



20 | 23 JUNE 2022

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70th ESCVS
International congress of the European Society
of Cardiovascular and Endovascular Surgery



7th IMAD meeting

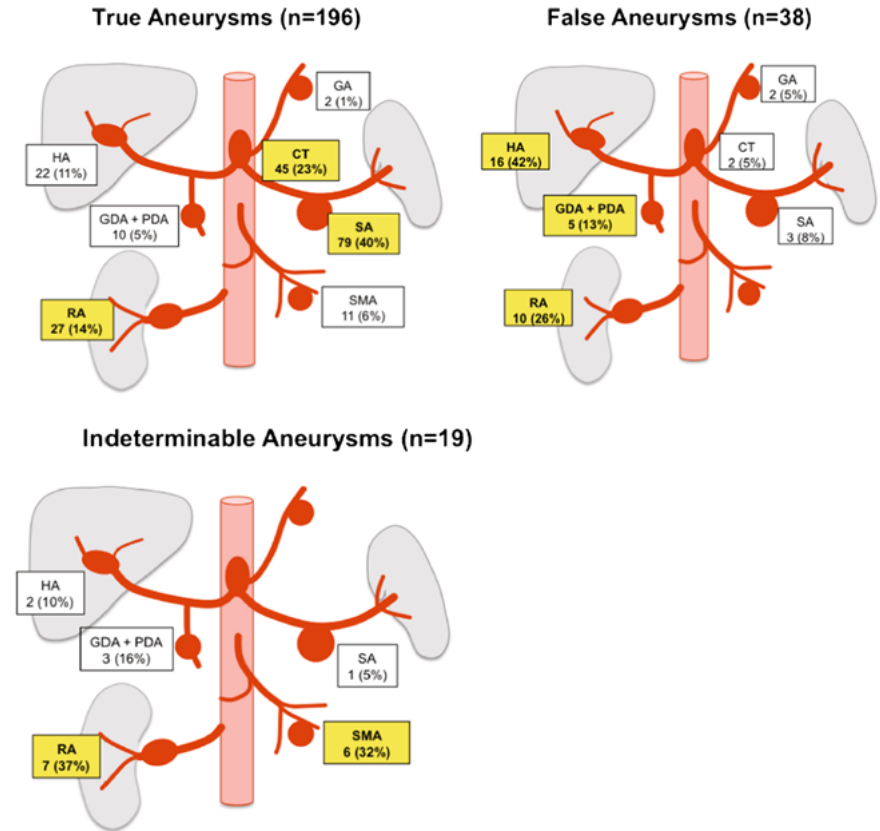
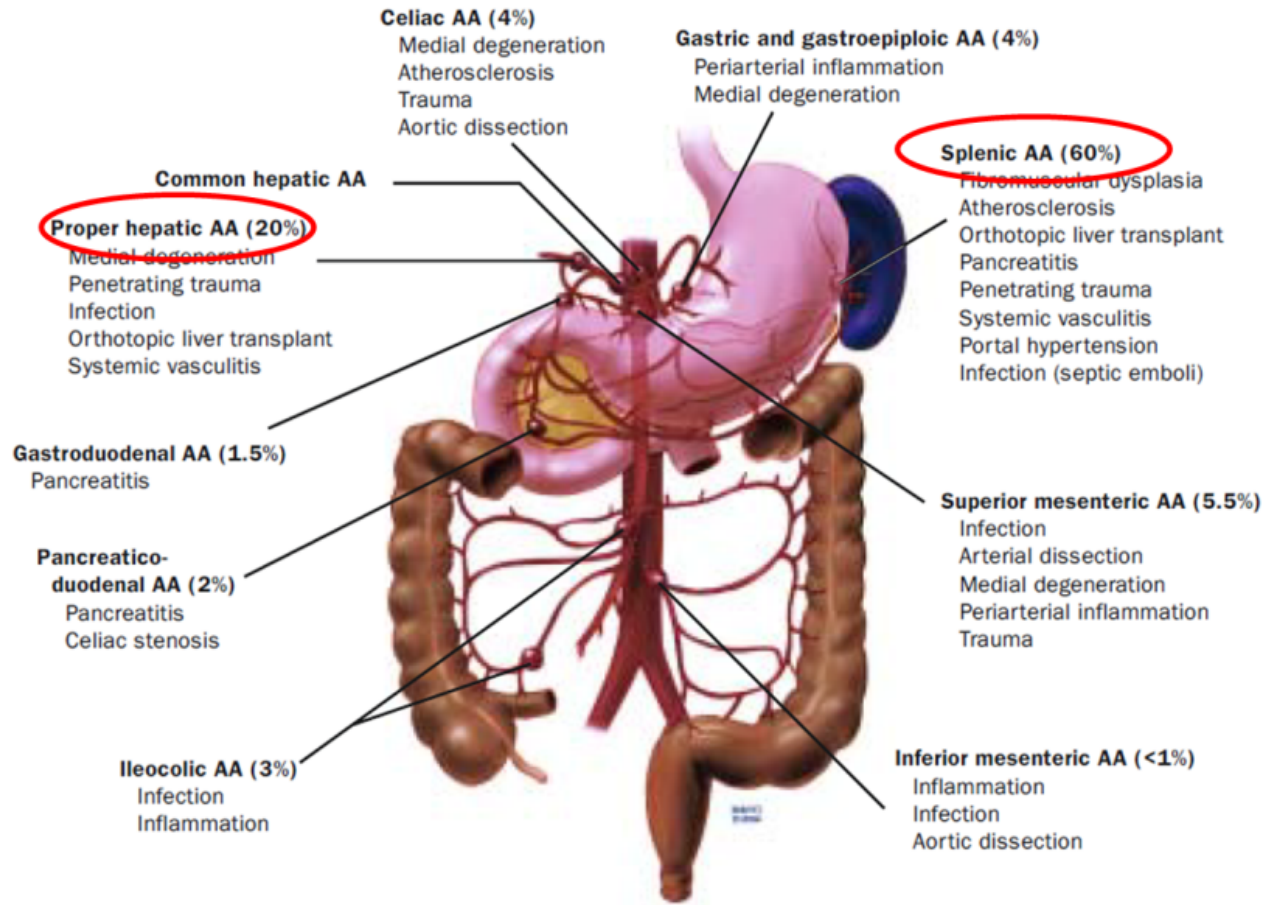
Can all visceral aneurysms be treated by embolization?

Jos C. van den Berg MD PhD

Visceral artery aneurysms

- Incidence increasing due to extensive use of high resolution imaging thus reducing risk of rupture
- Most patients asymptomatic, therefore dilemma of timing of intervention
- Unpredictable natural course
- High mortality rate in case of rupture
- With advent of endovascular therapy that is characterized by low morbidity and mortality rate aggressive therapy is warranted

Distribution



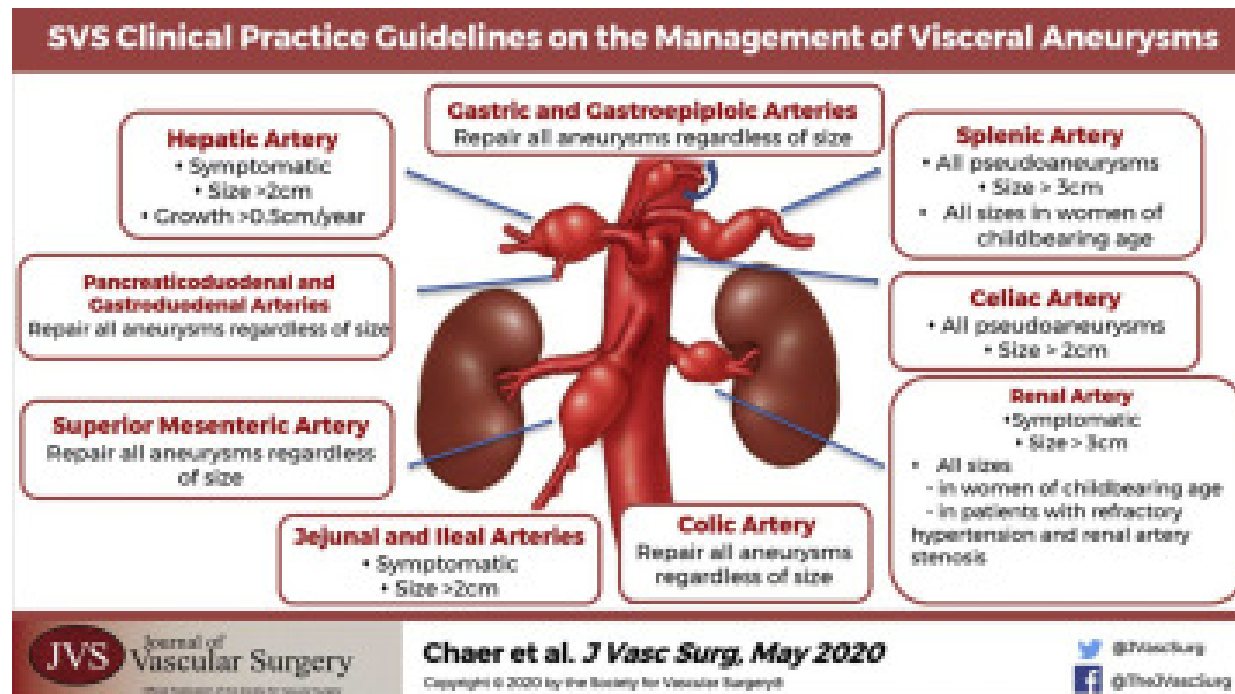
Tulsyan N et al , JVS 2007,45:276-283

Pitton MB et al , Eur Radiol 2015,25:2004-2014

Patient selection

- Size and diameter
- Anatomical location
- Collateral blood supply to distal vascular bed
- Co-morbidities
- Available expertise
- Support staff training
- Equipment availability

