

Cerebral Hydatid Cyst in Children Revealed by Brain Traumatic

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Abstract

Case Report

The cerebral localization of hydatid cyst is rare (2%), we report the case of an 8-year-old boy, living in a rural area who presented to the emergency room for post-traumatic headaches and a decrease in bilateral visual acuity and whose radiological workup showed a left parieto-occipital cerebral cyst, the diagnosis of hydatid cyst was retained after surgical treatment. The patient has evolved well after surgical treatment. We report an observation of a cerebral hydatid cyst revealed by a brain trauma and which evolved well clinically after surgical treatment.

Keywords: Trauma, hydatid cyst, MRI.

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INTRODUCTION

Hydatid disease is a parasitosis, caused by *Echinococcus granulosus*, which is very common in Morocco [2], mainly in children.

Humans are affected accidentally by direct contact with dogs, or by contamination of plants or water [1]. The liver is the organ most affected by the disease. Cerebral localization is rare, representing only 1 to 3% of cases [1].

Symptomatology is dominated by an intracranial hypertension syndrome, diffuse headaches associated with various neurological signs related to the location of the tumor [3].

Objectives: to illustrate the interest of CT and MRI in the positive diagnosis and post-therapeutic follow-up of cerebral hydatid cyst in children.

We report an observation of a cerebral hydatid cyst revealed by a brain trauma and which evolved well clinically after surgical treatment.

CASE REPORT

We examined an 8-year-old boy, the second of six siblings, never attended school, living in a rural environment with a notion of contact with dogs, with no particular pathological history and good psychomotor development.

Initially, the patient presented a decrease in visual acuity slowly noticed by the family but without clinical or para-clinical exploration.

2 months prior to admission, the child had a neglected head injury without initial loss of consciousness or vomiting. In view of the persistence of isolated post-traumatic headaches in a context of conservation of the general state, the family consulted the pediatric surgical emergency room.

The clinical examination found a conscious patient, afebrile, with a deficit syndrome such as hemiparesis of the lower limbs.

The Fundoscopy revealed a stage 3 papilledema. A brain MRI T1, T2, FLAIR and diffusion weighted sequences in the three planes of space with Gadolinium injection showed a large intra parenchymal cystic process in the left parieto-occipital area. The cyst was well limited, thin-walled, in T1 hypointense, in T2 hyperintense, T2 hypointense with a high ADC, not taking contrast, without peri-lesional oedema (figure 1), causing a mass effect on the adjacent parenchyma, on the homolateral lateral ventricle on the left cerebellar hemisphere and on the brain stem (figure 2).

A diagnostic hypothesis of hydatid cyst was made on the basis of the neuroradiological findings.

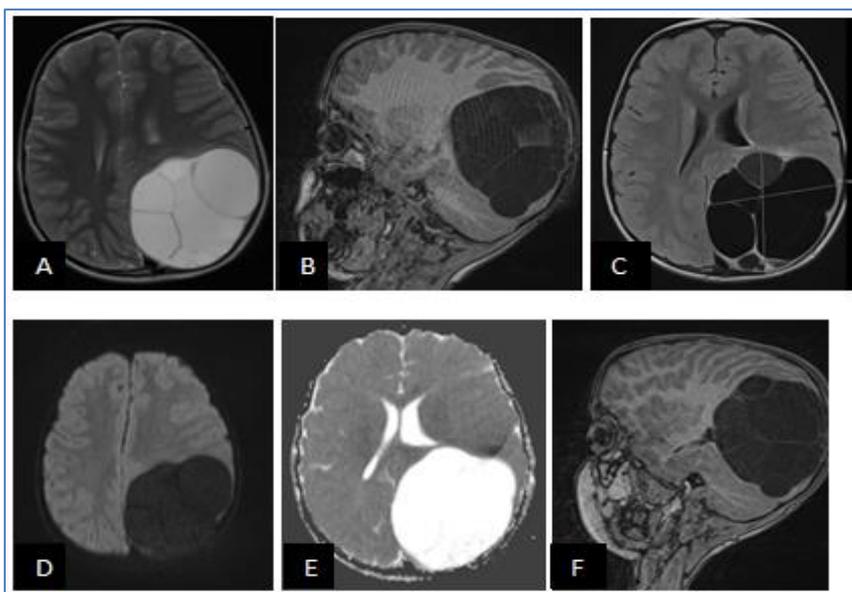


Fig-1: Brain MRI in axial (A, C, D, E) and sagittal (B and F) sections:

Well-limited, multipartitioned left parieto-occipital cystic lesion in T2 hypersignal(A), T1 hyposignal(B), FLAIR (C) and diffusion (D) with high ADC (E).

(F) Axial post contrast T1-weighted image shows lack of contrast enhancement.

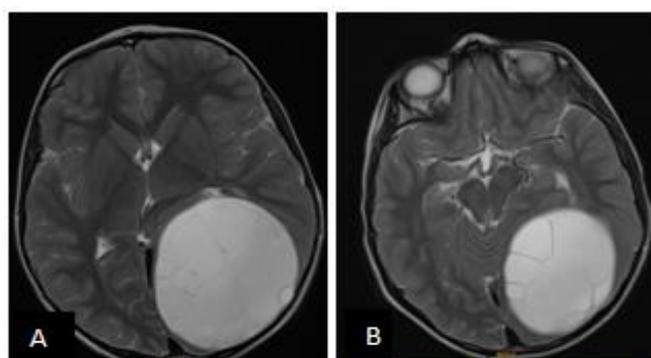


Fig-2: Cerebral MRI in T2 axial section (A and B)

The lesion exerts a mass effect on the adjacent brain parenchyma, on the homolateral lateral ventricle (A) and on the brainstem (B).

