



EMERGENCY AND TRAUMA RADIOLOGY 2025

Oslo, Norway

June 2 - 5, 2025

Abdominal Aortic Aneurysms: After the Fact



Fausto Labruto
Associate Professor
Director of Emergency Radiology

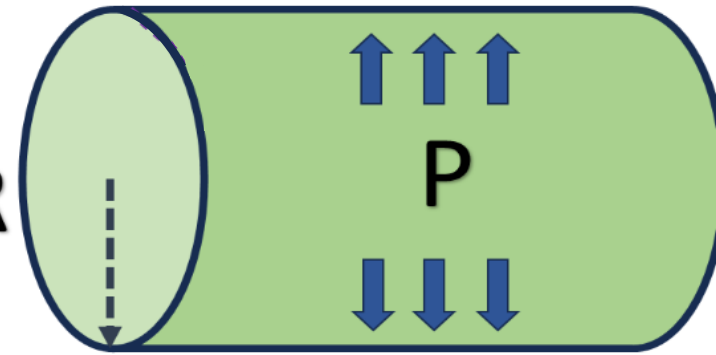
TMC
a Unilabs company

Contents:

- What is a AAA and how is it treated?
 - Open Repair
 - EVAR
- Open Repair
 - Normal postoperative appearances
 - Complications
- EVAR
 - Normal postoperative appearances
 - Complications



R



12 month AAA rupture risk by diameter

AAA diameter (cm)	Rupture risk (%/year)
3.0–3.9	0%
4.0–4.9	1%
5.0–5.9	1–10%
6.0–6.9	10–22%
>7.0	30–50%

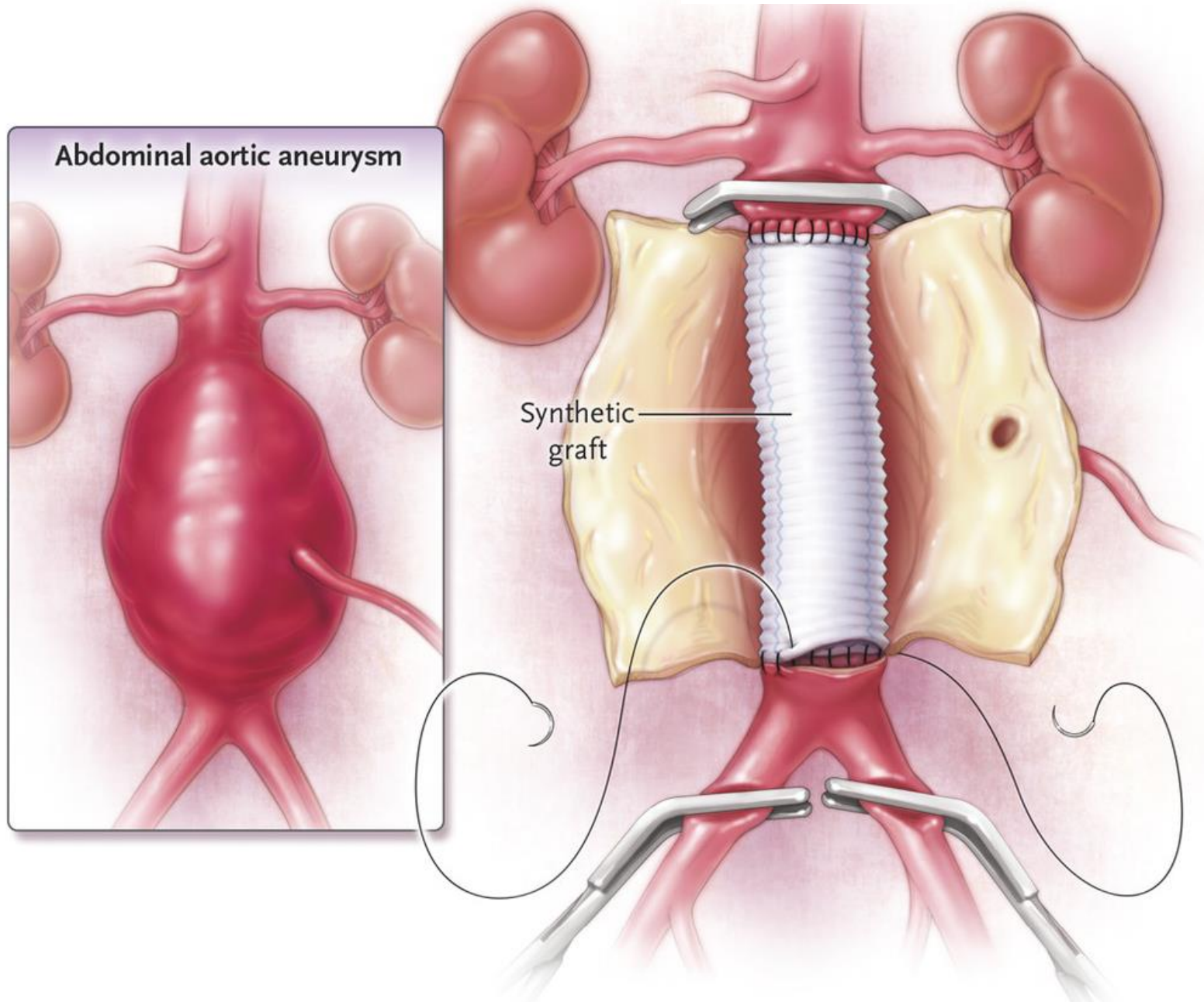
Indications for AAA repair

- Male with AAA >5.5 cm
- Female with AAA >5.0 cm
- Rapid growth >1.0 cm/year
- Symptomatic AAA (abdominal/back pain/tenderness, distal embolisation)



What options are there for
aneurysm repair?

Open Repair



Editor's Choice – European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms★

Rupture



- EVAR

Elective Repair

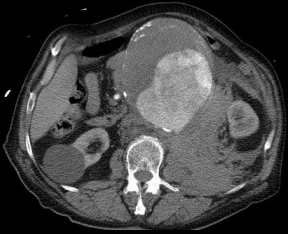


- Patients with "reasonable life expectancy":
EVAR
- Patients with long life expectancy:
Open Repair

Abdominal aortic aneurysm: diagnosis and management

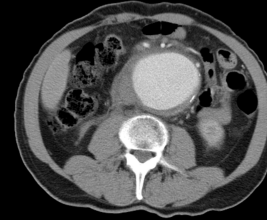
NICE guideline [NG156] Published: 19 March 2020

Rupture



- EVAR

Elective Repair

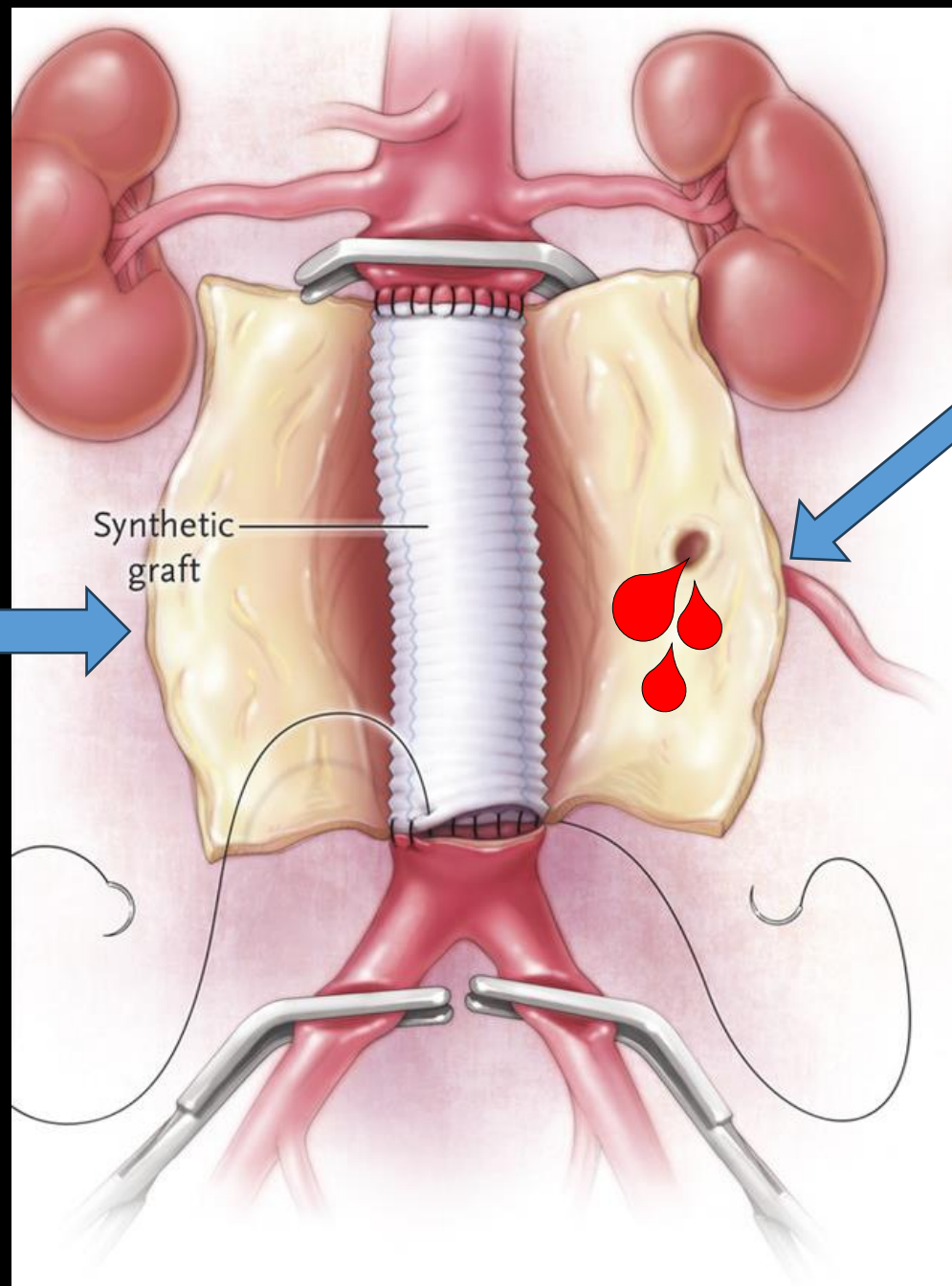


- Open Repair
- Patients with contraindications to Open Repair:
EVAR

Open Repair

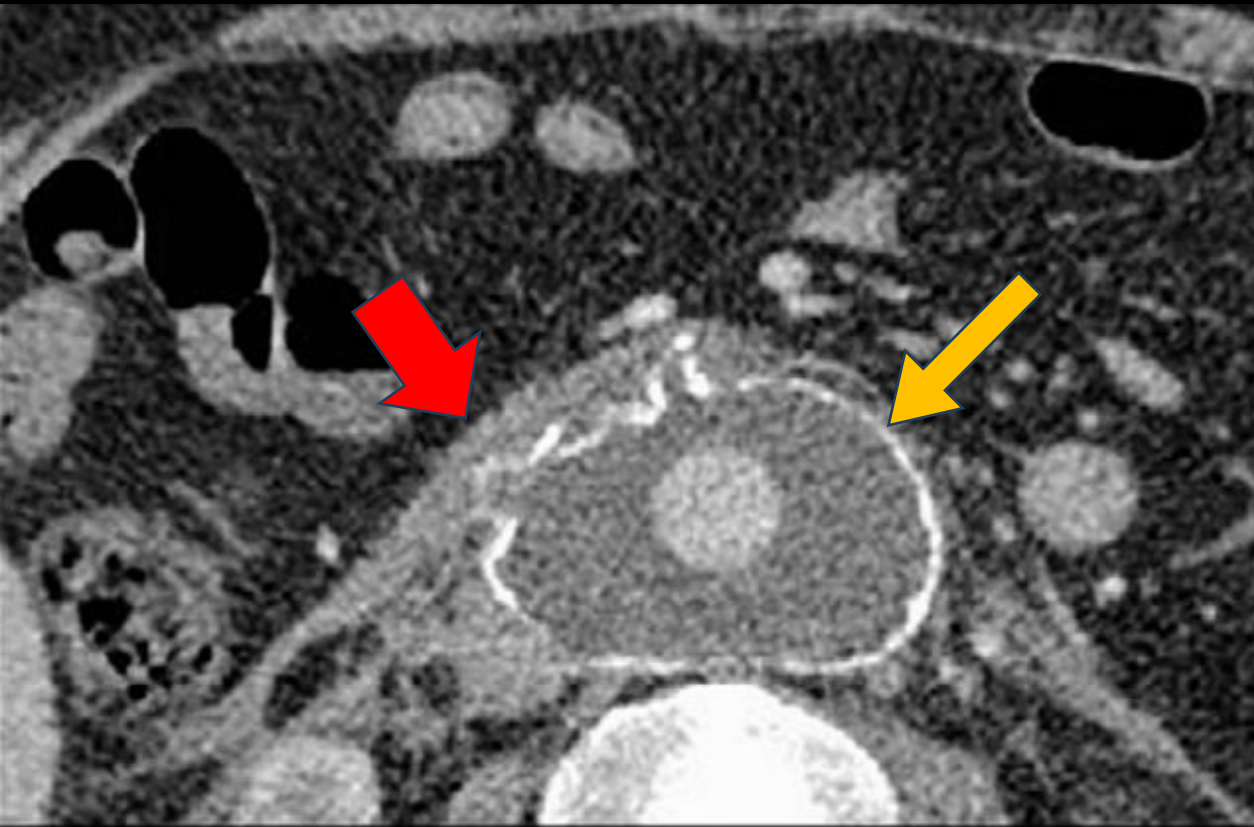
Arteries arising from the aneurysmal sack are ligated

