

## Primary Hepatic Hydatid Cysts: Case Reports

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**Abstract:** Particularly common in countries with extensive agriculture and livestock, hydatid cyst is a parasitic disease caused by the cestode *Echinococcus granulosus*, which infects human mostly through dog faeces. Among the genus *Echinococcus*, *Echinococcus granulosus* is the most commonly isolated species from human infections. Hydatid cysts are mostly observed in lungs and livers. In this paper, we presented 4 cases with final histopathological evaluation of hepatic hydatid cysts.

**Keywords:** Hydatid cyst, *Echinococcus granulosus*, parasite, hepatic hydatid cyst.

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### INTRODUCTION

Hepatic hydatid cyst, a condition that is often seen in many endemic regions as well as in our country, is found in a majority of the patients with common symptoms including abdominal pain, nausea, vomiting, and weight loss. There are many types of treatment ranging from medical therapies to laparoscopic interventions.

#### CASE 1

A 45-year-old male patient had abdominal pain seizures lasting for about 5–6 minutes each year. In the past 3 days, he had stinging abdominal pains in the epigastric region, extending towards his back, with a partial relief using analgesics. He was reported to have vomited twice as stomach contents in an amount of about 1 water glass starting from the past 2 days. He has lost 10 kg over the last month. He had fever, accompanied with night sweating. He was admitted to our clinic for further assessment and treatment. The examination revealed tenderness in the epigastric region with laboratory findings including WBC: 15360/μL Eosinophils: 290 K/ μL (1.9%) Hgb: 12.8 g/dL Hct: 38.4% Plt: 215.000/μL, Sedimentation: 90 mm/h CRP: 86, 3 mg/dl, Hydatid Cyst Hemagglutination: (+).

The abdominal ultrasonography showed a consistent pattern with a hydatid cyst sized 7 cm in the left lobe. Intrahepatic bile ducts were found to be minimally dilated.

The abdominal MR imaging revealed cystic lesions without involvement post contrast comprising multiple T2 hypointense septa (daughter vesicles) in capsules with various sizes including 7.5x6.5 cm in the left hepatic lobe, 2x1.5cm in the anterior vicinity of this lesion, 2 cm in segment 5 and 4.5x5 cm in segment 5 and 6, which were all suggestive of hydatid cyst.

#### CASE 2

A 45-year-old male patient was remarkable for Hepatic Hydatid Cyst in a medical center where he had admitted with complaints of abdominal pain about 2 months ago, followed by a surgical operation thereby. The patient had post-operative bile fistula, which was then drained by means of nasobiliary catheters.

The examination was remarkable for tenderness in the upper right quadrant of abdomen with T: 37.3 °C, WBC: 12620/ μL, Eosinophils: 20 K/ μL (0.2%), Hgb: 8.8 g/dL, Hct: 29.2%, and Plt: 479,000/ μL. The spiral computerized tomography examination of upper abdomen that was carried out administering an oral + IV contrast agent revealed a cystic lesion partially comprising septa with smooth borders, which the largest part of about 12x10 cm reached from the dome level through inferior in the liver (suggestive of hydatid cyst). In addition, bilateral pleural effusion was noted, with the right section being more remarkable.

In the postoperative period, the spiral computerized tomography examination administering an oral + IV contrast agent revealed a heterogeneous lesion zone having air in hypodense with the size of about 10.7 cm in the segment 8 of the liver (postoperative change). We also observed a hypodense zone extending in a linear direction in the inferior vicinity of this lesion, and reaching up to 3cm in size (which was considered as collection zone). No cholecyst was found (operated). The size of spleen was found to be enlarged by 15 cm. In thoracic sections of concern, pleural effusion with consolidation zone was observed at the right side.

### CASE 3

A 64-year-old woman patient who admitted to our outpatient clinic with abdominal pain, loss of appetite, and weight loss had pains around the upper right quadrant of abdomen. She had weight loss up to 10 kg over the last 6 months. Her physical examination revealed the fever of 36 C, with tenderness above the upper right quadrant. Laboratory results were remarkable for WBS: 9700/  $\mu$ L, Hb: 10.8 gr/dL, Hct: 30.4%, Plt: 280.000/ $\mu$ L, Eosinophils: 1000 K/  $\mu$ L (10.5%), Sedimentation: 104 mm/h, CRP: 11 mg/dL, and hydatid cyst hemagglutination (+). The hepatic biopsy revealed PAP CLASS III: Alveolar hydatid cyst. Her abdominal ultrasonography revealed a heterogeneous hyperechoic lesion comprising cystic zones sized 13x13 cm extending from the right lobe towards the left lobe in the liver, which was suggestive of hydatid cyst.

