



Using the sandwich technique for thoraco-abdominal aneurysm repair

Petroula Nana¹, Georgios Kouvelos¹, Aikaterini Bouzia², Eleni Arnaoutoglou², Athanasios Giannoukas¹, Miltiadis Matsagkas¹

1 Department of Vascular Surgery, Faculty of Medicine, School of Health Sciences, University of Thessaly, Larissa, Greece

2 Department of Anesthesiology, Faculty of Medicine, School of Health Sciences, University of Thessaly, Larissa, Greece

Background

- ✓ Endovascular approach of thoraco-abdominal aneurysms (TAAA) is challenging
- ✓ Sandwich technique is an off-the-shelf assessment in these cases



Aim

*To present a patient with a TAAA type II
treated in two stages*



Sandwich technique & standard TEVAR

Medical History

✓ 72 year-old, male

Medical history significant for

- Previous EVAR (Talent, Medtronic, 2000)
- Current smoker
- Hypertension
- Dyslipidaemia
- CAD (*Spect* 7% of reversible ischemic lesion at LV, EF 50%)
- COPD

May 9-11 2019

Larissa Imperial Hotel
Larissa, GREECE

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Stony Brook University Medical Center, New York, USA



International Symposium on Endovascular Therapeutics



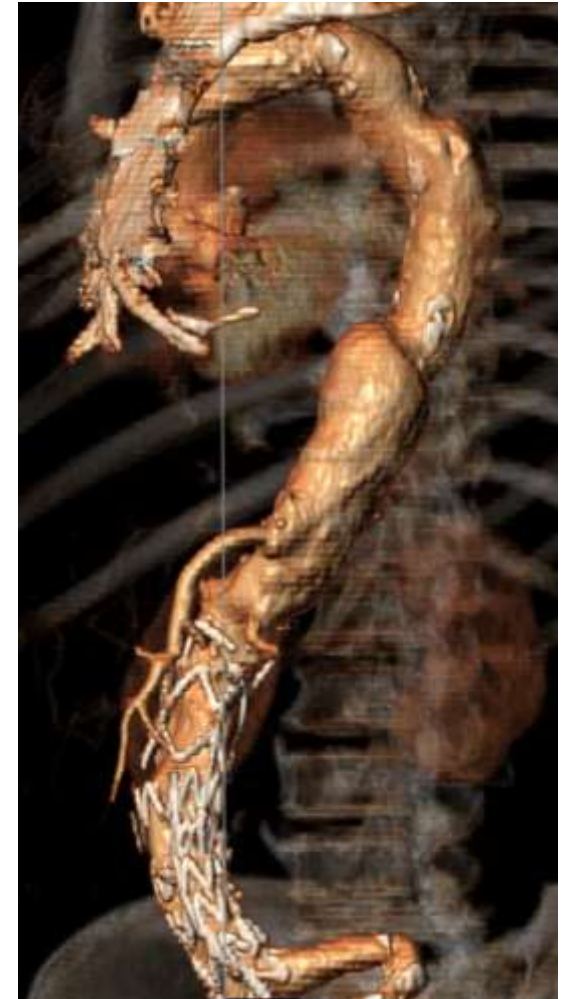
Intervention Master Aortic Course

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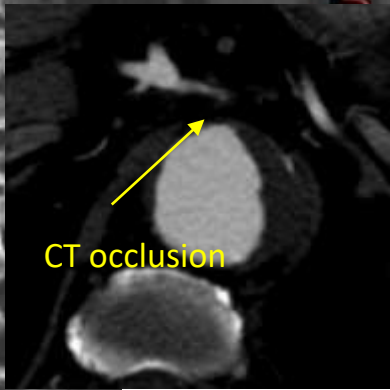
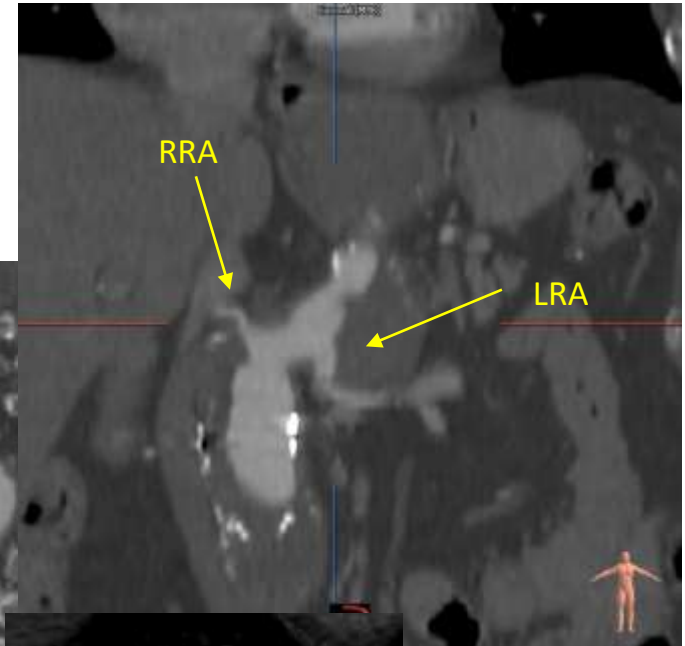
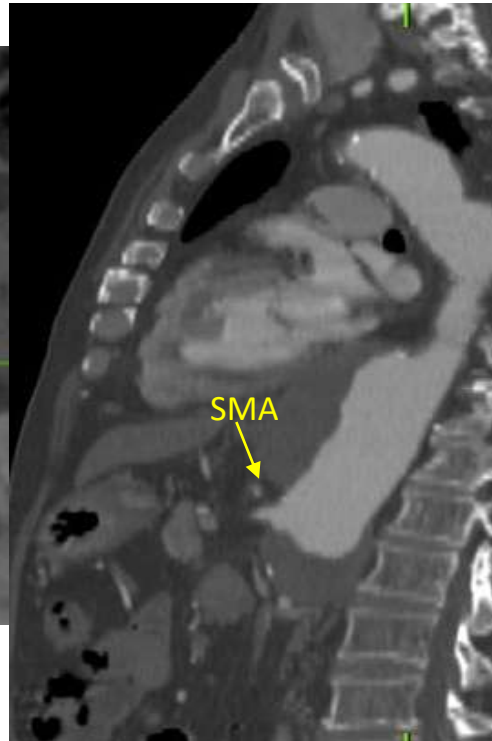
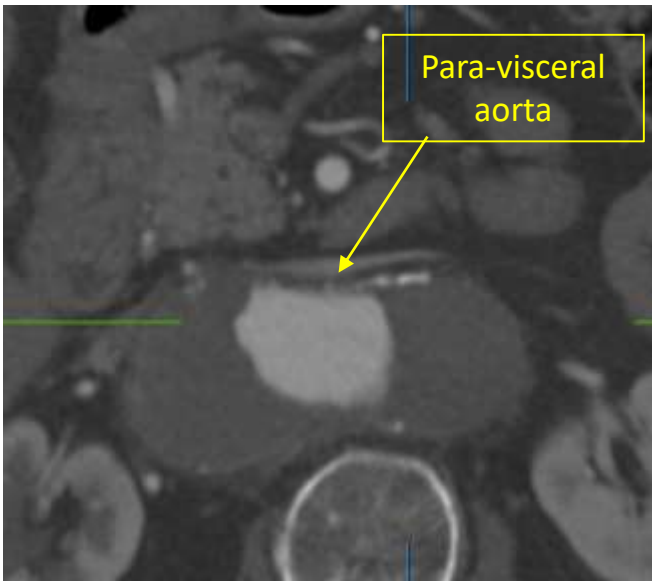
After a 7-year lost follow-up, CTA revealed

