CIRA Case of the Week
January 2016

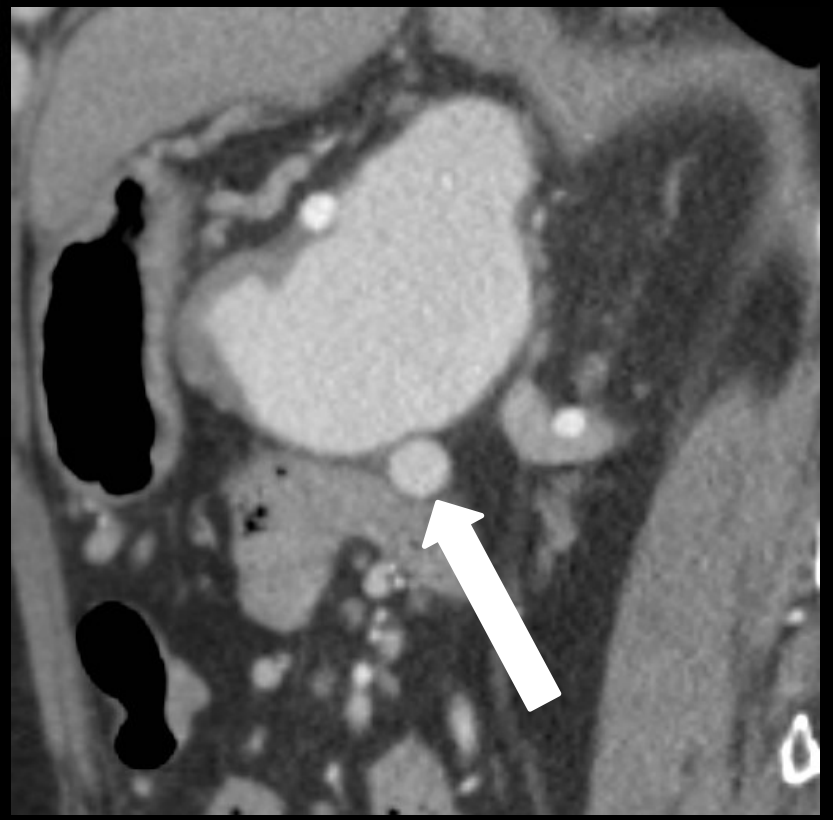
Case Courtesy of Drs. Vamshi Kotha and Jason Wong

University of Calgary

Case History

- 48 year old male prisoner
- Presented with abdominal pain, elevated serum lipase, diagnosed pancreatitis at a peripheral center
- CT scan performed there to look for complications diagnosed a splenic artery pseudoaneurysm.
- Patient transferred to our center for endovascular management

