Anaphylaxis Due To A Spontaneously Ruptured Hydatid Cyst:A Case Report

S Devrim, M Gura, E Koltka, S Yuzer

Citation

S Devrim, M Gura, E Koltka, S Yuzer. *Anaphylaxis Due To A Spontaneously Ruptured Hydatid Cyst:A Case Report*. The Internet Journal of Anesthesiology. 2010 Volume 28 Number 1.

Abstract

Spontaneous rupture of liver hydatid cyst causes an acute abdomen and leakage of a cyst contents into the blood circulation is a triggering factor for anaphylaxis. Abdominal ultrasonography and computed tomography are the first-line imaging studies in cases of suspected rupture of hydatid cyst. Urgent treatment should be initiated, relying first on emergency management of anaphylactic shock and later on surgical treatment of the cysts.We report a case of a anaphylaxis due to a spontaneously ruptured hydatid cyst

INTRODUCTION

Hydatid disease is a parasitic infection caused by Echinococcus granulosus characterised by cyst formation in any organ, although the liver is the most commonly involved. Up to one third of patients with hepatic hydatid disease present with complications such as rupture (into the biliary tree, thorax or peritoneum), secondary infection, anaphylactic shock, sepsis and liver replacement. Anaphylactic reactions, which sometimes are the first manifestations of the disease, including urticaria, edema, respiratory symptoms, and anaphylactic shock due to spontaneous or provoked rupture of the parasitic cyst. However, neurological symptoms such as fokal deficits and seizures are observed in patients with brain hydatid cysts. Furthermore , these symptoms could be related to decrease cerebral blood flow secondary to transient anaphylaxis[1].

Computerized tomography and ultrasonography were the main diagnostic methods with 100% and 85% sensitivity in identifying hydatid cyst rupture [2,3].

Urgent treatment should be initiated, relying first on emergency management of anaphylactic shock and later on surgical treatment of the cysts.

CASE REPORT

A 26-year-old man was admitted to the another hospital emergency service with the complaint of abdominal pain accompanied by vomitting and dyspnea. For a while he was unconcious. The pain was not associated with trauma, started suddenly, and was located in the right side of abdomen. He was transfered to our hospital's emergency department, thinking of epilepsy. At that time he was concious, only complaining of minör abdominal tenderness. The only physical finding was tenderness in all quadrants. Brain, thorax and abdominal computed tomography (CT) were performed and interpreted as normal except abdominal CT. The abdominal CT examination suggest the perforation of two Echinococcal cyst situated in the subcapsular area of the posterior and anterior lobes of right hepatic. Cyst diameters ranged between 4 to 8 cm. The patient underwent emergency surgery due to intraperitoneal rupture. At that time, he had been in shock; he was rapidly intubated. His blood pressure droped to 80/50 mmHg, heart rate 135 beats min, respiratory rate 15 bpm. Resuscitation was started with epinephrine (10mcg), methylprednisolone (500 mg). Rapid fluid loading with crystalloid and colloid by central venous cateter were insufficient alone to restore BP and dopamine infüsion (6 $\mu g \bullet kg^{-1} \bullet min^{-1}$) and 20 mcg epinephrine were administered. The situation progresively improved with continuing fluid loading (total fluid loading:70 $ml.kg^{-1}$), administering epinephrine and metilprednisolone. Anesthesia was induced by 1.5$mg.kg^{-1}$ ketamine, 0.5 $mcg.kg^{-1}$ rocuronium bromide. Sevoflurane 0.25-0.4 % in 50% O2 and 50% air was used for maintenance of anesthesia. Initial blood tests revealed creatinine 1.4 mg/dl, blood glucose 129 mg/dl, sodium 148 mEq/L, potassium 2.9 mEq/L, aspartate aminotransferase 95 IU/L, alanine aminotransferase 108 IU/L, amilase 113 IU/L, creatine kinase 590 IU/L, creatine kinase MB fraction 33 IU/L. Complete blood count revealed leukocytosis (white blood cell 26.700 mm^3) with a normal hematocrit and

plateled count. The first arterial blood gas showed metabolic acidosis with wide anion gap (pH 7.20, HCO3 6.6 mmol/L, Lactate 45mg/dl, base excess -15.8mmol/L). 80 mEq sodium bicarbonate (8.4% sodium bicarbonate) was infused. Invasive monitoring with continuous central venous and arterial blood pressure mesaurements were used. At surgery, two ruptured cysts were seen in segments 7 and 8 of the liver. The patient underwent cystectomy and was transferred to the intensive care unit. He was extubated 7 hours later after the surgery. Two days after admission and previously fully asymptomatic, he dismissed from intensive care unit.

