Enhanced Recovery in der Gefäßchirurgie

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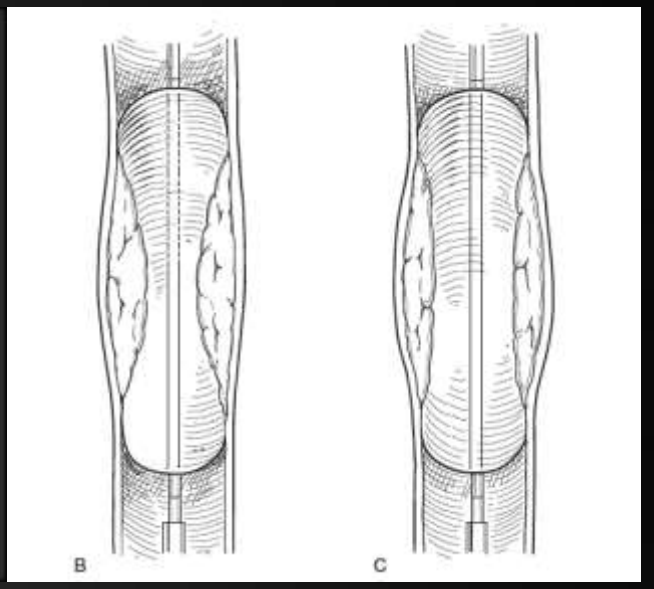
OAR Fast Track

- Brustia et al. Fast-track in abdominal aortic surgery: experience in over 1000 patients
  - Ann Vasc Surg 2015
    - Median hospital length of stay 3 day
    - Earlier discharge → reduce costs

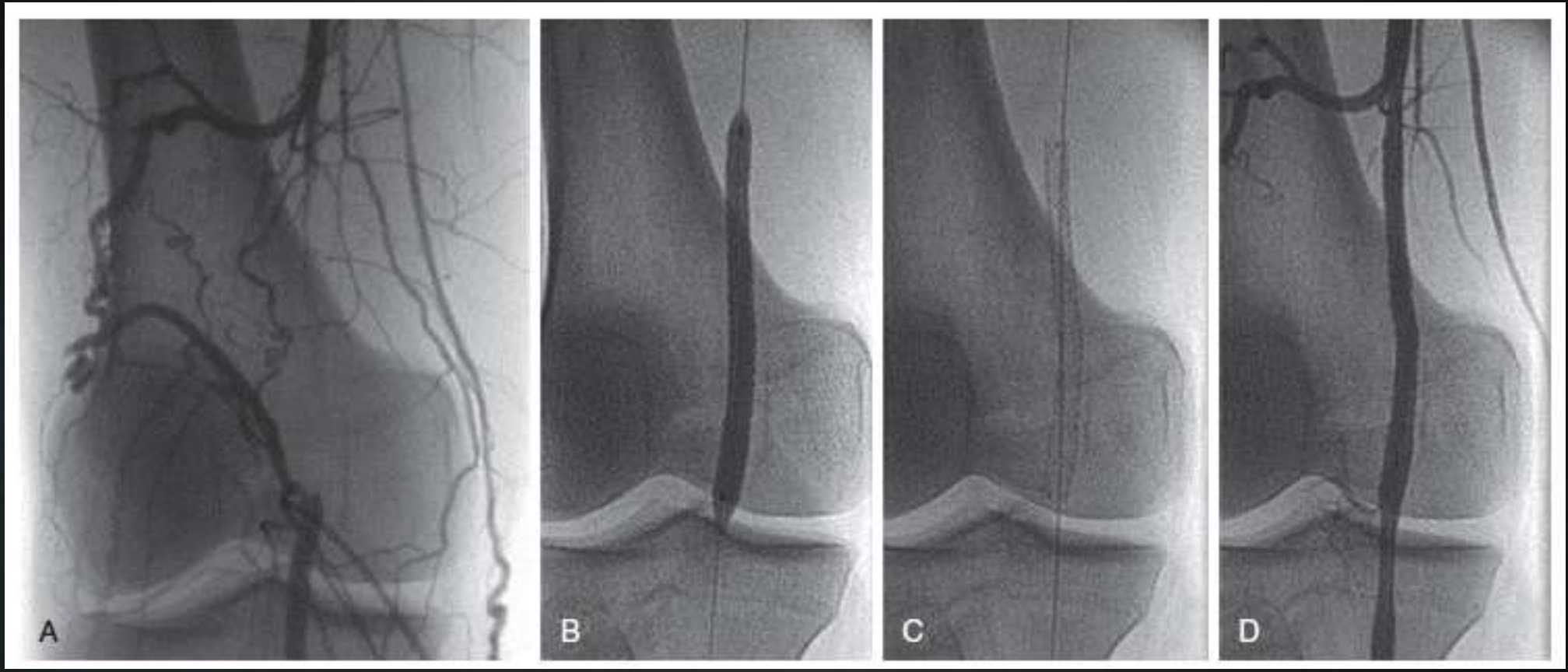
Early Recovery und Fast Track

- Beispiel Wundmanagement
  - Troisi et al. Preliminary Results of a Fast-Track Program with Early Endovascular Revascularization and Local Surgical Treatment
    - Ann Vasc Surg 2016



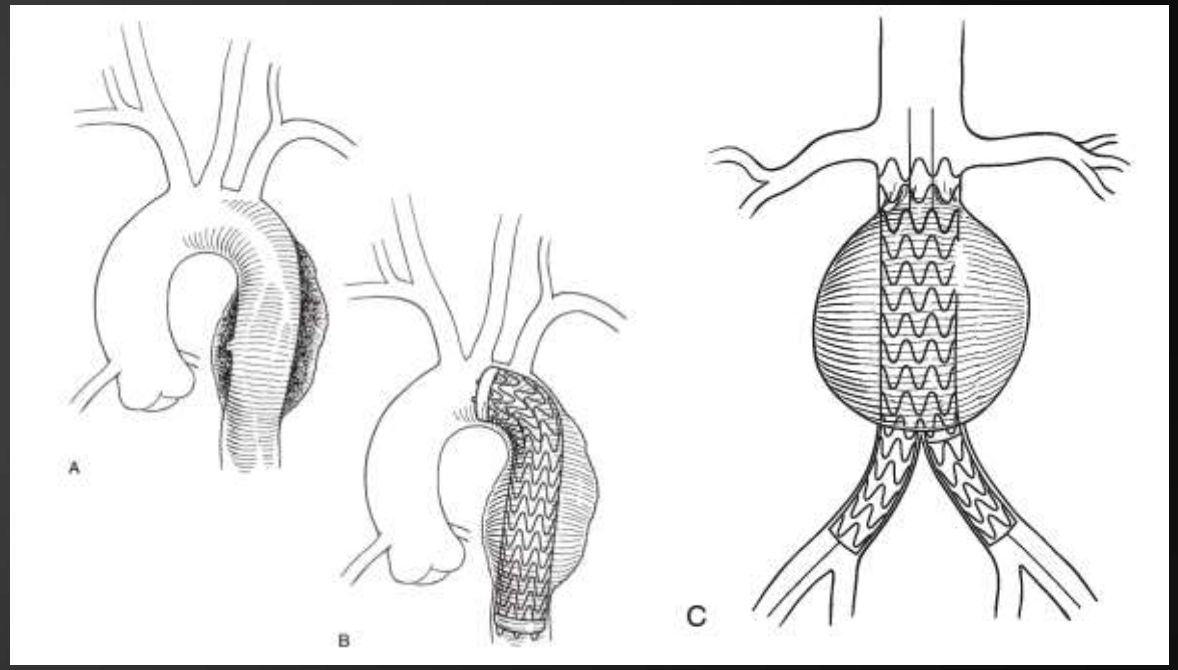
- Schnelle Revaskularisierung und frühe lokalchirurgische Therapie
- Weniger Mortalität, geringere Amputationsraten, etc.

