

Traumatic Rupture of a Splenic Cyst in a Young Female

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Splenic cysts are not common in young adults. They can be divided into true cysts and pseudocysts. Pseudocysts comprise 80% of all cystic disease in the spleen. Here we report on an eighteen-year-old patient with acute abdominal pain and distension that developed after a small traffic trauma. Abdominal computed tomography showed haemoperitoneum and a ruptured cystic lesion over the splenic fossa. Owing to the high mortality of hypovolemic shock, emergency surgical hemostasis was necessary. We performed a complete splenectomy and autogenic transplantation. The patient was discharged uneventfully one week later.

Key words: Spleen, cyst, pseudocyst, haemoperitoneum, splenectomy

INTRODUCTION

Andral et al first described splenic cystic disease in 1829¹. Eighty percent of splenic cysts are pseudocysts, which have a history of prior trauma¹. Current diagnoses of splenic cysts involve sonography and abdominal computed tomography. Professor Sarath described how unroofing the cystic wall or partial splenectomy is a standard procedure for asymptomatic and small splenic cysts¹. Complete splenectomy could be performed in the case of large cysts (>5 cm). A complete splenectomy can also be used with infected pseudocysts or ruptured pseudocysts. We report here a case of the rupture of a primary splenic cyst in a young female patient due to an abdominal trauma.

CASE REPORT

An 18-year-old girl sustained a trauma from falling off a bicycle. Severe abdominal pain and distension developed prior to admission to our emergency facilities. No hypotension or cold skin turgor was noted. Haemoperitoneum was detected by FAST. Initial hemoglobin was 11.8 gm/dL and

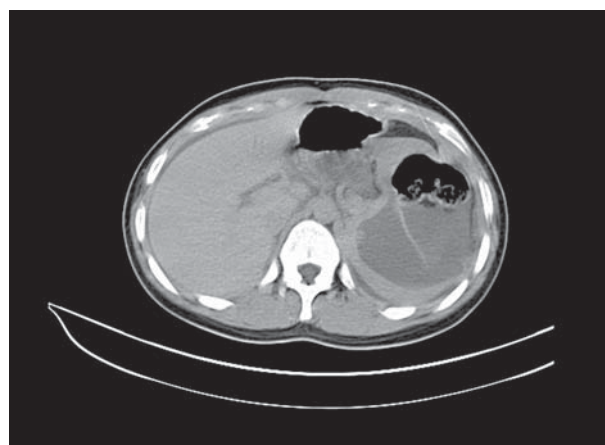


Fig. 1 CT scan showed a ruptured splenic cyst with hematoma.

rechecked hemoglobin was 11.0 gm/dL. A loosened splenic margin with a ruptured cyst was observed by abdominal CT scan (Figure 1). Traumatic splenic rupture was suspected. Owing to the risk of hypovolemic shock and increased abdominal distension, emergency laparotomy was performed. After withdrawing 1500 mL of bloody ascites, a fascial-like membrane was found over the left sub-diaphragmatic region. Rupture of the diaphragm was also suspected, but after removal of the fascial-like membrane from the diaphragm, a ruptured splenic cyst was identified (Figures 2, 3). The cyst was approximately 8 cm in diameter with a trabecular lining (Figure 4). A complete splenectomy and autogenic transplant was performed due to the complexity of this ruptured splenic cyst. The patient was uneventfully discharged one week later.

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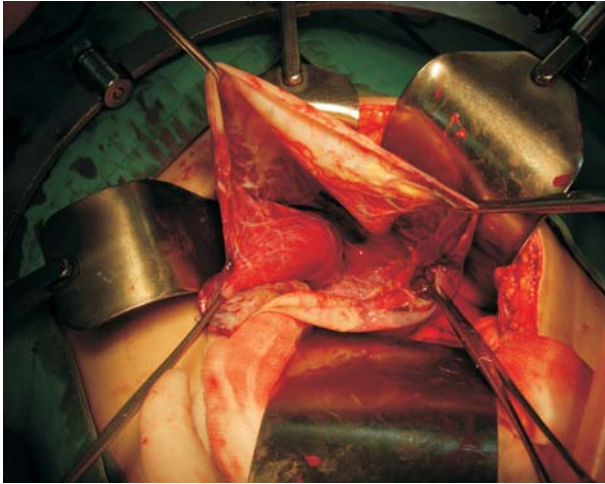


Fig. 2 A huge splenic cyst was shown during operation.



