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Hydatid Cyst in Sub-Saharan Africa: One Rare Case of Encephalic Localization in The North-East of Benin

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ABSTRACT

The authors report a case of hydatid cerebral cyst discovered in an unusual area and the result of management. It concerned a 23-year-old patient admitted for seizures, confusion and right motor deficit. Brain CT-scan showed left Frontoparietal bilobular cystic lesion. Management was surgical and supplemented with Albendazole*. The postoperative outcome was successful.

Keywords: Seizures, Brain CT-scan, Hydatid cyst

INTRODUCTION

Hydatid cyst or echinococcosis is an anthropozoonosis. The parasite responsible is named *Ecchinococcus granulosis*. The cerebral localization represents 0.5 to 4% of all localizations [1,2]. The clinical manifestations in that case are documented [1,3,4]. The rarely reported encephalic localization in the tropical environment is in contrast to the high frequency observed in the Mediterranean region described as an endemic region [5,6]. The authors describe a case of cerebral hydatid cyst discovered in a patient residing in the extreme north of Benin. The case was treated medico-surgically and the outcome was favorable. Histological analysis allowed the diagnosis to be made.

OBSERVATION

It was a 23-year-old patient who lives in a rural area. He is a schoolteacher and has no medical or surgical history of disease. He was referred for exploration and management of an intracranial hypertension syndrome. The history of his disease reveals an initial appearance dating back several months and characterized by the appearance of generalized and repetitive tonic-clonic seizures.

Medical therapy has been started. No improvement has been observed. Gradually during the two-month period prior to admission, right hemicorporeal motor deficit, altered consciousness with reduced attention and confusion episodes appeared. The examination revealed a patient in good physical condition, a notion of diffuse headache rebellious to analgesics, sporadic vomiting and a decrease in visual acuity. The right motor deficit observed was 3/5. In this clinical situation, a cerebral to modensitometry without **(Figure 1a)** and with injection of contrast agent **(Figure 1b)** was performed.

The brain CT scan revealed a cystic, thin-walled, non-contrast-enhanced, left-frontoparietal bilocular, cystic formation. Additional abdominal ultrasound was performed in the patient to investigate hepatic localization. This ultrasound did not reveal any abdominal localization. The correlation between neurological manifestations and imaging indicated an operative indication. A free bone flap focused on the cyst was performed.

After exposure of the dura mater, a cystic formation containing a translucent collection is observed **(Figure 2)**. Under the effect of cerebral impulses, without any manipulation, two identical fluid formations were ejected one after the other. The postoperative Outcome were simple and no post-operative complications were observed. Post-operative Brain-CT scan was satisfactory **(Figure 1c)**. Histopathological examination of the surgical specimen **(Figure 3)** revealed that it was cerebral hydatidosis, based

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on the presence of the proligerous membrane of the cyst containing protoscolex. This surgical procedure was completed with a medical treatment. It was antiparasitic therapy (Albendazole 800mg daily in two doses) for 6 months. He was followed for a period of 12 months. Seizures and headaches disappeared. A total regression of motor deficit was reported. The patient recovered his job as a teacher and lived a normal life.