Endovaskuläre Verfahren



EVAR

- Nicht wegzudenken aus heutigen „Fast-track protocols“ was die Aortale Aneurysmabehandlung betrifft
- Beispiel TEVAR/EVAR
- Komplexere Fälle (in der Regel nicht „fast-track“…) existieren



EVAR – Stentgraftsysteme Spektrum

	Endurant II (Medtronic)	Excluder C3 (Gore)	Zenith Alpha(Cook)	Anaconda (Vascuthek)	Incraft (Cordis)	Treo (Bolton)	E-tegra (Jotec)	AFX (Endologix)	Ovation (Endologix)	Nellix (Endologix)
Zulassung	CE 2014 FDA 2012	CE 2010 FDA 2011	CE 2010 FDA 2004	CE 2014	CE 2014	CE 2013	CE 2014	CE 2012 FDA 2011	CE 2010 FDA 2013	CE 2012
Halslänge	≥ 10 wenn Kurvatur ≤ 60° ≥ 15 wenn Kurvatur ≤ 75° Hals	≥ 15	≥ 15	≥ 15	≥ 10	≥ 10 wenn Kurvatur ≤ 60° ≥ 15 wenn Kurvatur ≤ 75° Hals	≥ 15	≥ 15	< 10, wenn Kurvatur ≤ 45° ≥10, wenn Kurvatur ≤ 60°	≥ 10
Kurvatur		≤ 60°	≤ 60°	≤ 90°	≤ 60°		≤ 75°	≤ 60°		≤ 60°
Halsdurch-messer	19-32	19–32	18-32	16-31	17-31	17-32	19-32	18-32	16-30	18-28
Iliakal-durchmesser	8-25	8-25	7.5-20	8.5-21	7-22	8-20	8-25	10-23	8-25	9-25
Iliakale Landezone	≥ 15	≥ 10	≥ 10	≥ 20	≥ 10	≥ 10 (8-13) ≥ 15 (13-20)	≥ 15	≥ 15	≥ 10	≥ 10
Suprarenale Fixierung	ja	Nein, infrarenale Anchors	ja	Nein, infrarenale Anchors	ja	Ja + infrarenale	ja	ja	ja	nein
Schleusen-diameter HK	18-20 F	16-18 F	18 – 19.5 F (OD)	21-23 F	14 -16 F OD	18-19 F OD	18-20 F	17 F	14 F (OD)	
Repositionier-barkeit	partiell	Ja (bis 2x)	partiell	Ja vollständig	partiell	partiell	partiell	nein	nein	nein
Special Features	• CE Zulassung für Chimney-Kombination • kurzer Main body (72mm)	• neuer Freisetzungsmechanismus • Repositionierbarkeit • Anker zur infrarenalen Fixierung		Aktive infrarenale Fixierung Ringstents Zulassung für 90° Hals	Ultra low profile Hohe Schaftflexibilität Insitu Sizing möglich (adjustment zones)	• Kurzer Main body • lock stents in den Schenkeln • Custom made möglich	•durchgewoben, keine Naht, •kurze HK, •Flexibilität durch asymmetrische Springs, •teilweise custom made	• Erhält native Bifurkation •Endoskeleton	Polymer filled sealing rings	Versiegelung des gesamten Aneurysmasacks mittels polymergefüllter Endobags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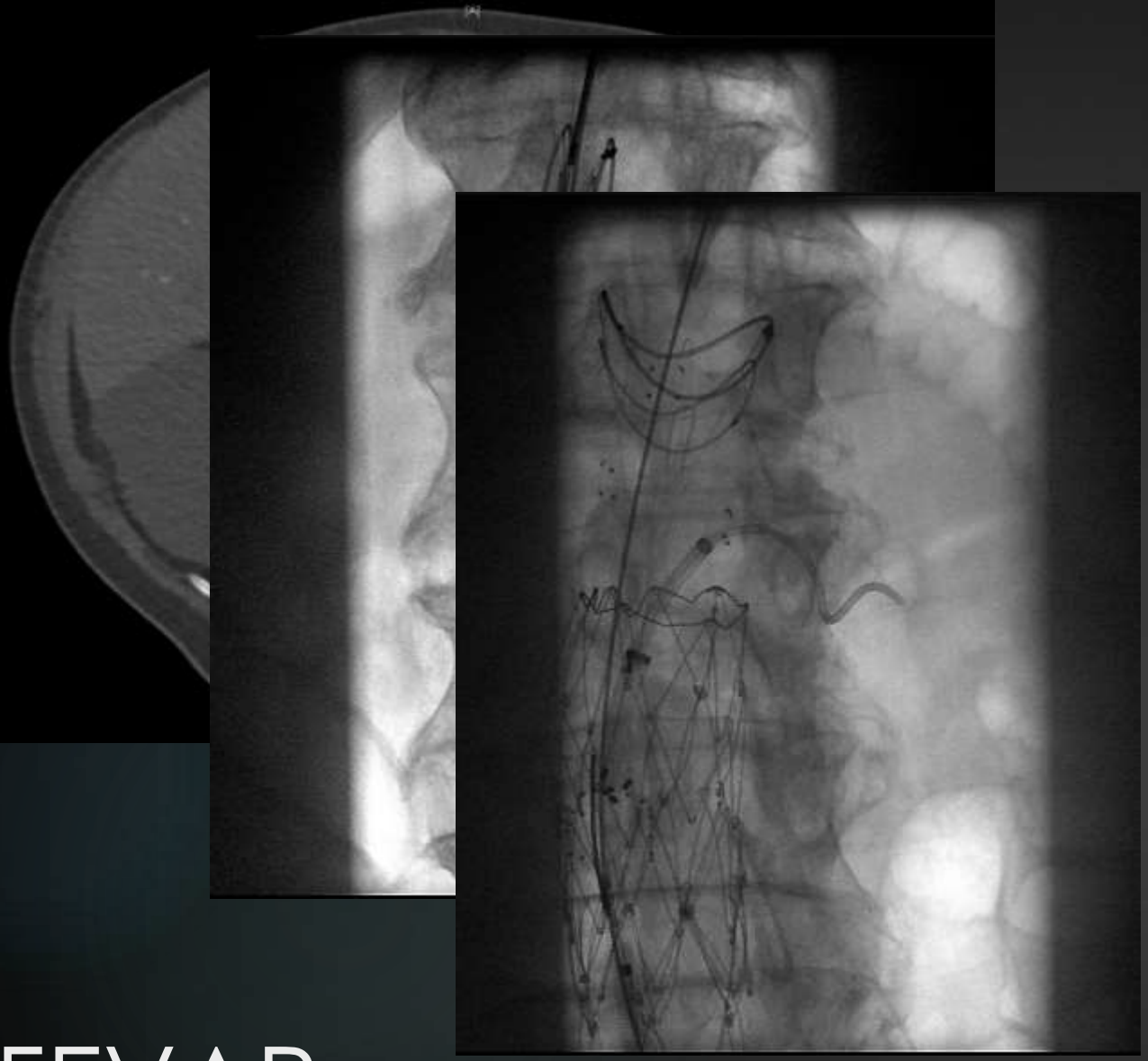
Komplexer EVAR - Fenestriert

Left renal artery cannulated from below. No issues encountered when advancing 7Fr sheath into vessel.

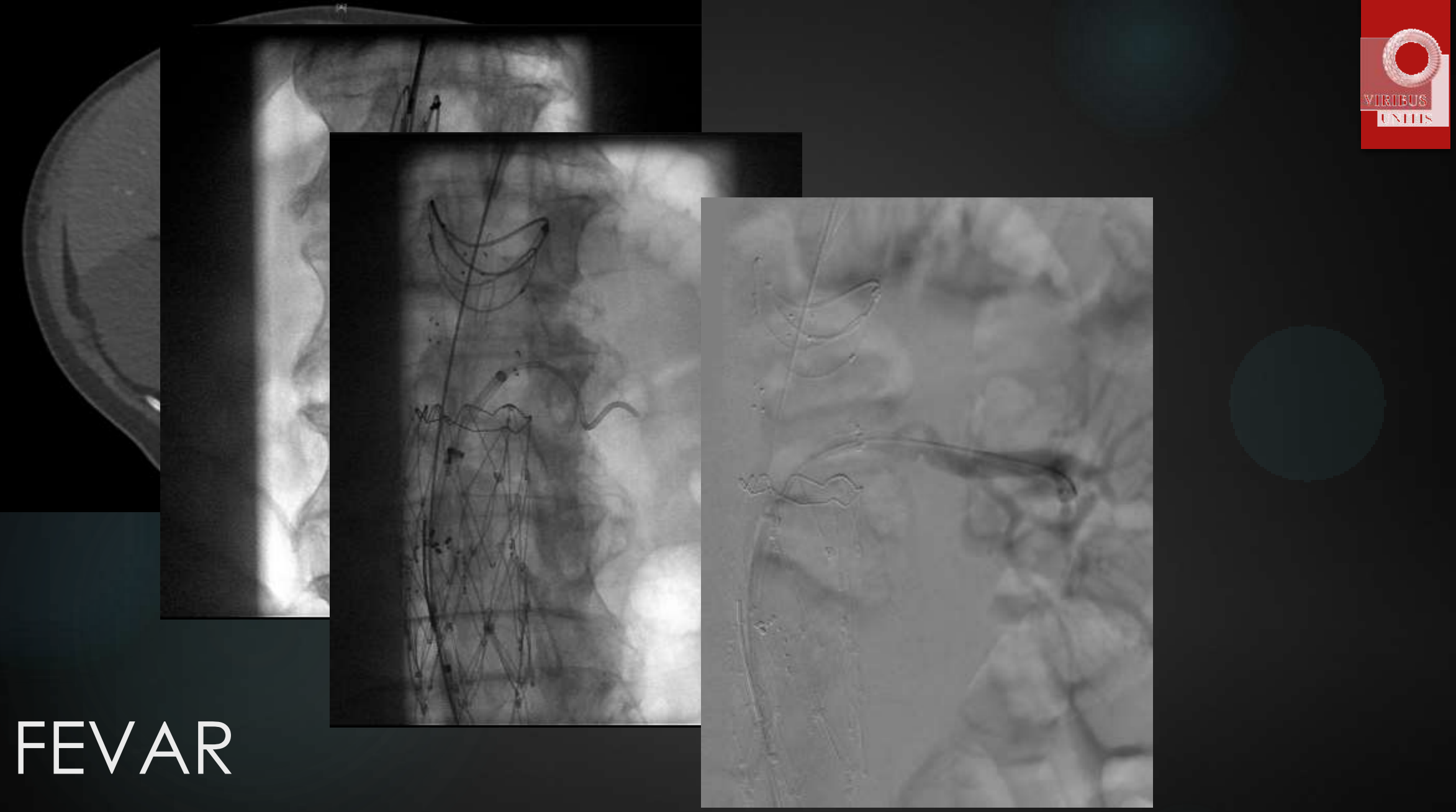
Right Renal artery cannulated from below. No issues encountered when advancing 7Fr sheath into vessel.