Guidelines for intervention



True aneurysms

Symptomatic

Women of childbearing age

Patients who may require a liver transplant

Nonatherosclerotic etiology (ie, connective tissue disease)

Interval growth > 0.5 cm/y

Multiple hepatic VAA

> 2 cm Hepatic, splenic, or celiac VAAs

Any size rare VAA (SMA and branches and IMA aneurysms)

Pseudoaneurysms

All

Treatment options

- Surgical
 - Ligation
 - Bypass
 - Ex-vivo repair (kidney)
- Endovascular
 - Embolization (coils, stent-assisted coiling, balloon remodeling)
 - Covered stent
 - Flow diversion

Contraindication embolization

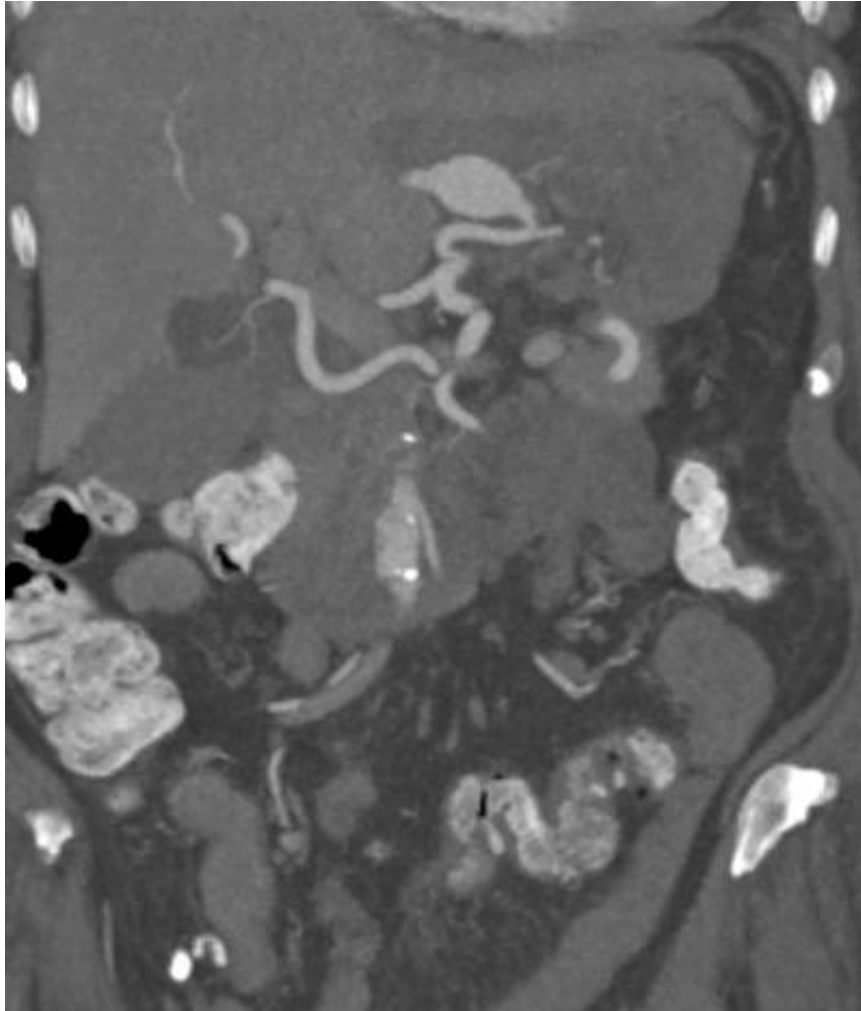
- Absolute need to maintain patency (e.g. hepatic artery in hepatic failure and occluded portal vein)

Sandwich/'trapping'

- Sandwich/'trapping' method
 - Coiling of both afferent and efferent vessel
 - Coiling of afferent artery, large particle embolization of efferent branches



Sandwich (hepatic artery aneurysm)



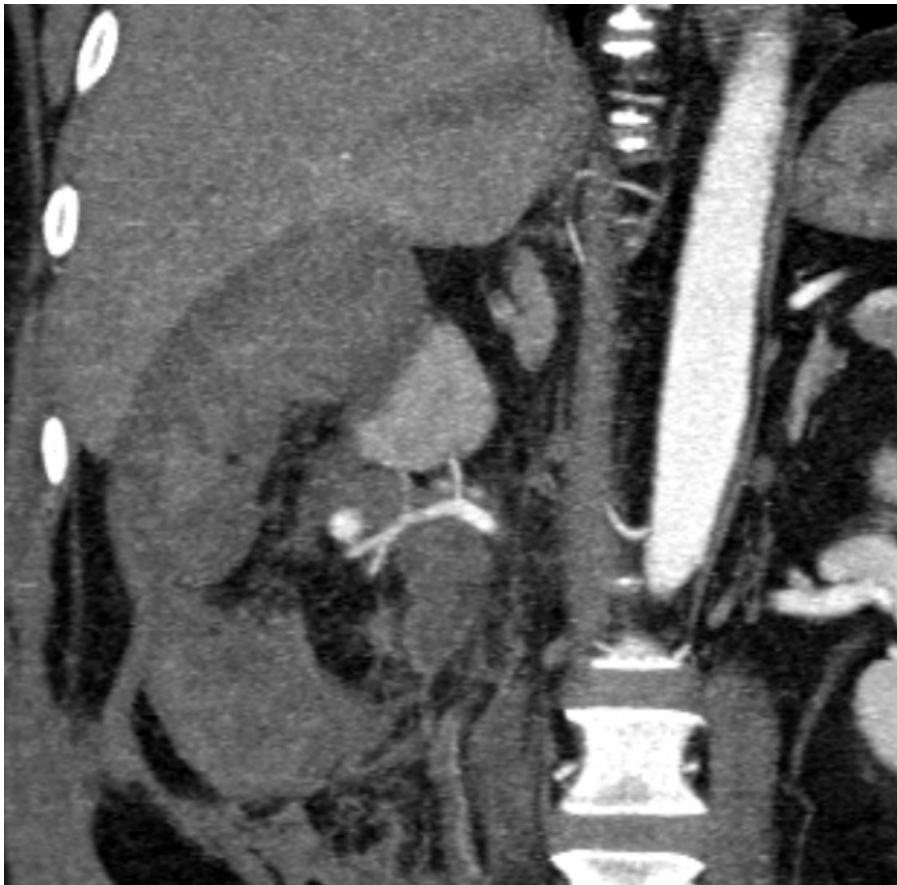
Sandwich (hepatic artery aneurysm)



