



## Case Report

## Cerebral hydatid cyst during pregnancy: A case report



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## ABSTRACT

This paper presents the case of an 18-year-old woman in the 31st week of pregnancy complaining for 8 months a several episodes of vomiting and headache the neurological examination revealed muscle power was 3/5 on left side. The cerebral MRI revealed an intracranial hydatid cyst. The cyst was surgically removed under general anesthesia and put it on albendazole, the diagnosis has been confirmed by the histopathological examination. The patient gave a healthy baby 1 month later without any incident. No primary focus was found in the lungs, liver, or other organs. Primary cerebral hydatid cyst during pregnancy can be successfully treated by surgical and medical intervention, vomiting in a pregnant woman should be investigated to rule out other differential diagnosis.

## 1. Introduction

Echinococcus granulosus is a parasite living in the intestines of animals like dogs, wolves and coyotes, whereas the larvae cause hydatid cyst disease in humans, cattle, and sheep [1].

The eggs ingested via the gastrointestinal route hatch to form larvae in the small intestine, which penetrate the intestinal wall and blood vessels, and pass to the liver or the lungs, 10% enter the systemic circulation and reach other organs such as the brain. Hydatid cyst is most frequently located in the liver (55–70%) and lungs (15–35%). Primary intracranial cysts are very rare (1.7%), and 75% of patients are children. The incidence of this parasite in the course of pregnancy is in the order of 1/20000–30000 [1]. Here we report a case of hydatid cyst in a pregnant female.

## 1.1. Case report

A 18-year-old female patient in the 31st week of her first pregnancy, right handed, living in a rural region, dog owner, was brought by her husband to our emergency department with the chief complains of severe headache, vomiting, seizure for 8 months and weakness in the left arm and leg 1 month earlier. There is no history suggestive of any mental or physical illness.

At admission, his GCS scores were E4V5M6. Neurological examination revealed muscle power was 3/5 on left side, 5/5 on right side,

hemihypoesthesia, positive left Babinski sign, multiple damage to the cranial nerves (bilateral II, complete III on the right side, VI and VII on the left side) and bilateral papilledema grade II. The obstetrical exam was normal.

The cerebral scan could not be performed due to the pregnancy we opted for cerebral MRI which revealed rounded well limited cyst in Hyposignal T1, Hypersignal T2 without fleshy component, contrast nor edema, this lesion measured 90/70 mm, and was located in the right parietal and occipital parenchyma, causing an important mass effect (Fig. 1).

We thought of a cerebral tumor like pilocytic astrocytoma in front of the duration of evolution and the appearance on MRI but given to the absence of perilesional edema and the epidemiological context (dog breeding and rural living) we suspected a cerebral hydatid cyst, the abdominal ultrasound and chest X-ray did not reveal any other locations.

The intervention was performed by our chief resident under general anesthesia a wide frontoparietal craniotomy was performed and minimum cortectomy because the cyst is flush with the cortex; a flexible probe is inserted between the parenchyma and the cyst to make the hydropulsion according to the Arana-Iniguez technique and hypertonic saline is injected. The cyst was removed without any incident (Fig. 2).

On the follow-up, there was total recovery from the sensory-motor deficiency. The histopathological exam confirmed the diagnosis. The patient was put on Albendazole, and antiepileptic therapy

