brain Hydatid Cyst; A Case Report

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Citation

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Abstract

Objective

We want to report the second case of brain hydatid cyst in our experience. A 9-year-old girl was evacuated from Mauritania for a progressive onset of a high intracranial pressure syndrome. Physical examination finding was a right hemiparesis without aphasia. Brain CT and MRI demonstrated a huge rounded left temporo-parietal cystic lesion with midline brain shift. Complete surgical removal of the lesion has been done. Postoperative outcome were good with recovery of neurological deficit and normalization of intracranial pressure. Histopathology confirmed the echinoccocus etiology. She was given Albendazol 10mg/kg during 3 months. No reccurency was noted through 2 years of follow-up.

Conclusion

Brain hydatid cyst is rare and represented about 2% of intracranial space occupying lesion. Neuroimaging features are highly characteristic.

INTRODUCTION

Hydatid cyst is a parasitosis due to the development in humans of the larva of the tenia Echinococcus granulosis. It most often affects children and is a public health problem in many traditional livestock farming countries.Liver involvement is more frequent compared to brain location. , which is rare. It represented 2% of all intracranial space-occupying lesions. Senegal does not belong to geographical area of this anthropozoonosis, but sometimes, episodic cases may be described. We report a case of cerebral hydatid cyst.

CASE REPORT

A 9-year-old girl was evacuated from Rosso Mauritania to our department because of progressive onset a right hemiparesis in a context of 6 months lasting of diffuse headaches and intractable. On physical examination, she was slightly lethargic with a right hemiparesis rated at 4 associated with a Babinski sign. No other neurological signs were found. Brain CT scan and magnetic resonance imaging (MRI) showed a huge rounded left parietal cystic lesion. This lesion measured 78mm x 71mm x 71mm and had midline brain shift. No enhancement was found after T1 gadolinium post contrast injection (Figure 1). Blood cell count did not show any inflammatory process. She went on surgery: a left parietal craniotomy was done; the dura matter was opened demonstrating a swelling brain with and underlying cystic lesion (Figure 2). This lesion is well circumscribed with a thick wall but with an ill-defined interface cyst and parenchyma. An Irana Inigues technic was tried but was unsuccessful. We decided to do firstly direct cyst puncture and then cyst wall resection, making sure to avoid any spilling of the cyst content (Figure 3). Cleaning up of the operating site using water saline. The outcome was good all the signs and symptoms resolved rapidly. Histopathology studies made confirmation of hydatid cyst disease. Chest x-ray and abdominal ultrasound did not find any spreading of the hydatid disease to other organs. She was given 10mg/kg dose albendazole for 3 months. After two-year of follow up, the patient is still asymptomatic and CT control (Figure 4) shows a remaining linear calcification.

Figure 1

Axial Brain MRI with T1post gadolinium contrast showing a left hypointense , rounded parietal lesion without any enhancement