Pre-procedure CT abdomen

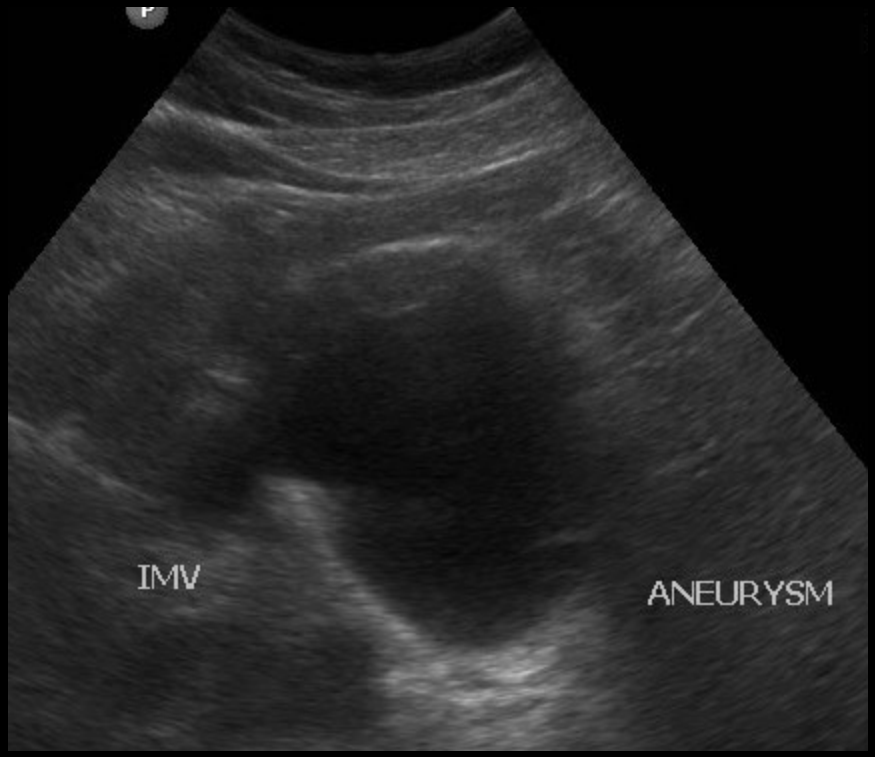


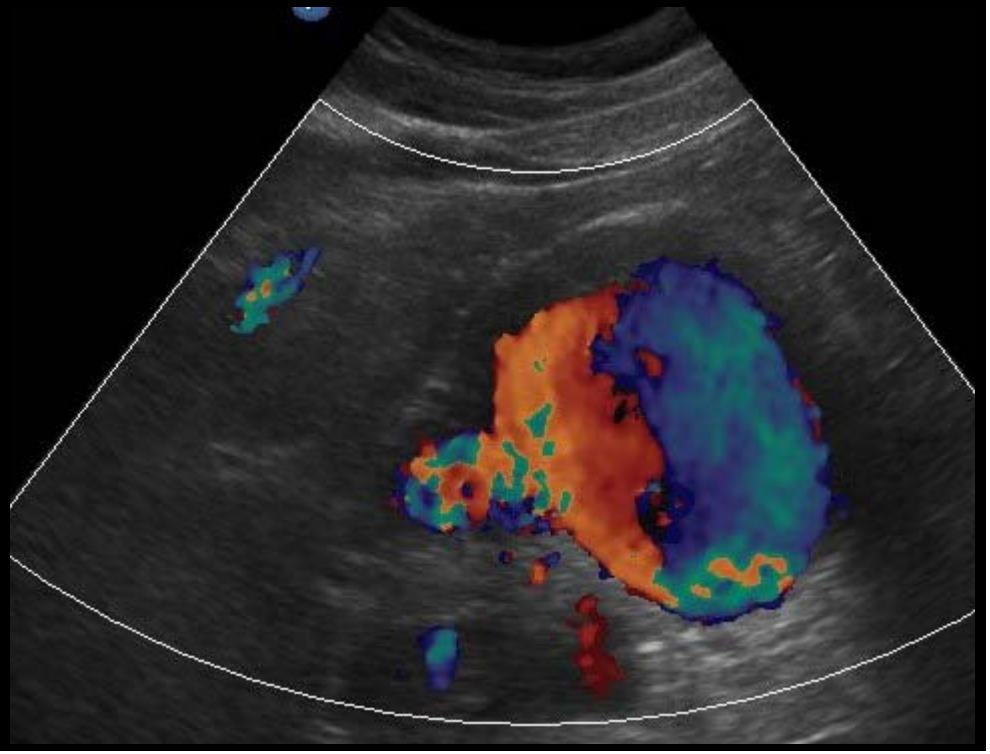
CT demonstrates:

- Large (7 cm) aneurysmal sac enhancing in the arterial phase
- Very closely related to the splenic artery
