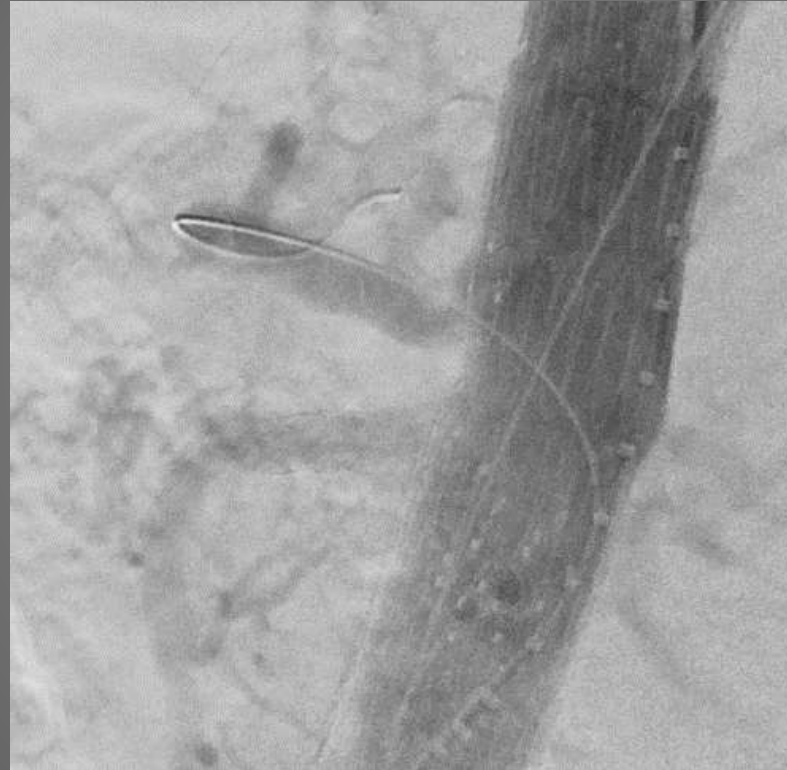


Is it always necessary to stent the Celiac Artery in 4xFEVAR?



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Disclosures

- William Cook Europe/Cook Inc.
 - Consultant & Research grants
- Getinge
 - Consultant
- Bentley
 - Consultant

