Subcapsular Hematoma of the Spleen in acute sever pancreatitis unusual complication

Saleh Alzahrani*
King Abdulaziz Medical City National Guard Hospital - Riyadh

**Corresponding author:** Saleh Alzahrani, King Abdulaziz Medical City National Guard Hospital - Riyadh, Tel. no: 96604378613; E-mail: smz0022@hotmail.com

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Abstract

The splenic complications of acute or chronic pancreatitis are very rare. Splenic subcapsular hematoma is one of the rarest sequel of pancreatitis. There are few cases reported with variable presentation and management.

Here, we report an interesting case of subcapsular splenic hematoma in patient with severe pancreatitis which was managed nonoperatively by percutaneous drainage also an interesting intraoperative finding of cholecystenteric fistula was identified which was managed by laparoscopy.

Conclusion: Splenic subcapsular hematoma is one of the rare complication of severe pancreatitis. Percutaneous drainage of subcapsular splenic hematoma appears to be less invasive and obviate splenectomy in stable patient.

**Keywords:** Subcapsular hematoma of the spleen; Unusual complication of pancreatitis; Percutaneous drainage; Hematoma; Laparoscopy; Case report

Introduction

Subcapsular hematoma of the spleen is a rare complication of acute or chronic pancreatitis [2–6]. It includes splenic vein thrombosis, arterial pseudoaneurysm, subcapsular splenic hematoma, and splenic rupture [1, 9, 16, 17]. The management of this complication remains controversial. Thompson and Ashley [8] advocated early splenectomy to prevent rupture of the splenic hematoma and its associated morbidity. Rypens et al [7] suggested that most of these complications could potentially regress and be managed conservatively. In addition, percutaneous drainage of the subcapsular splenic hematoma has been demonstrated in 3 case reports in the literature [1, 9, 10]. We here present a case of a subcapsular splenic hematoma complicating acute severe necrotizing pancreatitis with symptoms of abdominal pain and frequent vomiting. The splenic hematoma was diagnosed in follow up computer tomography (CT) for necrotizing pancreatitis and it was treated successfully with ultrasound-guided percutaneous drainage.

Case report

71 year old Saudi women known to have hypertension controlled with medication presented to emergency department with complain of one week abdominal pain, vomiting and anorexia. Two weeks prior to her presentation she was hospitalized in periphery hospital with diagnosis of pancreatitis. She was managed conservatively at surgical ward and discharge in stable condition. She was planned for interval cholecystectomy. At her presentation she wasn’t able to take orally with frequent vomiting. She had abdominal pain mainly at epigastric area intermittent with radiation to the back. She had no fever, jaundice, nor change of bowel habit. She had no history of trauma or previous interventions. There was no history of use of anticoagulation. She had no previous surgery. Other systemic review was unremarkable. Clinical examination showed elderly women comfortable in bed not in distress. Her vital sign was stable. The abdominal examination showed mild tenderness at epigastric area. She had leukocytosis of 17, hemoglobin of 96. Liver function test was normal except mild indirect hyperbilirubinemia which was normalizing in follow up labs her amylase was normal. Abdominal ultrasound showed thick gallbladder wall with gallstone. There was no dilatation of common bile duct or intra hepatic ducts. CT abdomens showed sign of severe necrotizing pancreatitis with multiple pancreatic tail pseudocyst [Figure1]. She was diagnosed with complicated severe necrotizing pancreatitis. She was managed conservatively. Follow up C.T in 2 weeks period done for her persistent symptoms which showed large sub-capsular hematoma of spleen. The size was 13 * 6 * 10 cm [Figure2]. Ultrasound guided drainage done for the hematoma. Post drainage patient was kept in monitor bed till output was serous in color follow up C.T showed complete resolution. During laparoscopic cholecystectomy, there was an intra-operative finding of adhesion and cholecystenteric fistula [Figure3]. The fistula was taken down and repaired with intracorporeal PDS suture after removal of the stone [Figure 4, 5]. Post operatively was uneventful follow up C.T after a month from discharge showed no recurrence [Figure 6].