- Intense enhancement of the adjacent inferior mesenteric vein
- Suspicion of an AV fistula

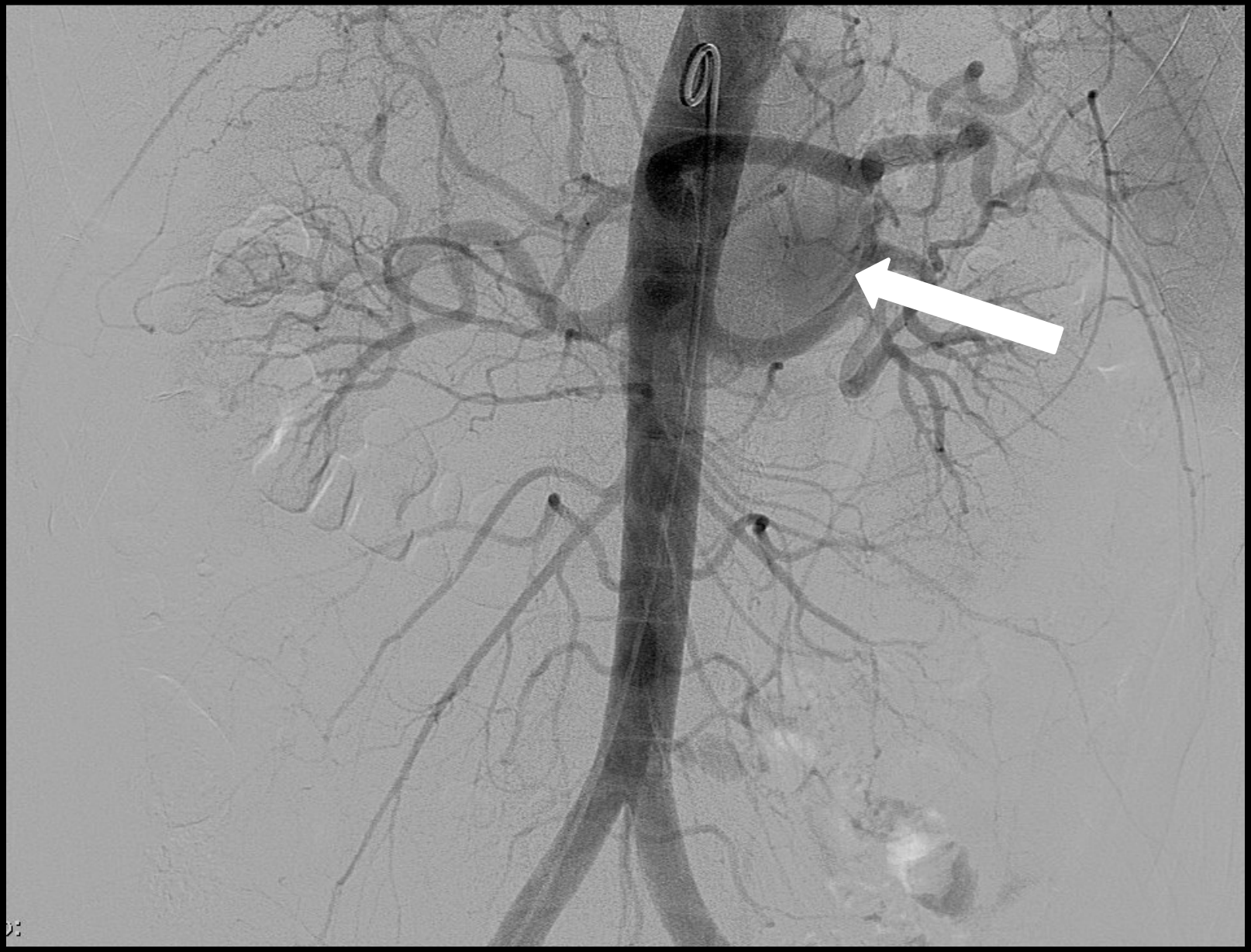
US confirmed arterial waveform within inferior mesenteric vein