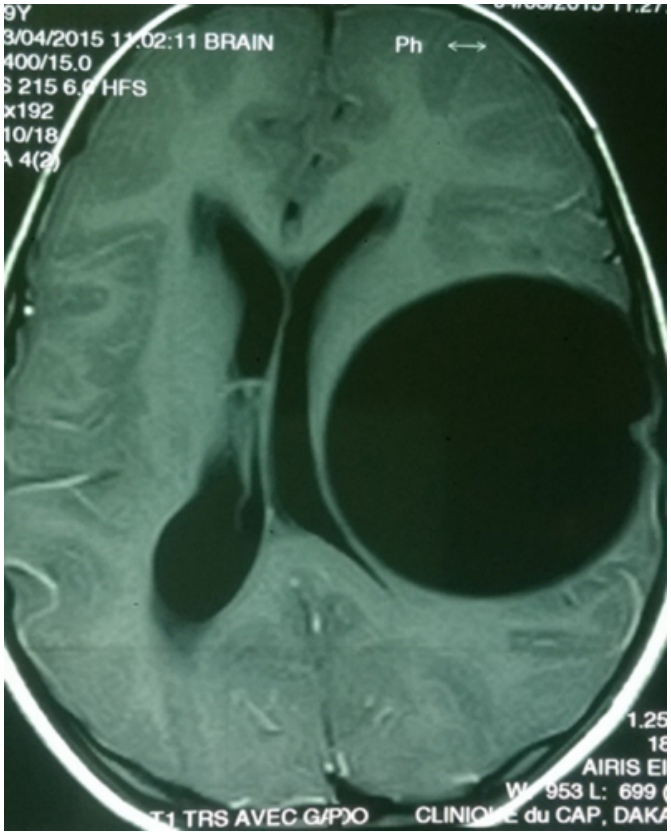


Figure 2

Per operative view after opening the dura

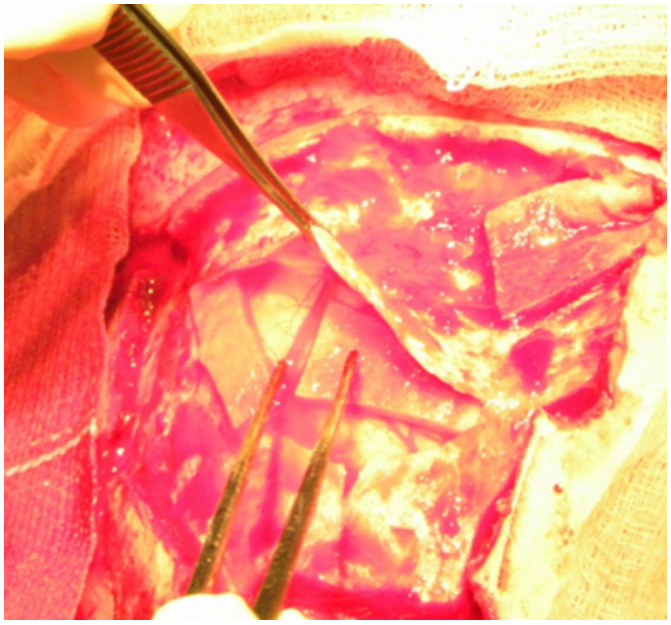


Figure 3

Fluid punctured from the cyst (A) and wall of the cyst (B)

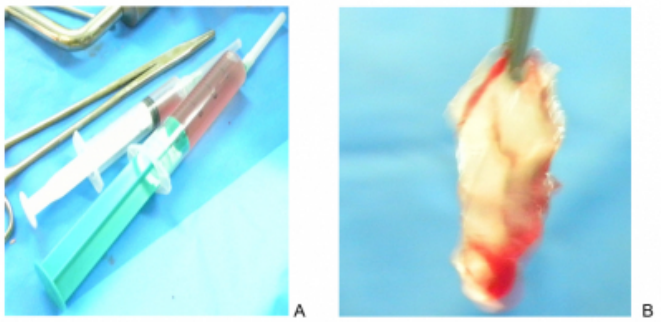
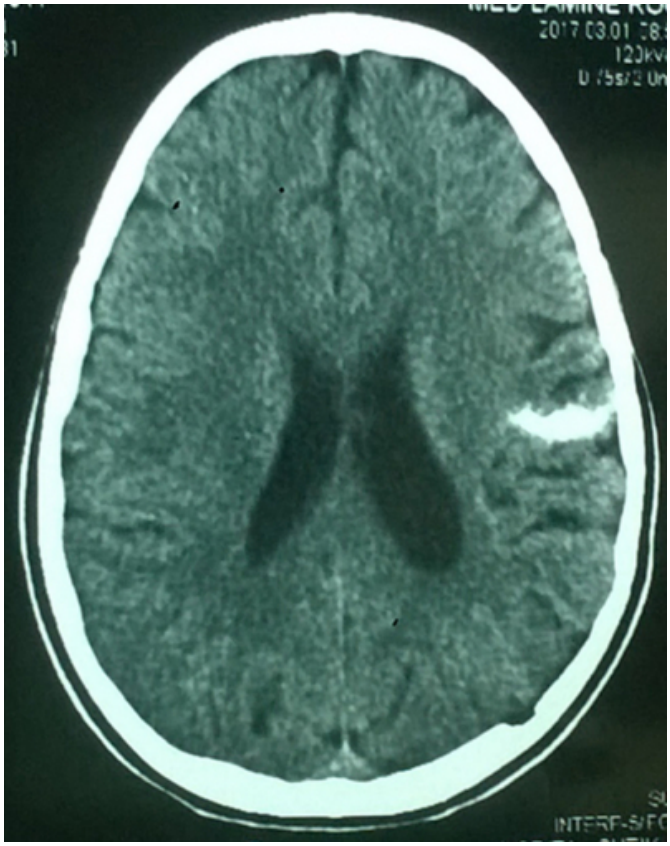


Figure 4

Axial Brain CT two years after surgery left parietal linear calcification



DISCUSSION

Hydatid cyst is a public health concern in many traditional livestock farming countries [1, 2]. Most often it occurs when there are dogs close to the zone of sheep's breeding. It is an anthropo-zoonosis, the definitive host of the parasite being the dog. Human infection is accidental and occurs either directly through contact with dogs (licking, caressing) or indirectly through the consumption of water or food contaminated by dog feces.This is the second case published in Senegal [3]. In both cases, patients come from Mauritania;

a country closed to Maghreb that is part of the endemic areas. Hydatid cyst can be located in any organ with a predilection for the liver (48%), the lung (36%) [1, 4]. Brain localization is rare around 2%. This rarity is explained by the passage of the parasite by two filters, hepatic then pulmonary, before reaching the blood stream [4]. It is common in children and early adulthood and occurs before the age of 15 years [5, 6]. This particularly high incidence in children is thought to be related on persistent arterial canal [7].Infestation could be silent for longtime before the onset of high intracranial pressure and/or neurological deficit.