The aneurysmal sack is then closed

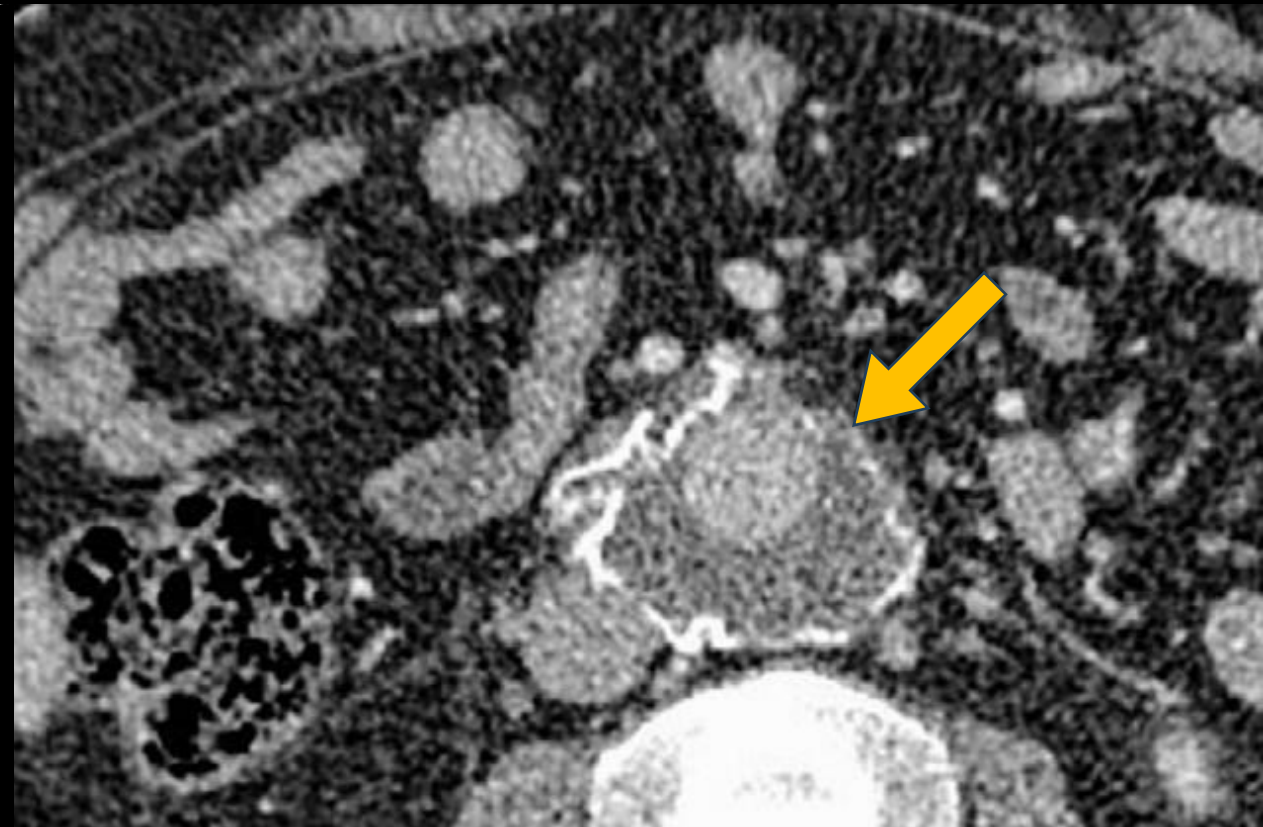


Open Repair :
normal radiological appearance

Normal Shrinkage of the Aneurysmal Sack Postop (repair after rupture)

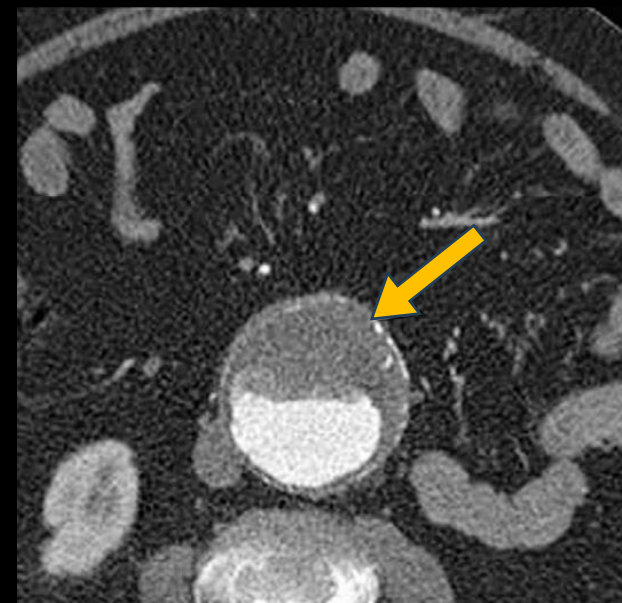


1 Month

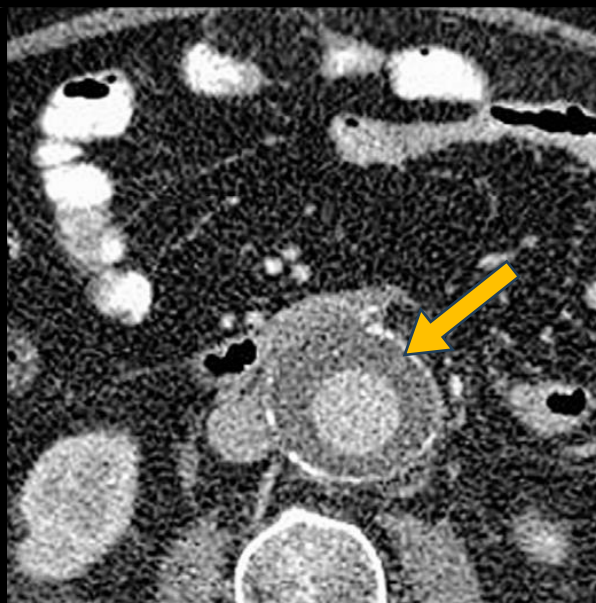


3 Months

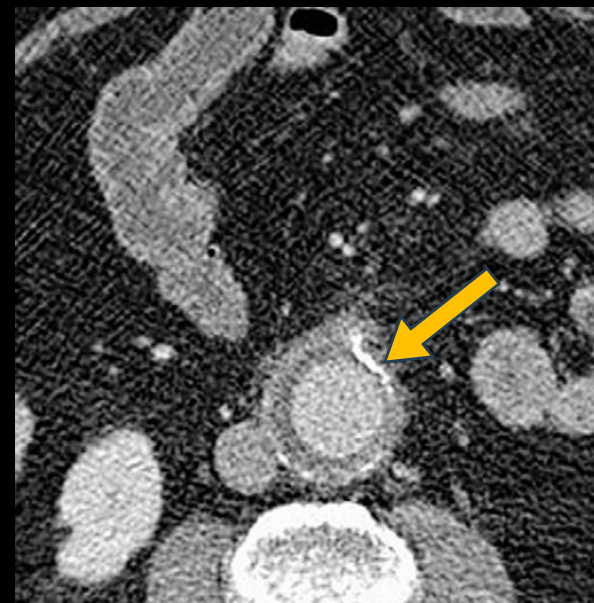
Normal Shrinkage of the Aneurysmal Sack Postop (elective repair)



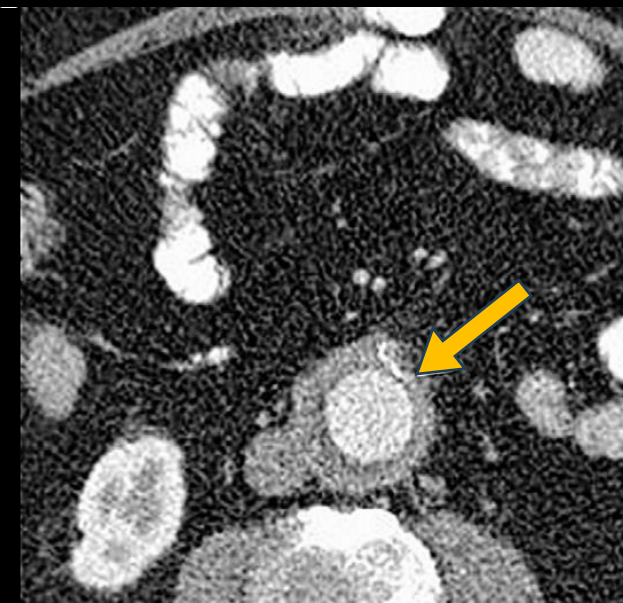
Preoperative



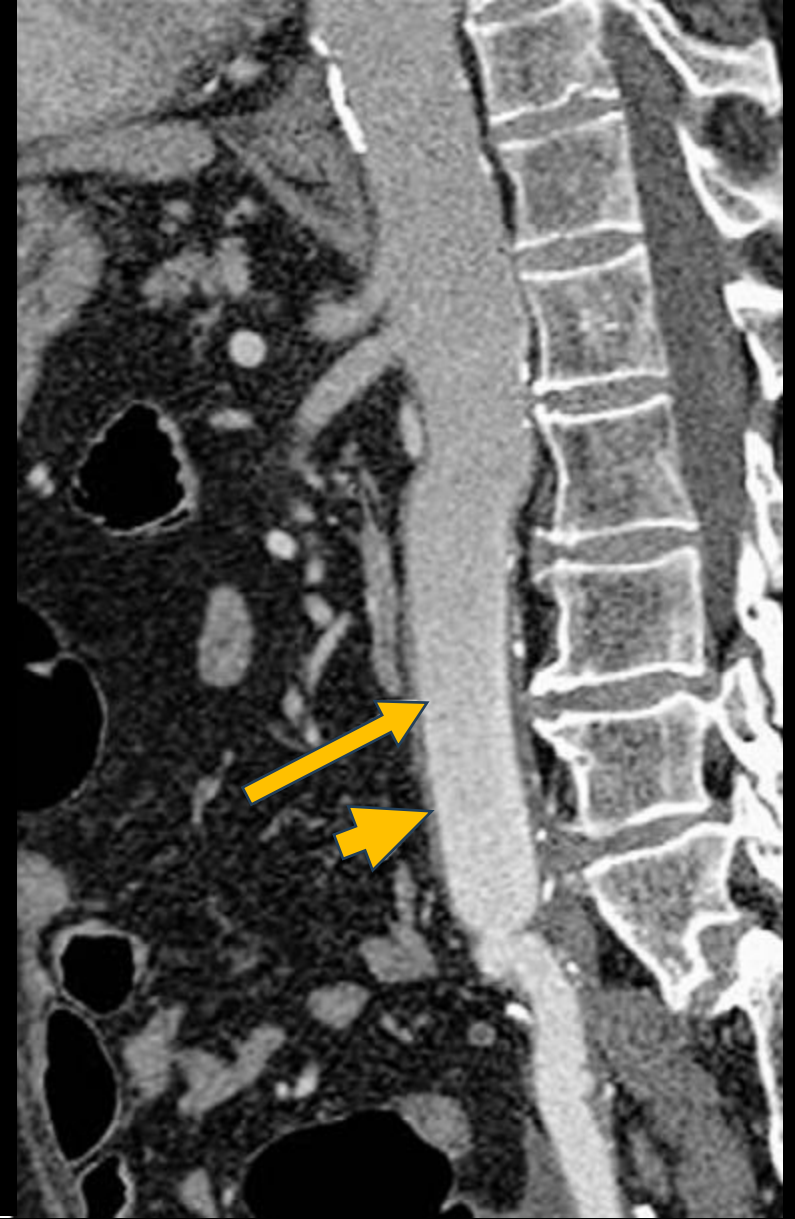
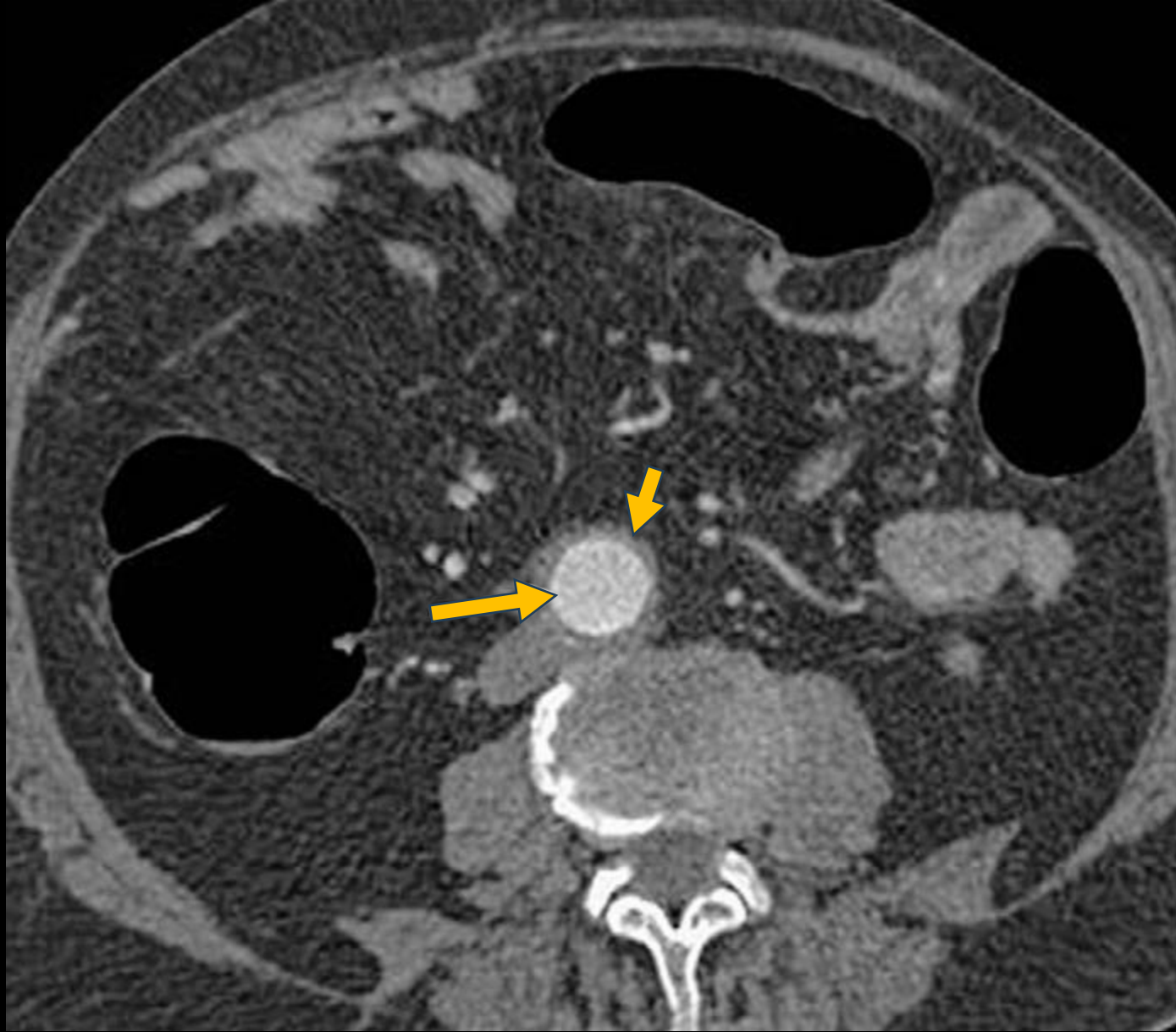
10 days