DISCUSSION

Hydatid disease, a worldwide zoonosis is usually caused by larval stage of Echinococcus tapeworm. The larval stages of Echinococcus granulosus and Echinococcus multilocularis are involved in humans: cystic echinococcus (CE) ("hydatid disease) and alveoler echinococcus (AE), respectively. The life cycle of Echinococcus granulosus begins in the intestine of a definitive host such as cattle, sheep and rarely humans. The organism penetrates the intestinal wall of the intermediate host and migrates through the host's circulatory system. It is deposited into an organ forming a cyst. The cycle repeats when the intermediate host is eaten by a new definitive host [1].

Both diseases and parasites have tight links with allergy because of the immunological characteristics that contribute to maintain the larvae in their human host as well as their potential in inducing clinical anaphylactic reactions in some patients. Anaphylactic reactions have systemic signs, including urticaria, edema, respiratory smptoms, and anaphylactic shock due to spontaneous or provoked rupture of the parasitic cyst.

The parasite most commonly locates in the liver (55%-70%), lungs (18%-35%), or uncommon locations such as brain, bones, muscles, adrenals, spleen,extrahepatic bile ducts, thyroid, spine and pelvic region (10%) [2-3].

Hydatid cysts of liver are serious medical problems because of their high rates of reccurance and their life-threatening complications [1-4]. Rupture of hydatid cyst (HC) of the liver may be secondary to trauma or occurs spontaneously. Spontaneous rupture of liver HC into the peritoneum causes an acute abdomen due to peritoneal irritation because of cyst contents. Furthermore, anaphylactic shock may be the first presenting symptom because of systemic reaction of cyst content. Kantarcı M and coll. [5]. reported a 10 year old boy who was edmitted with anaphylaxis due to rupture of hydatid cyst . Cruz I and coll. [6], described a 62 year old woman presented to the emergency department with anaphylaxia. She was operated multivesicular hepatic hydatid cystic disease. On this occasion she presented with a 4-week history of recurrent episodes of transient chest pain, generalized pruritis, flushing and ürticaria. Most consensus guidelines for the past 30 years have held that epinephrine is the drug of choice and the first drug that should be administered in acute anaphylaxis.

We preferred to administer intravenous epinephrine and corticosteroid therapy in his initial management. so his condition had improved markedly.

Spontaneous rupture of liver HC caused an acute abdomen. The incidence of peritoneal rupture has been reported to be 5.5% in patients with liver HC [7]. The predisposing factors leading to spontaneous rupture include the increased size of the cyst and increased tension on the cyst wall [8-9]. Superficial localization of the cyst in the liver may also predispose to spontaneous rupture.

Abdominal ultrasonography (US) and CT are the first-line imaging studies in cases of suspected rupture of HC [10-11]. But rupture of the cyst and evacuation of its contents may change the radiological appearance necessitating more sophisticated investigations such as MRI, MRCP, endoscopic retrograde cholangiopancreatography and hepatobilier scintigraphy [12]. Kayıhan G and coll. [13] performed that US and CT were the main diagnostic methods with 85% and 100% sensitivity, respectively, in identifying hydatid cyst rupture.In our case brain, torax and abdominal CT scans had been performed and the perforation of two hepatic Echinococcal cysts were visualised clearly.

As a rule, the lungs should be evaluated for associating HC. The reverse is also true for a lung HC. The lung cyst is treated surgically because of effectiveness of antiparasitic drug treatment. In our case we determinated the lungs by this methods.