FEVAR

- Achieve sealing in juxta/suprarenal AAA by landing in healthy aorta



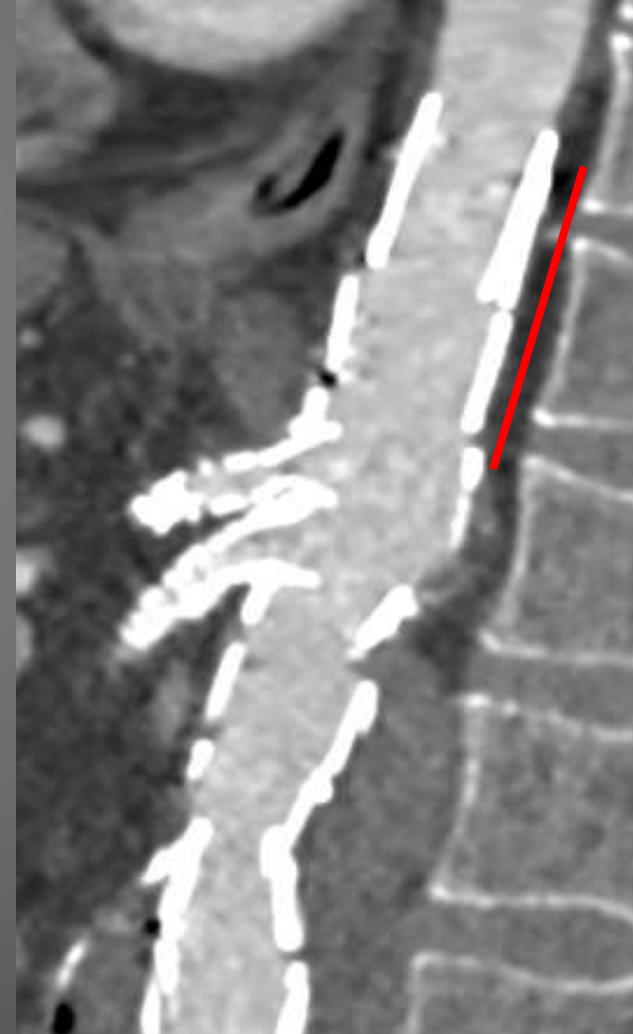
3x/4x FEVAR vs. 2x FEVAR

Theoretical Advantages

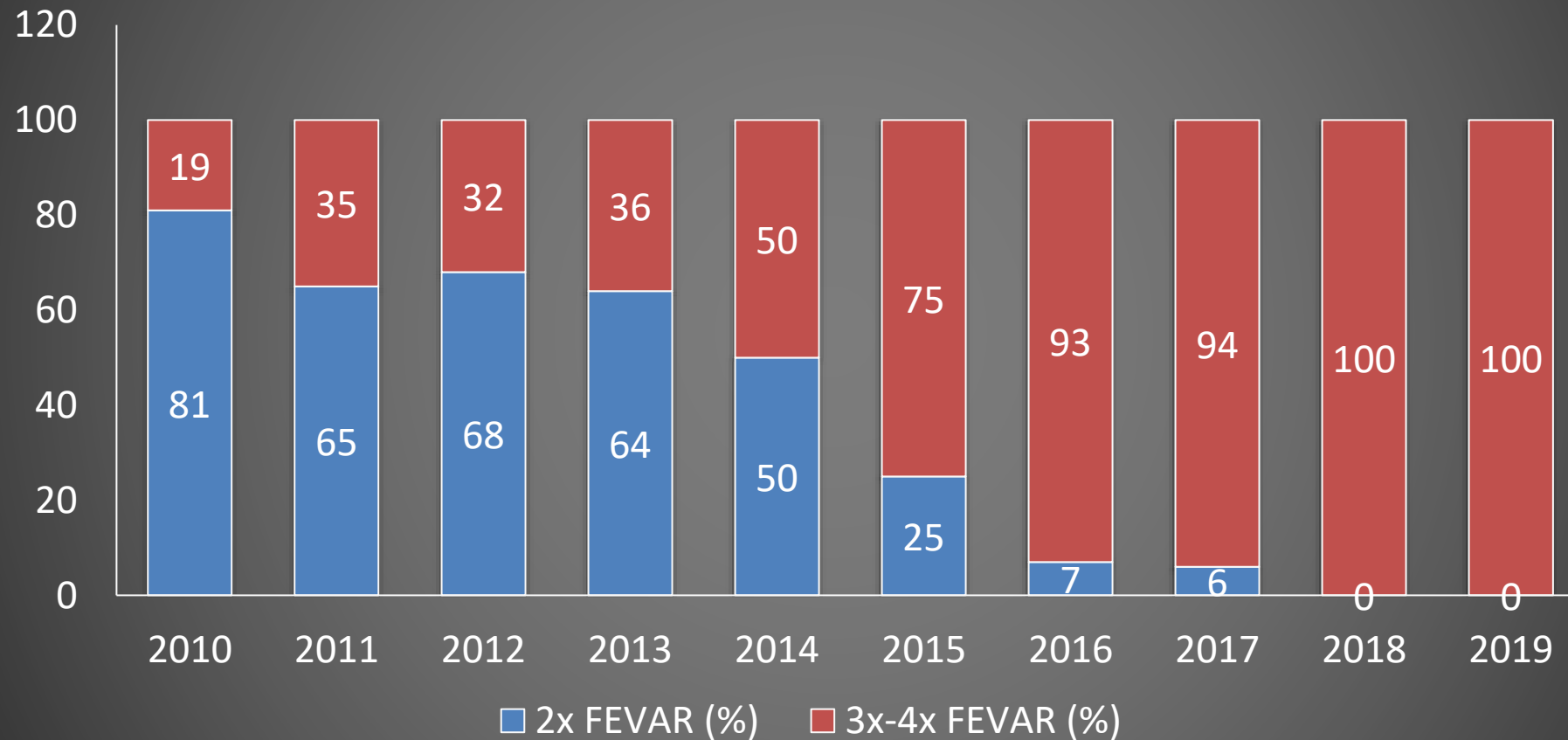
- More proximal sealing
 - Longer length
 - Healthier aortic wall



- Long term durability
 - Younger patients



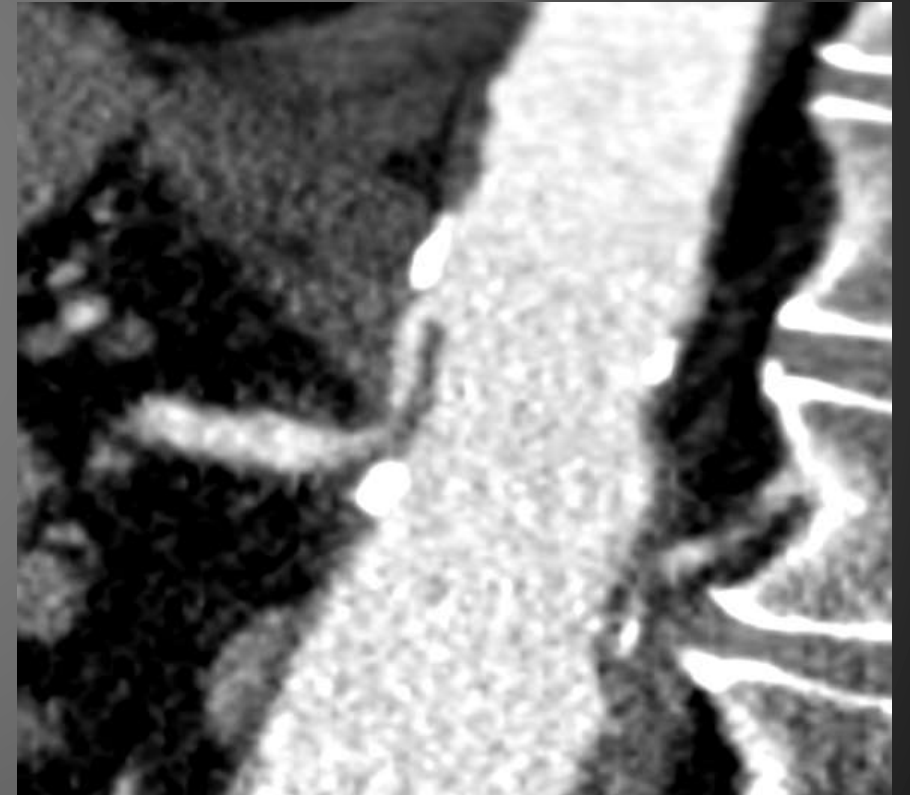
Evolution of Stent-graft Design: Nürnberg series



↑ Use of Complex FEVAR over the years...

4xFEVAR

- Involves bridging stent in celiac artery
 - (often) Steep take-off & Angulation
 - Subject to respiratory motion
 - Median arcuate ligament

