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AN UNUSUAL CASE OF ANAPHYLAXIS AFTER BLUNT ABDOMINAL TRAUMA

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Abstract—Background: Due to current human migratory patterns, emergency physicians in developed countries are facing emergent clinical presentations of neglected tropical diseases with increasing frequency. In those situations, the clinician’s diagnosis is often delayed due to a lack of familiarity with the disease. **Case Report:** We present the case of a 25-year-old Peruvian man who presented to the Emergency Department complaining of dyspnea and abdominal pain after upper abdominal trauma. His physical examination revealed mouth and eyelid edema in association with epigastric pain. An abdominal computed tomography scan revealed a liver hydatid cyst. Emergent surgical evacuation of the cyst was required to control the anaphylactic reaction. **Why Should an Emergency Physician Be Aware of This?:** Anaphylaxis in the setting of a complicated hydatid cyst is a life-threatening disease. Critical care management and emergent surgical evacuation of the cyst are indicated. © 2016 Elsevier Inc.

Keywords—anaphylaxis; complicated hydatid cyst; echinococcosis

INTRODUCTION

Human echinococcosis is a neglected tropical zoonotic infection [(1), p 107–12]. The annual incidence of this disease can range from < 1 to 200 per 100,000 inhabitants

in various endemic areas around the world (2). Although most of these cases are reported in developing countries, sporadic cases affecting immigrants and recent travelers are being reported with increasing frequency in developed countries.

We report the case of a patient with human echinococcosis (liver hydatid cyst) presenting with anaphylaxis after experiencing blunt abdominal trauma.

CASE REPORT

After being involved in a street fight, a 25-year-old Peruvian man presented to the Emergency Department (ED) of a local hospital in Cusco, Peru with 30 min of acute-onset dyspnea and severe abdominal pain. He had been kicked in his upper abdomen just prior to the onset of his symptoms. The patient denied history of asthma, recent ingestions, exposure to medications, or any other trauma. His physical examination revealed tachypnea and tachycardia. His blood pressure and temperature were both normal. The patient was in moderate respiratory distress. Eyelid and lip swelling were noted (Figure 1A). His lung auscultation was unremarkable except for a prolonged expiratory phase without wheezing or stridor. His abdominal examination revealed tenderness on palpation of his right upper quadrant with no peritoneal signs. The rest of his physical examination



Figure 1. (A) Swollen eyelids, mouth, and lips were noted on initial presentation. (B) A bedside abdominal ultrasound revealed a multi-loculated cystic lesion within the liver parenchyma. There was no evidence of free fluid in the abdominal cavity. (C) An abdominal computed tomography revealed a thick-walled, multi-loculated cystic lesion over the liver segments II and III. There is no radiographic evidence of cyst rupture. (D) Emergent surgical intervention with successful removal of a complicated hydatid cyst.

was unrevealing. Laboratory work and chest x-ray study were performed and were unremarkable. Bedside ultrasonography performed by the emergency physician revealed a cystic lesion within the liver parenchyma (Figure 1B). Abdominal computed tomography revealed a thick-walled, multi-loculated cystic lesion over liver segments II and III. The lesion was reported as concerning for liver hydatidosis (Figure 1C). The patient was diagnosed with anaphylaxis secondary to a complicated liver hydatid cyst. The patient underwent immediate emergent surgery with successful removal of a complicated hydatid cyst (Figure 1D). Prior to going to the operating room, the patient received one dose of intravenous hydrocortisone and one dose of a histamine blocker.

Serologic analysis (enzyme-linked immunosorbent immunoglobulin G assay) for *Echinococcus granulosus* was positive (1/256).

During the immediate postoperative period, the patient was started on albendazole (10 mg/kg/day) for

4 months. One year after his initial presentation, there was no clinical or radiographic evidence of disease.

