Primary Peritoneal Echinococcosis: An Uncommon Cause Of Acute Abdomen
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Citation

Abstract
Echinococcosis is characterized by worldwide distribution but primary peritoneal echinococcosis especially as a cause of acute abdomen is rare, even in areas where hydatid disease is endemic. The aim of this work is to report a case of primary multiple infected intraperitoneal hydatid cyst as a cause of acute abdomen.

INTRODUCTION
Hydatid disease is most commonly caused by Echinococcus granulosus, in which humans are an intermediate host [1], and is endemic in the Mediterranean region, including Turkey, the Middle East and the Far East [2]. It is situated most frequently in the liver, followed by the lung and unusual localizations (spleen, peritoneum, kidney, muscle, adrenal gland, ovary, pancreas, thyroid gland, pleura, diaphragm, brain and others) [3]. Secondary hydatid disease while unusual [4, 5] is generally multiple location [6]. Anaphylactic shock, cyst infection of the biliary tree and rupture into the peritoneum are the most severe complications. The hydatidosis is a frequent zoonosis in Turkey, but isolated location in peritoneum and their onset as acute abdomen is exceptional. We report an unusual case of primary infected peritoneal hydatid cysts which presenting as acute abdomen.

CASE REPORT
A previously fit and well 24-years-old man was admitted to the emergency department with generalized abdominal pain and distension. The temperature was 39.0˚C, pulse 96 beat per minute and blood pressure was 100/80 mmHg. On physical examination the patient appeared in severe pain. Lungs and heart sounds were normal. The abdomen was distended, and bowel sounds were absent. There was tenderness in all quadrants, with guarding and rebound tenderness. No abnormalities were found on rectal examination. The haematocrit was 45.7 %, Hemoglobin 15.8 g/dl, red blood cells 5.26 10 6 / ml, white blood cell count 21200/ml, and neutrophils were 76.1 %, glucose 122 mg/dl, direct bilirubin 0.42 mg/dl, aspartate aminotransferase (AST) 84 IU/L, alanine aminotransferase (ALT) 69 IU/L, Na 135 mEq/L. The remaining lab tests and urine were normal. The abdominal X-Ray showed no diagnostic features for cysts. Abdominal ultrasound (USG) showed a large multicystic mass that is filling the right abdominal quadrants and pelvis. Similar lesions were also seen among the small intestine and near the inferior pole of the spleen (Figure 1).

Computed tomography (CT) scan of the abdomen revealed large, thick walled multiloculated cystic mass that extends from the right subdiaphragmatic space to the pelvis, which displaced the liver and intestine to the medial direction. Similar lesions were presented adjacent to the inferior pole of the spleen and in the minor pelvis. Liver, spleen, pancreas and both kidneys appeared normal. No free fluid was detected in the peritoneal cavity (Figure 2).

The patient was brought to the operating room in an emergent setting. The patient underwent exploratory laparotomy, and an upper and lower midline incision was performed. There were four isolated hydatid cysts in the peritoneum. The giant ones from the diaphragm to pelvis were secondarily infected. Partial pericystectomy was performed and this cyst was evacuated of its content which was a yellow-colored purulent fluid (Fig.3a, c). Exploratory laparotomy revealed a three separate cystic peritoneal mass of the measured 8x8x10 cm. Total cystectomies were performed and cysts were removed from the abdomen (Figure 3b, d).

The abdominal cavity was washed with 10% povidine-iodine. After a thorough peritoneal lavage, the abdomen was closed with a drain in situ. Immediate and early
postoperative recovery was very satisfactory. After one night spent in the Mardin State Hospital main intensive care unity; the patient was transferred to normal in-ward. He resumed oral diet on the second postoperative day. He was mobilized from the second day and was ambulant on the third. After such an uneventful postoperative course, the patient was discharged on post-operative day 8 and prescribed two 28-day cycles of albendazole therapy.

Histopathology showed fibrose and adipose tissue, chronic inflammatory cells, cuticuler membrane, scolexes and confirmed not only the previous diagnosis of cyst hydatid but also infectious nature of the disease (Figure 4, 5). Follow-up abdominal CT scans showed no local recurrence and the patient is doing fine 1 year after the operation.

**Figure 1**
Figure 1 Sonographic axial image through the right upper quadrant demonstrates a multiloculated cystic mass with thick walls.

