



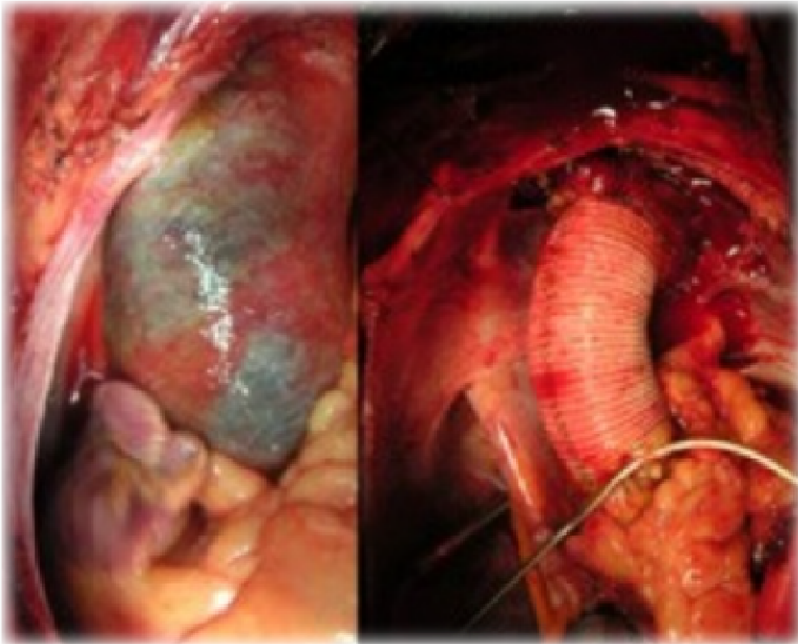
Type A dissection: Strategies and Solutions



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The Endovascular Solution

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Acute Type A Dissection

- **Conservative treatment:**

- mortality > 60%

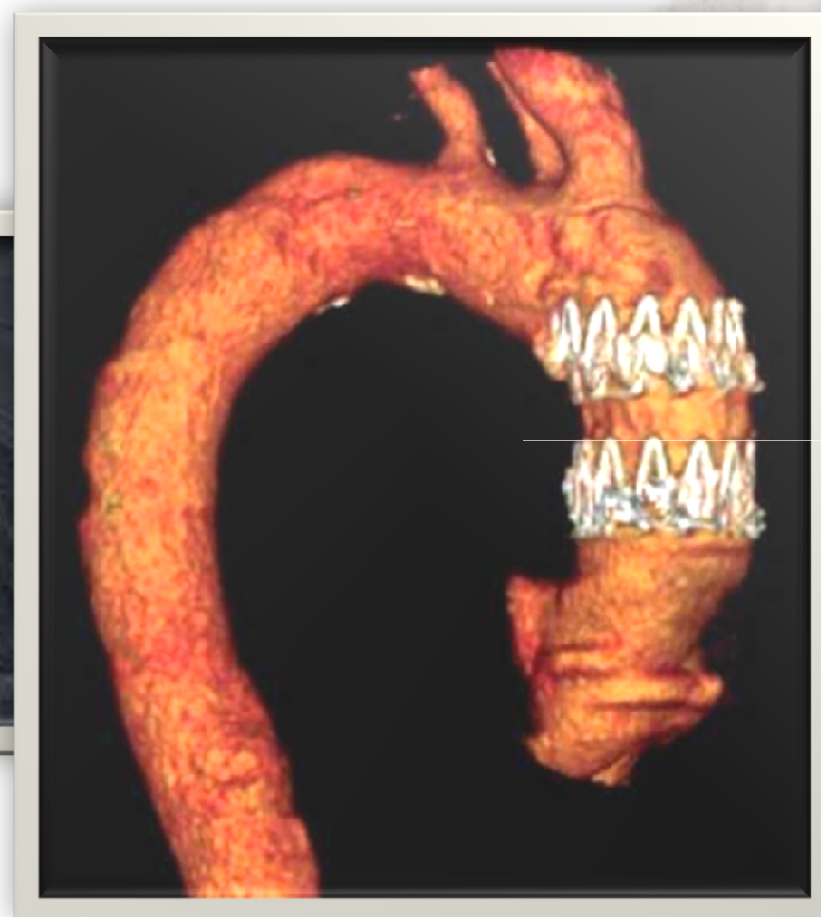
- **Surgical Treatment:**

- mortality 10-20%
- specific subpopulation 75%

(severe malperfusion and elderly pts)

- **8-20% deemed inoperable even in high VCs**

J Vasc Surg 2018;4:69





Ascending Endovascular Repair

- **emerging technique for unfit pts for surgery**
 - new endovascular devices
 - advanced image-guided procedures

but.....

