Thoracoabdominal complications

Branch separation in long term follow up, how do I fix it?

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Disclosures

- Co-PI / research coordinator for thoracic and abdominal aortic stent graft trials (Cook®, Cardinal health, Trivascular™, Medtronic, Gore®)

- Participated as a lecturer at symposia hosted by Cook®, Cardinal health, Gore®.

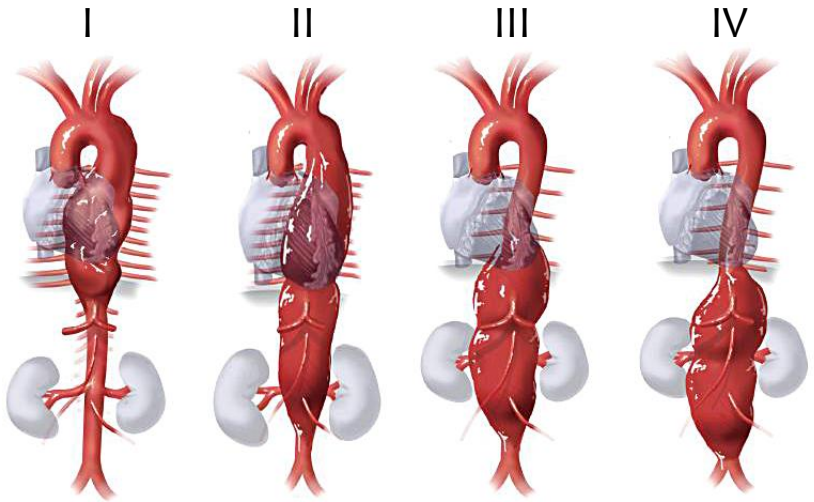
- Consultant for Cook®, Jotec Gmb, Cardinal health

TAAA B/FEVAR San Raffaele Experience

174 cases (Jan. 2013 – December 2021)

Age (years)	73 (IQR 68 – 78)
Male	72%
Hypertension	92%
Smoking	74%
Hyperlipemia	64%
Diabetes	12%
CAD ≥ 1 (SVS/AAVS)	**56%**
COPD ≥ 1 (SVS/AAVS)	**75%**
Renal ≥ 1 (SVS/AAVS)	**47%**
Renal stage ≥ II	**86%**
II (GFR 60-89 mL/min)	39%
III (GFR 30-59 mL/min)	43%
IV (GFR 15-29 mL/min)	5%
V (GFR < 15 mL/min)	4%

Crawford Classification

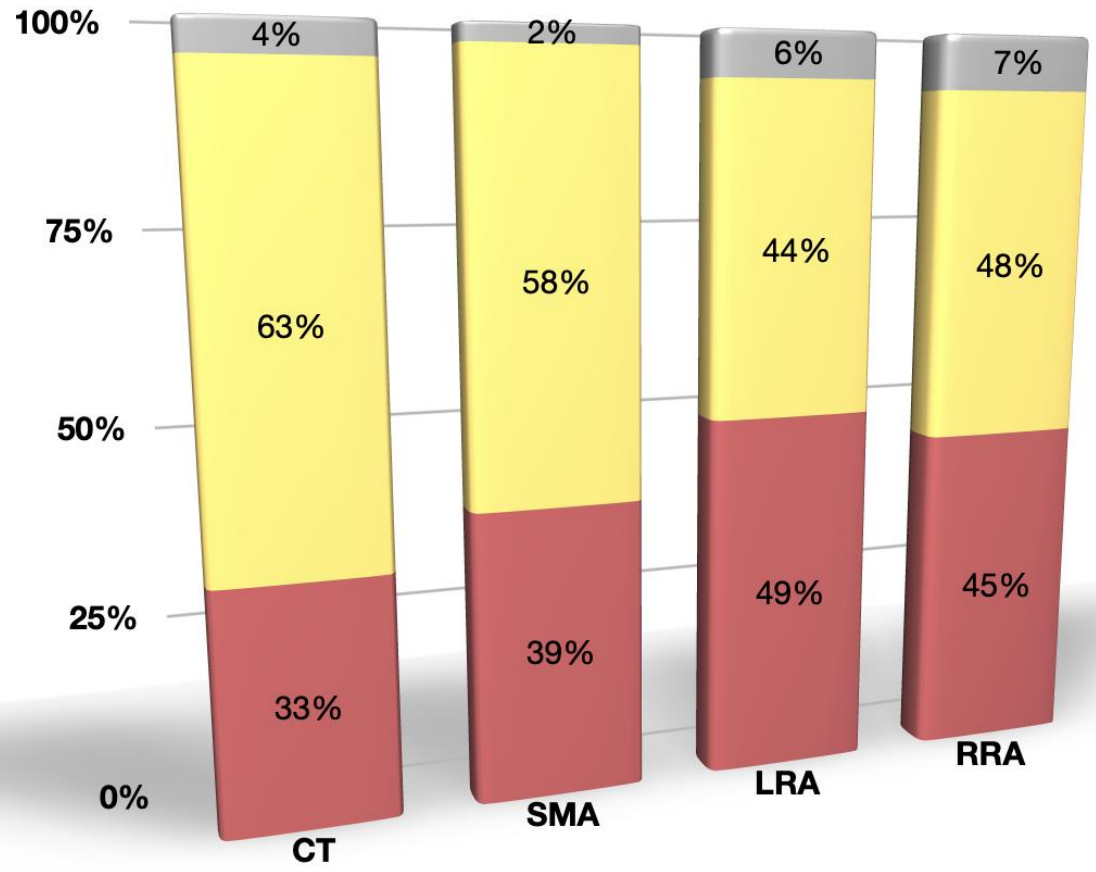


I	II	III	IV	VAP/Pararenal
18 (10%)	58 (33%)	62 (36%)	23 (13%)	13 (8%)

Mean diameter: 62 (IQR 56-70)
Post-dissecting= 36 (21%)
Urgent / emergent= 13 (8%)

