

Giant Splenic Artery Aneurysm as a Rare Sequelae of Chronic Pancreatitis

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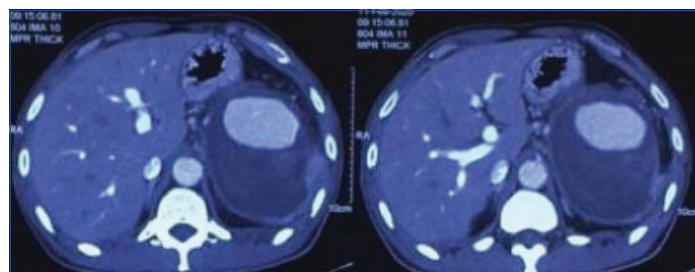
ABSTRACT

Splenic Artery Aneurysms (SAAs) is the third commonest intra-abdominal aneurysms, following abdominal aorta and iliac artery aneurysms. The SAAs can be either true aneurysms or pseudoaneurysms. SAA measuring >5 cm are generally described as giant. Herein, a case of giant SAA is presented. A 52-year-old male patient with history of alcohol related chronic pancreatitis for the past five years presented with abdominal pain and upper abdominal fullness. Computed Tomography (CT) abdomen was suggestive of giant splenic aneurysmal mass. Surgical treatment was planned due to the large size and symptomatic nature of the aneurysm. Splenic artery aneurysmectomy with distal pancreatectomy with splenectomy was performed. The most important and critical complication of giant SAA is spontaneous rupture which has high mortality. Open abdominal surgical excision is still the gold standard for management of giant splenic artery aneurysms, despite recent advances in endovascular treatment options.

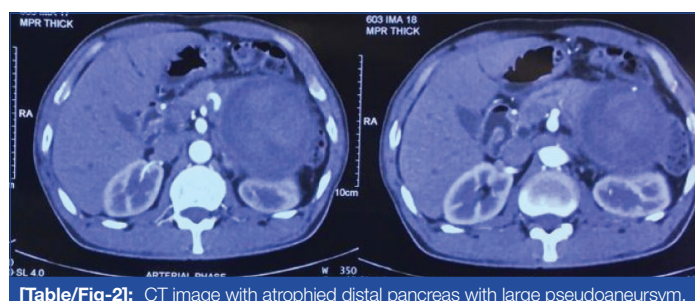
Keywords: Aneurysmectomy endovascular coiling, Distal pancreatectomy, Pseudoaneurysm, Splenectomy

CASE REPORT

A 52-year-old male patient was referred to Hepatobiliary unit, following detection of giant splenic aneurysmal mass on CT Abdominal scan. He had recurrent episodes of upper abdominal pain for past five years and required hospitalisation during severe episodes, a diagnosis of chronic consumption for about 28 years. New onset of upper abdominal fullness with decreased appetite and continued dull aching abdominal pain for past three months. He was evaluated by Contrast Enhanced Computed Tomography (CECT) Abdomen. Imaging [Table/Fig-1,2] revealed a giant splenic aneurysmal mass (9×7 cm) with features of chronic pancreatitis and splenic infarcts.



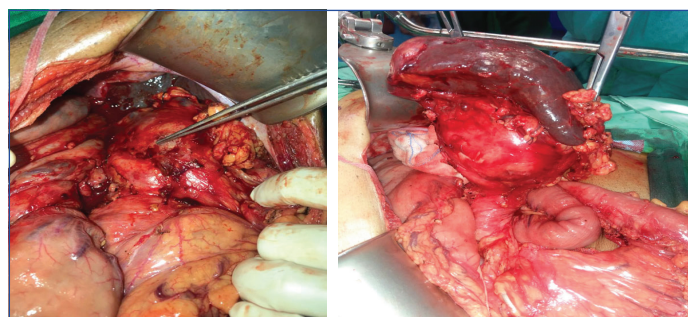
[Table/Fig-1]: Computed Tomography (CT) image shows bleed in the cavity.



[Table/Fig-2]: CT image with atrophied distal pancreas with large pseudoaneurysm.

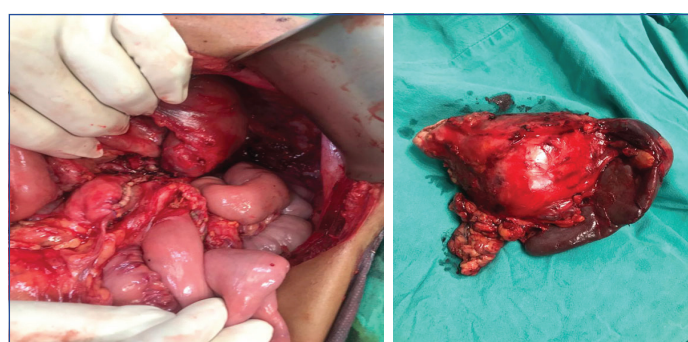
His diabetes was well controlled with oral medications. In view of large size, he was advised to undergo surgical intervention. Preoperative blood work-up, cardiological evaluation and optimisation. He was taken up for surgery. Intraoperatively, we found a large mass arising in the region of distal pancreas which was densely adherent to stomach and retroperitoneum [Table/Fig-3]. Few collaterals were noted around the mass. The mass was mobilised from the retroperitoneum after taking control on the proximal portion of splenic artery. Spleen was mobilised [Table/Fig-4]. Pancreas was firm in consistency and proximal pancreatic body was mobilised.

Splenic artery aneurysmectomy with distal pancreatectomy with splenectomy was performed. Pancreatic transection was done using gastrointestinal stapler [Table/Fig-5,6].



[Table/Fig-3]: Large aneurysmal mass in the distal pancreas region.