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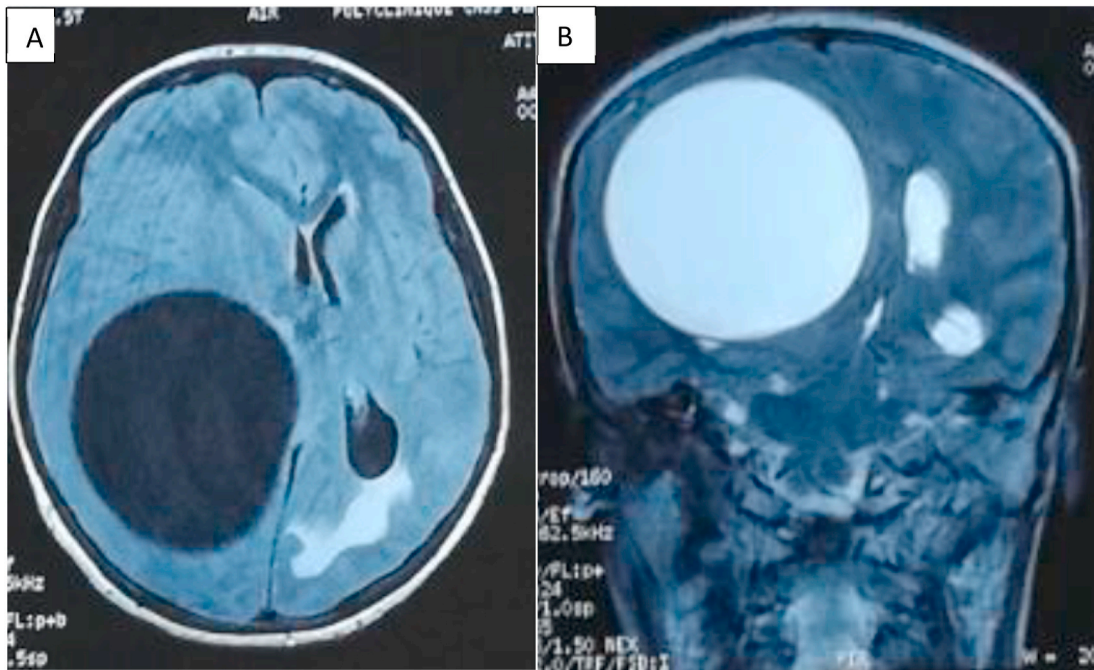


Fig. 1. Brain MRI: Rounded well limited lesion in Hypersignal T2 (B), Hyposignal T1 (A) 90/70mm.

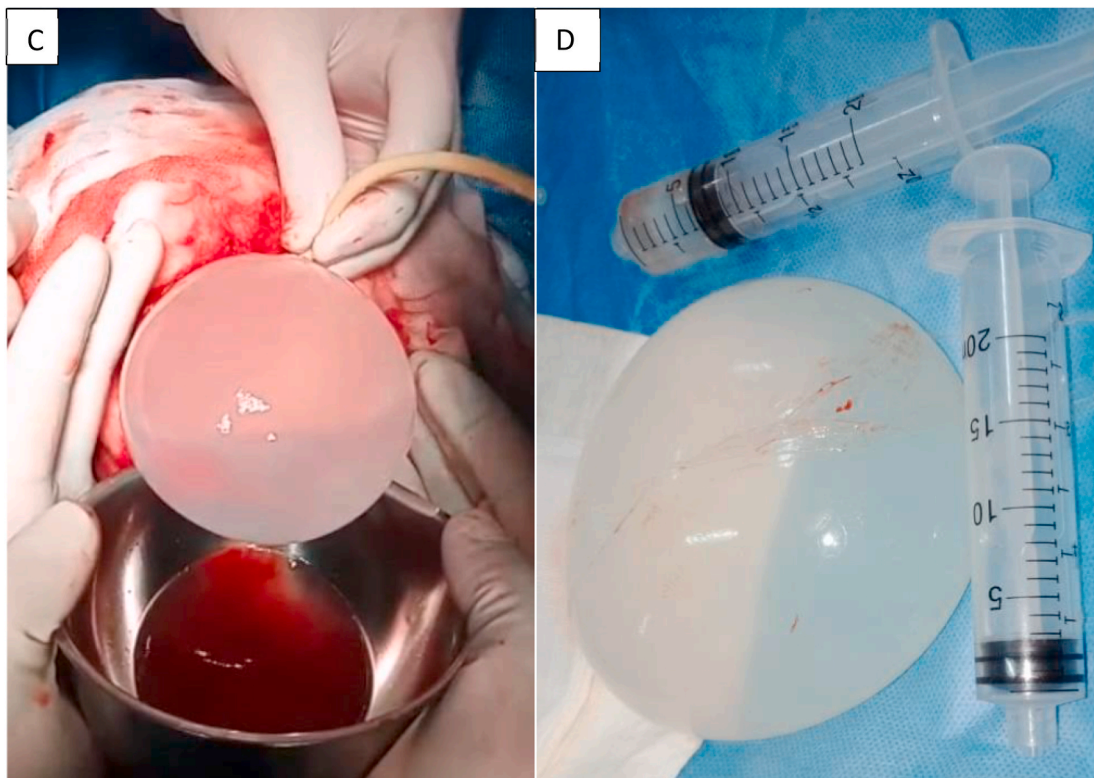


Fig. 2. Peroperative images C: extraction of the cyst, D: after removing the cyst.