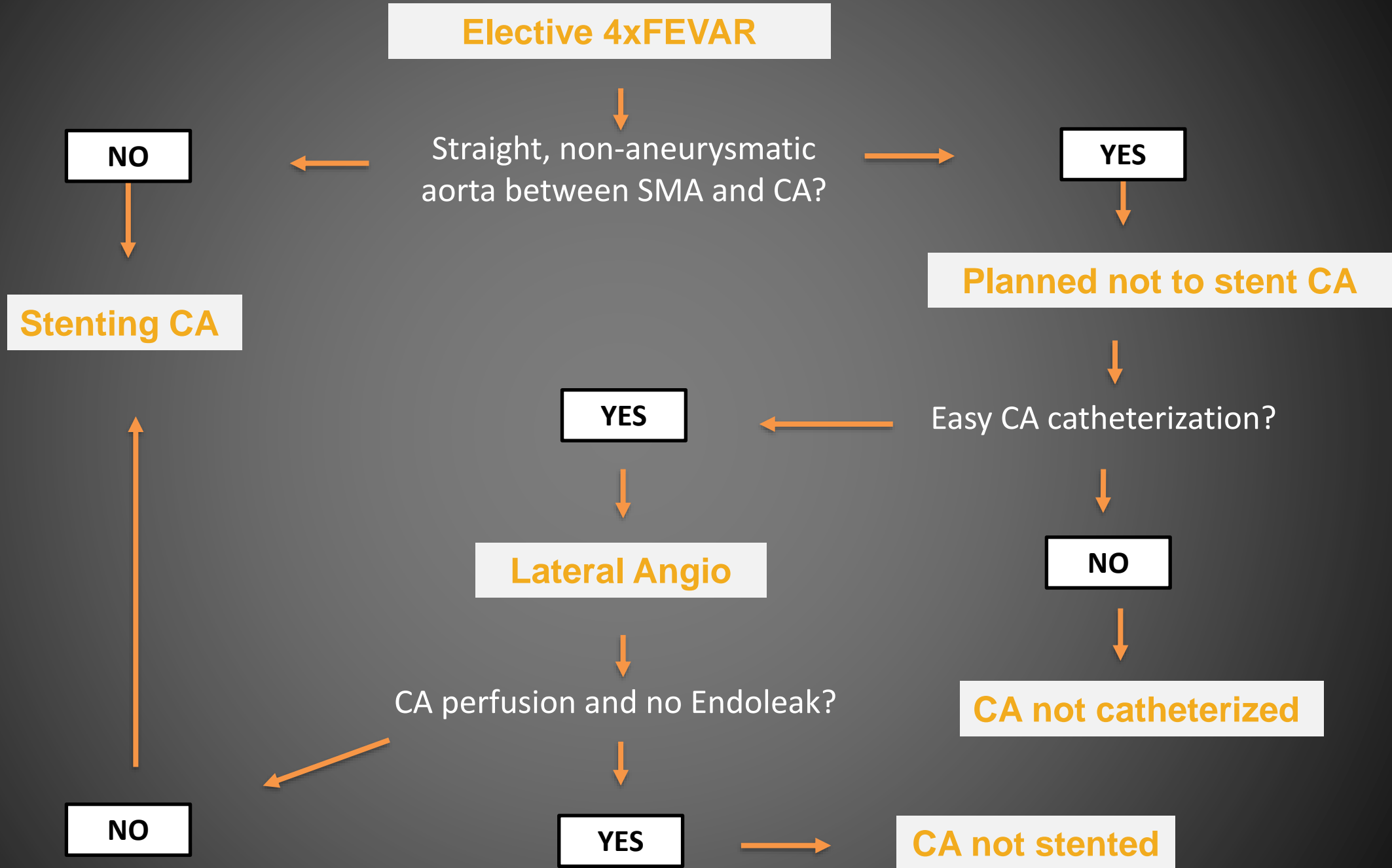


4xFEVAR without stenting CA

- Potential advantages
 - ↓ Complexity: 4xFEVAR → 3xFEVAR procedure
 - ↓ Duration of surgery
 - ↓ Radiation and Iodinated contrast
 - ↓ Cost



New Strategy for J/SAAA

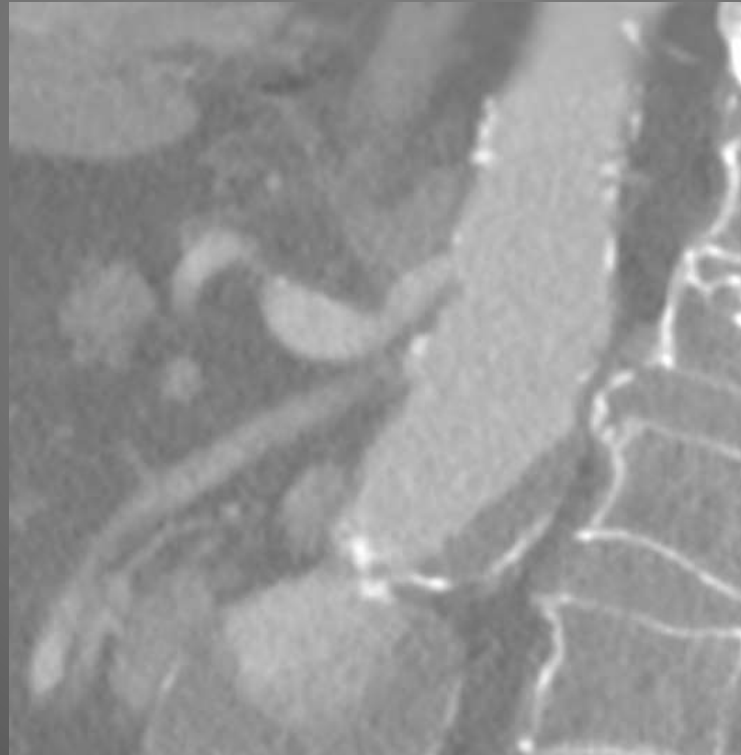


Case Example (1)