- Graft migration
- Development of a TAAA type II, d=75mm
- LCIA aneurysm





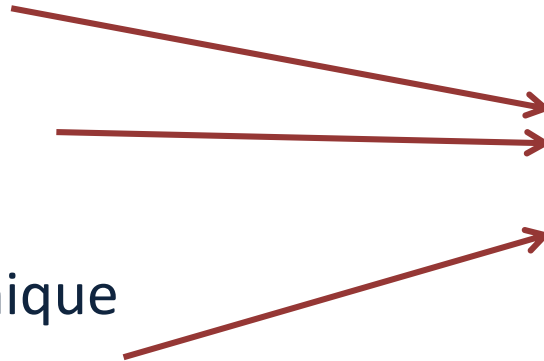
Pre-operative CTA





Treatment options

- ✓ FEVAR
- ✓ T-Branch
- ✓ Sandwich technique
- ✓ Open repair



**WHY
NOT**



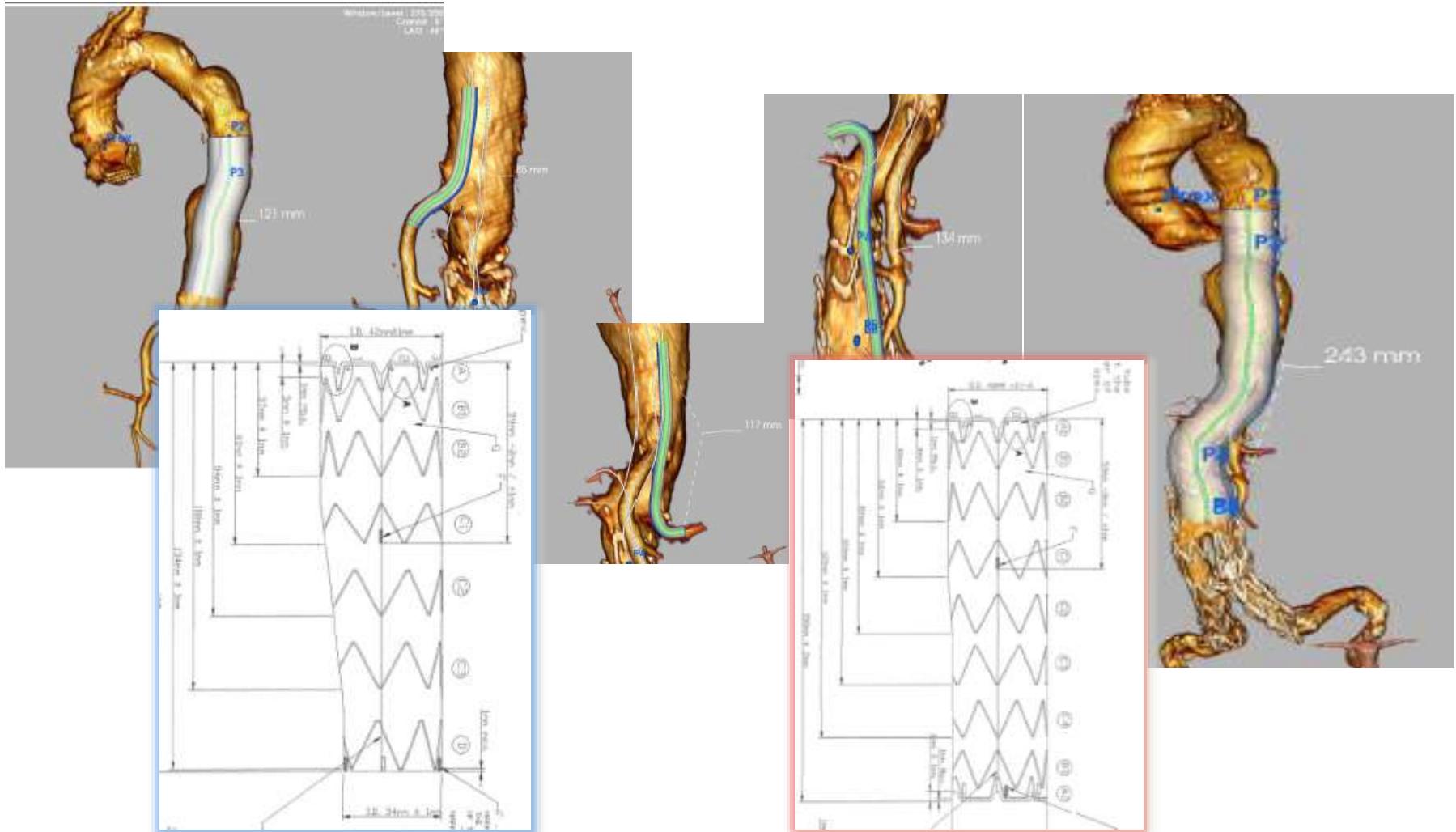
Sandwich technique

In a few words...

- Thoracic endograft in the distal descending aorta
 - Three target vessels (coeliac trunk occlusion)
 - ✓ 2 catheterized antegradely from the axillary arteries (LRA, SMA)
 - ✓ RRA via the left iliac artery (periscope)
 - Thoracic graft down to the bifurcation of the previous endograft