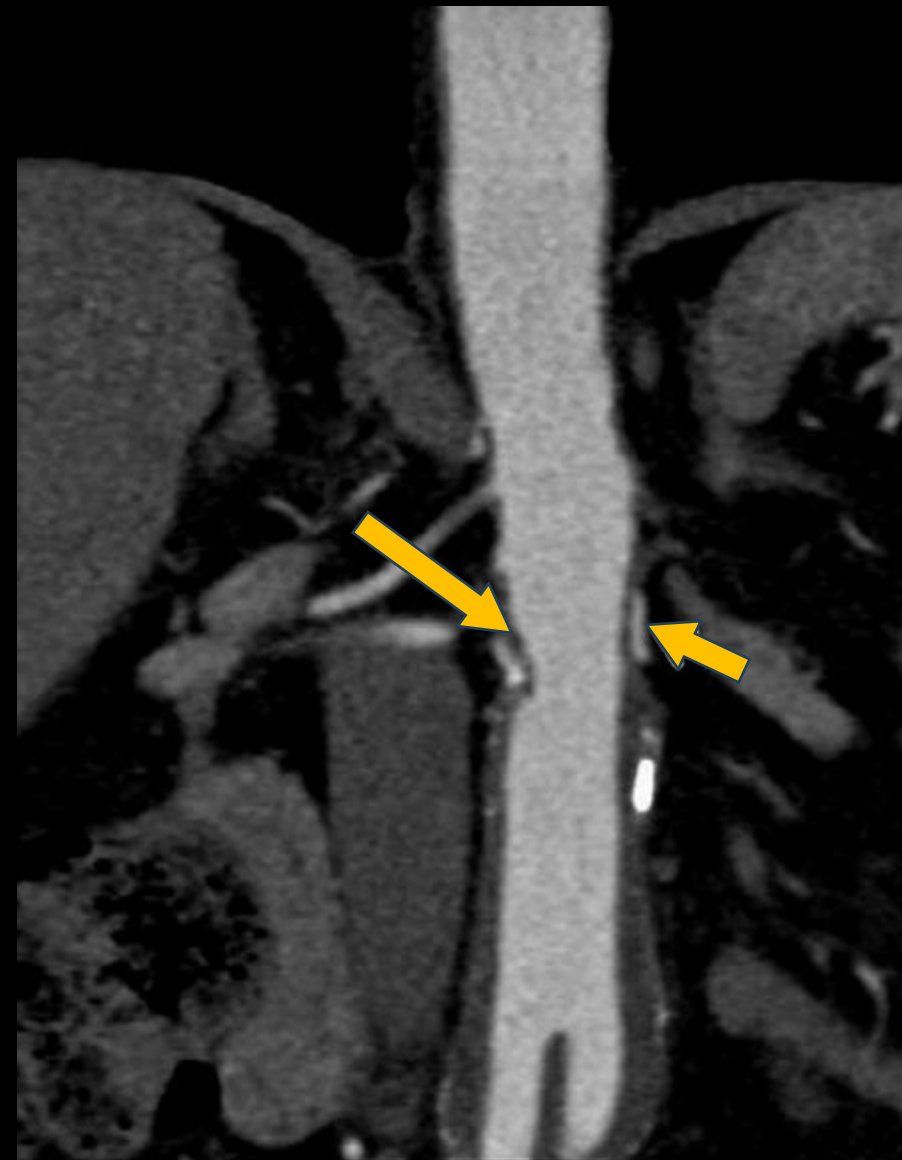
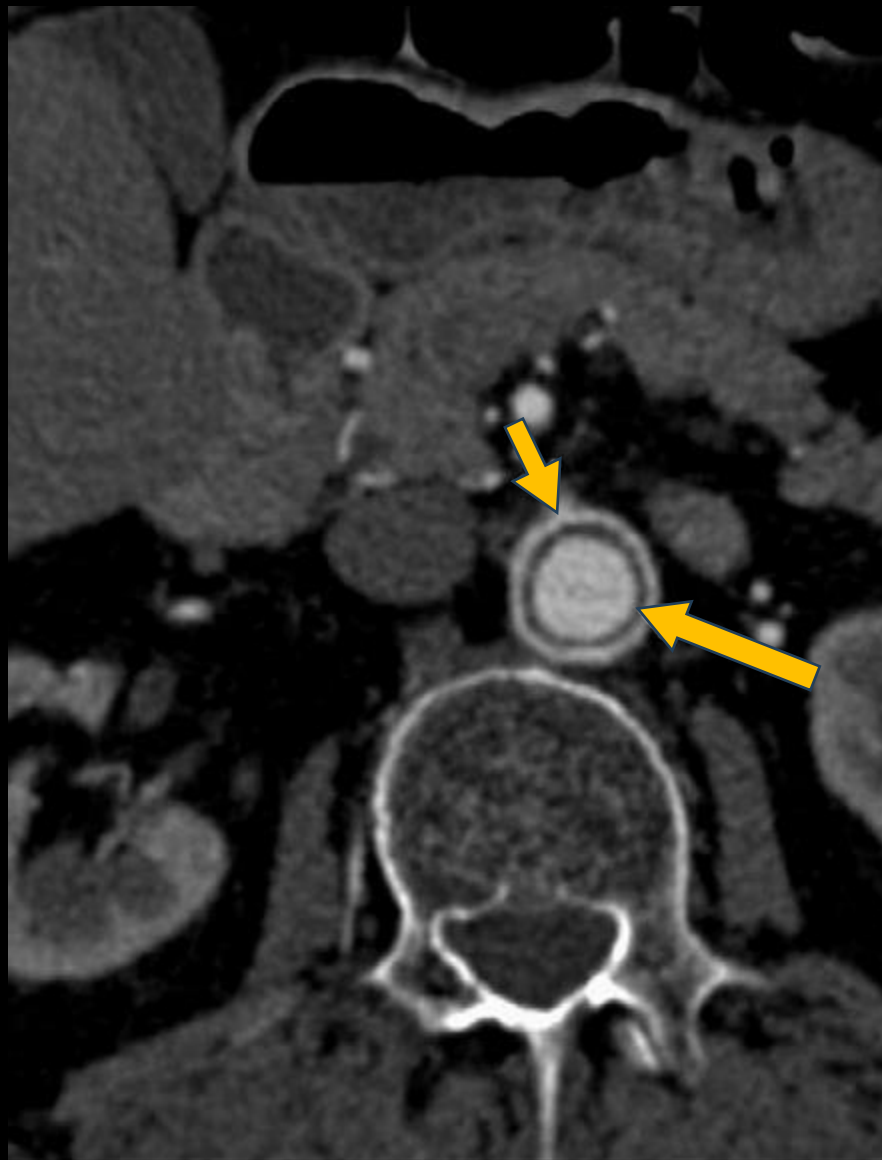
16 months



25 months



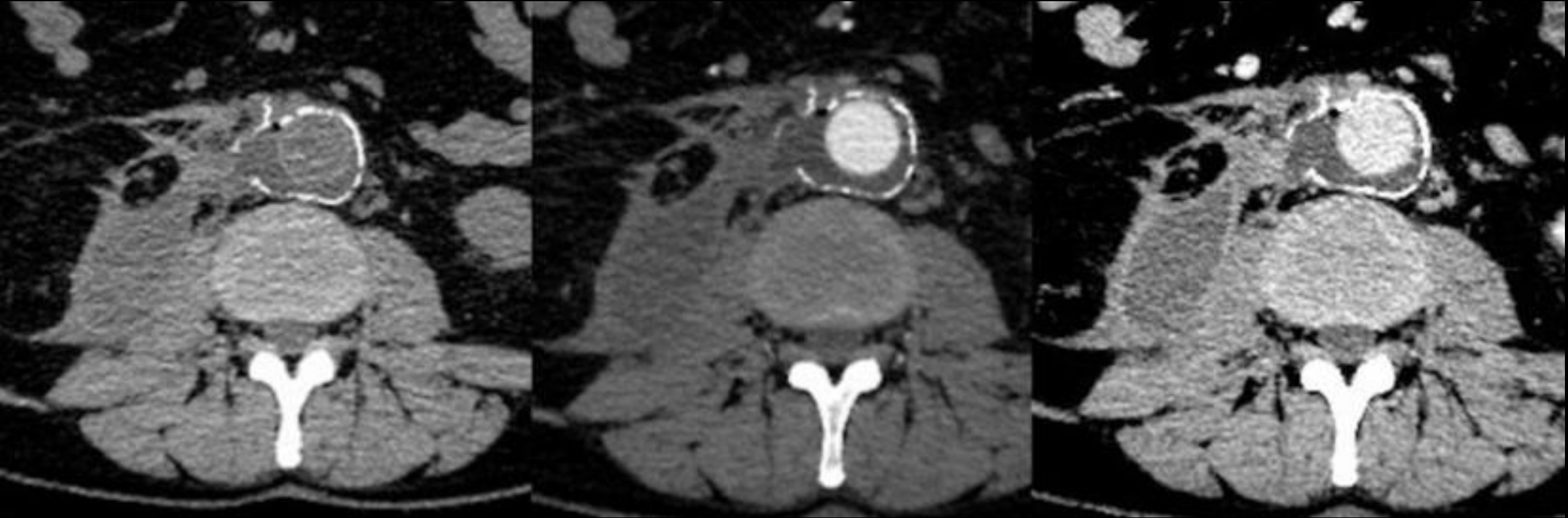
Normal Several Years Postop



PTFE Reinforcement Belt

Open Repair :
complications for the emergency radiologist

Collection



Does not resorb and shows thick, contrast-enhancing margins:
infected collection!