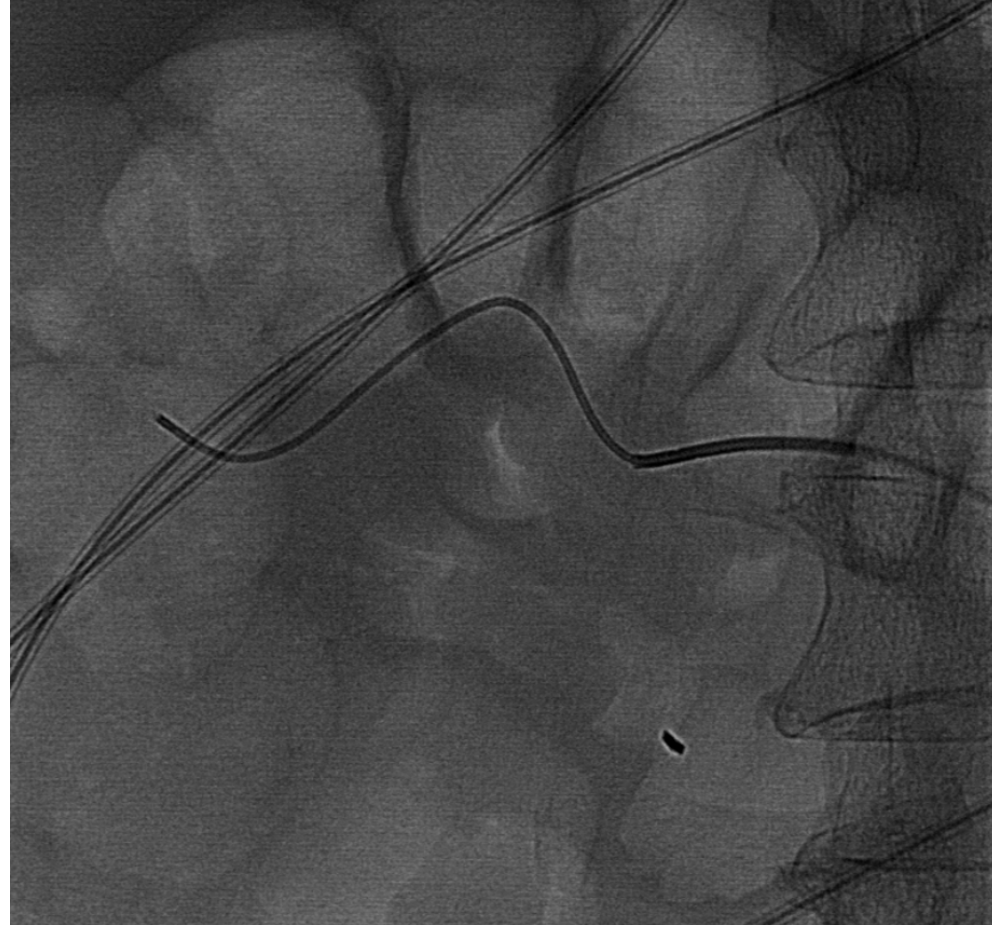
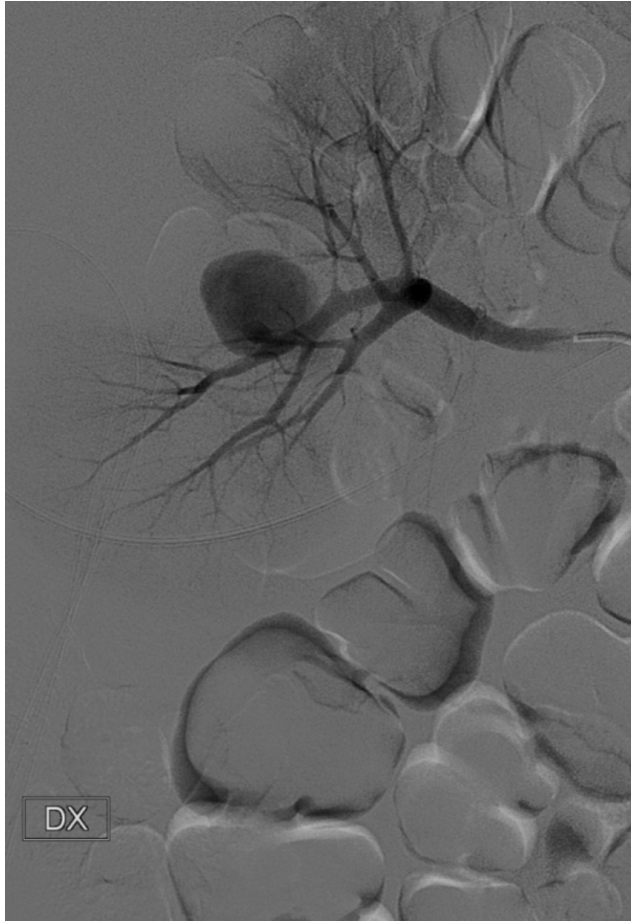
Packing method

- Coil embolization, with or without stent (saccular 'berry' aneurysms)
- Liquid embolic agents
- Balloon remodeling

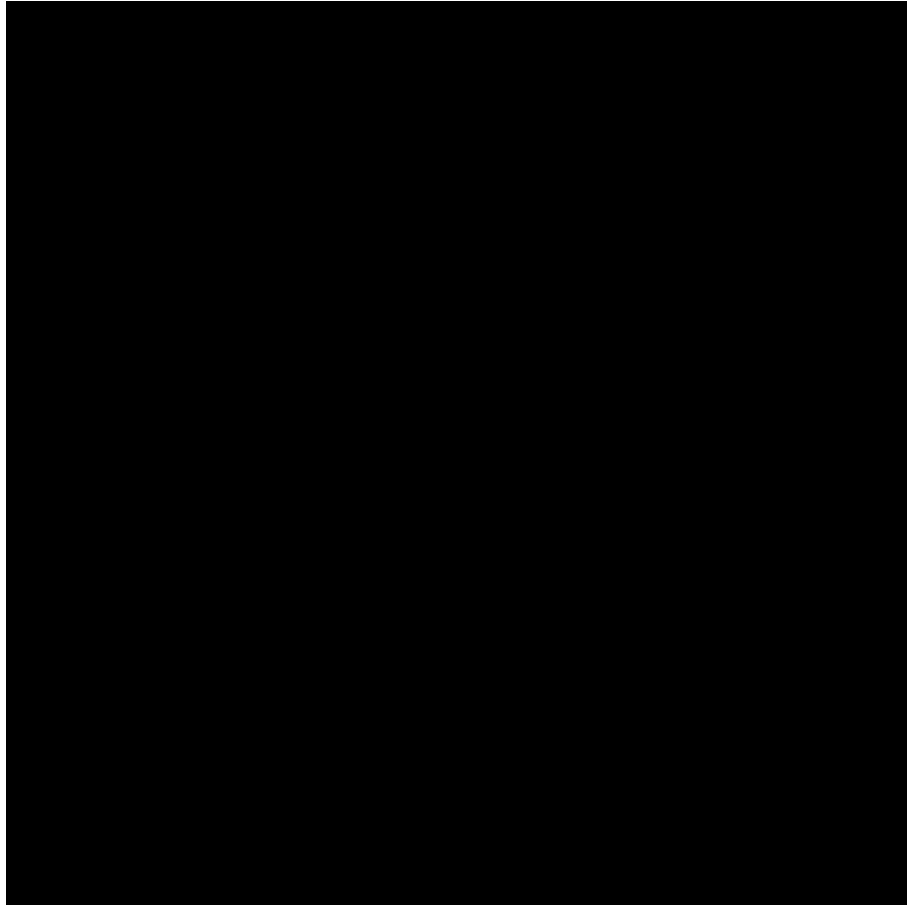
Coiling 'neck' (false aneurysm)



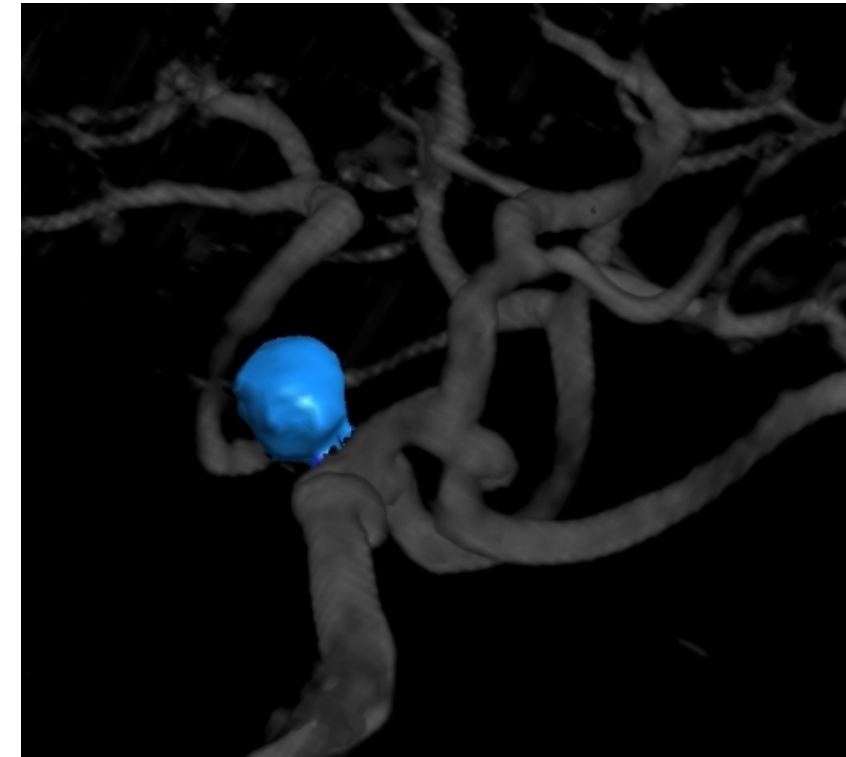
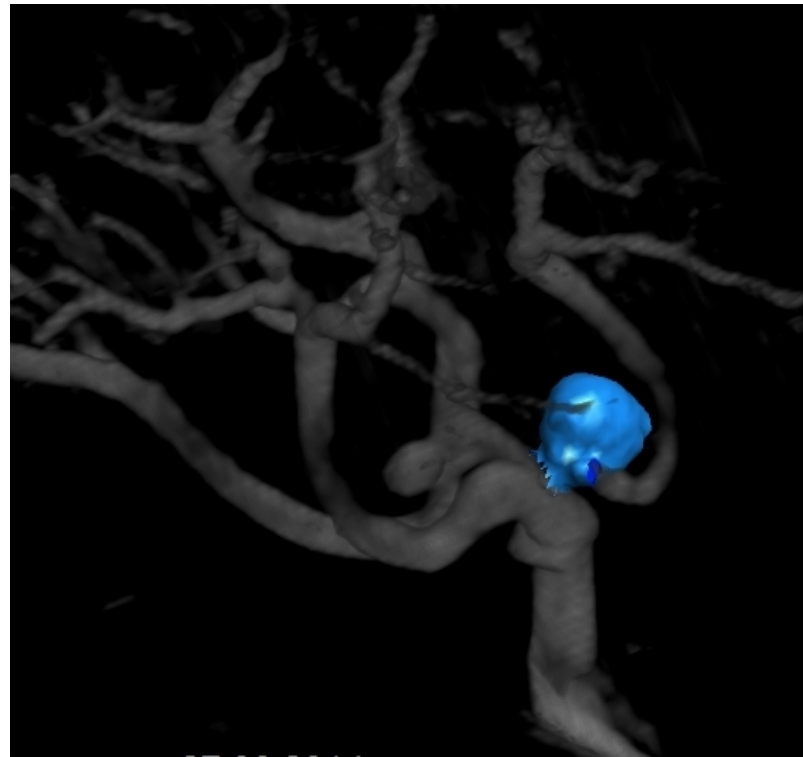
Coiling 'neck' (false aneurysm)