According to Meyer G Philippe and coll., generalized seizures had never been reported as the initial clinical manifestation of isolated hepatic cyst rupture and initial seizures could be related to decreased cerebral blood flow secondary to transient anaphylaxis at the moment of rupture of the hydatdi cyst. They reported a case of hepatic hydatidosis where the first clinical manifestations, generalized seizures after minor head and abdominal trauma[1]. In our patient, loss of consciousness without any

trauma was observed. His brain CT scan was performed thinking of epilepsy at the first.

In conclusion, ın endemic areas, the diagnosis must be carefully ruled out in patients experiencing abrupt anaphylactic shock of uncertain etiology. Urgent treatment should be initiated, relying first on emergency management of anaphylactic shock and later on surgical treatment of the cysts.

References

1. Meyer G P, Bonneville C, Orlıaguet G A, Dessemine P, Blakıme P, Carli P, Revillon Y: Grand mal seizures: an unusual and puzzling primary presantation of ruptured hepatic hydatid cyst. Pediatric Anesthesia; 2006; 16:676-79.
2. Beggs I: The radiological appearances of hydatid disease of the liver. Clin Radiol; 1983;34: 555-63.
3. Kayihan G, Taviloğlu K, Berber E, Ertekin C: Traumatic rupture of hydatid cysts: A 12-years experience from an endemic region. The Journal of Trauma: Injury, Infection and Critical Care;1999;46(1):164-167.
4. Dadoukis J, Gamvros O, Aletras H: Intrabiliary rupture of the hydatid cyst of the liver. World J Surg; 1984;8:786-790.
5. Atalay F, Kirimlioğlu V, Gundogdu , Akıncıoğlu T, Gencer A: Surgery for hydatid cysts of the liver. Hiroshima Journal of Medical Science ; 1995; 44 (4):89-92.
6. Zargar SA, Khuroo MS, Khan BA, Dar MY, Alai MS, Koul P: Intrabiliary rupture of hepatic hydatid cyst: sonographic and cholangiographic appearances. Gastrointestinal radiol; 1992;17(1):41-45.
7. Utkan NZ, Canturk NZ, Gonullu N, Yıldırır C, Dülger M: Surgical experience of hydatid disease of the liver: omentoplasty or capitonnage versus tube drainage. Hepatogastroenterology; 2001;48(37):203-207.
8. Kantarci M, Onbas O, Alper F, Çelebi Y, Yiğiter M, Okur A: Anaphylaxis due to a rupture of hydatid cyst: imaging finding of a 10-years-old boy. Emerg Radiol; 2003;10:49-50.
9. Cruz-Gonzales I, Martin- Herrero F, Gonzales –Santos JM, Gutierrez-Diez JA, Sanches-Ledesma M: Anaphylaxis and recurrent hydatid disease. Circulation; 2007;115(25):643-45.
10. Ulualp KM, Aydemir I, Senturk H, Eyüboğlu E, Cebeci H, Unal G, Unal H: Management of intrabiliary rupture of hydatid cyst of the liver. World J Surg; 1995; 19:720-724.
11. Aeberhard P, Fuhrimann R, Strahm P, Thommen A: Surgical treatment of hydatid disease of the liver: an experience from outside the endemic area. Hepatogastroenterology; 1996;43:627-636.
12. Prasad J, Bellamy PR, Stubbs RS: Instillation of scolocidal agents into hepatic cyst: can it any longer be justified? N Z Med J;1991;104(917):336-337.
13. Lewall DB, McCorkell SJ: Rupture of eccinococcal cyst: diagnosis, classification, and clinical implications. AJR; 1986; 146:391-394.
14. .Kumar R, Redd SN, Thulkar S: Intrabiliary rupture of hydatid cyst: diagnosis with MRI and hepatobiliary isotope study. Br J Radiol; 2002; 75:271-274.

Author Information

Sibel Devrim
SB Goztepe Education and Research Hospital

Melek Gura
SB Goztepe Education and Research Hospital

Emine Nursen Koltka
SB Goztepe Education and Research Hospital

Serdar Yuzer
SB Goztepe Education and Research Hospital