There appears to be suitable clearance between anterior valley and SMA.

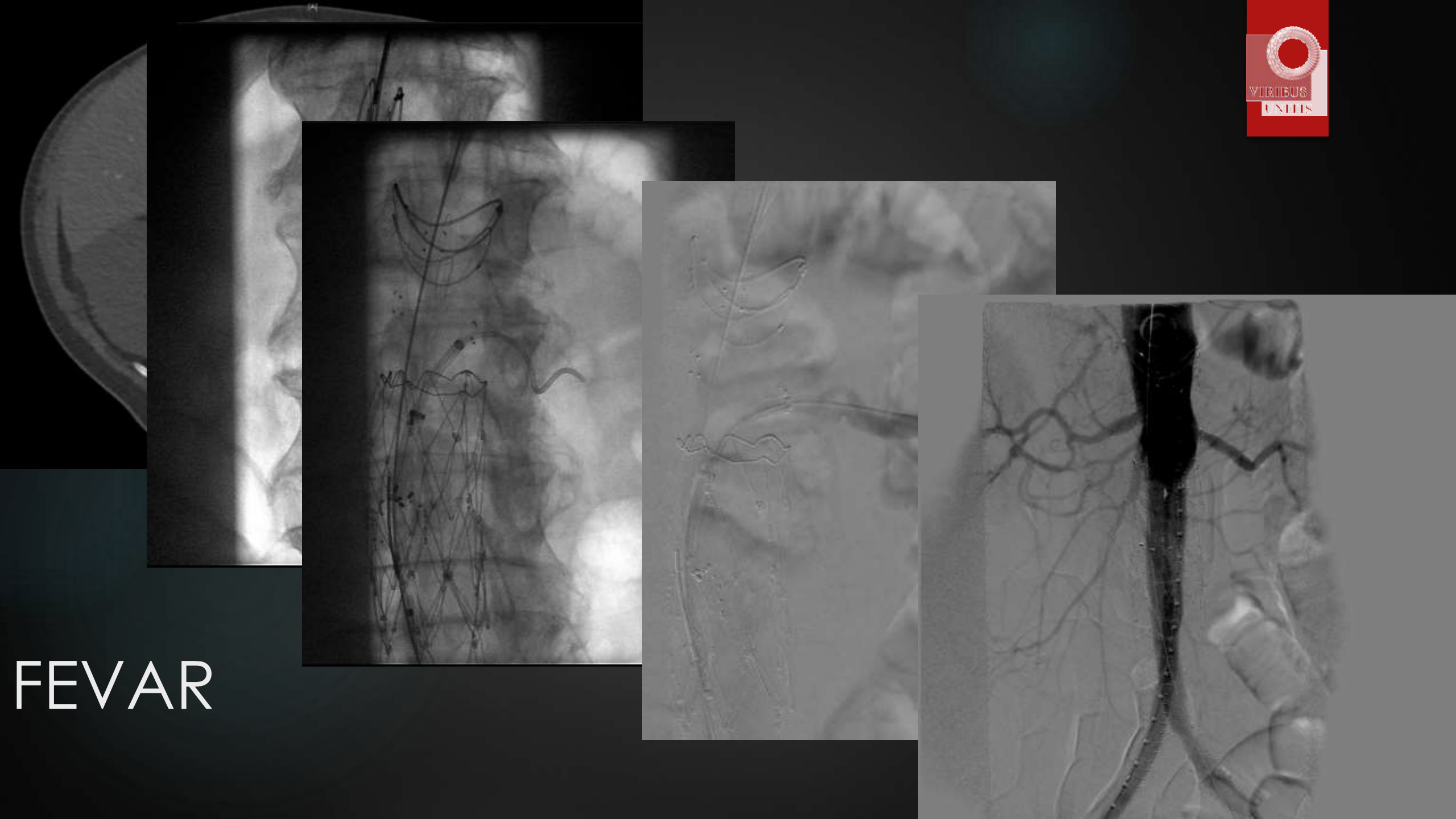
FEVAR



FEVAR



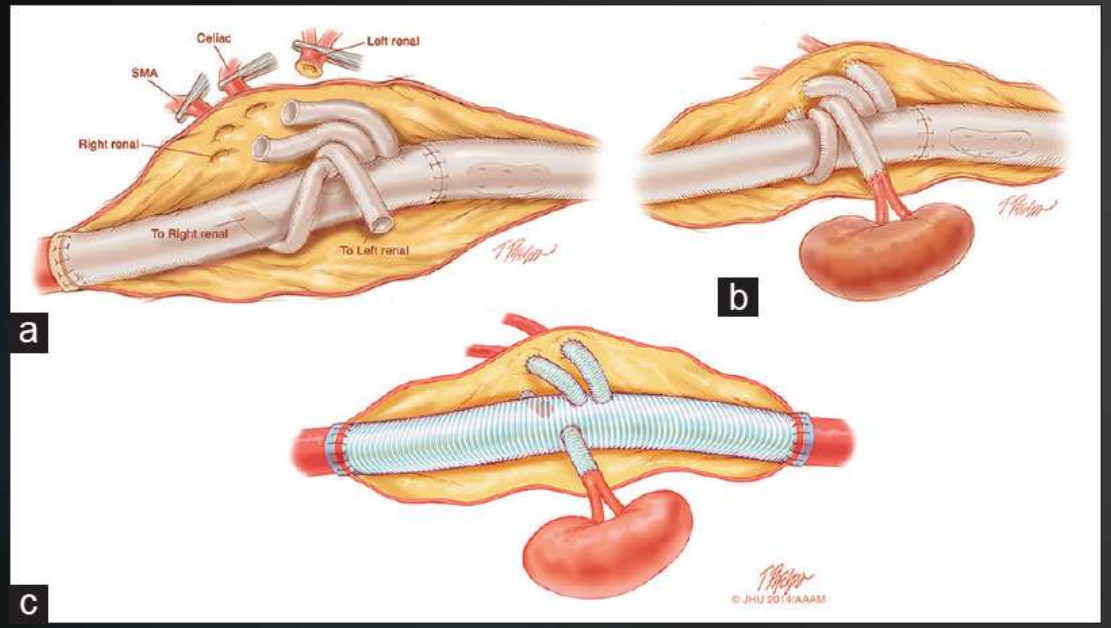
FEVAR

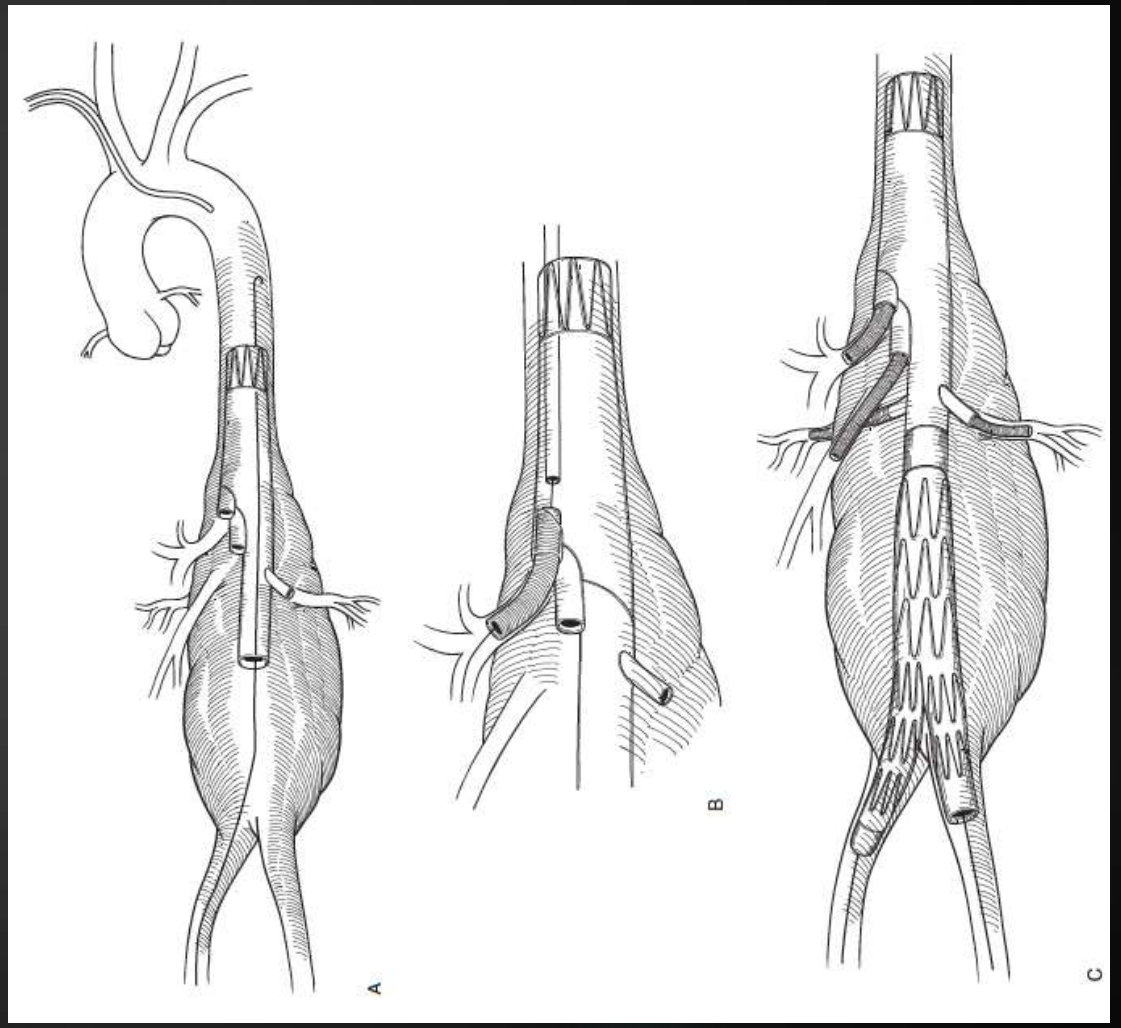


FEVAR

FEVAR