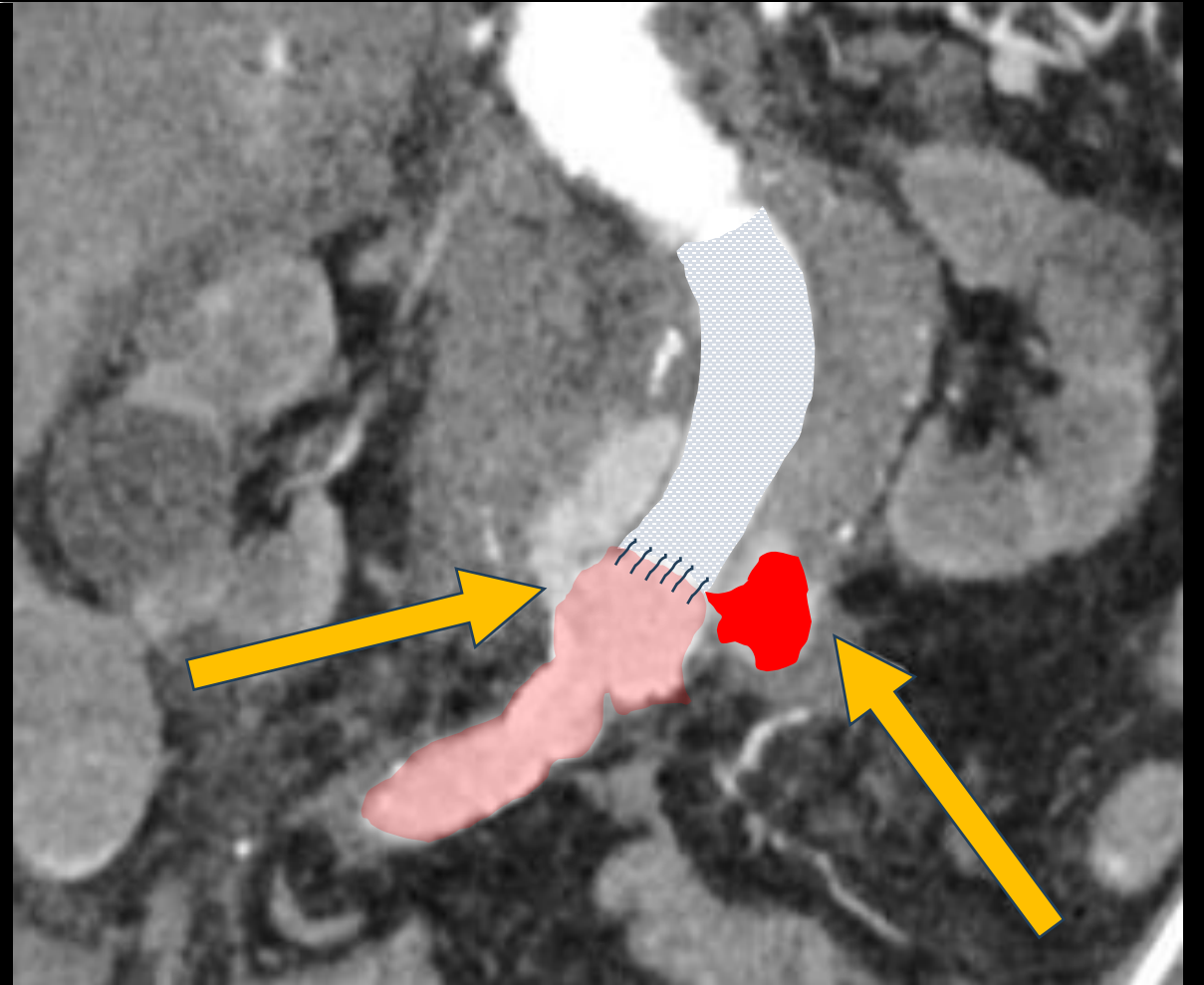
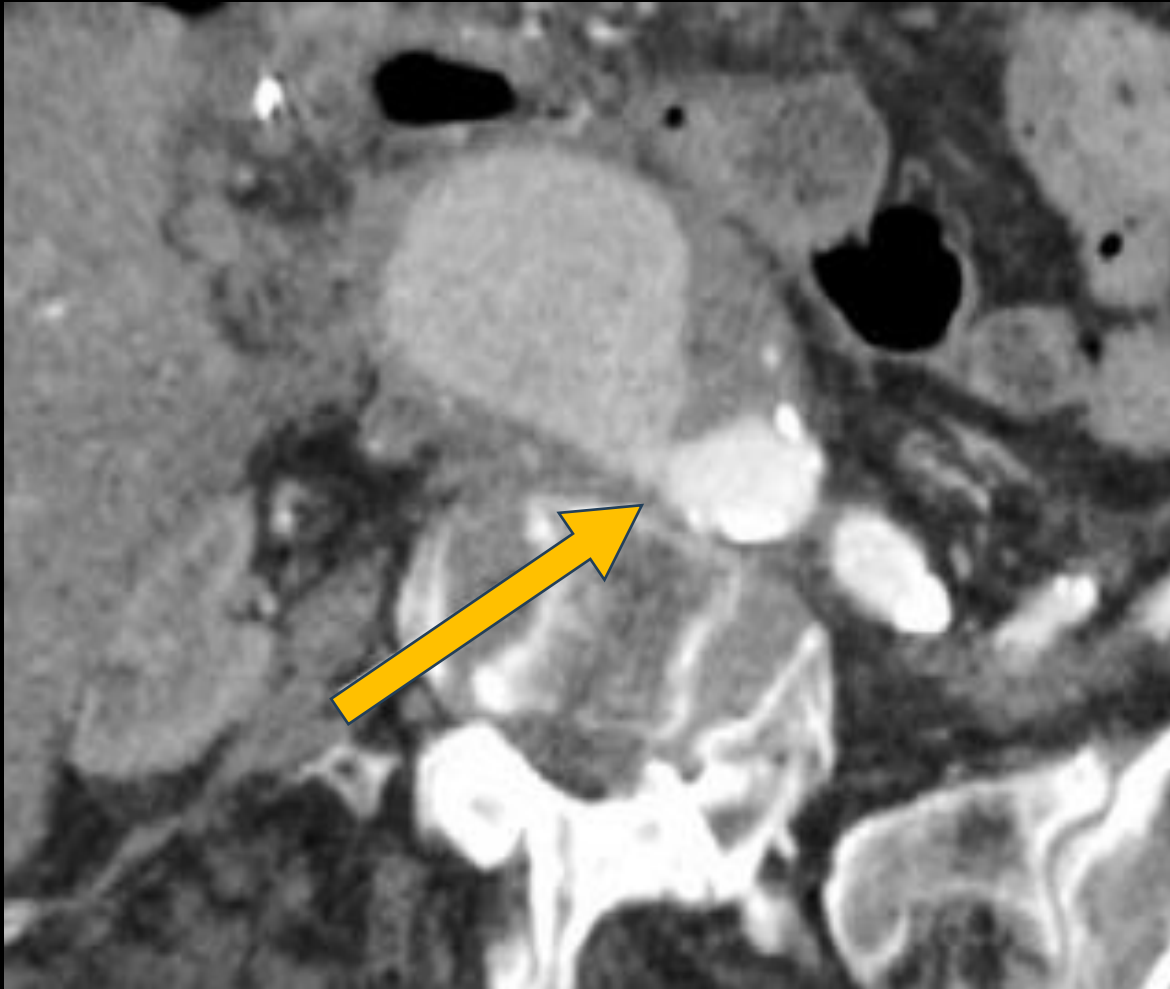
Presence of gas around the graft



Normal 1 week postop



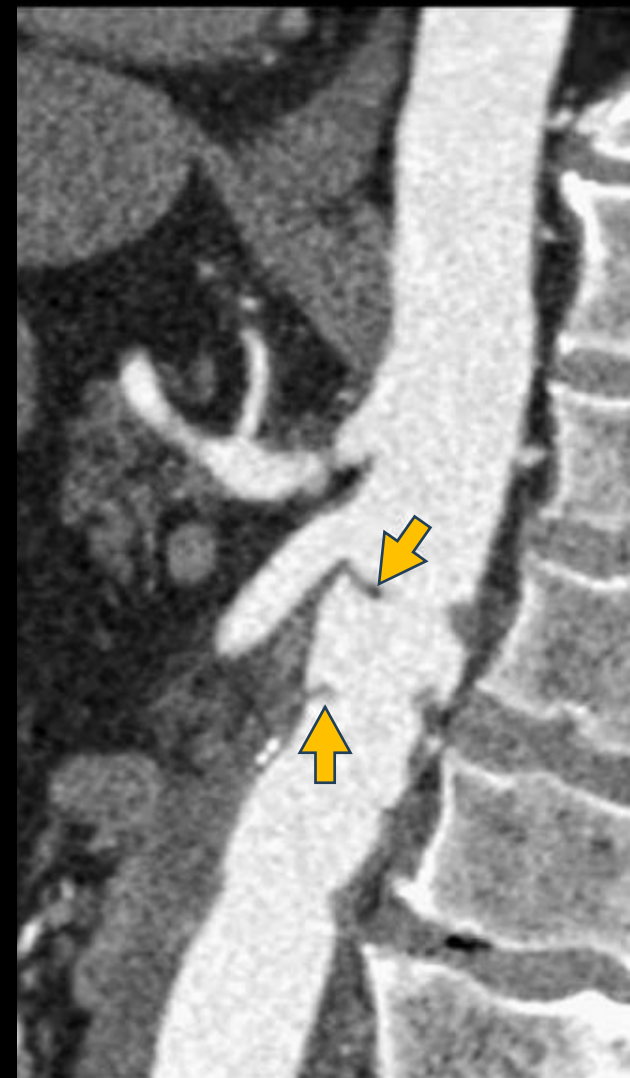
Not normal several
weeks after surgery:
infection!



Dehiscence of the distal
anastomosis, with bleeding
This is an **early** complication