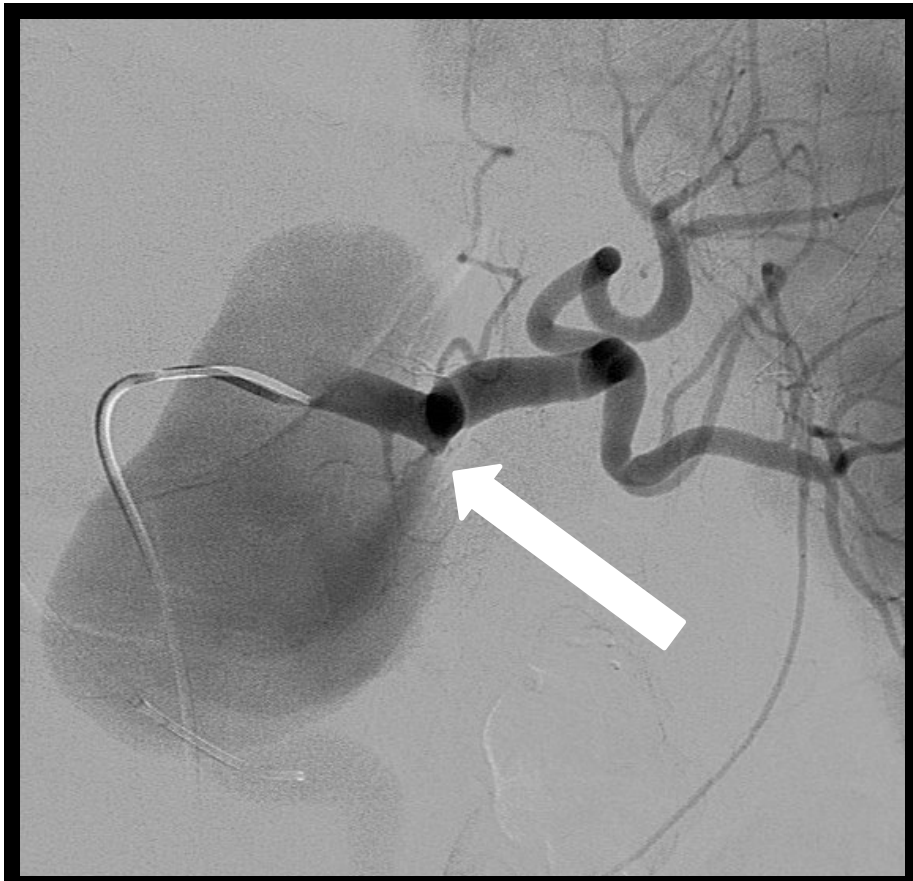
Pre-procedure US





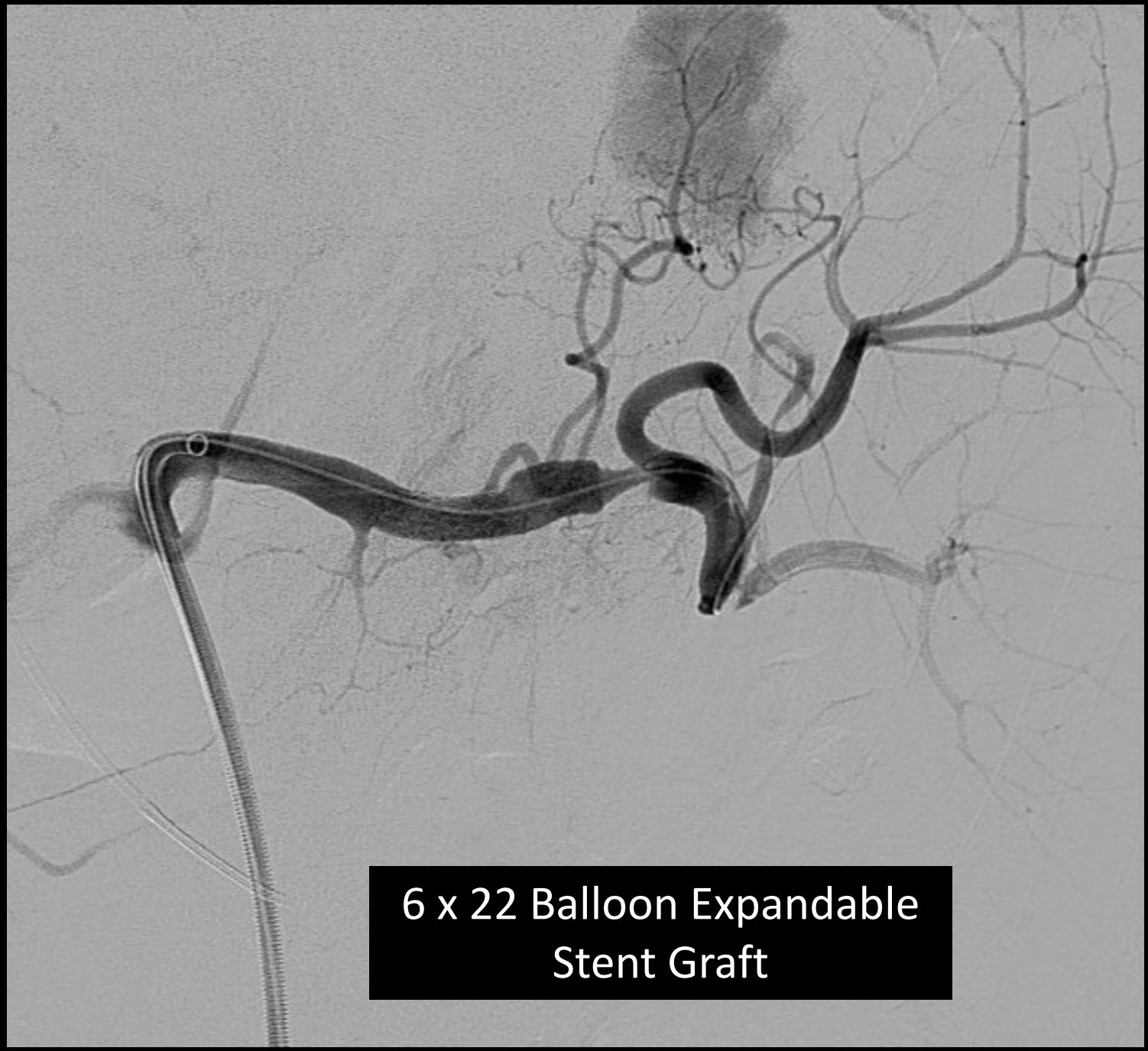
Flush Aortography





Splenic angiogram – Transfemoral access

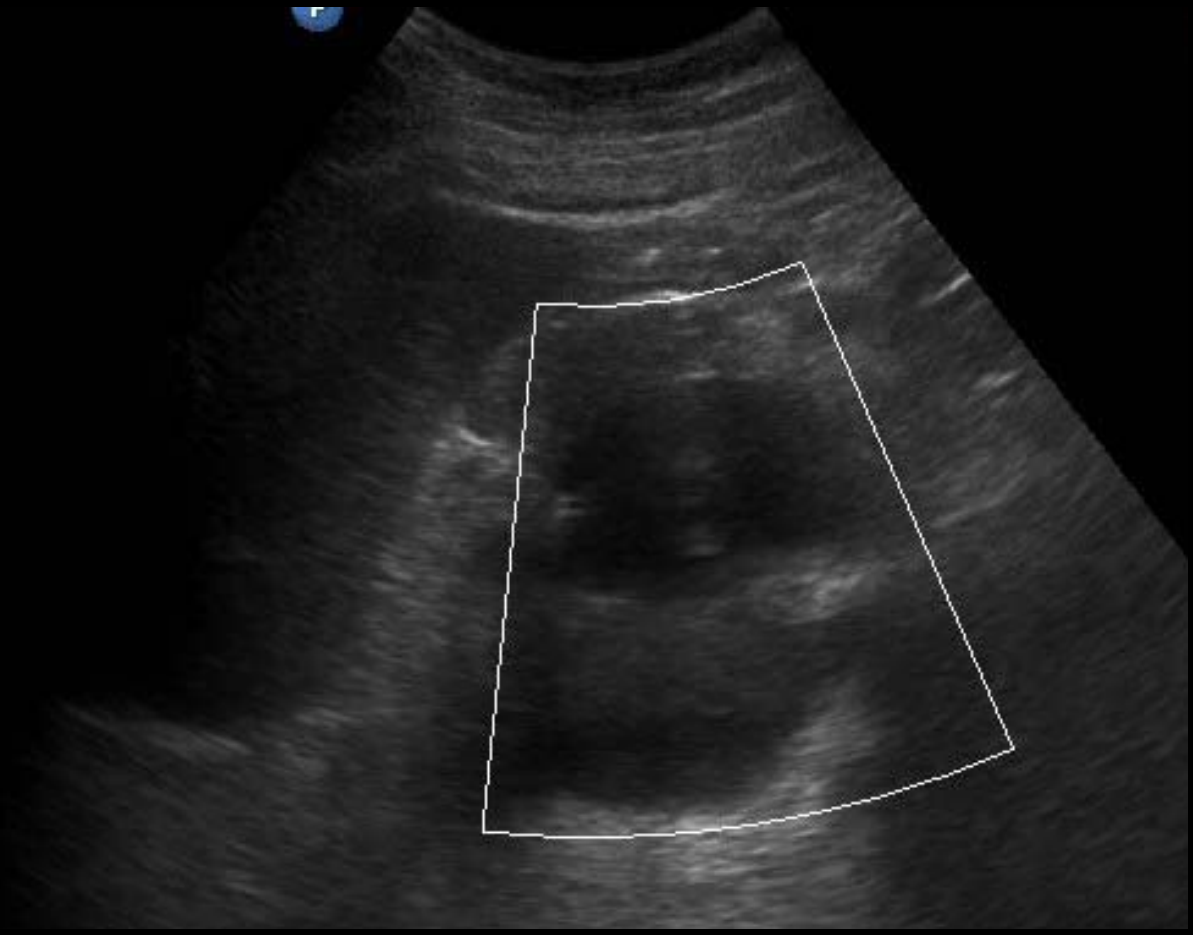