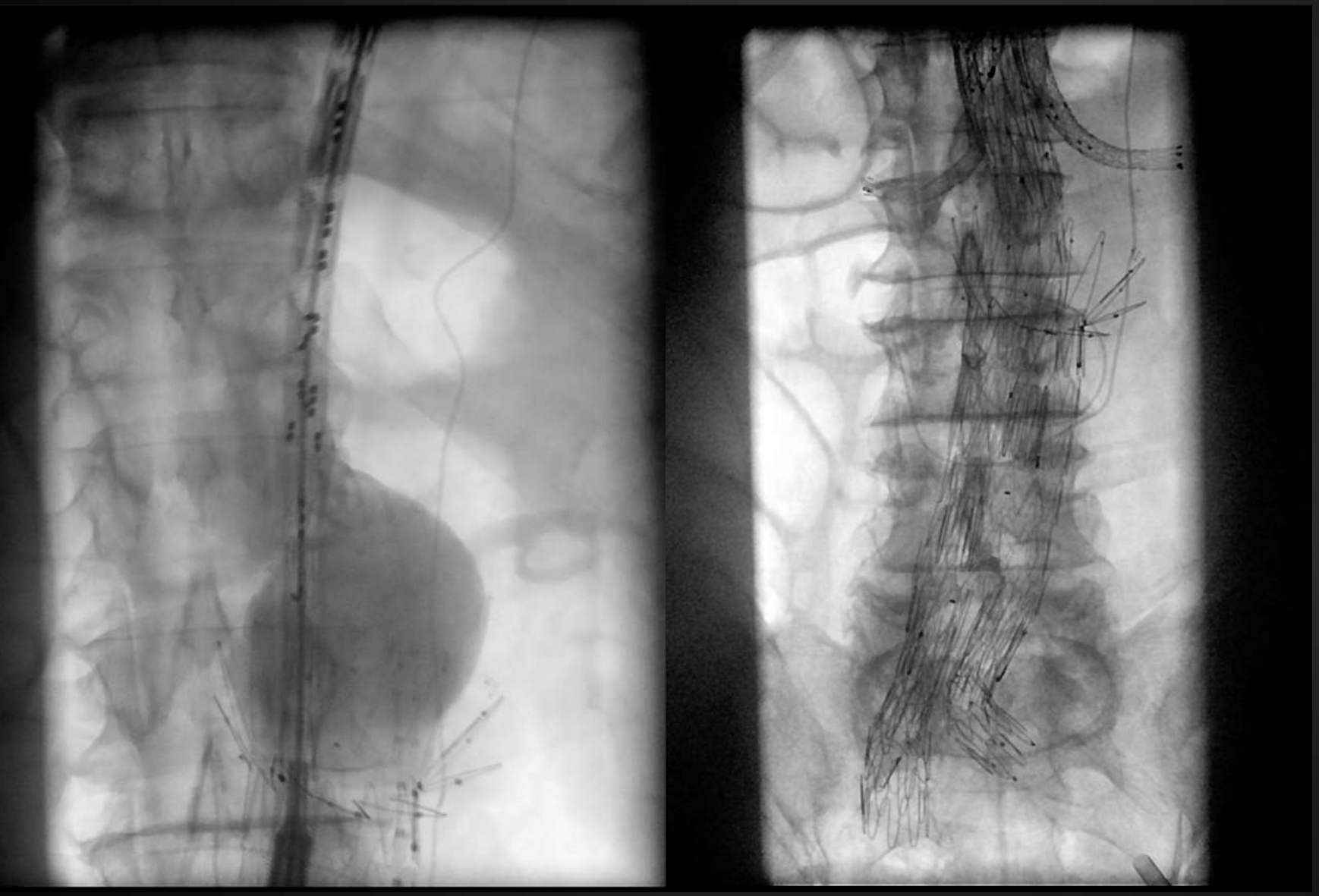
Komplexer EVAR - Gebrancht



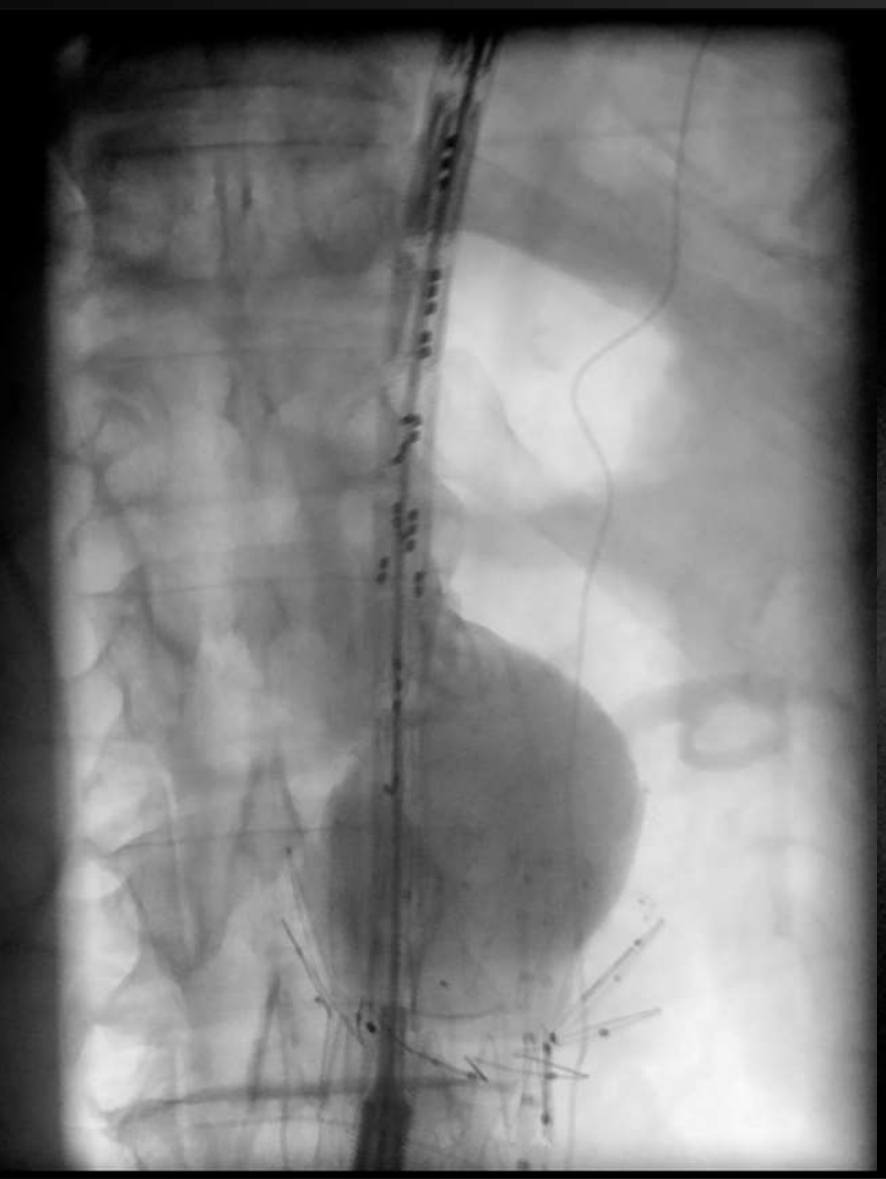


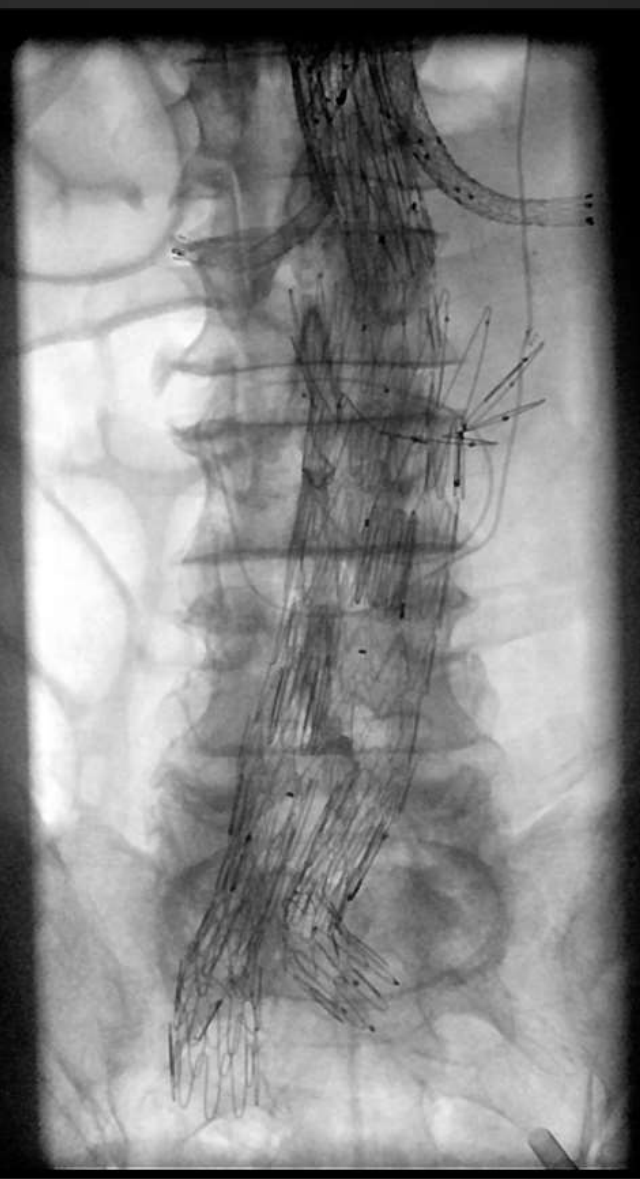
Branched-EVAR

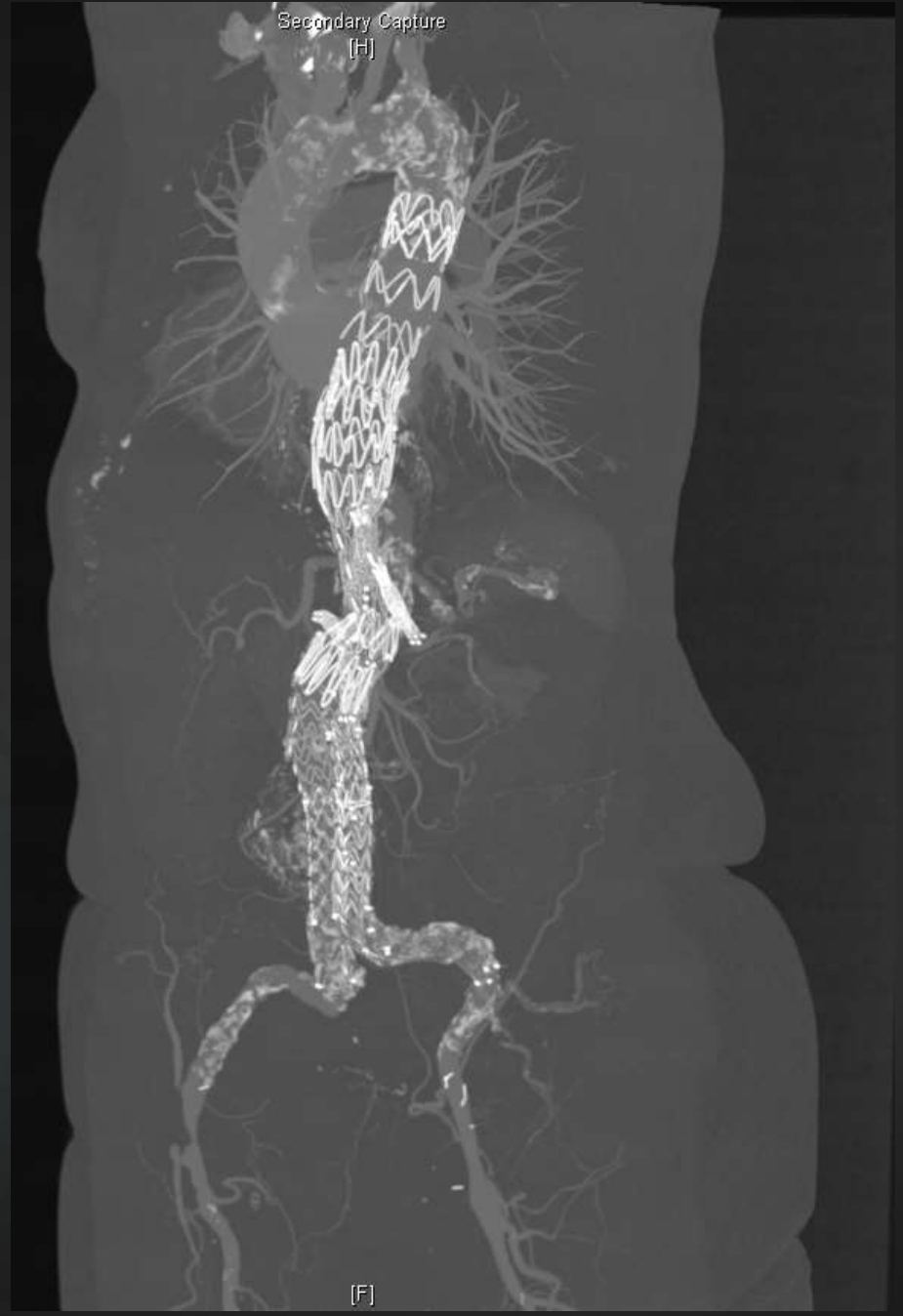
Branched-EVAR



