



VASCUPEDIA



Pseudoaneurysm of a superior mesenteric artery branch with an artery-to-portal vein fistula.

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■ SMA pseudoaneurysms (SMAPAs) in Literature:

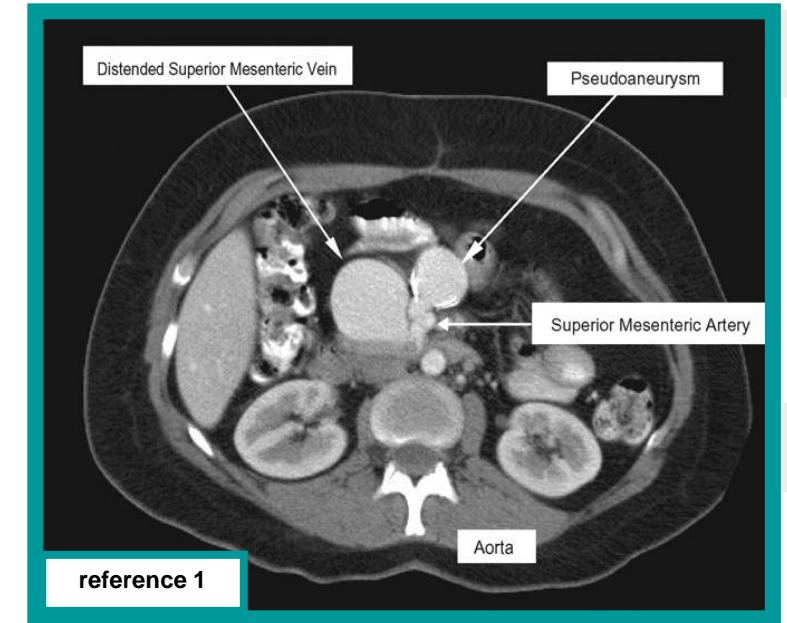
- not well described: largest serie reported from Mayo with 21 cases
- primarily associated to pancreatitis or trauma
- associated with a significant risk of rupture and potential life threatening haemorrhage (50%)
- 37.5% operative mortality in emergency cases
- treatment: surgery or endo (coils embolization or cover stenting)

■ Visceral AV fistulae in Literature:

- very uncommon: few case reports and case series, primarily due to trauma

■ Occurrence of SMAPAs - SMV fistula:

- very rare condition and difficult to treat
- usually secondary to traumatic injuries (gunshot wounds or abdominal surgery)
- treatment: surgery or endo (coils embolization or stenting):
 - high-risk of complications: distal embolization into the portal vein, which may lead to portal vein thrombosis or into the distal SMA or back into the aorta, potentially resulting in bowel infarction or lower extremity ischemia.



1 - Mina Guirgis et al. Spontaneous Superior Mesenteric Artery Branch Pseudoaneurysm: A Rare Case Report. EJVES Short Reports (2017) 37, 1-4

2 - Khung Keong Yeo et al. Percutaneous treatment of a large superior mesenteric artery pseudoaneurysm and arteriovenous fistula: A case report. J Vasc Surg 2008;48:730-34.

Treatment options

■ **Surgical repair** was the traditional standard of practice:

- Autogenous vein/graft bypass grafting
- End- to-end anastomosis

■ **Endovascular repair**, as technology progresses, continues to gain popularity and may become a durable option, especially in high-risk patients:

- Coil embolization [1] with or without stenting [2]

reference 1

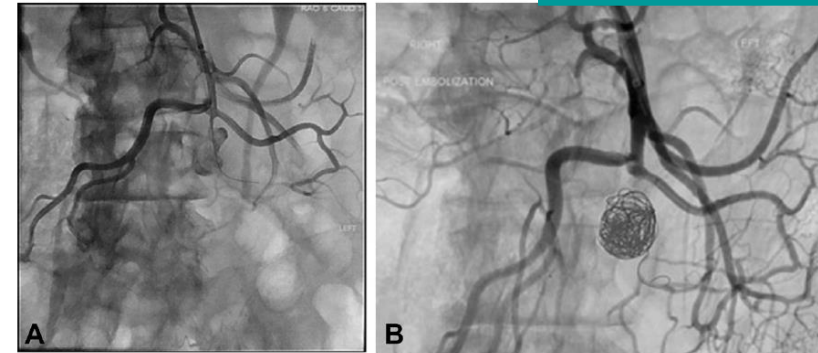


Figure 2. (A) Angiogram of the superior mesenteric vessel demonstrating the jejunal branch pseudoaneurysm identified by the contrast blush. The proximal superior mesenteric vessel; middle colic artery; ileocolic-right colic trunk; jejunal branch pseudoaneurysm; and jejunal arterial branch. (B) Angiogram post-pseudoaneurysm coiling showing no contrast blush.