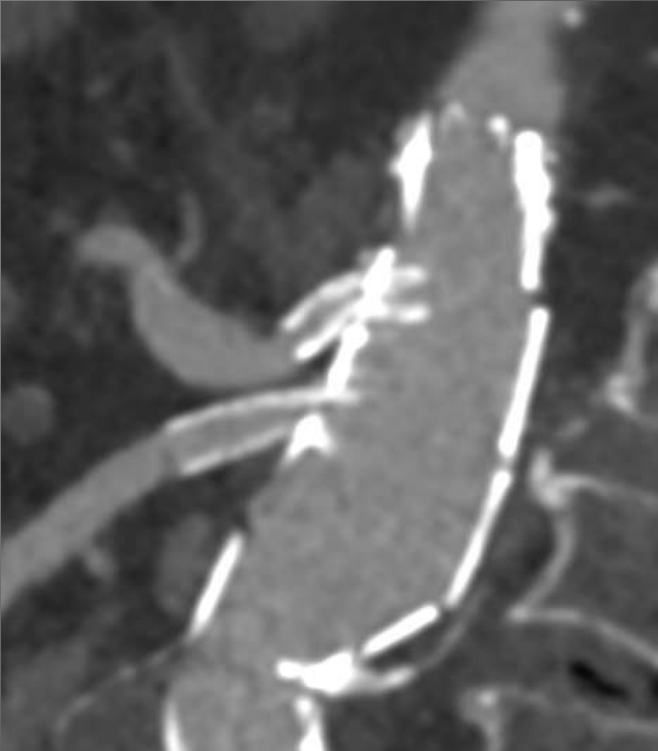
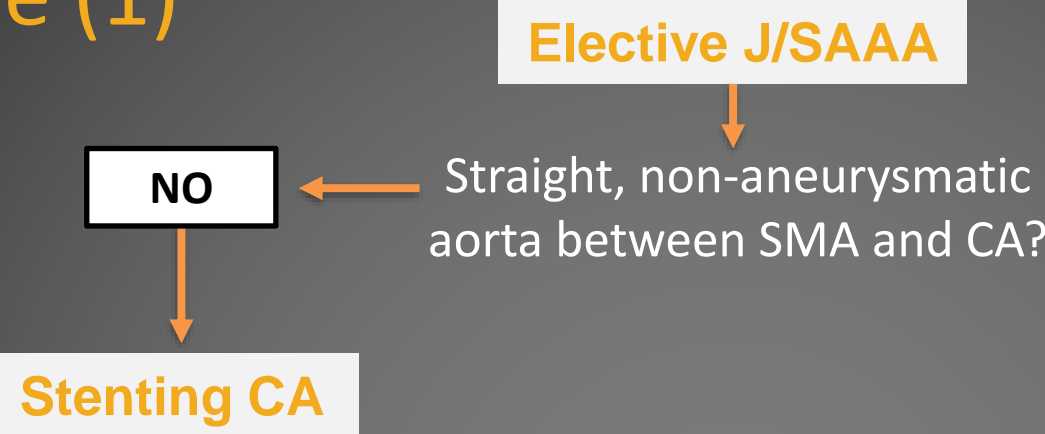
Elective J/SAAA

NO

← Straight, non-aneurysmatic
aorta between SMA and CA?



Case Example (1)



Case Example (2)

Elective J/SAAA

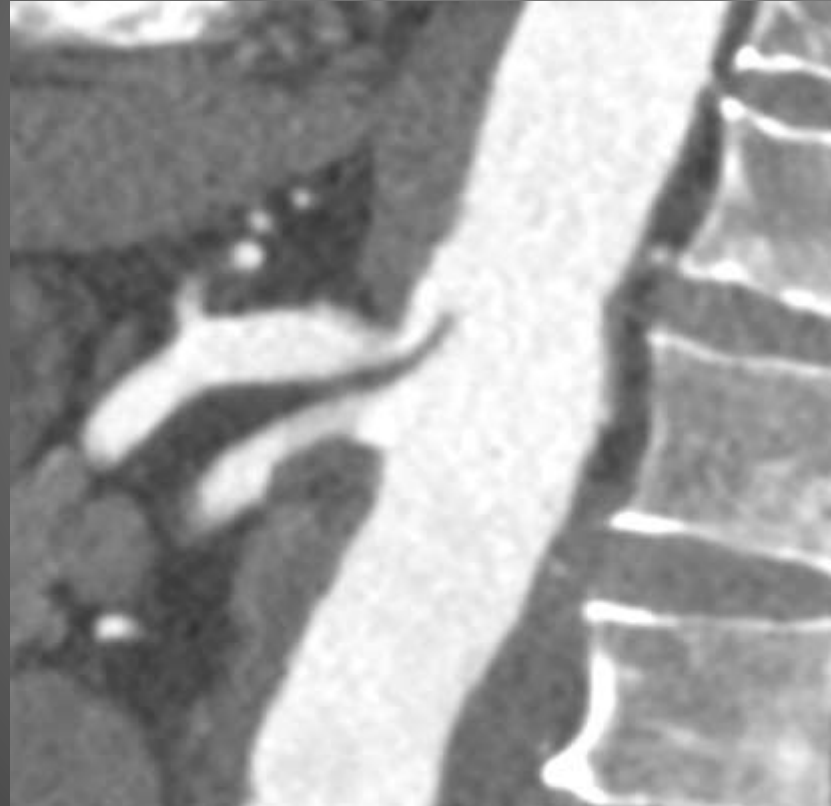
Straight, non-aneurysmatic
aorta between SMA and CA?

YES

**Planned not
to stent CA**

Easy CA catheterization?

NO



Case Example (2)

Elective J/SAAA

Straight, non-aneurysmatic aorta between SMA and CA?

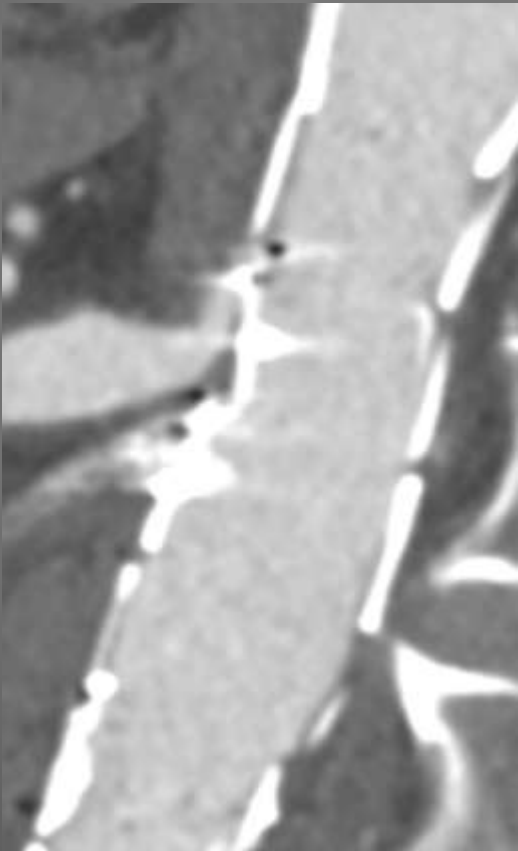
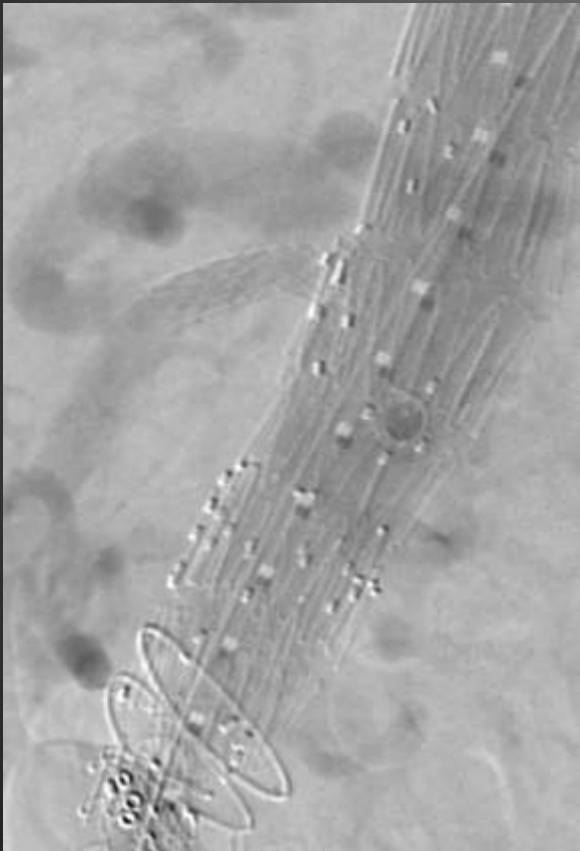
YES