The extension workup with abdominal ultrasound and thoracic radiography did not reveal any other hydatid localization.

The diagnosis retained was a solitary cerebral hydatid cyst. The patient underwent neurosurgical intervention by the Arana-Iniguez method for this cyst with good neurological recovery. A follow-up brain scan was ordered showing a left parieto-occipital residual cavity without mass effect (figure-3).

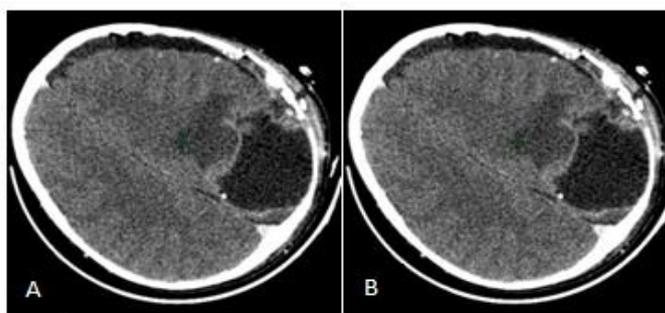


Fig-3: Postoperative cerebral CT axial section without injection (A) and with PDC injection (B)

Left parieto-occipital residual cavity with postoperative hemorrhagic changes. Diffuse pneumocephalus in the left hemisphere associated with a hypodense left subdural hematoma.

DISCUSSION

Hydatid disease is an endemic parasitosis in some traditional cattle-breeding countries such as Morocco [1, 7]. Cerebral localization of hydatid disease is rare, its frequency is estimated at 2% even in countries where hydatidosis is endemic [6], it occurs most often in children and young adults before the age of 15, with a male predominance [2].

Rural origin of infested patients is found in the majority of cases. Cerebral hydatid cysts are often solitary, usually located supra tentorially, sometimes infra tentorially [3]. Multiple locations are rare [6] and are generally the consequence of a spontaneous or peroperative rupture.

The clinical picture is not very specific and associates focal neurological signs and/or signs of intracranial hypertension with visual disorders. Isolated psychiatric manifestations are rare [2, 3].

Physical examination may show increased head circumference in infants, motor deficits, and involvement of the cranial pairs. The fundus often shows papilledema and exceptionally optic atrophy.

The diagnostic means nowadays are represented by cerebral CT and MRI. Cerebral CT is the reference examination [7], it typically visualizes a cystic intraparenchymal mass, round or oval, of variable volume, with well-defined contours and fluid content with the density of cerebrospinal fluid, exerting a mass effect on the medial structures and lateral ventricles without contrast and without peri-lesional edema [8]. Calcifications are extremely rare, less than 1% [9]. The bone deformations encountered in children, such as thinning of the vault and disjunction of the sutures, are the corollary of the surprising tolerance linked to the extensibility of the cranium in children.

Cerebral MRI is essential in the case of a remodelled cyst, better defining the relationship of the lesion with the surrounding structures and allowing the elimination of differential diagnoses such as cystic gliomas, arachnoid cysts, other infectious processes (brain abscess) [6], the cyst wall is thick in these cases with or without contrast [8].

The hydatid cyst is shown on MRI by a formation in hyposignal T1 and FLAIR, in hypersignal T2, in hyposignal diffusion with a low ADC, with a thin wall; without associated peri-lesional oedema, this is the case in 75% of cases [6]. On the other hand, when there is peri-lesional oedema, with wall contrast, the hydatid cyst is said to be complicated, and the problem

of differential diagnosis arises. Cerebral MRI would allow better localization and characterization of the cerebral hydatid cyst than CT.

Other localizations may be associated, particularly hepatic and pulmonary, and should be systematically sought by a thoracic radiography and a pulmonary ultrasound [7].

The biological work-up remains non-specific and hydatid serology is often negative [5]. The only curative treatment is surgical, and is based on the delivery of the cyst while avoiding its rupture in order to avoid the dissemination of the scolex. The most commonly used surgical technique is that described by Arana Iniguez and consists of delivery of the cyst by hydro-dissection using hypertonic saline [6].

Intraoperative complications, which are not specific, may be encountered, such as subdural hematoma, pneumocephalus, intraparenchymal hemorrhage or hydrocephalus [8].

The prognosis is good if the disease is treated early to avoid neurological sequelae such as epilepsy, blindness secondary to the intracranial hypertension syndrome (linked to the delay in diagnosis) and motor deficits [4]. Prophylaxis requires breaking the cycle by treating the dogs and destroying the corpses of infested cattle.

CONCLUSION

The cerebral localization of hydatid cysts is rare and is mainly observed in children in endemic area, the clinical picture is dominated by HTIC associated or not with a associated or not with a deficit syndrome of progressive evolution.

Early preoperative diagnosis is crucial for successful surgery. It has become easier thanks to the advent of imaging techniques, especially CT and MRI.

In the case of any diagnosed cerebral hydatid cyst, surgical treatment is essential in order to avoid complications and neurological sequelae.

Abbreviations

CT: computed tomography

MRI: magnetic resonance imaging

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