Pre-operative Planning





Access via

- ✓ Both axillary arteries
- ✓ Both femoral arteries

Access

Catheterization of SMA

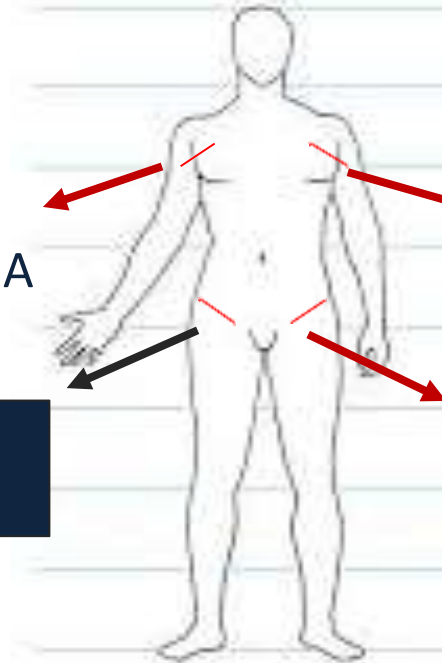
Main
graft

Catheterization of LRA

Catheterization of RRA

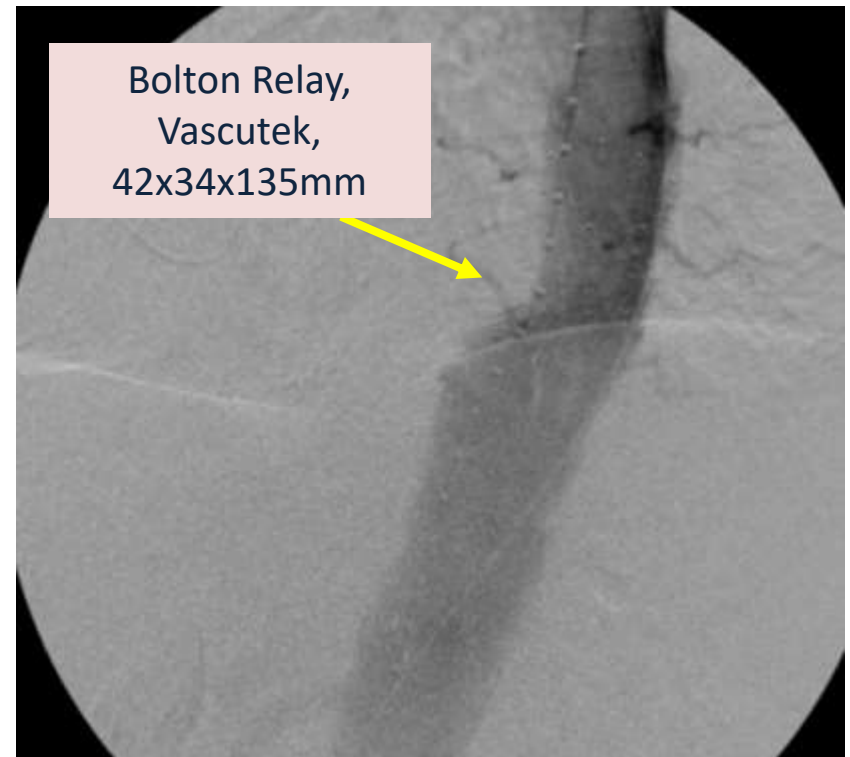
- Rosen wires
- ANL sheaths 8Fr

- General anesthesia
- 5000iu UFH, continuous re-evaluation with ACT measurements
- Cerebral oximetry



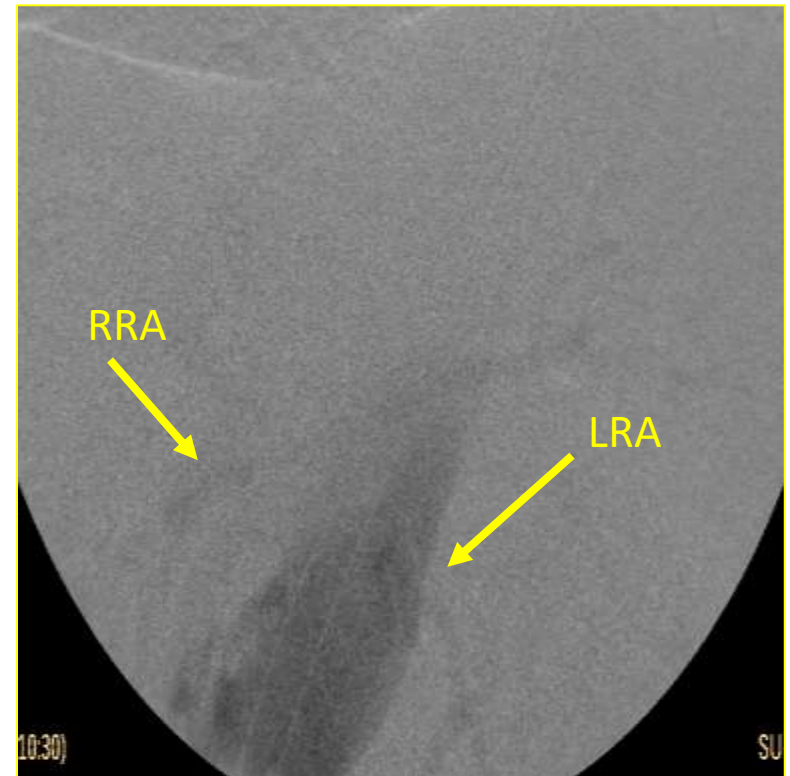
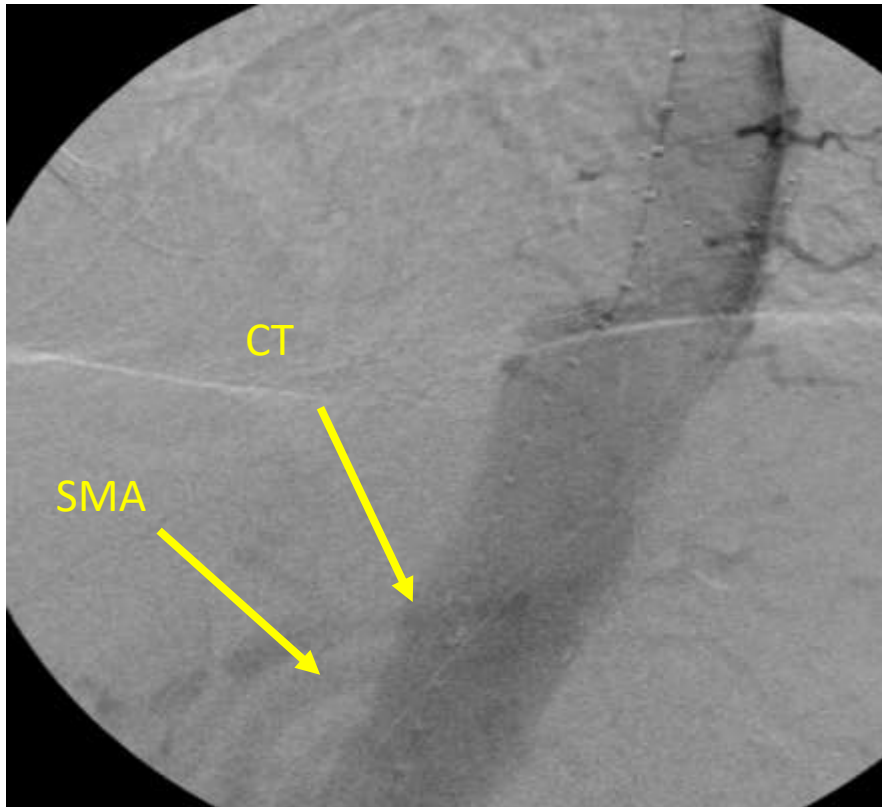


