J Surg Med. 2018;2(2):154-156.
DOI: 10.28982/josam.398389

Journal of Surgery and Medicine
e-ISSN: 2602-2079

Anaphylactic shock during splenic hydatid cyst surgery: A case report

Splenik hidatik kist cerrahisinde anafilaktik şok: Olgu sunumu

Anas Belhaj [1], Ouazzani ET-Tayeb [1], Karim Ibn Majdoub [1], Imane Toughrai [1], Said Ait Laalim [1], Khalid Mazaz [1]

[1] Department of Visceral Surgery B, Hassan II University Hospital, Fez, Morocco

Abstract

Hydatid disease is a common parasitic infection caused by Echinococcus granulosus. Isolated splenic involvement is an uncommon condition even in endemic regions. The treatment of a splenic hydatid cyst is mainly surgical. Complications can occur during surgery such as anaphylactic shock. We report here the case of a patient who was admitted in our hospital for splenic hydatid cyst. She was 31 years old. She was admitted for a dull pain in the left hypochondrium. An abdominal examination objectified a patient with normal vital signs, she had a slight tenderness in the left hypochondria and epigastric regions. No hepatomegaly was found. Abdominal computed tomography revealed an isolated splenic cystic lesion measuring about 8, 2 cm in diameters and containing floating membranes. The patient was operated and a left subcostal incision. The Surgical exploration revealed a hydatid cyst occupying the middle region of splenic parenchyma, only a thin layer of splenic tissue was present in superior and inferior surface. At the end of the surgery the patient presented tachycardia, hypotension and extensive skin erythema. Conclusion: hemodynamic instability, should suggest the diagnosis of anaphylaxis in order to begin specific management, all preventive measures can be justified given of severity of anaphylaxis.

Keywords: Anaphylactic shock, Hydatid cyst, Prevention, Surgery

Öz

Hidatik hastalık Echinococcus granulosus'un neden olduğu yaygın bir parazit enfeksiyonudur. İzole splenik tutulum endemik bölgelerde bile nadir bir durumdur. Dalak kist hidatiklerinin tedavisi çoğunlukla cerrahi yöntemdir. Anafilaktik şok gibi cerrahi sırasında komplikasyonlar görülebilir. Burada, splenik kist hidatik için hastanemize yatırılan bir olgu sunulmuştur. Hasta 31 yaşındaydı. Sol hipokondride mütevazı bir ağrı nedeniyle başvurdu. Karın muayenesinde sol hipokondri ve epigastrik bölgelerde hafif hassasiyet vardı. Hepatomegali bulunamadı. Abdominal bilgisayarlı tomografide, çapları 8 cm, çapları 2 cm olan ve yüzer membranlar içeren, izole splenik kistik lezyon izlendi. Hasta ameliyat edildi ve sol subkostal kesi yapıldı. Cerrahi incelemede, splenik parankima orta bölgesini işgal eden hidatik bir kist ortaya çıkmış, üst ve alt yüzeyde sadece ince bir tabaka splenik doku mevcuttu. Ameliyatın sonunda hasta taşikardi, hipotansiyon ve yaygın cilt eritemi oluştu. Sonuçta hemodinamik istikrarsızlık, spesifik tedaviye başlanabilmesi için anafilaksi teşhisi konmalıdır, anafilaksi şiddeti nedeniyle tüm önleyici tedbirler alınmalıdır.

Anahtar kelimeler: Anafilaktik şok, Kist hidatik, Önleme, Cerrahi

Introduction

Hydatid disease (HD), which is caused by Echinococcus granulosus, is a common parasitic infection that often occurs in endemic regions such as the Middle East, Mediterranean, and South America. Although it mainly involves the liver, it has been reported in nearly all parts of the body [1]. Isolated splenic involvement is an uncommon condition even in endemic regions [2]. The incidence of hydatid splenic cysts varies from one series to another. It ranges from 0.5–4% of all cases of HD [1-2]. Splenic hydatid cysts are generally asymptomatic. The symptoms of splenic hydatidosis are usually mild and are generally caused by the pressure on adjacent organs such as the colon, the diaphragm. The patients usually complain of mild discomfort or pain in the left hypochondrium. The diagnosis is established generally during radiological investigation for other reasons. The hydatid fluid is antigenic and highly toxic and can cause a potentially fatal anaphylaxis reaction.

Corresponding author / Sorumlu yazar:
Anas Blehaj
Address / Adres: Department of Visceral Surgery B, Hassan II University Hospital, Fez, Morocco
e-Mail: dr.anasbelhaj@gmail.com

Informed Consent: The author stated that the written consent was received from the patient who was presented in this study.
Hasta Onamı: Yazar çalışmada sunulan hastadan yazılı onam alındığını ifade etmiştir.