Visceral vessels design

Branch: 53% - Fenestration: 42% - Occluded: 5%



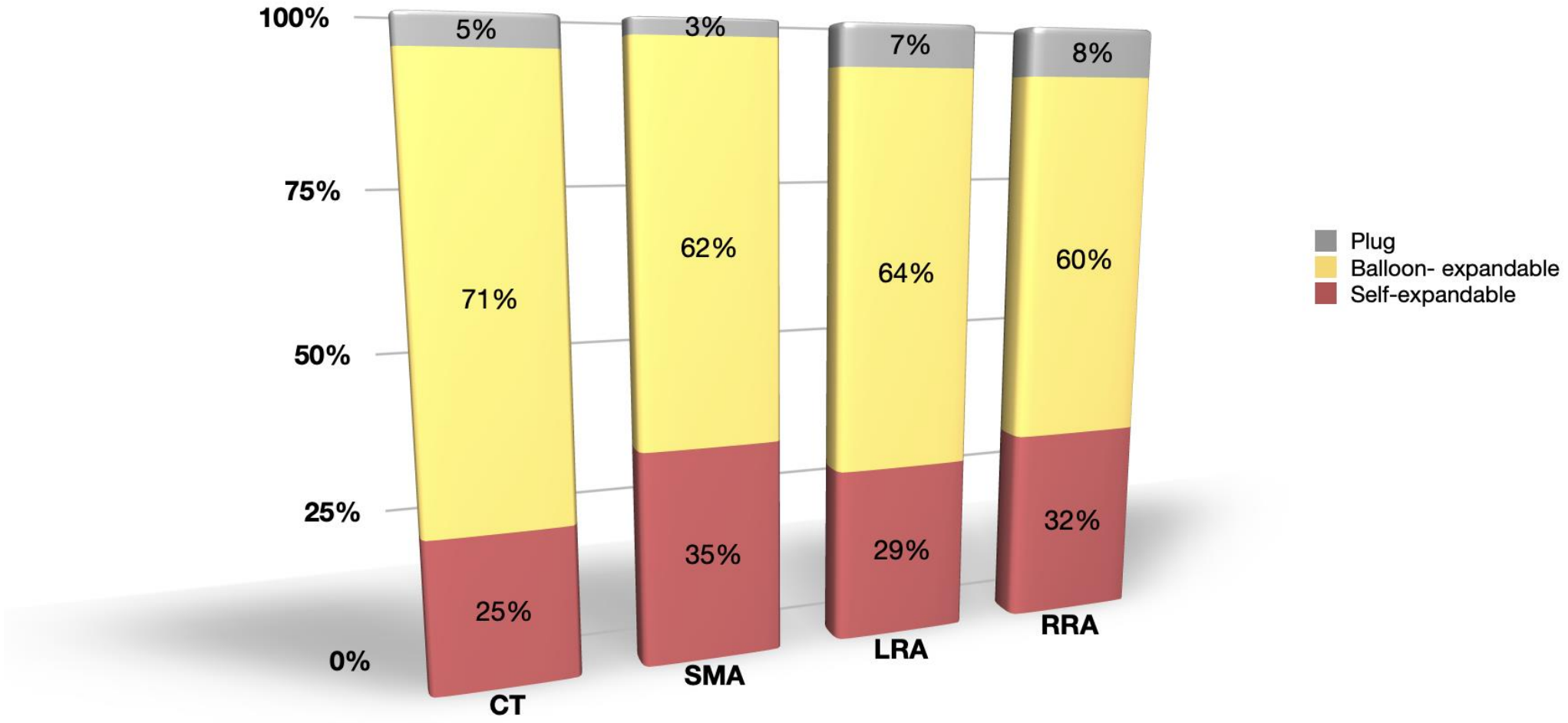
Occluded

Branch

Fenestration

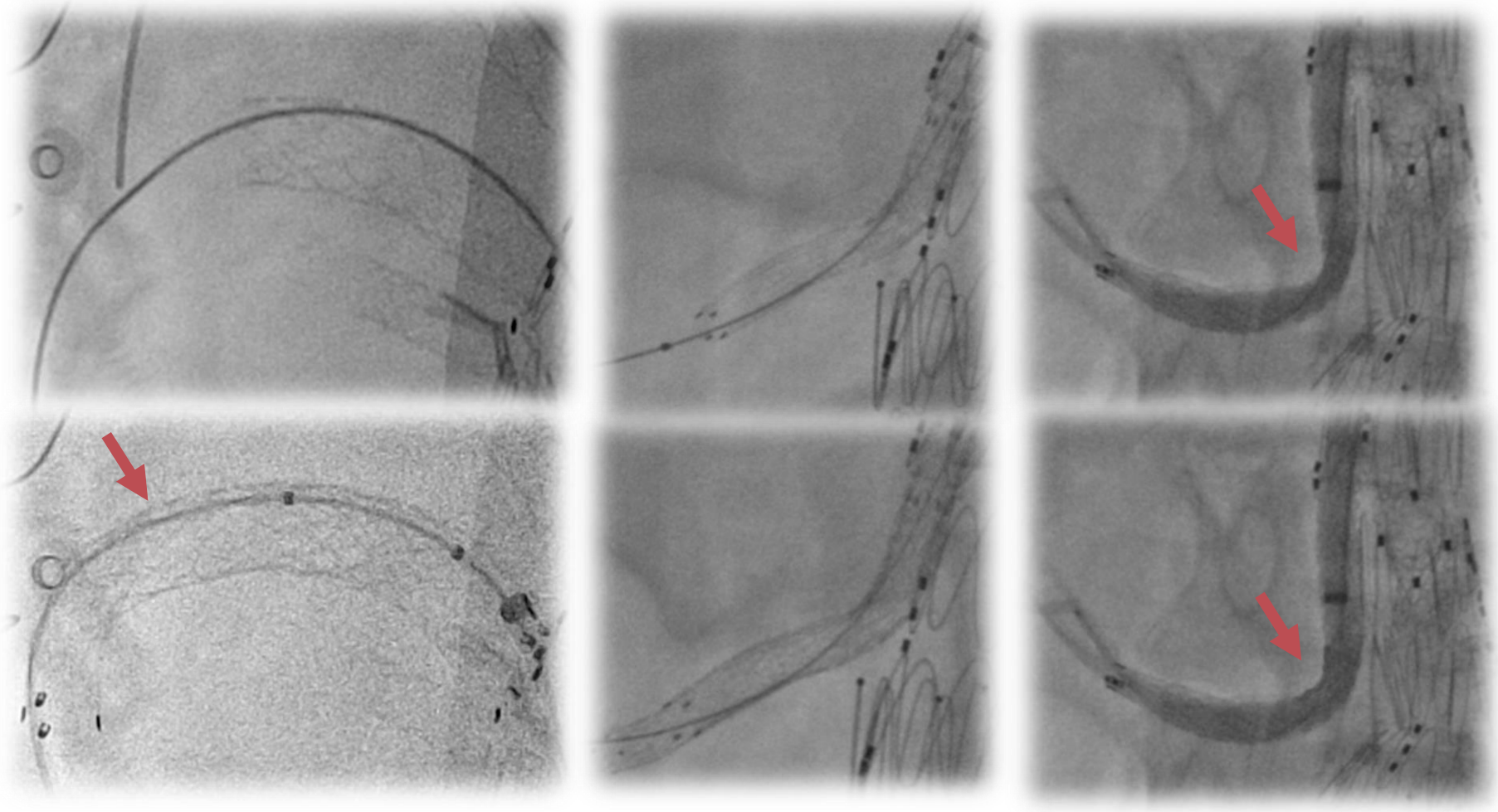
Covered stent employed

Self-expandable: 30% – Balloon-expandable: 64% - Plug: 6%



Bare reinforcement

n=164 (27%)



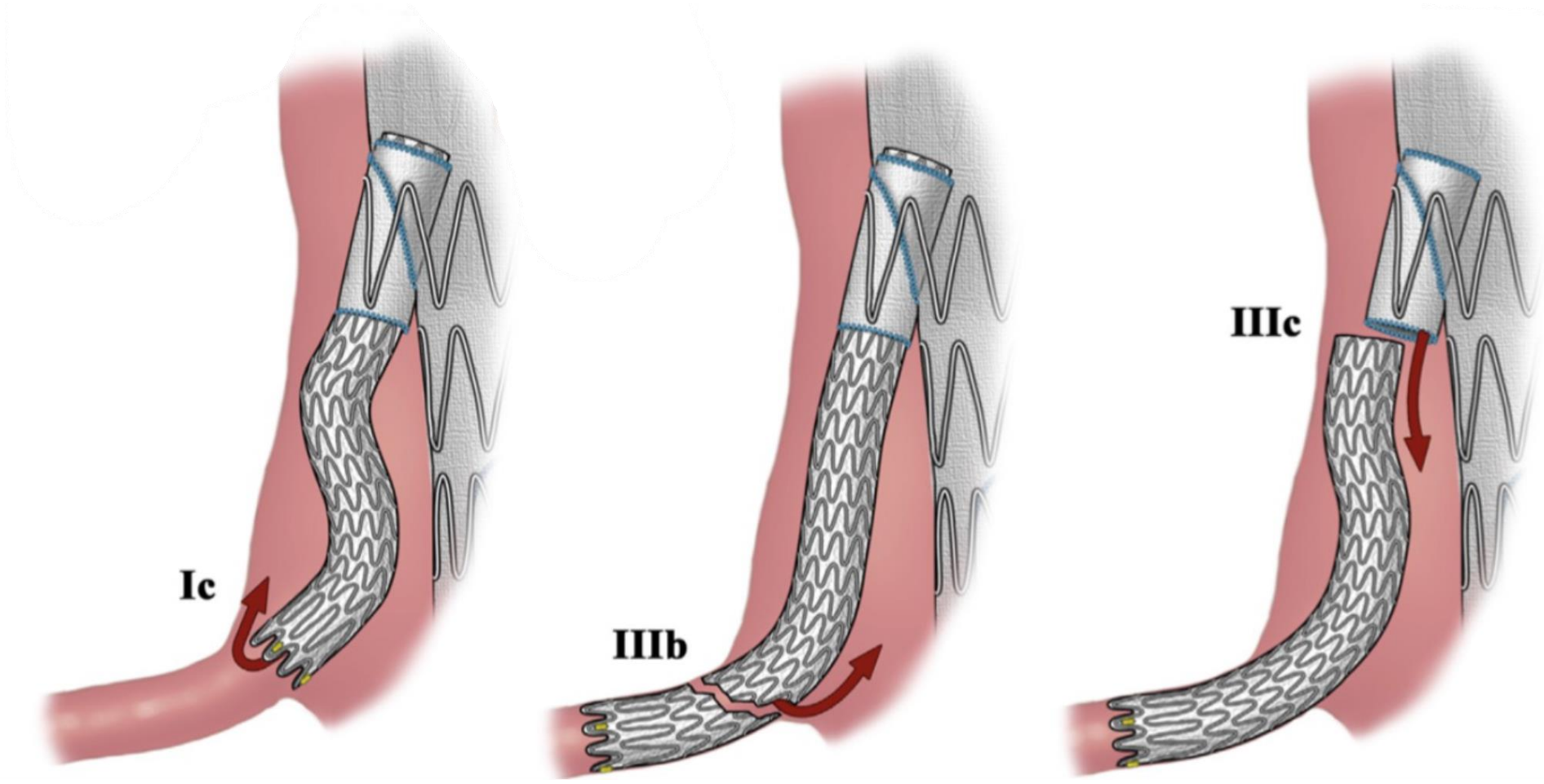
Distal shaping

Relining

Ostium transition

Long-term branch separation: OSR experience

4 / 346 branched vessels: 1.2%



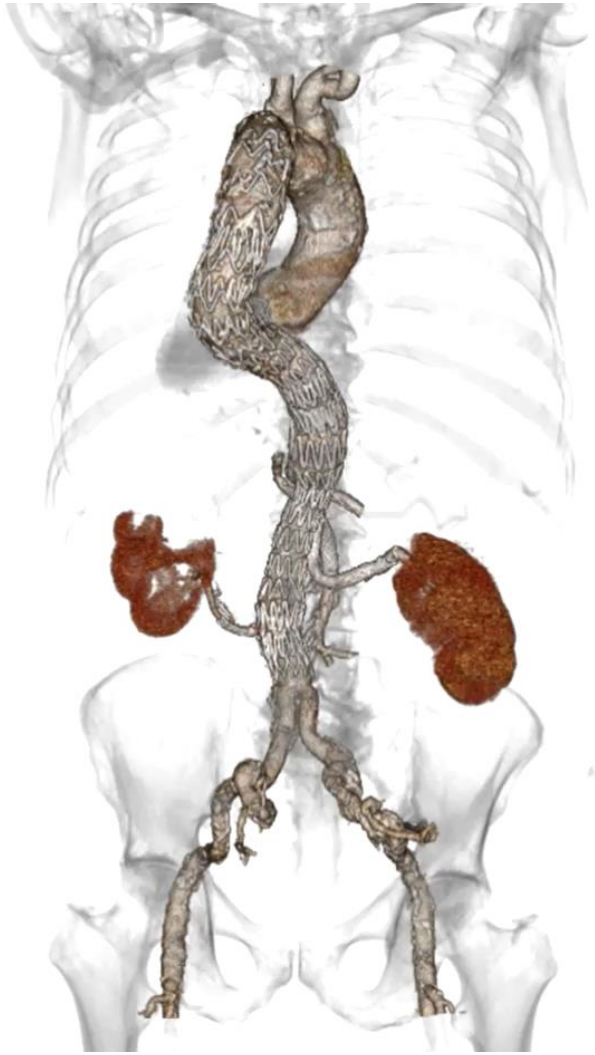
No case at long-term

3 cases
(Bentley standard with CT branch)

1 case

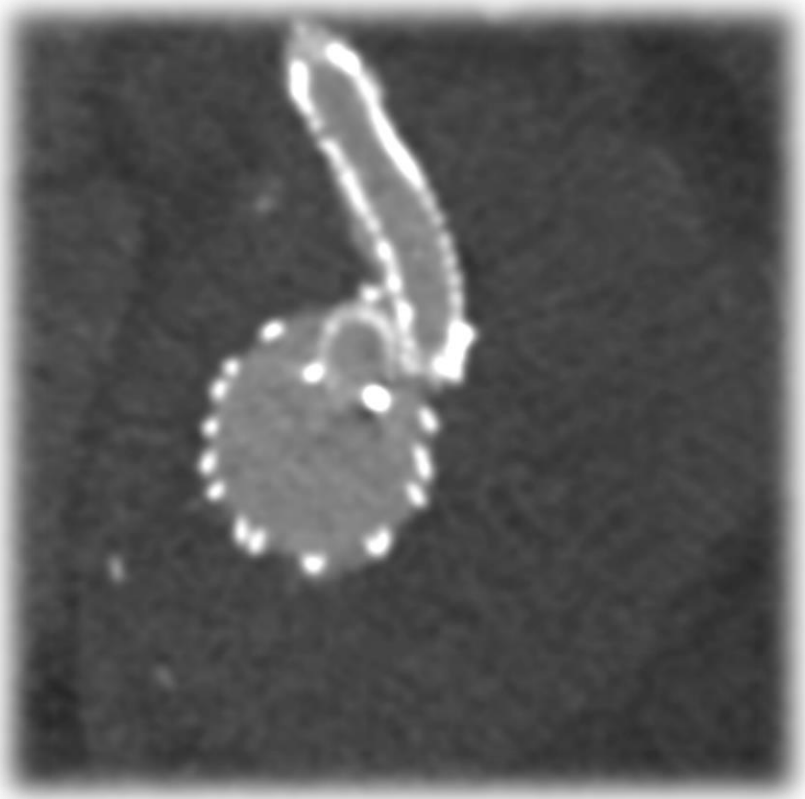
Type IIIB endoleak (OSR case #1)

