비장 포충낭종의 초음파와 CT 소견: 증례 보고

김일영 · 김상원 · 신형철
한종규

순천향대학교 천안병원 영상의학과

J Korean Soc Ultrasound Med
2009;28:39-42
Received November 17, 2008; accepted after revision December 24, 2008.

Address for reprints :
Il Young Kim, MD, Department of Radiology, Soonchunhyang University Cheonan Hospital, 23-20 Bongmyung-dong, Cheonan 336-720, Korea.
Tel. 82-41-570-3501
Fax. 82-41-574-6265
E-mail: ilykim@schca.ac.kr

US and CT Findings of Splenic Hydatid Cyst: A Case Report

Il Young Kim, MD, Sang Won Kim, MD, Hyeong Cheol Shin, MD, Jong Kyu Han, MD

Department of Radiology, Soonchunhyang University Cheonan Hospital

Hydatid disease is a parasitic infection caused by the larvae of the cestode worms Echinococcus. In humans, the most commonly affected organ is the liver, the next second common organ is the lung. The third common affected organ is the spleen. In the case of splenic hydatid cyst, most cysts remain clinically silent and are diagnosed incidentally or when complications occur. We experienced a case of splenic hydatid cyst in a 28-year-old man. The patient complained of abdominal pain for 1 month. Abdominal ultrasound revealed a cystic lesion with daughter cysts in the spleen. The CT imaging also showed a cystic lesion with daughter cysts. We diagnosed it as a splenic hydatid cyst which was confirmed by pathology after surgery.

Key words : Spleen; Hydatid cyst; Echinococcal cyst; Ultrasound; CT

Introduction

Splenic Echinococcus is a rare disease even in endemic regions [1]. However, it has a worldwide distribution [1]. The most commonly affected organ is the liver (70%) and followed by the lung (15−20%) and spleen, although hydatid cysts have been described in almost every organ of the body [1]. Echinococcal infection is caused by the larvae of the cestode Echinococcus, with Echinococcus granulosus accounting for 95% of all case of hydatid disease [2]. Splenic involvement of hydatid cysts varies between 0.9 and 8%. Only rather small series or case reports have addressed the issue of splenic Echinococcus [3]. Isolated splenic involvement is very uncommon [4].

Splenic hydatid cysts are generally asymptomatic. The diagnosis is established during imaging for other reasons. The symptoms is usually mild and is mainly caused due to pressure of adjacent viscera or the presence of complications [1]. Patients usually complain of mild discomfort or pain in the left hypochondrium [3].

The authors experienced the splenic hydatid cyst with Ultrasound (US) and computed tomography (CT) imagings. We present here the US and CT findings of the splenic hydatid cyst.

Case Report

A 28-year-old male patient was referred to our hospital complaining of intermittent abdominal discomfort for one month. He was born in Uzbekistan and lived there until one year ago. The patient was Uzbekistanian. The male patient had come to Korea one year ago and has been working at a factory. The