Branched-EVAR






Secondary Capture
[H]
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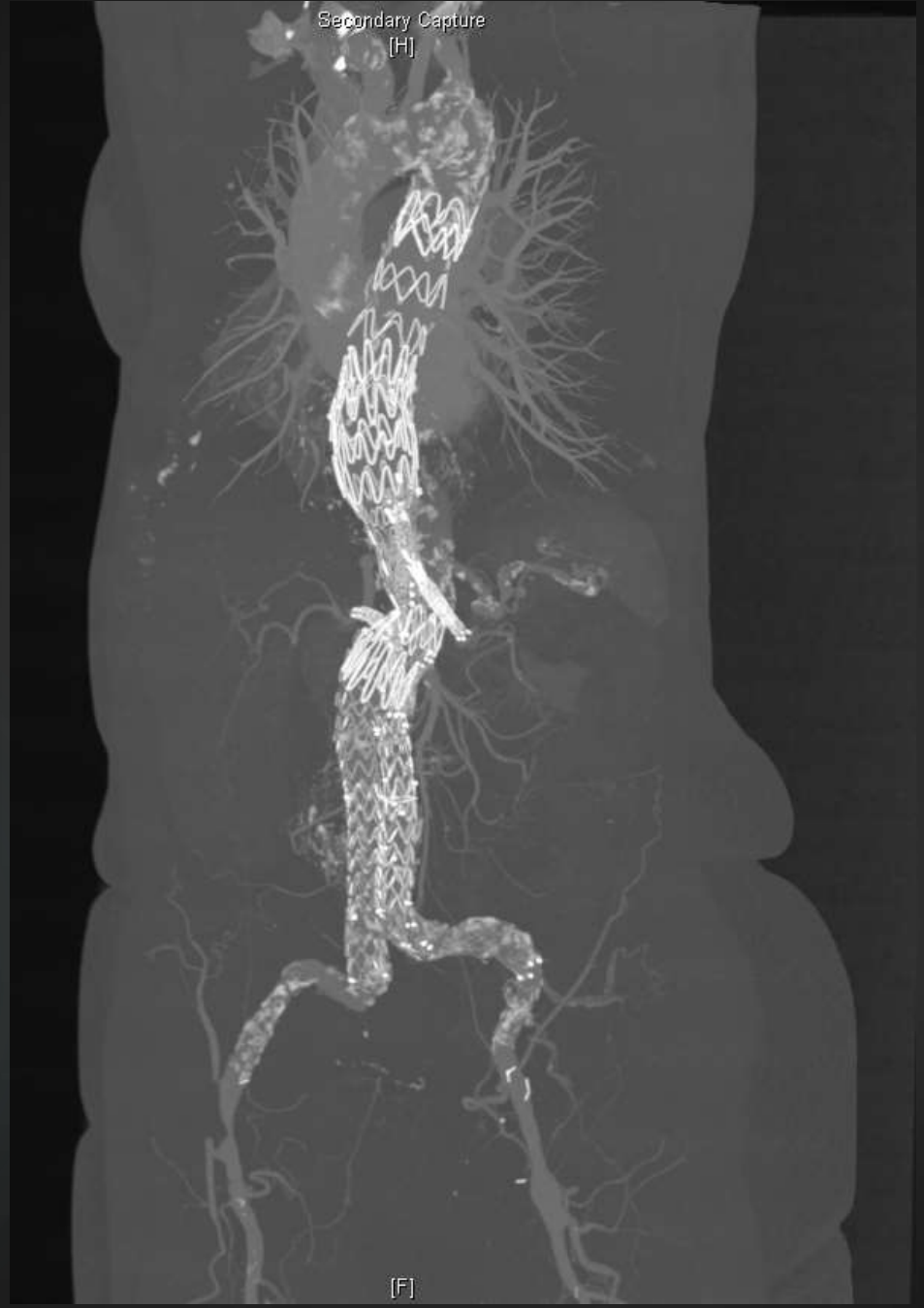
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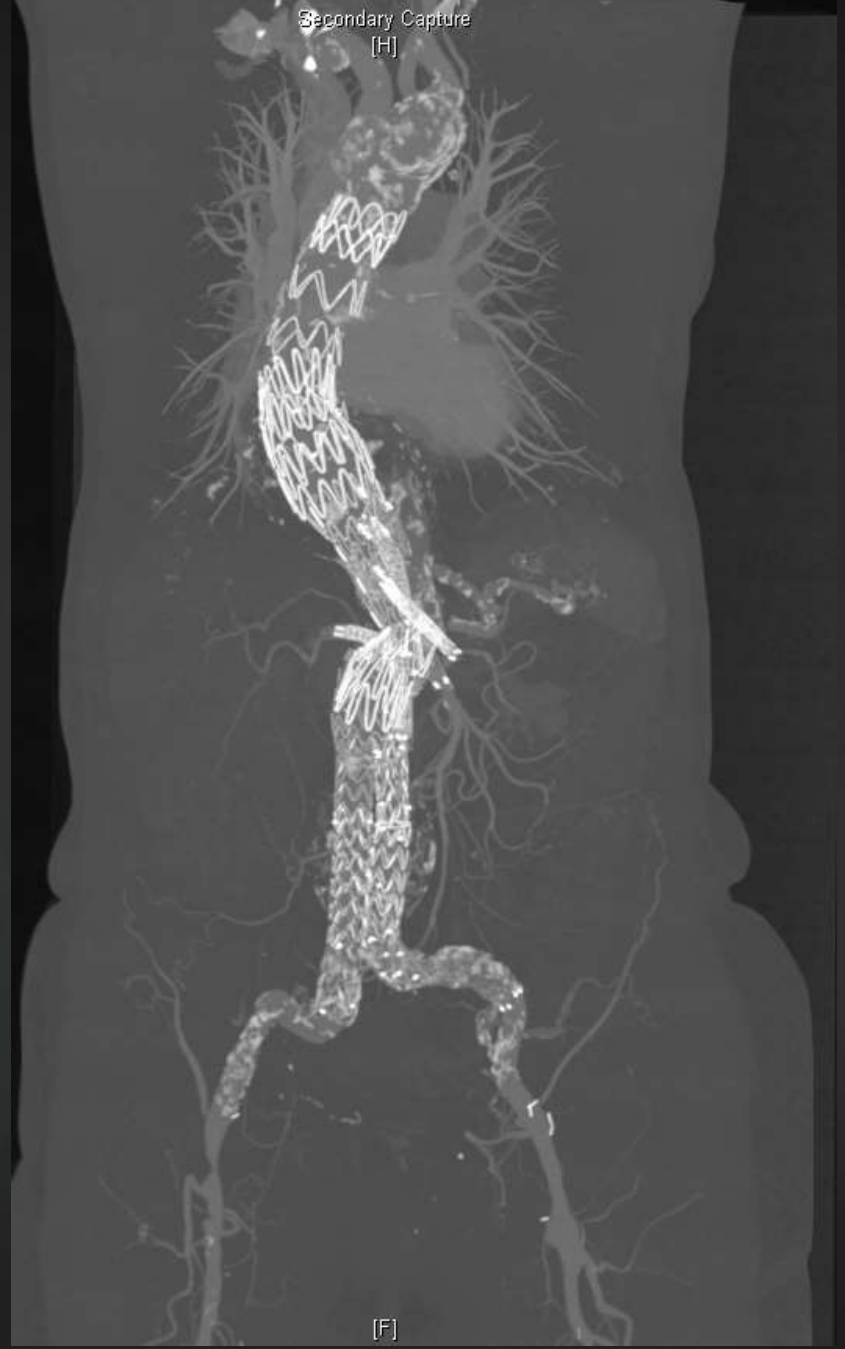
