

Screening and Management of Aortic Aneurysmal Disease

By:

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Types of Aortic Aneurysms

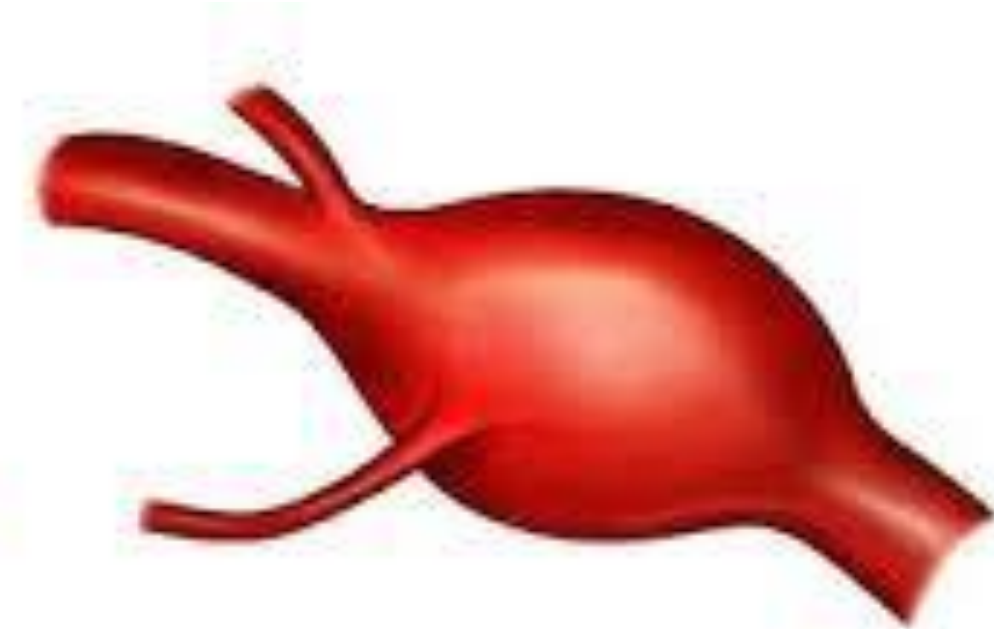
Aneurysm vs Ectasia

By Morphology

- Saccular
- Fusiform

By Pathology

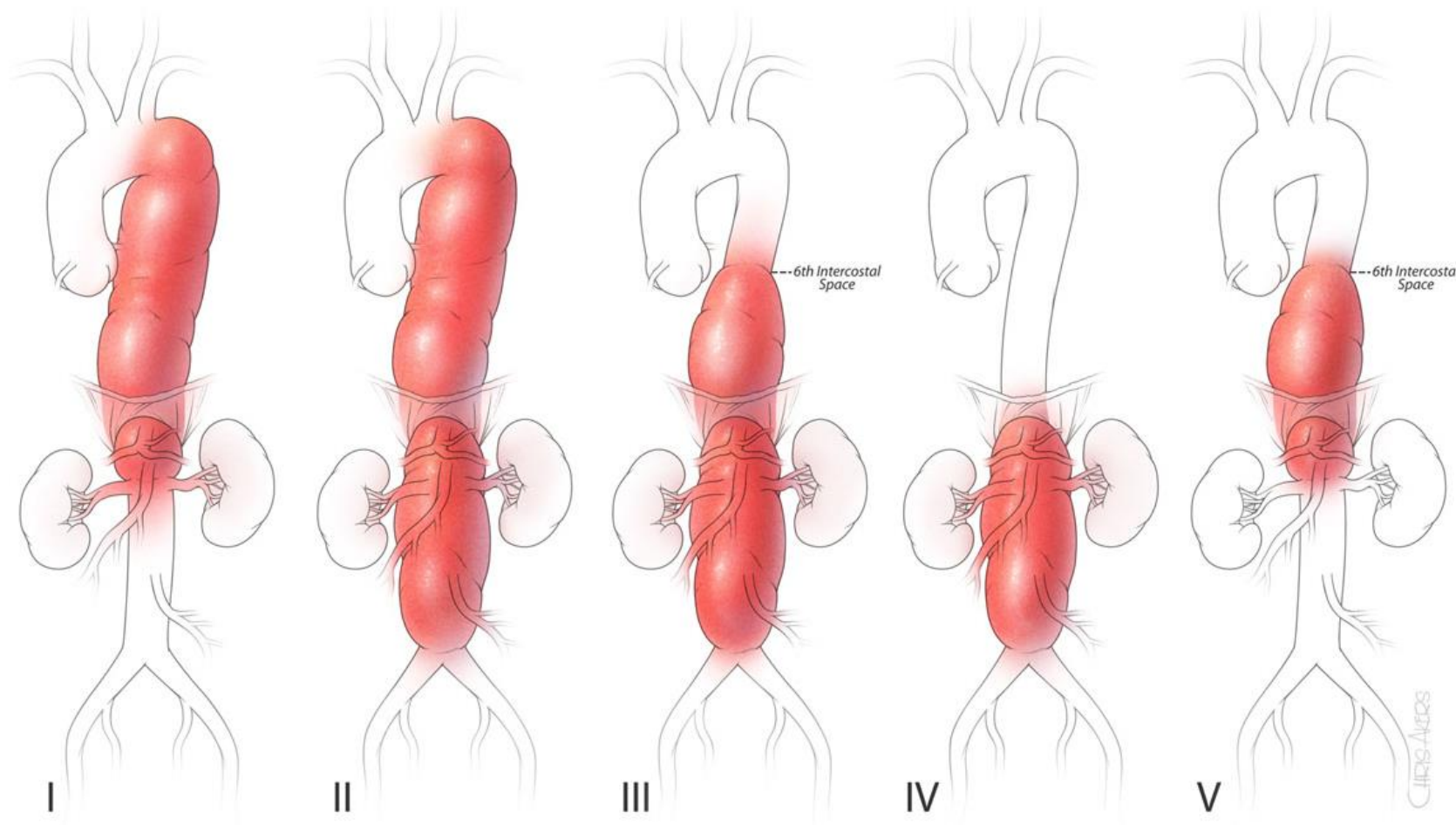
- Degenerative
- Inflammatory
- Infectious
- Chronic Dissection
- Congenital
- Pseudoaneurysm