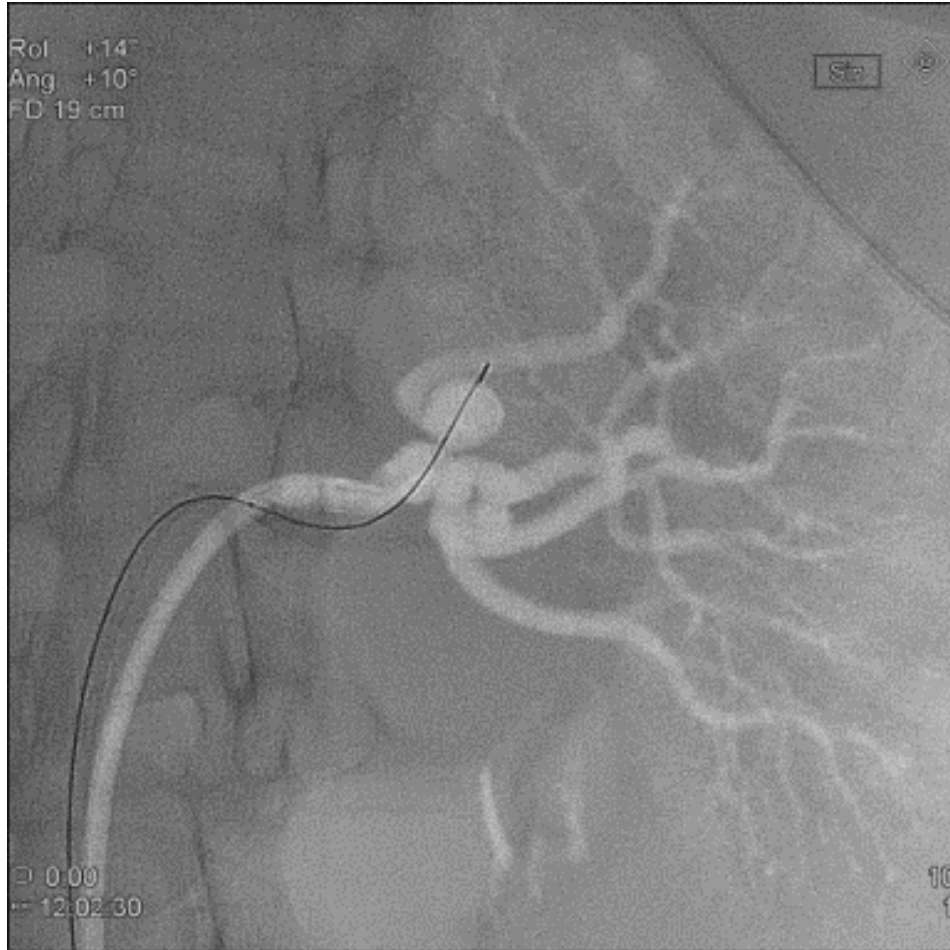
Coiling 'neck' (false aneurysm)



