

# Transcatheter Embolization of a Pancreaticoduodenal Artery Aneurysm Associated with Celiac Axis Stenosis

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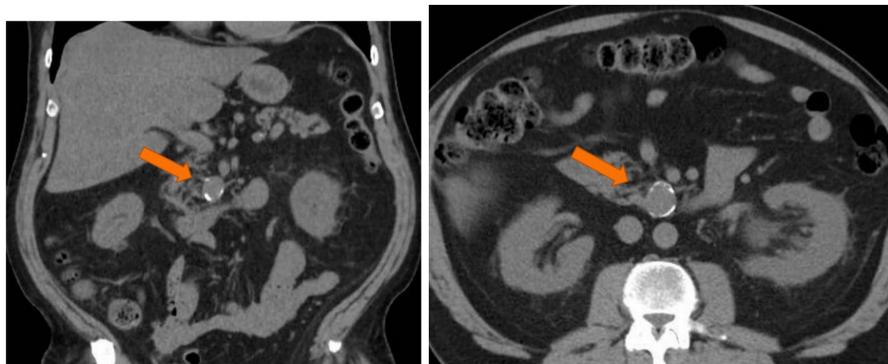
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## Learning Objectives & Background:

Pancreaticoduodenal artery (PDA) aneurysms are rare visceral aneurysms accounting for only about 2% of all splanchnic aneurysms. Most PDA aneurysms are discovered incidentally or at the time of rupture and the mortality rate associated with rupture approaches 50%. The risk of rupture is unrelated to the size of the aneurysm; therefore, PDA aneurysms are generally treated upon discovery. Importantly, celiac trunk stenosis has been reported to be associated with PDA aneurysms in as many as 50-80% of patients, thus it is imperative to maintain adequate perfusion to the celiac territory during treatment.

## Patient History & Workup:

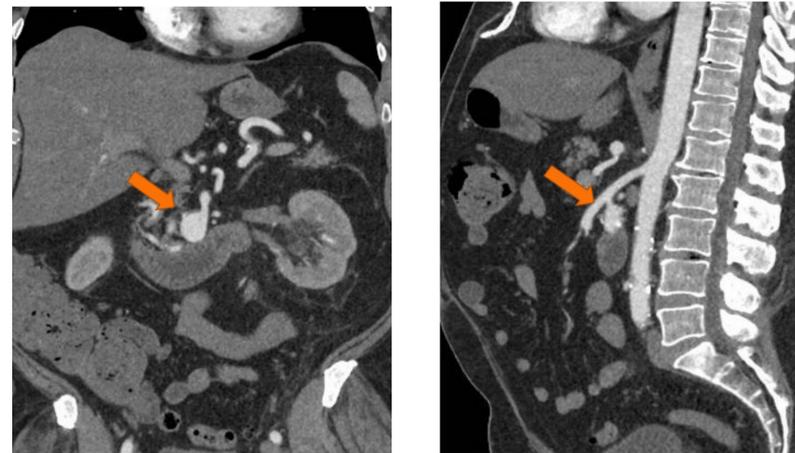
72-year-old male presented with left flank pain that had started 3 days ago. A non-contrast CT abdomen/pelvis was performed to rule out renal calculi which revealed an incidentally noted 2.6 cm aneurysm arising from a branch of the superior mesenteric artery (SMA). A CTA of the abdomen/pelvis confirmed that the aneurysm was arising from the pancreaticoduodenal artery branch of the SMA and demonstrated severe celiac stenosis. Interventional radiology was consulted for evaluation and treatment of the SMA aneurysm.