81-year-old man with successful visceral aortic patch aneurysm exclusion



Type IIIB endoleak

BE graft Bentley stent for the CT



Pre discharge CT scan

16 months follow-up

Type IIIB endoleak

BE graft Bentley standard stent for the CT

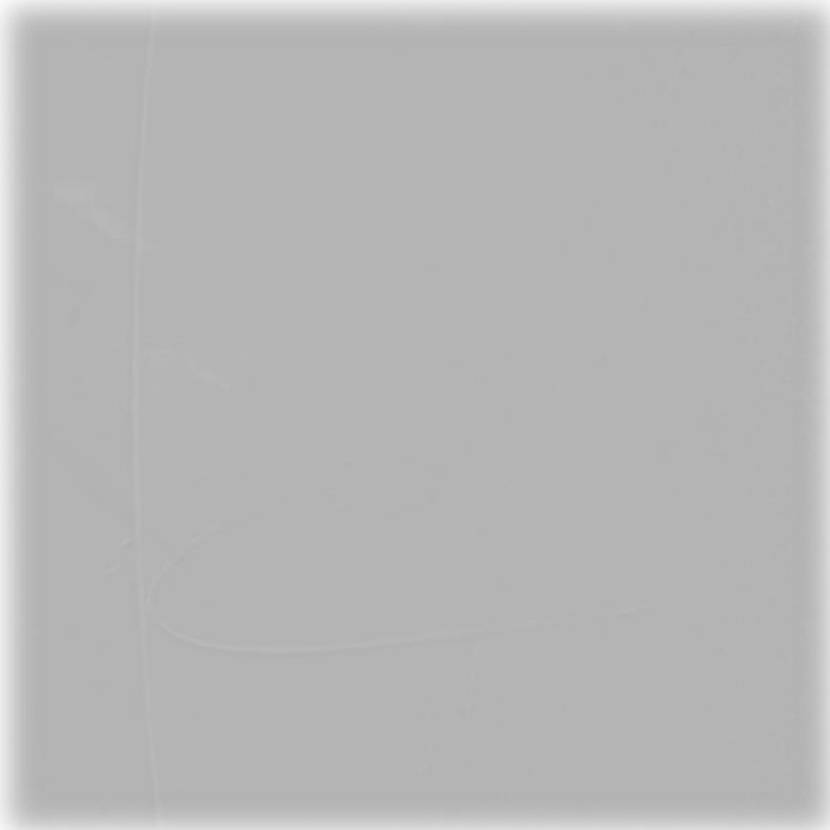
From distal -> No type IC

Balloon inflated -> No type IA

Type IIIB endoleak

BE graft Bentley standard stent for the CT

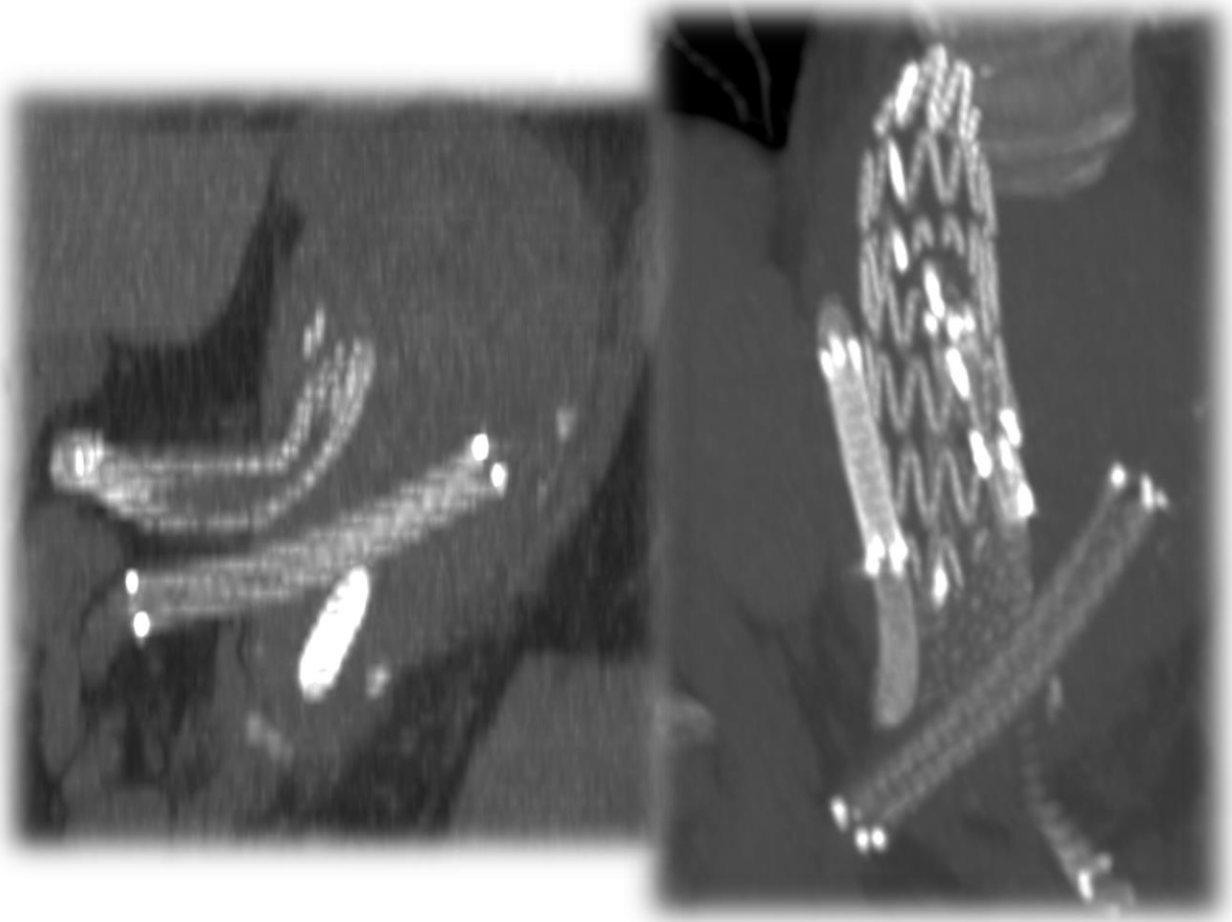
Type IIID – stent graft tear?



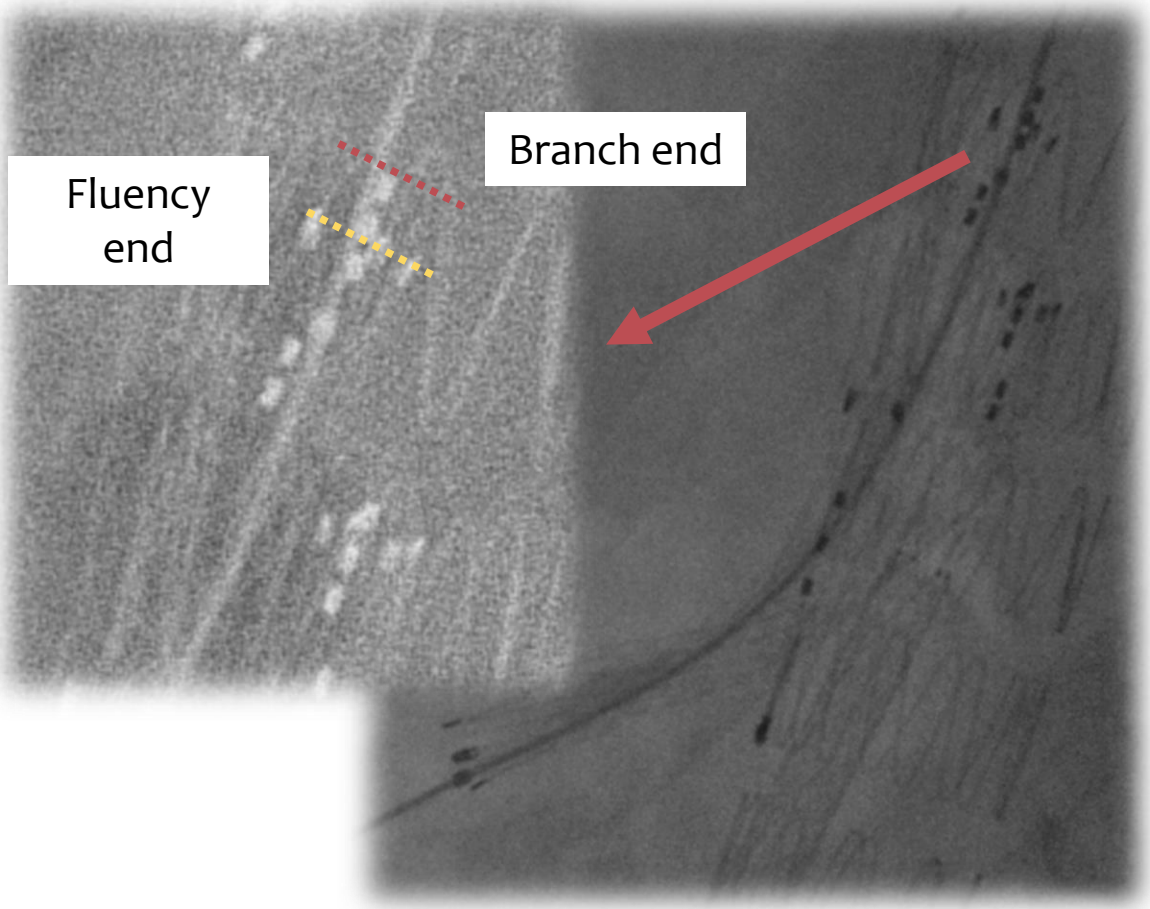
Stent-in-stent -> leak solution

Type IIIC endoleak (OSR case #2)