reference 2

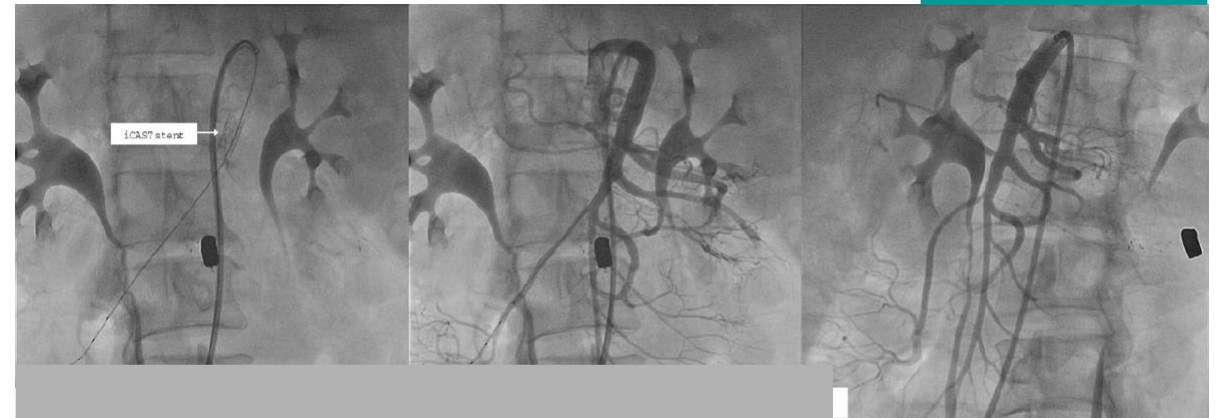


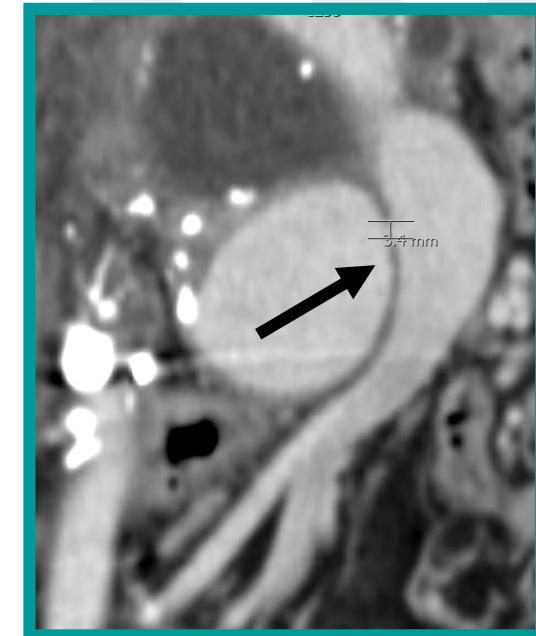
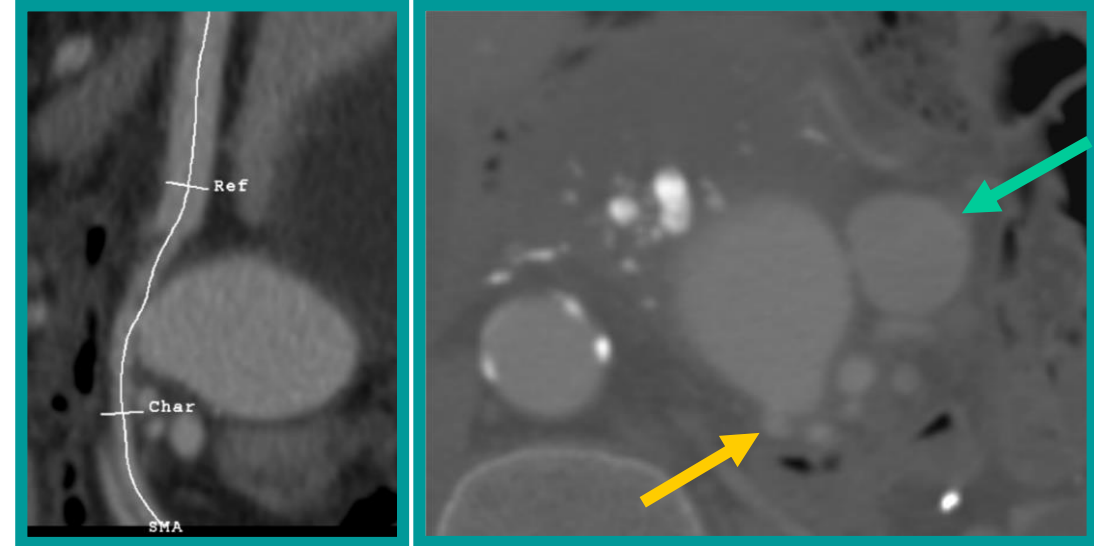
Fig 3. Posttreatment angiography. A, Shows the overlapping iCAST stents in the superior mesenteric artery (SMA). B and C, Show different views of the SMA with complete exclusion of the fistula and pseudoaneurysm.

