

Spontaneous Rupture of a Simple Hepatic Cyst: Report of a Case

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We describe the spontaneous rupture of a simple hepatic cyst. A 62-year-old woman was admitted for right upper quadrant pain of sudden onset. The patient denied a history of abdominal trauma. Computed tomography of the abdomen showed a 13-cm-diameter solitary hepatic cyst in the right lobe. Part of the cyst surface was irregular, and the internal echo was heterogeneous. Retained fluid was detected under the liver capsule. Ten days after admission, computed tomography revealed that the volume of fluid retained under the liver capsule had decreased but that the hepatic cyst had enlarged again. The patient was referred to our hospital for further evaluation and treatment. Physical examination revealed mild right upper quadrant pain, but no signs or symptoms of peritonitis or abnormalities of the chest or heart. Percutaneous puncture was performed with a needle and an 8-French pigtail catheter under ultrasonographic guidance. Brown serous fluid was aspirated. After the removal of approximately 1,000 mL of fluid, contrast medium was injected to check for communications between the cyst and the biliary tree and to document the absence of leakage into the peritoneal cavity. After complete aspiration of the cyst fluid, 200 mg of minocycline hydrochloride dissolved in 10 mL of saline was injected into the cyst, and the catheter was flushed with 10 mL of saline (total volume of saline, 20 mL). The catheter was then clamped for 30 minutes. After percutaneous aspiration, the patient's symptoms resolved. Minocycline hydrochloride was injected daily for 7 days, and the catheter was removed. There has been no evidence of recurrence after 2 years. (*J Nippon Med Sch* 2015; 82: 113–116)

Key words: hepatic cyst, rupture, nonparasitic cyst

Introduction

The increasing use of ultrasonography and abdominal computed tomography (CT) has shown that up to 5% of the population have one or more nonparasitic hepatic cysts and that the prevalence increases sharply with age. Simple hepatic cysts may be solitary or multiple and are lined by cuboidal epithelium. Cyst rupture into the peritoneal or pleural cavities may be caused by trauma, although spontaneous rupture has also been reported^{1–16}. We describe the spontaneous rupture of a simple hepatic cyst.

Case Report

A 62-year-old woman was admitted for right upper quadrant pain of sudden onset. The patient denied a history of abdominal trauma. The family history was nega-

tive for renal failure and cystic disease of the liver or kidneys. A CT scan of the abdomen showed a 13-cm-diameter solitary hepatic cyst in the right lobe. Part of the cyst surface was irregular, and the internal density was heterogeneous. Retained fluid was detected under the liver capsule (**Fig. 1**). Abdominal ultrasonography showed partial discontinuity of the capsule. Spontaneous rupture of a nonparasitic hepatic cyst was suspected. Ten days after admission, CT revealed that the volume of fluid retained under the liver capsule had decreased but that the hepatic cyst had enlarged again (**Fig. 2**).

The patient was referred to our hospital for further evaluation and treatment. Physical examination on admission showed no jaundice, spider angioma, or palmar erythema and no abnormalities of the chest or heart. Examination of the abdomen revealed mild right upper

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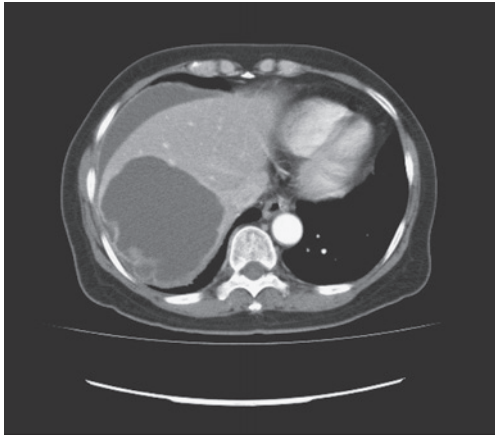


Fig. 1 An abdominal computed tomogram showing a 13-cm-diameter solitary hepatic cyst in the right lobe. The cyst surface was irregular, and the internal density was heterogeneous. Retained fluid was detected under the liver capsule.

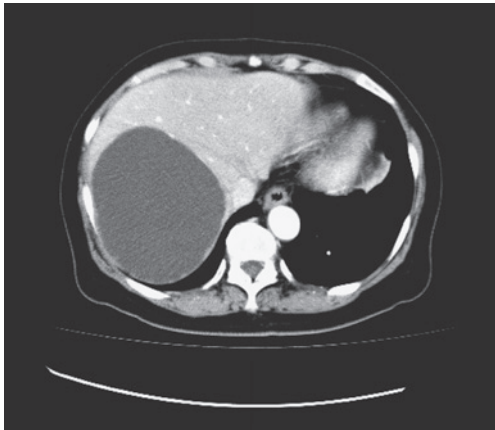


Fig. 2 Ten days after admission, computed tomography revealed that the volume of fluid retained under the liver capsule had decreased but that the hepatic cyst enlarged again.

quadrant pain but no signs or symptoms of peritonitis.