Short overlap -> disconnection



After 3 years

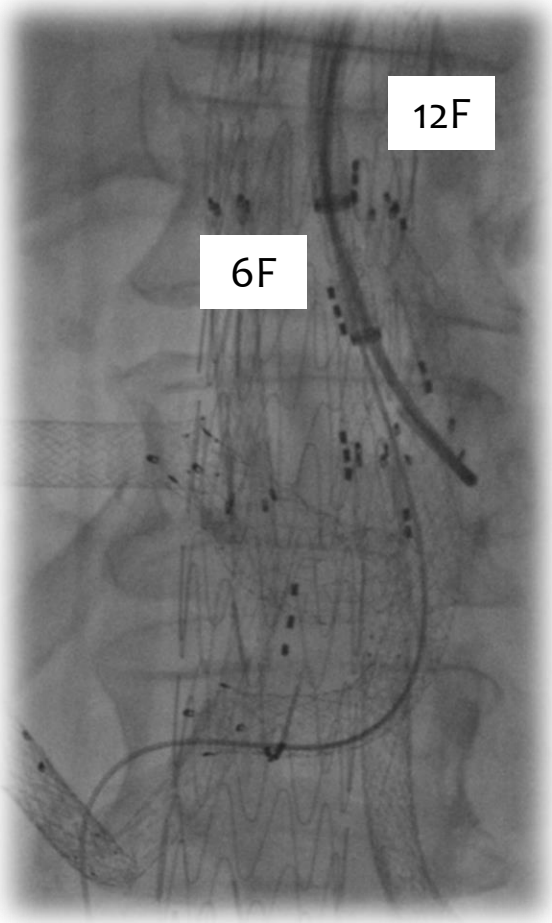


Too short overlap !!

Type IIIC endoleak

Branch relining

a. Stent hooking with UF cath



b. stent catheterization

c. stiff-wire exchange

d. Balloon expandable CS

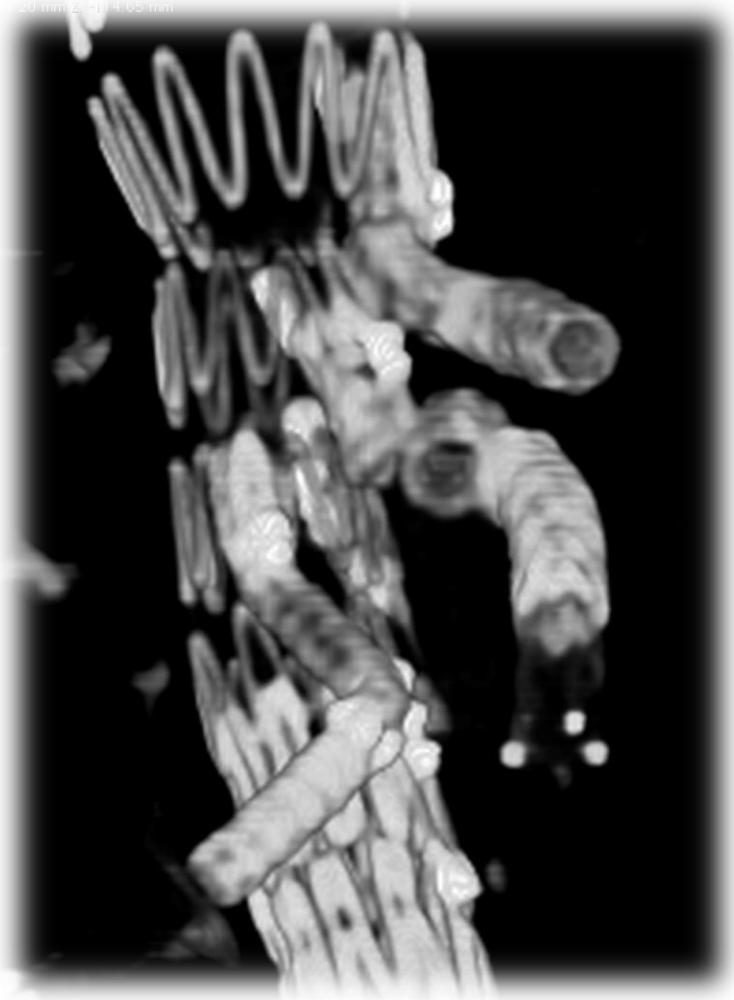
Type IIIC endoleak

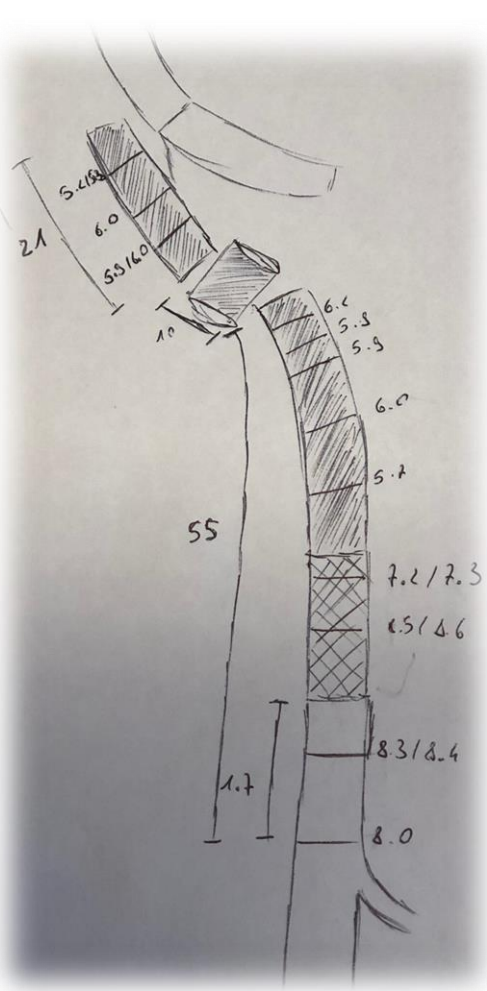
Follow-up: 2 years

Re-shrinkage of the FL

Type IIIB endoleak (non-OSR case #3)

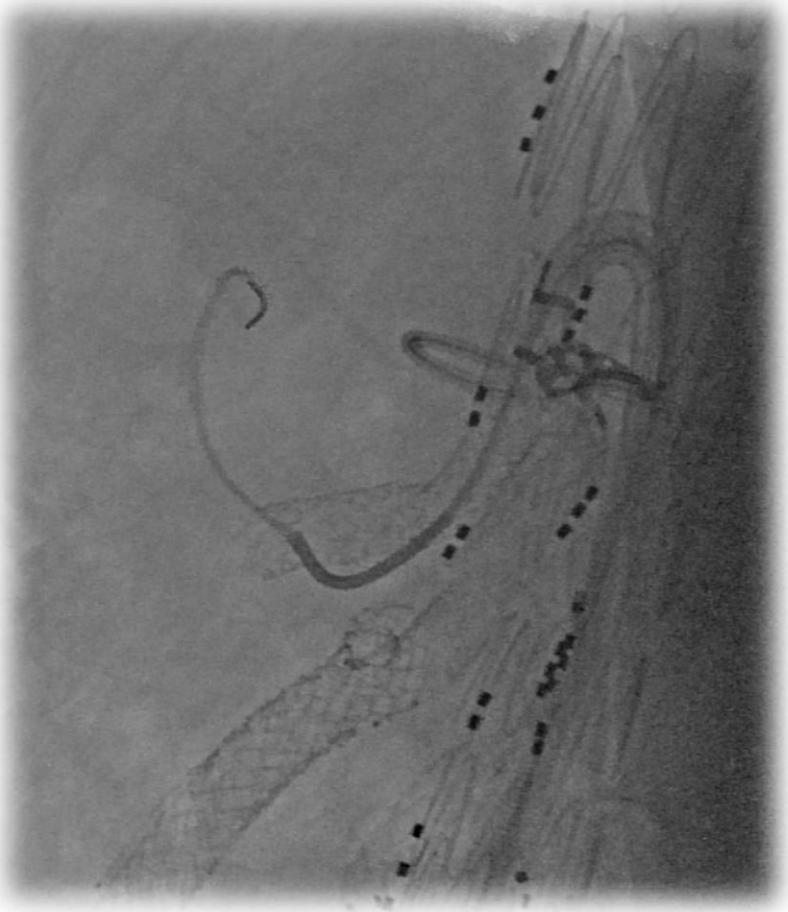
BE graft Bentley standard stent for the CT

