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Case Report

Hepatic Hydatidosis, a Pathology to be Suspected Based on Epidemiology

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Abstract

Hydatosis is a disease caused by the taenia metachlode Echinococcus. The primary phase of the disease is asymptomatic. The right hepatic lobe is affected in 85% of cases. Symptoms occur when the cyst reaches 10 cm in length. Semiology may include hepatomegaly, right upper quadrant pain, nausea, vomiting, biliary colic, jaundice, cholangitis, pancreatitis, portal hypertension, Budd Chiari syndrome. The diagnosis is based on imaging and serological methods, with ultrasound having a sensitivity of 90 to 95%. We present the case of a 64-year-old female patient residing in a rural community in the Ecuadorian highlands who presented with a 2-month history of abdominal pain associated with fever and a general state of health. Imaging studies were performed, ultrasound supplemented with CT and MRI which were inconclusive. Liver biopsy was performed confirming the diagnosis of liver hydatidosis and establishing clinical treatment plus interventionism.

Keywords: Hepatic Hydatidosis; Echinococcus Granulosus; Gharbi Classification; Budd Chiari Syndrome; Parasitic Zoonosis

Introduction

Cystic echinococcosis or hydatidosis is a parasitic zoonosis caused by the Echinococcus granulosus parasite. Their life cycle includes dogs, sheep, and other animals. It has a worldwide distribution and is more prevalent in temperate zones such as Central Asia, China, Australia in some regions, and South America. Risk factors for acquiring it have been proposed: low socioeconomic level, poor health education, rural areas, and relationships with dogs that are in contact with livestock or animal waste [1].

Regarding the life cycle, the adult parasite in the form of a tapeworm inhabits the mucosa of the small intestine of its definitive host (dogs or other canids), from its proglottid eggs are released that are expelled in the feces. The ovoid eggs contain an embryo (oncosphere), the same ones that are infective for the intermediate hosts and for the human being (accidental host) when they are eliminated with the fecal matter of the dog [2].

Clinical Case

A 64-year-old female patient born and residing in Cotacachi (Morocho Community) with no significant personal family or surgical history. He lives in an adobe house, with 1 room for 4 inhabitants, does not have sewage or drinking water, uses a latrine and lives with animals such as dogs, cats and alpacas.

He comes with a picture of 2 years of evolution of pain in the right hypochondrium, of episodic characteristics, moderate intensity, becoming continuous 4 months ago, to this is added unquantified thermal rise, chills, and taking the general state.

The patient was previously hospitalized in Ibarra, where they performed an abdominal ultrasound that reported a space-occupying lesion with a volume of 200 cc. It is managed as a liver abscess with ceftriaxone and metronidazole for 15 days. Due to partial improvement, a CT scan was performed, reporting a cystic mass in segments V, VI, and VII and free fluid in the cavity of 1000 ml. The result does not satisfy, so they perform an MRI that reports a lesion compatible with hepatocellular carcinoma, for which it is referred to Solca. On admission, she was oriented, afebrile, hydrated, pale conjunctivae, soft, depressible abdomen, not painful on deep or superficial palpation, RHA present, no ascites.

In clinical examinations, hemoglobin of 12 g/dl, thrombocytosis (531,000 platelets/ul), preserved renal and hepatic function, negative hepatotropic viral markers, were evidenced. A new liver ultrasound was performed, reporting liver masses probably of neoplastic origin, less likely infectious. It is complemented with a simple and contrasted CT scan of the abdomen, the result of which describes: thick-walled cystic lesions in the liver, some confluent with each other, to consider the possibility of hydatid cysts to be clinically correlated, it is suggested to complete with Casoni's reaction; however, tumor lesion cannot be ruled out, so if the first possibility is ruled out, supplementing with a biopsy is suggested.

Ultrasound-guided biopsia is performed, proceeding to locate dominant cystic image at the hepatic level, obtaining with syringe sample of cystic fluid, which is purulent-thick blood, sent for bacteriological, parasitological study and culture.