Types of Aortic Aneurysms

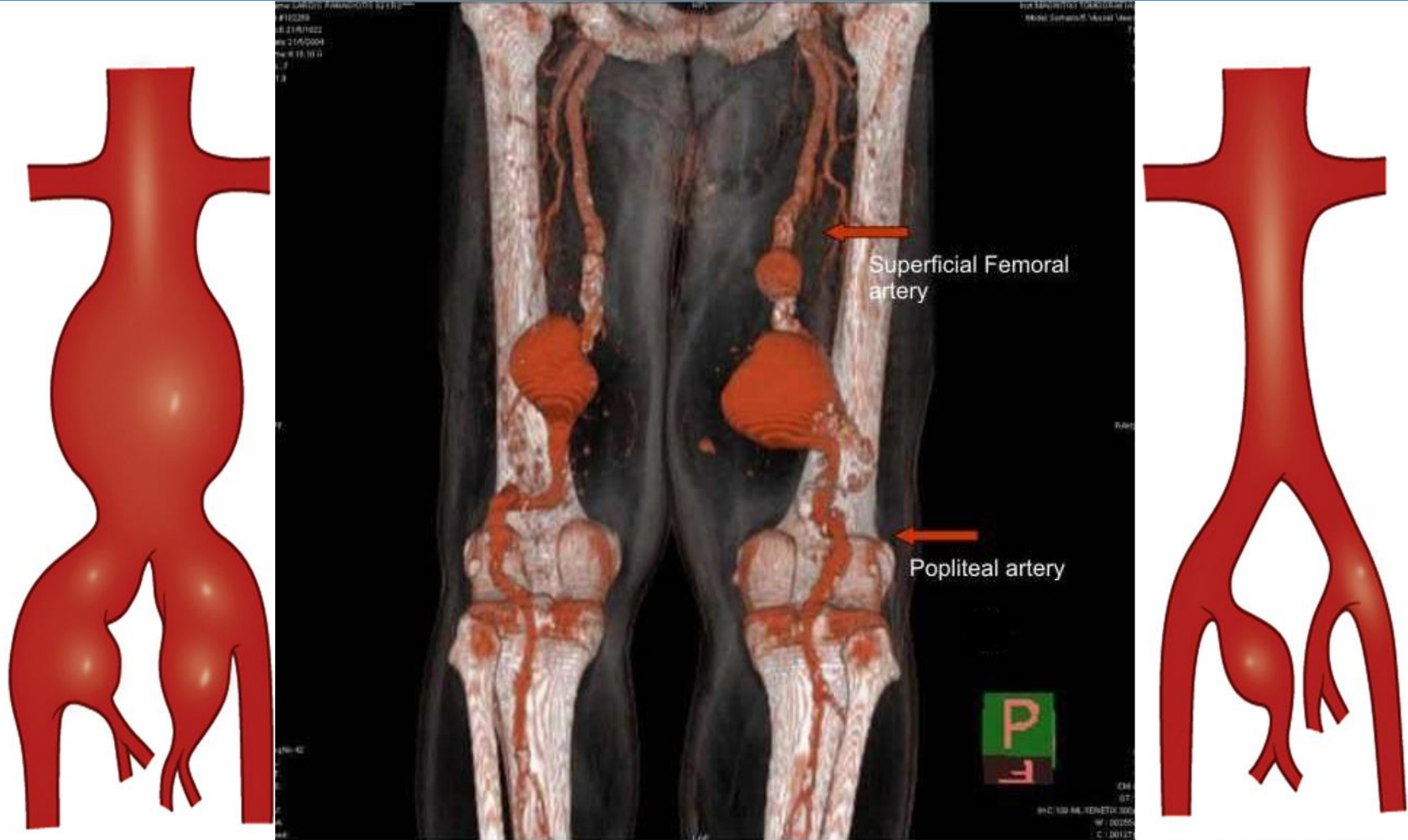
By Location

- Ascending Thoracic Aortic Aneurysm
- Aortic Arch Aneurysm
- Descending Thoracic Aortic Aneurysm
- Abdominal Aortic Aneurysm
 - Suprarenal
 - Pararenal
 - Juxtarenal
 - Infrarenal
- Thoracoabdominal Aortic Aneurysm
 - Crawford Classification



Associated Aneurysms

- Iliac Aneurysm
- Femoral Aneurysm
- Popliteal Aneurysm



Risk Factors, Prognosis, Surveillance, & Screening

Formation & Growth

- Age
- Male
- Smoking Hx*
- Family Hx
- Fluoroquinolones
- Low B6 levels

Rupture

- Size
- Growth rate
- Smoking
- HTN
- COPD
- Female
- Saccular morphology
- Diabetes (especially T1DM) is protective

Risk of Rupture (annual):

- 3-5.4cm ~2%
- 5.5-6cm ~5% (<risk of repair)
- 6.1-7cm 5-10%
- >7cm >10%

Risk of rupture far exceeds risk of thromboembolic complications.
6% of all AAA present as rupture.

