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### Celiac Artery Aneurysm: A Rare Cause of Abdominal Pain

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# Celiac Artery Aneurysm: A Rare Cause of Abdominal Pain

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## Case Report

Patient is a 48-year-old male with history of bipolar disease presenting with complaint of left-sided abdominal pain for the past 4 days. Patient reports a history of gunshot wounds to the abdomen 12 years prior, and is status-post ex-laparotomy, splenectomy, partial pancreatectomy, with bowel resection and colostomy with colostomy reversal. The pain is mostly left lower quadrant, radiating to the left shoulder with no associated symptoms. He also denies any aggravating or relieving factor to the pain.

Emergency department work-up reveals CBC with WBC 10.7 - predominantly neutrophils, CRP 1.00, with negative blood cultures and lactate. CT of the abdomen without contrast shows celiac artery enlargement with adjacent inflammatory stranding and other chronic findings secondary to prior surgeries. CT angiogram of the abdomen and pelvis which showed a 10 x 5 mm saccular pseudoaneurysms to the posterior aspect of the celiac trunk with surrounding inflammatory changes (Fig. 1). Patient's pain was controlled with intravenous opioid, then he was admitted for surgical correction of the celiac artery pseudoaneurysms

## Discussion

Celiac artery aneurysm is a very rare vascular lesion accounting for only 5.1% of all splanchnic artery aneurysms [1], with 9.1% accompanied by abdominal aortic aneurysm [2]. Though quite a rare disease, mortality rate after rupture is about 25 to 70% [3]. Given this high mortality rate after rupture, surgical repair, even in asymptomatic patient, is indicated. Risk of rupture is 5% for aneurysms 15-22mm in size; this significantly increases to 50-70% in aneurysms greater than 30 mm [4]. Etiology for celiac artery aneurysm includes, but not limited to, infectious diseases, atherosclerosis, trauma, congenital conditions such as median arcuate ligament syndrome and iatrogenic causes.

Operative intervention is now the standard of care for celiac artery aneurysm. Surgical interventions include endovascular techniques for stent implantation or embolization of the aneurysm, or surgical repair with either prosthetic grafts or autologous (usually saphenous) vein. Of the two non-endovascular approaches, prosthetic grafts are preferable [1].

As with any vascular repair surgery, revascularization of the peripheral vascular branches distal to the repair is critically important. With celiac artery aneurysm repair, blood flow to organs supplied by the left gastric artery, common hepatic artery and splenic artery should be verified to prevent ischemic damages. Fortunately, anastomotic vessels between the celiac artery and superior mesenteric artery provide collateral flow to most organs supplied directly by the celiac artery (Fig 2).

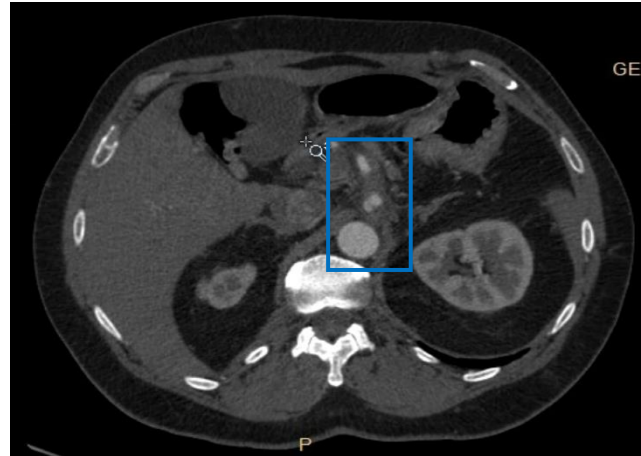


Fig 1. CT angiogram of abdomen and pelvis showing saccular pseudo-aneurysm

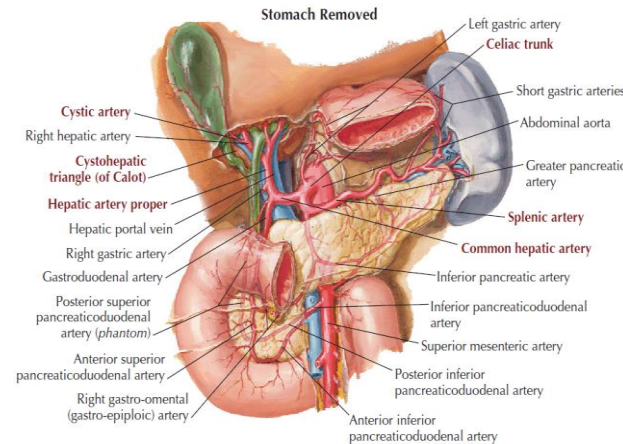


Fig 2. Diagrammatic representation of arterial supply for the celiac artery. Courtesy of Netter's Clinical Anatomy 3<sup>rd</sup> Ed..

## Case conclusion

After admission, initial attempt was made to repair the celiac artery aneurysm via endovascular approach. With local and moderate sedation, ultrasound-guided percutaneous access was achieved via the right common femoral artery. Cannulation of the celiac artery was achieved, however aneurysm repair was unsuccessful, as patient was not able to tolerate the procedure. A second attempt was made with access via the left brachial artery under general anesthesia; aneurysm repair was successful after placement of stent graft. Repeat angiogram showed successful exclusion of the aneurysm, with excellent perfusion to the arteries distal the site of repair (Fig. 3). The patient was successfully discharged two days later with outpatient follow up.

## Conclusion

Etiology for abdominal pain is extensive. Patients should be evaluated for both intra-abdominal and extra-abdominal causes for pain, as presentations of a different pathophysiology vary widely [Rosen's]. CT scan has become a mainstay part of the work for abdominal pain in the Emergency department, and often elicit pathologies that would otherwise be missed on blood work and other imaging modalities. Although rare, celiac artery aneurysm carries a high mortality rate if ruptured and therefore surgical repair is definitive care plan. Surgical repair maybe either via endovascular approach or via open surgical repair of the aneurysm preferably via prosthetic grafts.

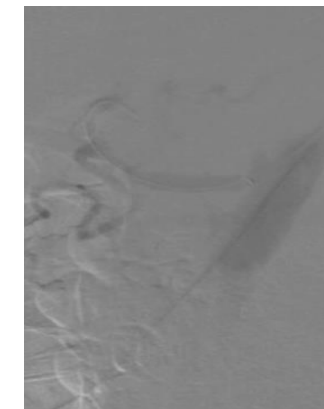


Fig 3. IR arteriogram showing celiac artery perfusion after aneurysm repair.

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