- Only small case series or case reports
- Tube alone is not sufficient to fix the entire complex underlying
- Few dedicated devices for favorable anatomy with very localized disease
- Need of research

Indications for Ascending Endografts

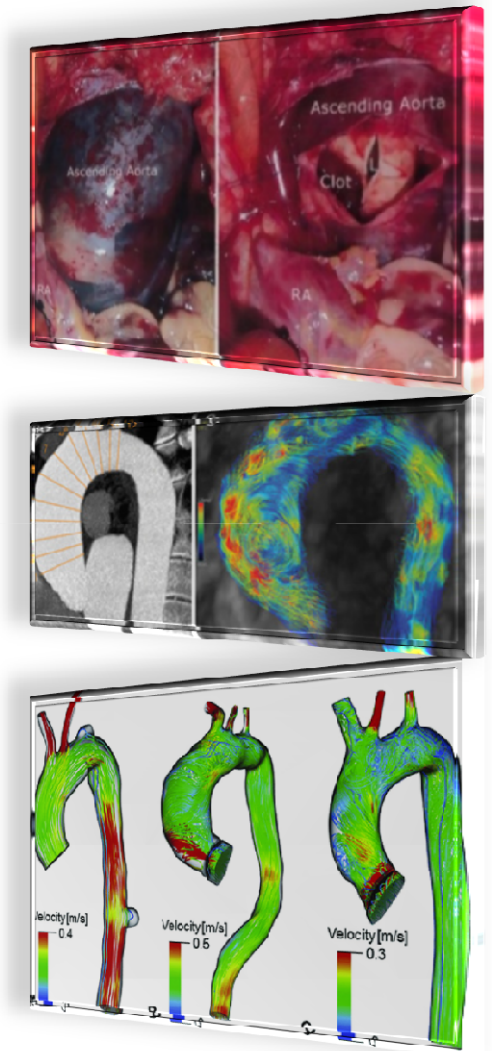
- ❖ Type A dissection
- ❖ Lesion post-surgery:
 - Pseudoaneurysm
 - Postsurgery bleeding
 - Residual dissection
 - Lost TAVI
- ~~❖ Ascending aneurysm~~

Considerations ?

- **Geometrical**
- **Anatomical**
- **Clinical**

Geometrical considerations

- **Diameter increase is different** at the level of the sinotubular junction and the distal ascending aorta at the level of the offspring of the brachiocephalic trunk (21% vs 14%): **Induced average increase** in the mid-ascending aortic diameter of 32%; the increase in diameter of the ascending aorta is independent of patients' height, or weight.
- **Curvature, forces, hemodynamics** of the ascending and aortic arch
- Mismatch between lengths of the inner and outer curves
- **Clinical parameters:** blood loss, hypotension: systolic/diastolic, age



J Vasc Surg 2018;4:69

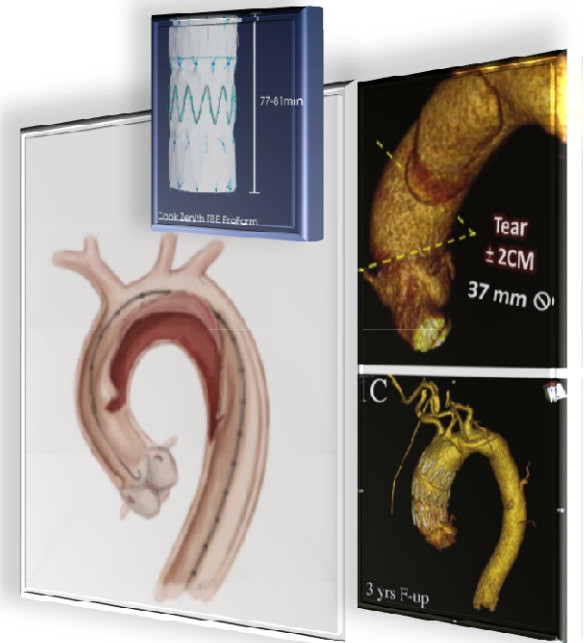
Eur J Vasc Endovasc Surg 2011 42, 442-447

Anatomical considerations

- The **length of the ascending aorta** is significantly shorter: 7-8 cm average
- **Covered area is limited considering with currently available stent-grafts:**
 - It is not possible to cover entries close to the aortic root or the coronary arteries
 - entries in the distal ascending aorta would require highly complex procedures



Potential candidates for A-TEVAR are 31.5% and 36.2% in two high quality anatomical feasibility studies.