Brain CT scan is the first-line choice diagnosis tool, and it helps to specify the location, number, volume and content of the cyst and its relationship to neighboring structures [1, 4]. Generally, it appears as a single large, thin-walled and hypo dense lesion, spherical like "compass drawn". Consequently there is a thinning of the skull with a disjunction of sutures especially in younger children. The hydatid cyst does not show any contrast enhancement or surrounding brain edema [8]. The lesion is usually superficial and supra tentorial. Sometimes calcified forms are revealed by seizures [2, 9]. The cerebral hydatic cyst are most often found on the left-brain hemisphere as for our patient. This predominant distribution is said to be the result of direct embolism mechanism involving more the left common carotid artery [7]. Other intracranial sites of infestation have been described, like sellar regions, cavernous sinuses and posterior fossa; theses anatomical forms are frequently multi systemic [1].

MRI is interesting in multiple forms and offers additional diagnostic information leading to a more appropriate therapeutic planning [8, 10]. The hydatid cyst appears like a perfectly spherical and well limited T1 hyposignal, in T2 sequences it is a hypersignal with a very thin wall that corresponds to the peri-cyst. MRI also identifies possible adhesions that the peri-cyst may have with surrounding structures, which is a very important element in the planning of the surgical procedure preventing accidental rupture [8]. The biology is no specific and hydatic serology is often negative [2].

Management is surgical. Its aim is to remove the cyst without rupture in order to avoid the spread of the scolex implicated in recurrences and anaphylactic reactions. The most commonly used surgical procedure is that of Arana-Iniguez and San [11] which consists of the delivery of the cyst by forced hydrostatic expulsion by introducing a hypertonic saline solution around and under the cyst. In order to avoid contamination of the site by scolex, it is recommended to wash the surgical site with hypertonic salt serum. In our case, given the adhesion of the cyst to the parenchyma, the sequences puncture- resection of the wall - irrigation was the best option. This technique is widely used in deep-seated lesions[6]. During post operative period patient were under albendazole lasting for 3 to 4 months depending on the teams [5].

The prognosis is good if the diagnosis is made quickly leading to early management to avoid neurological sequelae. Otherwise, pre- or per-operative rupture of the cyst may alter the prognosis.

CONCLUSION

Brain hydatid disease is a public health concern in endemic countries. But in not endemic zone some imported cases may happen and neurosurgeon should be aware how to made the diagnosis and treat it efficiently

References

1. Tlili-Graiess K., El-Ouni F., Gharba-Jemni H., Arifa N., Moulahi H., Mrad-Dali K. and All. Hydatidose cérébrale, aspects en imagerie. J Neuroradiol. 2006; 33: 304 – 318
2. Salaou O., Ibahiouin K., Chellaoui A., Hilmani S., Lakhdar A., Naja A. and all. Le kyste hydatique cérébral : A propos de 104 cas. AJNS 2007; 26 N° 1
3. Gueye M., Sakho Y., Ndiaye M., Et Alliez B. Kyste hydatique du cerveau : A propos d'un cas observé à la clinique neurochirurgicale du CHU de Dakar. Dakar Méd. 1982; 27 (4) : 577 - 582
4. Abderrazzak ES., Mohamed A., Mohamed B., Khalid C., Mohamed EF. Kystes hydatiques cérébraux de l'enfant: à propos de 15 cas. Pan Afr Med J. 2017; 26: 205.
5. Erşahin Y., Mutluer S., Güzelbağ E. Intracranial hydatid cysts in children. Neurosurgery. 1993 Aug; 33(2): 219-24.
6. Lunardi P, Missori P, Di Lorenzo N, Fortuna A. Cerebral hydatidosis in childhood: A retrospective survery with emphasis on long-term follow up. Neurosurgery1991; 29: 515-518.
7. Dianka Mb., El Hamdani T., Kaba I., Naja A., Ibahioin K., El Azhari A. Hydatidose cérébrale multiple d'origine cardiaque : à propos d'un cas. Pan Afri Med Jr 2015 ; 22 :15
8. Bukte Y, Kemanoglu S, Nazaroglu H, Ozkan U, Ceviz A, Simsek M. Cerebral hydatid disease: CT and MR imaging findings. SWISS MED WKLY 2004; 134: 459-467
9. Abderrahmen K., Aouidj ML., Kallel J., Khaldi MM. Kyste hydatique cérébral calcifié : À propos d'un cas exploré par IRM. Neurochirurgie 53 (2007) 371–374
10. El Abbassi, Skalli A, Gharbi A, Adil Abdelouafi A, Kadiri R. Kyste hydatique cérébral. Apport de la scanographie. J Neuroradiol 2000 ; 27 : 196-199
11. Arana Iniguez R. hydatid cysts of the brain. J Neurosurg.; 1955, 12: 323 - 335

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