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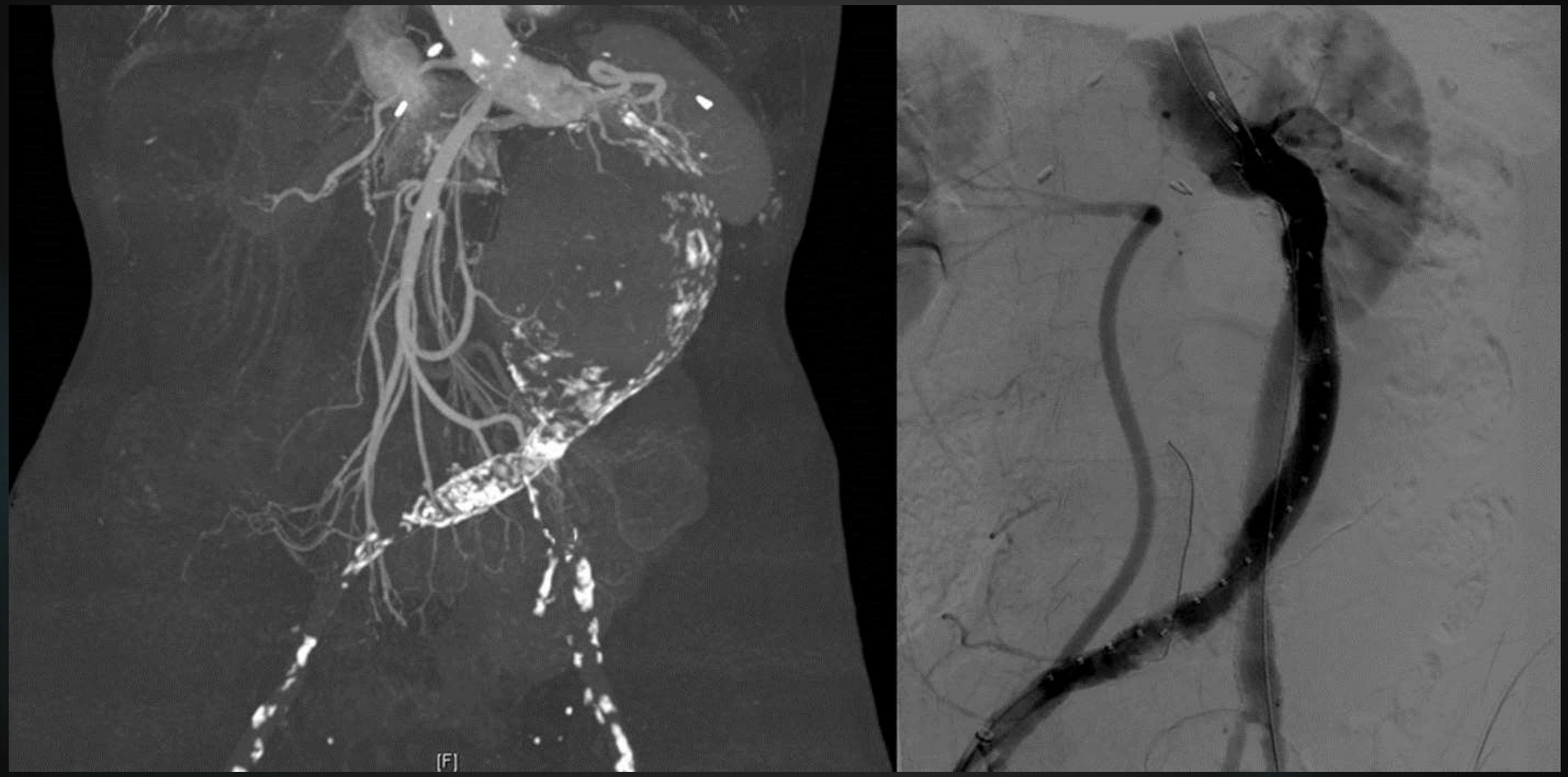
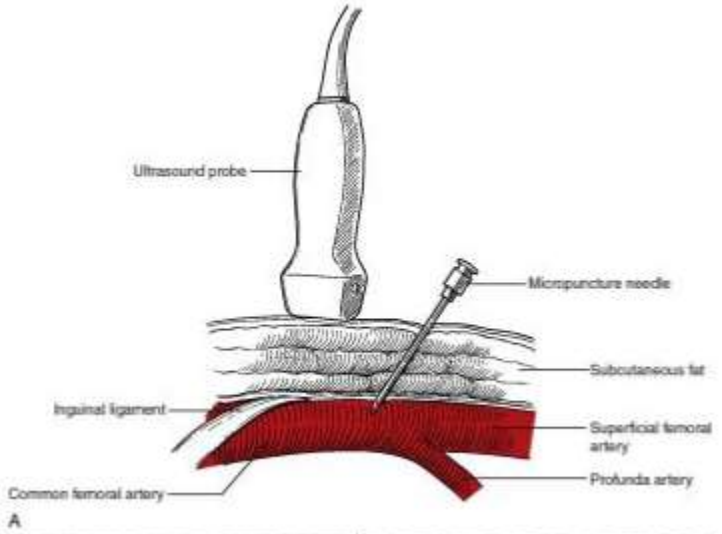
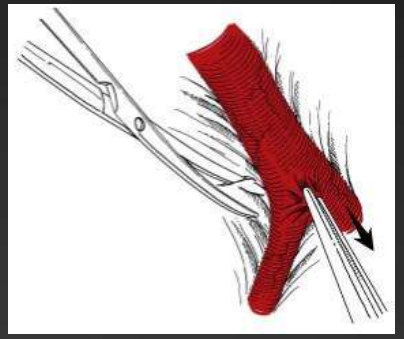
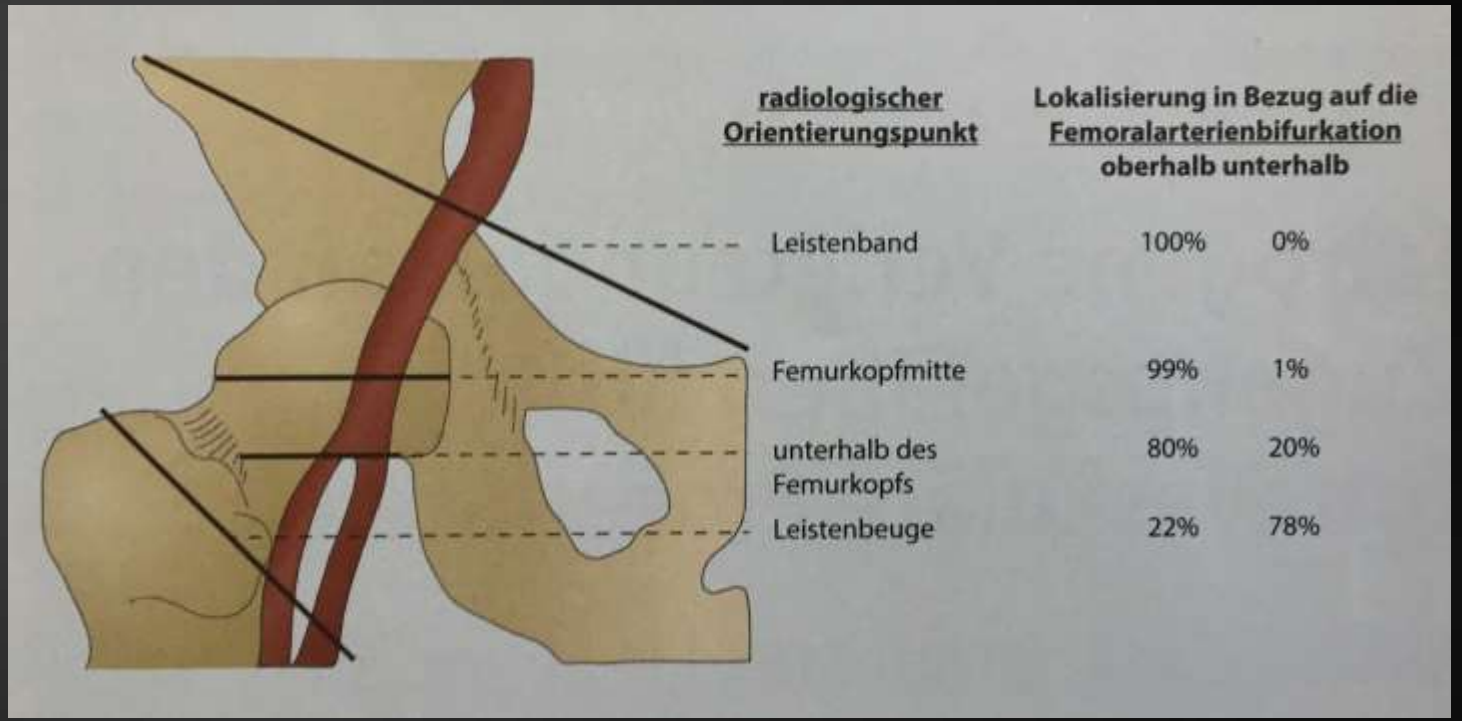
Komplexer EVAR – Hybrid



