

Infected Simple Hepatic Cysts — 3 Cases Report

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Abstract

Hepatic cysts are very common. They are usually asymptomatic. The rare complications of hepatic cysts include abdominal pain, hemorrhage, rupture and infection. We reported 3 cases who had infected hepatic cysts. They had different pictures of image study, which represent different stages of infection. Besides parenteral antibiotics, 2 of them underwent percutaneous transhepatic liver cyst drainage and one had laparoscopic cyst fenestration. They were all recovered uneventfully. We concluded that though it is rare, a simple hepatic cyst could be infected and should be diagnosed as soon as possible to have the proper treatment. (J Intern Med Taiwan 2009; 20: 373-377)

Key Words : Hepatic cyst, Percutaneous transhepatic cyst drainage, Laparoscopic cyst fenestration

Introduction

Hepatic cysts include parasitic and simple cysts. The simple hepatic cysts may be solitary, several solitary or polycystic. Simple hepatic cysts are congenital and discovered very common, especially after routine usage of abdominal ultrasonography. The prevalence of hepatic cysts was 2.5 ~ 4.65%^{1,2}. The hepatic cysts are generally asymptomatic. Some symptoms caused by mass effects include abdominal discomfort, early satiety, increasing abdominal girth, nausea, vomiting and dyspnea^{3,4}. Other rare complications include intracystic hemorrhage, rupture, obstruction of biliary tracts or inferior vena cava and infection⁵⁻¹⁰.

We reported 3 cases of infected hepatic cysts with different images.

Case report

Case 1

This is an 80 year-old female patient. She had suffered from general weakness, epigastralgia and fever for one week. She had no past history of diabetes mellitus. She had visited our outpatient clinic twice, and had oral antibiotics for 3 days then. But the symptoms persisted. On admission, she had low-grade fever, 37.4°C, and tenderness over epigastrium. She had blood test and the white blood cell count was 11.38 x 10³/μL. The blood

biochemistry tests revealed elevated serum alkaline phosphatase, 599 U/L (normal 65 ~ 272), and C-reactive protein (CRP), 16.6 mg/dL (normal < 0.3). The others were unremarkable. She underwent abdominal ultrasonography and some large hepatic cysts were found, one of them had some debris in it (Fig. 1). An infected hepatic cyst was suspected. After abdominal computed tomography (CT) scan (Fig. 2), percutaneous aspiration of the suspected cyst was done. The white blood cell count of the cystic fluid was 5000/ μ L (L/N = 1/99), an infected hepatic cyst was diagnosed. The patient underwent percutaneous transhepatic drainage of the infected cyst. She also received parenteral antibiotics. She was improved gradually. The drainage catheter was removed 7 days later. The culture of the blood and aspirated fluid had no growth.

Case 2

A 71-year-old male patient was admitted to our hospital due to spiking fever and chilliness for one day. He had no past history of diabetes mellitus. He had fever up to 39.7°C on admission. He had no abdominal tenderness on physical examination. He had blood test and the white blood cell count was $8.91 \times 10^3 / \mu$ L and the serum CRP was 8.3 mg/dL (normal < 0.3). The urine analysis and chest X-ray film revealed no evidence of infection. He underwent abdominal ultrasonography and gallbladder stones and several solitary hepatic cysts were noted (Fig. 3). For screening the infection focus, he underwent abdominal CT scan and the findings were the same as the abdominal ultrasonography. He still had spiking fever in the third day though antibiotics were prescribed. For ruling out an infected hepatic cyst, he underwent percutaneous aspiration of the largest hepatic cyst in the left lobe. Some turbid straw-colored fluid was aspirated. The white blood cell count, glucose level and LDH in it was 2373/ μ L (L/N = 2/98), 2 mg/dL and 4616 U/L. An infected hepatic cyst was diagnosed. He then underwent percutaneous transhepatic cystic



Fig.1 There was some echogenic lesions in the bottom of the cyst, making a fluid-fluid level.



Fig.2 Enhanced CT scan showed wall enhancement and increased internal density of the cyst in left lobe.

drainage and kept on parenteral antibiotics. The fever was subsided on the next day. The result of the blood culture was *Escherichia coli* (E. coli). He was discharged uneventfully 10 days after admission. We removed the catheter 12 days after the drainage.

Case 3

This is a 54-year-old male patient. He was sent to the hospital for fever for several days. He also complained of right upper quadrant pain. The blood test showed his white blood cell count was 14900/ mm^3 . The blood biochemistry tests were unremarkable. He underwent abdominal CT scan, polycystic kidney disease with multiple hepatic



Fig.3 The abdominal sonographic picture showed some hepatic cysts.