Fig. 3 The resected spleen specimen showed a huge splenic cyst about $15 \times 15 \times 6$ cm³.

DISCUSSION

Splenic cysts are very rare. The first case of splenic cyst was reported by Andral in 1829, and the first splenectomy was performed by Pean of France in 1867^{1,3}. In cases without cellular lining on the cystic wall, splenic cysts can be classified as primary (true) or secondary (pseudo) cysts. Twenty percent of splenic cysts are true cysts (also called epidermoids), and eighty percent are pseudocysts, which result from prior splenic trauma. True cysts usually do not calcify, but can have trabeculations and septae. They can produce internal echoes from cholesterol crystals or can produce protein particles from internal inflammation². In rare cases, they may contain dermal appendages, like hair, sebaceous, or sweat glands³. Primary splenic cysts can be congenital, vascular, serous, infectious, or neoplastic⁴, and



Fig. 4 Trabecular lining of cystic wall was shown from the inner view of the splenic cyst.

occur predominately in children and young women. The ratio of incidence for males and females is 2:3.

Predisposing factors for primary splenic cysts include menstrual abnormalities, malaria, syphilis, mumps, and Gaucher's disease³. Etiological factors that have been implicated in cyst formation include trauma, infarcts, tuberculosis, thrombosis of the splenic artery, arterial degeneration, secondary hemorrhage, and neoplasm⁸. Possible mechanisms of the pathogenesis of congenital splenic cysts include involution of pleuripotent with subsequent squamous metaplasia⁵. Clinical presentations include abdominal pain and palpable masses in the left upper quadrant with or without symptoms due to compression of adjacent organs⁴. Small cysts generally do not have symptoms. On the other hand, epithelial splenic cysts are symptomatic only when more than 5 cm in diameter. Asymptomatic primary splenic cysts have a good prognosis⁵. Differential diagnosis includes congenital cysts, parasitic echinococcal cysts, pancreatic pseudocysts, and infarctions⁶ (Table 1).

Current diagnosis of a splenic cyst involves the use of radiological tools. Abdominal ultrasonography, CT scans, and magnetic resonance imaging are commonly used⁷. Sonography and CT may show whether a cystic lesion contains internal septum⁸.

The treatment for a splenic cyst depends on its size and contents. As mentioned above, primary splenic cysts can be congenital, vascular, serous, infectious, or neoplastic. Operators should avoid iatrogenic spreading during a partial splenectomy for infection or malignancy. However, a hydatid disease may be life threatening, causing intrathoracic or intraabdominal rupture, rupture into the biliary

Table 1 Differential Diagnosis for Splenic Cysts

<u>Splenic true cyst</u>
Splenic Pseudocyst
Hydatid cyst
Pancreatic pseudocyst
Exophytic cyst from the liver
Splenic infarction
Pyogenic splenic abscess
Metastatic tumors
Cystic lymphangioma / hemangioma(rare)

tree, secondary infection, and pleural hydatidosis⁹. In our case, no parasite was observed in the ascites. Conservative treatment is now the standard in the management of true cysts and pseudocysts of the spleen to prevent post-splenectomy complications¹. Another consideration when deciding to operate is the size of the cyst. Percutaneous sclerotherapy of a symptomatic post-traumatic splenic pseudocyst may be an alternative to surgical treatment. Surgical intervention is not indicated for small, asymptomatic (< 5 cm) splenic cysts. In young and healthy patients with large (> 5 cm) cysts, partial splenectomy or unroofing can be performed. If the cysts involve the hilum, ruptured cysts or infectious splenic cysts cannot be ruled out, and a complete splenectomy is standard and acceptable (Table 2). In our case, abdominal CT showed a splenic cyst larger than 5 cm in diameter. In addition, the residual normal splenic medulla formation was too thin for unroofing to be performed. Third, we could not rule out an infectious cyst or neoplasm with a ruptured cyst because the pathologist was unavailable. Given the complexity, we decided to conduct a complete splenectomy and autogenic transplant.

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Table 2 Treatment Options for Splenic Cysts

Small cysts(< 5 cm):
Follow-up
Percutaneous sclerotherapy
Young and healthy patients with large symptomatic splenic cysts:
Partial splenectomy
Unroofing of cyst
Complete splenectomy
Cysts involving the hilum: Splenectomy
Ruptured cyst: Splenectomy
Infectious cyst: Complete splenectomy

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