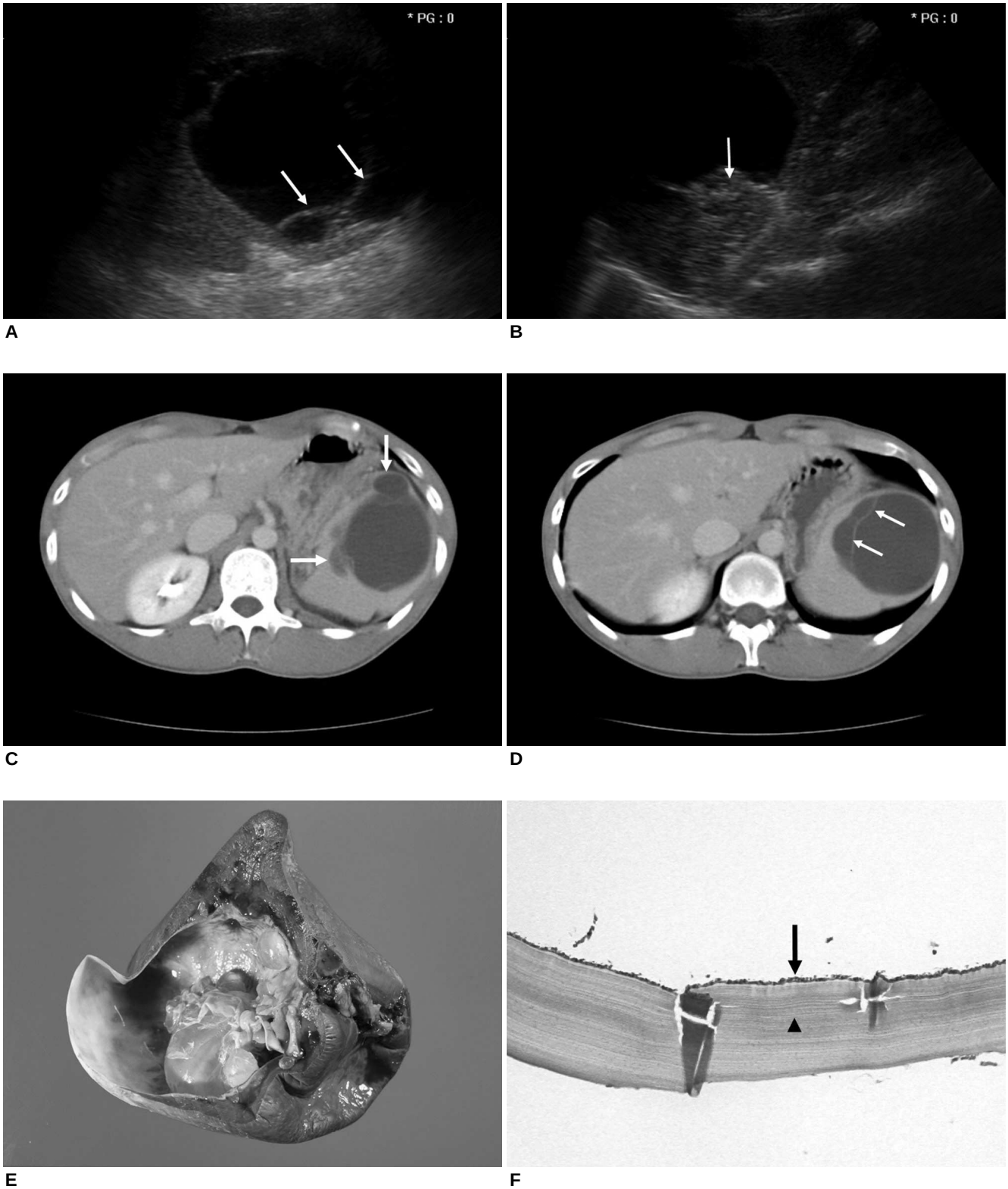

Fig. 1. A. The 28-year-old male patient. US shows anechoic cystic lesion with daughter cysts (arrows) in the spleen. **B.** Oblique scanned US shows hydatid sand in the cyst lumen (arrow). **C.** CT scan shows low density cyst with daughter cysts (arrows) in the spleen. **D.** CT scan taken above fig. 1C shows septations in the cyst of the spleen (arrows). **E.** Gross specimen of the spleen. Cyst is noted and internally daughter cysts are also noted. **F.** Microscopic finding of resected cyst shows outer thick laminated membrane (arrowhead) and inner thin germinal layer (arrow) (H & E stain, ×100).

male patient had no history of diseases or surgery. Vital signs were normal. A general examination revealed no evidence of tenderness or rebound tenderness in the abdomen. However, he complained of mild tenderness in the left upper quadrant and left flank area. Routine hematologic and biochemical investigations were within normal limits. No evidence of eosinophilia was evident.