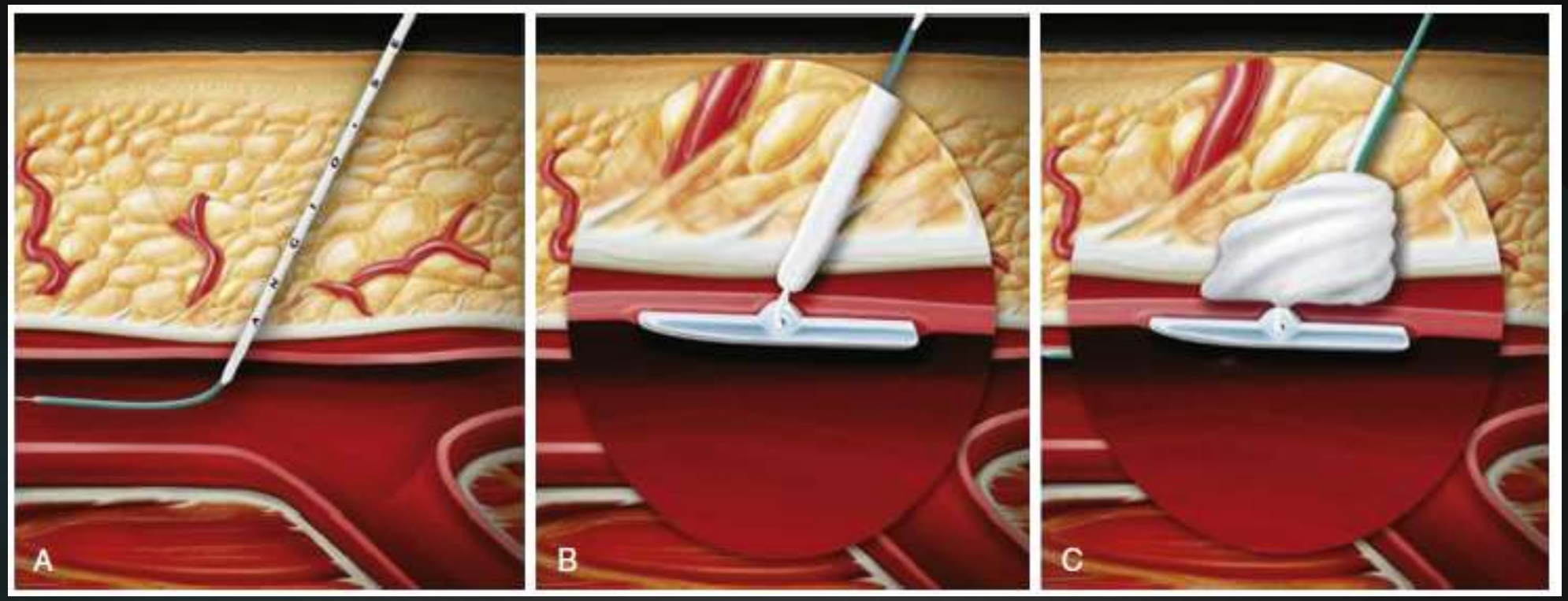
Perkutaner Zugang (PEVAR)