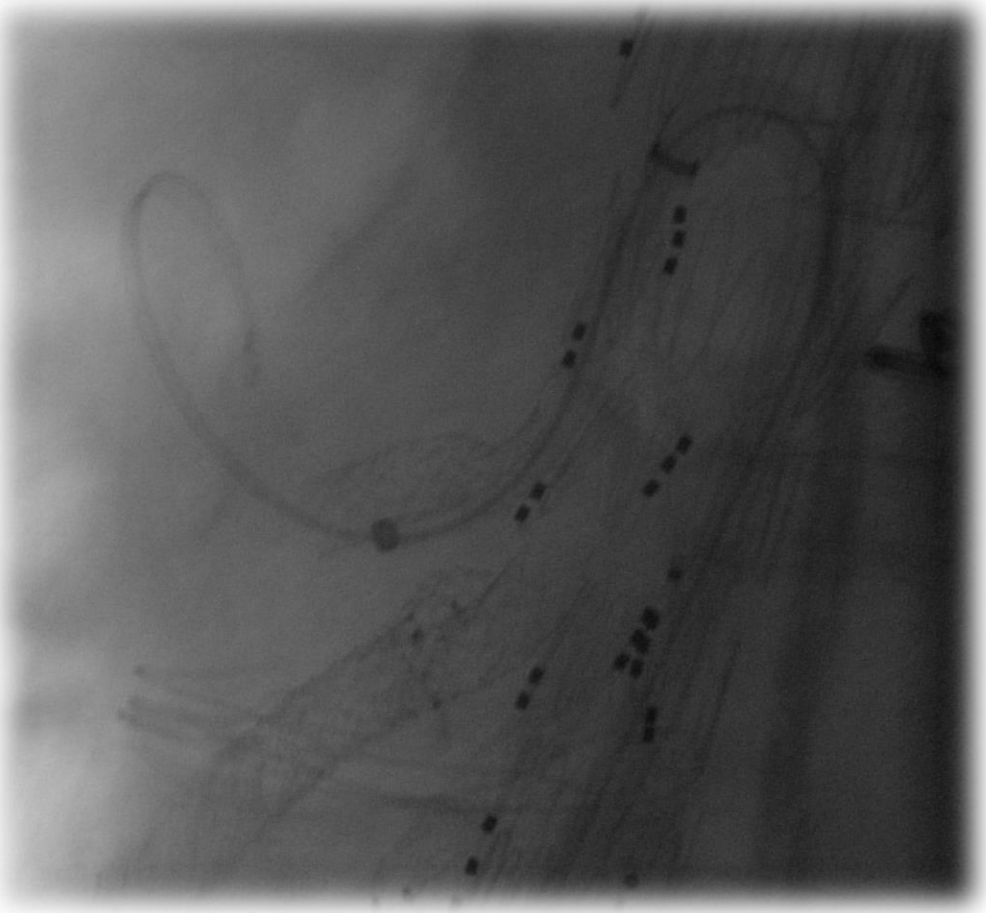




Type IIIB endoleak

Steerable sheath 16 Aptus transfemoral

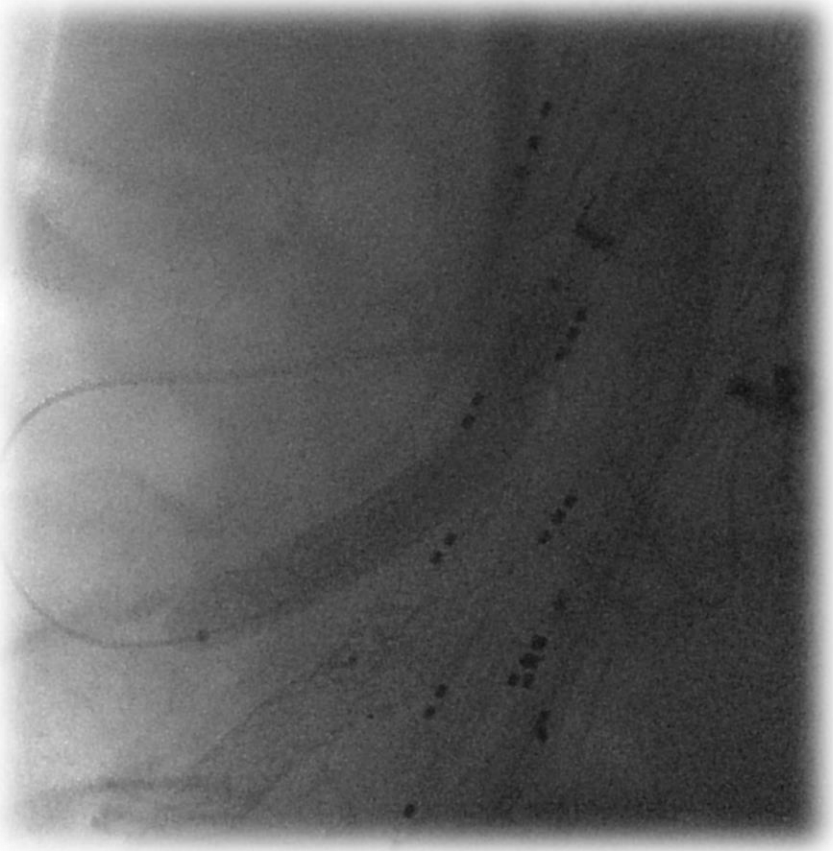




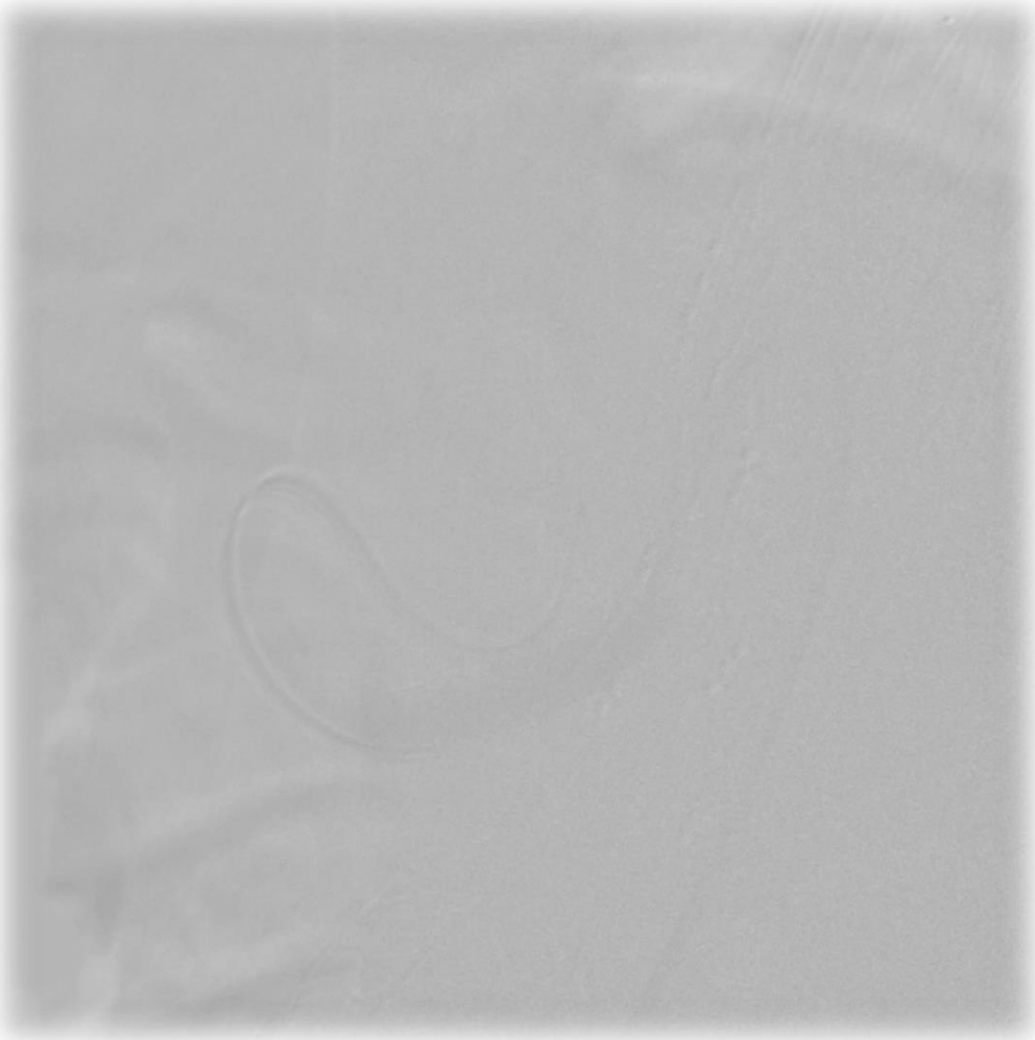
In or Out???????

Type IIIB endoleak

BE graft Bentley standard stent for the CT



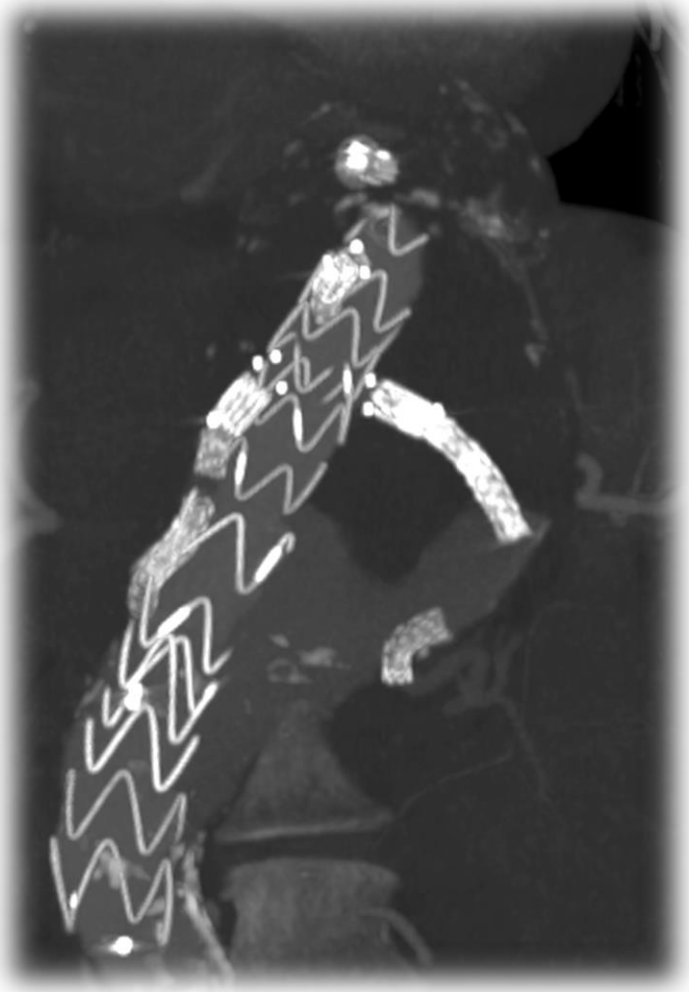
Balloon expandable stent relining



Type IIIB + IC + IB endoleak (non-OSR case #4)