Planned not to stent CA

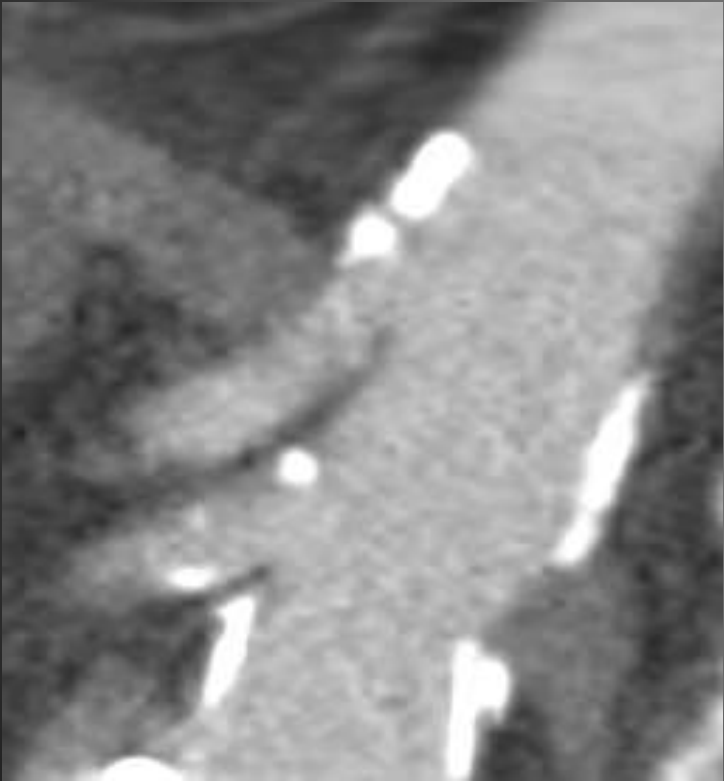
Easy CA catheterization?

NO

CA not catheterized



Case Example (3)



Elective J/SAAA



Straight, non-aneurysmatic aorta between SMA and CA?



YES



Planned not to stent CA



Easy CA catheterization?

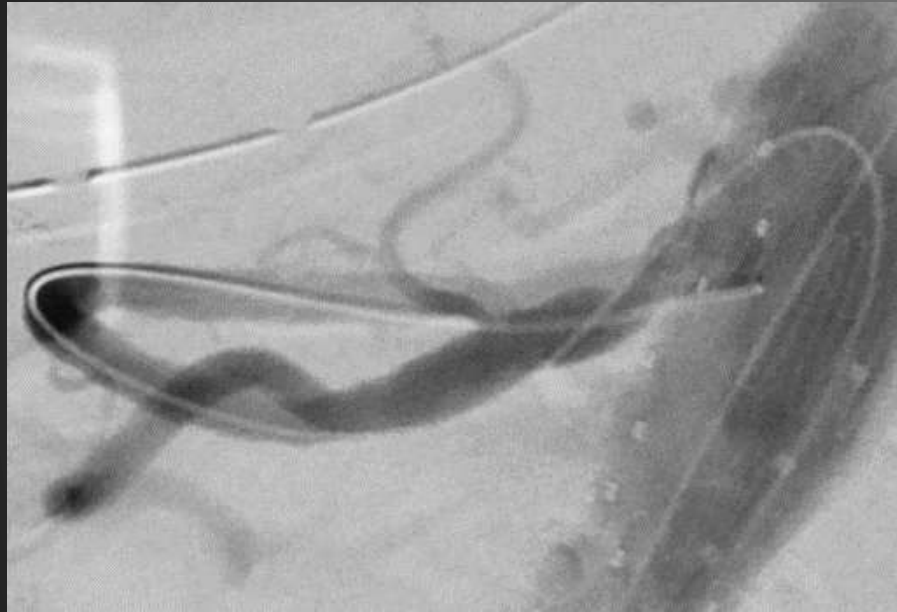


YES



**CA catheterized
Lateral angio**

Case Example (3)



Elective J/SAAA

Straight, non-aneurysmatic aorta between SMA and CA?

YES

Planned not to stent CA

Easy CA catheterization?