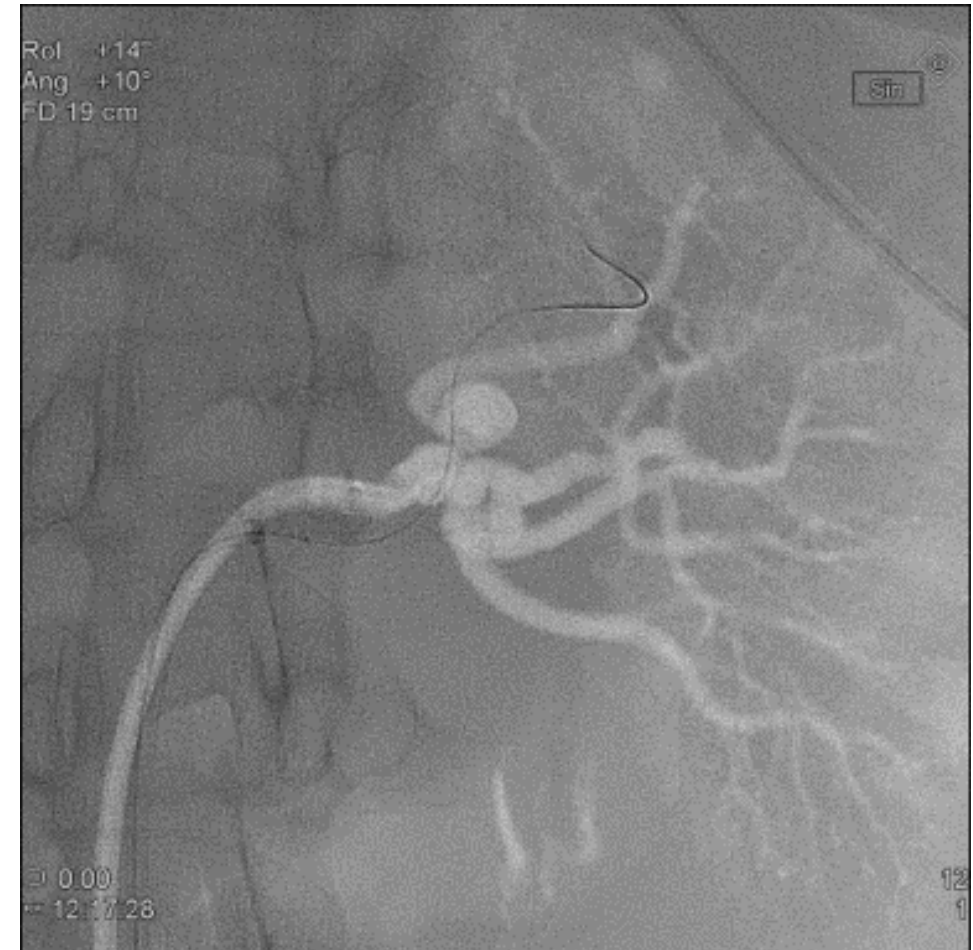
Packing-balloon remodeling



Balloon remodeling

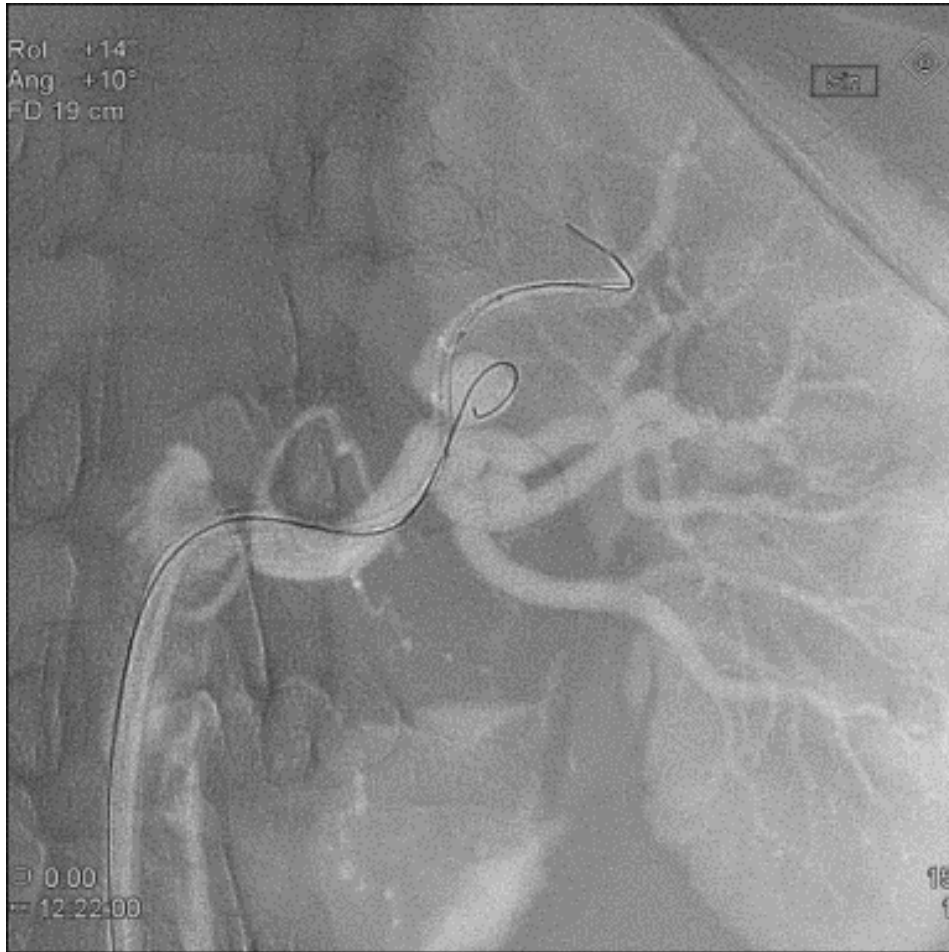


7F sheath;placement guidewire in main branch

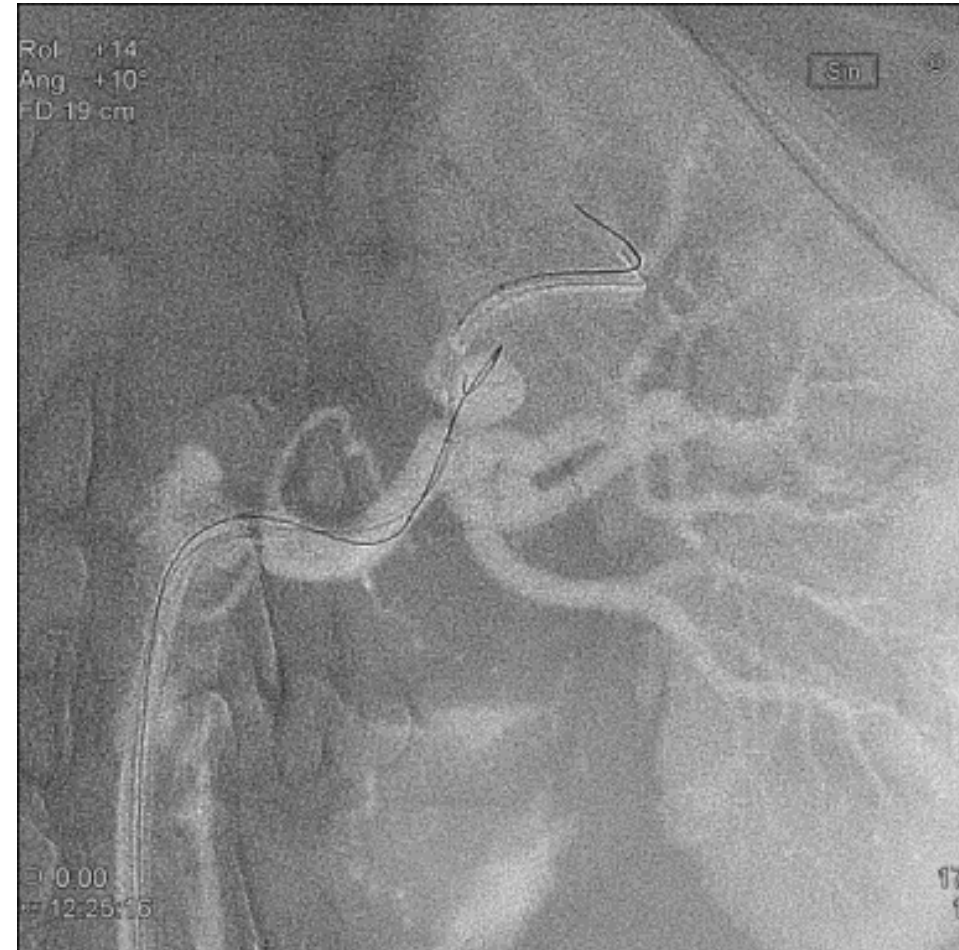


Placement occlusion balloon in main branch

Balloon remodeling

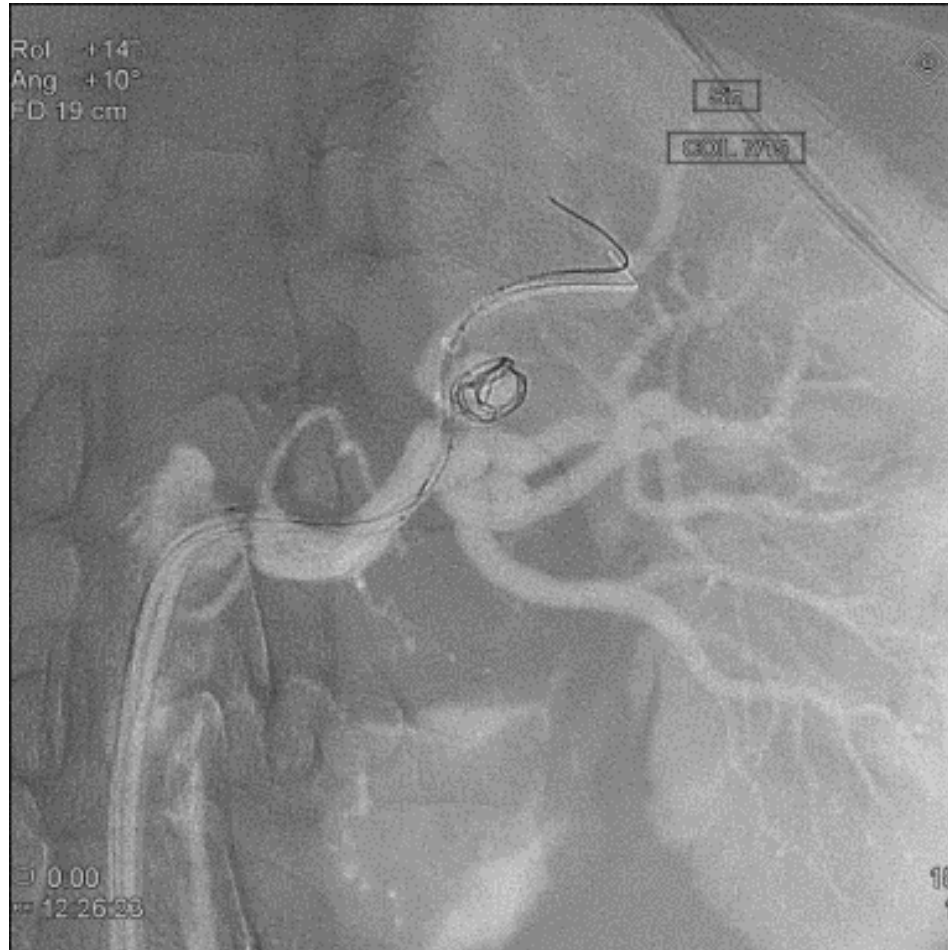


Placement 2nd microcatheter in aneurysm



Placement 1st coil and inflation occlusion balloon

Balloon remodeling

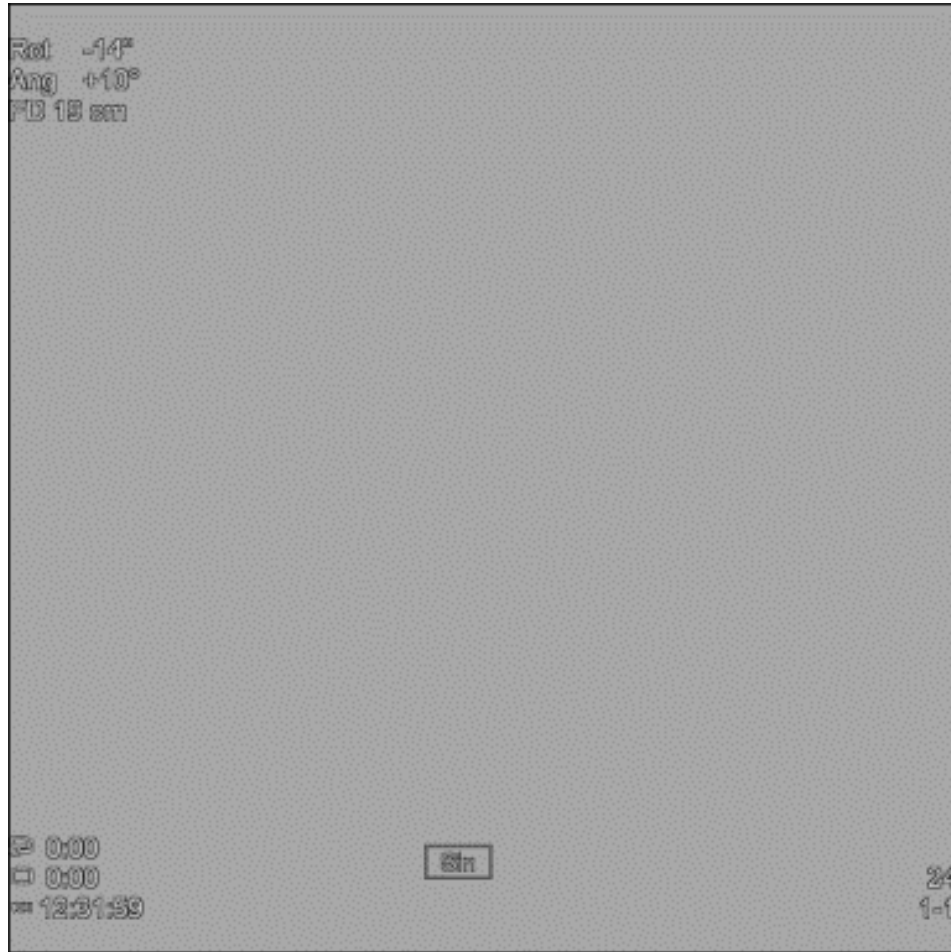


Placement 1st coil



Balloon deflation; check stability/deformation