Surveillance:

- 2.5-3cm Q10yr
- 3.-3.9cm Q3yr
- 4-4.9cm Q1yr
- 5-5.4cm Q6mo

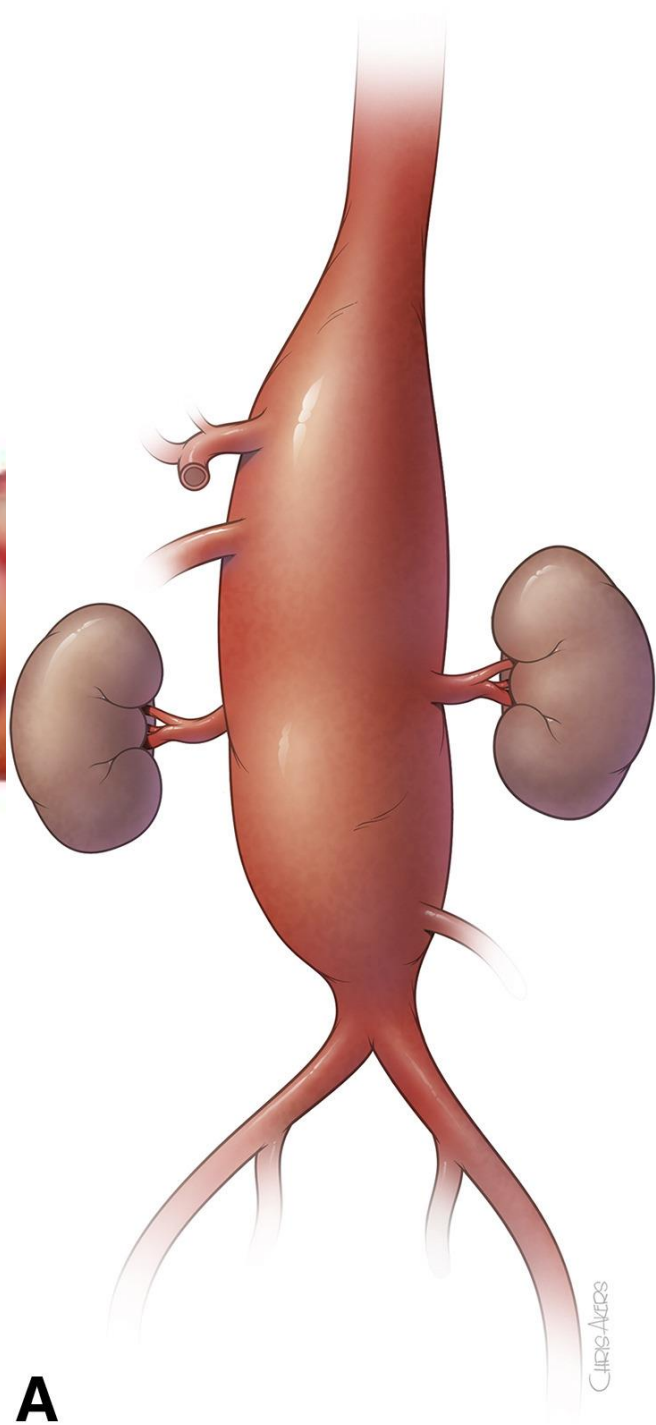
Aortic Duplex; CTA once 5+ cm for operative planning.