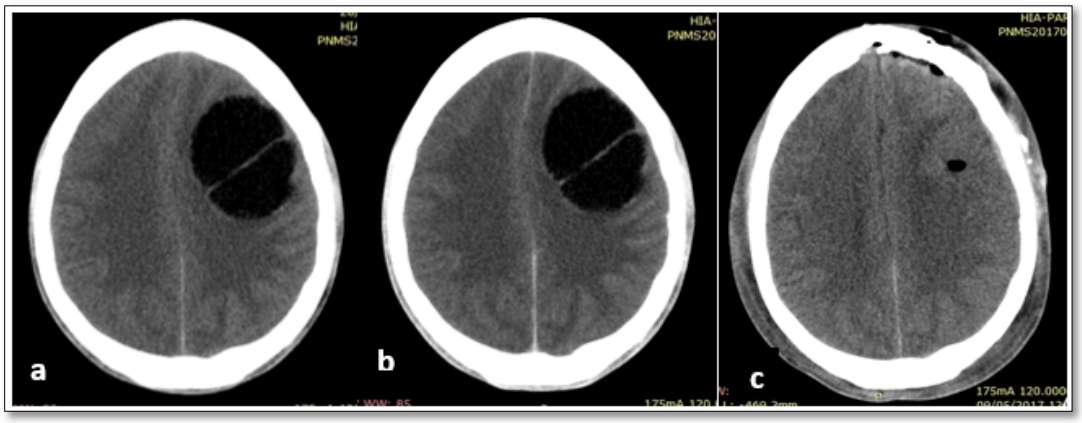

Figure 1. Axial section Brain CT-Scan. a) CT view without contrast agent of the bilobular hydatid cyst in the left frontoparietal region. b) Same cyst after injection of the contrast agent. There is no difference between pictures (a) and (b). Complete and successful removal of the cyst (c).

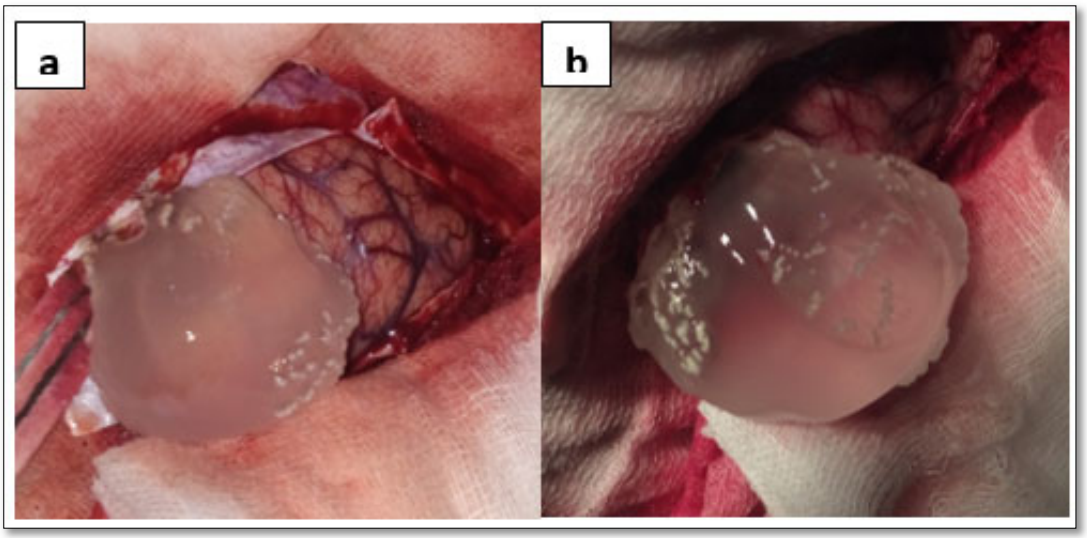

Figure 2. Intra opérative view of the hydatid cyst. (a) After opening of the dura mater (blue arrow), spontaneous expulsion of the first cyst (yellow arrow) is observed followed by expulsion of the second cyst (b, brown arrow). This spontaneous expulsion occurred without any manipulation.

DISCUSSION

Cerebral hydatid cysts are of a particular interest and, according to studies, represent 1 to 3% of intracranial expansive processes [2,4,6]. This parasitosis, described as the cerebral parasitosis par excellence of the Mediterranean, is not known among epileptogenic disease in sub-Saharan Africa. This case revealed in Benin can be considered as an original case in West Africa. Indeed, publications concerning hydatid cerebral hydatid cyst are practically unavailable in West Africa.