Discussion

The pancreatic tail is close to the hilum of the spleen. This anatomy provides a potential for splenic involvement in
pancreatitis [3–6, 11, 12]. Splenic complications associated with pancreatitis include splenic vein thrombosis, arterial pseudoaneurysms, splenic hematoma and splenic rupture [1–7]. These complications occur in 1–5% of pancreatitis. They may occur through one of the following mechanisms: (1) splenic vessel complications, such as thrombosis and pseudoaneurysm formation; (2) dissection of a pancreatic pseudocyst into the hilum of the spleen, which can cause splenic rupture, splenic infarction, arterial hemorrhage, or venous thrombosis; or (3) extension of the inflammatory process from the tail of the pancreas into the hilum of the spleen, which may induce hematoma formation [3–7]. Splenic hematoma is a rare complication of acute or chronic pancreatitis when compared with traumatic origin of subcapsular hematoma. In a recent large series of 500 patients with chronic pancreatitis, an estimated prevalence of 0.4% was reported [2]. Local factors (thrombosis of the splenic artery or veins, intrasplenic pseudocysts, perisplenic adhesions, enzymatic digestion) and coagulation disorders may play a role in the pathogenesis of splenic hematoma [3, 4, 7, 8]. The splenic hematoma in this case was probably caused by the erosion of cystic pancreatic inflammation from the tail of the pancreas into the hilum of the spleen as demonstrated on initial abdominal CT [Figure 1]. The hematoma is contained within the splenic capsule [Figure 2]. The delayed presentation of the hematoma makes this theory most probably. Extension of pancreatic pseudocyst to subcapsule of the spleen (intra-splenic pseudocyst) was initially our thought but CT density as well the output later was consistent with hematoma. Amylase level from drained fluid was not high as well. Because splenic involvement in patients with acute or chronic pancreatitis is uncommon, the diagnosis of subcapsular hematoma of the spleen needs the alertness of physicians and imaging studies. Patients with pancreatitis exhibiting a mass in the left upper quadrant, pain radiating to the left shoulder, elevation of the left diaphragm, and persistent symptoms despite normal laboratory results should be suspected to have splenic complications. Abdominal CT should be performed early in questionable patients. A splenic hematoma can be distinguished from simple fluid collection based on density (Hounsfield units > 30). It was 45 unit in our case. Angiography is not essential for the diagnosis, but would be indicated if splenic artery pseudoaneurysm, splenic vein thrombosis or active bleeding was suspected [9, 13]. The management of subcapsular splenic hematoma in pancreatitis remains controversial [11]. Surgical treatment with splenectomy, percutaneous drainage, and observation are management options. Kuramitsu et al [12] reported 1 case with chronic pancreatitis and a large subcapsular splenic hematoma (10 × 10 cm). After conservative management for 6 weeks, the size of the hematoma had not change; rupture of the hematoma with peritonitis occurred after a relapse of pancreatitis, which prompted surgical intervention [13].

Figure 1: Signs of severe necrotizing pancreatitis, multiple pseudocysts, and moderate ascites. Spleen is normal.

Figure 2: Large subcapsular splenic hematoma compressing (star).

Figure 3: Intraoperative findings. Cholecystentic fistula (star) showed stone impaction.

Figure 4, 5: (A) Another view of fistula. (B) showed large stone impacted in duodenum part.

Figure 6: Follow-up CT showed complete resolution with no recurrence.
They suggested that in cases of large splenic hematoma (> 5 cm) as a complication of pancreatitis, pressure reduction by percutaneous drainage or laparotomy should be administered as early as possible. Some reports have advocated aggressive management with early splenectomy to avoid splenic rupture [2, 8, 14]. Thompson and Ashley [8] described 3 cases with acute pancreatitis accompanied by large subcapsular hematoma of the spleen. Two patients recovered after splenectomy, but 1 patient died due to continuing blood loss. They suggested that the treatment of subcapsular splenic hematoma should be a splenectomy in the vast majority of patients to prevent continuing blood loss and potential rupture [8].