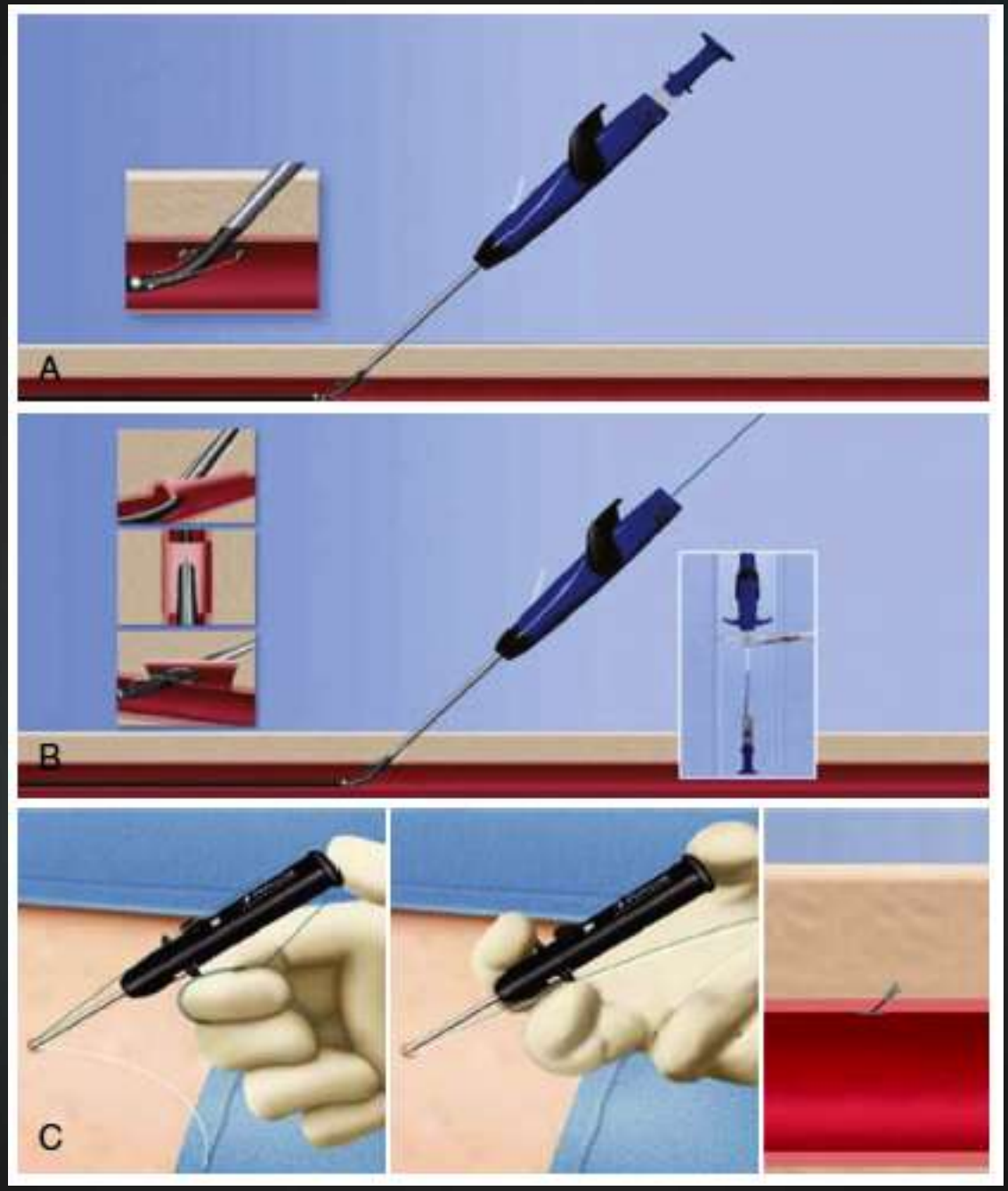






radiologischer Orientierungspunkt	Lokalisierung in Bezug auf die Femoralarterienbifurkation oberhalb	unterhalb
Leistenband	100%	0%
Femurkopfmitte	99%	1%
unterhalb des Femurkopfs	80%	20%
Leistenbeuge	22%	78%


A
B
C


A
B
C

Mini-open und perkutaner Zugang zu EVAR

Mini-open und perkutaner Zugang zu EVAR

- Uhlmann et al. Successful percutaneous access for endovascular aneurysm repair is significantly cheaper than femoral cutdown in a prospective randomized trial
  - JVS 2018
  - Patientenpräferenz
  - Auch Kosteneffektivität in prospektiver, randomisierter, kontrollierter Studie bewiesen

Isoliertes Iliacaaneurysma – endovaskuläre Therapie

Isoliertes Iliacaaneurysma – endovaskuläre Therapie

Fast-Track Protocol EVAR

- Krajcer et al. Fast-track endovascular aortic repair: Interim report from the prospective LIFE registry
  - Catheter Cardiovasc Interv 2016
    - Bilateral perkutaner Zugang,
    - Lokalanästhesie,
    - kein Intensivaufenthalt,
    - Entlassung am nächsten Tag
  - Kosteneffektivität, Sicherheit
  - Ein Patient in fast-track Gruppe verstarb (respiratory failure)
  - Korrekte Patientenauswahl wichtig

Fast-Track Protocol EVAR - Conclusio

- Krajcer et al. Perioperative outcomes from the prospective multicenter least invasive fast-track EVAR (LIFE) registry
  - JEVT 2018
    - Signifikant kürzere OP Dauer,
    - Weniger Blutverlust
    - Kürzerer Krankenhausaufenthalt
    - Sicher
    - Readmission: 1.6%
    - Patientenselektion ist essentiell

Danke für die Aufmerksamkeit