Clinical / Technical considerations

- Cardiac tamponade and severe aortic regurgitation
- Previous implanted mechanical valve
- SGs features:
 - profile and trackability
 - length of shaft and tip:
 - risk of embolization during retrograde deployment
 - risk of temporary aortic impairment during deployment
 - availability of custom –designated SG in urgency cases
- Accesses types
 - transfemoral: easier, but not feasible in some cases
 - transapical: overcome some limitations (true lumen, direct access, accuracy deployment, tamponade solution and less risk of embolization) but predictors of worse outcomes



Considerations: dedicated devices ?

Right size ?
Need of reduction of LZs ?

Need of reduction SG length
and tip ?

Straight or tapered S-Gs ?

Longer shaft?
Transfemoral or
transapical ?

Today-requirements for ascending TEVAR

Proximal and distal landing zones

Length >10 mm

Diameter >16 and <42 mm

No significant difference between proximal and distal landing zone (<10%)

Absence of calcification or thrombotic material

Aortic dissection

Intimal tear >10 mm above the sinotubular junction

Intimal tear >5 mm proximal to the innominate artery

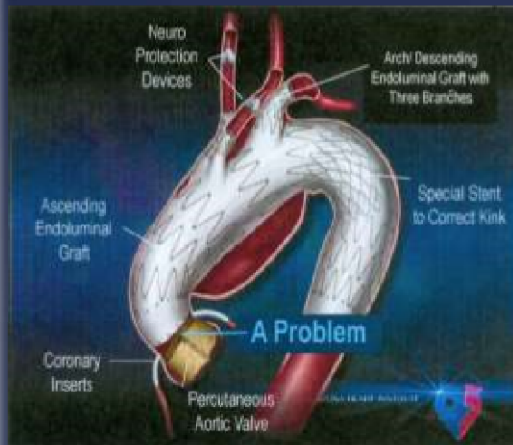
No aortic regurgitation

Access vessels

Diameter of the common and external iliac artery >7 mm

TEVAR, thoracic endovascular aortic repair.

Future evolution: the Endo-bentall



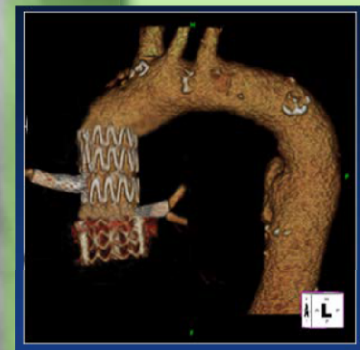
Courtesy of E. Dietrich, Arizona



Courtesy of C. Nienaber, Rostock



Courtesy of M. Czerny, Freiburg

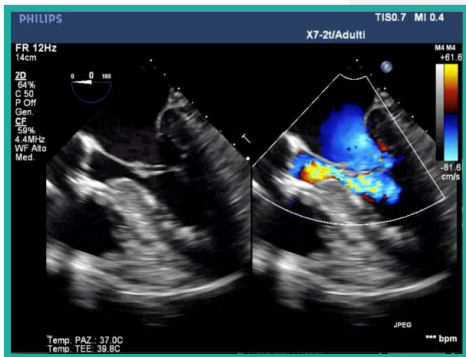


- **Increase number of pts suitable for A-Tevar:**

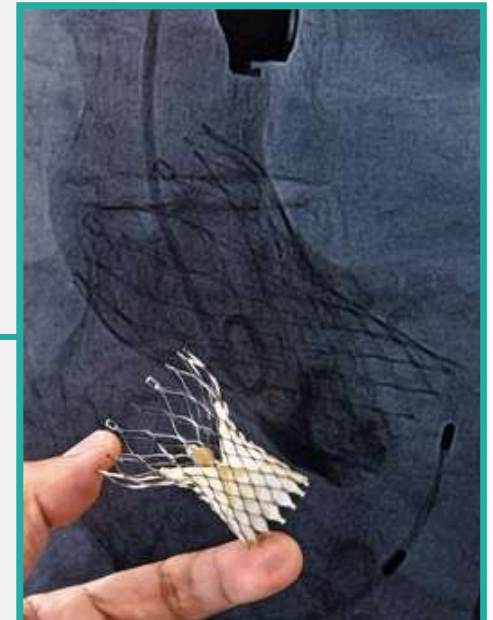
- Third landing zone: Sufficient anchorage and adequate sealing
- Reduction of oversize: better sizing
- Treat the valvular pathology at the same time
- Treat ascending aneurysm

Clinical Case:

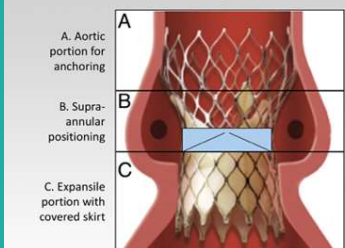
Acute type A aortic dissection after TAVI



