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Case Report

Spontaneous Rupture of Hepatic Cyst in an Elderly Patient: A Case Report

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SUMMARY

Spontaneous rupture is a very rare complication of hepatic cysts. A total of 18 elderly patients with hepatic cyst rupture were identified from 1937 to 2019. We describe a case of spontaneous rupture of a hepatic cyst with secondary bleeding. This was detected in an 81-year-old man in whom asymptomatic giant liver cysts had been detected 2 years previously. He was admitted to the emergency department with right upper abdominal pain. Abdominal ultrasonography and computed tomography (CT) revealed rupture of the large cyst in the right liver lobe and free effusion in the peritoneal space. We performed an urgent and successful surgical intervention. The postoperative course was uneventful. Our clinical management was in accordance with the majority of other authors. Different surgical procedures have been proposed and the best approach has not yet been established. However, rupture of a liver cyst is a rare complication and prompt surgery is necessary to prevent hypovolemic shock, especially in elderly people. This case describes the decision-making process when faced with spontaneous rupture of a hepatic cyst and secondary bleeding in an elderly patient.

1. Introduction

The incidence of hepatic cystic disease has been reported as occurring more frequently in females and elderly patients.[1] Hepatic cysts are generally treated if they are symptomatic, manifest rapid growth, or if the cysts are associated with any other complications such as bleeding or rupture. The gold standard management for symptomatic benign liver cysts is laparoscopic deroofing, which has a comparable recurrence rate to open deroofing, with lower morbidity.[2] However, in the case of ruptured cysts in elderly infirm patients, different surgical procedures have been proposed. We describe this case to discuss the optimal option for this situation.

2. Case report

An 81-year-old man who had experienced right upper abdominal pain of unknown origin was admitted to the emergency department. The symptoms lasted for almost 10 hours. On examination 2 years and 1 year previously, a large cyst in the right liver lobe, approximately 12 cm in size, was noted, as well as several small cysts in segments 3 and 8 (Figure 1). The patient has ongoing hypertension and he had undergone transthoracic radical surgery of gastric cardia cancer for adenocarcinoma of the gastric cardia 2 years previously.

Physical examination revealed tenderness and guarding in the abdomen, especially in the right upper quadrant. The patient's blood pressure was 89/65 mmHg and pulse rate 91 beats/minute. Liver function tests were normal. The abdominal ultrasound showed several cysts, the largest approximately 11.7 × 13.2 cm in size, which had possibly ruptured. A large amount of fluid was visible in the abdominal cavity, indicating hemoperitoneum. Computed tomography (CT) revealed the rupture of the large cyst in the right liver lobe and free effusion in the peritoneal space (Figure 2). A diagnosis of spontaneous rupture of the hepatic cyst with secondary intraperitoneal bleeding was made. Laboratory data showed that the hemoglobin had decreased to 8.5 g/dL. The patient subsequently collapsed with hemodynamic instability. As his general condition was deteriorating, surgery was performed.

At emergency exploratory laparotomy, several cysts in segments 3, 4, and 8 were found. In segments 4 and 8, the cyst walls were partially adherent to the diaphragm with some fibrosis. While

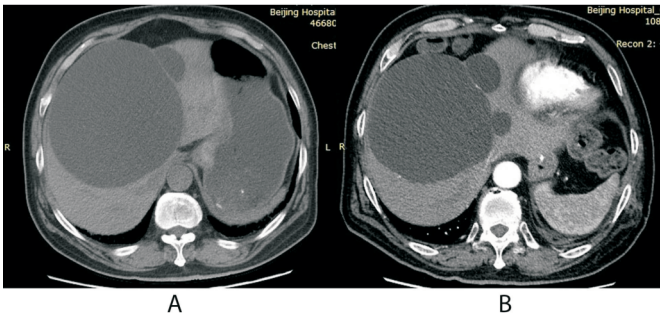

Figure 1. (A) Computed tomography image revealing a 12-cm-diameter round fluid-density lesion and small lesions in the right hepatic lobe. (B) Contrast-enhanced abdominal computed tomography scan 1 year later revealing a large centrally located simple liver cyst.