Screening: (SVS) 65-75yo w/any Hx of tobacco use

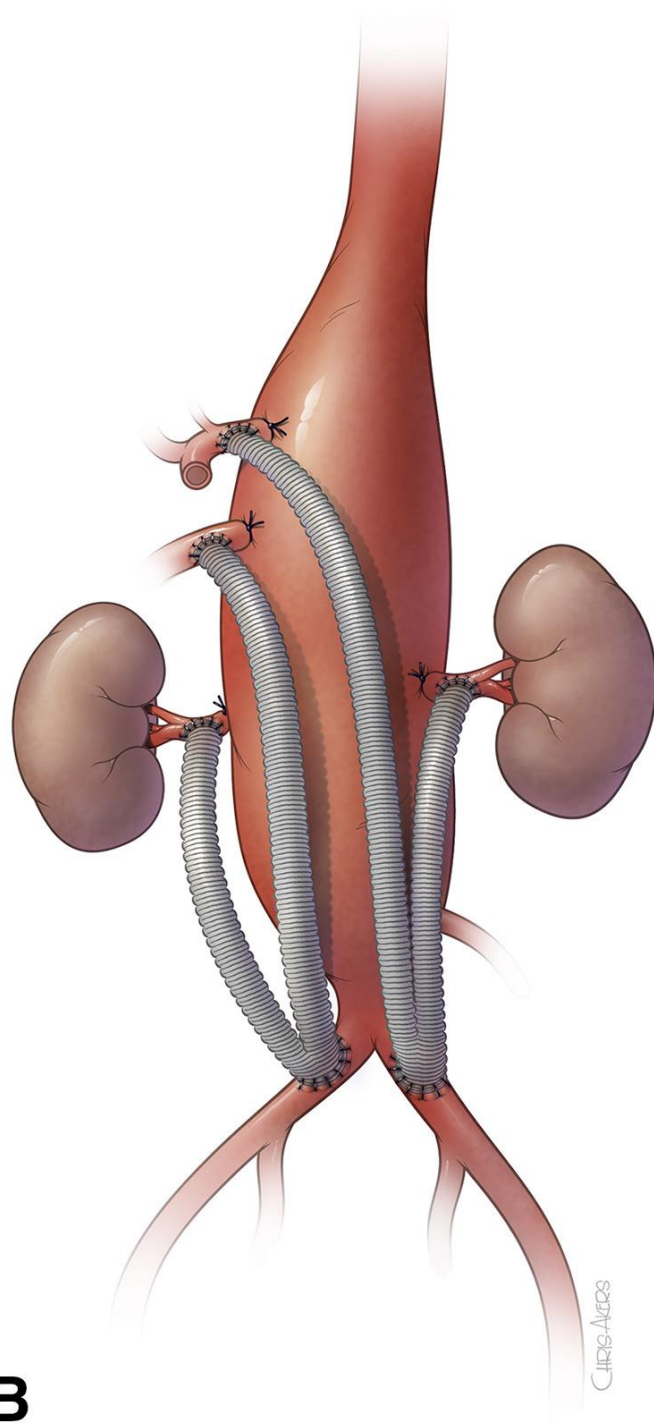




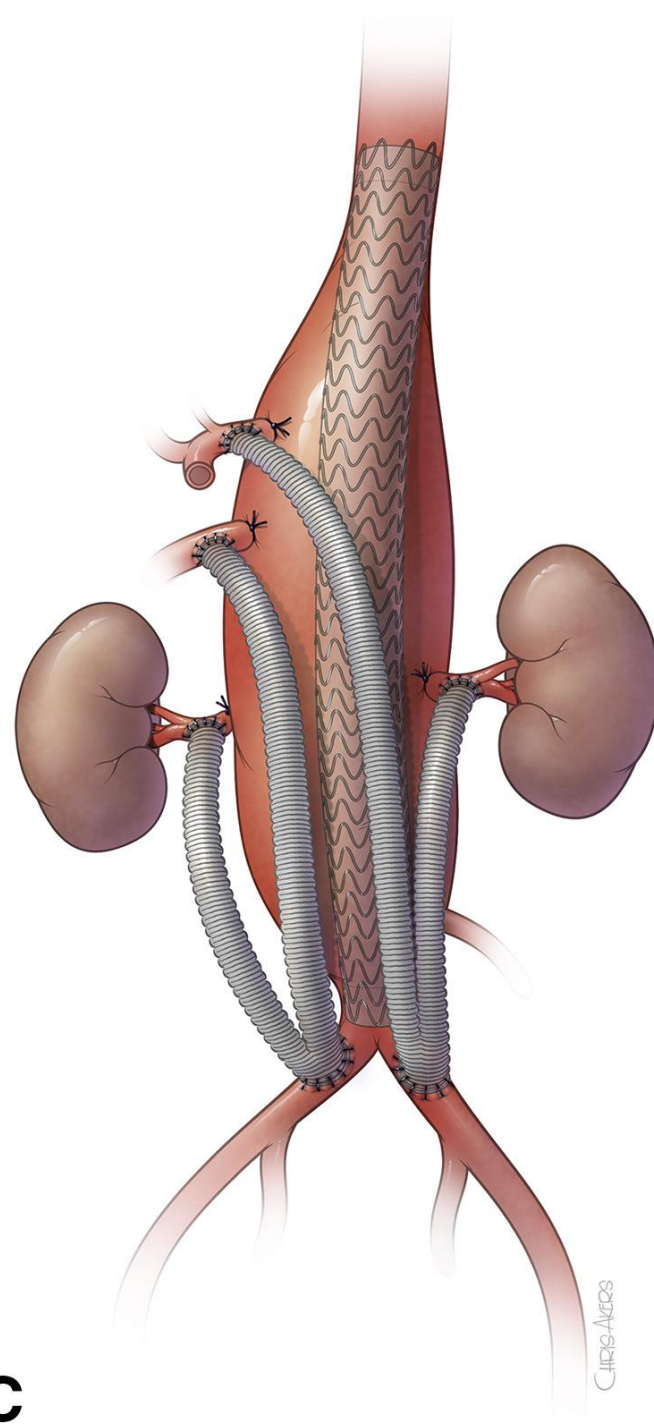