Inferior Mesenteric Venogram – Pre-Intervention Transhepatic access


6 x 22 Balloon Expandable
Stent Graft

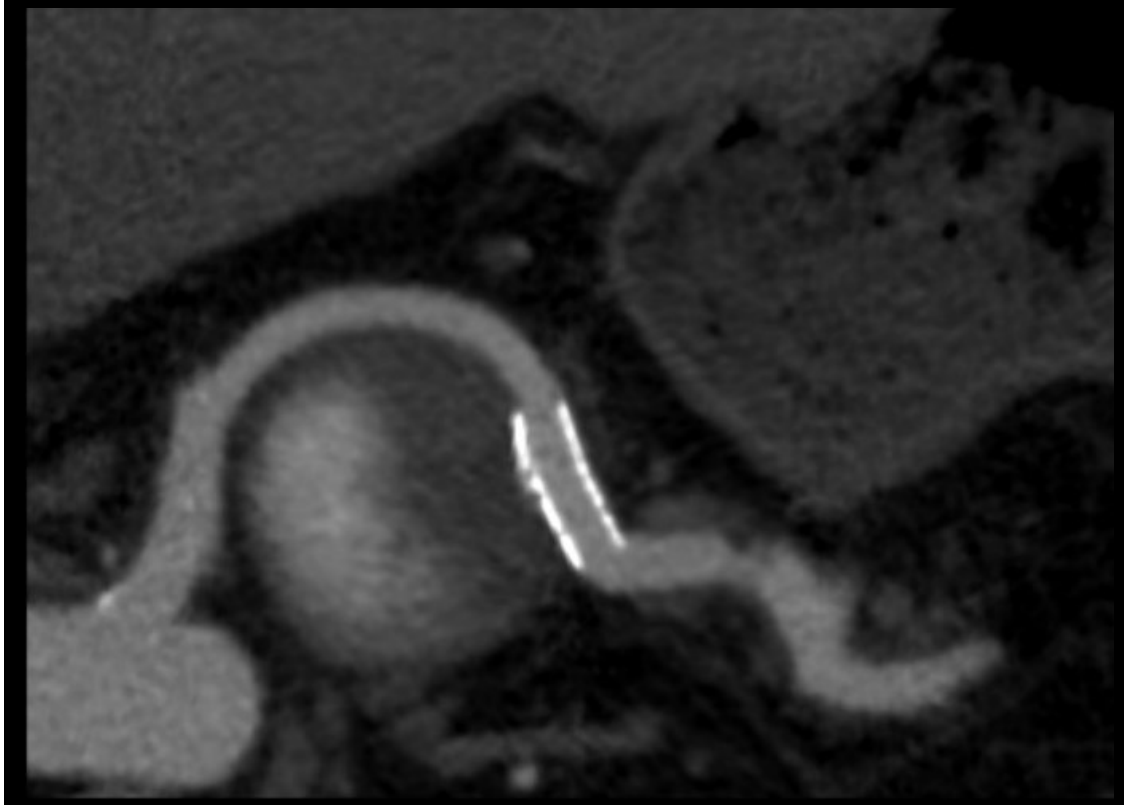
Brisk filling of the aneurysm sac from the IMV after closure of arterial inflow

