

# Traumatic Rupture of Isolated Splenic Hydatid Cyst

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## Abstract

A traumatic rupture of isolated splenic hydatid cyst (SHC) has been reported very rarely in the literature. In this article a case of traumatic isolated splenic hydatid cyst rupture treated with emergent surgical intervention is presented.

The patient was brought to emergency department after an automobile accident. After 4 hours, his hemodynamic parameters deteriorated with impending frank peritonitis. Immediate laparotomy was performed due to failed non-operative treatment. The recovery was uneventful and the patient was discharged at 6th postoperative day.

Spleen is one of the most commonly injured solid organs in the abdomen as a result of trauma. SHC is usually solitary, though it is not common even in endemic regions, and multiple organ involvement is common if spleen is involved. In the present case, no other organ was involved besides spleen.

Emergency surgery is the main treatment for ruptured SHC. For relapses, patient should be followed up in post-op period with 4-6 month intervals by abdomen ultrasonography, computerized tomography and indirect haemagglutination.

**Key Words:** trauma, hydatid cyst, splenic

## Introduction

Hydatid cyst can be found in liver for about 50-70% and in lungs for about 20-30%. Localization at other organs is under 10%. Spleen is the third common organ for localization with 0.5-5.8% ratio<sup>1,2,3,4</sup>. Classical agent is Echinococcus Granulosis. Spleen hydatid cyst can become an abscess, make fistulation to adjacent organs or ruptures to peritoneal space<sup>5</sup>. Cyst can rupture after trauma or as a result of increased cyst pressure. Besides, systemic anaphylactic reaction can occur after hydatid cyst rupture to the peritoneal space<sup>6</sup>. Flow of hydatid fluid that includes daughter cysts and scolexes in to the peritoneal space can cause anaphylaxis. Rupture of hydatid cyst needs emergency surgical interference<sup>7</sup>. Rupture of isolated spleen hydatid cyst (SHC) as a result of trauma is very rare on literature. In this article a case of traumatic isolated splenic hydatid cyst rupture who had emergency surgery was presented.

## Case Presentation

Male patient who was brought to emergency service as a result of car accident and his hemodynamic was stable and he had wide sensibility in abdomen. White blood cell was