Old Jotec Extra design

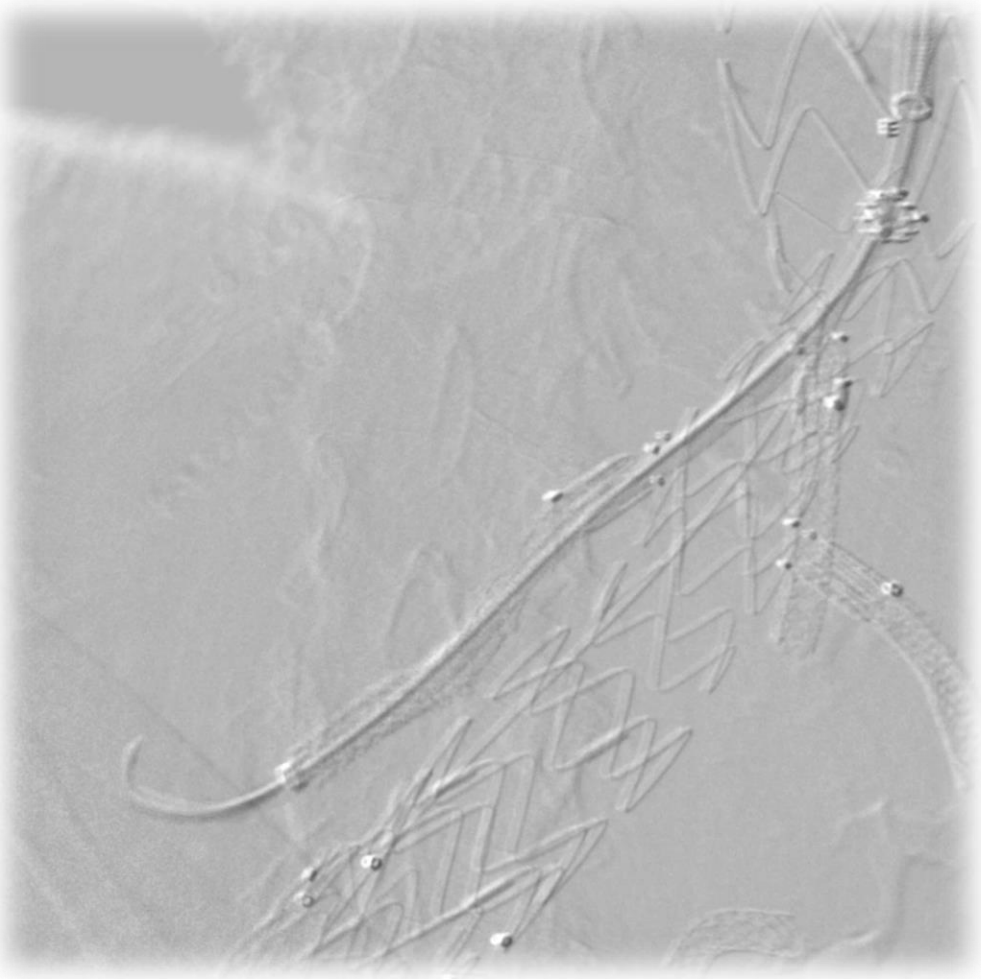
RRA IIIB endoleak



LRA IC endoleak

Aortic IB endoleak

RRA Type IIIB endoleak

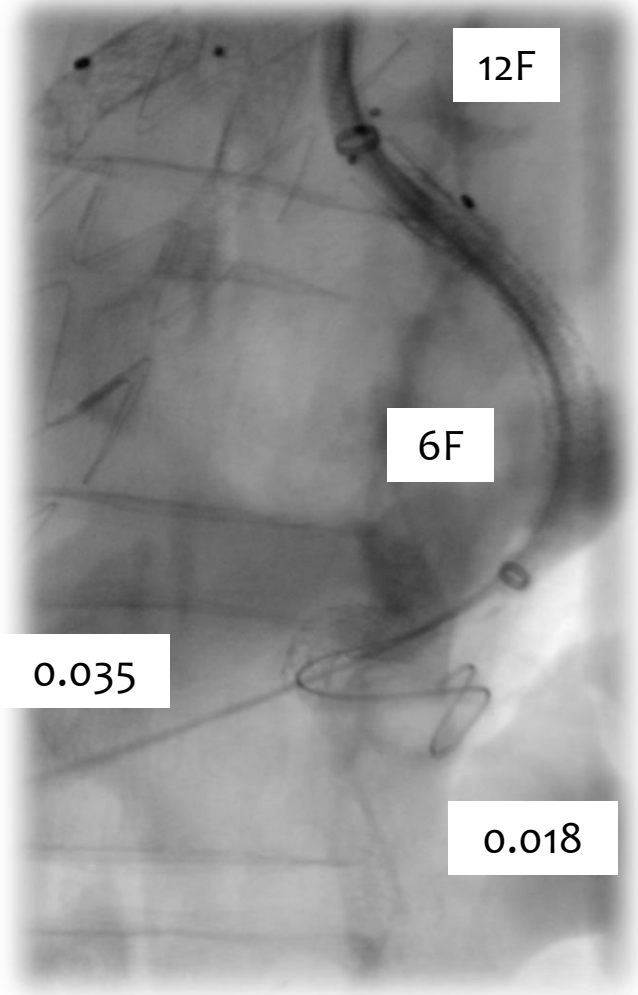


RRA IIIB endoleak

Balloon expandable CS relining

LRA Type IC endoleak

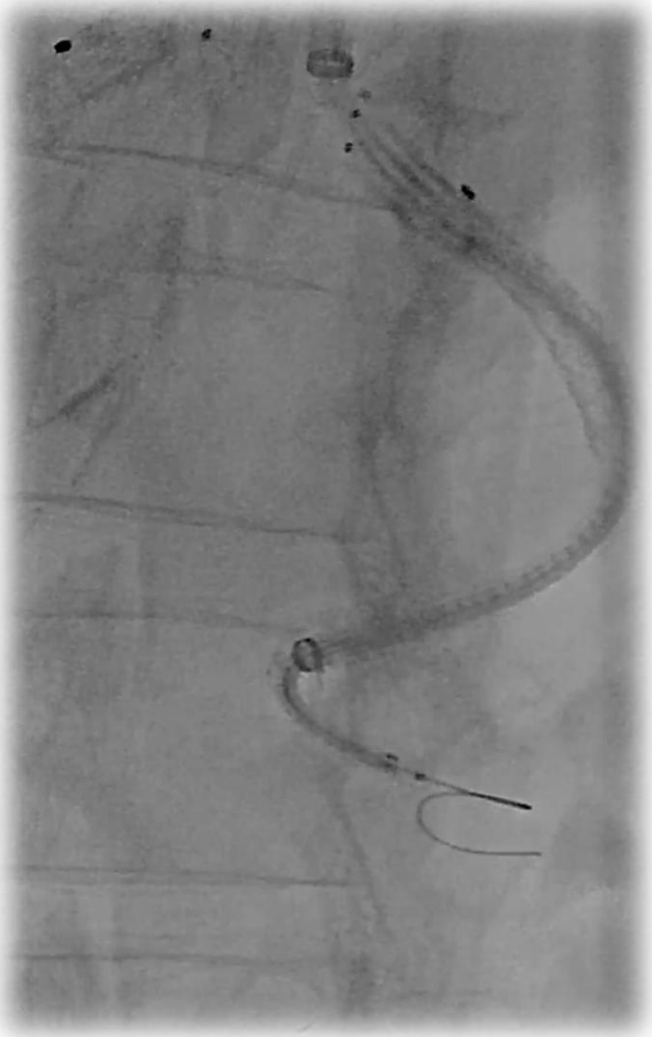
RRA IIIB endoleak



Telescopic approach

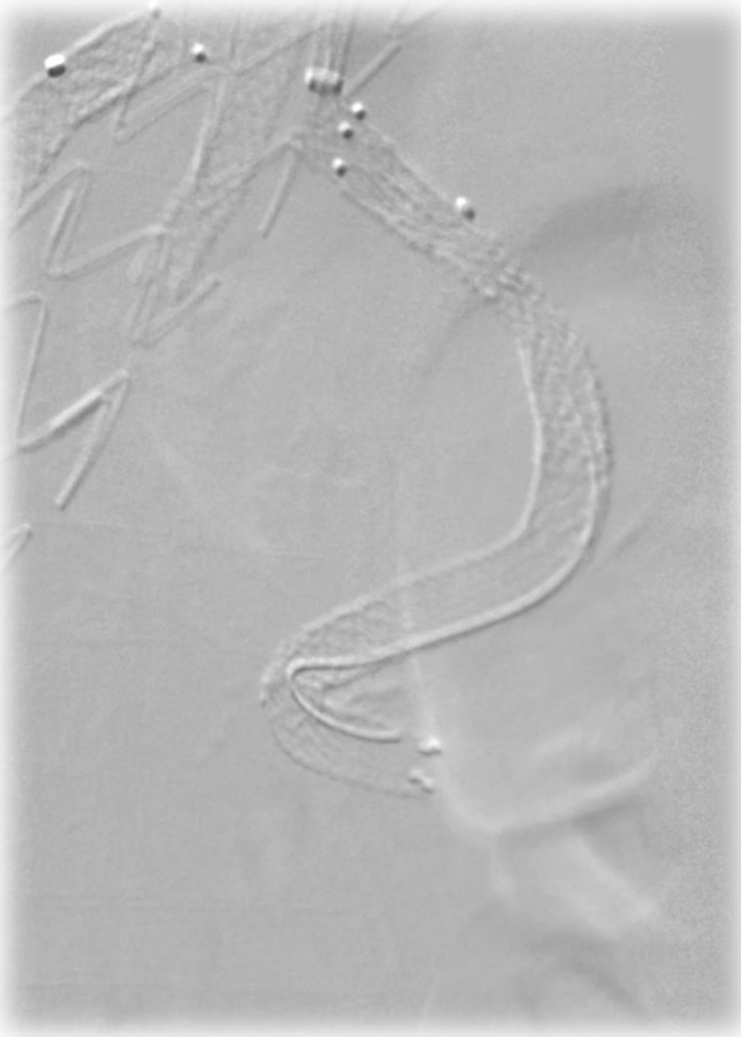
0.018 wire and 6F flexor

LRA Type IC endoleak



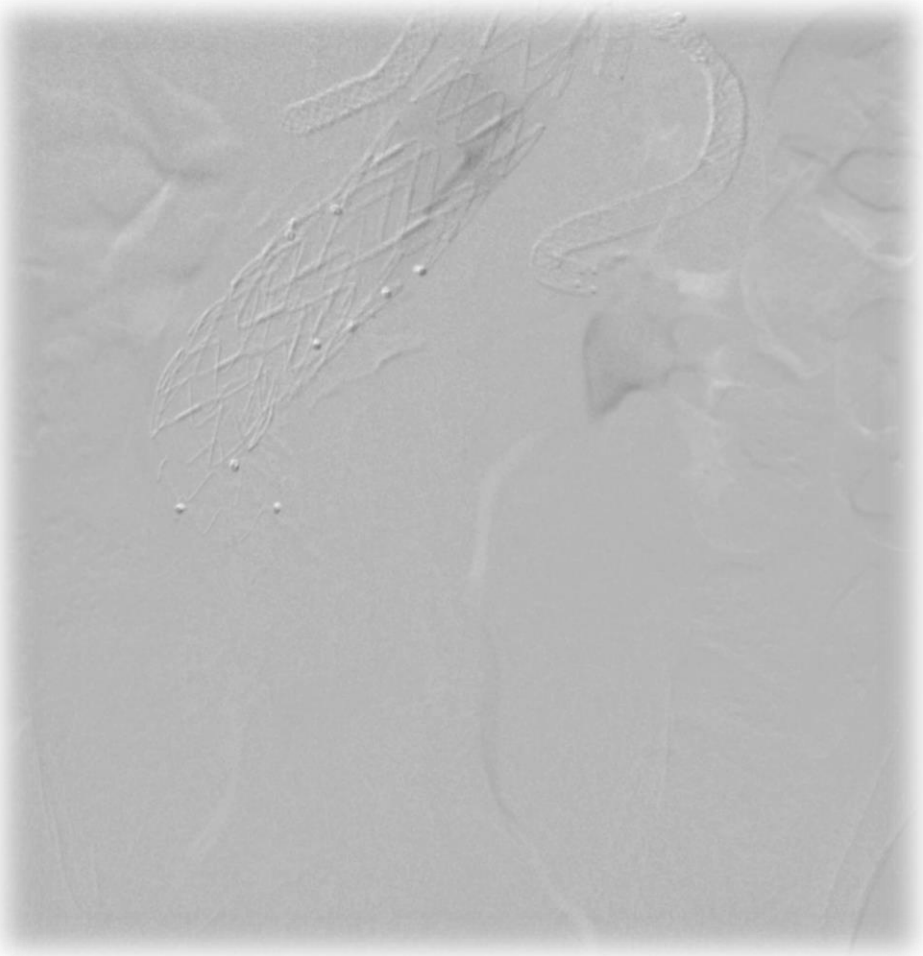
Viabahn 0.018 distal

VBX proximal



Final angio

Aortic IB endoleak



Distal IB endoleak

Bifurcated component - Completion angio

Possible other bailouts: retrograde target vessel catherization

Clinical Investigation

Retrograde Target Vessel Catheterization as a Salvage Procedure in Fenestrated/ Branched Endografting

Kyriakos Oikonomou, MD[1], Athanasios Katsargyris, MD[1], Clayton J. Brinster, MD[1], Hermann Renner, MD[1], Wolfgang Ritter, MD[2], and Eric L. G. Verhoeven, MD, PhD[1]

Journal of Endovascular Therapy 2015, Vol. 22(4) 603–609

DOI: 10.1177/1526602815592205
www.jevt.org

Abstract

Purpose: To present retrograde target vessel catheterization as a bailout technique in fenestrated and branched endografting (F/B-EVAR). **Methods:** Between Nov[illegible]ber 2003 and November 2014, 11 (1.6%) of 671 consecutive patients with juxtarenal, suprarenal, and thoracoabdominal [illegible]neurysms required retrograde target vessel access as a bailout measure during F/B-EVAR due to failure of an ante[illegible]. The [illegible] vessels involved the left renal artery (LRA) in 6 patients, the celiac artery (CA) in 3 patients, the [illegible]. [illegible] renal arteries in 1 patient. One case was unsuccessful because the fenestration was in the [illegible]. The target vessels were successfully cat[illegible]. **Results:** [illegible] died within 30 days. Major perioperative complica[illegible]. 2 with access-site wound dehiscence, and a case [illegible]. intensive care unit stay was 2.5 days (range 0–[illegible]). occurred. Reintervention was required in 1 patie[illegible]. Retrograde target vessel access in F/B-EVAR is [illegible]. technical success is high, but the procedure is as[illegible].