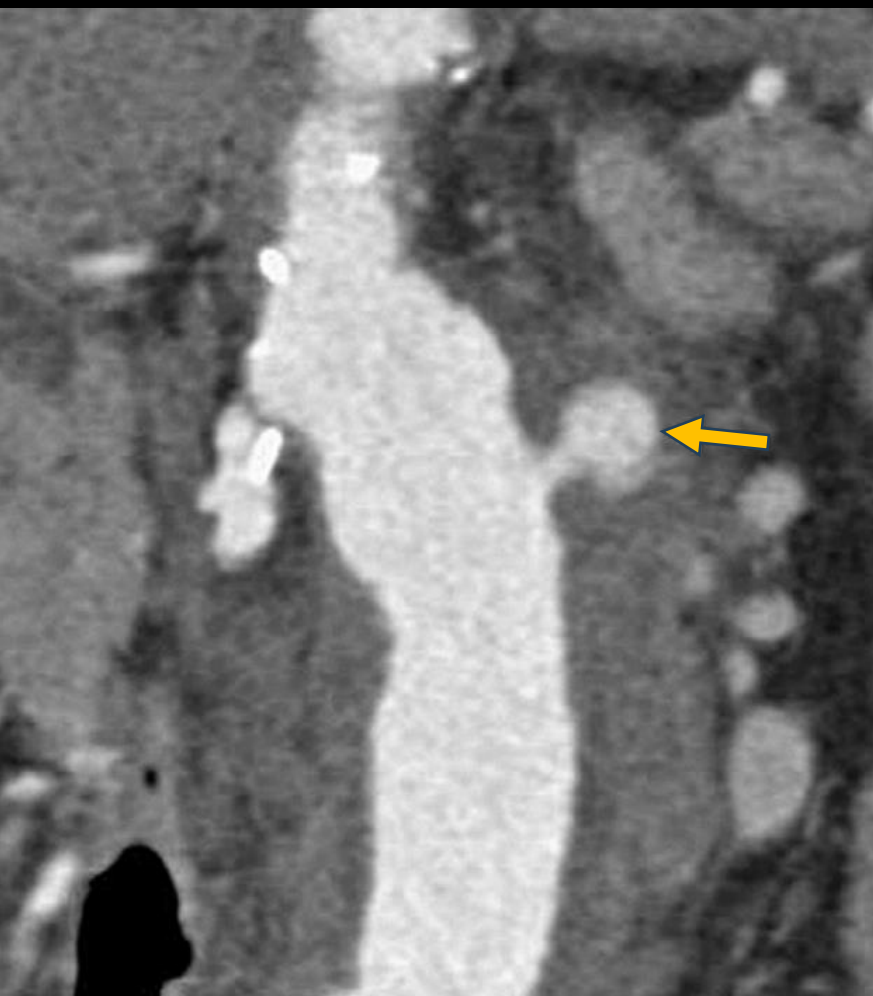


Anastomotic Dissection
Distal

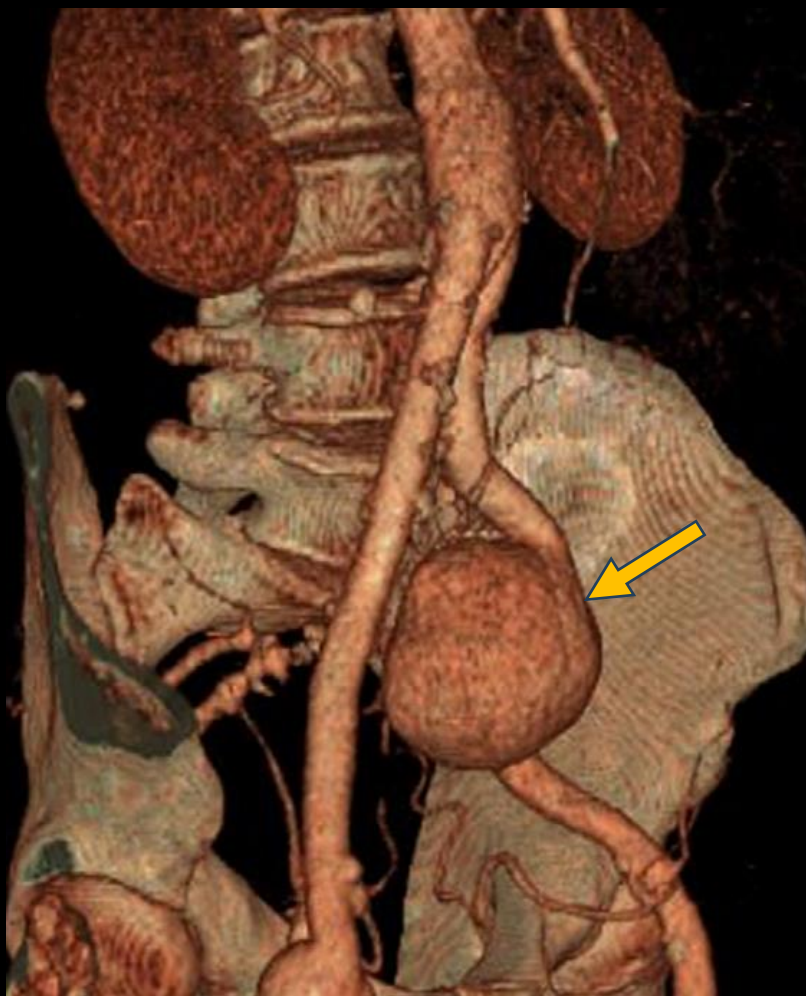


Anastomotic Dissection
Proximal

This is an **early** complication



Anastomotic Pseudoaneurysm
Proximal

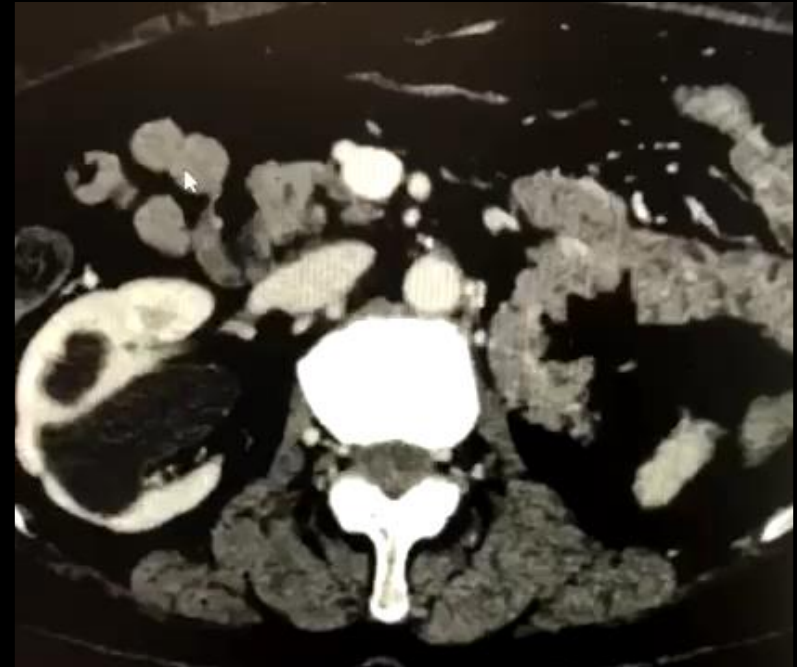


Anastomotic Pseudoaneurysm
Distal



Anastomotic Pseudoaneurysm
Distal – treated with stent

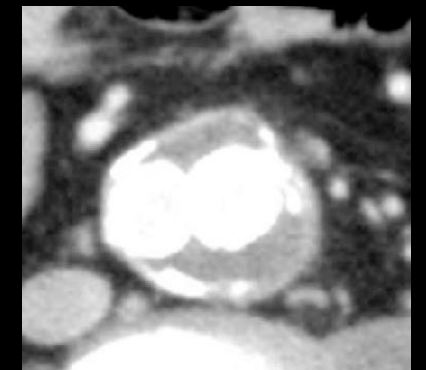
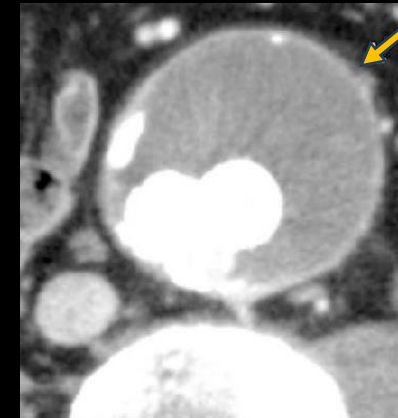
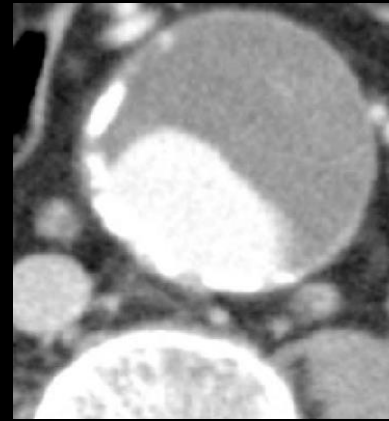
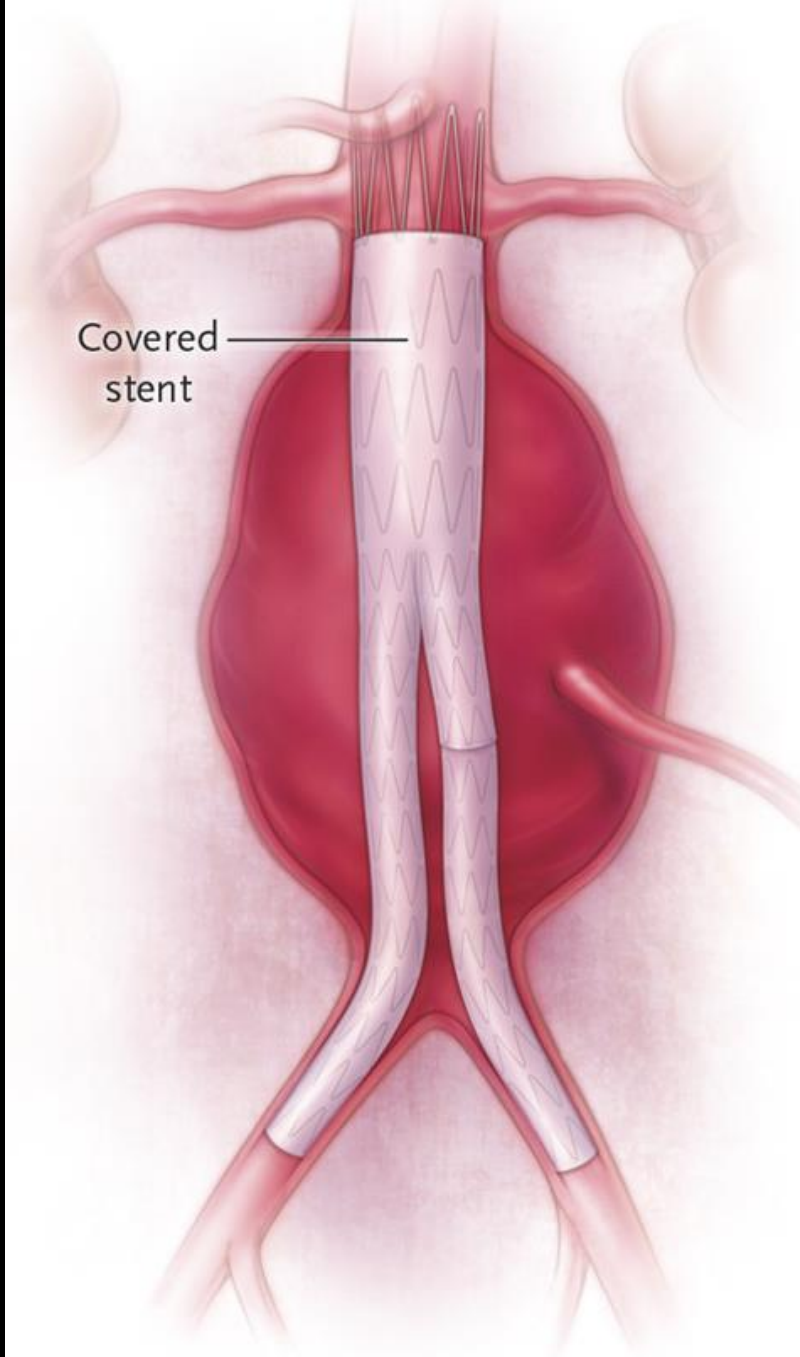
This is a **late** complication



Lymphocele

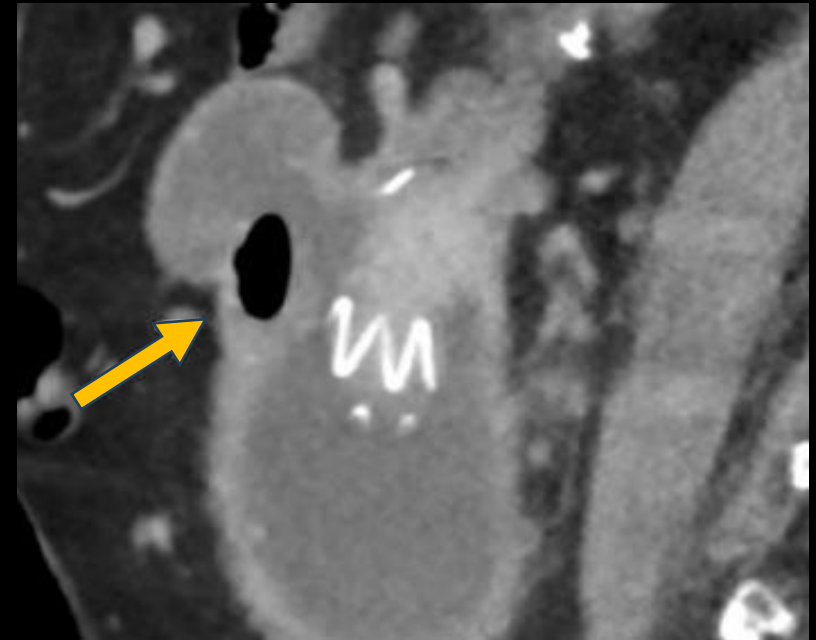
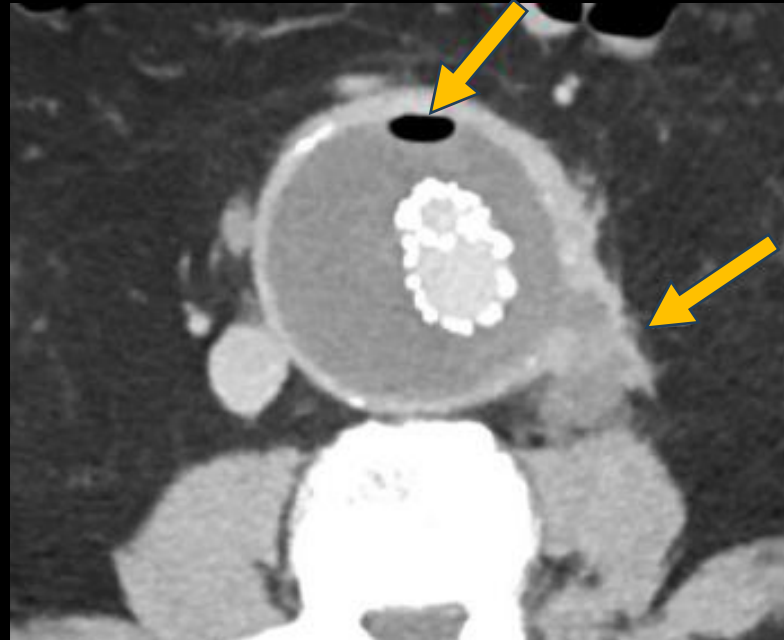
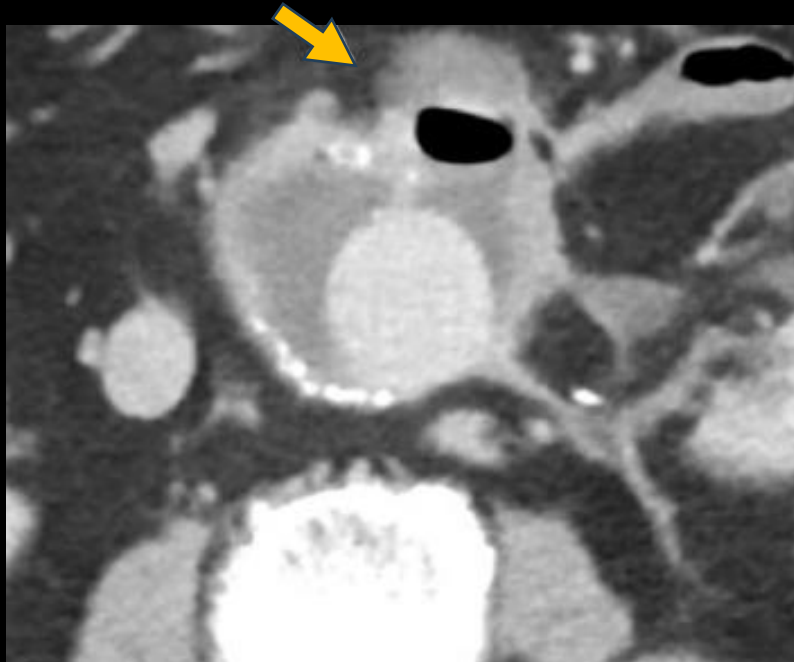
EVAR

EVAR

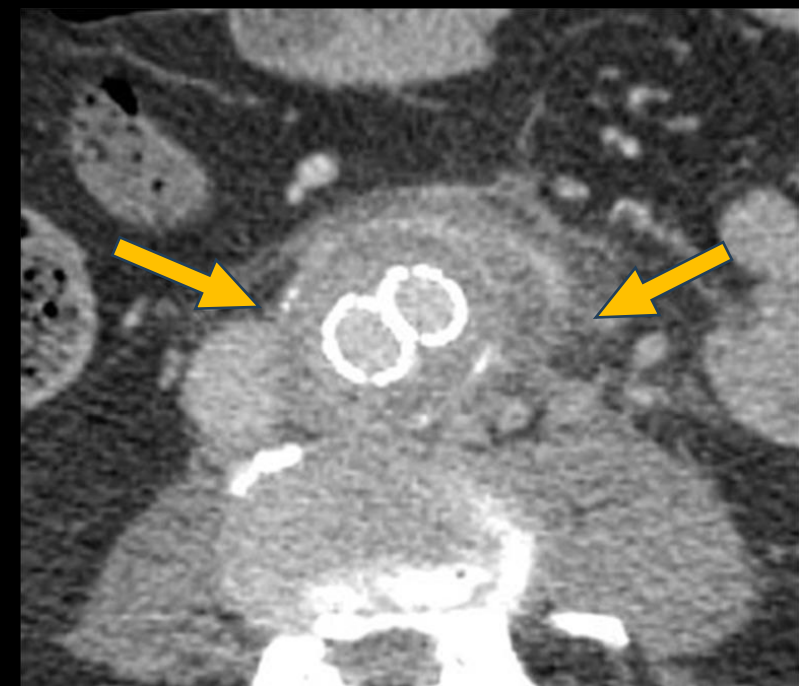
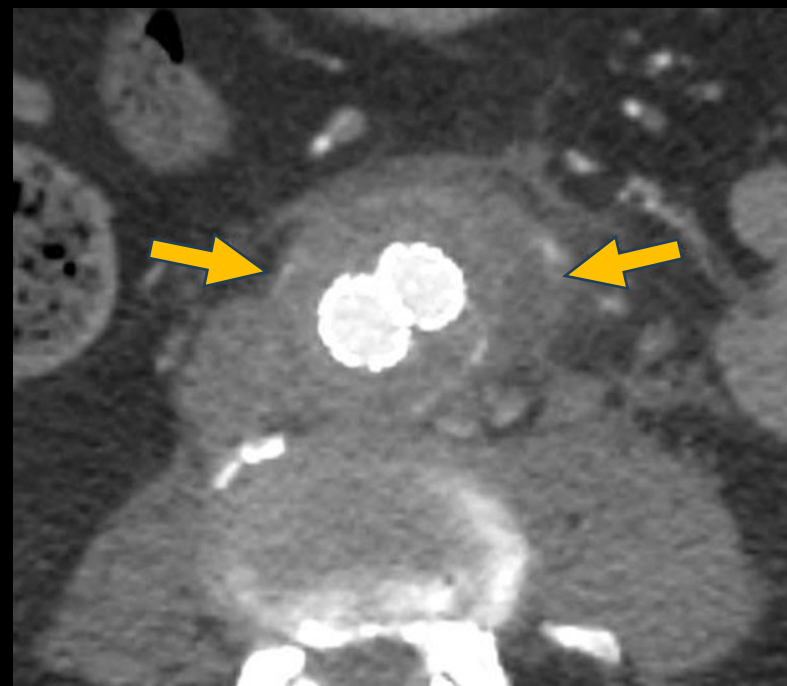
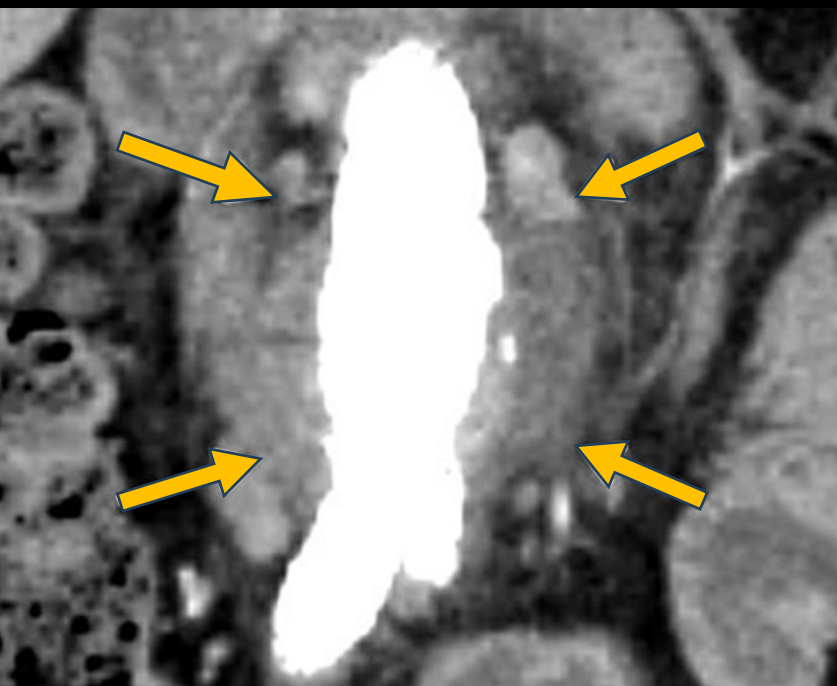