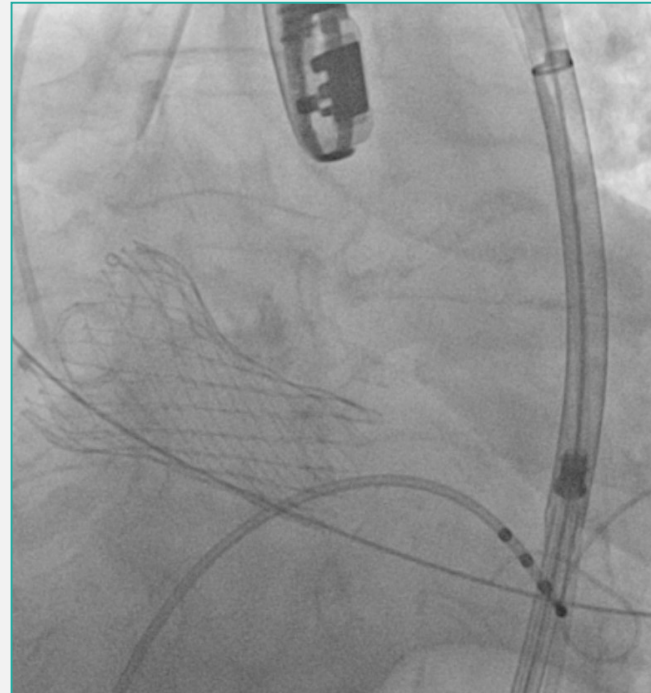
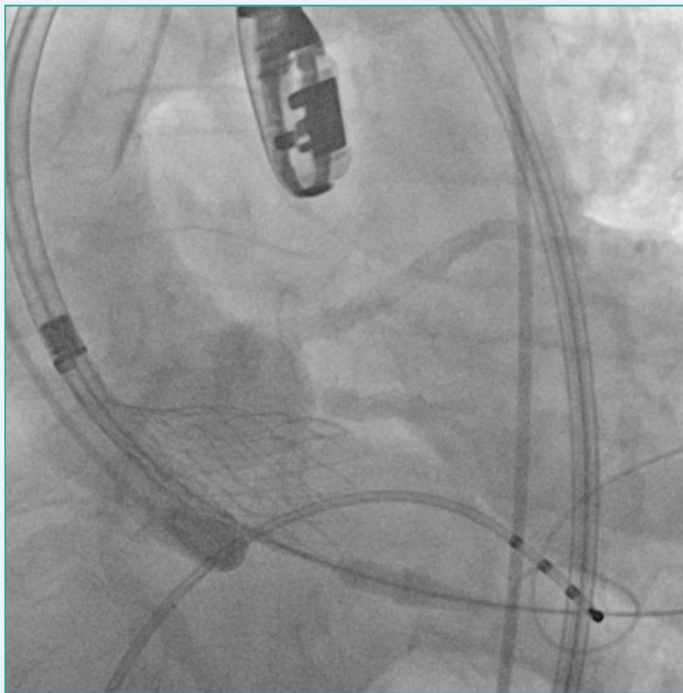
- Female 82 years old,
- Obesity, hypertension, dyslipidemia, anemia, CAD previously treated with multiple PTCA and DES
- Admitted for **severe aortic valve stenosis symptomatic** for angina.
 - 18/7/2019: **TAVI Implantation** (Medtronic Evolut R 29)