1st thoracic endograft



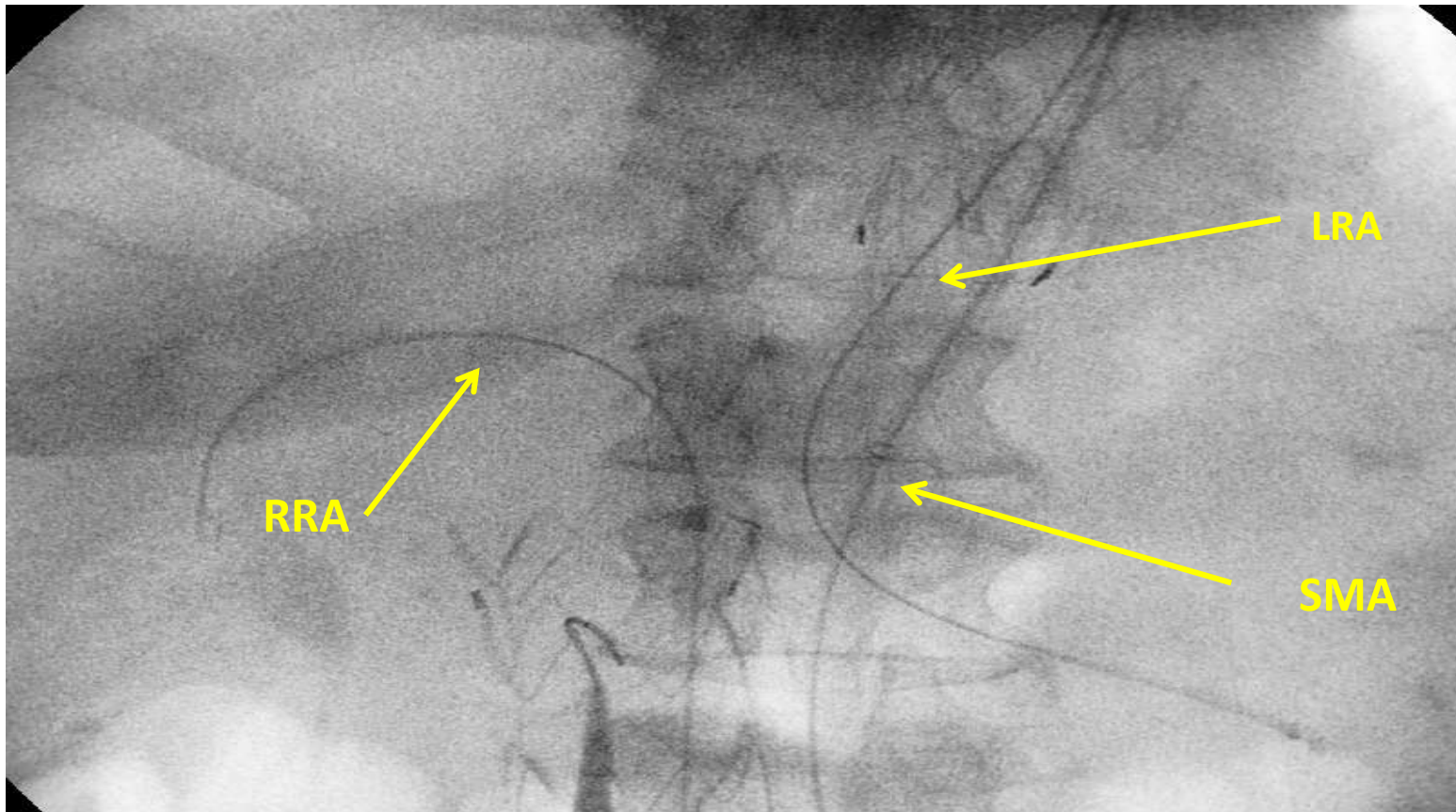


Target Vessels





Catheterization of target vessels





Sandwich technique

SMA

Self-expanding stent 9X100mm

Relining with self-expanding stent
10x40 &
9X100mm

CT occlusion

RRA

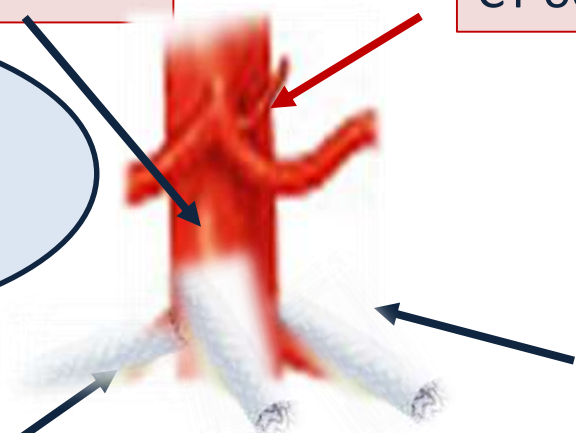
Self-expanding covered stent 5x100mm

Relining with self-expanding stent
6x60 & 6x60mm

LRA

Balloon expandable covered stent 6x57mm
Self-expanding covered stent 7x100mm

Relining with self-expanding stent
7x60, 7x60 &
8x40mm

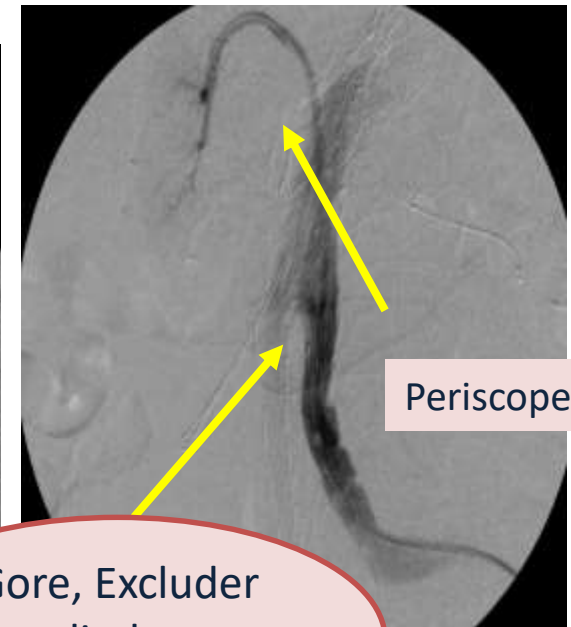
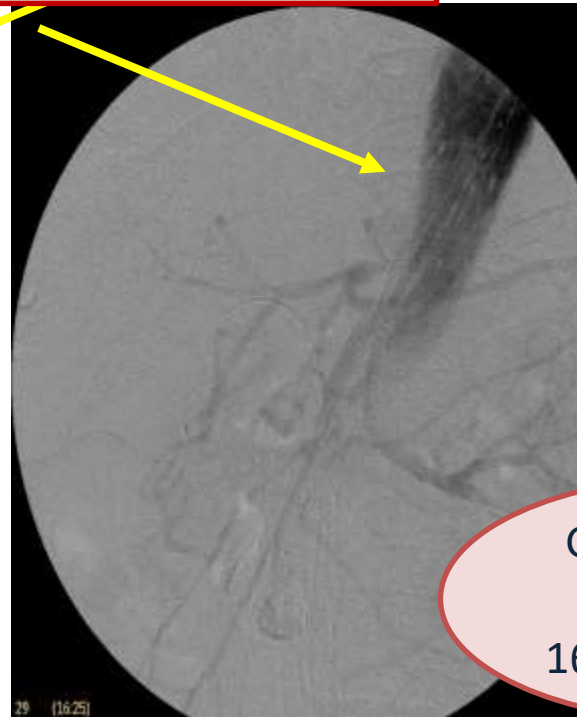




