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CASE REPORT

Laparoscopic Partial Splenectomy for Giant Hemangioma Misdiagnosed as Splenic Cyst: a Case Report

Jin Wang, Jian-chun Yu*, Wei-ming Kang, and Zhi-qiang Ma

Department of General Surgery, Peking Union Medical College Hospital, Chinese
Academy of Medical Sciences & Peking Union Medical College, Beijing 100730, China

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ALTHOUGH unusual, hemangioma is the most common type of primary splenic neoplasm.¹ Usually, splenic hemangioma appears as solid mass, but sometimes it presents cystic component as well, which is difficult to discriminate from some other lesions, such as abscess, simple cyst, parasitic cyst, and lymphangioma.² Preoperative diagnosis of splenic hemangioma mainly depends on imaging study (e.g. ultrasonography, CT, MRI). As the laparoscopic technique develops, laparoscopic splenectomy is becoming the standard treatment for benign tumor of the spleen. Compared with that procedure, laparoscopic partial splenectomy (LPS) has some unique advantages except for higher requirements for surgical skills. We described in this report a successful LPS in a patient who was misdiagnosed as splenic cyst initially.

CASE DESCRIPTION

A 45-year-old woman had a mild left lower back pain for 18 years. A cystic mass in her left upper quadrant was detected by ultrasonography during health examination in 2008. Upon admission, the patient appeared well nourished, and results of physical examination and laboratory tests were unremarkable. Plain CT scan revealed a mass

about 7 cm×6 cm×6 cm in size with homogeneous low density, surrounded by the tail of the pancreas, the lower pole of the spleen and the upper pole of the kidney. Contrast-enhanced CT scan showed that part of the cystic wall was enhanced during the arterial phase and portal venous phase, but the content inside remained at homogeneous low density all along (Fig. 1). Preoperative evaluation led to the possible diagnosis of splenic cyst.

The surgical procedure was performed with an anterior approach. The first 12-mm port was inserted from the umbilicus. Two other 12-mm ports were inserted below the xiphoid process and the crossing point of left mid-clavicular line and horizontal line through umbilicus. The 5-mm port was inserted below the right costal margin on the mid-clavicular line.

The operation was begun with a thorough search of the abdominal cavity. Dissection began by opening the gastrosplenic ligament to access the lesser sac. After opening the gastrosplenic ligament, the cystic mass was exposed (Fig. 2). However, the cystic wall appeared extraordinarily thicker than common cyst. Additionally, it was close to the tail of the pancreas. Then we aspirated some clear yellow fluid from the cyst for biochemical analysis. Pancreatic amylase (58 U/L) and lipase (485 U/L) were both within normal limits, which excluded the possibility of pancreatic pseudocyst. The concentrations of alanine aminotransferase (4 U/L), total bilirubin (33.0 μmol/L), and direct bilirubin (5.1 μmol/L) demonstrated that there were blood components in sac fluid. We surmised that this lesion might

DISCUSSION

Diagnosis of splenic hemangioma

The splenic tumors are divided into three categories according to their biological behaviors: splenic benign tumor, splenic primary malignant tumor, and splenic metastases.³ Hemangiomas are the most common benign tumors of the spleen. Clinically, they are often asymptomatic and incidentally detected by ultrasonography or CT. Occasionally, they may be accompanied by splenomegaly, abdominal pain, dyspnoea, diarrhea, or constipation.¹

Splenic hemangiomas appear on CT scans as single or multiple lesions that are usually homogeneous, hypodense, or multicystic. Most of the hemangiomas are enhanced peripherally after intravenous contrast injection. However, splenic hemangioma can occur as cystic mass which is hard to discriminate from other diseases such as abscess, simple cyst, parasitic cyst, and lymphangioma. There are studies about the efficacy and safety of fine-needle biopsy from the spleen, but possible bleeding and tumor dissemination make the biopsy problematic.⁴ Li et al⁵ reported one case which was diagnosed as splenic lymphangioma by CT scan, and suspected it as a tuberculous abscess during the surgery. Finally, the histological examination and bacterial culture confirmed it as a paratyphoid abscess of the spleen. According to CT scan, another patient with recurrent fever was diagnosed as malignant lymphoma, and the pathology demonstrated it was splenic tuberculosis.⁶ Therefore, the diagnosis of splenic mass may pose a preoperative challenge.

In our case, we presumed it was a simple cyst before the surgery. At the beginning of surgery, we considered it might be pancreatic pseudocyst given its appearance, so we aspirated some sac fluid for biochemical analysis, but the values of pancreatic amylase and lipase excluded the possibility of pancreatic origin. After exposing the inferior pole of the spleen completely, we confirmed it was originated from the spleen, but the values of alanine aminotransferase, total bilirubin, and direct bilirubin implied it might be a hemangioma or some other lesions with blood content instead of a simple cyst. LPS was performed at last.

Advantages of LPS for benign splenic tumor

Nowadays, laparoscopic splenectomy has become the standard treatment for splenic disorders.⁷ Usually, hemangiomas are not treated unless they are symptomatic or very large with increased risk of hemorrhage or rupture, or accompanied by diarrhea, constipation, infarction, anemia, coagulopathy, thrombocytopenia, and malignant transformation.^{2,8} As known to all, total splenectomy could in-

crease the probabilities of postoperative infection, secondary atherosclerosis events, pulmonary hypertension, and thrombotic events.⁹ Therefore, the surgeon should attempt to preserve as much of the spleen parenchyma as possible.

Previously, LPS was technically difficult. However, developments in surgical skill and anatomic knowledge of the splenic vascularization have rendered partial splenectomy possible.¹⁰ Although taking longer time, LPS offers more rapid postoperative recovery and shorter duration of hospital stay. The incidence of conversion to open splenectomy is 0%-20%.¹ Danielson et al¹¹ reported that LPS in children could be performed safely with a lower conversion rate (2.9%). However, LPS remained a requiring surgical option because of perioperative bleeding. In our case, bleeding risk was limited by initial control of the pedicle, the use of ultrasonic scalpel and Endo GIA. These guarantee clean and non-hemorrhagic transection of the spleen.

Although the indications for LPS are the same as for open surgery, some cases still require extra caution. Absolute contraindications to the laparoscopic approach include severe cardiopulmonary disease and liver cirrhosis.¹² Short gastric vessels present unacceptable risk of operative hemorrhage in patients with portal hypertension.

In conclusion, splenic hemangiomas are rare and asymptomatic. Misdiagnosis may lead to inappropriate surgery. Careful exploration and sac fluid analysis may help intraoperative diagnosis. Compared with splenectomy, LPS achieves not only complete excision of splenic lesion, but also less invasion, preserving the functions of the spleen, shortening hospital stay and time for full recovery.

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