DISCUSSION

Human echinococcosis is a neglected global zoonotic infection (1). It is caused by the larval stages of cestodes of the genus *Echinococcus*. *Echinococcus granulosus* is the most frequent species infecting humans (2).

The adult stage of *Echinococcus granulosus* resides in the small bowel of carnivores and canids. The gravid adult parasite releases eggs that are passed in the feces. Humans get infected after ingestion of contaminated food. Once ingested, the egg hatches in the small bowel and releases an immature stage of the parasite that penetrates the intestinal wall and migrates through the circulatory system into various organs. In these organs, the larval parasite develops into a cyst (2). In humans, 50–75% of these cysts occur in the liver (3). Cystic hydatidosis is an important public health problem in South America,

the Middle East, and the Eastern Mediterranean. In the Peruvian Andes, the incidence is about 14 to 34 per 100,000 habitants, and the prevalence is 9.1% (4,5). In developed countries, most of the reported cases occur among immigrants from endemic areas (6). Patients infected with echinococcal organisms are usually asymptomatic, but 5–40% could have complications on initial presentation (7). The clinical presentation of complicated cases will depend on the cyst location, size, and its relation to adjacent organs. Patients experiencing complicated hydatidosis can present with abdominal pain, fever, abdominal mass, jaundice, and anaphylactic reactions (4.9%) (8). A hydatid cyst rupturing into the peritoneal cavity (1–16%) represents the most life-threatening complication described. Hepatic cyst rupture or cyst content leakage can present with abdominal pain, urticaria, anaphylaxis, or sudden death (3,7).

Despite most of the reported cases of anaphylaxis secondary to a hydatid cyst rupture being associated with surgical complications of cyst removal, it is important to mention that patients with liver hydatidosis can develop anaphylaxis in the setting of spontaneous cyst rupture or after abdominal trauma (9). Anaphylaxis in the setting of a complicated hydatid cyst carries a high mortality of up to 23.5% (10).

Being familiar with this potential complication of human hydatidosis is the most important factor required for an early diagnosis. Abdominal ultrasound is a non-invasive, sensitive, and cost-effective diagnostic tool currently available in most EDs (11). Classic findings on ultrasonography suggesting cyst rupture include the detection of the thick-walled, multi-loculated cyst in association with free intraperitoneal fluid (3). Computed tomography has a sensitivity of 100% in demonstrating a ruptured hydatid cyst and may provide more accurate information (11). It is important to recognize that minor trauma or leakage of the cyst content into the pericapsular vasculature can trigger an anaphylactic reaction without gross clinical or radiographic evidence of rupture (12).

Radical surgical pericystectomy is the treatment of choice for complicated cysts. The most frequent indications for emergent surgery are spontaneous cyst rupture, traumatic rupture, and infected cysts (13,14).

Albendazole, a benzimidazole, is the anthelmintic of choice for inoperable patients with liver cysts. It is also indicated for the prevention of dissemination after spontaneous, traumatic, or iatrogenic cyst rupture (14,15). Previous data suggest that perioperative benzimidazoles decrease the risk of secondary echinococcus cysts in the peritoneal cavity (14). Despite controversy on the length of treatment in this scenario, most experts recommend treating with albendazole for 3 to 6 months after the surgery (16–18).

Intensive care unit monitoring is recommended prior to and after surgical evacuation of the cyst content due to the high risk for decompensation (19,20). Rupture of a complicated hydatid cyst is an important entity for emergency physicians to keep in the differential diagnosis for patients presenting with anaphylaxis after blunt abdominal trauma, especially when the patient is an immigrant from an endemic area (21).

WHY SHOULD AN EMERGENCY PHYSICIAN BE AWARE OF THIS?

An anaphylactic reaction in the setting of a complicated hydatid cyst represents a combined medical and surgical emergency. An early diagnosis and prompt surgical intervention represent key aspects of the emergent management of this disease. Considering current human migratory patterns, emergency physicians in developed countries should be familiar with this neglected disease and its acute complications.

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