The result of the histopathology reports: GRAM: no bacteria, growth: negative, PMN: 30-40/c, parasites: "Echinococcus", red blood cells 60 /c. Note: Several Echinococcus eggs are suspected. With the result of the biopsy we arrived at the diagnosis of hepatic hydatidosis, starting treatment according to the staging of the cyst which was defined as CE 3b according to the classification of the WHO (World Health Organization).

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The histopathological result reports: GRAM: no bacteria, growth: negative, PMN: 30-40/c, parasites: "Echinococcus", red blood cells 60/c. Note: Suspect multiple Echinococcus eggs. With the result of the biopsy, we reached the diagnosis of hepatic hydatidosis, initiating treatment according to the staging of the cyst, which was defined as CE 3b according to the WHO (World Health Organization) classification.

Discussion

Echinococcosis is a zoonotic infection transmitted by dogs. The causative agent is the taenia Echinococcus granulosus. During its life cycle it has two types of host; the primary or definitive (cats, dogs, wolves and foxes) and the secondary or intermediate where the disease occurs (sheep, humans). Millions of eggs are shed in the feces of the primary host and this is consumed by sheep along with the grass and in the water in the case of humans [3].

The most common symptoms of hepatic hydatidosis are pain in the right upper quadrant, a palpable mass, jaundice, and fever. Hydatidosis should be suspected in the presence of a cystic mass in the abdomen, associated with an epidemiological history (site of origin, contact with dogs, family member with hydatidosis). In the case of hepatic hydatidosis, the method of choice for diagnosis is ultrasound, due to its greater specificity and sensitivity. The most common appearance is that of a round, smooth, anechoic cyst, which can be difficult to differentiate from a benign cyst, however, other characteristics can be evidenced such as the membranes of liver cysts, internal septations characteristic of daughter cysts and by changing the position of the patient during the examination, the "hydatid sand" consisting of the hooks and scolexes of the protoscolexes can be identified. Other imaging methods, such as computed tomography or magnetic resonance imaging, have a sensitivity of 90 to 95%, which is used for selected cases and/or doubtful ultrasound [4].

Of the serological methods, ELISA seems to be the most sensitive and specific. In a study comparing 8 serological tests, IgG by ELISA was the most sensitive (94%) and specific (95%) for most cysts of various locations [5]. Defining the stage of the cyst by imaging is vital in determining treatment. The most widely used classifications are that of Gharbi and the WHO. The latter is divided into 5 stages by ultrasound: CE1 and CE2, which are viable cysts, CE3 are cysts in transition and is divided into CE3a, which can be active or inactive, and CE3b, which is considered biologically active. Finally, stages C4 and C5 are considered inactive cysts [6].

WHO	Description	State.
CE1	Anechoic unilocular cystic lesion with visible cystic wall, hydatid grit, and snowflake sign	Active.
CE2	Multivesicular, multiseptate lesion, honeycomb sign, and visible daughter vesicles	Active.
CE3	Unilocular lesion, detachment of the lamellar membrane within the cyst, camalote sign	Transitional.
CE3a	Cyst with separated membranes (water lily sign)	Transitional.
CE3b	Cyst with daughter cysts in solid matrix	Transitional.
CE4	Heterogeneous hypo or hyperechogenic lesion, without daughter vesicles, with degenerative content	Inactive.
CE5	Classification of the cystic wall, total or partial	Inactive.
Taken and adapted from Chilena de Cirugía. Vol. 60 - N° 6, diciembre 2008; pág. 561-566 y Pedro L Moro, Peter F Weller; Elinor L Baron. UPTODATE 2020		

Table 1: WHO classification of echinococcosis.

Guy	Ultrasonic Characteristics
I	Pure liquid collection
II	Liquid collection with membranes separated from the wall
III	Fluid collection with multiple septa and daughter vesicles
IV	Heterogeneous hyperechoic cystic content
In	Cyst with a dense wall, more or less calcified
Taken and adapted from Rev. Chilena de Cirugía. Vol. 60 - N° 6, diciembre 2008; pág. 561-566	

Table 2: Gharbi's classification of hydatid cyst.