Sandwich technique



Insertion & deployment
of 2nd Bolton relay,
Vascutek, 40x38x150mm



Periscope

Gore, Excluder
limb,
16x14.5x120mm



Intra-operative details

Intra-operative data

- ✓ 2 RBC
- ✓ Contrast 250ml
- ✓ Radiation 735mGy (135min)
- ✓ Duration of operation 300min



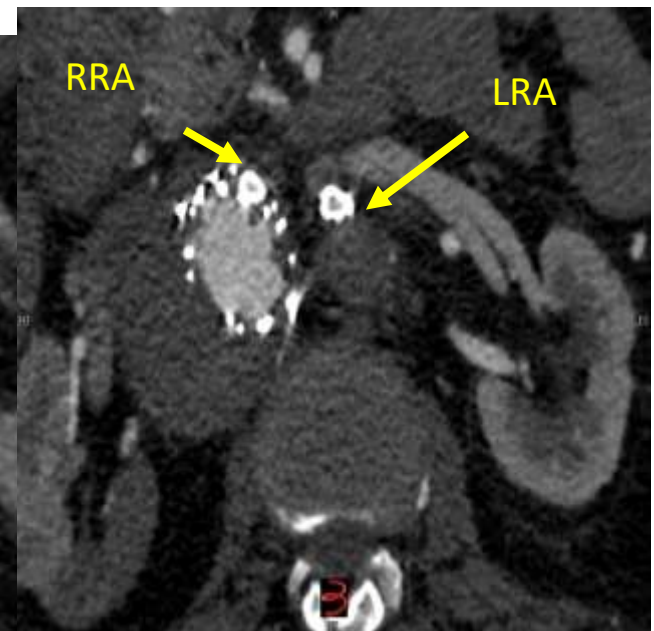
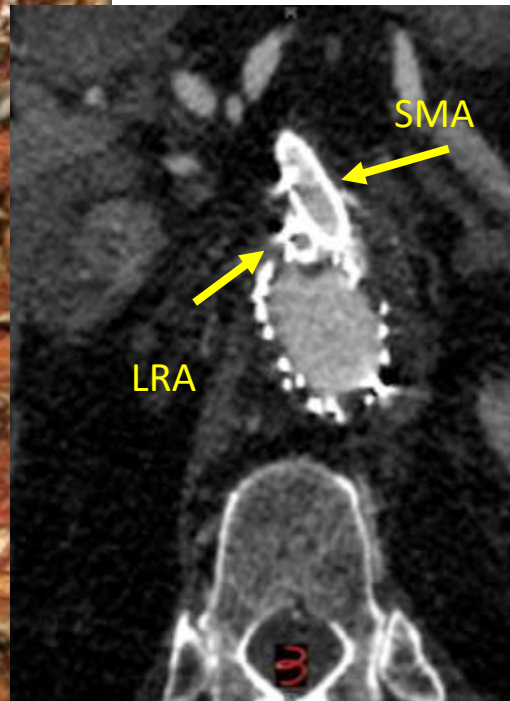
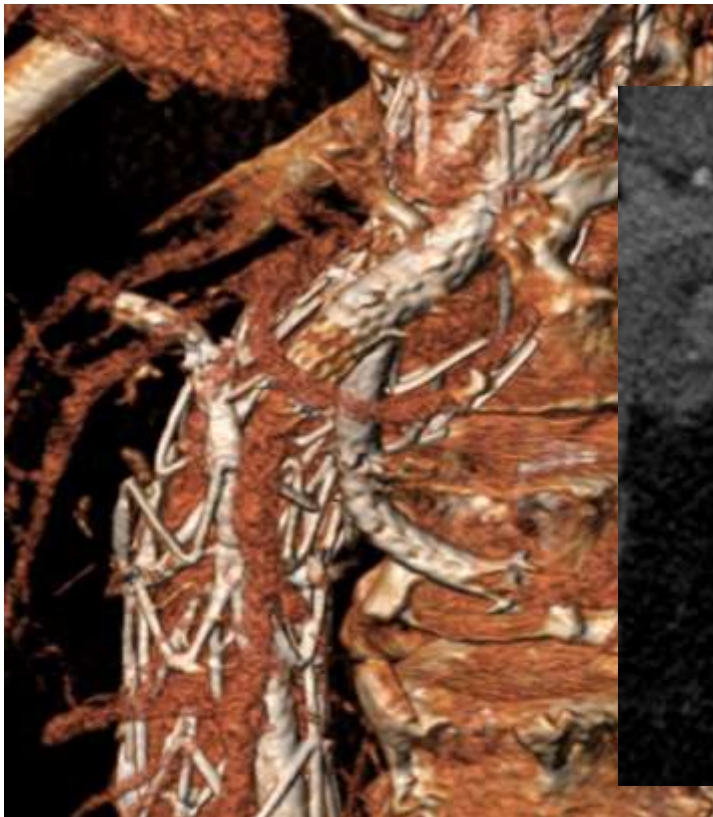
Patient transferred to ward
under close monitoring

No need for ICU





Post-operative CTA before discharge





Discharge & Initial Follow-up

Discharged the 6th post-operative day

- ✓ No complication recorded
- ✓ Good general status
- ✓ Mild renal impairment (GFR 44ml/min/1.73m²)

Close follow-up

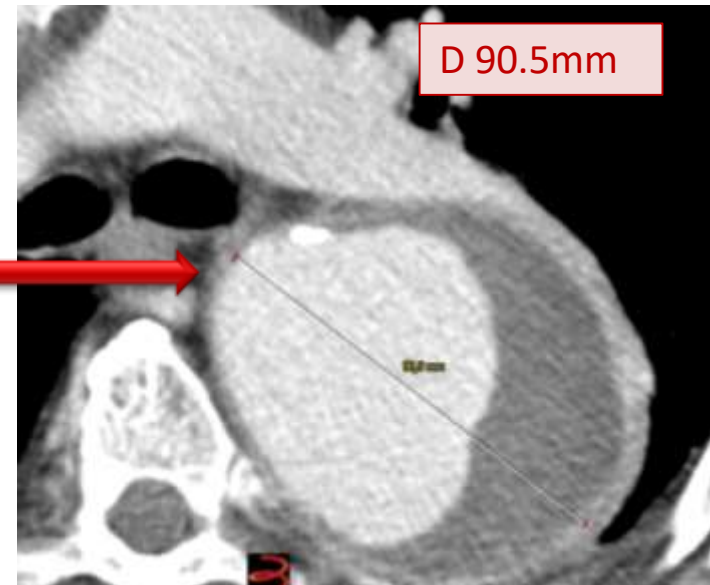
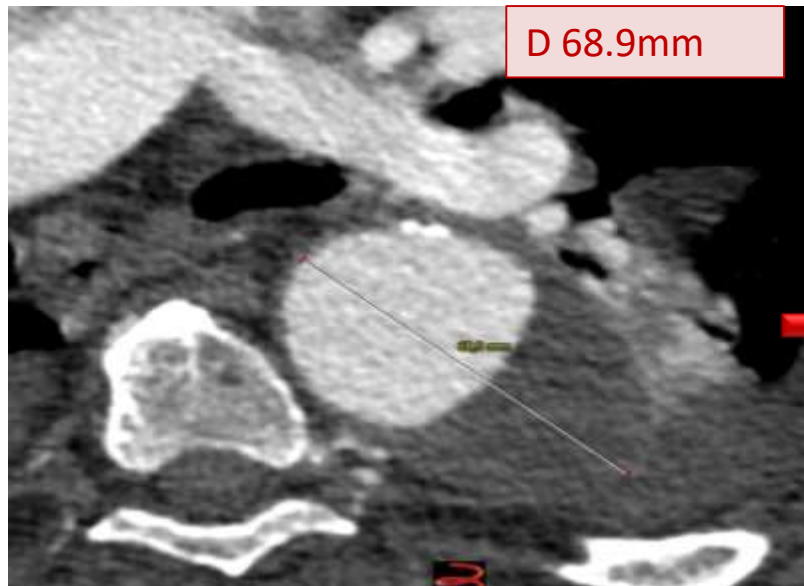
- Clinical reevaluation the 15 & 25th post-operative day
- Laboratory exams every 10 days (↓Creat, 20-day GFR 58ml/min/1.73m²)

