Subcapsular splenic haematoma: a rare complication of pancreatitis
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Section: Abdominal imaging
Area of Interest: Spleen Veins / Vena cava Pancreas Abdomen
Procedure: Diagnostic procedure
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Haemorrhage Acute Case Type: Clinical Cases
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Patient: 41 years, male

Clinical History:
The patient was hospitalised because of an acute alcoholic pancreatitis successfully treated with medical therapy. Two weeks later the patient was hospitalised again after sudden onset of a left-sided chest and left upper quadrant abdominal pain. Blood chemistry revealed drop in haematocrit; the patient remained haemodynamically stable.

Imaging Findings:
Initial abdominal CT showed enlargement of the pancreatic tail, which was enveloped by a fluid collection extending into the gastro-splenic ligament; narrowing of the splenic vein was also evident (Fig. 1). The CT performed during the second hospitalization detected a large subcapsular inhomogeneous fluid collection of the spleen (Fig. 2a, b); no intraperitoneal fluid was detected. Patency of the splenic vein was also demonstrated (Fig. 2c). Daily monitoring with ultrasonography demonstrated a progressive decrease in size of the subcapsular splenic collection. Diagnostic imaging follow up demonstrated the progressive reabsorption of the fluid collection (Fig. 3, 4).

Discussion:
Splenic complications of pancreatitis are rare but potentially life-threatening; they include vascular complications (arterial pseudoaneurysm, venous thrombosis), infarction, pseudocyst, abscess, haemorrhage, subcapsular haematoma and rupture [1-4]. In a series of 100 patients with an acute pancreatitis a subcapsular splenic hematoma was found in 2 patients (2%) both with a severe pancreatitis [3]. Splenic vessels involvement is considered a risk factor [5].
The anatomical relationship of the pancreas and the spleen accounts for these complications. The pancreatic tail, which lies along the splenic vessels, is distally contained within the splenorenal ligament and takes a close relationship with the splenic hilum. Continuity of the splenic capsule and the peritoneum, which covers the pancreas and encompasses the splenic vessels, favours dissection of the pancreatic fluid into the subcapsular splenic space [1, 2].
The subcapsular haematoma can be due to direct erosion of pancreatic enzymes into the spleen, subcapsular dissection of the pancreatic fluid into the subcapsular space via the splenic hilum, or mechanical compression from an intrasplenic pseudocyst [4]. Laceration of the capsule can result in intra-abdominal haemorrhage in case of a large
Because of its non-specific symptoms, detection of a splenic subcapsular haematoma due to pancreatitis (likewise to the other splenic complications) relies on diagnostic imaging. Contrast enhanced CT is the usual modality performed for diagnosis and follow up [4] and is mandatory in haemodynamically unstable patients.

While splenectomy is indicated for unstable patients, there is not a definitive consensus on therapeutic strategy in stable patients with a subcapsular splenic haematoma complicating a pancreatitis. Splenectomy is often advocate to prevent rupture [7]. Conservative management has been proven to be effective in patients with improving symptoms, as splenic parenchymal complications of pancreatitis spontaneously heal in three quarters of cases while only 12% of patients requires an urgent splenectomy. As for splenic traumas, indications for operation does not seem related to the severity of the parenchymal lesion alone but also to the entity of the hemoperitoneum [2]. When conservative treatment is the initial therapeutic option, strictly radiological follow up is mandatory in the first period to establish the evolution of the subcapsular hematoma for a prompt surgery when enlargement of the lesion is ascertained.

Anecdotal reports pointed out safety and effectiveness of percutaneous drainage of subcapsular splenic hematoma [8, 9], but its role is not definitively established since percutaneous drainage seems to accelerate healing of subcapsular hematoma which may spontaneously resolve.

**Differential Diagnosis List:** Subcapsular splenic haematoma complicating pancreatitis, Intrasplenic pseudocyst, Intrasplenic haemorrhage

**Final Diagnosis:** Subcapsular splenic haematoma complicating pancreatitis

**References:**


Description: The pancreatic tail is slightly enlarged and enveloped by a peripancreatic fluid collection. Narrowing of the splenic vein is also appreciable (arrow). Origin: Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy
Description: Diffusion of the fluid collection within the gastro-splenic ligament is appreciable on a more cephalad section. Fatty infiltration of the liver is also evident. Origin: Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy
Description: Large inhomogeneous subcapsular fluid collection of the spleen. Origin: Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy
Description: Coronal multiplanar reformation. A small left pleural effusion is present; no evidence of fatty infiltration of the liver. Origin: Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy
Description: Para-axial MIP shows patency of the splenic vein. Origin: Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy
Figure 3

**Description:** Partial reabsorption of the subcapsular splenic collection. **Origin:** Sergio Savastano, UO Radiologia, OSpedale San Bortolo, Vicenza, Italy
**Figure 4**

*a*

**Description:** Axial T1 out-of-phase GE image shows progressive decrease in size of the subcapsular splenic haematoma. Hyperintense rim indicates deposits of methaemoglobin. **Origin:** Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy

*b*

**Description:** Axial TSE T2wi depicts inhomogeneity of the residual subcapsular collection. **Origin:** Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy
Description: Coronal CE 3DSPGR shows well the decrease in size of the subcapsular splenic hematoma. Enhancement of the parietal peritoneum of the left hypocondrium is also appreciable.

Origin: Sergio Savastano, UO Radiologia, Ospedale San Bortolo, Vicenza, Italy