In cases where the result of the ultrasound is doubtful, we can use a simple and contrasted CT which has greater sensitivity and specificity as well as helping us in the surgical approach, ruling out migration of the cyst towards the thorax or the biliary tree and helping us in the differential diagnosis of hepatic mass [7]. Among the complications, it is worth mentioning the rupture of the cyst into the bile duct, producing cholangitis with or without obstructive jaundice; when it drains into the abdominal cavity it can cause anaphylaxis and peritoneal dissemination or within the pleural or lungs causing pleural hydatidosis and/or bronchial fistula [3].

Treatment

Treatment options include surgery, percutaneous management, pharmacology, and observation. The modality to choose will depend on the stage according to the WHO. Every effort must be made to avoid spillage of the cyst contents to avoid secondary seeding of infection or anaphylaxis. Stages C1 and C3a with a single compartment and size less than 5 cm should be treated with albendazole and followed up. If this is not possible, PAIR (puncture, aspiration, injection and re-aspiration) can be performed. C1 and C3a with a size greater than 5 cm should be treated with albendazole

plus PAIR. Stages C2 and C3b have many compartments that require individual puncture and relapse with PAIR. For this reason, they require a modified catheterization technique or surgery, together with albendazole [5].

The usual dose of albendazole is 10-15 mg/kg/day orally divided into 2 doses for 3 cycles of 30 days. As a second option, mebendazole can be used at a dose of 40-50 mg/kg/day divided into three doses. The cycles are continued without interruption, except if there is intolerance and/or alteration of the laboratory tests. In this case, the treatment is interrupted for 15 days and the laboratory analyzes are repeated. If the values normalize, the treatment is restarted, if the adverse effects persist, the albendazole is suspended [4].

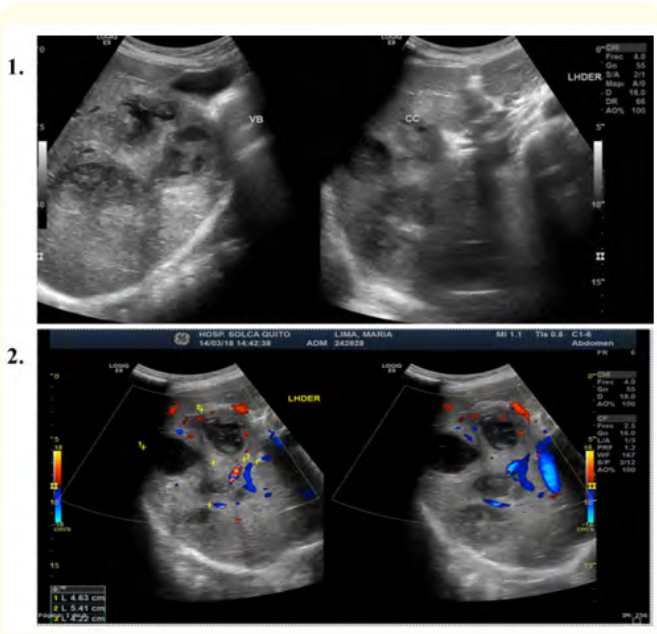

Photo 1: Liver ultrasound: Several lesions are identified complex hepatic cysts with septation and detachment of membranes inside and without increased vascularity when Doppler.

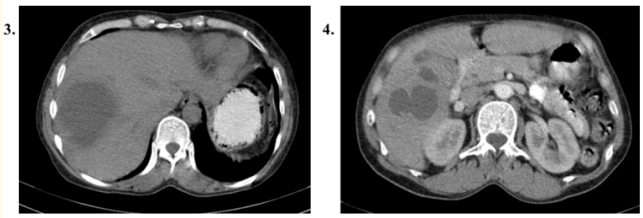

Photo 2: Simple and contrasted CT scan of the abdomen: a multilocular cystic hypodense lesion is evidenced in the right hepatic lobe that does not enhance upon contrast administration.

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