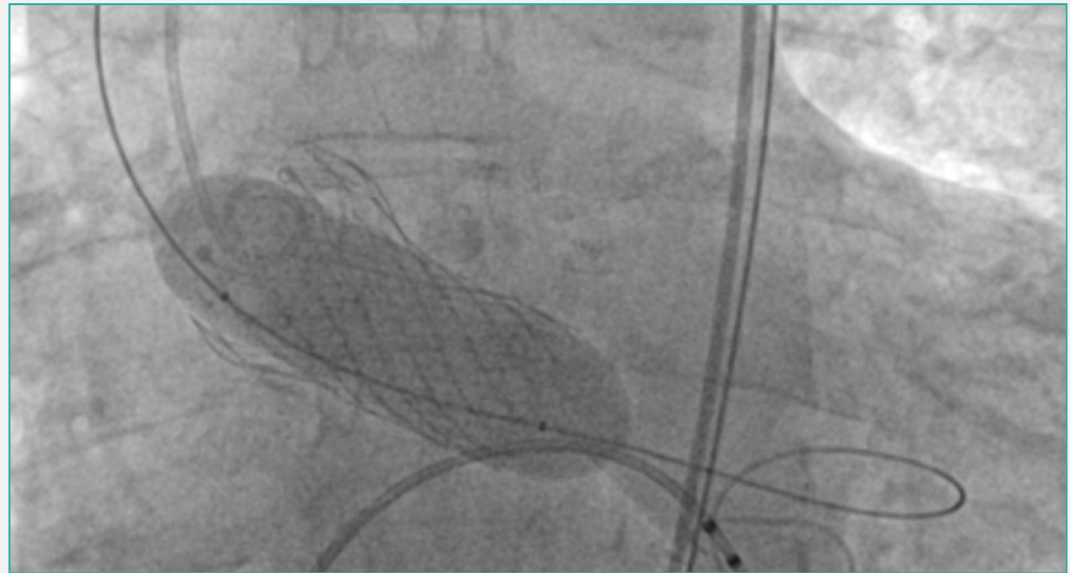
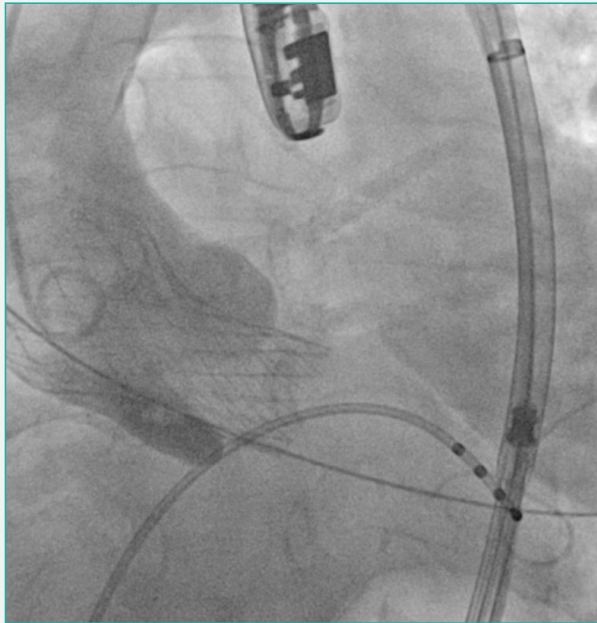
CoreValve Positioning



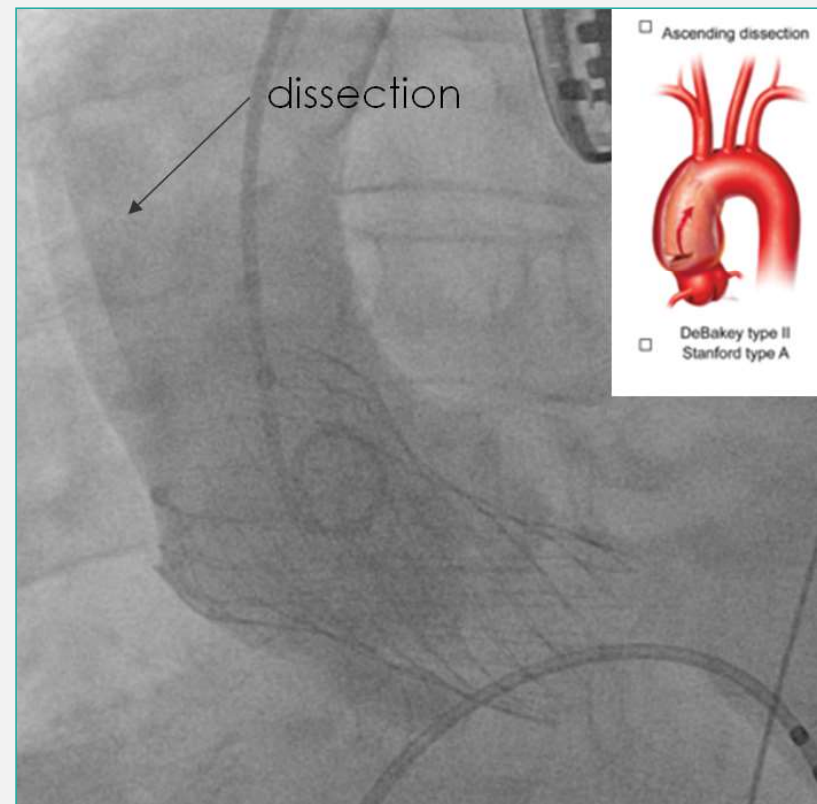
TAVI deployment:



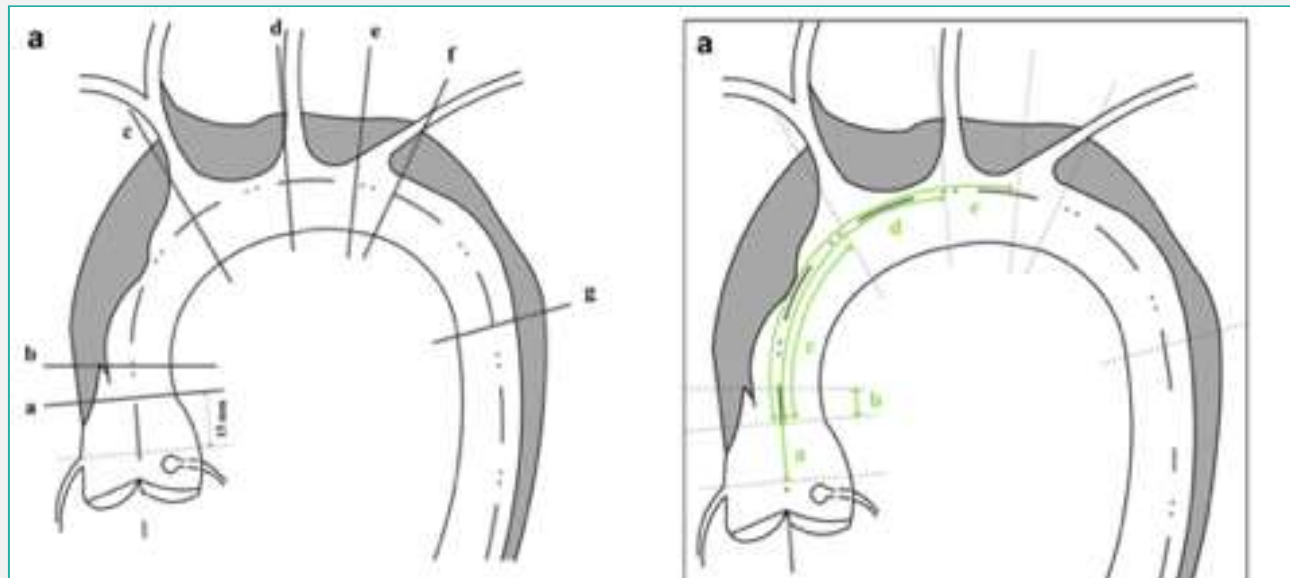
Angiography control:



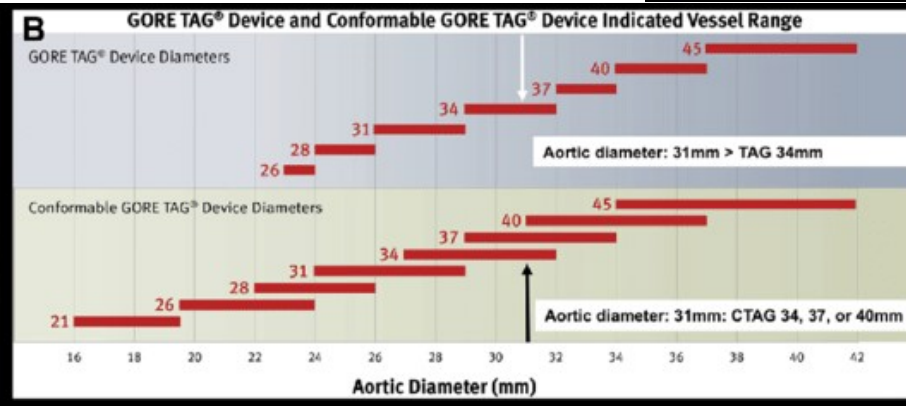
Complication:



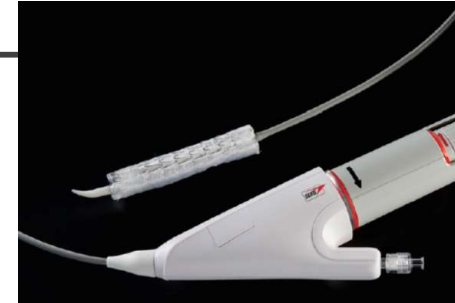
Planning in urgency setting:



