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Case Report

Simultaneous Traumatic Rupture of the Spleen and an Intraparenchymal Echinococcal Cyst: A Rare Clinical Emergency Outside an Endemic Region

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Abstract

We report a rare case of a 48-year-old male who sustained a traumatic splenic rupture with simultaneous rupture of an intraparenchymal echinococcal cyst following a fall. Emergency splenectomy confirmed cystic echinococcosis. Postoperative antiparasitic therapy was initiated. This is, to our knowledge, the first reported case of traumatic splenic echinococcal cyst rupture from Germany, a non-endemic region. Our findings are discussed in light of current international literature on splenic hydatidosis.

Keywords: Cystic Echinococcosis; Splenic Rupture; Trauma; Splenectomy; Albendazole; Zoonosis.

Case Presentation

A 48-year-old male electrician fell approximately 3 to 4 meters from a ladder while working. He was conscious, hemodynamically stable, and presented to the emergency department of our Level I trauma center. Clinical examination revealed slight tenderness on the left wrist, the left upper abdominal quadrant and contusions to the left parietal skull. There was no external bleeding or signs of other major trauma.

Initial focused abdominal sonography (FAST) demonstrated perisplenic fluid and a calcified lesion within the splenic parenchyma. A contrast-enhanced computed tomography (CT) scan of the abdomen, performed according to polytrauma protocol, revealed a complete splenic laceration with extensive hemoperitoneum and displacement of the left kidney. A large, calcified, perforated cyst was identified in the caudal pole of the spleen.

Diagnosis

Traumatic splenic rupture in association with rupture of a calcified intraparenchymal echinococcal cyst.

Therapy and Clinical Course

The patient underwent immediate exploratory laparotomy. Due to the severity of the splenic injury, a total splenectomy was performed without intraoperative complications. The excised spleen, including the cystic lesion, was sent for histopathological examination, which confirmed the diagnosis of cystic echinococcosis.

Postoperatively, the patient required transfusion of two units of red blood cell concentrate and two units of fresh frozen plasma. He was extubated within three hours post-surgery and transferred to the general trauma ward on postoperative day one. Since the diagnosis was unexpected, no specific laboratory tests for echinococcosis were performed.

Antiparasitic treatment with albendazole 400 mg orally twice daily was initiated and continued for four weeks. On postoperative day

four, the patient received pneumococcal vaccination as part of the post splenectomy protocol. One year after the event, the patient showed no signs of recurrence.

An incidental finding of a non-displaced distal radius fracture (AO type 2R3 B1.1) was managed conservatively. The patient was discharged in good general condition on postoperative day seven. In this context, the case was reported to the German Institute for Infectious Diseases (Robert Koch Institute) (Figures 1&2).

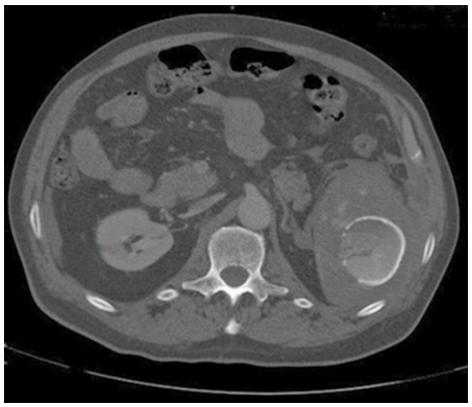

Figure 1: CT scan showing splenic laceration with intra-abdominal hemorrhage and ruptured hydatid cyst.

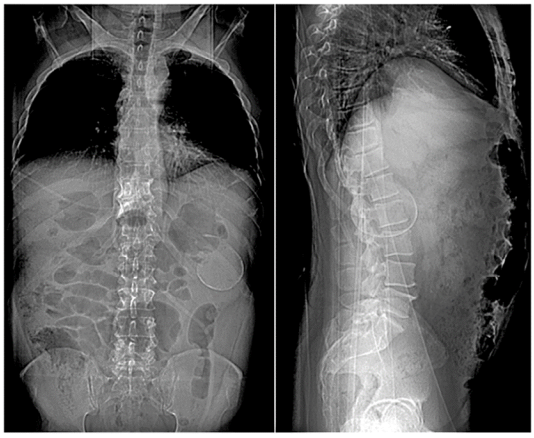

Figure 2: CT scout image depicting a calcified, cystic structure in the spleen.

Discussion

Hydatid disease, caused by Echinococcus granulosus, commonly affects liver and lungs. Splenic involvement is rare (0.5–4%) and may remain asymptomatic for years due to slow cyst growth. Two large-center reviews, one by Meimarakis from Bavaria, Germany and the other by Sharma from Udaipur, India [1], reported splenic hydatidosis in 2–5% of their elective surgical echinococcosis cases, often diagnosed incidentally during imaging for unrelated symptoms. Complications include rupture, infection, fistulae (e.g. to colon or pleura), and rarely anaphylaxis. Rupture, whether spontaneous or traumatic, is potentially life-threatening, with cases reported from endemic countries such as India [2], Lebanon [3], Tunisia [4], and Turkey [5,6].

In endemic regions, imaging and serology are often used in diagnosis [7], but in acute trauma settings these tools may be limited [8]. CT and ultrasound remain gold standards for detecting complex cyst morphology (e.g., daughter cysts, calcified walls). This case illustrates how trauma may unmask an otherwise occult hydatid cyst, leading to emergent presentation. Similar cases of traumatic rupture have been reported by Teke [6] and Lakis [3], but this is the first documented case at a Level I Trauma Center in Germany, a country outside of the endemic area. In this context, tourism to endemic areas may result in a delayed manifestation of echinococcosis.

Surgical management ranges from cyst deroofing to total splenectomy [9-14]. For large or central cysts, total splenectomy is recommended to prevent recurrence or complications. In this case, total splenectomy was performed, followed by albendazole therapy. The role of antiparasitic treatment postoperatively is well supported in literature to prevent systemic dissemination or recurrence [1,6].

Conclusion

This case underscores that even in non-endemic areas, echinococcosis should be considered in differential diagnosis of splenic cystic lesions, especially post-trauma. Rapid imaging, immediate surgical intervention, and antiparasitic therapy form the cornerstone of successful management. This report adds valuable clinical data to the sparse literature on traumatic rupture of splenic hydatid cysts in Central Europe.

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