Brain imaging has a major contribution to diagnostic suspicion. Brain CT scan is the appropriate investigation for diagnosis and postoperative monitoring [2,3,4,6]. It was the determinative exam in the case reported here. The cyst may be lobular or multilobular. It presents as an intraparenchymal lesion, well limited, usually spherical, with a density similar to that of cerebrospinal fluid, its wall is very fine and is not enhanced by the contrast agent. Frontoparietal location is the most frequently reported. The cyst may be single or multiple and may be located supra- or sub-tentorially [1,7].

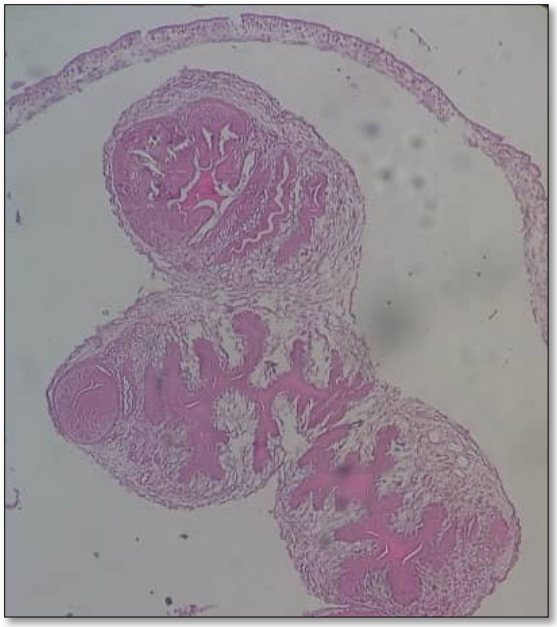

Figure 3. *Echinococcose granulosas:* Hydatid cyst compose of a proligères capsule (black Arrow) and scolex (stars).

The management of hydatid cerebral hydatid cyst is surgical. Among the surgical techniques, hydro pulsion by Arana-Iniguez technique [8] or forced hydrostatic expulsion by Dowling-Orlando technique [9] are the most commonly reported techniques. After the realization of a bone flap focused on the cystic formation and an opening of the dura mater, the Arana-Iniguez technique consists of introducing a flexible probe between the cyst wall and the parenchyma and then injecting hypertonic saline into the probe. A second or even a third probe may be introduced. This results in hydro pulsion and delivery of the cyst.

The Dowling-Orlando technique consisted of a hydrostatic forced expulsion, using hypertonic saline solution introduced around and under the cyst after having clearly identified a plane of separation between the cerebral parenchyma and the cyst wall.

In the case described, no manipulations were necessary; simple brain impulses were sufficient to expel the two thin-walled, translucent cystic formations one after the other. Regardless of the surgical technique or method of removal used, the operative imperative is complete removal without tearing the hydatid cyst. It is mandatory to prevent rupture of the cyst and the spreading of its contents in the cerebral parenchyma. Rupture of the cyst would create a risk of multiple recurrence, meningitis or anaphylactic shock [3,8]. The precision of the surgical procedure and the control of this surgery are the best guarantees to avoid the occurrence of any surgical or iatrogenic complication. Surgical management must be compulsorily supplemented by an antiparasitic medication. Albendazole seems to provide the right therapy [10-13]. It is the molecule indicated to neutralize all possible infected sites while respecting the minimum duration of six months of drug use. In the reported case, the patient was followed up for 12 months. This period offers a good hindsight on the lookout for any recurrence or late complications. Although imaging and macroscopic presentation are very revealing of a hydatid cyst in the brain, histology can be used. In doing so, we have formally established the diagnosis of hydatid cerebral hydatid cyst.

CONCLUSION

Hydatid cyst is a known anthropozoonosis. The cerebral localization, although uncommon, can be found even in non-endemic areas. Brain CT scan should suggest this affection. The respect and the good mastering of the surgical methods of removal are the first guarantee of a good evolution.

ETHICAL CONSIDERATIONS

The authors have no ethical conflicts to disclose.

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