Balloon remodeling

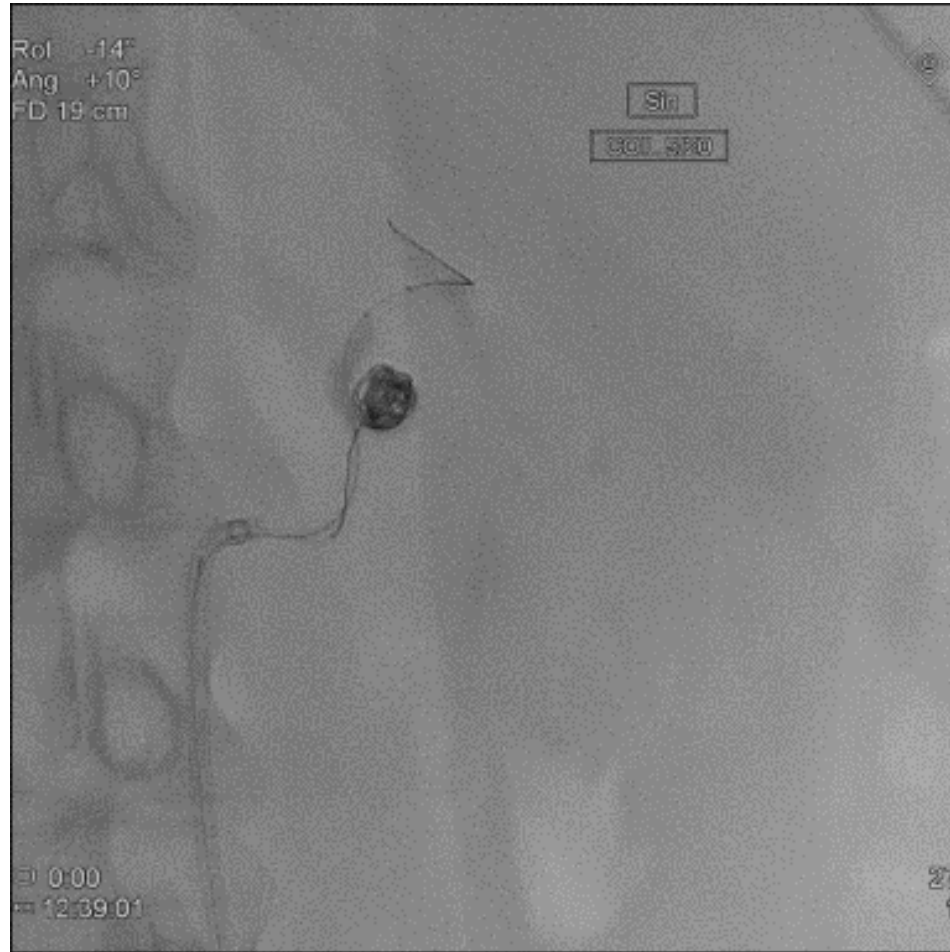


Control angiography



Balloon inflation

Balloon remodeling



Placement 2nd coil



Removal balloon catheter

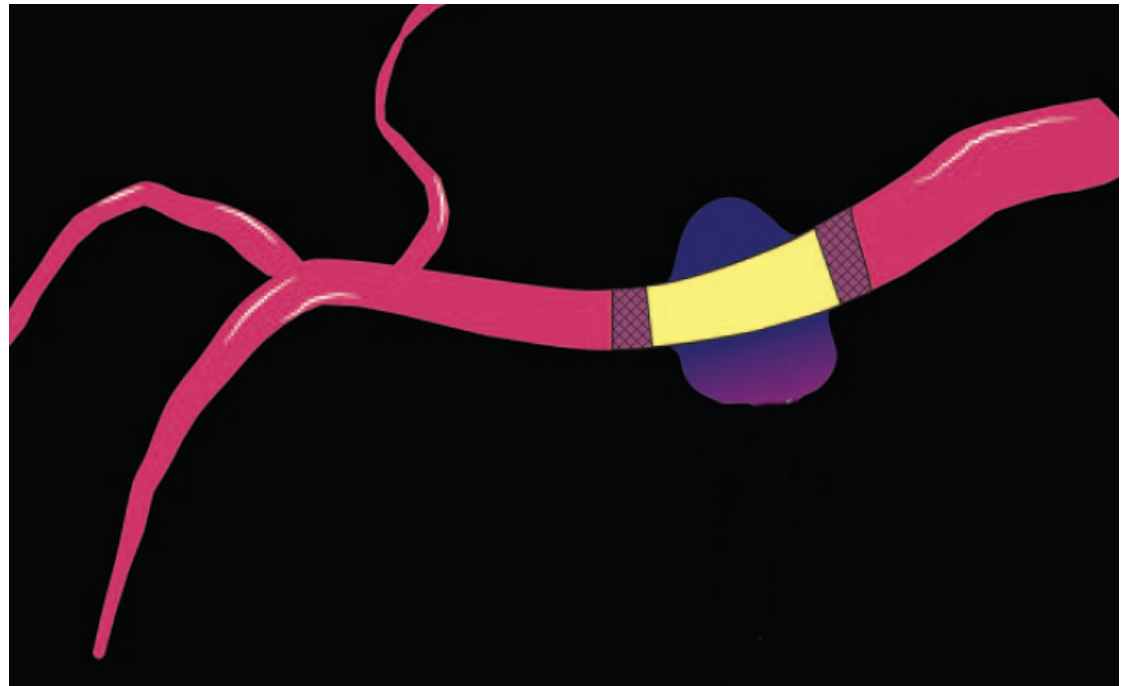
Balloon remodeling



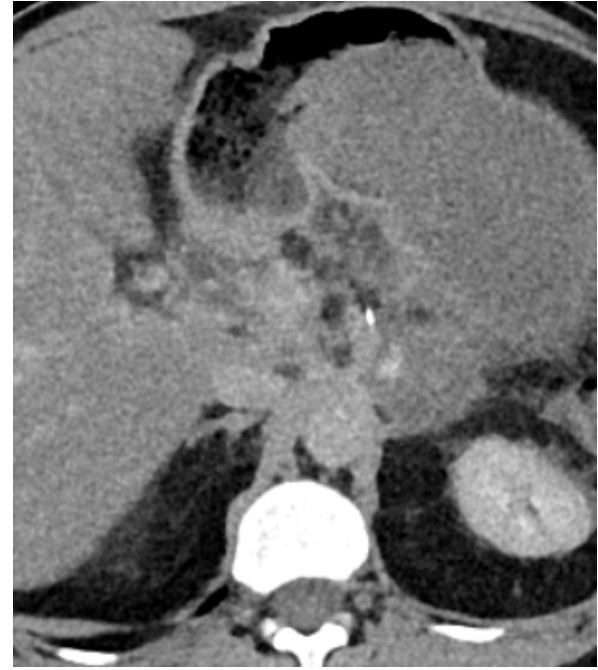
Control angiography

Covered stent

- Preservation of arterial perfusion
- Risk of thrombosis when used in small diameter arteries
- Rigid delivery systems

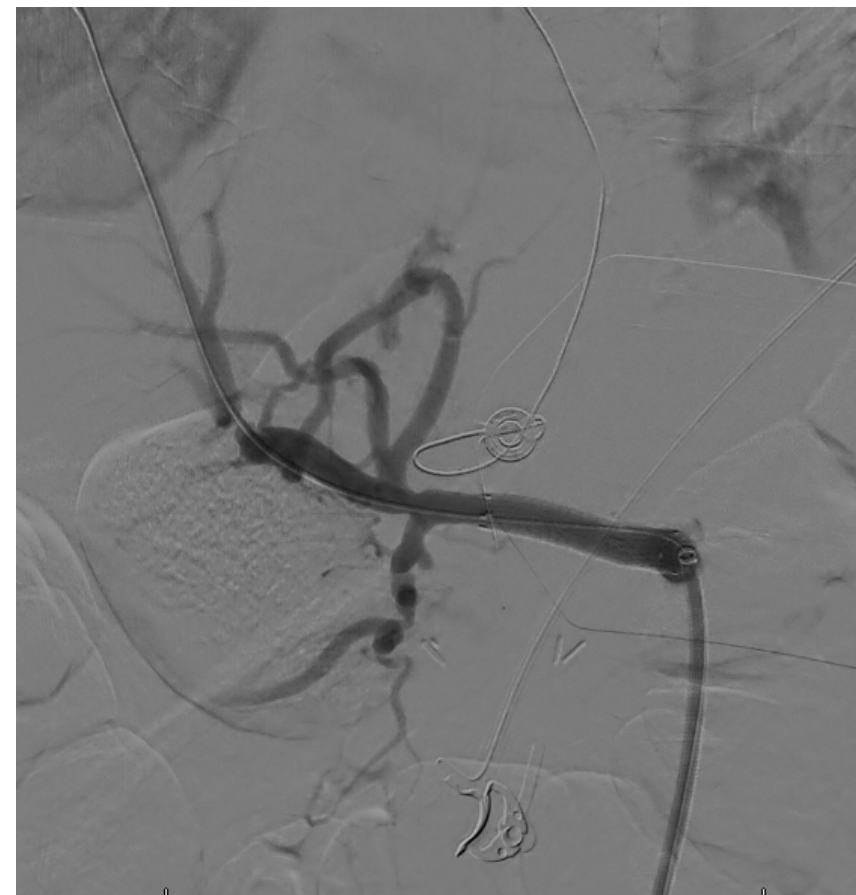
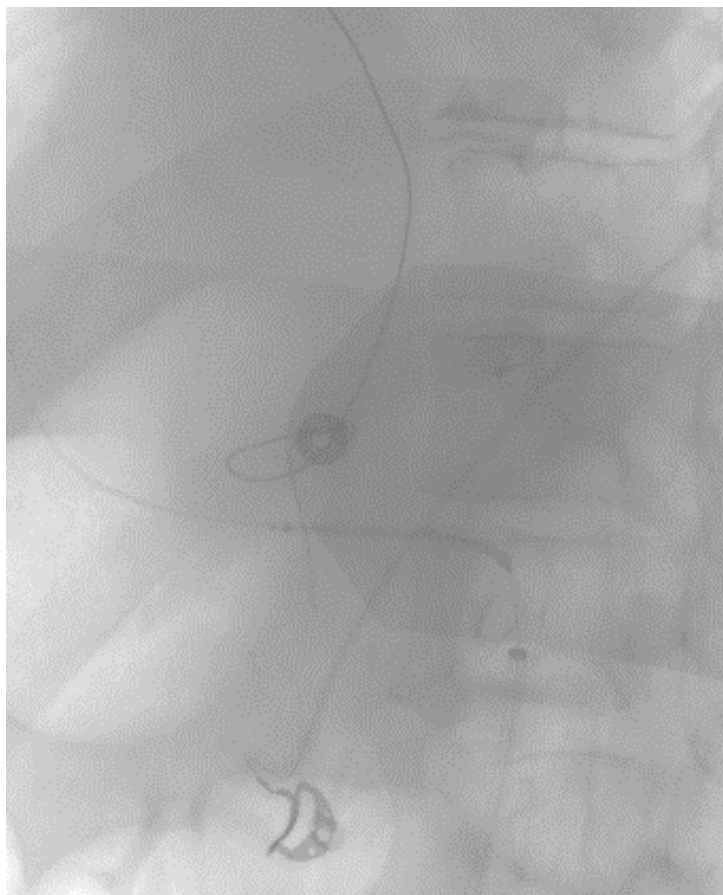