EVAR :

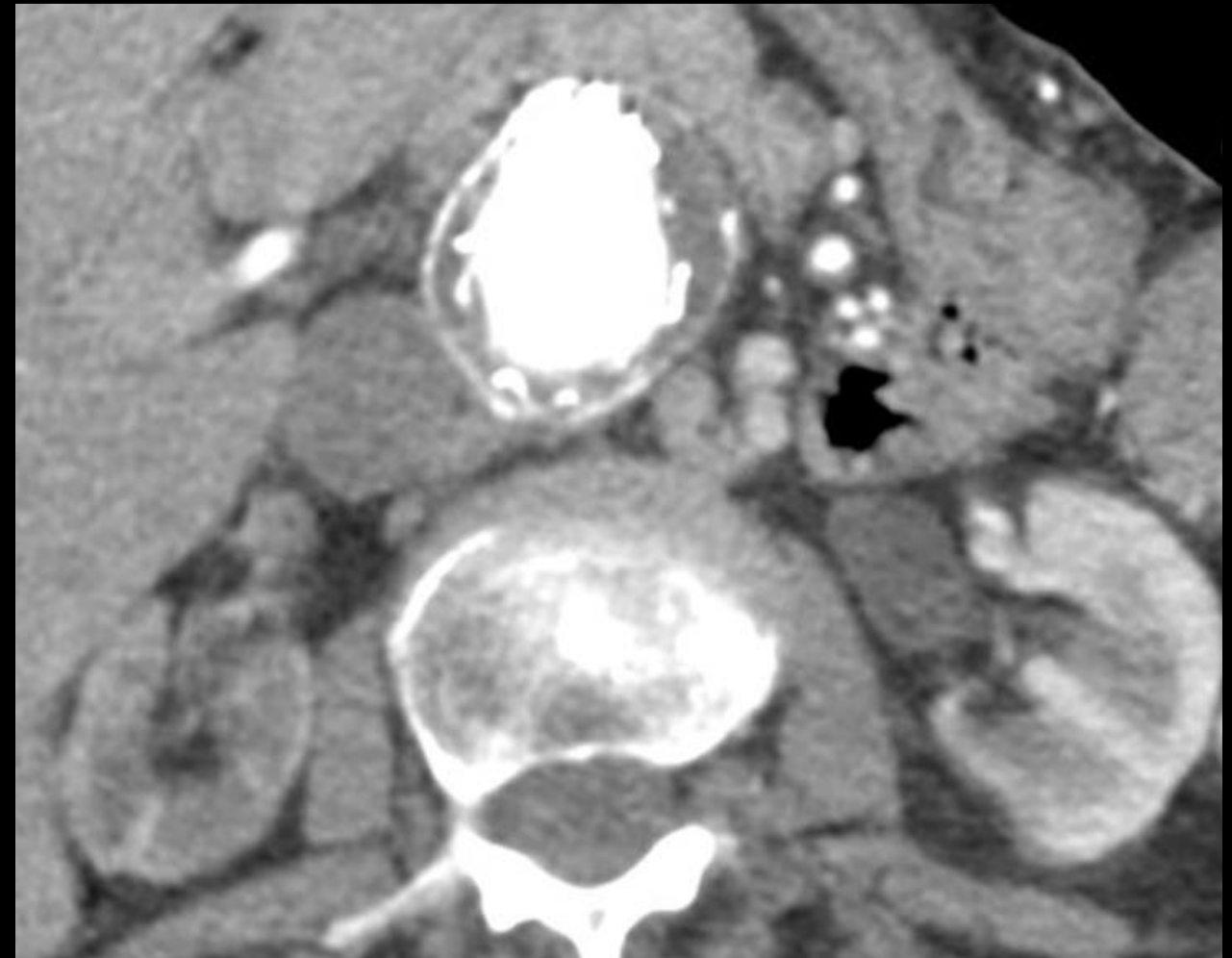
complications for the emergency radiologist