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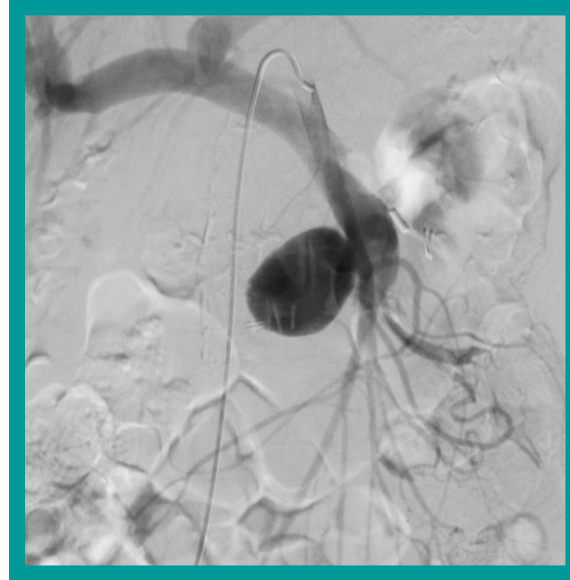
Case

- 61 yrs-old
- *Hypertension, alcoholism and chronic pancreatitis; previous left emicolectomy for diverticulitis (hostile abdomen)*
- Referred to the Emergency Room for abdominal pain
- No fever was detected. The CPR and blood culture results were negative.
- Duplex scan showed a high flow aneurysm within a distal branch of the SMA
- Angio-CT scan detected:
 - **42 mm \emptyset superior mesenteric artery branch pseudoaneurysm** (yellow arrow)
 - **early contrast in a dilated portal venous system** (green arrow)
 - **the communication between the pseudoaneurysm and the portal vein** (black arrow)