YES

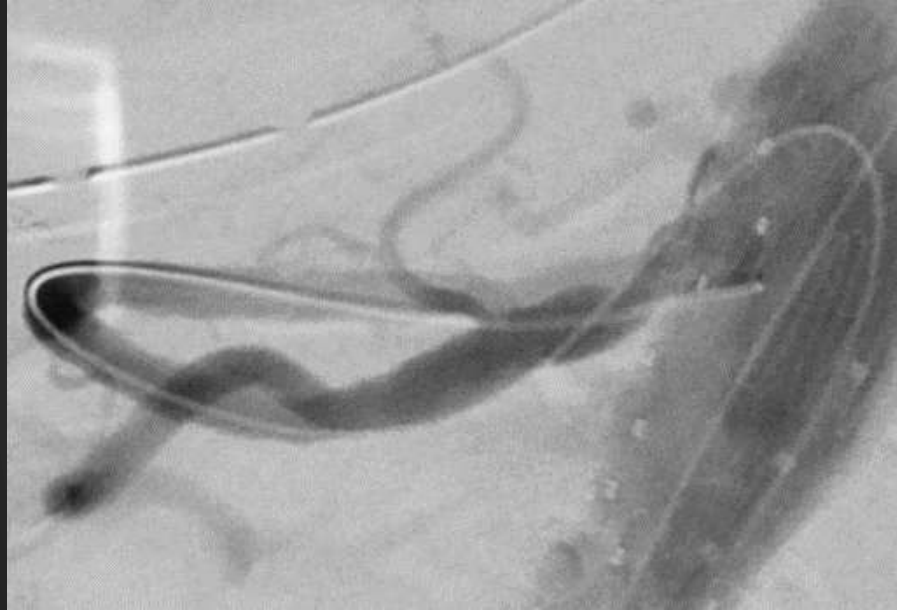
**CA catheterized
Lateral angio**

CA perfusion and no Endoleak?

YES



Case Example (3)



Elective J/SAAA

Straight, non-aneurysmatic
aorta between SMA and CA?

YES

**Planned not
to stent CA**

Easy CA catheterization?

YES

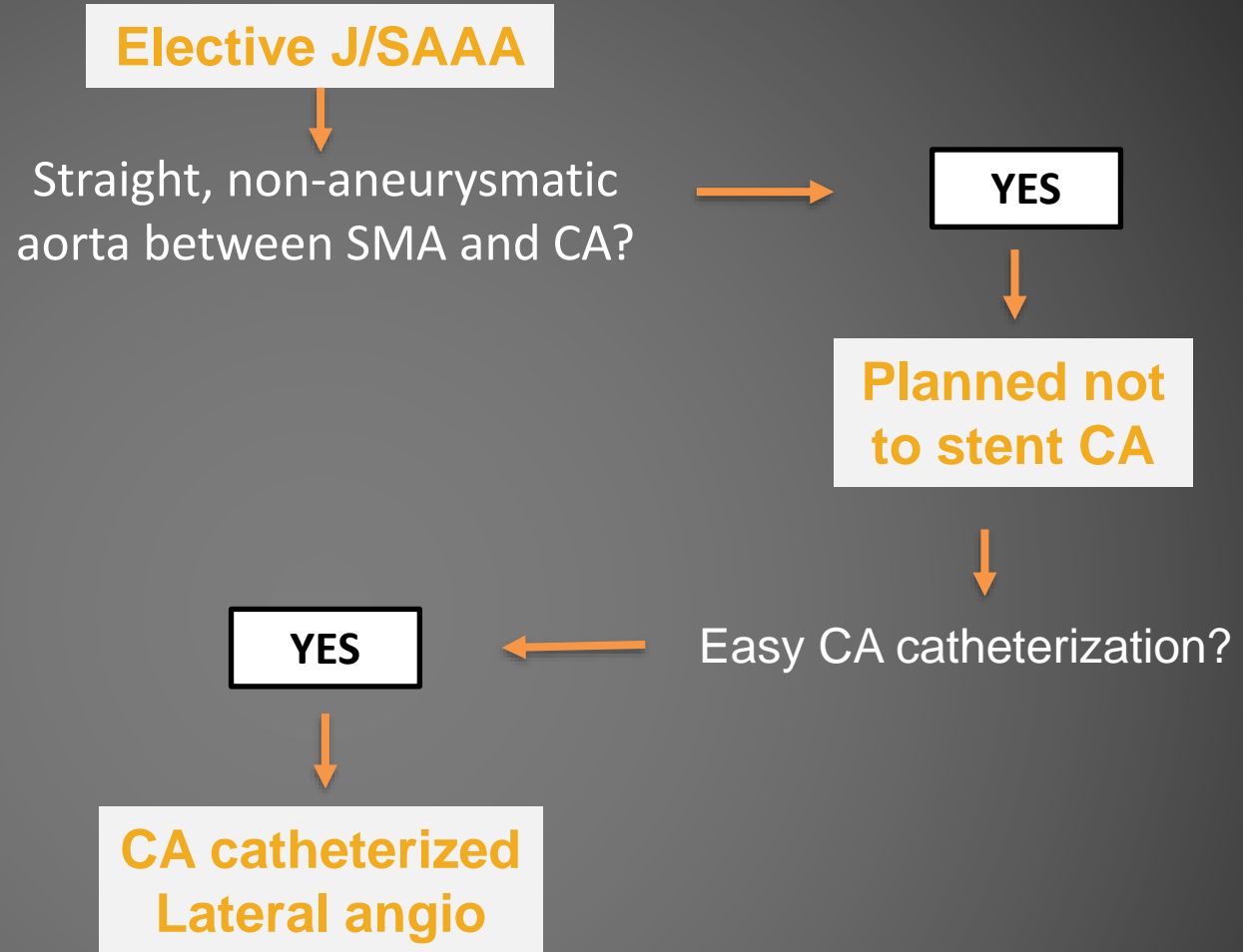
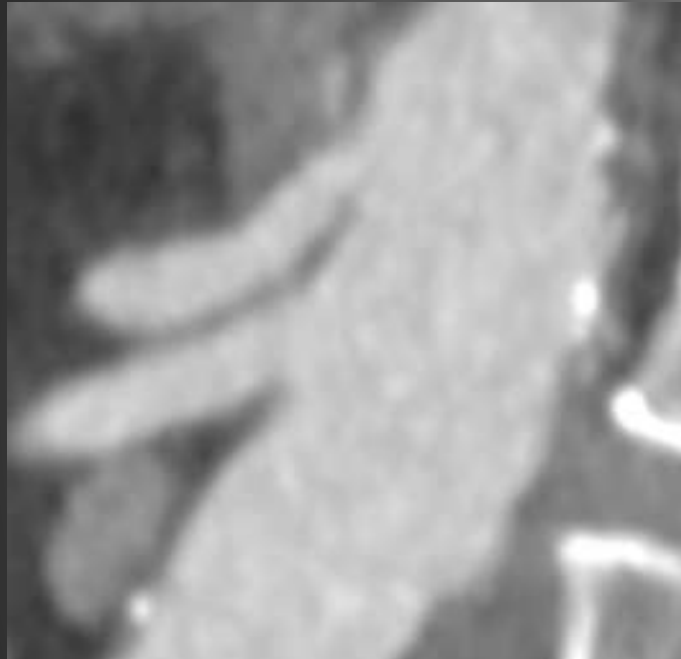
**CA catheterized
Lateral angio**