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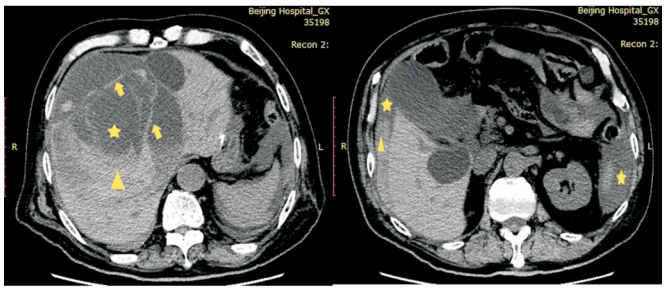

Figure 2. (A) Abdominal computed tomography demonstrating a heterogeneous low-density area occupying the right lobe of the liver with irregular cyst surface. Floating capsule cyst wall or strips of floating blood clot (arrow). (A and B) Fluid retention in the abdominal cavity, especially around the liver and spleen. The slight high-density area indicates hematocele (triangle), and the remainder of fluid is cyst fluid (star).

there were no signs of active bleeding, fresh blood could be seen oozing from the site of rupture. A partial liver resection was planned. The hemorrhagic cyst wall and some adjacent liver parenchyma were removed. In addition, other small cysts were deroofed.

The postoperative course of the patient was uneventful. Histological examination confirmed a bile duct cyst. The capsule of the cystic lesion was lined with a single layer of cuboidal epithelium (Figure 3A), which was normal, and uniform in size (Figure 3B). Lymphocyte and plasma cell infiltration and fibrous hyperplasia were observed in tissue contiguous to the cyst walls (Figure 3C).

3. Discussion

While the majority of liver cysts are asymptomatic, some patients complain of chronic abdominal pain, abdominal fullness, early satiety, dyspnea, increased abdominal girth, or vomiting.[3] Cyst rupture can also cause chest pain; if the diagnosis of pulmonary embolism is contemplated, the choice of anticoagulation should be carefully considered.[4] Hepatic cysts are generally treated if symptomatic, manifest rapid growth, or if the cysts are associated with any other complications such as bleeding or rupture. Conservative treatment is the rule in asymptomatic patients. However, cyst rupture is treated with percutaneous sclerotherapy, endovascular arterial embolization,[5] laparoscopic or open surgical cyst resection or deroofing, and liver resection or liver transplantation. Although many procedures have been proposed to treat cyst rupture, the optimal treatment strategy for such rare cases has yet to be established.

Improvement in social conditions and enhancement of medical knowledge and techniques have led to a progressive increase in the average life expectancy worldwide. Older high-risk patients are now presenting more frequently to both elective and emergency surgical services. Although surgery has become routine for elderly individuals with a relatively low mortality,[6] emergency surgery is still associated with a significantly increased risk of death. Difficult decisions are required in emergency situations; surgeons, patients, and their families need to jointly determine which patients are likely to benefit from surgery and what risks they are willing to accept in undergoing a surgical procedure. Age and a trend to increasing comorbidities significantly influence the outcomes.[7]

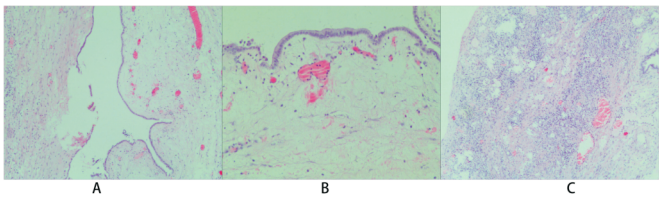

Figure 3. Histological examination (hematoxylin and eosin stain: A, magnification ×100; B, magnification ×200; C, magnification ×100).

This case describes a rare and life-threatening complication of hepatic cysts. From our experience in the present patient, he had asymptomatic giant liver cysts for many years. It is hypothesized that, with the passage of time, the pressure of the giant cyst may have increased, resulting in spontaneous rupture. The small vessels that supplied the collapsed wall were noted to be bleeding. Rupture of liver cysts may also be preceded by hemorrhage which would increase the tension inside the cyst.[8] As this patient was in poor general condition and had collapsed due to hemodynamic instability, an exploratory laparotomy was performed. At surgery, fresh blood oozing could be seen in the fibrotic ruptured cyst wall, confirming our previous diagnosis.

In conclusion, for ruptured hepatic cysts in patients in poor general condition and elderly patients with a confirmed preoperative diagnosis, nonsurgical approaches such as percutaneous sclerosis and transcatheter hepatic arterial embolization can be used. If acute surgery is relatively contraindicated, conservative treatment with active surveillance might be the most appropriate treatment method.[9] However, if the patient's general condition is deteriorating or conservative treatments are ineffective, laparoscopic or open surgery may be required, provided that the benefits and risks are thoroughly evaluated preoperatively.

Conflicts of interest

No potential financial and no financial conflicts of interest.

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