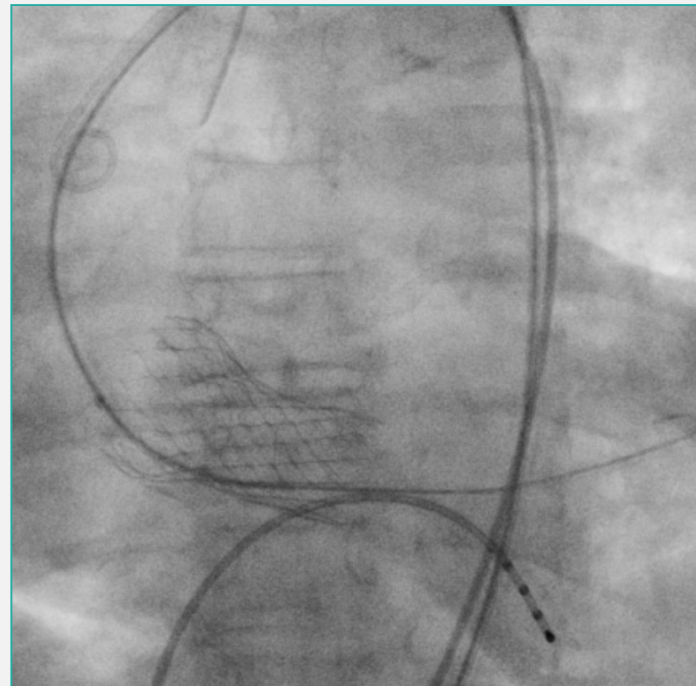
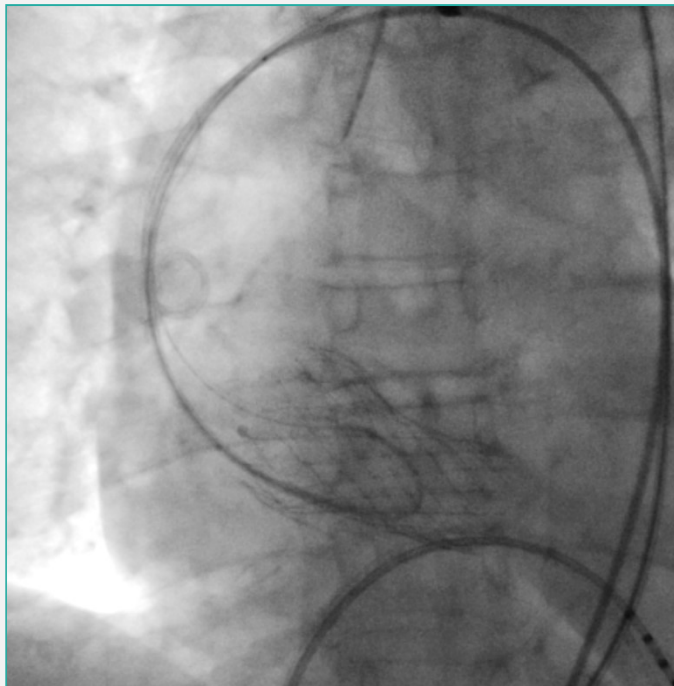
GORE C- TAG



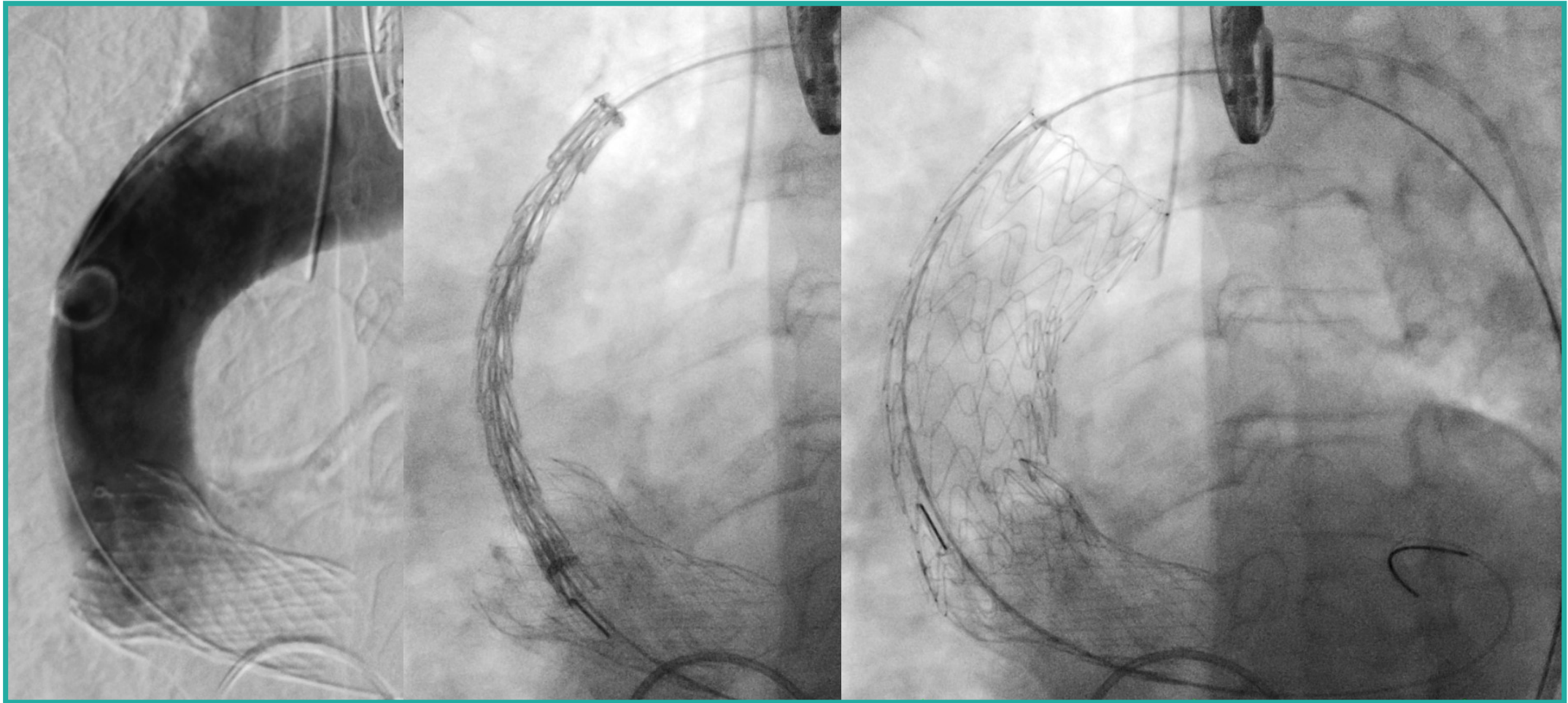
- Conformability
- Controlled deployment and precise placement
 - Short tip