Treatment

- Selective angiography of the SMA

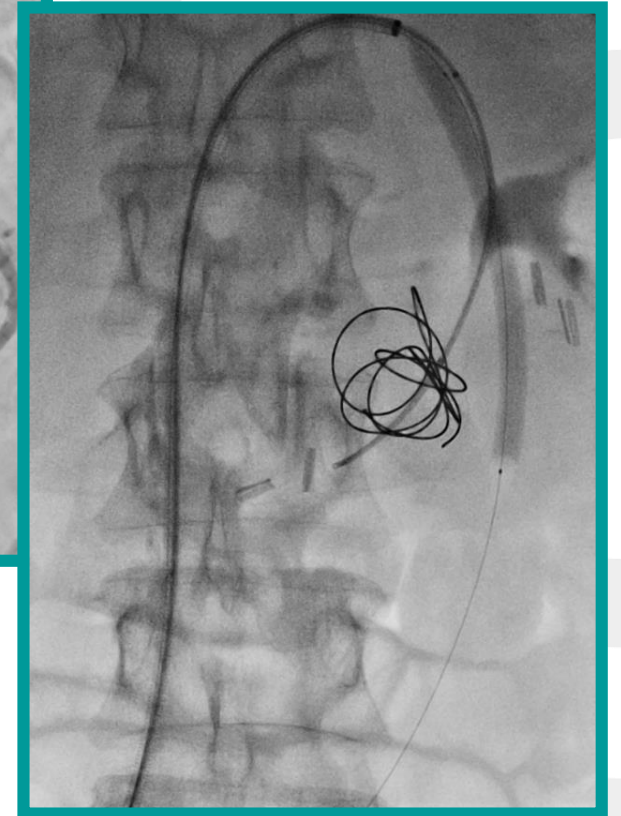


- Unsuccessful attempt to embolize the pseudoaneurysm due to the fact that the FAV high-flow caused the incessant misplacement of the coil (Concerto™ detachable coil – Medtronic 2 x 50 cm) in the portal vein



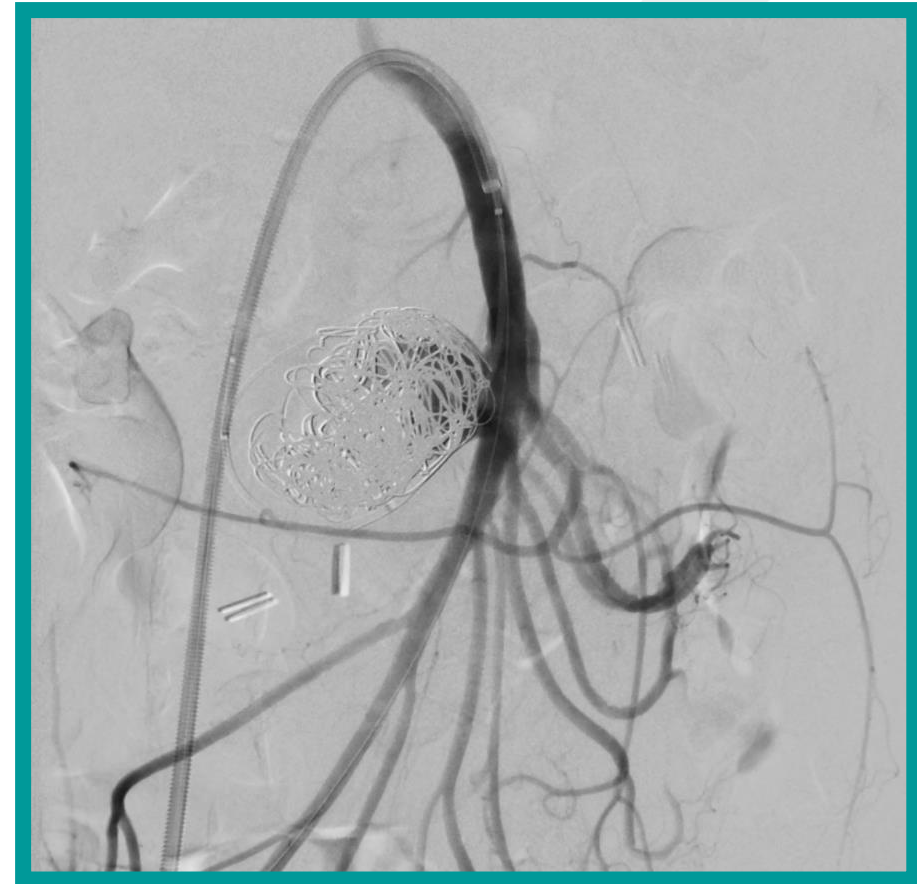
Treatment: *technical note*

- 5 Fr catheter placed in the pseudoaneurysm
- 0.035 Glidewire Advantage Terumo placed in the SMA
- Inflation of a balloon at the level of AVF to reduce the blood flow and the risk of dislocation of coils in the portal vein
- Deployment of multiple spiral coils:
 - 1° Interlock 35 Coil: 20 mm x 40 cm + 18 mm x 40 cm.
 - 2° Concerto 18 detachable coil: 10 mm x 30 cm + 14 mm x 30 cm