Percutaneous drainage for splenic subcapsular collections may be a feasible treatment, but there are only a few reports of it in the literature. Quinn et al [15] reported 2 cases of intrasplenic pseudocysts due to pancreatitis and 2 cases of traumatic splenic hematoma undergoing percutaneous drainage. Vyborny et al [10] were the first to demonstrate successful ultrasound-guided percutaneous drainage of a large subcapsular hematoma of the spleen complicating pancreatitis. Siu [9] described 1 case of spontaneous subcapsular hematoma of the spleen (13 × 8 × 5 cm) complicating chronic pancreatitis that was treated by CT-guided percutaneous drainage. Both reports showed that the benefits of percutaneous drainage of a splenic hematoma include prompt relief of symptoms, short recovery time, avoidance of splenic rupture and, most importantly, spleen preservation [9,10]. No complication was noted after the procedure. The patients remained asymptomatic at 2 and 0.5 years of follow-up, respectively [9,10]. Dr. Chun-Chia did grate review of non invasive drainage of subcapsular hematoma and he reports one case with successful ultrasound guided drainage [1]. Our patient is the fourth documented case of successful percutaneous drainage of a large subcapsular splenic hematoma complicating pancreatitis.

Rypens et al [7] reviewed 16 patients with splenic parenchymal complications of acute or chronic pancreatitis. Subcapsular splenic collections were detected in 11 patients. Two patients underwent emergency splenectomy, 2 patients received delayed splenectomy, and the others were treated conservatively. Time for healing of splenic lesions varied from 1 week to 4 months [7]. The authors suggested that most splenic complications of pancreatitis regress spontaneously and may be managed conservatively. Surgical indication is based on clinical findings. Patel et al [16] reported a case of large subcapsular splenic hematoma (11.1×9.5 cm) resulting from pancreatitis that was managed conservatively with a good outcome. A CT scan performed 4 months later showed marked resolution of the hematoma. They suggested that it is appropriate to manage splenic subcapsular hematoma conservatively in a hemodynamically stable patient who is improving symptoms and signs [16].

In our case there was another challenge, which was intra-operative cholecystoenteric fistula Figure3, 5. Cholecystoenteric fistula are a rare complication of gallstoned isease, with a reported incidence of 3–5% in patients with cholelithiasis1 and 0.15–4.8% in patients undergoing biliary surgery [19-22]. The exact etiology of such fistulation is yet to clearly established. According to Glenn et al [5] following stone formation in the gallbladder, an acute inflammatory process with obstruction of the cystic duct results in adhesion of the gallbladder to the contiguous viscus, usually duodenum. Recurrent episodes of such inflammation result in the destruction of the wall of the gallbladder and the adjacent viscus, ultimately resulting in erosion of the tissues and fistulation. According to an alternate theory, the mechanical pressure due to a gallstone results in erosion of the tissues in the gallbladder wall with necrosis until a fistula forms with the contiguous viscus [6]. Endostapling device to transect the fistula was the preferred management in multiple articles [18]. We could not apply this to our patient because of presence of stone impaction in fistula Figure 5. cholecysto fistulectomy was mandatory in our case to retrieve large stone. A stapled transaction of the fistula may be the procedure of choice to avoid contamination of the peritoneal cavity in case there was no stone impaction [18]. Laparoscopic intracorporal suturing was the closure method in our case.

**Conclusion**

Splenic subcapsular hematoma is one of the rare complication of sever pancreatitis. Percutaneous drainage of subcapsular splenic hematoma appears to be less invasive and obviate splenectomy in stable patients.

**References**