A



B



C

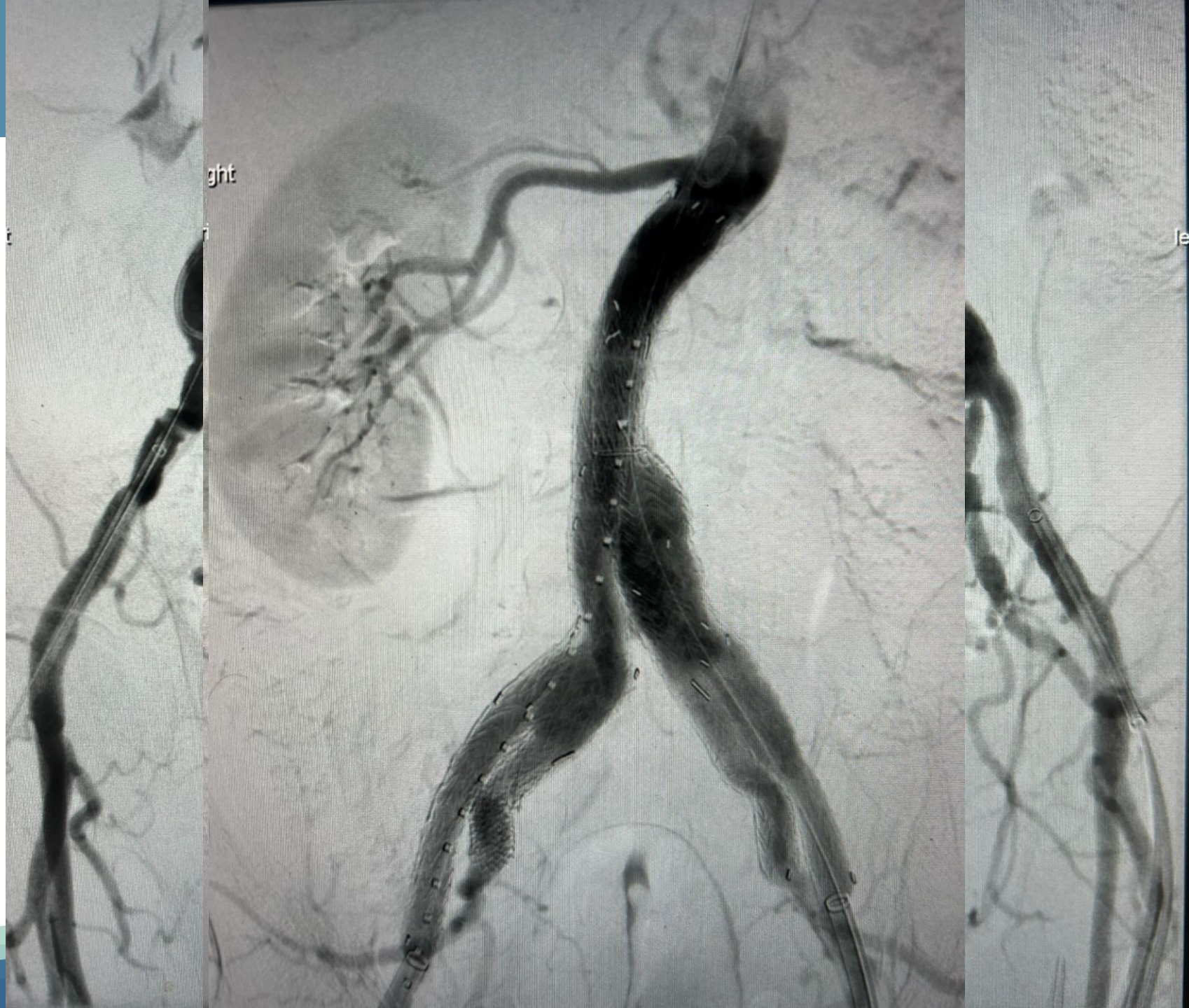


A

IBE

Preserve flow through Hypogastric A.