Conflict of Interest: No conflict of interest was declared by the authors.
Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Financial Disclosure: The authors declared that this study has received no financial support.
Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

Received / Geliş tarihi: 25.02.2018
Accepted / Kabul tarihi: 06.03.2018
Published / Yayın tarihi: 06.03.2018

How to cite / Atıf için: Blehaj A, ET-Tayeb O, Majdoub KI, Toughrai I, Laalim SA, Mazaz K. Anaphylactic shock during splenic hydatid cyst surgery: A case report. J Surg Med. 2018;2(2):154-156.

We herein describe an acute anaphylactic shock during Spleen-preserving surgery of an isolated splenic hydatid cyst in a 31 year old female patient.

Case presentation

A 31 year old female farmer presented with a dull pain in the left hypochondrium which did not shift or radiate. The patient complained of malaise with nausea, vomiting, weight loss and intermittent fever within the last 9 months. She had no history of jaundice, cough or respiratory distress, abdominal trauma, weight loss and her past medical history was unremarkable notably no allergic incidents. Physical examination found a patient with normal vital signs; she had a slight tenderness in the left hypochondria and epigastric regions. No hepatomegaly was found. Abdominal computed tomography (CT) revealed an isolated splenic cystic lesion measuring about 8, 2 cm in diameters and containing floating membranes. There were no cysts in other abdominal viscera (Figure 1). A chest CT scan did not show any cystic lesions.

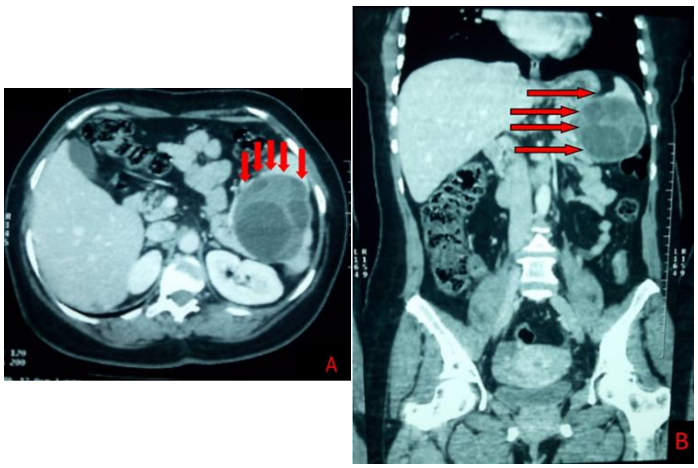

Figure 1: image showing the hydatid cyst. A: axial section and B: coronal section

Surgery was performed via a left subcostal incision. The Surgical exploration revealed a hydatid cyst occupying the middle region of splenic parenchyma, only a thin layer of splenic tissue was present in superior and inferior surface. There were a lot of adhesions between the spleen and the omentum and these adhesions were liberated with difficulty. After protection of the surgical field by compresses imbibed with oxygenated water and then resection of the protruding dome (Figure 2), a clear liquid containing hydatid membranes were aspirated and evacuated. The residual cavity was sterilized with oxygenated water and then drained.

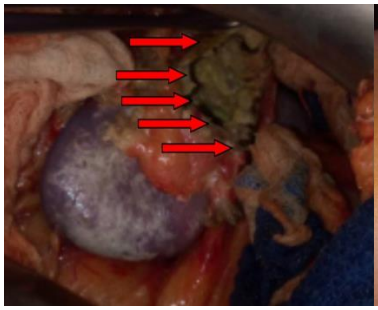

Figure 2: image after de-roofing of the hydatid cyst

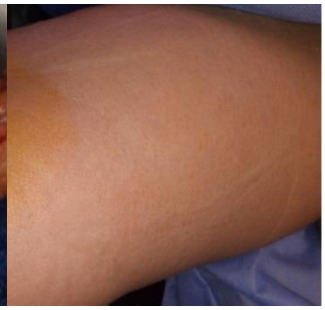

Figure 3: Cutaneous signs in the upper limb

At the end of the surgery the patient presented tachycardia, hypotension and extensive skin erythema (Figure 3). The surgeon was alerted. He performed a rapid wash and drainage of the left hypochondrium. The patient was placed under noradrenaline with bolus of Methylprednisolone. She was extubated a few hours after stabilization of her vital signs.

Discussion

Splenic hydatid cyst (SHC) represents 0.5–4% of all cases of abdominal Hydatid disease across all ages and in both sexes [1,3-8]. SHC usually coexist with liver hydatid cysts (secondary); however, in some cases, the spleen is the primary location [4,9]. Splenic infection usually occurs through an arterial route after the parasite manages to pass through two other filters: hepatic and pulmonary [3,6,10]. SHC may also develop by retrograde spread from the liver into the spleen via the hepatic portal and splenic veins in patients with portal hypertension. The spleen may also be affected by rupture of a hydatid cyst into the peritoneal cavity [4,10].