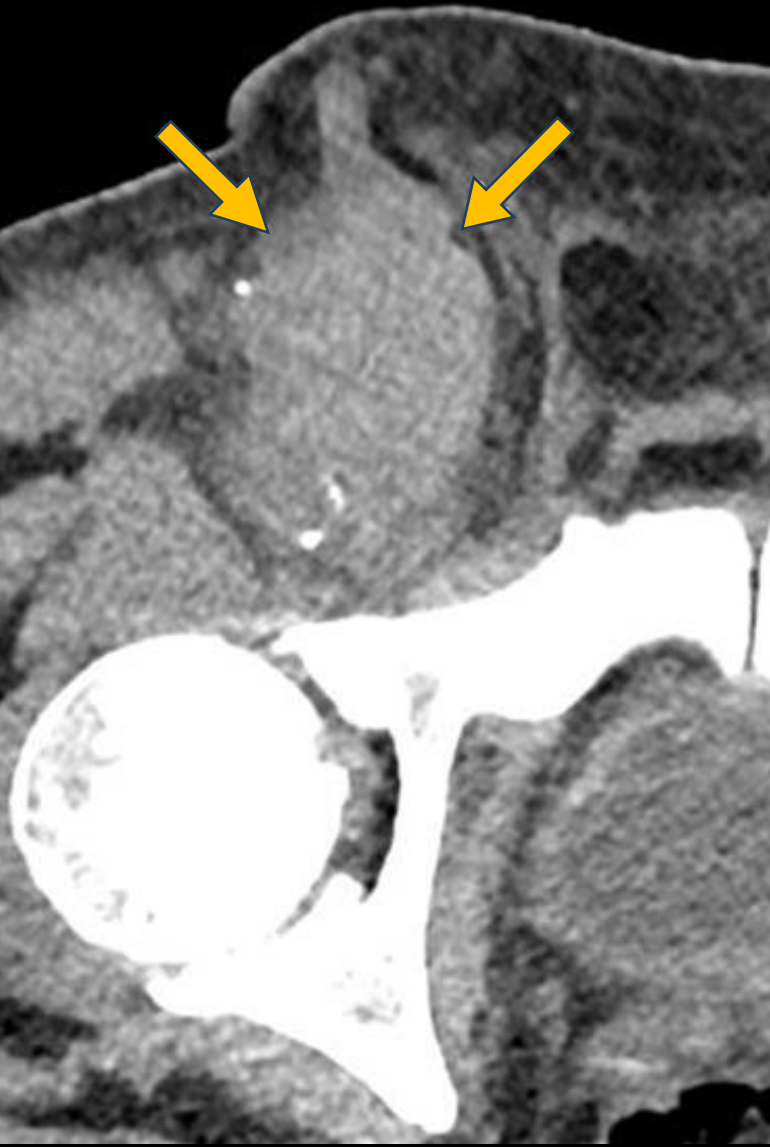
Infection



Infection

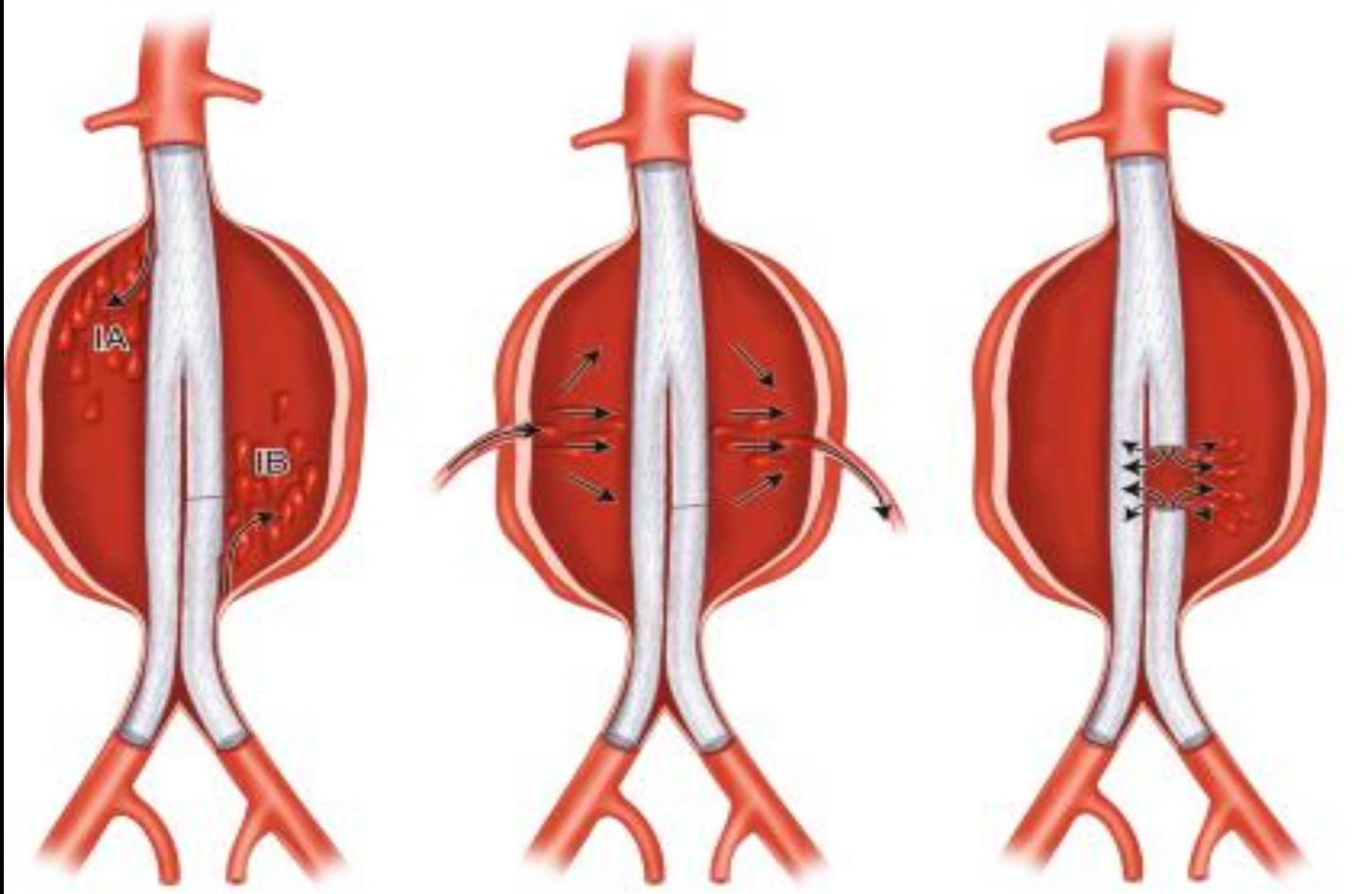


Side-branch occlusion



Vascular injury at access site

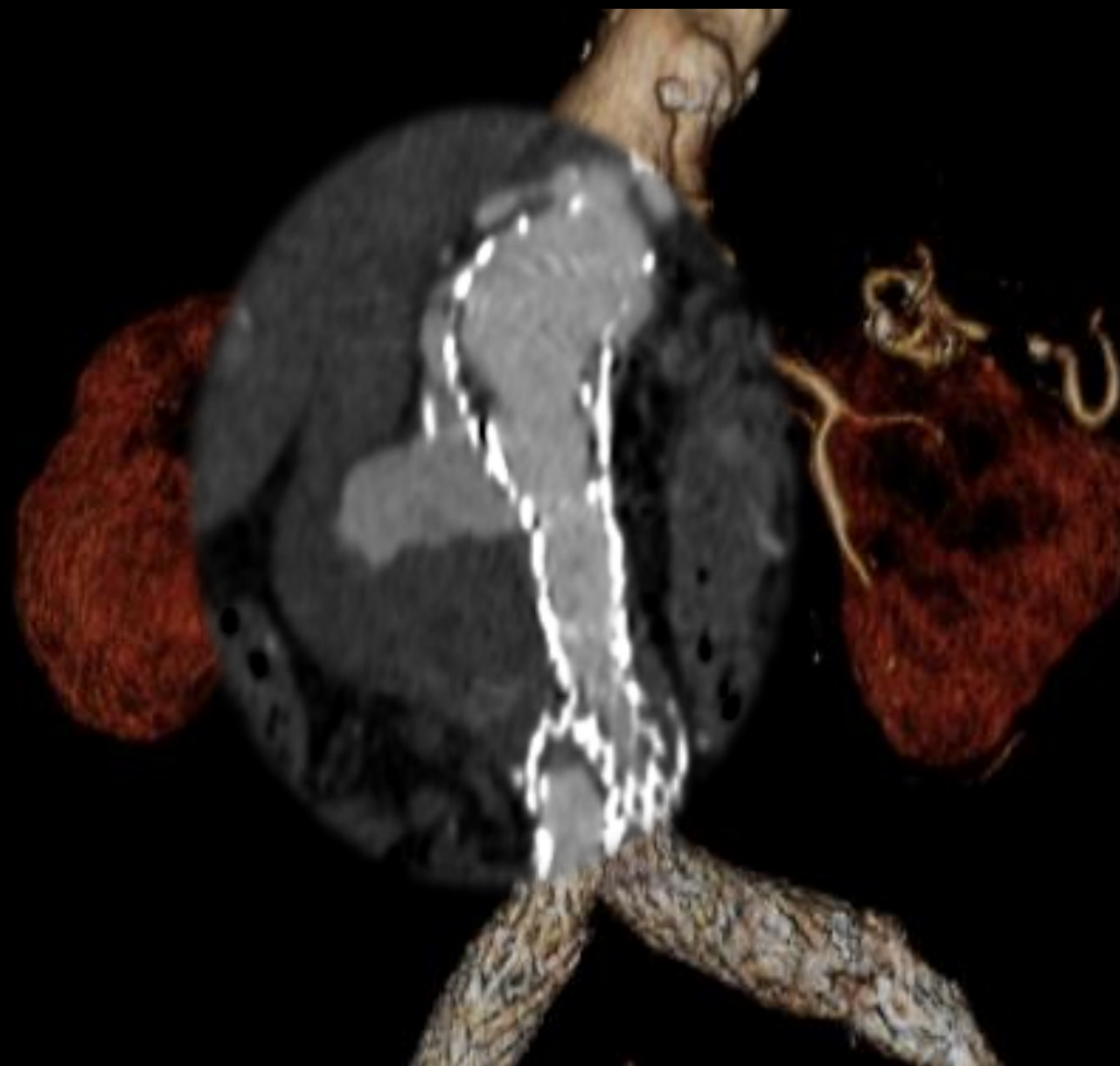
EVAR: Endoleak



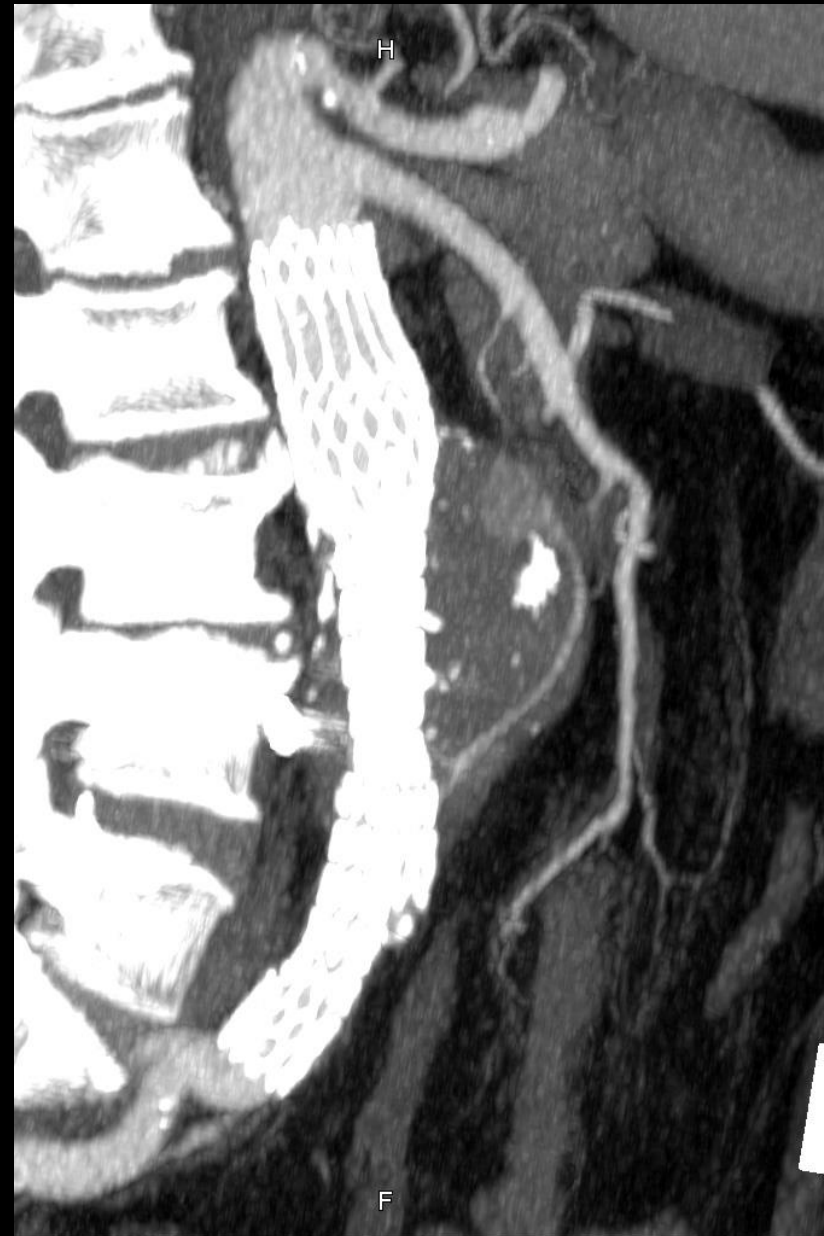
Type 1

Type 2

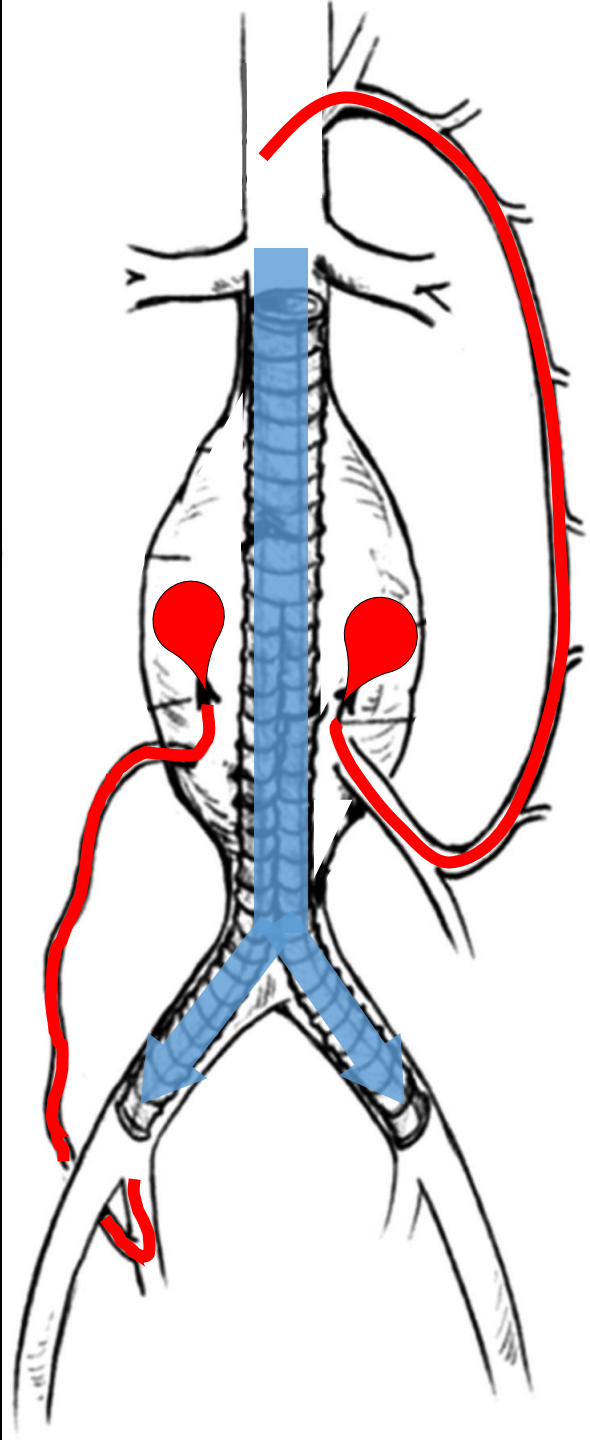
Type 3



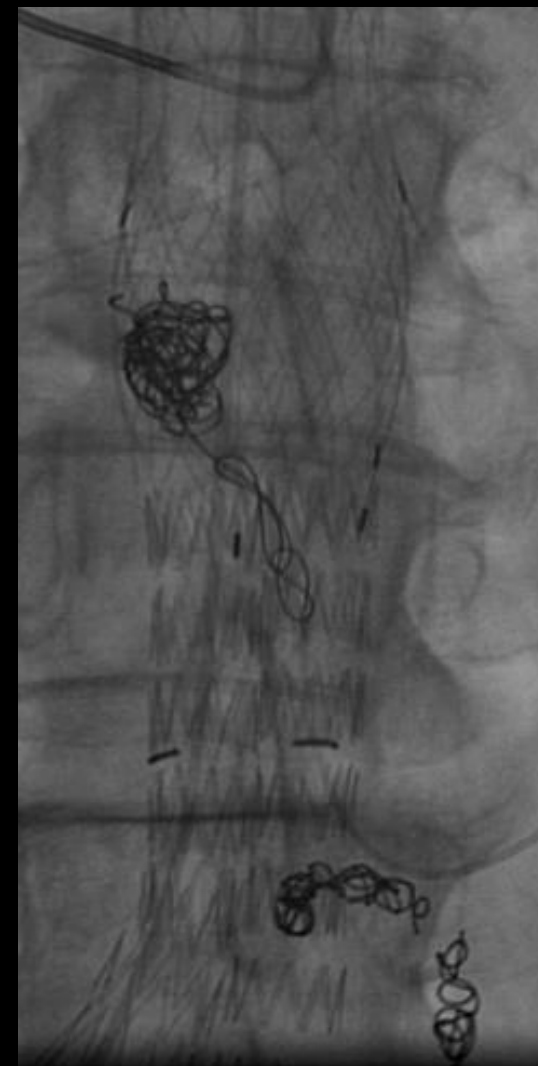
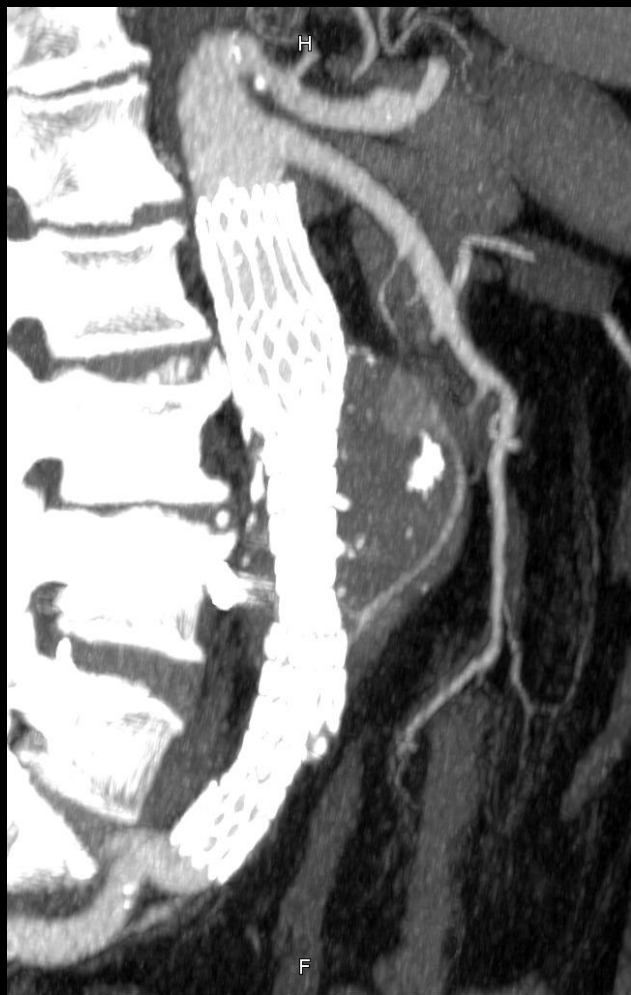
Type 1