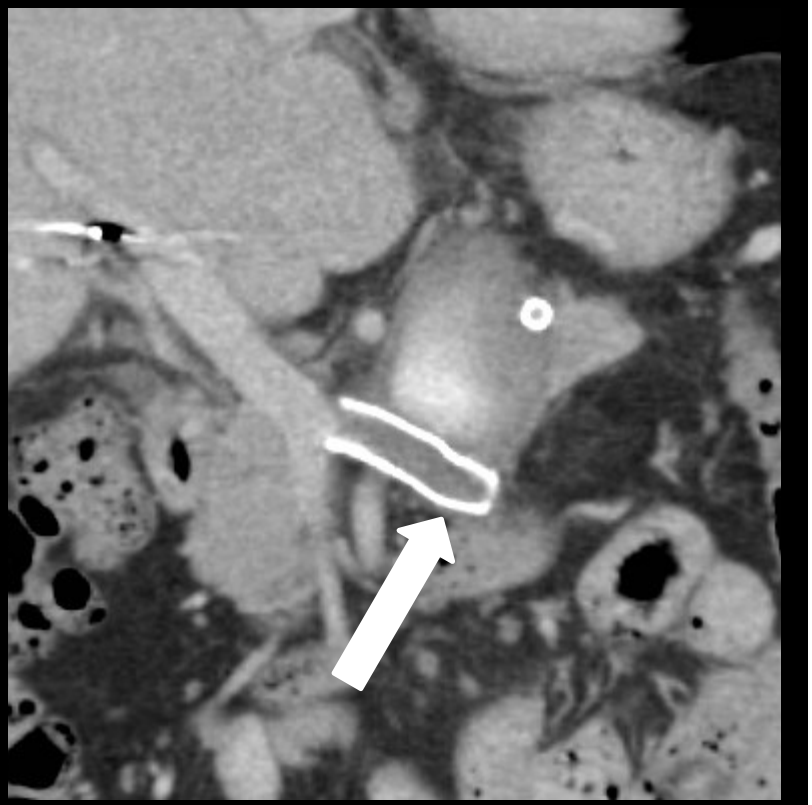
6 x 22 Self Expanding Venous Stent Graft

Post-procedure US



Post-procedure CT abdomen





IMV stent graft thrombosed

Discussion:

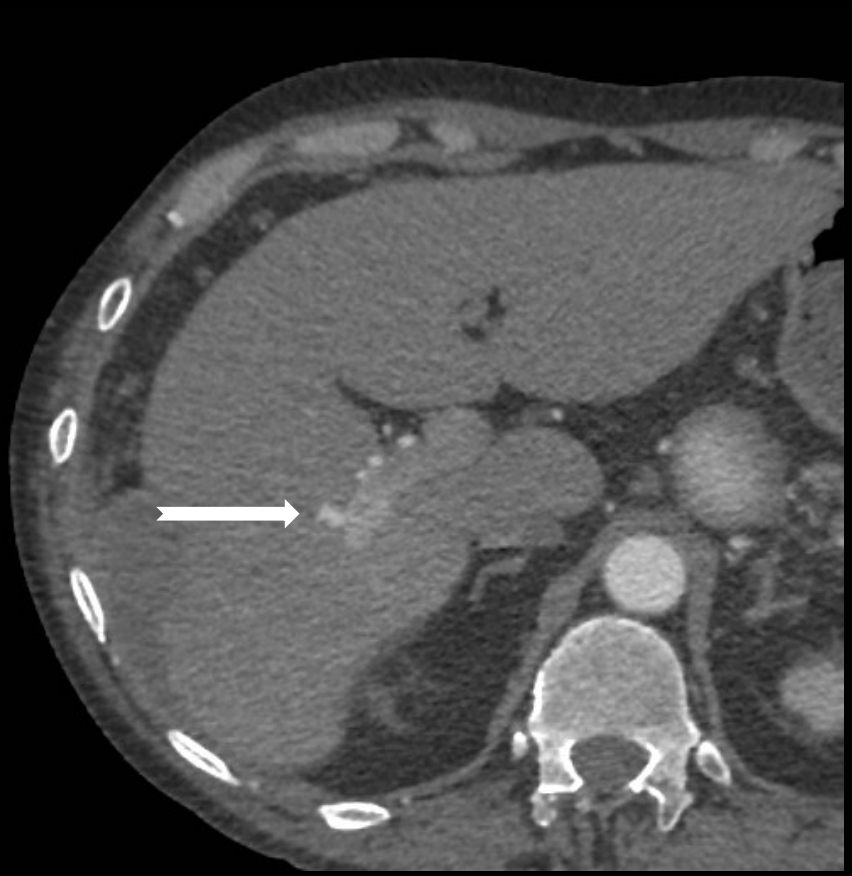
- Arterial pseudoaneuryms may complicate up to 10% cases of pancreatitis.
- Arteriovenous fistulae occur in less than 1% cases of pancreatitis.
- Incidence of aneurysmal AVF in pancreatitis is unknown. Such fistulae have been reported as associated with portal hypertension.