The clinical signs and symptoms of SHC depend on location, size, and relation to adjacent organs. The most common clinical signs and symptoms are splenomegaly, abdominal lump, dull ache, dyspepsia, constipation due to pressure on the colon, and dyspnea due to pushing up of the left diaphragm. Some patients may present with complications, such as infection of the cyst; rupture of the cyst into the peritoneal or pleural cavity; fistula formation into hollow organs, like the colon or stomach; rupture of SHC into the bronchial tree; splenothoracic fistula; sympathetic pleural effusion; calcification; hypersplenism; or signs of anaphylactic shock [4,10,11].

The diagnosis of SHC is based on medical history and geographical background of the patient, a physical examination, radiological imaging, serology, fine needle aspiration cytology (FNAB), and histopathological examinations of resected cysts. Serological tests are used for diagnosis, screening, and follow-up for recurrence. The differential diagnoses of SHC include non-parasitic cysts and tumors of the diaphragm, stomach, colon, left kidney, or pancreas. Non-parasitic cysts can be divided into primary (true cysts) and secondary (pseudo-cysts).

Surgery remains the main treatment for SHC [3]. The main goals of surgery are to prevent complications; eliminate local disease; and minimize morbidity, mortality, and recurrence rates and intraoperative complication such as hemorrhage or anaphylactic shock.

It remains controversial whether a total splenectomy is more beneficial than a spleen-preserving approach in patients with SHC. A splenectomy is advocated by the majority of surgeons, as it provides minimal risk for recurrence. However, splenectomy is associated with sepsis-related deaths in 1.9% of adults and 4% of children. Thus, conservative surgical procedures have been increasingly proposed, including partial splenectomy, enucleation, deroofing with omentoplasty, internal drainage with cystojejunal anastomosis, or external drainage [3,11]. An alternative to surgery is percutaneous drainage and administration of a sclerosing agent, such as 96% alcohol and 1% polidocanol under ultrasonography guidance [3, 8]. One of the problems likely to be encountered with this method is intraperitoneal spillage of the cystic contents during the procedure responsible for another recurrence of the disease. Moreover, the rates of anaphylactic reactions occurring during percutaneous treatment are similar to that of open surgery [8].

The intraoperative complications may be hemorrhage or anaphylactic shock as described in our case; Secondary to a passage of the hydatid fluid into the peritoneum or into the blood.

Anaphylactic shock occurring spontaneously [12] or caused by cystic ruptures have been described [13,14].Various intraoperative factors can cause hydatid fluid contamination which may trigger anaphylactic reactions. The symptoms vary from mild urticaria to anaphylactic shock [15]. The incidence of intraoperative anaphylaxis varies [16]. The mechanism of these reactions is complex. In some cases, it is typically a type I hypersensitivity reaction associated with immunoglobulin E in response to high plasma concentration of antigens Echinococcus [17]. Anaphylactic or anaphylactoid reactions may also be secondary to complement activation with liberation of anaphylatoxins [18]. The symptomatology is variable depending on the severity. During anesthesia cardiovascular signs, such hypotension, tachycardia, and arrhythmia predominate. Cutaneous symptoms, such as rash, flushing, and urticaria, are common in the neck, face, and especially on the anterior chest but these signs are often hidden by the surgical draping. Occurrence of bronchospasm is less frequent and less sensitive, especially after general anesthesia. In incomplete presentations (only one symptom may be present: hypotension, bronchospasm, etc) diagnosis of anaphylactic shock occurs after elimination of other causes: acute myocardial infarction, carcinoid syndrome, and hypovolemic shock.

Prevention of anaphylaxis of hydatid cyst is surgical; In order to avoid over distension of the cyst a scolicidal agent is slowly injected. The cyst is gently manipulated. Other techniques have been described [19,20]. Laparoscopy appears to be effective and safe in the treatment of hydatid cyst, in the analysis of 5943 percutaneous treatment procedures on hepatic and non-hepatic echinococcal cysts, the risk of anaphylactic reactions was low, with 0.03% of lethal anaphylaxis and 1.7% of reversible allergic reactions [21]. Medical prevention including histamine H1, H2 receptor blockers, and corticosteroids remains controversial. In a prospective study, the preoperative administration of H1 and H2 receptor blockers has mitigated hemodynamic responses secondary to spillage of hydatid cyst [22].