### CASE 4

A 50-year-old woman patient admitted to our outpatient clinic with abdominal pain, bloating and weakness. She had been hospitalized to our hospital's general surgery clinic about 10 months ago, with 2 hepatic masses being observed. Biopsy was conducted on the masses, and the patient was informed about the result as having a benign mass. She manifested with complaints of abdominal pain, bloating and nausea 15 days ago. She described her abdominal pain as stinging at the right abdomen extending through the lumbar region, with the severity increasing at nights. Over the last 15 days, she had not been able to eat anything, with nausea and bloating in case of eating. Nausea was accompanied by vomiting. The level of weakness also increased to the extent that she could not afford to perform daily routines. Sometimes, she had fever. Over a 15-day period, she had lost up to 4 kg in weight. She spent most of her day confined to bed. The physical examination revealed the fever of 36.5 C, with tenderness by deep palpation on her upper right quadrant of abdomen, palpable at 2 cm below the level of liver, WBC:10210/ $\mu$ L, Hb:11.3 gr/dL, Hct: 37.3%, Plt: 361000/ $\mu$ L, Eosinophils:1530 K/  $\mu$ L (13.5%) Sedimentation: 82 mm/h, and hydatid cyst hemagglutination: (+).

MR image of the liver shows of multiple solid tumors with central cystic components at the anterior of right lobe and left lobe, 125x90 mm and 90x60 mm, respectively. The central of the mass at the right lobe is hyperintense while periferal is hypointense compared to the background liver on axial T2-weighted image. The masses is hypo-isointense compared to the background liver on axial T1-weighted image and peripheral enhancement of the mass image obtained in the hepatic arterial phase.

Major vascular branches passing through the mass was noted. The first thing that spring to mind was tumoral lesion with high fibrous content by all appearances. Alternatively, the likelihood of alveolar echinococcus was also considered during differential diagnosis. The hepatobiliary USG revealed the size of liver of 122 mm with normal contours. The parenchyma echo was homogenous. There were two hyperechogenic mass lesions with diameters of 84x57mm at the right lobe and 58x57 mm at the left lobe of the liver, which was suggestive of a possible malignity. The hepatic biopsy revealed PAP CLASS: 4, with alveolar hydatid cyst.

### DISCUSSION

Hydatid cyst is a serious public health concern across Central Asia, South America, New Zealand and Australia, particularly the Mediterranean countries [2]. In our country, the incidence of hydatid cyst has been reported to range from 1/2,000 to 2/1,000,000 by various studies. It is about 1% for the patients who admit to surgery clinics. The most common form of hydatid cyst in humans is unilocular echinococcosis, caused by *Echinococcus granulosus* [3].

Unilocular cystic echinococcosis is most commonly located in the liver with an occurrence of 60–70%, particularly in the right lobe with 50 – 70%. The second organ involved is the lungs [4, 5]. Surgery is still the main treatment of hydatid disease. The aim of surgical treatment is to eliminate the scolexes, to remove all the live elements of the cyst and to provide the remaining cavity obliteration. In the treatment of hepatic hydatid disease; many surgical techniques are used ranging from aspiration, drainage and the marsupialisation to the total cyst excision with segmented liver resection [6].

Routine blood tests are usually normal, and eosinophilia is one of the least reliable test, encountered such an immunological response in only 25% of cases. While the indirect agglutination test was positive in 85% of all cases, Casoni skin test was positive only in 90% of patients [2]. The laboratory testing results were consistent with the diagnosis in our cases. Diagnosis is usually made after combining medical history, clinical, laboratory and radiological evaluation. Cysts may remain asymptomatic for a long time. Radiological tests are nonspecific; therefore, the diagnosis is made by

clinical appearance and doubt in many cases [7]. Although not specific for hydatid cysts, ultrasonography and CT findings are still the most valuable analytical methods for diagnosis [8]. The ultrasonographic image of hydatid cyst can be viewed in multilocular, unilocular or calcified appearance, even though it may change with the stage of parasite depending on the reaction of the host [9].

In differential diagnosis, MRI may help contribute to identify specific signal and morphological features of the hydatid cyst [9].

In T 2-weighted imaging, a very low signal intensity in the cyst wall is called 'rim' sign of the pericyst, and the collapse of the cyst membranes are considered pathognomonic findings of hydatid cyst [10].

Surgery is the fundamental treatment. Less invasive methods such as puncture, aspiration, injection and re-aspiration are used particularly in simple cases [11]. Preoperative medical treatment can be considered to reduce cystic tension, to sterilize the cyst, and to prevent leakage and anaphylaxis considered. In order to prevent recurrence, patients receive postoperative albendazole and mebendazole along with adjunctive medical treatment for a period of 3 – 6 months [2].

As can be seen in our case samples; hydatid cyst is a medical condition that should be taken account during pre-diagnosis for patients who live in endemic areas, mainly engaged in animal husbandry, and present with symptoms of weight loss, abdominal pain and nausea.

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