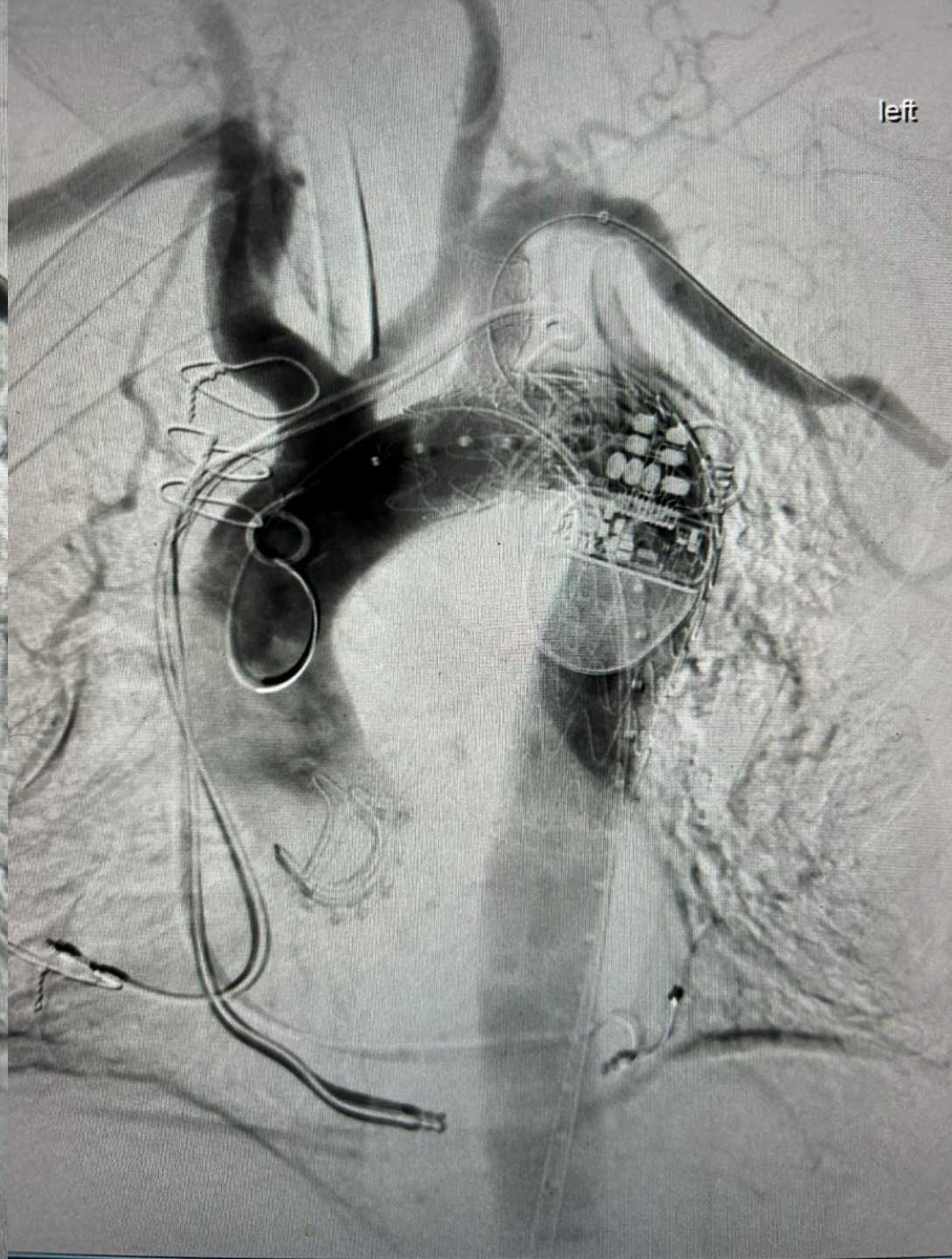
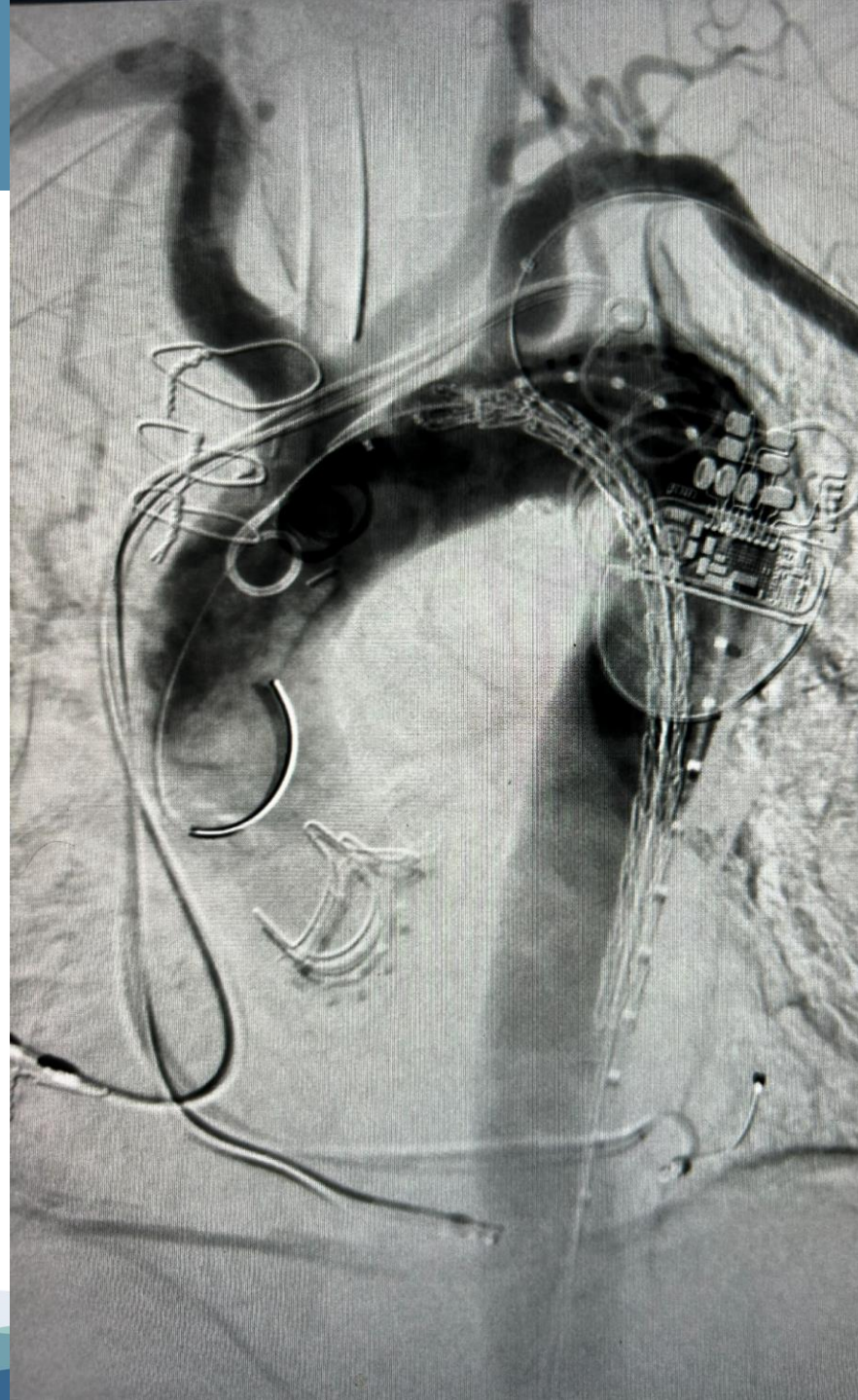
Prevent Pelvic Ischemia