Hydatid cyst surgery is often simple. The occurrence of hemodynamic instability, apart from the bleeding and hypovolemia, should suggest the diagnosis of anaphylaxis in order to begin specific management. All preventive medical and surgical measures can be justified given of severity of anaphylaxis; a retrospective study is desirable to clarify the subject, the incidence of this type of complication and the appropriate measures to avoid it.

References

1. Amr SS, Amr ZS, Jitawi S, Annab H. Hydatidosis in Jordan: An epidemiological study of 306 cases. Ann Trop Med Parasitol. 1994;88:623–7.
2. Durgun V, Kapan S, Kapan M, Karabiçak I, Aydogan F, Goksoy E. Primary splenic hydatidosis. Dig Surg. 2003;20:38–41.
3. Rodriguez-Leal GA, Moran-Villota S, Milke-Garcia Mdel P. Splenic hydatidosis: a rare differential diagnosis in a cystic lesion of the spleen. Rev Gastroenterol Mex. 2007;72:122-5.
4. Malik AA, ul Bari S, Younis M, Wani KA, Rather AA. Primary splenic hydatidosis. Indian J Gastroenterol. 2011;30:175-7.
5. Derici H, Tansug T, Reyhan E, Bozdag AD, Nazli O. Acute intraperitoneal rupture of hydatid cysts. World J Surg. 2006;30:1879-83.
6. Mokhtari MAM, Spoutin A. Splenic hydatid cyst and relevation with anaphylaxis. Research Journal of Medical Sciences. 2008;2:248-50.
7. Wani RA, Malik AA, Chowdri NA, Wani KA, Naqash SH. Primary extrahepatic abdominal hydatidosis. Int J Surg. 2005;3:125-7.
8. Ormeci N, Soykan I, Palabiyikoğlu M, et al. A new therapeutic approach for treatment of hydatid cysts of the spleen. Dig Dis Sci. 2002;47:2037-44.
9. Limas C, Soultanidis C, Kirmanidis MA, et al. Management of abdomen hydatidosis after rupture of a hydatid splenic cyst: a case report. Cases J. 2009;2:8416.
10. Culafic DM, Kerkez MD, Mijac DD, et al. Spleen cystic echinococcosis: clinical manifestations and treatment. Scand J Gastroenterol. 2010;45:186-90.
11. Take Z, Yagci AB, Attala AO, et al. splenic hydatid cyst perforating into the colon manifesting as acute massive lower gastrointestinal bleeding: an unusual presentation of disseminated abdominal echinococcosis. Singapore Med J. 2008;49:e113-6.
12. Boyano T, Moldenhauer F, Mira J, Joral A, Saiz F. Systemic anaphylaxis due to hepatic hydatid disease. J Investig Allergol Clin Immunol. 1994;4:158–9.
13. Shameem M, Akhtar J, Bhargava R, Ahmed Z, Khan NA, Baneen U. Ruptured pulmonary hydatid cyst with anaphylactic shock and pneumothorax. Respir Care. 2011;56:863–5.
14. Tonnelet R, Jausset F, Tissier S, Laurent V. Spontaneous rupture of a hydatid cyst and anaphylactic shock] J Radiol. 2011;92:735–8.
15. Vuitton DA. Echinococcosis and allergy. Clin Rev Allergy Immunol. 2004;26:93–104.
16. Jakubowski MS, Barnard DE. Anaphylactic shock during operation for hydatid disease. Anesthesiology. 1971;34:197–9.
17. Khoury G, Khoury SJ, Soueidi A, Nabbout G, Baraka A. Shock complicating laparoscopic treatment of hydatid cysts of the liver. Surg Endosc. 1998;12:452–4.
18. Perricone R, Fontana L, De Coralis C, Ottaviani P. Activation of alternative complement pathway by fluid from hydatid cysts. N Engl J Med. 1980;302:808–9.
19. Kosar A, Orki A, Haciibrahimoglu G, Kiral H, Arman B. Effect of capitonnage and cystotomy on outcome of childhood pulmonary hydatid cysts. J Thorac Cardiovasc Surg. 2006;132:560–4.
20. Santini M, Fiorello A, Vicidomini G, Perrone A. A home-made device for safe intraoperative aspiration of pulmonary hydatid cysts. Interact Cardiovasc Thorac Surg. 2008;7:365–7.
21. Neumayr A, Troia G, de Bernardis C, Tamarozzi F, Goblirsch S, Piccoli L, et al. Justified concern or exaggerated fear: The risk of anaphylaxis in percutaneous treatment of cystic echinococcosis: A systematic literature review. PLoS Negl Trop Dis. 2011; 5:e1154.
22. Kambam JR, Dymond R, Krestow M, Handte RE. Efficacy of histamine H1 and H2 receptor blockers in the anesthetic management during operation for hydatid cysts of liver and lungs. South Med J. 1988;81:1013.