US study showed an anechoic cystic lesion and daughter cysts in the spleen and hydatid sand was is noted in the cyst (Fig. 1A, B). CT revealed a multi-septated cyst with peripheral daughter cysts in the spleen (Fig. 1C, D). No definite wall calcification was evident on the CT image. On the image findings of US and CT, we diagnosed it as a splenic hydatid cyst. The patient subsequently underwent a splenectomy.

The pathologic report stated that the cyst was pale yellow-colored, smooth and friable, containing serous fluid and many smaller cysts, measuring from a few millimeters to a few centimeters and no parasitic worms were found (Fig. 1E, F). It was diagnosed as a hydatid cyst in the spleen based on histologic examinations.

Discussion

Splenic hydatid cysts are generally asymptomatic [1]. The diagnosis is established during imaging for other diseases [1]. Routine laboratory investigations are of little help in diagnosis [1]. Eosinophilia is present in only 20 to 30 % of patients [5].

There are many reports of the theories regarding the pathophysiology of splenic hydatidosis. Among those reports, the most acceptable study was published by Bourgeon et al. [6]. Echinococcal cysts in the spleen are uncommon because hexacanth embryos are usually trapped in the liver (first Lemman's filter) and/or lung (second Lemman's filter) but are trapped in the spleen capillaries once in systemic circulation [3, 6]. Splenic Echinococcus may also arise by retrograde spread from the liver to the spleen via the hepatic portal and splenic veins in portal hypertension [1].

The spleen may also be affected by rupture of a hepatic echinococcal cyst into the peritoneal cavity [2, 3]. As the hydatid cyst increases in size, it may lead to compression of the hilar vessels of the spleen, resulting in pericystic splenic atrophy [1]. Eventually the cyst may completely replace the splenic parenchyma. Chronic pericystic inflammation may cause adhesion with adjacent organs or even fistulization between the cyst and adjacent structures and organs such as the thoracic cavity, stomach, pancreas, left colon, left kidney, or bronchus [3, 7]. Secondary infection of splenic cysts is rare (5%) and usually occurs by hematogenous spread [3]. Echinococcal cyst of the spleen usually grow slowly (approximately 2−3 cm / year) [2, 3].

Pathologic features at the microscopic level reveal the wall of the hydatid cyst to be composed of an inner germinal layer and an outer laminated membrane. These layers are surrounded by a thin band of fibrotic, compressed spleen called pericyst. Scolices and fragments of the germinal layer constitute the so-called hydatid sand within the cyst [8]. Upon gross examination, the cyst is seen as either unilocular or multilocular.

The radiologic appearance of splenic hydatidosis varies and is influenced mainly by the location of the cyst, age of the cyst, and associated complications, such as secondary infection and rupture [4]. US and CT are complementary examinations for diagnosis [4]. Various sonographic patterns of hydatid cysts have been described. An anechoic pattern is observed most often but is nonspecific in appearance [4]. However, hydatid sand can be observed in the cyst. A multiseptate cyst with daughter cysts and echogenic material are also observed. A water lily sign is a cyst with a floating, undulating membrane with detached endocysts which has been one of the US findings for hydatid cyst [9]. CT findings for hydatid cyst find large unilocular/multilocular well-defined hypodense cysts. Multiple peripheral daughter cysts of a lower density than the mother cyst have also been noted. Curvilinear ring-like calcification is also a common feature [9].

Splenic hydatid cysts are usually solitary and partially calcified without daughter cysts. Presence of collapsed membranes in a cystic lesion is pathognomic for hydatid disease [4]. US classifications for liver hydatid cysts can also be used for splenic Echinococcus. An initial classification for cystic Echinococcus was proposed by Gharbi et al. [10]. According to this classification, the liver hydatid cysts were classified into five groups. These types are as follows- type I (pure fluid collection); type II (fluid collection with a split wall); type III (fluid collection with septa); type IV (hydatid cysts with heterogeneous echo patterns); and type V (hydatid cysts with refracting thick walls) [10]. Our case was type III under the Gharbi classification of hydatid cysts.

