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## **Splenic artery pseudoaneurysm secondary to necrotizing pancreatitis – A rare lethal complication**

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## **Splenic artery pseudo-aneurysm secondary to necrotizing pancreatitis – A rare lethal complication.**

**A. CLINICAL HISTORY:** A 35-year-old male patient presented with history of massive hemoptysis associated with pain abdomen and breathlessness since the past 3 days. Patient had no prior co-morbidities; however was a chronic alcoholic and smoker since the past 15 years. No hospital admissions in the past.

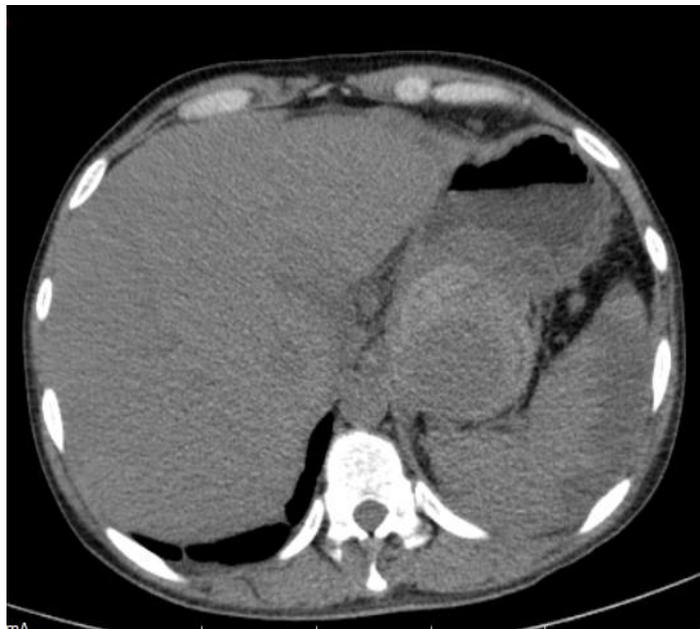
### **B. OTHER INVESTIGATIONS:**

- Lab investigations – Hemoglobin – 6.9mg/dL (Reduced), Counts – 229560 cells/mm<sup>3</sup>, Amylase – 64U/L, Lipase – 97U/L (Elevated), and Rest of the investigations were within normal limits.
- Upper GI Endoscopy – Smooth extrinsic compression noted over the greater curvature with adherent blood clot. Altered blood noted in the region of the body, antrum and pylorus.

### **C. IMAGING:**

#### **CT ABDOMEN & PEVIS (AXIAL PLAIN) – Fig 1**

- Well-defined rounded hypodense lesion measuring ~ 7 x 6.2cm in the region of the tail of pancreas with a peripheral layered rim of hyperdensity .



**CT ABDOMEN & PELVIS (AXIAL & CORONAL - ARTERIAL PHASE) – Fig 2 and 3**

- Saccular narrow necked out-pouching from the mid splenic artery with intense enhancement. No e/o active contrast extravasation / calcification – **S/o Large saccular pseudo-aneurysm.**



**CT ABDOMEN & PELVIS (AXIAL – VENOUS PHASE) – Fig 4 - 7**

- Pseudoaneurysm. No e/o active contrast extravasation.
- Significantly thickened adjacent posterior wall of the stomach (11mm) with hyper-enhancing mucosa and poorly maintained fat planes.
- Multiple Splenic Infarcts.
- Bulky pancreatic body with few non-enhancing areas and peri-pancreatic fat stranding.
- Peripherally enhancing collection replacing the tail of the pancreas with pseudoaneurysm within and relatively hyperdense contents (plain CT value of ~ 30HU).
- Splenic vein thrombosis.