A second procedure for the proximal part of the aneurysm was scheduled in the 3rd post-operative month



40 days after the procedure

- ✓ Atypical thoracic pain
- ✓ Hemodynamically stable
- ✓ Normal evaluation by cardiologist





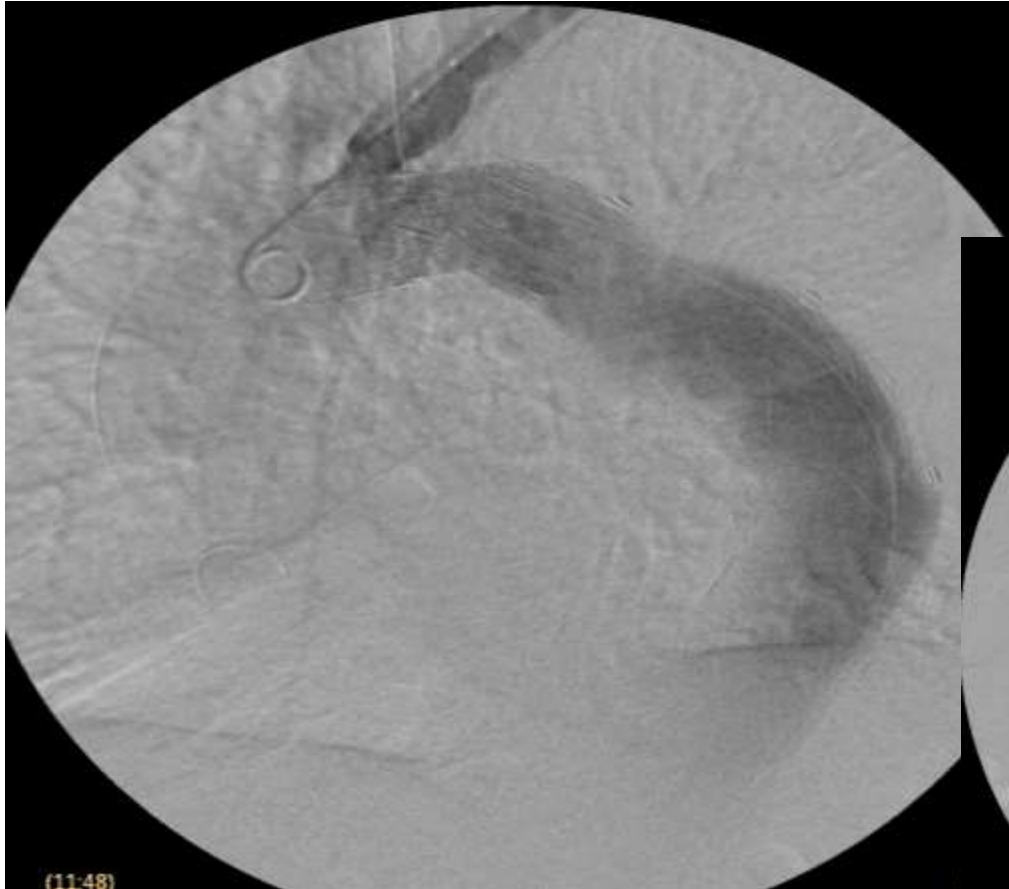
Access-TEVAR



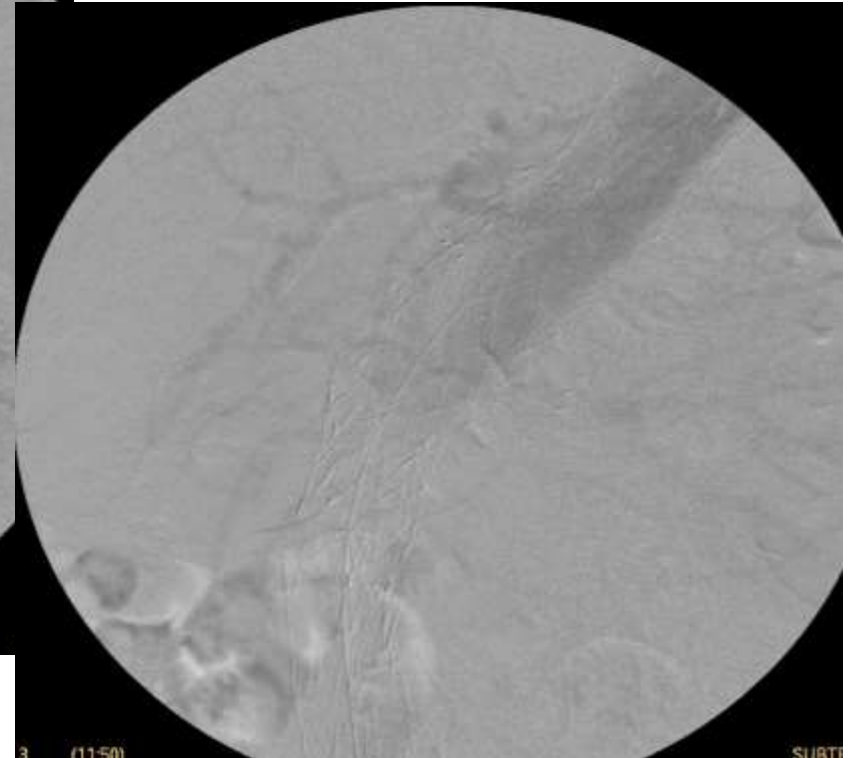
Percutaneous puncture of
L brachial for angiography

Relay Bolton,
Vascutek,
38x38x145mm





TEVAR





Intra-operative details

Intra-operative data

- ✓ No RBC
- ✓ Contrast 50ml
- ✓ Radiation 75.4mGy (14,5 min)
- ✓ Duration of operation 60 min