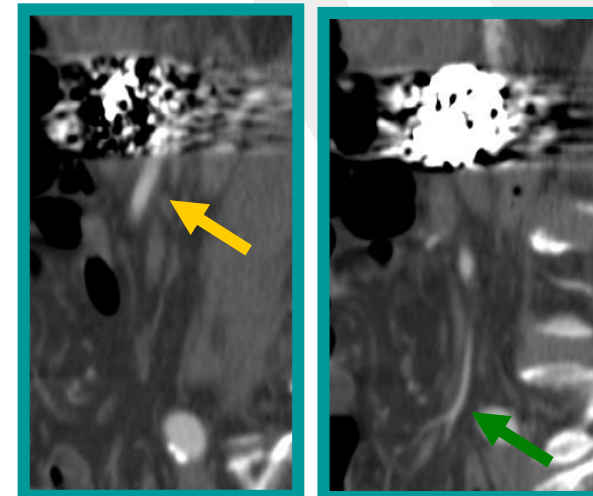
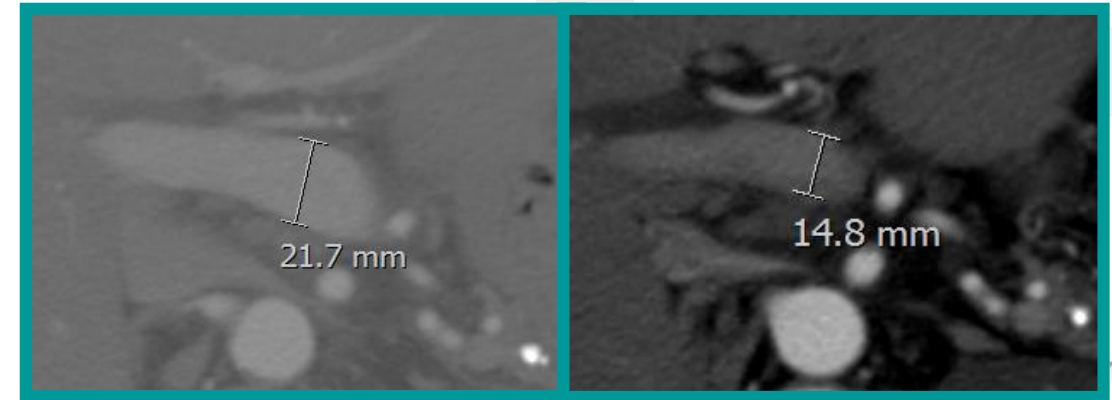
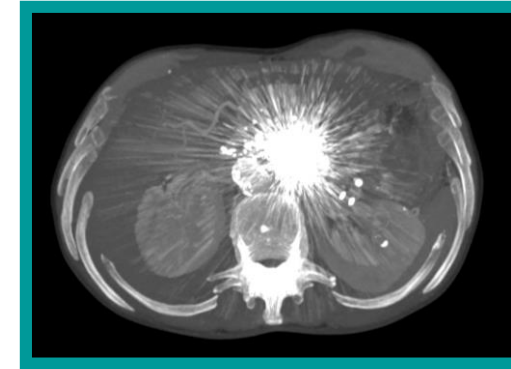
Treatment: *final angiography*

- Complete exclusion of the pseudoaneurysm
- Patency of the SMA and its branches
- No early contrast in the portal venous system



Follow-up

- Uneventful postoperative recovery
- At discharge, good general condition with a complete pain relief, regular pulse and long-term antiplatelet therapy (acetylsalicylic acid 100 mg)
- **At the 3-month follow-up**, no abdominal pain, signs of visceral ischemia, discomfort have been observed
- **CT-scan** showed many artifacts, reduction of the pressure in the portal vein (diameter before and after the procedure) and the patency of the SMA proximally (yellow arrow) and distally (green arrow)
- **Duplex scan** showed complete exclusion of the SMAPAs and demonstrates a normal flow in superior mesenteric artery (SMA) proximally and distally



Conclusion

- *SMAPAs - SMV fistula is a rare pathology which can be cause of serious complications.*
- *Treatment should be individualized time by time by evaluating patients' comorbidities and aneurysm conformation.*
- *In this case, considering the large dimension of the aneurysm and hostile abdomen, we preferred an endovascular option*

Questions to Vascupedians

- *Do you agree with the chosen therapeutic strategy in those cases ?*
- *Should endovascular be the first line of treatment for SMAPAs - SMV fistula ?*
- *Would you prefer stenting the SMA at the level of AVF? Cover or Uncovered?*

Questions to Vascupedians

*Thank you for
attention*