Covered stent



False aneurysm celiac trunk after Whipple

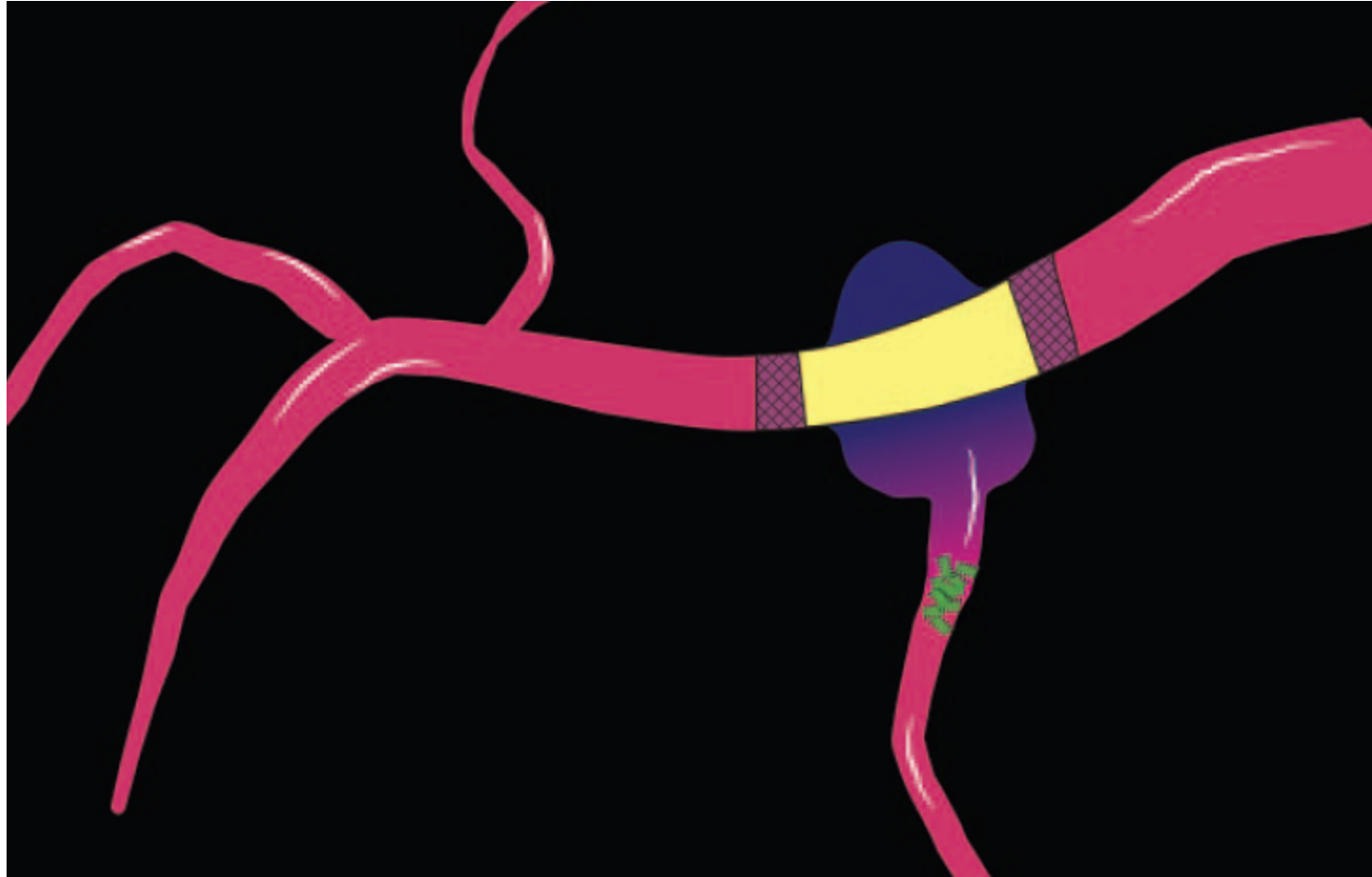
Covered stent



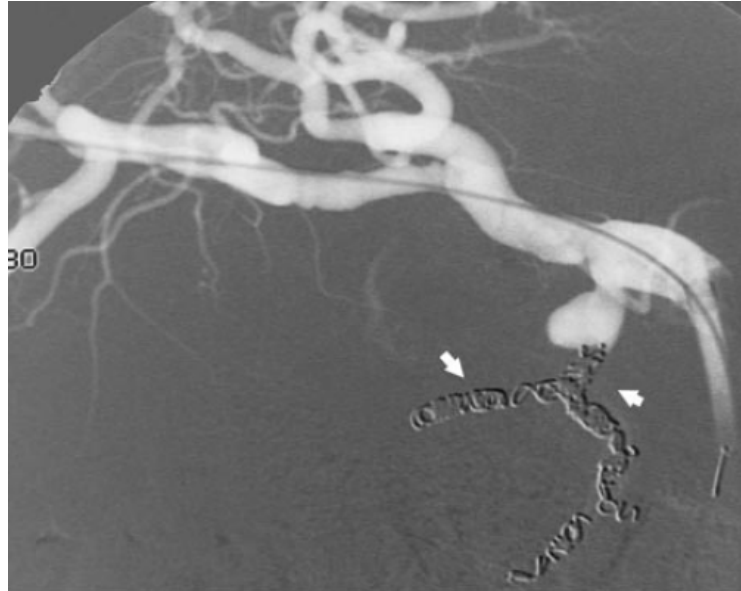
Covered stent



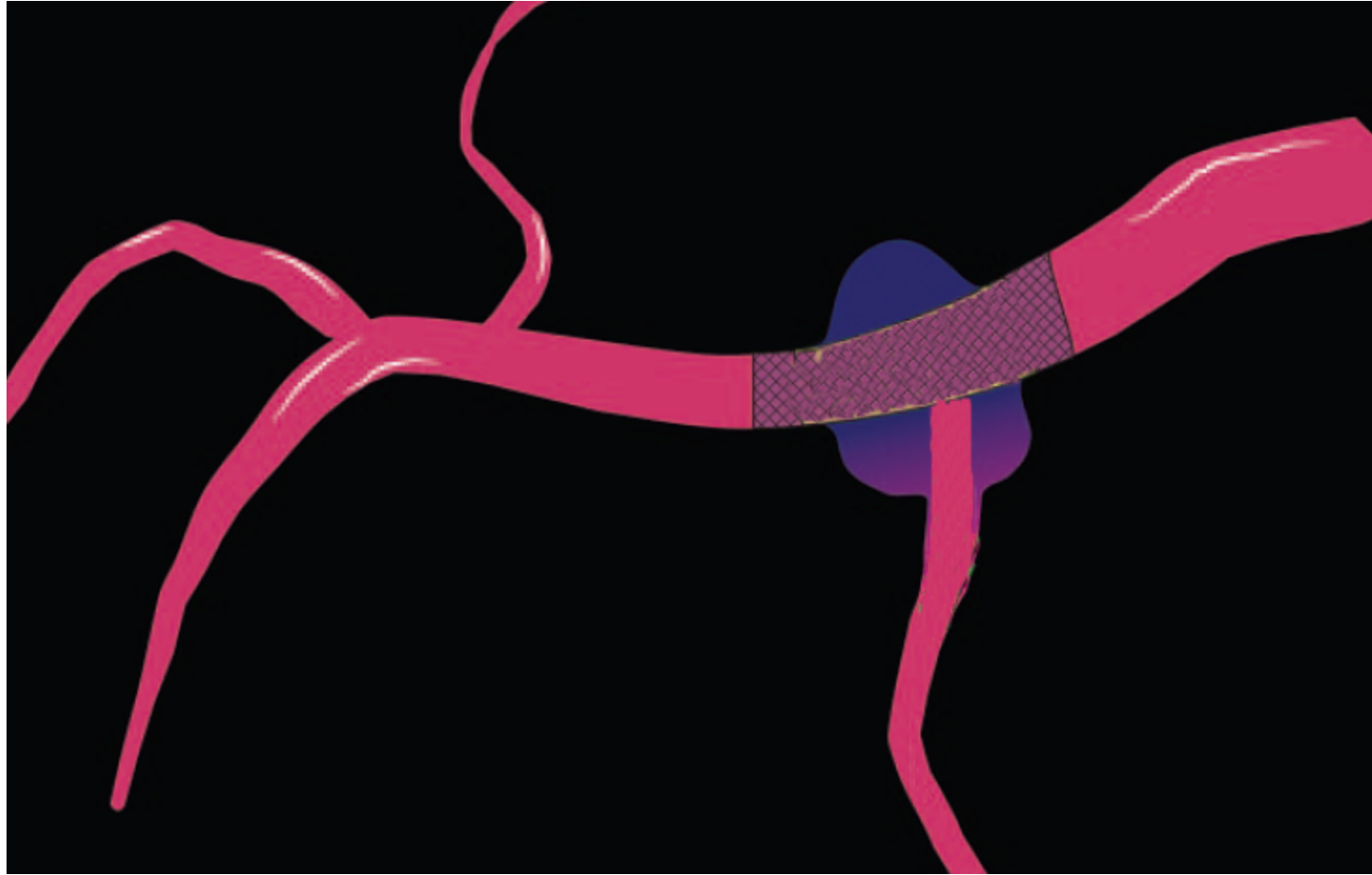
Covered stent and coils



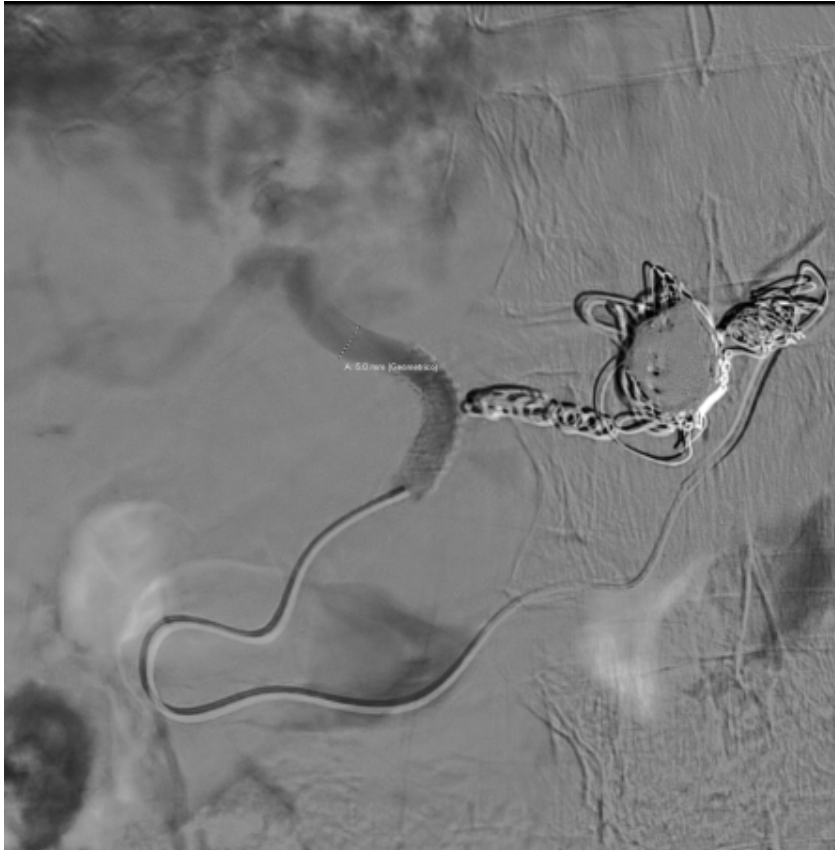
Covered stent and coils



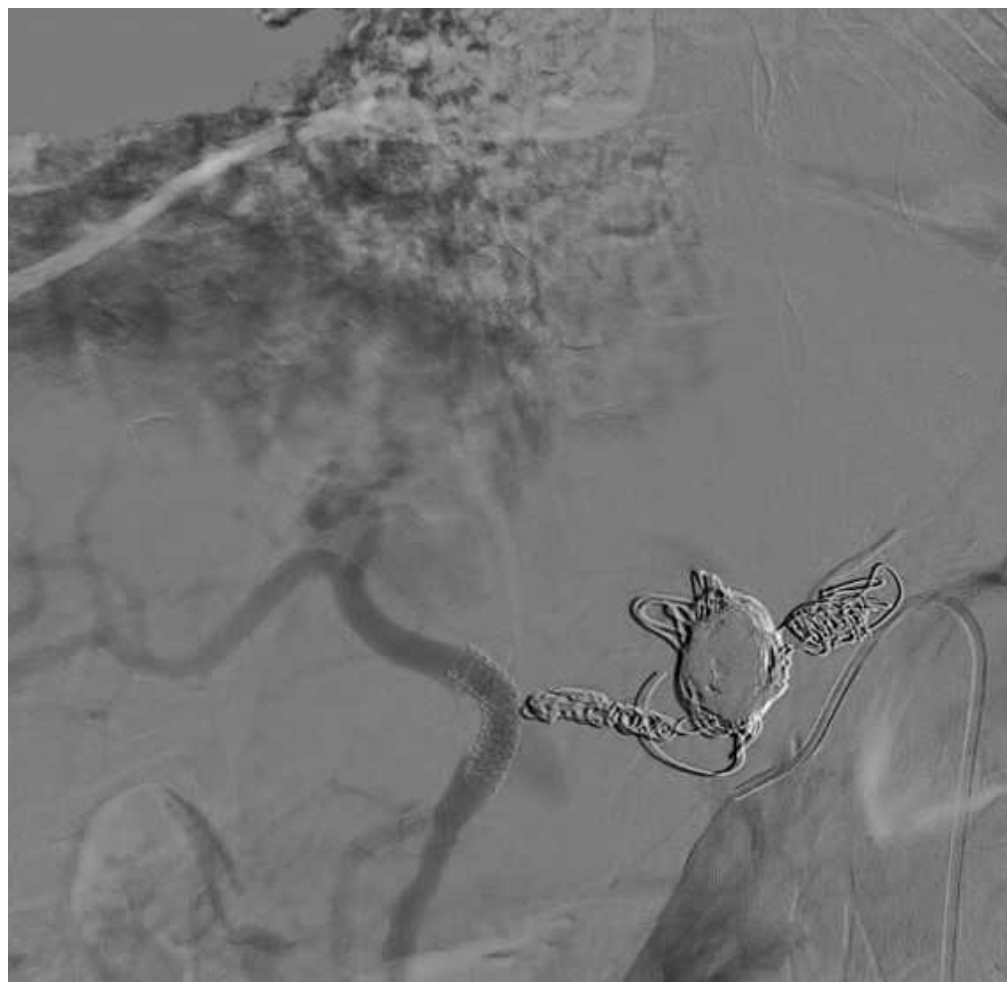
Flow diversion



Flow diversion