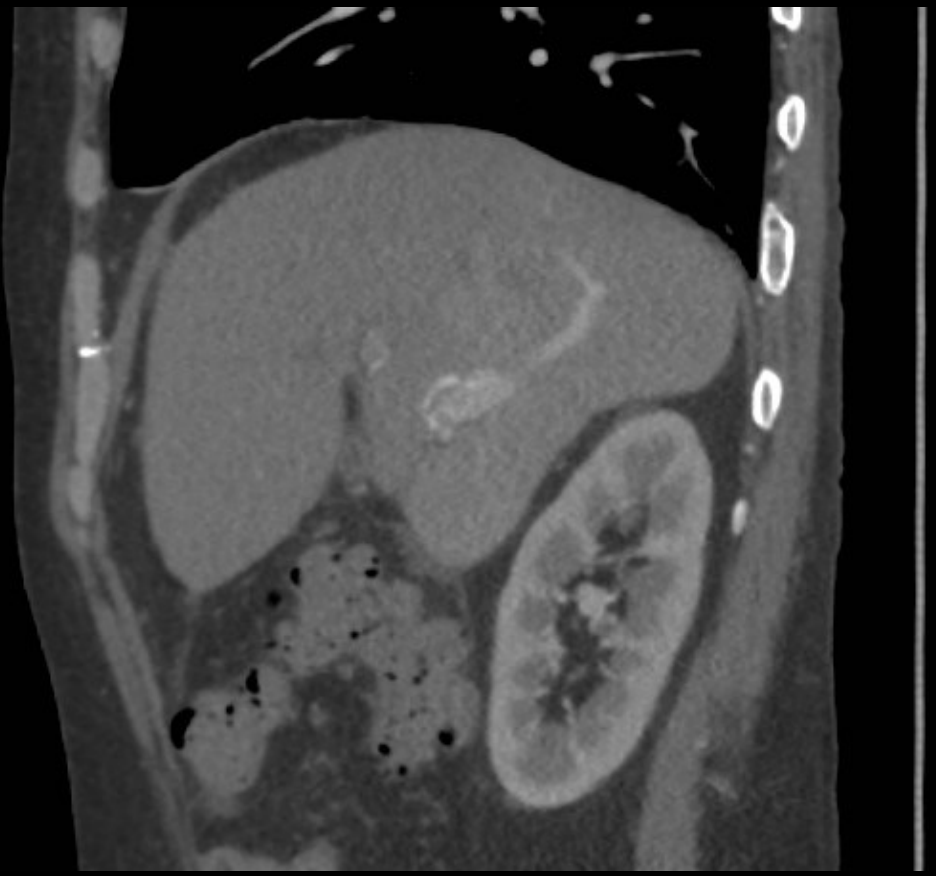
Other techniques we considered for endovascular management of this aneurysmal AVF:

1. Direct embolization of aneurysmal sac with liquid embolic agents – risk of escape into portal vein causing portal vein thrombosis.
2. Direct embolization of aneurysmal sac with coils – lesser risk of escaping into the veins but may have to use several coils (expensive and cumbersome).
3. Embolizing splenic artery across the aneurysm sac neck with coils – unnecessary decrease in splenic flow, although not detrimental to splenic circulation since the neck was in proximal splenic artery.
4. Percutaneous injection of thrombin into aneurysm sac – possibility of portal vein thrombosis, could potentially inflate balloon across arterial inflow and venous outflow before embolizing the sac.

