

Anaphylactic Shock Caused by Nonruptured Hydatid Cyst of the Liver

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Abstract Anaphylactic reaction is a known complication of cystic hydatid disease, a parasitic infestation caused by the larval/cyst stage of *Echinococcus granulosus* that usually happens after trauma or during interventions. Nontraumatic leakage of cyst contents into the blood circulation is an uncommon triggering factor for anaphylaxis, which is rarely reported in available literatures. We describe anaphylaxis in a 47-year-old lady who was admitted for evacuation of hydatid cyst of the liver. Unfortunately, she developed signs and symptoms of anaphylaxis in the ward while waiting for her operation. However, the condition was controlled immediately, and she was taken to the operating theater for surgery. As she had not sustained any trauma in the ward and operative exploration did not reveal any macroscopic rupture, we assumed that her problem must have been caused by nontraumatic spillage of cyst material into circulation. Although the condition is not common, one should bear in mind the possibility of such diagnosis in all patients with *Echinococcus* infection who develop shock especially in areas where this infestation is endemic.

Keywords Hydatid liver cyst · Anaphylactic shock · Nonruptured

Introduction

Hydatid disease or Echinococcosis is a systemic zoonosis caused by the larval stage of the *Echinococcus* tapeworm. At present, it remains endemic to many parts of the world, most notably because of the close contact between sheep, dogs, and humans.^{1–6} Humans may become intermediate hosts through exposure to a definitive host,

sheep, or dog, or ingestion of contaminated water or vegetables. Hydatid disease can involve almost every organ of the body.^{1,2,4–6}

Classically, an intact hydatid cyst is classified as simple or typical cyst. On the other hand, a perforated cyst, with or without superinfection, is described as complicated or atypical cyst, if it had ruptured into the neighboring cavity, either spontaneously or iatrogenically.⁷ Anaphylactic shock is a rare complication of hydatid cyst, which usually occurs after trauma. Familiarity with the atypical clinical presentation of Echinococcosis is very important to prevent both misdiagnosis and improper therapeutic interventions in these cases.¹

We present a patient with hydatid cyst of the liver who developed an anaphylactic shock without known abdominal trauma.

Case Report

A 46-year-old Iranian woman was admitted to the surgical department with diagnosis of two very large hydatid cysts of the liver (Fig. 1). Twenty-four hours after admission, she

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Figure 1 Abdominal CT scan of the liver showing two intact large hydatid cysts with no intraperitoneal fluid.

suddenly developed pruritus, dyspnea, cough, vomiting, and dizziness associated with generalized urticaria, wheeze, and cyanotic lips. Her blood pressure dropped to 85/55 mmHg and pulse rate increased to 133/min. Hydration, hydrocortisone, and antihistamines were used to treat the possible anaphylactic reaction/shock. At the operating theater, two large intact hydatid cysts (Fig. 2) were found in the right and left lobes of the liver with no free fluid in the peritoneal cavity. After closed evacuation, cysts were unroofed and marsupialized with running interlocking sutures. The small visible bile ducts were tied off and homeostasis was achieved. The abdominal wall was closed after leaving a closed suction drain in place. The patient had no postoperative complication but bile leak through the drain, which stopped gradually in 2 months time. No recurrence was detected after 12 months follow-up.

Discussion

Anaphylactic reaction to hydatid cyst usually occurs after microscopic or macroscopic rupture of cyst and leakage of contents into the peritoneum or blood circulation. The hydatid cyst of the liver has three layers: the outer layer is a dense fibrous tissue; the middle laminated membrane is an acellular layer, which allows the passage of nutrients; and the inner germinal layer consists the scolices, which is the larval stage of the parasite.⁷ The outer layer is called pericyst, and the combination of middle laminated membrane and the germinal layer are known as the endocyst.⁸ Hydatid cyst has a high pressure inside and

contains clear or pale yellow fluid with strong antigenic effects.⁸ Rupture into the abdominal cavity is a rare but serious complication, which may occur spontaneously or after trauma.^{9,10}

In the presence of any rupture or leakage, an allergic reaction is evoked because of the spillage of the allergic contents of the cyst into the surrounding tissues.^{7,11} The response can be from a mild hypersensitivity reaction to a fatal anaphylactic shock. In this patient, the cystic walls were intact, and we believe that high intracystic pressure must have been the cause of leakage of cystic fluid into the circulation. After reviewing literatures, we could hardly find few reports of anaphylactic reaction/shock to hydatid cyst with no apparent macroscopic rupture.¹² Although this condition is not common, it should be considered as one of the differentials in every patient with hydatid disease who develops shock state with no other obvious causes.^{12,13}

Conclusion

Rupture or leakage of echinococcal cysts are not predictable and can happen with no trauma or intervention. Anaphylactic reaction in a patient from an area where *Echinococcus* is endemic might be a result of undiagnosed hydatid cyst, which should be evacuated after early resuscitation. Increased awareness of this possibility in these areas is encouraged.



Figure 2 Operative photograph showing evacuated daughter cysts of the hydatid cysts.

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