

## CASE REPORT

# Rupture of Hydatid Liver Cyst into Peritoneal Cavity Following Blunt Abdominal Trauma; a Case Report

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## Abstract

Hydatid cyst is a serious parasitic infection in places, which people has a close contact with dogs or sheep. They may be found as an incidental findings during routine clinical examination or even followed by radiographic or ultrasonography evaluation. The disease becomes more complicated if rupture of the cysts occurs due to blunt trauma or spontaneously increases of intra-cystic pressure. Here, we reported a case of hydatid liver cyst that ruptured into the peritoneal cavity after blunt abdominal trauma.

**Key words:** Hydatid cyst; Echinococcosis, Hepatic; wounds, nonpenetrating; rupture; anaphylaxis

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## Introduction:

Hydatid cyst is a serious parasitic infection in places which people has a close contact with dogs or sheep (1). Mehmet Yilmaz and et al. mentioned that these cysts ordinary have a chronic, latent, and asymptomatic course which are developed more frequently in liver (50%–77%) and lungs (18%–35%), while may be formed in other organs. They may be found as an incidental findings during routine clinical examination or even followed by radiographic or ultrasonography (US) evaluation (2). The disease becomes more complicated if rupture of the cysts occurs due to blunt trauma or spontaneously increases of intra-cystic pressure (3-6). Hydatid cysts may be directly ruptured into the peritoneal cavity or via the diaphragm into the pleural cavity. Ruptures can also occur into the hollow viscous or even biliary tract (7). However, hydatid cyst rupture requires proper treatment consists of emergency surgery and also special postoperative care. Here, we reported a case of hydatid liver cyst (HLC) that ruptured into the peritoneal cavity after blunt abdominal trauma.

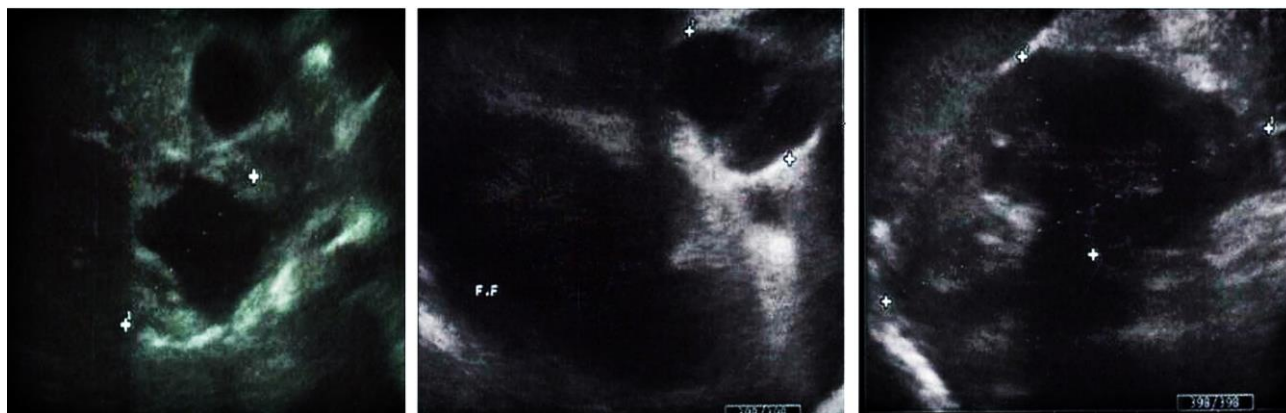
## Case presentation:

A 17-year-old man referred to the emergency department after falling from motorcycle. He also complained from abdominal pain and vomiting. He was admitted just 30 minutes following the accident. His blood pressure was 100/60 mmHg, heart rate of 80 per minute, respiratory rate 23 breath per minute and axillary temperature of 37.2 °C, and oxygen saturation of 96% on room air. On physical examination (PE) only right upper abdominal

pain and rebound tenderness were observed. PE on other organs did not reveal any positive findings. Chest and abdominal X-ray were normal. Initial blood investigation showed leukocytosis (15700/mm<sup>3</sup>) and other indexes were normal. Twenty minutes after admission, a diffuse urticarial rash on the whole body, mainly on his face and trunk, and generalized tenderness were noted.