Treatment of viable splenic hydatid cysts should be needed when there is risk of infection and rupture. Since the hydatid cyst is a benign disease, any surgical or percutaneous intervention should have minimal mortality and low morbidity [11]. Traditionally, surgery has been the only accepted treatment modality for hydatidosis [11]. Percutaneous drainage has also gained acceptance with progress in interventional radiology [12].

The imaging characteristics of splenic hydatid cysts are very similar to those of hepatic hydatid cysts. US is our most valuable and convenient imaging modality in this disease's diagnosis, classification, treatment and follow up. However, CT has the additional advantage of diagnosing of splenic hydatid cysts by clear delineation of wall calcification and extra-splenic extension of the lesion.

요 약

포충낭종증(hydatid disease)은 위립조충(Echinococcus)의 유충에 의한 감염이다. 사람에 있어서 감염이 가장 잘되는 장기는 간이며 이어서 빈도가 높은 장기는 폐이다. 세 번째로 감염이 잘되는 장기는 비장이다. 비장에 감염된 포충낭종증은 대개는 증상이 없으면 우연히 진단되거나 혹은 합병증이 유발되어 진단되기도 한다. 저자들은 28세 된 남자 환자에서 비장 포충낭종증을 경험하였기에 그 소견을 보고 하고자 한다. 환자는 약 10개월간의 복부 불편감을 주소로 전원 되었다. 초음파 검사상 비장에 낭성 종괴와 내부 딸 낭종이 관찰되었다. CT검사에서도 낭성종괴와 함께 딸 낭종이 관찰되었다. 비장 포충낭종의 진단 하에 수술을 시행하여 병리조직학적으로 확진 되었다.

References

1. Akhan O, Koroglu M. Hydatid disease of the spleen. Semin Ultrasound CT MRI 2007;28: 28-34
2. Safioeas M, Misiakos E, Manti C. Surgical treatment for splenic hydatidosis. World J Surg 1997;21:374-378
3. Atmatzidis K, Papaziogas B, Mirelis C, Pavlidis T, Papaziogas T. Splenectomy versus spleen-preserving surgery for splenic echinococcosis. Dig Surg 2003;20: 527-531
4. von Sinner WN, Stnibeck H. Hydatid disease of the spleen: ultrasonography, CT and MR imaging. Acta Radiol 1992; 33 :446-459
5. Peiser J, Hertzanu Y, Barki Y, Kata M, Charuzi I, el-On J. Splenic echinococcosis: clinical and serologic evaluation. J Infect Dis 1992;166:17-22
6. Bourgeon R, Catalano H, Pantin JP. Echinococcose splenique. J Chir 1960;80:608-612
7. Ozdogan M, Baykal A, Kesket M, Yorgancy K, Hamaloglu E, Sayek I. Hydatid cyst of the spleen treatment options. Int Surg 2001;86:122-126
8. Lewall DB. Hydatid disease: histology, pathology, imaging and classification. Clin Radiol 1998;53: 863-874
9. Pedrosa I, Saiz A, Arrazola J, Ferreiros J, Pedrosa CS. Hydatid disease: radiologic and pathologic features and complications. Radiographics 2000;20:795-817
10. Gharbi Ha, Hassine W, Brauner MW, Abdeselem K, Saied H. Ultrasound examination of the hydatic liver. Radiology 1981;139:459-463
11. Khoury G, Abiad F, Geagea T, Nabout G, Jabbour B. Laparoscopic treatment of hydatid cysts of the liver and spleen. Surg Endosc 2000;14:243-245
12. Battyany I, Herbert Z, Rostas T, et al. Successful percutaneous drainage of a giant hydatid cyst in the liver. World J Gastroenterol 2006;12:812-81