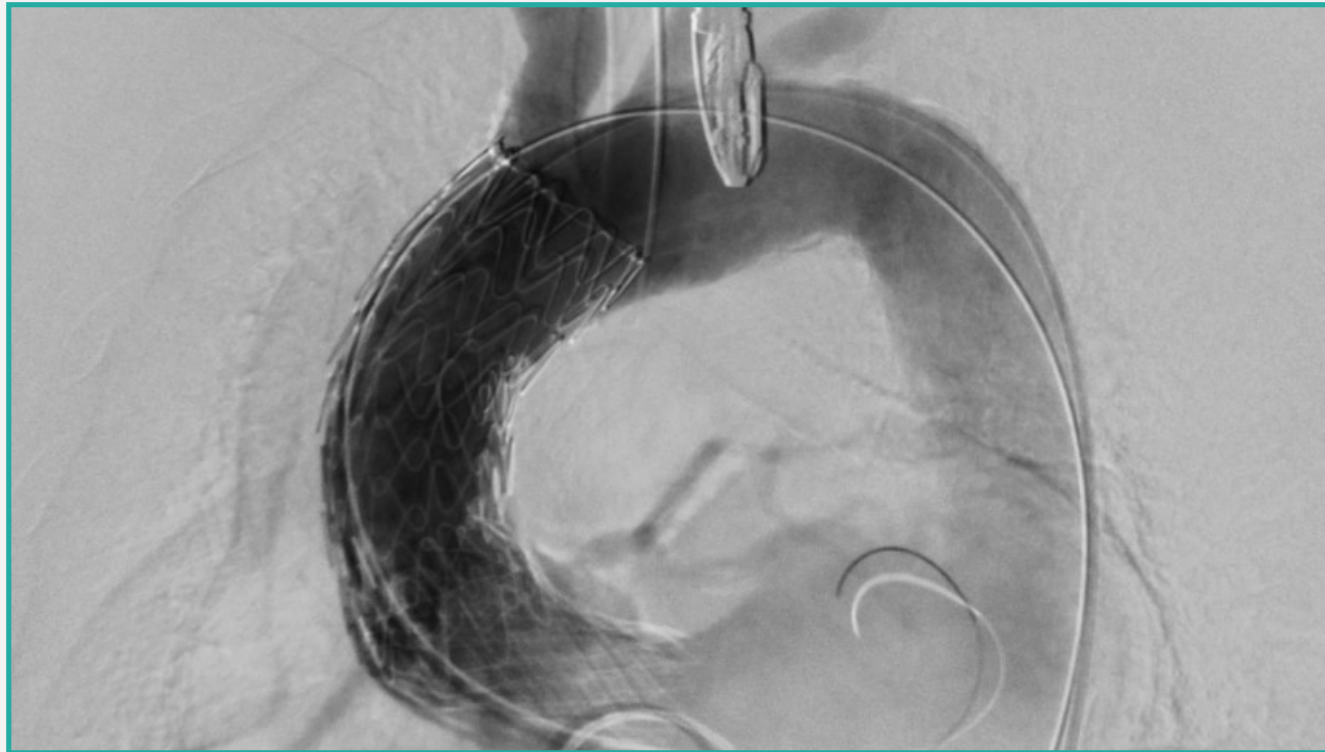
Transvalvular anchorage



Deployment C-TAG: TGU31-31-10



Final control:





Conclusion:

- The current endovascular stent graft technology offers an alternative treatment option in selected high-risk patients with acute type A dissection who are unfit for surgical repair
- It is built upon current TEVAR and TAVI technology.
- Since there are still many technical issues that need to be resolved, future innovations will provide more disease-specific devices and solutions to support physicians in expanding the indications for TEVAR.



*Thank you for
attention*