TBE

Avoid or minimize extra-anatomical BP

Less risk of SCI



Hostile Necks

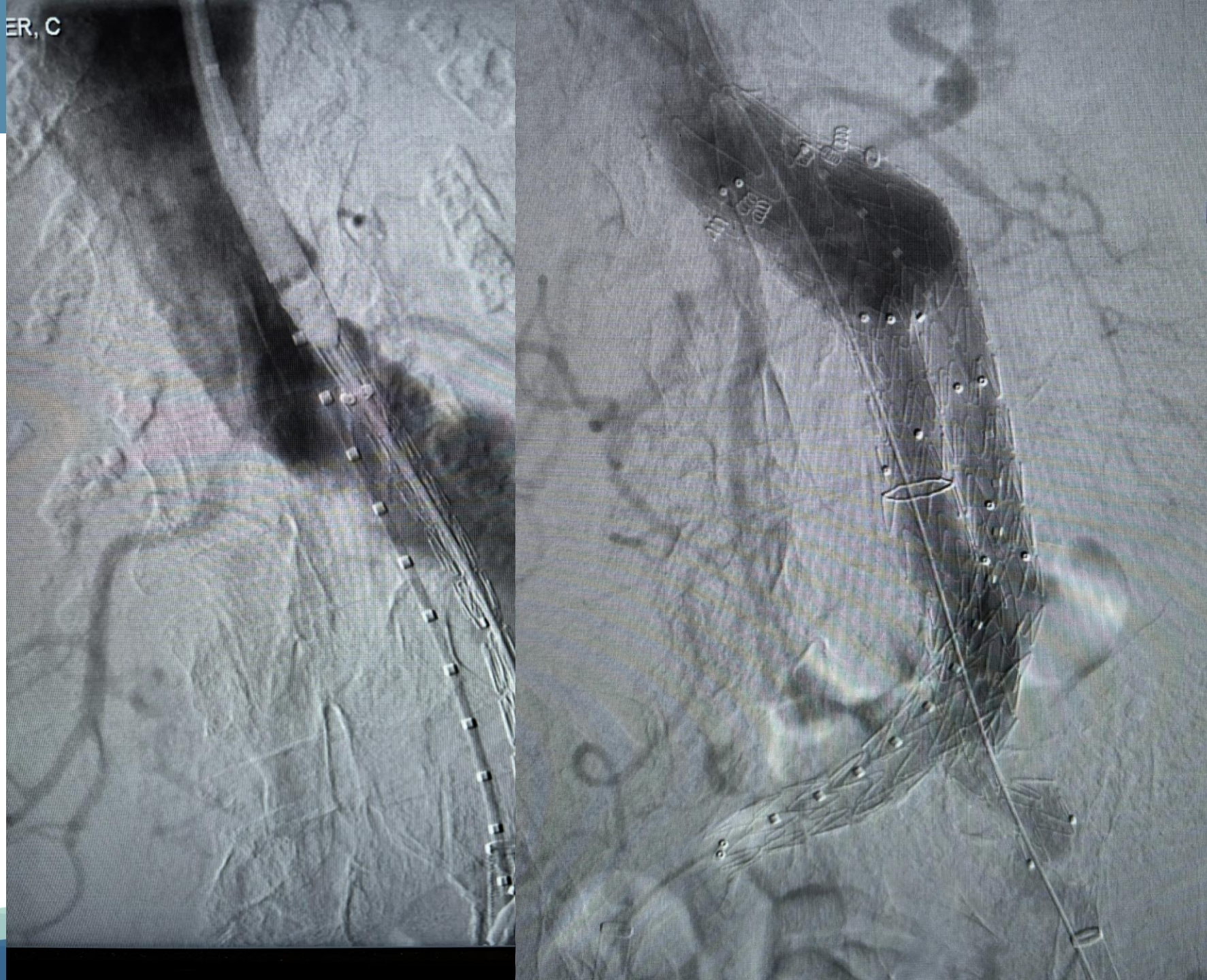
- Conical
- Wide
- Short
- Angulated

Migration

Type IA Endoleak

Associated with sack regression

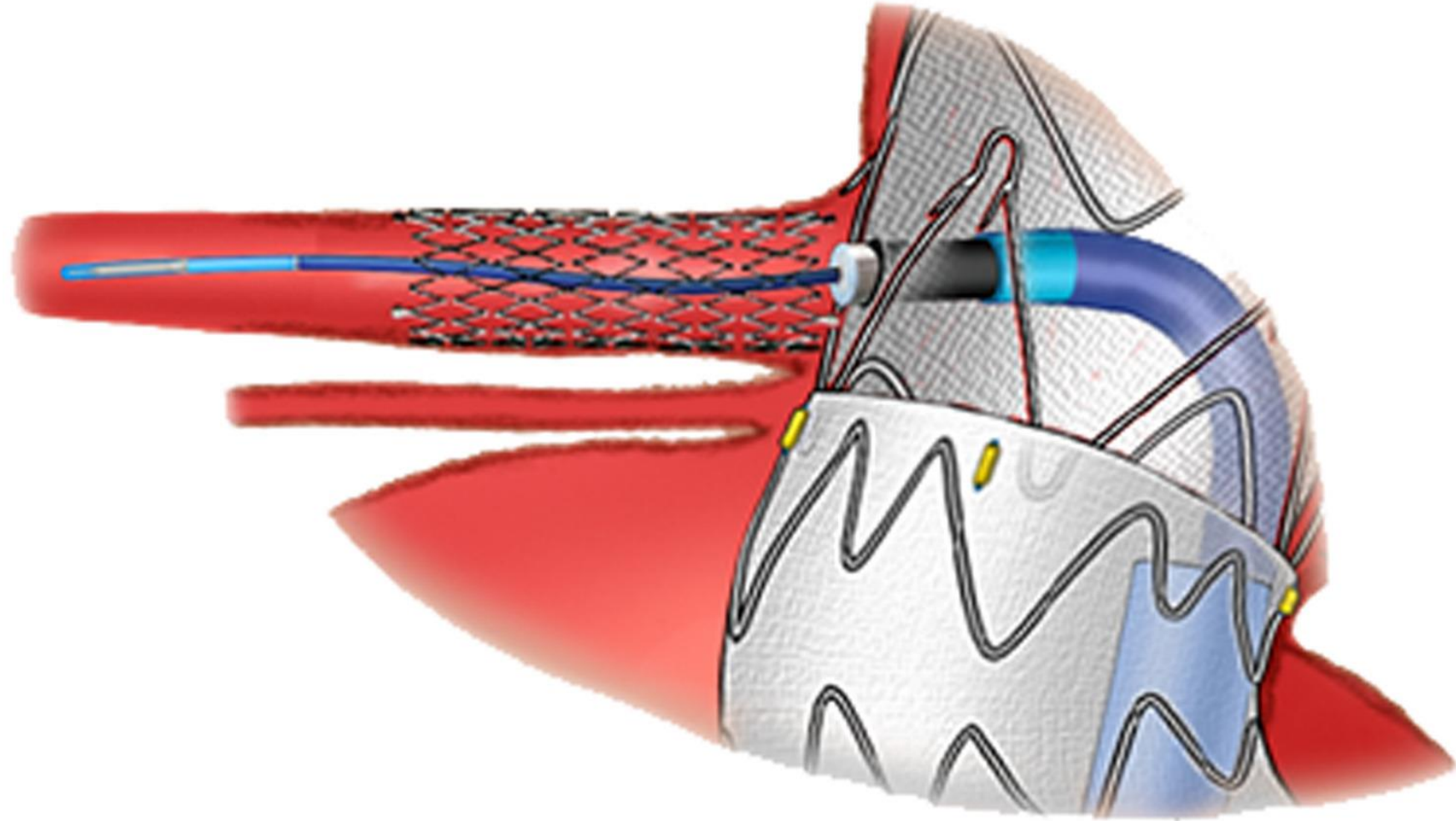
With Endurant suprarenal fixation can treat up to 4mm necks



Laser Fenestration

Method to deal with complex anatomy including pararenal and paravisceral aneurysms.

Great bail-out option.



Post-Operative Care

S/P Open Repair

- Cardiovascular; most common cause of mortality
- Renal Failure; Aortic cross-clamp time (>35mins)
- Pulmonary dysfunction; reduced w/RP approach
- Abdominal Compartment Syndrome; w/significant resuscitation => bowel edema
- Ureteral Injury/transection; 0-5d immediate repair, >10d perc Neph w/delayed repair
- Ischemic Colitis; sigmoid/colonoscopy ASAP, limited = supportive, transmural = ex-lap +/- bowel resection
- Spinal Cord Ischemia; ***
- Acute Limb Ischemia; Embolization (iliacs 1st, then aorta)

S/P Endovascular Repair

- Endoleak; type I, II, III, IV, & V
- Migration
- Progressive aneurysmal degeneration; ~25%, assoc w/mural thrombus in neck
- Limb occlusion; AIOD, small bif, tortuosity, EIA limb extension
- Renal Artery Occlusion
- Graft infection; 0.5% incidence, 30% mortality, E. coli, S. epidermidis
- Pelvic Ischemia; buttock claudication 15% (unilateral) 65% (bilateral); gluteal necrosis, SCI
- Solid Organ Infarction; assoc w/mural thrombus
- Conversion to Open; 30% mortality if emergent vs 13% if electively w/in 30d



Ruptured AAA

Surgical Emergency; ~85% mortality; ~50% in the field, ~40% mortality postintervention

Sx: Abd/back pain + Hypotension + Pulsatile abd mass

Contained vs Free

Harborview Prediction Model: Cr>2, pH<7.2, Age>76, initial SBP<70; 3 variables = 70% mortality, 4 = 100%.

Dx: CTA

Tx:

- Permissive Hypotension; consciousness, prevent ST-depression, SBP goal 70-80
- OR emergently; prepped & draped prior to Anesthesia
- Only local anesthesia if possible
- Induce Anesthesia once balloon occlusion in place or decide to open



Thank you



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Questions?