[Table/Fig-4]: En bloc removal of spleen with aneurysmal mass with distal pancreas. (Images from left to right)



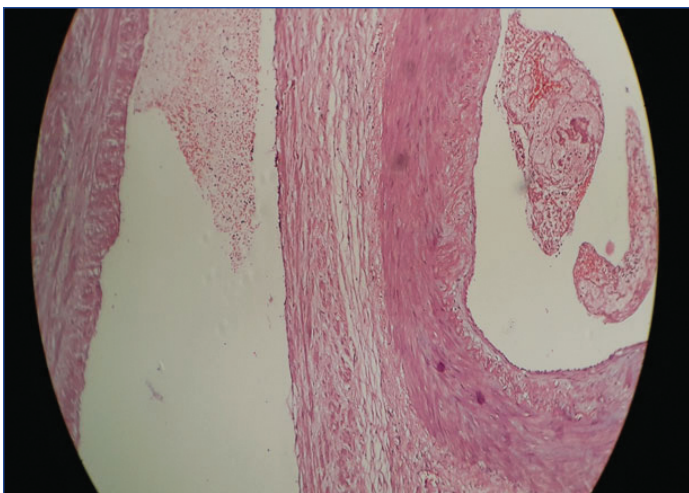
[Table/Fig-5]: Stapled pancreatic after distal pancreatectomy.

[Table/Fig-6]: Resected specimen. (Images from left to right)

Postoperative recovery was uneventful except for hiccups and responded to Baclofen. Final histopathology was confirmative [Table/Fig-7]. Patient was doing fine at three months follow-up.

DISCUSSION

The SAA is the most common visceral arterial aneurysm [1]. It is the third most frequent intra-abdominal aneurysm after abdominal aortic and iliac artery aneurysms. Most small SAAs are asymptomatic, and are therefore diagnosed incidentally during radiologic investigations [2,3]. SAAs constitute 50% to 70% of splanchnic artery aneurysms [4]. The SAAs can be either true aneurysms or pseudoaneurysms. True aneurysms involve all three layers of the arterial wall, whereas



[Table/Fig-7]: Histopathological examination by Haematoxylin and Eosin (H&E) stain under 10X magnification.

pseudoaneurysms do not. The SAA measuring >5 cm are generally described as giant [1,5]. The incidence of rupture is about 2% to 10% [6,7]. Rupture is the most dreaded complication of SAAs with mortality ranging between 10-100% [6,7]. Rarely aneurysm can erode into adjacent visceral organs or into pancreatic duct and present as gastrointestinal bleeding [8].

While true SAAs can be caused by atherosclerosis, hypertension, cirrhosis, portal hypertension, post liver transplantation status, female sex, pregnancy, and multiple pregnancies [3,5]. Rarely, it can be seen in Systemic Lupus Erythematosus (SLE), collagen vascular disorders, polyarteritis nodosa. The most important factor for splenic artery pseudoaneurysm is acute or chronic pancreatitis. Pancreatic pseudocyst and abdominal trauma are the other potential causes [3,9]. Pancreatic enzymes causing damage to the elastin fibres of the arterial wall can result in pseudoaneurysms [10].

There is a significantly higher risk of rupture of splenic pseudoaneurysms compared to true aneurysm (37%). This is because of the histopathological features of the wall of the aneurysm. Sudden rupture of SAA spontaneously can result in a medical emergency, hypovolemia and shock due to blood loss, often starting with pain in the left upper quadrant, epigastric region or the left shoulder (referred pain) [11].

Diagnostic tools for SAAs include Ultrasound (US), Doppler US, CT, and Magnetic Resonance Imaging (MRI) [12]. CT-angiography (arterial phase) is the best diagnostic modality for SAA [5]. The treatment for SAA depends on the risk of rupture. Asymptomatic true aneurysms ≥ 2 cm should be treated, while those less than 2 cm may be observed. For pseudoaneurysms, any size is always at a higher risk of rupture. Hence, all symptomatic SAA and all pseudoaneurysms should be treated irrespective of the dimensions [1,12].

Treatment modalities include surgical and endovascular intervention. It can be either coil embolisation, stent placement and placement of vascular plug. However, the safest and best option of treatment remains as open abdominal surgery. The plan for surgery is dependent on the location and size of the aneurysm. Aneurysmectomy followed by direct reconstruction can be performed for proximal SAAs where feasible, with splenic preservation. Distal location of SAA might

warrant a splenectomy [13]. Giant SAAs are often surgically complex, and require various options. Some of the possible procedures include aneurysmectomy with splenectomy, splenic arterial ligation proximal and distal to the aneurysm, distal pancreatectomy and splenectomy, and transaneurysmal ligation of splenic artery [14]. For smaller aneurysms without significant adhesions, laparoscopic surgery is a safe and feasible approach in experienced hands. Another option is endovascular treatment such as transcatheter coil embolisation. However, this may be complicated by migration of coils, intestinal infarction, splenic infarction, splenic abscess and rupture of aneurysm in rare cases [11,12]. However, due to overall low morbidity and good success rate, endovascular treatment is becoming more widely accepted in select cases [12,15].

CONCLUSION(S)

In many cases, multiple approaches may be necessary, especially for initial endovascular treatment followed by surgical excision which provides good outcomes. Splenic artery is rare vascular lesion. Pancreatitis and trauma are the most common etiology. Clinical presentation is varies from an incidental finding to massive bleeding leading to acute circulatory collapse. Diagnosis is best established with contrast enhanced computed tomography. Open surgical excision in the form of splenectomy with or without distal pancreatectomy is still the gold standard for management of giant splenic artery aneurysms, despite recent advances in endovascular treatment options.

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