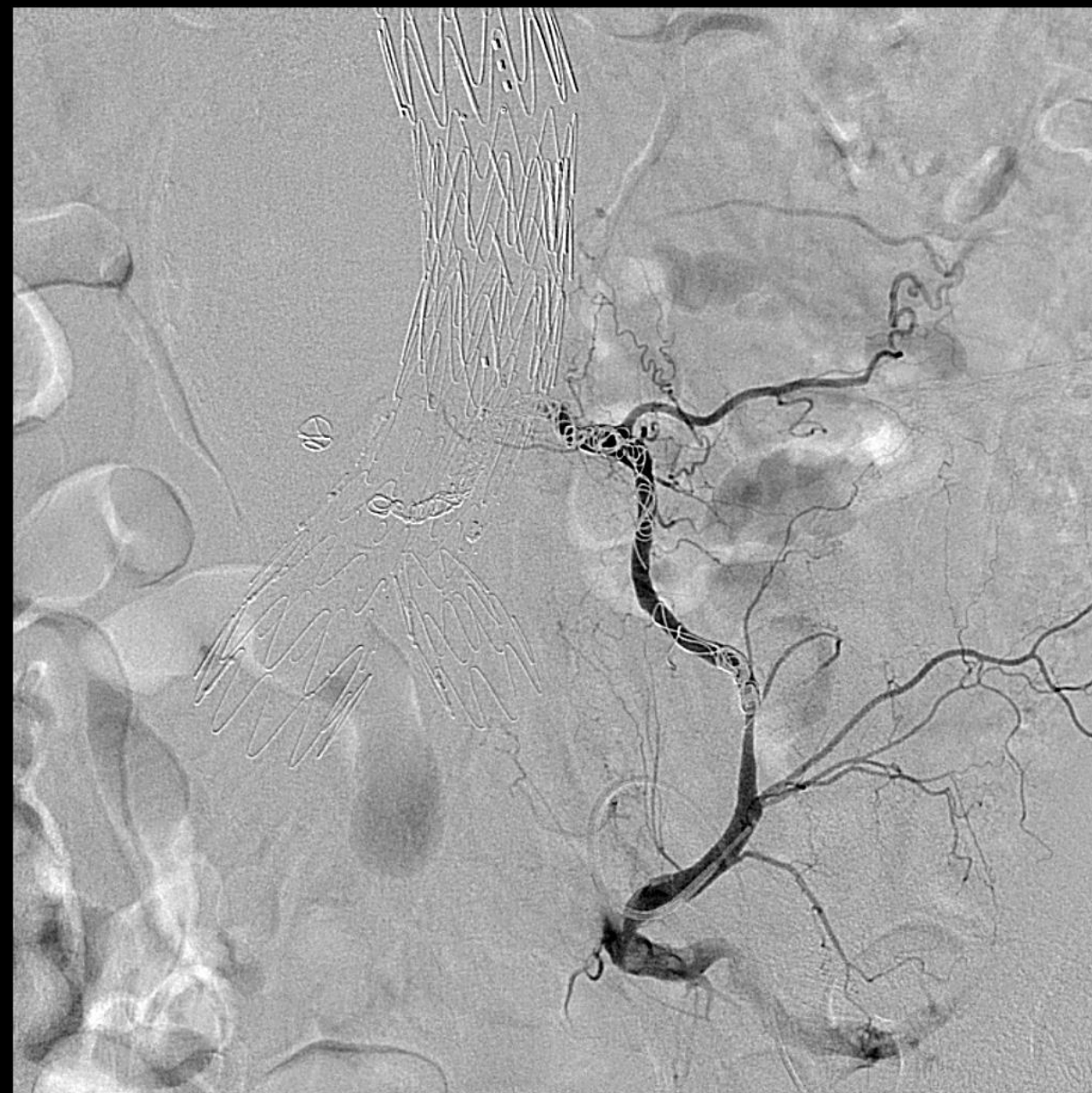
Type 2



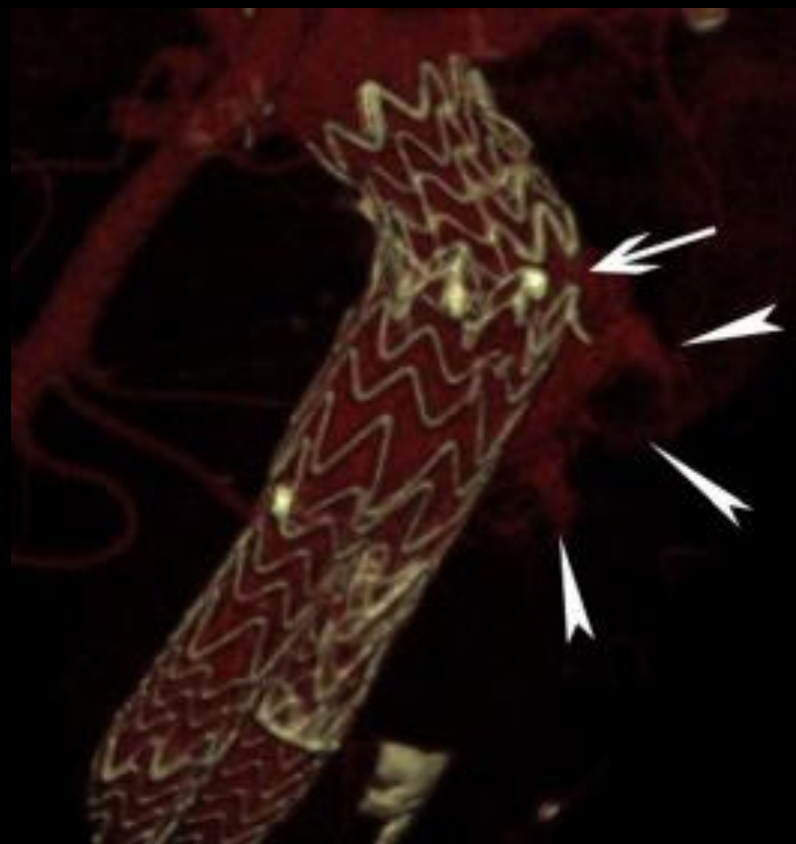
Patterns of Type 2



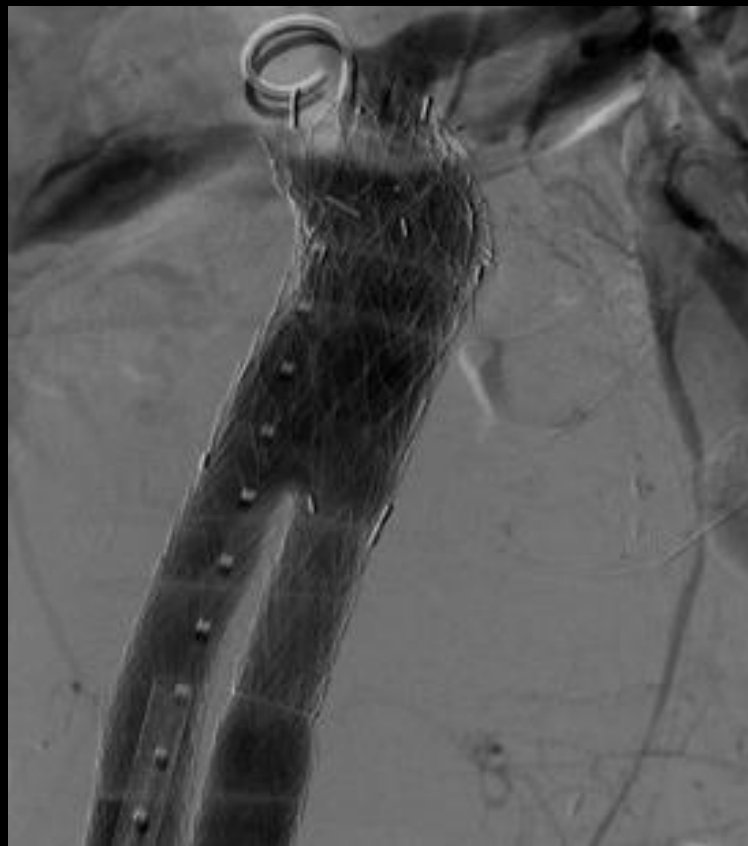
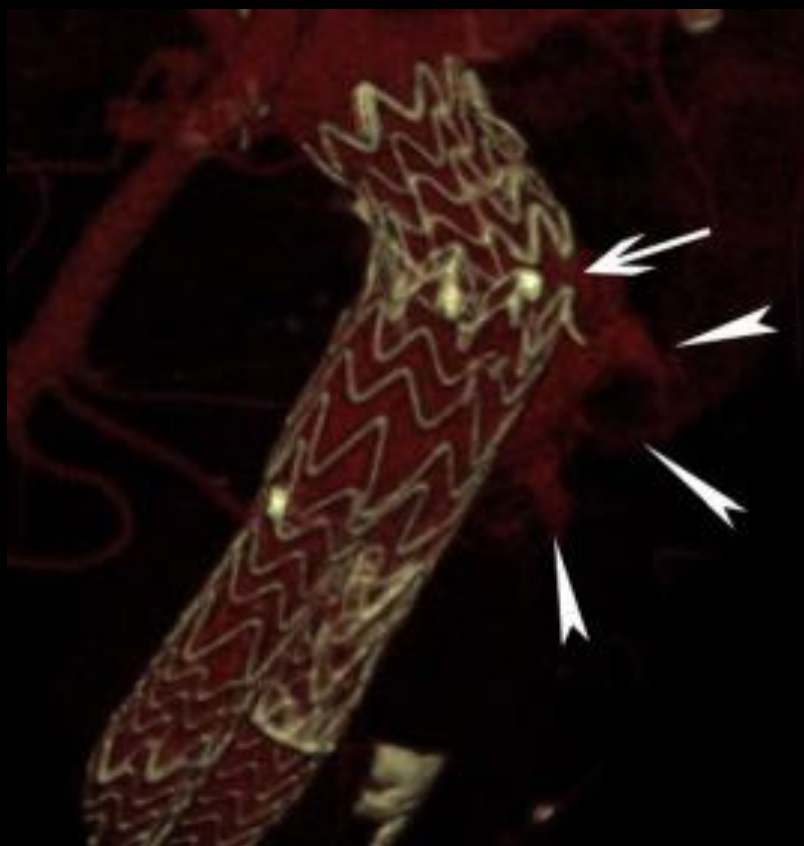
Type 2 treated



Type 2 treated



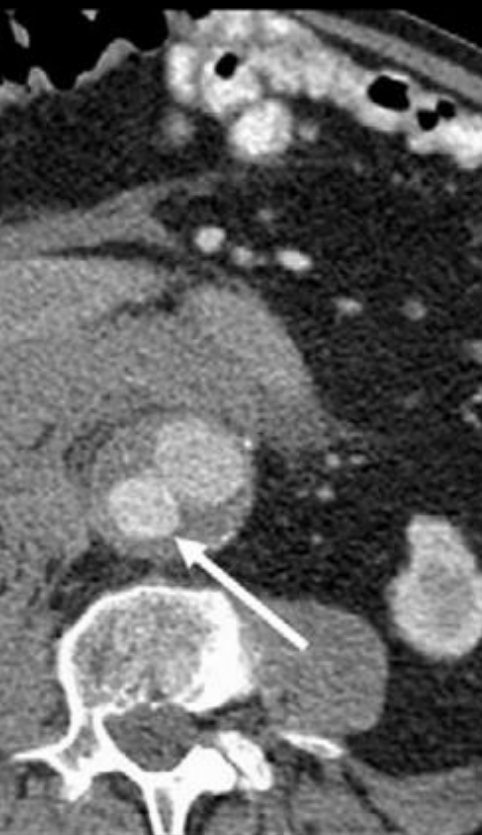
Type 3



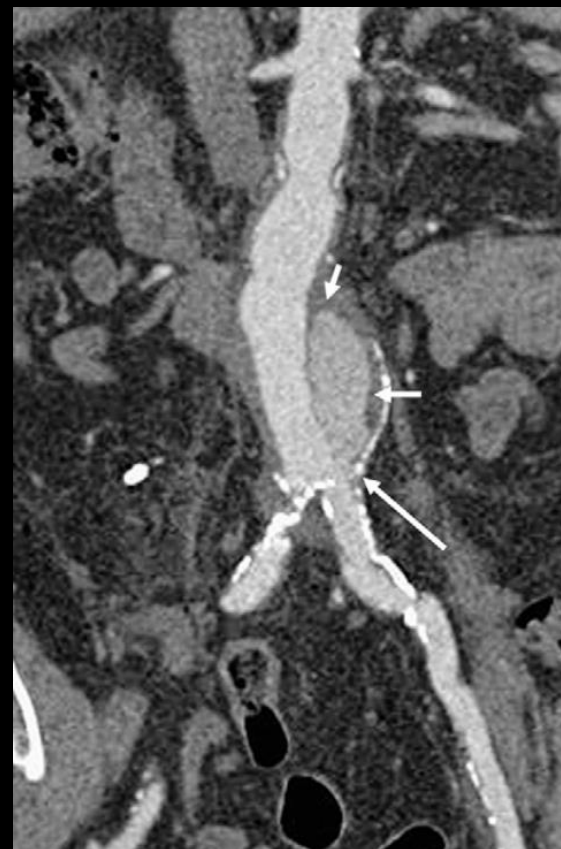
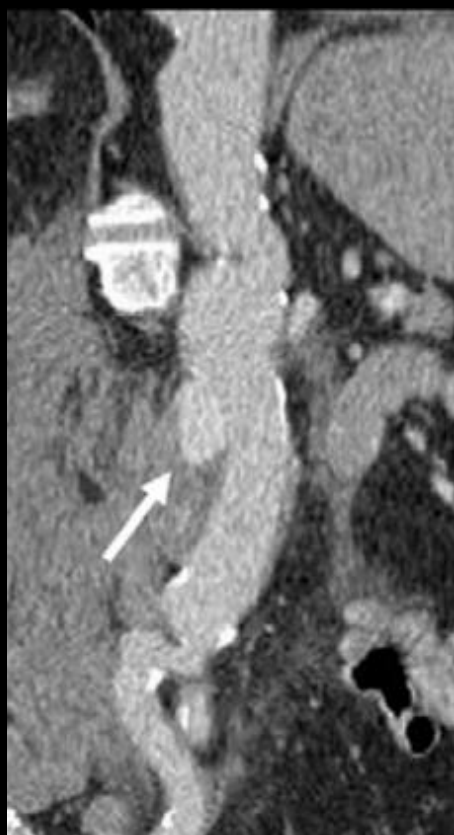
Type 3 treated



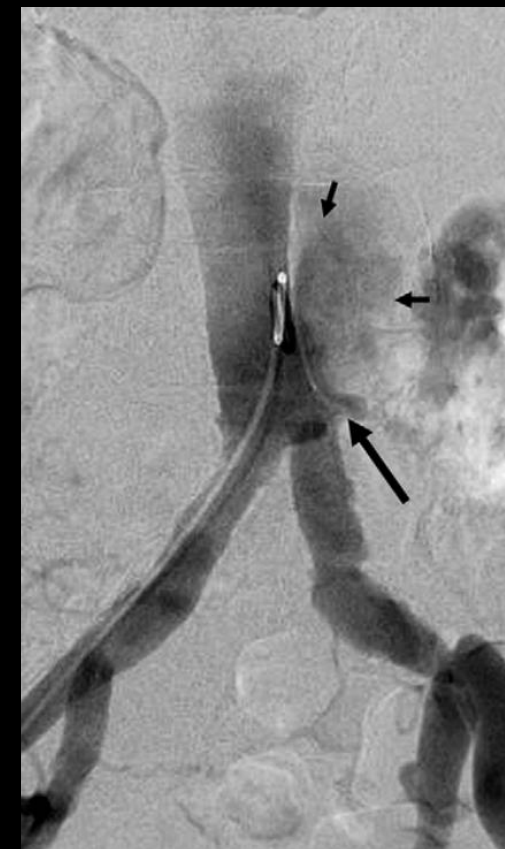
Type 3 open repair



Endoleak after Open Repair
Proximal



Endoleak after Open Repair
Distal



Imaging Strategies

Emergency scans for abdominal pain after AAA repair (Open or EVAR)

- Unenhanced
- Arterial phase
- Delayed venous phase (up to 300 seconds)



EMERGENCY AND TRAUMA RADIOLOGY 2025

Oslo, Norway

June 2 - 5, 2025

Abdominal Aortic Aneurysms: After the Fact

Thanks!



Fausto Labruto
Associate Professor
Director of Emergency Radiology

TMC
a Unilabs company