Amplatzer plug and gelfoam for hepatic parenchymal tract seal

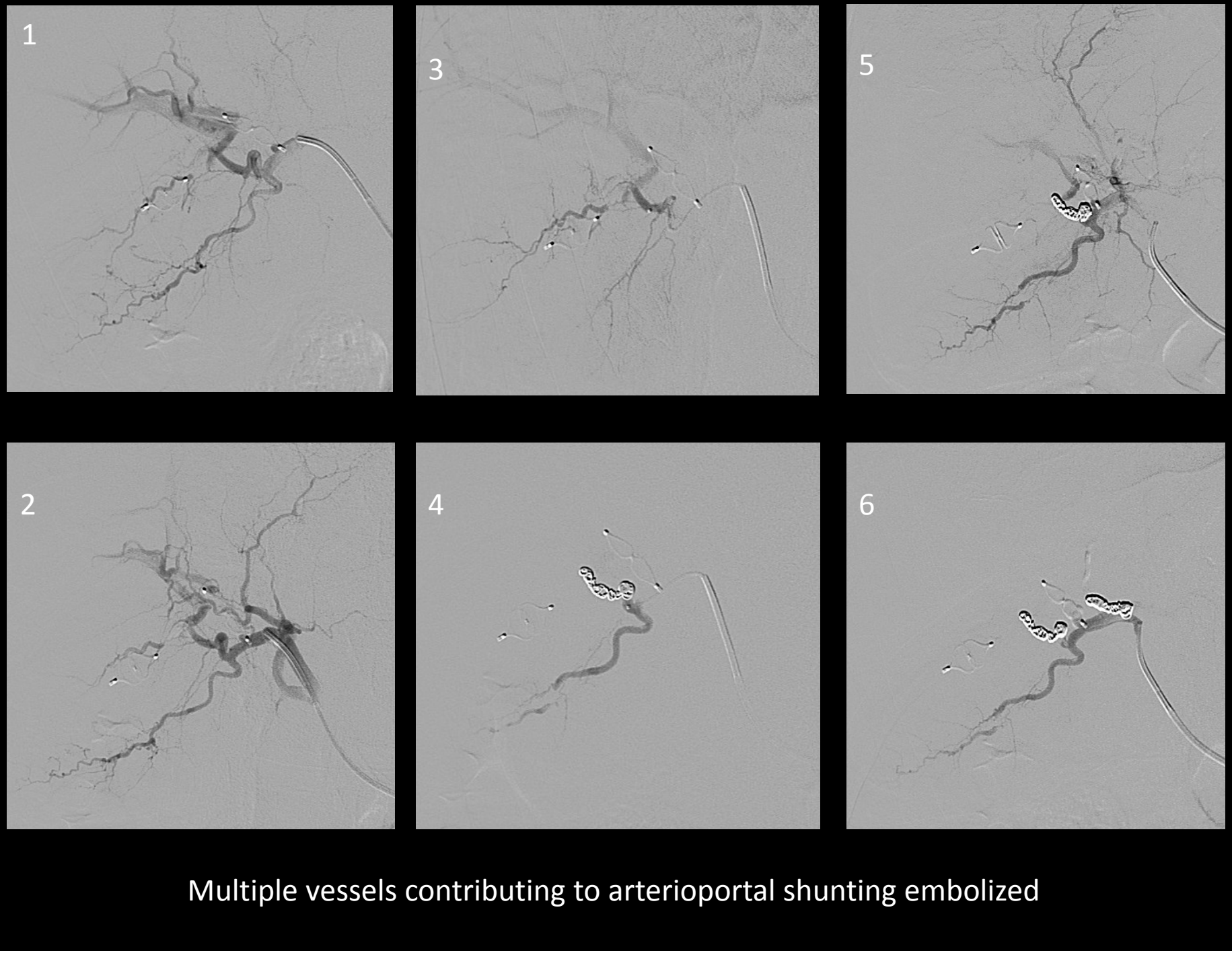
CT abdomen 3 days post-procedure





Hepatic Angiography

Brisk filling of the portal vein



Multiple vessels contributing to arterioportal shunting embolized

Post-procedure CT abdomen

Discussion – Transhepatic access:

Minor Complications from transhepatic access – Pain at access site, vasovagal hypotension, etc.

Major Complications – Hemorrhage, hemobilia, pseudoaneurysm, arteriovenous fistulae, infection, etc.

Embolization of parenchymal tract – CONTROVERSIAL

Reports describe usage of Amplatzer plugs, Glue, Gelfoam, Coils, etc.

References:

1. Czernik M, Stefańczyk L, Szubert W, Chrząstek J, Majos M, Grzelak P, Majos A. Endovascular treatment of pseudoaneurysms in pancreatitis. Wideochir Inne Tech Malo Inwazyjne. 2014 Jun;9(2):138-44.
2. Landi F, Ronot M, Abdel-Rehim M, Sibert A, Bissonnette J, Soubrane O, Vilgrain V. Combined transhepatic portal venous and transarterial treatment of superior mes enteric arteriovenous fistula in a patient with cirrhosis. J Vasc Interv Radiol. 2015 Apr;26(4):601-3.
3. Dollinger M, Goessmann H, Mueller-Wille R, WohlgemuthWA, StroszcynxkiC, Heiss P. Percutaneous transhepatic and transsplenic portal vein access: embolization of the puncture tract using amplatzer vascular plugs. Rofo. 2014 Feb;186(2):142-50.