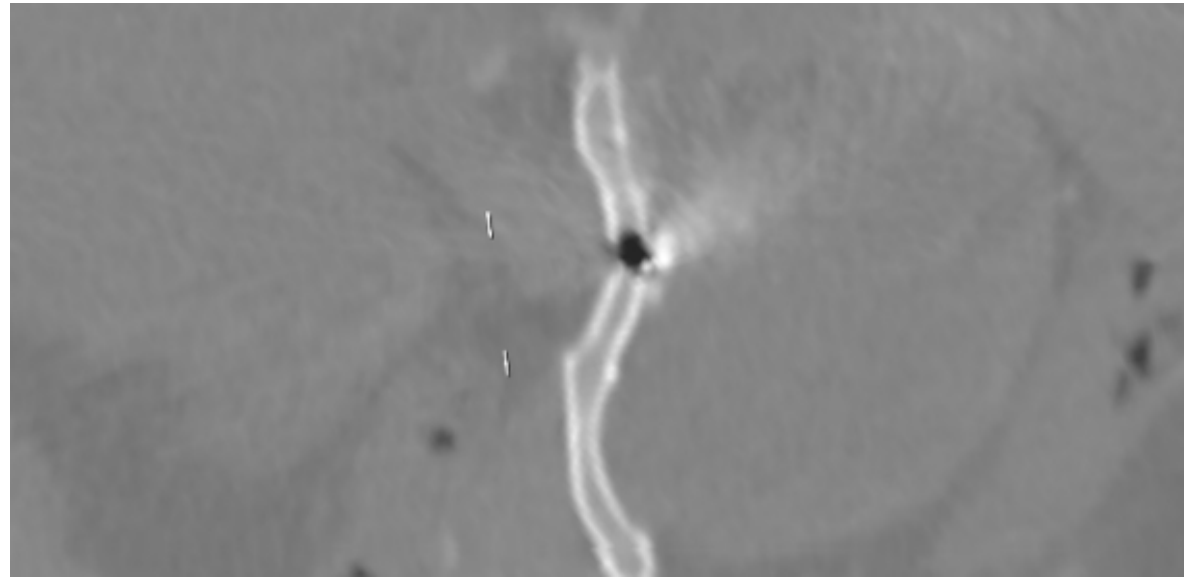
Flow diversion



Flow diversion



Flow diversion



Conclusions

- Most visceral aneurysms can be treated with coils
- Use of covered stents limited by physical characteristics
- Role of flow diversion well-established
- Selection of patient and therapy is multi-factorial



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