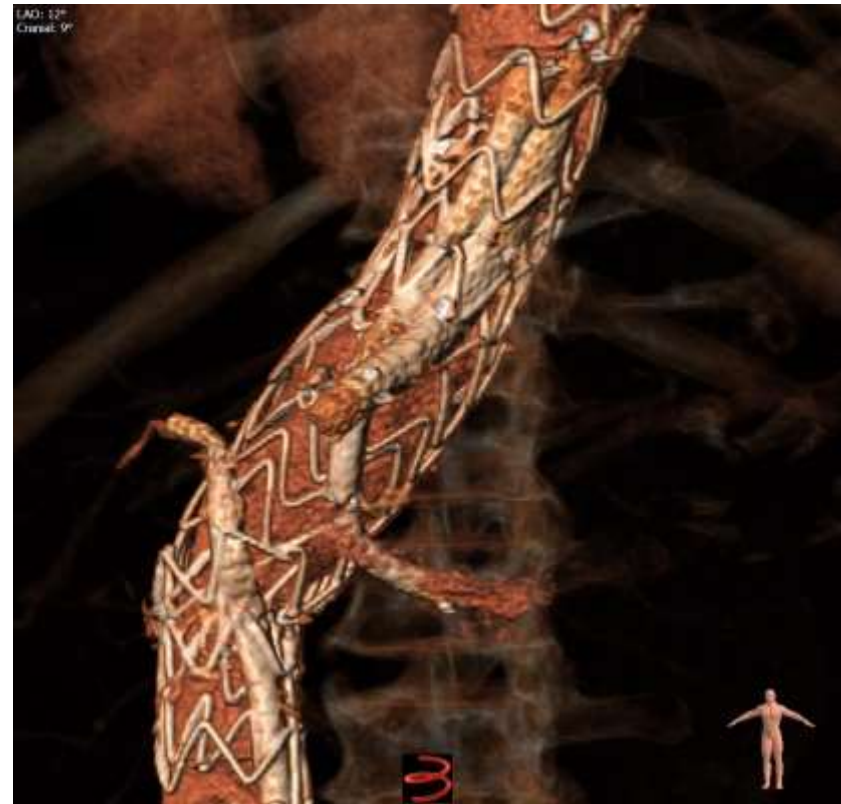
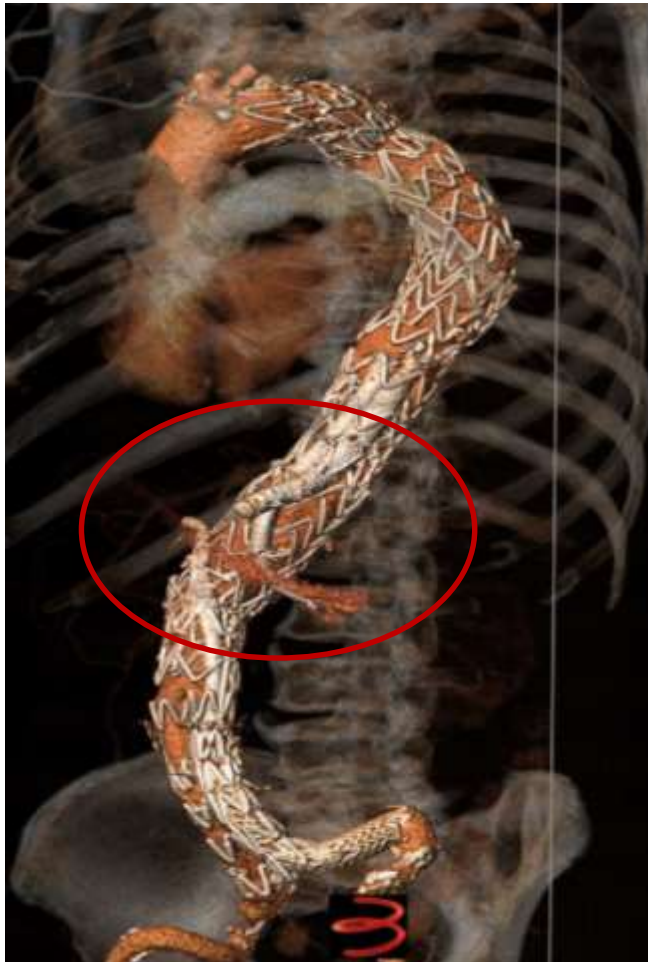


Patient transferred
to ward





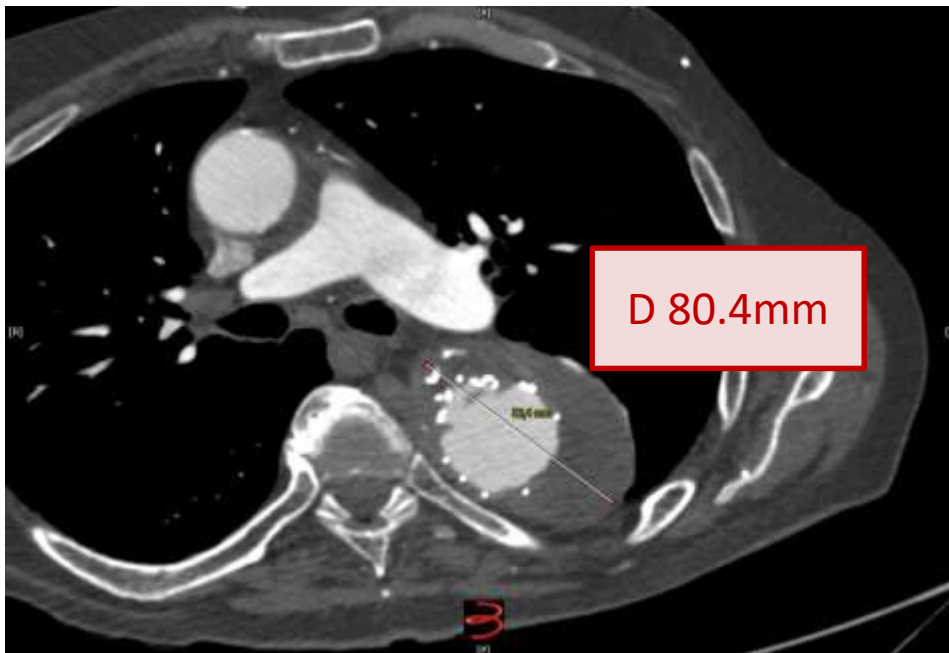
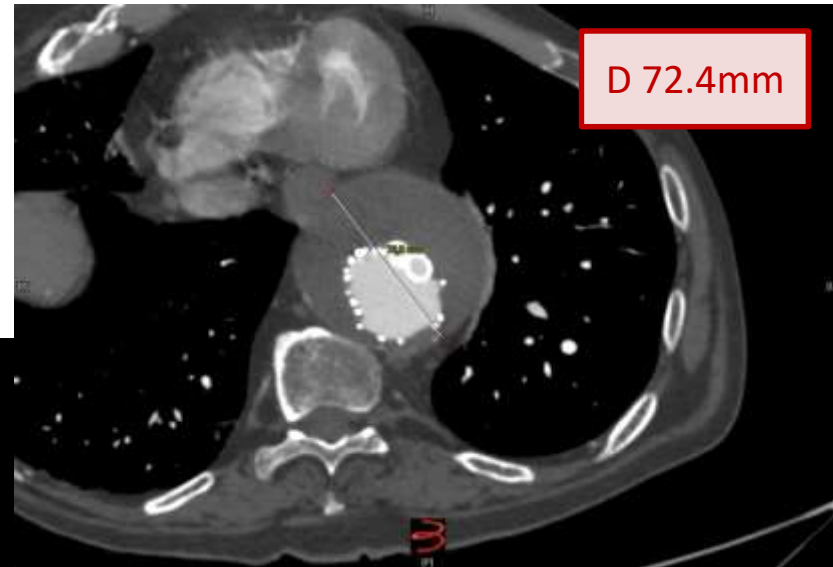
Post-operative CTA before discharge