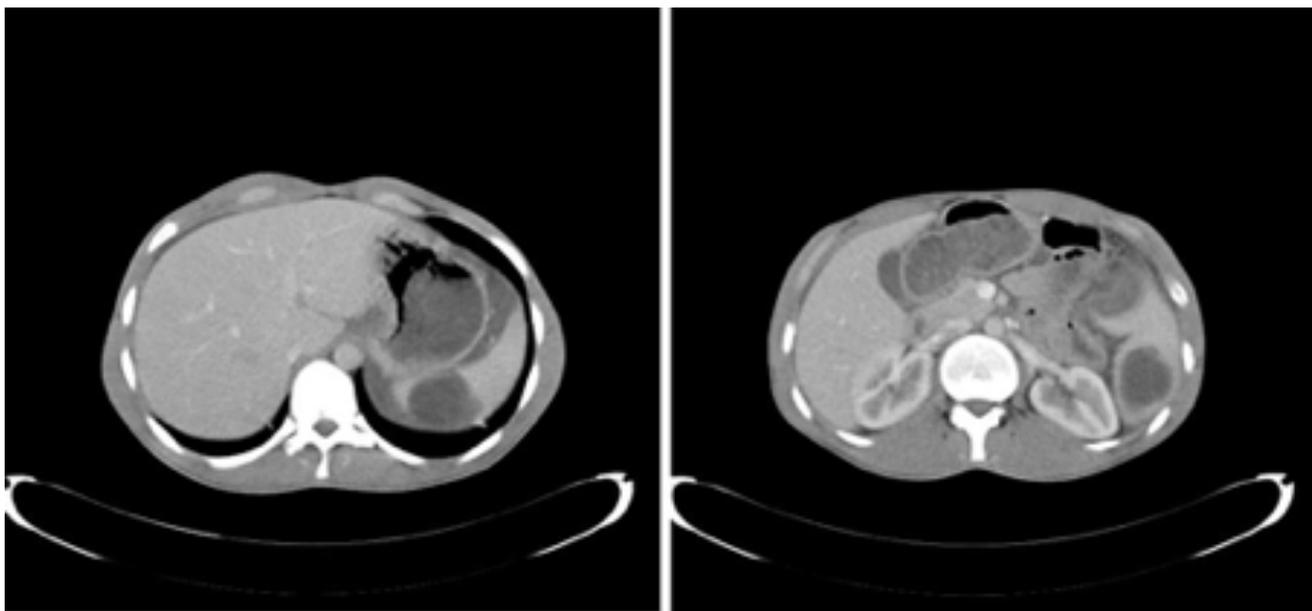
15.200/mm<sup>3</sup>, hemoglobin was 16.4 g/dL, and biochemistry was normal. In Abdomen ultrasonography; wide fluid was found intra-abdominal and laceration areas were monitored at spleen. In abdomen tomography; 8 cm diameter ruptured hydatid cyst at spleen lower pole and free intra-abdominal liquid were detected. (Picture 1). In the follow up, as his hemodynamic was spoiled and acute abdomen findings were occurred; laparotomy was performed in emergency conditions. In the exploration; wide spread dirty fluid in abdomen, 8X10 cm sized cyst hydatid rupture with a protruded germinated membrane at spleen lower pole was monitored. Besides structures compatible with 4X5 cm size cyst at spleen upper pole and 6X7 cm sized posteromedial cysts were detected (Picture 2,3). Daughter vesicle was not detected in abdomen. During splenectomy, diaphragm was hurt while cyst dissection was performing as the cyst was adjacent to the diaphragm. Case had primary diaphragm reparation. At post-op 1st day Albendazole 10 mg/kg/day was started and was resumed for 3 months in order to prevent relapse. Protective vaccination was performed against Streptococcus pneumoniae, Haemophilus influenza type b and Neisseria meningitidis infections. Besides Preventive penicillin was started for 2 years. Postop dyspnea was occurred and after that in thorax tomography pleural effusion and pneumothorax on the left were detected. Tube thoracotomy was performed and after 48 hours his tube was removed and was discharged from hos-

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**Figure 1:** Abdomino-pelvic CT imaging

pital at postop 6th day. Follow-up is as 4 month intervals in the postop first year and 6 month intervals in the postop second year. Abdomen ultrasonography, abdomen computerized tomography and indirect hemagglutination test was used for investigation of any relapses.

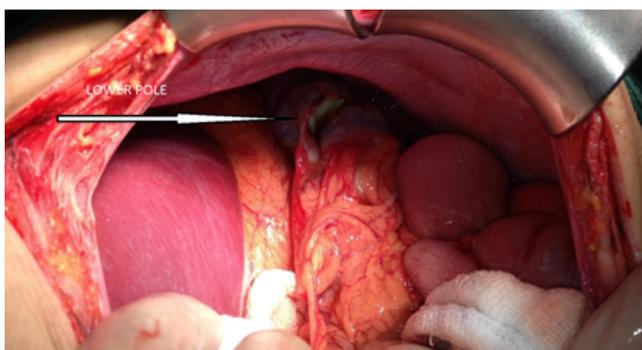
## Discussion

Spleen is one of the most injured solid organs in the abdomen as a result of blunt abdominal trauma. SHC is not a common situation even in endemic regions. Multiple organ involvement is frequent if spleen involvement occurs. SHC is usually solitary. In our case there was not any other organ involvement. In the pathological sections, three separate cysts with sizes 7 cm, 4.5 cm and 2.5 cm respectively consisting of a white colored septate germinated membrane were detected. Parasitic eggs interfere in to the blood circulation without