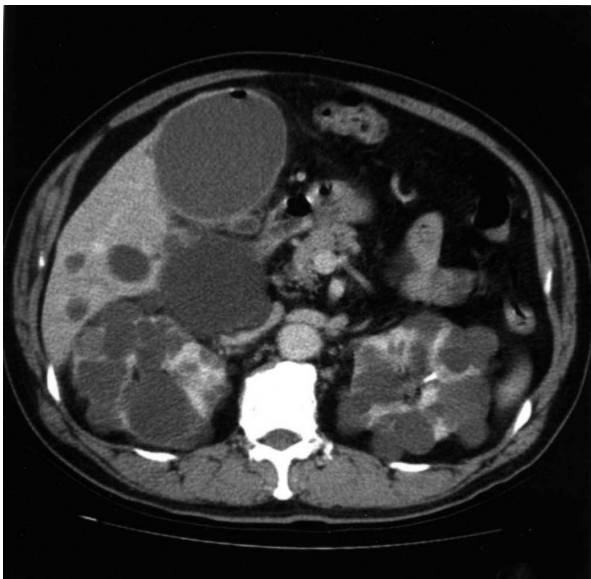


Fig.4 A cystic lesion with increased internal density and an air bubble was noted after contrast enhanced. Polycystic kidney disease was demonstrated.

cysts was noted, and gallbladder empyema was suspected (Fig. 4). He then underwent laparoscopy. A contracted gallbladder due to chronic cholecystitis and a large hepatic cyst filled with pus were noted. He underwent cholecystectomy and fenestration of the infected cyst. He kept on receiving parenteral antibiotics after surgery. He was discharged uneventfully 7 days after surgery. The culture of the pus yielded *E. coli*.

Discussion

Infection of the simple hepatic cyst is rare. Most infected hepatic cysts occurred in patients with autosomal dominant polycystic kidney disease who had hepatic cysts. The prevalence was 3% in those with end-stage renal failure, but less than 1% in those before end-stage renal failure^{11,12}. Our third case had polycystic kidney disease but with normal renal function.

The pathogenesis of an infected hepatic cyst might be due to gut manipulations during abdominal operations, chronic hemodialysis, diabetes mellitus and in immunosuppressive states⁸. In our 3 cases, there was no such risk factor. Their causes of the infection were unclear. There were 2 cases had *E. coli* cultured from blood or pus, indicating that the infection sources might be from guts. The one had negative culture result might be due to the previous antibiotic treatment.

Diagnosis of an infected liver cyst is mainly depended on the imaging study. Some reported increased echogenicity in the content of the infected hepatic cyst in abdominal ultrasonography^{8,12}. However, there was a report that the change of the infected cystic content might occur as late as one month after infection¹⁴. In some infected hepatic cysts, the CT scan revealed thickened walls, increased heterogeneous densities, or gas bubbles in them¹². Some also used magnetic resonance imaging (MRI) and nuclear scan to diagnose an infected hepatic cyst^{12,15,16}. Nevertheless, the

imaging studies may not show positive in the early phase of the infection. The second case we reported had no specific imaging finding indicating an infected hepatic cyst. It was diagnosed in early stage by awareness of the rare disease. When an infected hepatic cyst is suspected, aspiration of the cyst is necessary for definite diagnosis.

The treatments of the infected hepatic cyst are percutaneous drainage of the infected cyst and antibiotics. Surgical intervention is usually not necessary. The third case we reported underwent surgery was misdiagnosed as acute cholecystitis initially.

In conclusion, infection of a simple hepatic cyst is rare but lethal, should be diagnosed as soon as possible. Keep awareness of this rare complication of hepatic cysts is the key to have an early diagnosis. The prognosis is good if treatment is proper.

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感染性單純肝囊泡 — 3病例報告

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摘 要

肝臟的囊泡是很常見的。一般大多沒有症狀。少見的副作用包括有腹痛、出血、破裂和感染。我們報告3位併發感染的單純性肝囊泡患者。他們在不同的階段得到診斷，影像學上也有不同的表現。除了抗生素治療之外，其中2位接受了經皮穿肝的肝囊泡引流術；而一位則做了腹腔鏡肝囊泡開窗術。3人後來都完全康復。我們的結論是單純的肝臟囊泡雖然很少發生感染，但卻會致命，必須儘早正確診斷以提供適當的治療。