Keywords
juxtarenal aortic aneurysm, thoracoabdomin[illegible], catheterization, complications

Open

Oikonomou K et al. JEVT 2015

Case Report

Translumbar Puncture for Retrograde Catheterization of a Kinked Left Renal Stent After Fenestrated Endograft Repair

Adrien Hertault, MD[1], Rachel E. Clough, MD, PhD[1], Teresa Martin-Gonzalez, MD, PhD[1], Rafaelle Spear, MD, PhD[1], Richard Azzaoui, MD[1], Jonathan Sobocinski, MD, PhD[1], and Stéphan Haulon, MD, PhD[1]

Journal of Endovascular Therapy 2016, Vol. 23(6) 976–981

DOI: 10.1177/1526602816664769
www.jevt.org

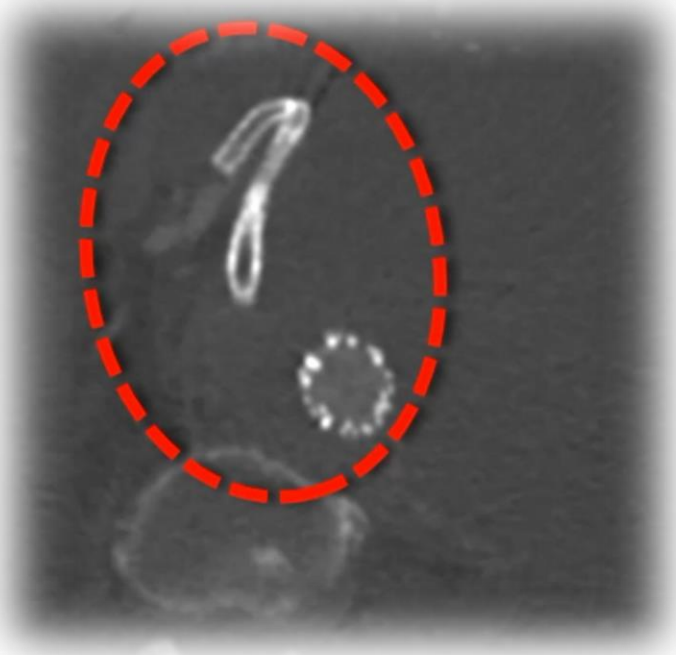
Abstract

Purpose: To describe a case of percutaneous retrograde left renal artery cannul[illegible] of a bridging stent diagnosed at the time of fenestrated endovascul[illegible]. An [illegible] old man underwent 4-vessel FEVAR, during wh[illegible] cone beam computed tomography (CBCT) deh[illegible]. [illegible] ach to recannular[illegible]. [illegible] ced CBCT was[illegible]. [illegible] are registered th[illegible]. [illegible] rade cannulation[illegible]. [illegible] renal artery sten[illegible]. [illegible] cedure. Contrast-[illegible]. [illegible]: Translumbar pu[illegible]. [illegible] FEVAR using advan[illegible]. [illegible] neurysm repair, fe[illegible]. [illegible] revascularization[illegible]. [illegible] ting for severe distortion. **Case Report:** A 79-year-[illegible] ostoperative result, but [illegible] rt of the left renal stent. [illegible] architecture and patient [illegible] rcutaneous translumbar [illegible] ge. Respiratory motion [illegible] -and-through wire with [illegible] ation of renal function [illegible] low in all target vessels [illegible] ely distorted left renal [illegible] ssel loss. [illegible] retrograde approach,

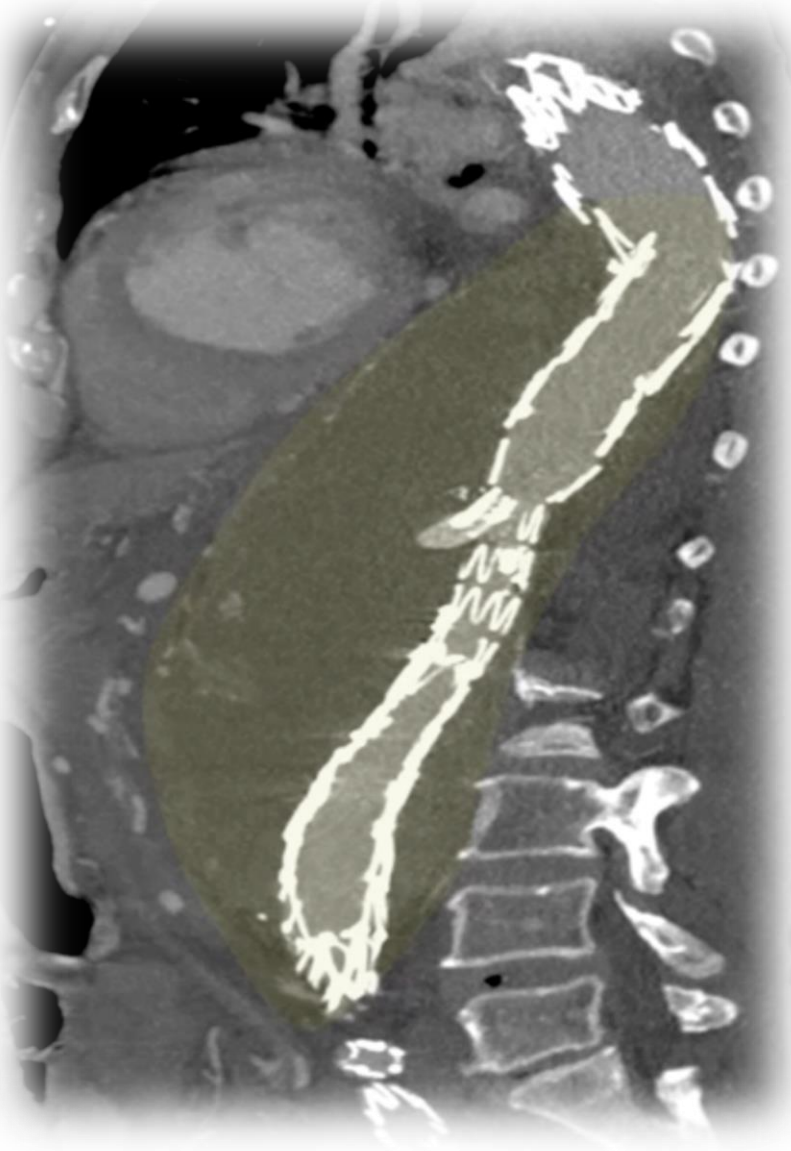
Translumbar

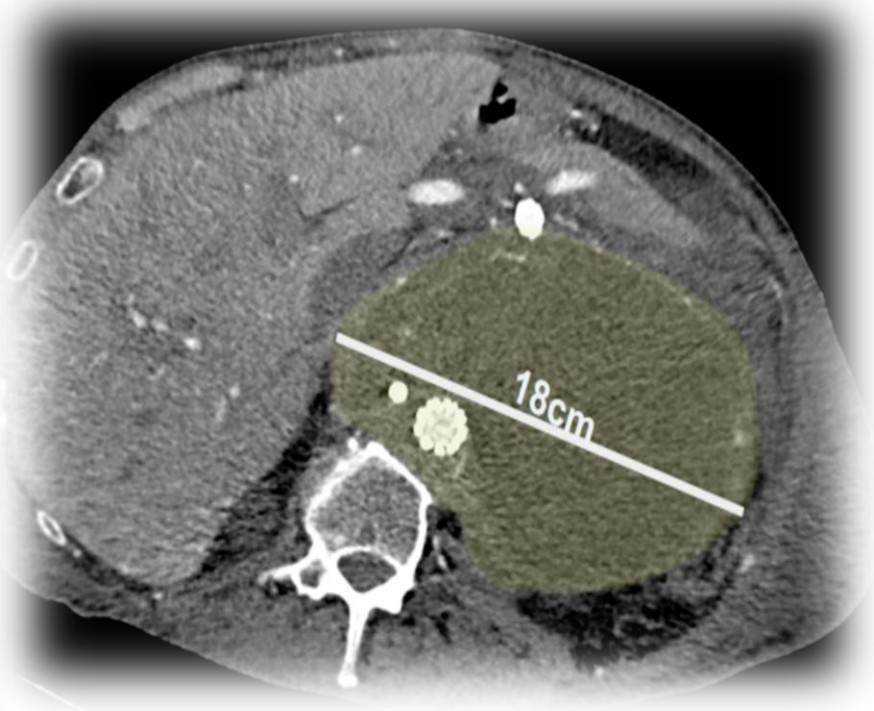
Herault A et al. JEVT 2016

Branch disconnection + aortic enlargement (non-OSR case #5)