(Lamotrigine). She was discharged from the hospital on the 12th day following the intervention and delivered a healthy baby 1 month later without incident.

This case has been reported in line with the 2020 SCARE guidelines [2].

## 2. Discussion

The cerebral hydration cyst, or cerebral hydatidosis, is a parasitic affection of the intracerebral development of the *Echinococcus Granulosus* which the dog is the usual definitive host and the man an accidental host. This location is rare, the clinical presentation is polymorphic, with progressive installation the intracranial pressure

increase syndrome with or without focal neurological signs as for our patient, seizures and visual disturbances being common. The neurological examination is very varied, ranging from asymptomatic to extremely serious state (behavioral disorder, unconsciousness) [1,3].

The cranial CT, show a rounded, well-limited lesion with a homogeneous liquid density without peripheral edema [4,5,6]. If the cyst is infected, the contrast product is retained as a peripheral ring and peripheral edema is present [7,8,9]. Hydatid cyst may be confused with cystic astrocytoma and brain abscess on cranial CT, but can be differentiated by the absence of peripheral edema and mural nodule also absence of contrast product on this one [10]. The visualization of a floating membrane is pathognomonic and calcifications are extremely rare, less than 1% [11].

The MRI is the examination of choice, showing a lesion in hypointense T1, hyper-intense T2 also better at detecting multiple hydatid cerebral cysts and better defines the anatomy of the lesion to the surrounding structures, which helps in surgical planning but the CT scan is superior in the detection of calcifications [11].

The contribution of hydatid serology remains disappointing compared to other localizations. It could be useful for diagnosis and postoperative monitoring but is not very sensitive. The diagnosis is histological and it reveals germinative membrane of the cyst. [11].

The treatment of cerebral hydatid cysts is both medical and surgical. Surgical treatment should be considered whenever possible. The delivery of the cyst by "Arana-Iniguez" technique is performed by a sufficiently large craniotomy, considering the possibility that the cyst wall may adhere to the dura mater, and the latter is incised circularly at a point remote from the dome of the cyst. The thinned cortex is separated from the cyst by irrigation and buffers and a cortical opening made of 3/4 of the diameter of the cyst. A flexible catheter is inserted between the cyst and the brain. Irrigation with hypertonic saline solution through the catheter causes the cyst to float to the surface [1]. Consequently, the cyst descends by gravitational force, with appropriate inclination and liquid irrigation, and can be completely removed. This method is easy to implement and allows the cyst to be removed without rupture and with minimal damage to the cerebral parenchyma. The second possible technique is aspiration puncture; it is less frequently used and is reserved for cysts with a high risk of rupture such as cysts of the fourth ventricle, brain stem and thalamus [11].

Antiparasitic treatment (Albendazole) is systematic at 15 mg/kg/day for 3 months Its use is contraindicated during the 1st quarter of pregnancy [12,13]. The medical treatment which has been used by some teams in cases of recurrent, disseminated hydatidosis, considered inoperable or ruptured intraoperatively, the results of drug treatment of hydatid cysts remain variable depending on the series, with response rates ranging from 43.5 to 80% [11].

The prognosis is good if the diagnosis is made quickly, leading to early treatment to avoid neurological sequelae. Prevention is achieved through controlled culling of sheep [11].

### 3. Conclusion

The hypothesis of an intracranial hypertension syndrome can be dismissed by pregnant women vomiting during pregnancy [1]. The latter must be well studied to look for other elements of this syndrome as well as focal neurological signs. A rigorous etiological investigation must be conducted to find the cause. The treatment of cerebral hydatid cysts is both medical and surgical. Surgical treatment should be considered whenever possible.

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### Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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The authors declare having no conflicts of interest for this article.

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### Author contribution

Othman BENHAYOUNE: writing the paper.

Marouane MAKHCHOUNE: Corresponding author and writing the paper.

Adelhamid JEHRI: study concept.

Mohamed yassine HAOUAS: Correcting the paper.

Abdessamad NAJA: Correcting the paper.

Abdelhakim LAKHDAR: Correcting the paper.

### Guarantor

MAKHCHOUNE MAROUANE.

### Declaration of competing interest

The authors of this article have no conflict or competing interests. All of the authors approved the final version of the manuscript.

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