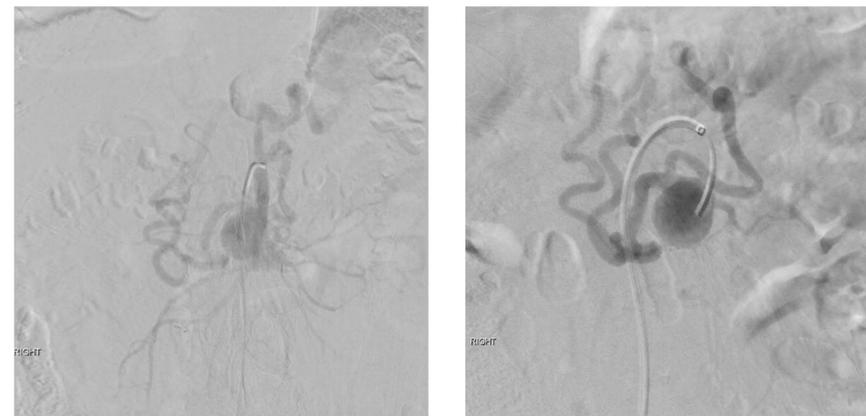
**Figure 1:** Coronal (left) and axial (right) non-contrast CT A/P demonstrate an incidentally noted aneurysm located between the aorta and the SMA (arrows).

## Procedure Details:

A visceral angiogram revealed a patent SMA with hypertrophied inferior and superior pancreaticoduodenal arteries. There was severe stenosis of the celiac artery. Two arterial branches projected cranially from the aneurysm sac to supply the jejunum.

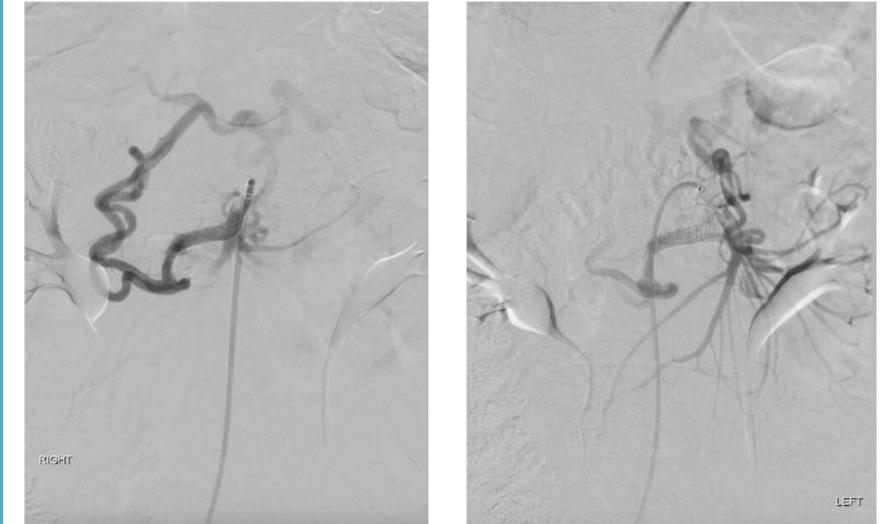


**Figure 2:** Coronal (left) and sagittal (right) images from a CTA A/P confirm that the aneurysm arises from the pancreaticoduodenal artery branch of the SMA.



**Figure 3:** AP (left) and oblique (right) DSA images demonstrate the aneurysm arising from the pancreaticoduodenal artery branch of the SMA.

A 7 mm, 19 mm in length VBX (Gore Inc., Flagstaff, Arizona) stent graft was advanced and deployed to exclude the aneurysm with concurrent exclusion of the two cranially-oriented arterial branches supplying the jejunum. Due to retraction of the stent into the aneurysm, the stent was extended with a second VBX stent graft and both balloon mounted stents were post-dilated to 7 mm. Completion angiography was then performed which showed normal flow within the SMA as well as no filling of the aneurysm sac.



**Figure 4:** AP (left) and oblique (right) DSA completion angiograms show normal flow in the SMA without filling of the aneurysm sac.

## Conclusion:

PDA aneurysms are rare entities but are associated with celiac trunk stenosis due to altered hemodynamics. Flow redistribution results in increased blood flow within the small branches of the SMA with resultant dilatation and aneurysmal formation of these arteries. Historically, invasive surgical treatment options have been used; however, our case demonstrates the utility of interventional radiology in the noninvasive management of PDA aneurysms via selective angiography and coil embolization.

## References:

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