CLINICAL CASE

A case of hydatid cyst caused by *Echinococcus granulosus* in Puebla, Mexico, that resulted in successful surgical treatment

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KEYWORDS

Hydatid cyst; *Echinococcus granulosus*; Surgery

Abstract  We present herein the case of a 16-year-old female from the southern portion of the State of Puebla, Mexico. When gathering her past medical history, it was revealed that she had grown up with pet dogs and that her family raised sheep. Because the patient presented with few symptoms, a benign lesion was suspected, and after laparoscopic exploration, the possibility of surgical management for a non-parasitic cyst was considered. A dull pain in the right hypochondrium persisted and open surgical exploration was performed in which a 6 cm young, active, uncomplicated hydatid cyst was discovered. Its surgical removal was successful and the pathologist provided the definitive diagnosis. The three layers characteristic of a parasitic cyst were present and it was histologically consistent with *Echinococcus granulosus*. Postoperative progression was unremarkable and the control ultrasound study revealed complete restitution of the hepatic parenchyma.

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PALABRAS CLAVE

Quiste hidatidico; *Echinococcus granulosus*; Cirugía

Resumen  Presentamos el caso de una paciente de 16 años, originaria del sur del estado de Puebla, México. En sus antecedentes destaca la convivencia con mascotas caninas y la cría de ovejas por la familia de la paciente. La escasa sintomatología de la paciente hizo sospechar una lesión benigna. Los estudios practicados que incluyeron una exploración laparoscópica nos
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**Introduction**

The aims of this article were to present the first case in the State of Puebla, according to the Department of Epidemiology of the Mexican Health Department, of hydatid cyst (HC) and to underline its characteristics and current treatment modalities. The present case had the appearance of a simple solitary cyst, but its parasitic nature was suspected during laparotomy and direct examination. Management was surgical, due to persistent symptomatology and the size of the cyst. The present case illustrates how the possibility of parasitic disease must be considered when dealing with a voluminous cyst, even if imaging studies do not reveal enough elements for such a suspicion. During the procedure, a clear fluid was found inside the cyst that was covered by the characteristic whitish membrane.

**Clinical case**

A 16-year-old female had disease onset in January 2011 with mild pain in the right hypochondrium for which her attending physician ordered an ultrasound study. It revealed the presence of a rounded anechoic image of approximately 6 cm in diameter in segment VII of the Couinaud liver segment classification. Upon hospital admittance, her basic laboratory work-up (full blood count, blood chemistry, and coagulation tests) was normal. Eosinophils were reported at 0% and it was not possible to order other tests. The patient underwent laparoscopic exploration on January 27, 2011, during which the cyst could not be visualized because of its posterosuperior location. Two weeks later, with the patient experiencing an intensified dull pain that did not allow her to eat properly, another ultrasound study was ordered along with an abdominal computed axial tomography scan, correctly locating the cyst in segment VIII of the Couinaud classification (Figs. 1A-B).

A right subcostal laparotomy was done at this precise location, to directly puncture the cyst, extracting a clear fluid that was sent to the pathologist. When the upper portion of the capsule was removed, the window created showed that the cyst was different from a simple biliary cyst of the liver because it had a second layer formed by whitish tissue (Fig. 2), completely covering the interior of the cyst. This second layer was removed in its entirety after the rest of the abdomen was isolated using surgical compresses and the cavity of the cyst was impregnated with hypertonic saline solution by means of a compress left inside it for 10 minutes. The procedure was completed with a pedicled greater omentum omentoplasty.

The pathology result of the fluid was negative for malignancy and had traces of proteinoid material. The
surgical specimen had the aspect of a granulous layer of an *Echinococcus granulosus* (EG) cyst (Figs. 3 A-C).

Postoperative progress was unremarkable and the patient was released 24 h after her surgery. She remained under surveillance for one year during which time she was asymptomatic. The same laboratory studies done one month later showed 0% eosinophils and all other parameters were normal.

An ultrasound study carried out 11 months after the procedure showed complete restitution of the hepatic parenchyma that had been affected by the cyst (Fig. 3B).

**Discussion**

Echinococcosis is a cosmopolitan zoonosis and has been reported in Europe, Australia, New Zealand, Asia, Africa, South America, and Canada. Information on it in Mexico is limited and some authors state that the disease in humans is almost non-existent. In the literature consulted, we found cases reported in Durango, Oaxaca, Zacatecas, Nuevo León, Guanajuato, the State of Mexico, and Mexico City. Humans are the accidental hosts and acquire primary cystic hydatidosis through the ingestion of eggs excreted by infested carnivores. The cyst can measure from one to 15 cm or more, and grows at a rate of 1 cm/year. The fluid it contains is generally clear and protoscoleces produced by gemmation are found in the germinal layer. Clinically, the hepatic cyst may remain asymptomatic for years and symptoms depend on its location in the liver. Pain in the right hypochondrium is constant and can radiate to the shoulder and be accompanied by abdominal distension, cholestasis, portal hypertension, biliary cirrhosis, and/or ascites. Symptoms should not be waited for, before suspecting the parasitic nature of a cyst. The characteristic images have been described and the Casoni or Montenegro skin tests are useful, as are the ELISA IgG antibodies against
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**References**