6th month follow-up

- ✓ No complication recorded
- ✓ Good general status
- ✓ Normal GFR 71ml/min/1.73m²

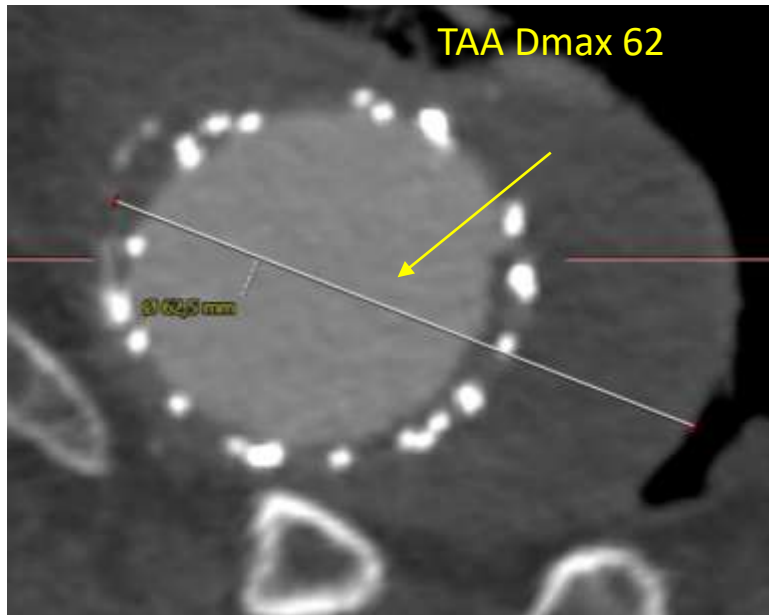


No endoleak
Patent TV
Sacs exclusion



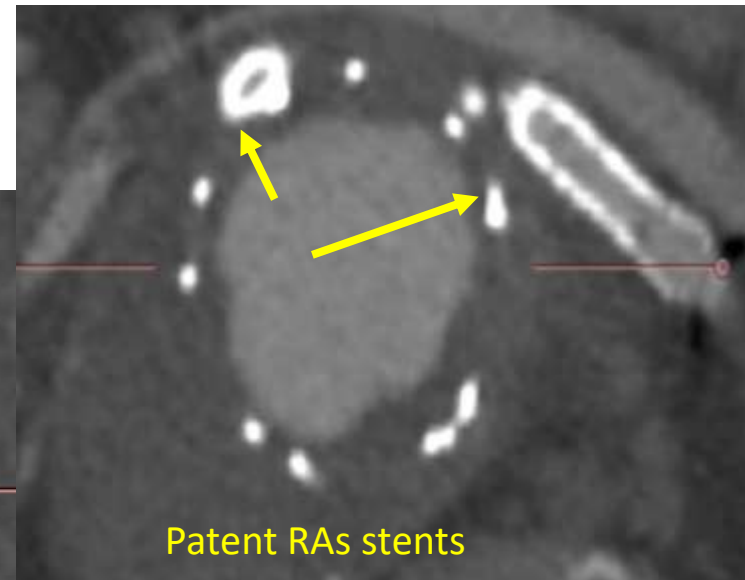
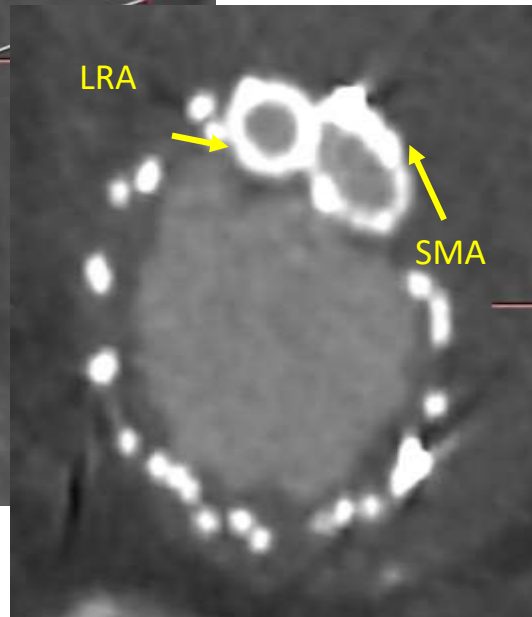
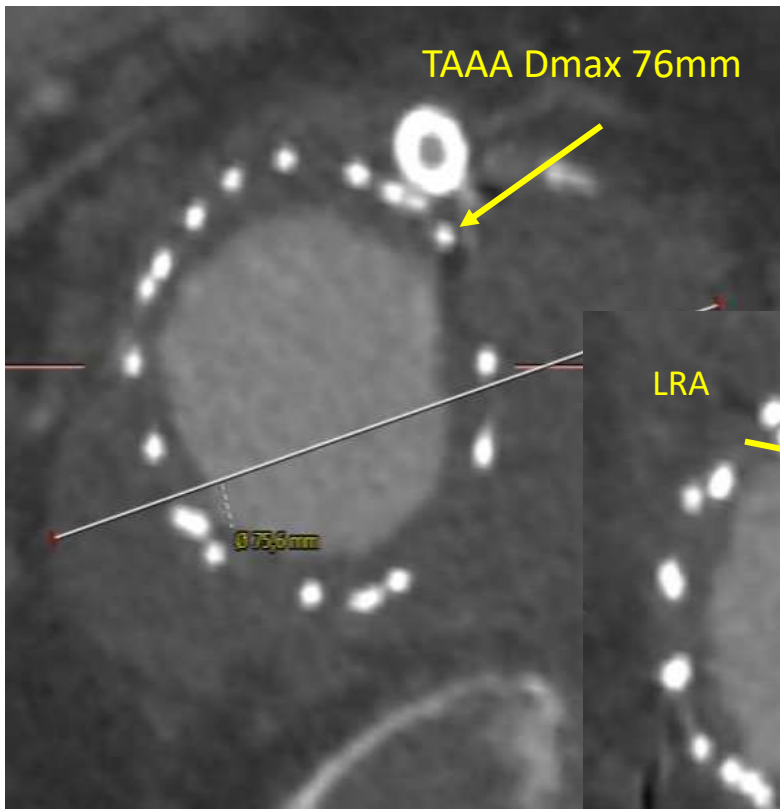
1st year follow-up

- ✓ No complication recorded
- ✓ Good general status
- ✓ Normal GFR 71ml/min/1.73m²





1st year follow-up



Conclusion

- ✓ Sandwich technique was a safe option for this patient
- ✓ A two-stage treatment eliminated the risk of spinal cord ischemia
- ✓ Re-intervention in these patients may be associated with difficulties in access

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Thank you



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