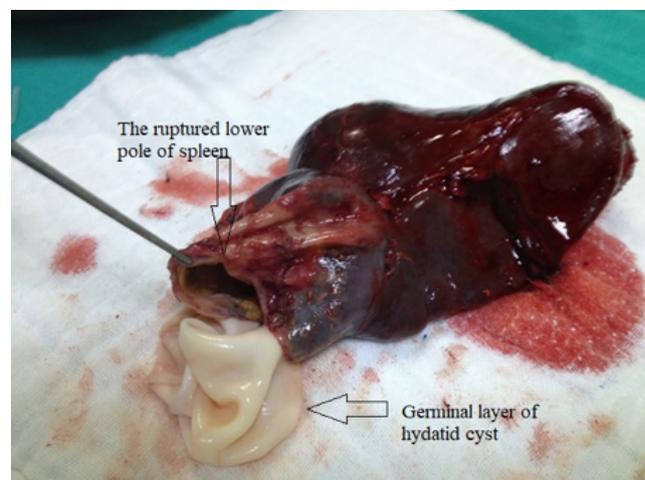
becoming a cyst in liver and they can localize in other organs via blood circulation. When cyst wall ruptures, scolexes or daughter vesicles can migrate through that cyst wall. They can form new cysts in organs nearby like spleen. These new cysts are called secondary echinococcosis<sup>8,9</sup>. The ratio of wide intra-abdominal hydatid disease occurrence after rupture of hydatid cysts as a result of trauma or by themselves is not known. Because all of definitions in medical literature consist of personal case reports.<sup>10</sup>

While SHC is growing, it makes pressure on segmentary vessels of spleen and parenchyma atrophy occurs around cyst. Hydatid cyst can replace all of the spleen parenchyma. Chronic aseptic inflamed reaction around the cyst causes cohesion to the adjacent anatomical structures. Thus fistulas can be formed between cyst and neighborhood organs like stomach, pancreas, left colon, left kidney and lung bronchi.

SHC can be asymptomatic for years without diagnosis. Patients usually suffer from a mild pain at left hypochondri-



**Figure 2:** Intra-operative image of the ruptured isolated splenic hydatid cyst



**Figure 3:** Image after splenectomy

um. The infection of hydatid cyst or rupture into the peritoneum can cause severe pain and acute abdomen. As the rupture of SHC into the peritoneum as a result of trauma in this reported case caused acute abdomen findings and deterioration of hemodynamic findings; emergency laparotomy was performed. As the ruptured cyst was infected; there wasn't any daughter vesicles in abdominal cavity during surgery and systemic anaphylactic reaction did not occur.

Ultrasonography is a non-invasive, sensitive and cost-effective scanning method for localization of hydatid cyst and fluid in the abdomen. Thus it is useful in the diagnosis of hydatid cyst rupture diagnosis. Sensitivity of ultrasonography is reported as 85-90%<sup>10,11,12</sup>. On the other hand sensitivity of computerized tomography is reported as 100%<sup>10,12,13,14</sup>.

Until recently, golden standard treatment method for SHC was splenectomy. In the last 20 years, for decreasing the infections after splenectomy; spleen protective surgery is preferred for appropriate cases. Partial splenectomy is a risky surgery because of the difficulty in bleeding control after cutting the spleen tissue. Total splenectomy can be chosen as a result of the possibility of multiple cysts. Especially if there is a relation between spleen and stomach, colon and diaphragm; total splenectomy should be preferred. Partial splenectomy with omentoplasty can be preferred in cases that have unresectable cysts adjacent to the near structures. We chose total splenectomy because there was multiple cysts and they were related with diaphragm.

## Conclusion

As a result, although rupture of hydatid cyst in to the abdomen is a rare situation; it is a very tough condition. In endemic regions, this pathology should be added in to the differential diagnosis of acute abdomen. Computerized tomography should be used for diagnosis. Emergency surgery is the main treatment for rupture of SHC. Medical treatment should be given after surgery. For relapses, patient should be followed up in post-op period with 4-6 month intervals by abdomen ultrasonography, computerized tomography and indirect hemagglutination.

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