**Figure 2**
Figure 2 Axial CT images obtained through hepatic (a), infrasplenic (b), infrahepatic (c) and pelvis major level demonstrated multiloculated hipodens cystic mass with thick walls extending from perihepatic space (a) to the pelvis (d). Also note the presence of an uniloculated cystic lesion (b) at the infrasplenic level and a multiloculated cystic mass (c) at the level of pelvis major.

**Figure 3**
Figure 3 a- Daughter vesicules and giant cyst focus from diafragm to pelvis b- hydatid cysts extracted totally c- germinative membrane extracted totally d- specimens of the cysts extracted totally
DISCUSSION

Hydatid cysts most often affect the liver (68.8%–75.2% of cases) but also affect the lungs (17.2%–22.4%) and, less commonly, muscle, bone, brain and spleen [7]. In addition to the common cysts of the liver and lung, those of the peritoneal cavity are quite frequent [8]. They account for 10% to 16% of cases and are mainly the result of rupture of concomitant liver cysts [9, 10]. On the other hand, the primary variety of the disease, carried to the peritoneal cavity by the arterial circulation, is rare (2%) [11, 12, 2]. Hydatid cysts in the peritoneum and omentum are usually secondary, and the embryos with a diameter of less than 0.3 mm may escape from the liver capillaries to involve any organ via the systemic circulation.

Among Prousalidis’ 540 cases with hydatid disease, those with peritoneal cysts accounted for 5% of cases [5]. In the series with unusual localizations of 49 cyst hydatid cases Enver et al reported 6 patients had hydatid disease of the peritoneal cavity without any concomitant organ involvement [13]. The case presented here is considered to be an isolated primary peritoneal hydatid cyst because, as we reported before, the patient had not a history of or coexistent hydatid disease.

There are no specific local or general symptoms and signs of hydatid disease [14, 15]. Hydatid cysts in humans produce symptoms by two mechanisms: a generalized toxic reaction due to the presence of the parasite itself and local or mechanical symptoms depending on the location of the cyst [16].

The majority of infestations are diagnosed following incidental findings at radiographic examination for unrelated complaints. Direct radiography, eosinophilia, the indirect agglutination test, the complement-fixation test, and the Casoni skin test may be useful for diagnosis, but USG and CT scans are most useful for establishing the diagnosis of hydatid disease. CT is more sensitive than US [17].

The diagnosis and appropriate surgical therapy is usually delayed because most of the hydatid cysts remain asymptomatic until it is getting complicated [7, 18, 19, 20, 21]. In more than 40% of the cases, the complications, among which rupture, secondary infection, compressive syndromes and suppuration are the most common, precede the diagnosis of the disease [19, 22]. In a clinical brief Sanjay Marvah et al described an infected primary intramuscular echinococcosis [23]. In another study, Yılmaz et al reported a case of acute uremia and intestinal
obstruction due to a retroperitoneal hydatid cyst [24]. The complication presented here is the suppuration of primary peritoneal hydatid cyst

Cyst usually grows slowly over many months, and infected people often remain asymptomatic for life. However, up to 5% of infected people die, usually because of secondary infection, rupture of the cyst into adjacent structures, rupture causing anaphylaxis or intraperitoneal dissemination of the disease, and biliary complications such as obstruction or cholangitis [7].

In agreement with others, Prousalidis et al had seen no postoperative mortality or severe morbidity among the cases with peritoneal cysts [5, 25]. The outcome of surgery presented in this case report is good.

The World Health Organization has recently outlined the treatment guidelines for hydatid cysts. Surgery is the treatment of choice for all patients with symptomatic disease and who are fit for surgery [26].

Cholangitis, sepsis, acute abdomen status, intraperitoneal bile leak, extensive inflammatory reaction, and shock as consequence of or associated with rupture (trauma) are all reasons for urgent surgery [27].

CONCLUSION

In conclusion, peritoneal hydatid cysts are rare and may present with signs and symptoms of acute abdomen. Infected primary peritoneal hydatidosis should be kept in mind in the differential diagnosis of acute abdomen and also, hydatid disease should be considered in the differential diagnosis of all cystic masses in the peritoneal cavity, especially when they occur in areas where the disease is endemic. CT scan of the abdomen is the most useful diagnostic tool, and USG is efficient in the differential diagnosis. Surgery is still the most effective therapy for hydatid disease which exists in any location [28, 29].

Total cyst excision should be tried in all cases. When this is not possible because of the location of the cyst and its relationship with the adjacent organs, removals of all germinative membranes and partial pericystectomy with the use of scolocidal agents are the treatments of choice. Additional adjuvant medical therapy is essential to avoid recurrence.

References

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