The patient received oxygen, intravenous fluid (Ringer and Dexter an -saline serum) in addition to intravenous steroids (Hydrocortisone 200mg) and antihistamines (Chlorpheniramine 20mg) as the supportive treatment. Focused abdominal sonography for trauma (FAST) of his abdomen demonstrated on the presence of free fluid noted in all abdominal quadrants, especially in the morison pouch (Figure 1). Also by using ultrasonography a large hyperechogenic area with local cystic (40 mm diameter) in the right lobe of the liver was showed. Based on the above information a diagnostic laparotomy was performed. Laparotomy revealed a ruptured cystic mass within the right lobe of the liver and yellow fluid containing daughter cysts and liver laceration. The cyst was removed by an open right partial hepatectomy, the peritoneal cavity washed out with hypertonic saline, and a tube drain placed in right the sub-hepatic space. He was managed in intensive care unit (ICU) and received oral Albendazole 15mg/kg/day. The drain was detached on the 7th day after operation. He was discharged ten days post-operation with a prescription of Albendazole tablet 15mg/kg/day in divided dose for six months. He was followed up on 6th and 12th months post operation. He





**Figure 1:** Trans-abdominal ultrasound images show a ruptured hydatid cyst.

was kept well and control trans-abdominal ultrasonography demonstrated no recurrences of the disease.

#### Discussion:

Hydatid disease is presented commonly in the liver caused by *Ecchinococcus granulosus*. This disease is endemic in sheep farming areas including the Middle East and some sub-Saharan countries, Western Europe, South and Central America. Hydatid cyst is also endemic in Iran and is responsible for about 1% admission in surgical wards (8). Twenty-four hydatid cyst operations were performed in Babol, Iran, from 1991 to 1996 (9).

In *E. granulosus* life cycle, human is an accidental intermediate host considered as a dead end host. Generally, the disease in most cases remains silent for many years but it becomes problematic when it getting large enough or ruptured. Rupture into the peritoneal cavity can be accompanied by abdominal pain, urticaria, anaphylaxis reaction, and sometimes sudden death (2). Ruptures occur spontaneously or even due to trauma which causes severe clinic presentation. Rupture of a hydatid cyst particularly after blunt abdominal trauma has been rarely reported. Based on our best knowledge, there are a few reports on rupture of hydatid cyst after blunt trauma in Iran. For example, a ruptured hydatid cyst was reported in 23-year-old man who was presented to the emergency unit after blunt trauma to his abdomen. He had abdominal pain, vomiting, and nausea with generalized itching without urticaria rash (10). Hossinian and colleagues reported a giant cardiac hydatid cyst, which ruptured left ventricular free wall in a 24-year-old man admitted to the department of cardiothoracic. He complained of chest pain which started suddenly and became progressively intense during the time in addition to periodic thoracic pains during regular activities in the past 6 months (11). Trans-abdominal ultrasonography is a very sensitive method to demonstrate the hydatid cyst rupture (12). However, primary suspicions of intra-peritoneal ruptured hydatid cyst obtained by clinical manifestation and trans-abdominal ultrasonography was further confirmed by laparotomy.

The main method in the treatment of hydatidosis is surgery classified to radical and non-radical (conservative) methods. Each method has some advantages and disadvantages and there is no information about the most efficient surgical approach in intra-peritoneal perforation of hydatid cysts. But some authors mentioned that conservative methods may have satisfactory results in an emergency situation. However, choosing of a surgical method depends on patient's condition and preference of the surgeon (13).

Recurrence is an important risk in hydatidosis and may occur frequently after treatment of ruptured hydatid cysts; therefore, all patients should be followed-up carefully in postoperative period (4).

Intra-peritoneal rupture of hydatid cysts should be considered in the differential diagnosis of acute abdominal pain with vomiting and urticarial rash in the endemic areas. Clinicians working at the emergency department should be alert regarding the rupture of hydatid cyst in the patients with acute post traumatic peritonitis and its related signs and symptoms.

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