Kinked and disconnected renal branch

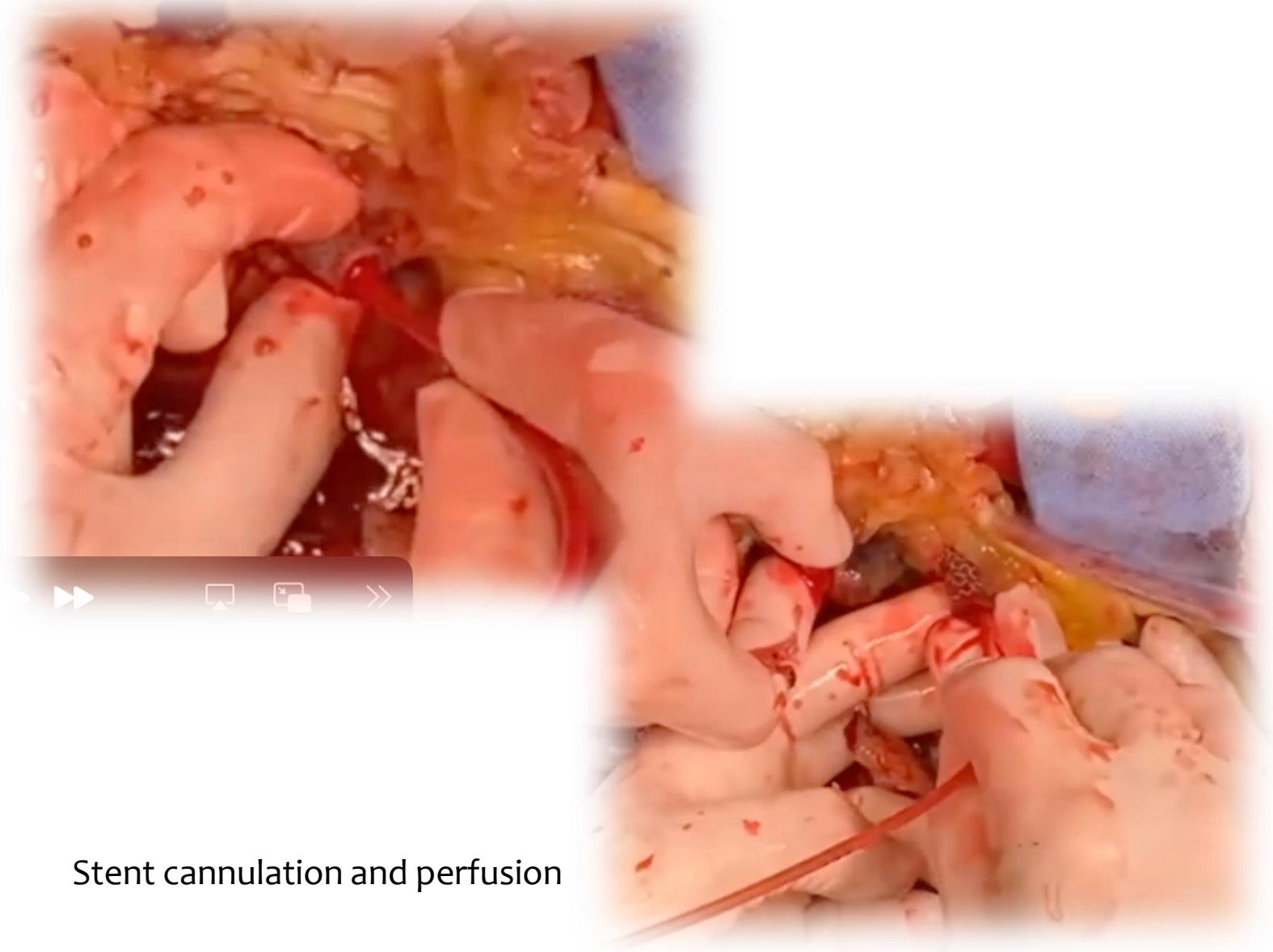




Multiple endo procedures

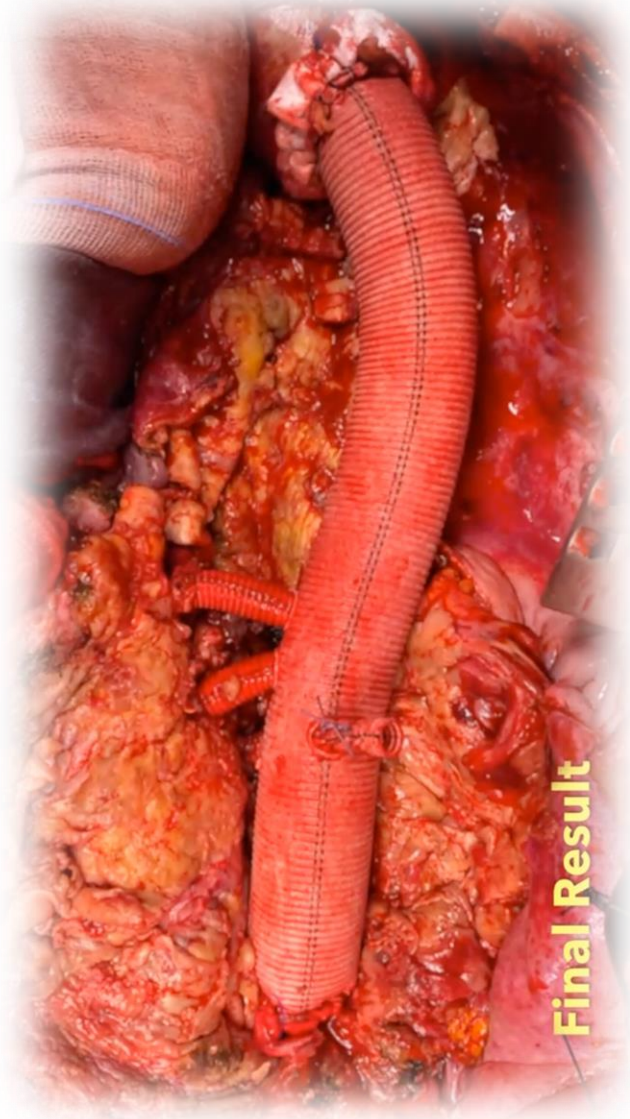
Open conversion

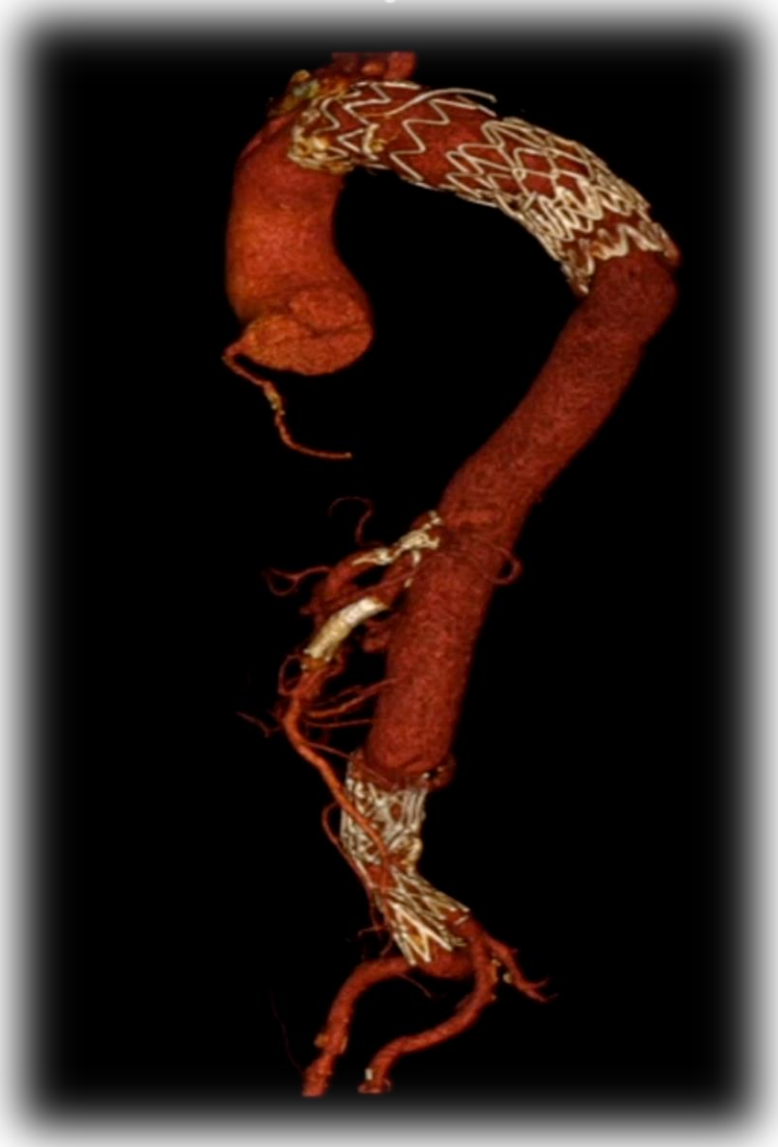
Graft removal



Stent cannulation and perfusion

Final results





Conclusion

Branch disconnection

- Incidence 1-2%

- Type IC (stent out of the target vessels) -> planning errors
- Type IIIB (stent fractures) -> easily fixable
- Type IIIC (stent disconnection from the branch) -> different complexities

- Associated to enlarged aortas with complex anatomies -> consider open conversion