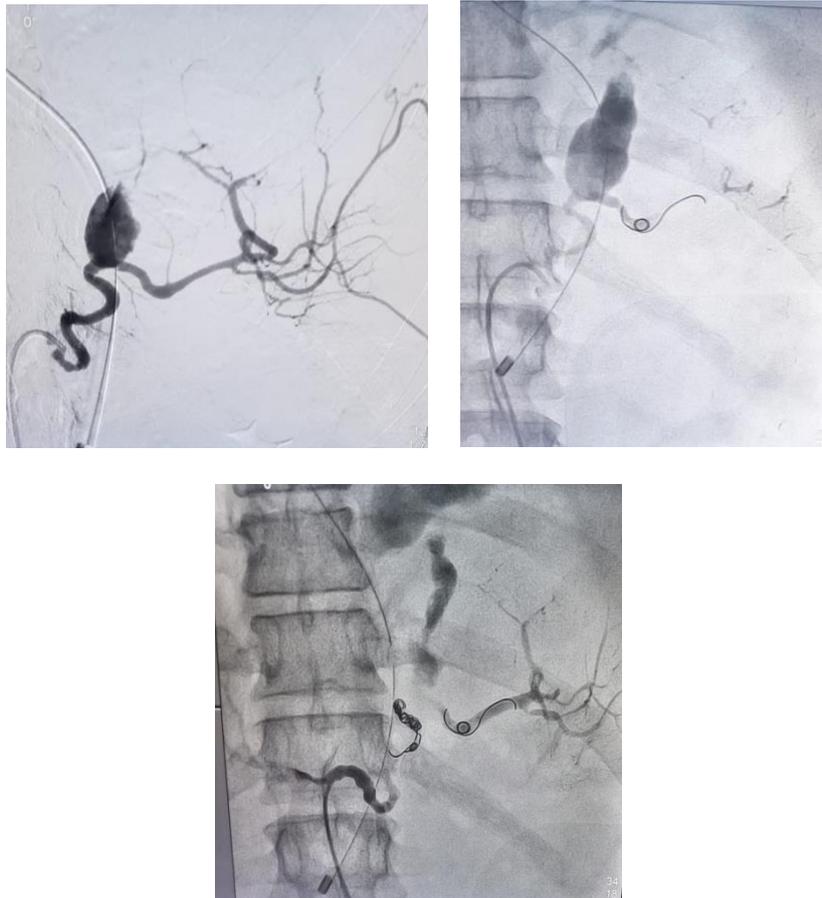


**D. DIAGNOSIS:**

- **Acute on chronic necrotising pancreatitis with walled off necrosis and large well-defined saccular splenic artery pseudoaneurysm within. (Modified CTSI score 8/10).**
- **Splenic vein thrombosis with collateral formation.**
- **Splenic infarcts.**

### **E. FOLLOW UP – Fig 8-10**

- Coil embolization was performed by utilising the “**Sandwich**” technique wherein **splenic** artery proximal and distal to the pseudo-aneurysm was embolized.
- Figure 8 – DSA selective angiogram of the splenic artery showing the contrast filled pseudoaneurysm arising from the mid segment of the splenic artery.
- Fig 9 – Distal coil embolization done. Absent flow of contrast in the distal splenic artery and to the splenic parenchyma noted.
- Fig 10 – Proximal embolization done. Absent contrast opacification of the pseudoaneurysm noted.



### **F. DISCUSSION:**

#### **Epidemiology**

- Vascular complications secondary to pancreatitis seldom occur, venous system being affected more than the arterial system (1.3-10%). Arterial pseudo-aneurysms are known to contribute to about 60% of necrotizing pancreatitis cases presenting with acute hemorrhage. <sup>(1)</sup>

## **Pathogenesis**

- Splenic artery pseudo-aneurysms are most commonly seen in the setting of splenic trauma, pancreatitis or mycotic infections. <sup>(2, 3)</sup>
- Pancreatitis is known to present with non-vascular complications such as collections and also vascular complications such as pseudoaneurysms or venous thrombosis.
- In Pancreatitis, there is extensive ongoing inflammation with increased activity of proteolytic and lipolytic enzymes.
- Acinar damage results in release of these enzymes which cause disruption of adjacent arterial walls resulting in catastrophic haemorrhage or hematoma formation or pseudoaneurysm formation. <sup>(1)</sup>
- Most commonly affected vessel in a setting of pancreatitis is splenic artery followed by the gastro-duodenal artery and pancreatico-duodenal vessels. <sup>(1)</sup>

## **Imaging**

- Pseudoaneurysms occur due to destruction of the arterial wall. Points favouring the diagnosis are – Irregular outline, eccentric thrombus, adjacent features pointing to the likely etiology (Inflammation, trauma). <sup>(4)</sup>
- The pseudo-aneurysm is seen as brightly enhancing saccular out-pouching in the arterial phase images (similar to the arterial system). Thrombosis within the aneurysm is noted as peripheral non-enhancing areas.
- Digital subtraction angiography is the gold standard as a diagnostic as well as a therapeutic option to perform embolisation.
- Coil embolization by “Sandwich” technique is the method of choice owing to increased ability of collateralised flow to develop around the splenic artery. <sup>(3)</sup> Other options include “Sac-packing” technique wherein the aneurysm cavity is filled with embolizing coils / liquid embolizing agents.

## **Conclusion**

- Accurate and early diagnosis of the vascular complications by CT angiography has a crucial role in delineating the anatomy to plan further intervention.

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