CA perfusion and no Endoleak?

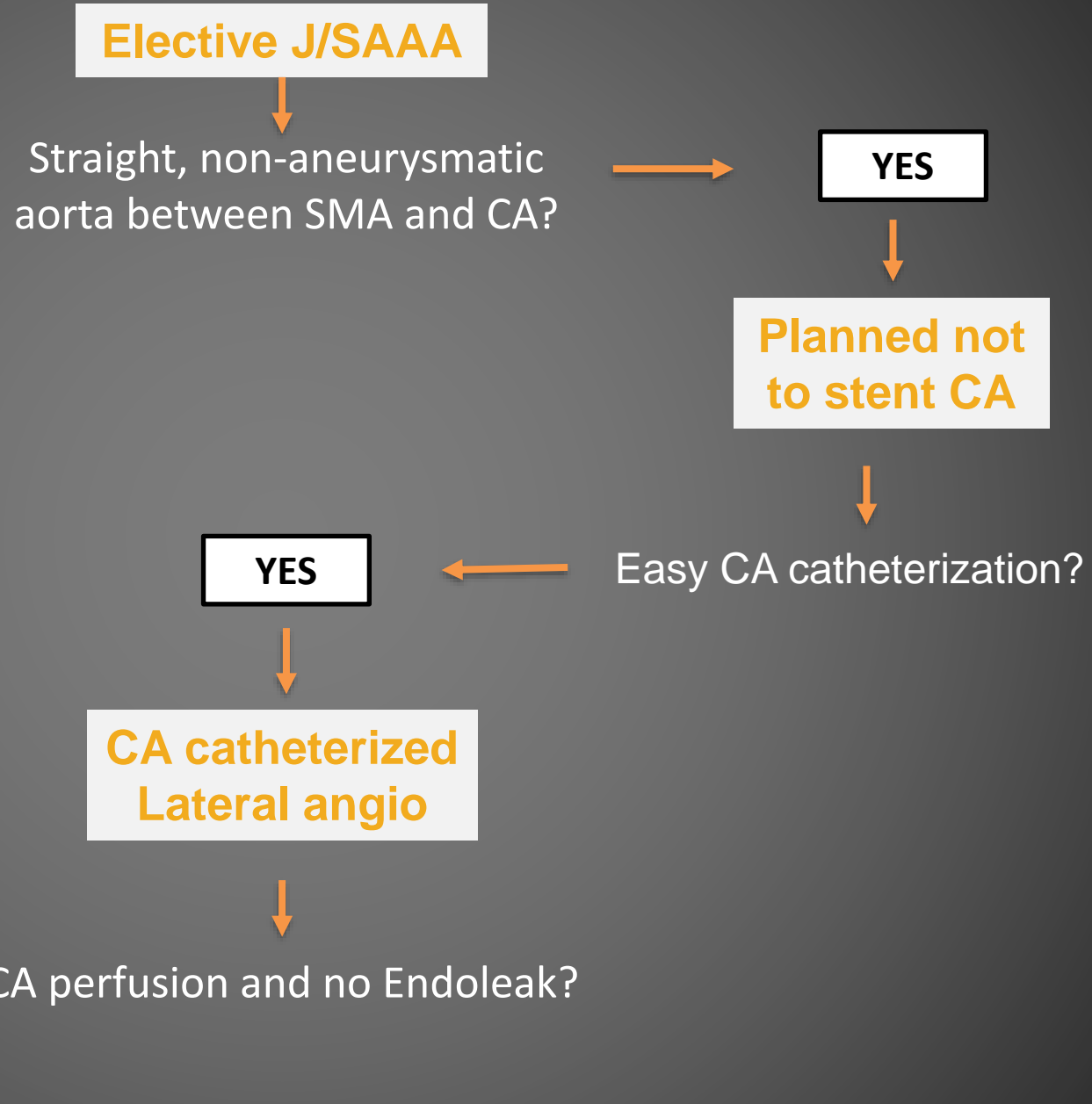
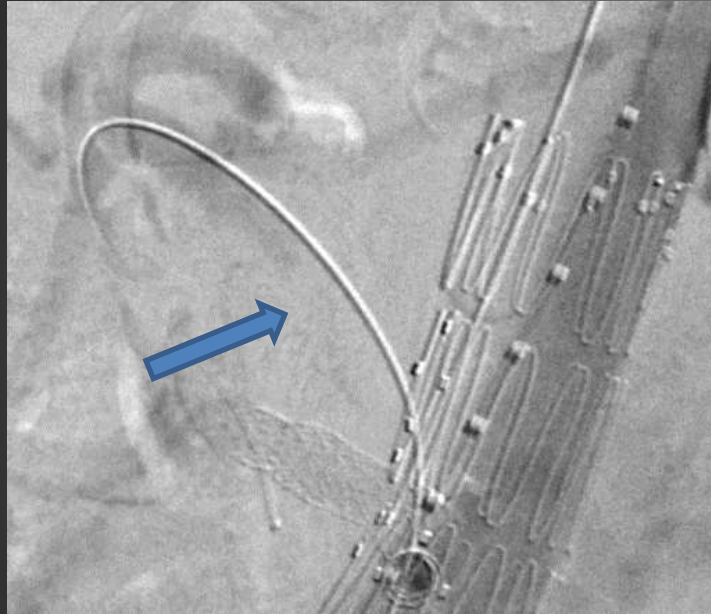
YES

CA not stented

Case Example (4)



Case Example (4)



Case Example (4)



Stenting CA

NO

Elective J/SAAA

Straight, non-aneurysmatic aorta between SMA and CA?