Percutaneous puncture was performed with a needle and an 8-French pigtail catheter (Ultrasonic Guided One-step Drainage Set type S, Hakko Shoji, Co., Ltd., Tokyo, Japan) under ultrasonographic guidance. Brown serous fluid was aspirated. After the removal of approximately 1,000 mL of fluid, contrast medium was injected to check for communications between the cyst and the biliary tree and to document the absence of leakage into the peritoneal cavity (Fig. 3). After complete aspiration of the cyst fluid, 200 mg of minocycline hydrochloride dissolved in 10 mL of saline was injected into the cyst, and the catheter was flushed with 10 mL of saline (total volume of saline, 20 mL). The catheter was then clamped for 30 min-

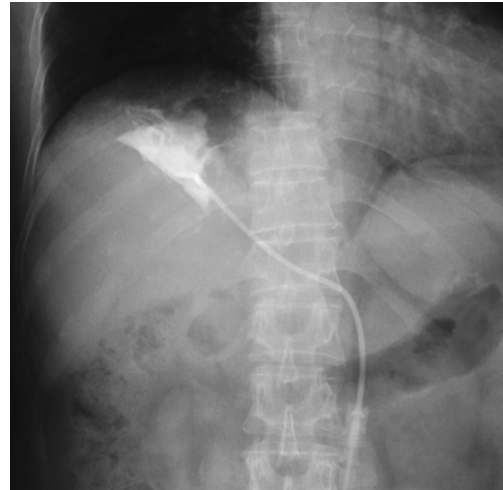


Fig. 3 After the removal of approximately 1,000 mL of fluid, contrast medium was injected to check for communications between the cyst and the biliary tree and to confirm the absence of leakage into the peritoneal cavity.

utes, as we have recommended previously¹⁷.

After percutaneous aspiration, the patient's symptoms resolved. Minocycline hydrochloride was injected daily for 7 days, and the catheter was removed. There has been no evidence of recurrence after 2 years.

Discussion

Intrahepatic cysts are generally classified as congenital, traumatic, infectious, or neoplastic. Simple nonparasitic hepatic cysts are thought to be congenital. During embryogenesis, aberrant or excessive numbers of intrahepatic bile ducts develop and consequently dilate to form hepatic cysts. Adult polycystic liver disease is a genetic disease that is usually associated with polycystic kidney disease, in which the entire liver is occupied by cysts³. Simple hepatic cysts are common benign lesions that are usually asymptomatic and require no treatment.

Spontaneous rupture of hepatocellular carcinoma has occurred occasionally^{18,19}, but spontaneous rupture appears to be a rare complication of nonparasitic hepatic cysts¹⁻¹⁶. Simple hepatic cysts occasionally disappear spontaneously without symptoms^{20,21}. This might be one instance of spontaneous rupture into the intrahepatic vessels. Other complications, such as obstructive jaundice^{22,23}, intracystic hemorrhage^{7,24-28}, and infection²⁹⁻³⁶, develop in 5% of patients. The two most common complications of nonparasitic hepatic cysts are intracystic hemorrhage and infection, often leading to pain.

Symptoms of hepatic cyst are usually caused by space occupation by the cysts and pressure exerted by adjacent

structures. The severity of symptoms depends on the size, number, and location of cysts. Patients frequently complain of chronic abdominal pain (right upper quadrant or epigastric), abdominal fullness, early satiety, dyspnea, increased abdominal girth, or vomiting. Cyst rupture causes diffuse abdominal pain, as well as clinically significant intra-abdominal hemorrhage in some patients.

There is no standard strategy for the management of ruptured hepatic cysts. In some patients with no evidence of peritonitis, clinical observation and conservative treatment may be the best option⁵. More intensive treatment is indicated if cysts are symptomatic, if complications occur, or if neoplastic growth is suspected³⁷⁻⁴⁰. Treatments reported for symptomatic ruptured hepatic cysts include hepatectomy, removal of the cyst, transcatheter arterial embolization, and percutaneous treatment. Recent trends in the management of symptomatic hepatic cysts have shifted to minimally invasive procedures, such as percutaneous treatment^{17,41,42}. Various sclerosing agents have been injected into hepatic cysts. The use of sclerosing agents has been recommended to promote coagulation-induced necrosis of the cyst epithelium and to definitively obliterate cysts⁴³. More recently, minocycline hydrochloride has been successfully used to treat hepatic cysts^{17,41}. The strong acidity of minocycline hydrochloride has been suggested to kill the secretory cells of hepatic cysts, which are then resorbed and shrink^{17,41}.

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