YES

Planned not to stent CA

Easy CA catheterization?

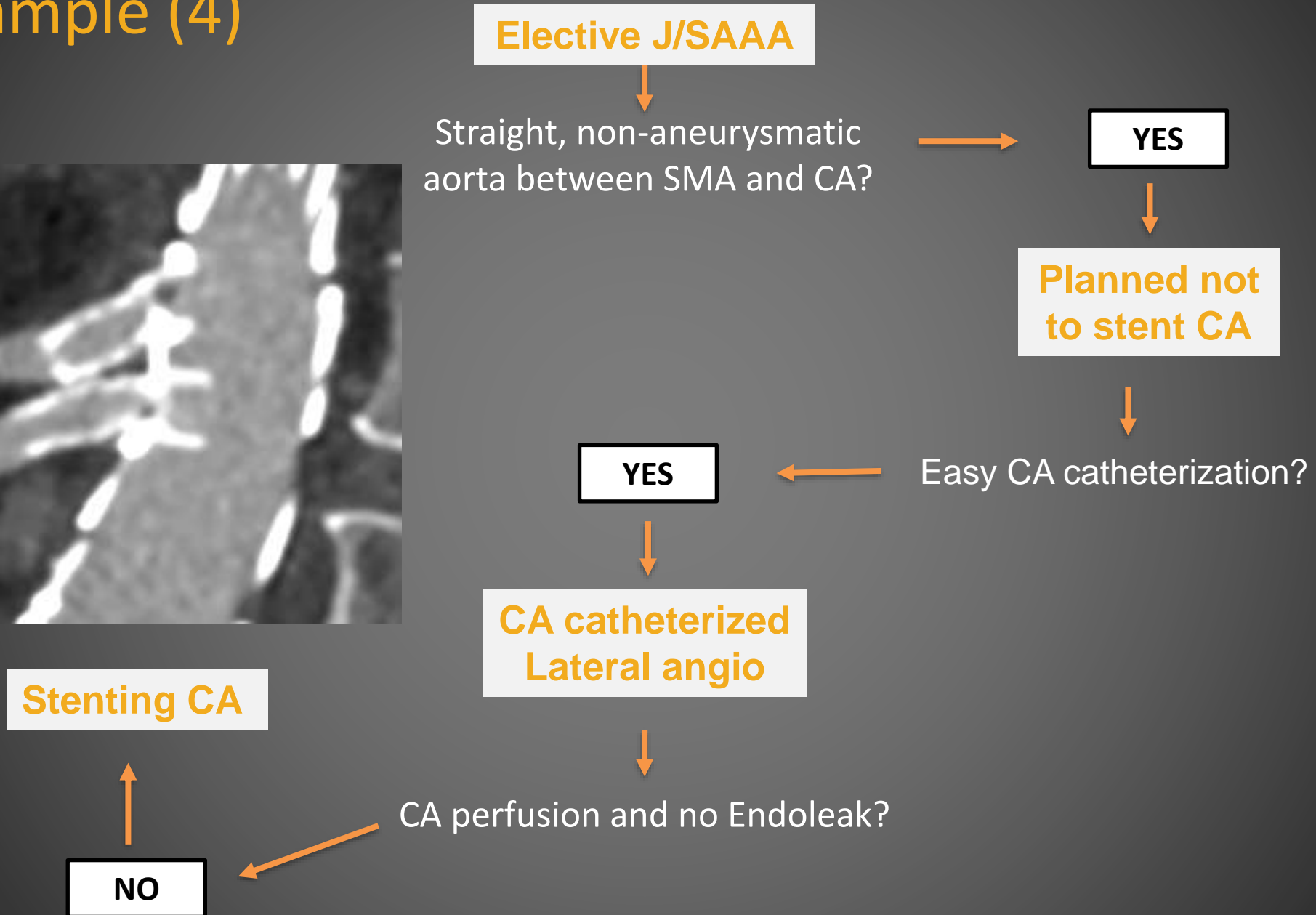
YES

**CA catheterized
Lateral angio**

CA perfusion and no Endoleak?

NO

Case Example (4)



Patients

- January 2018 - March 2020
- Elective 4xFEVAR for Juxta/suprarenal AAA
- Excluded:
 - Ruptured AAA or acute indication for repair
 - TAAAs
 - Combination of branches/fenestrations/scallop
 - Preoperative occlusion of CA

Patients

- N=48
 - 46 males; mean age 72 ± 9 years
 - Previous open AAA repair: n=4 (8%)
 - Previous EVAR: n=7 (15%)

Pre- and Intraoperative Assessment

- Primary stenting: n=17 (35%)
 - Planned not to stent: n=31 (65%)
 - Difficult catheterization: n=14 (29%)
 - Easy catheterization: n=17 (35%)
 - Good perfusion and no endoleak: n=13 (27%)
 - Inadequate perfusion: n=3 (6%)
 - Endoleak: n=1 (2%)
- } Stent (8%)

Postoperative Results

- Overall Technical success: N=47 (98%)
 - failure: Left renal artery occlusion in a patient with previous open repair
- No open conversion, spinal cord ischemia or mortality in first 30 days

Follow-up

Median FU: 8 months (range 1-25)

- No CA-related endoleaks or reinterventions
- No aneurysm related deaths
- CA occlusion: N=2 (6 and 13 month, both asymptomatic)
 - Both patients: CA not catheterized/not stented
 - Patient 1: long high-grade stenosis on preoperative CTA
 - Patient 2: very steep take-off of the CA/long distance between SMA-CA
- Estimated primary patency of CA at 12 months: $95.8 \pm 4.1\%$

Conclusions

- 4xFEVAR without stenting of the CA: Safe and effective strategy in selective patients
- Catheterization and intraoperative Angiography in suitable CA is helpful to make the final decision to use a stent.