University Heart Center Hamburg

GERMAN AORTIC CENTER HAMBURG

Ascending Aorta:

Is The Endovascular Approach Realistic?

How I Do It.

Tilo Kölbel, MD, PhD

University Heart Center Hamburg

University Hospital Eppendorf

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE

CONTROVERSIES & UPDATES IN VASCULAR SURGERY

JANUARY 23-25 2014

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER PARIS, FRANCE

Disclosure

Speaker name:

Tilo Kölbel

☐ I have the following potential conflicts of interest to report:

☒ Consulting

☐ Employment in industry

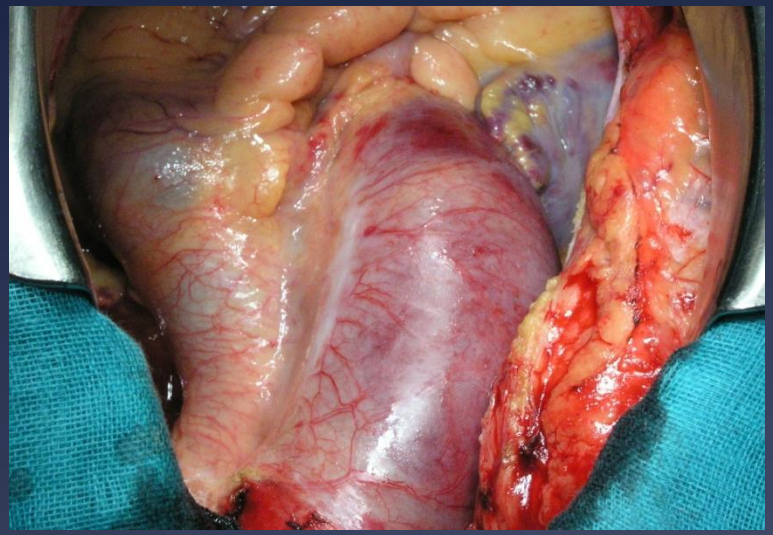
☐ Shareholder in a healthcare company

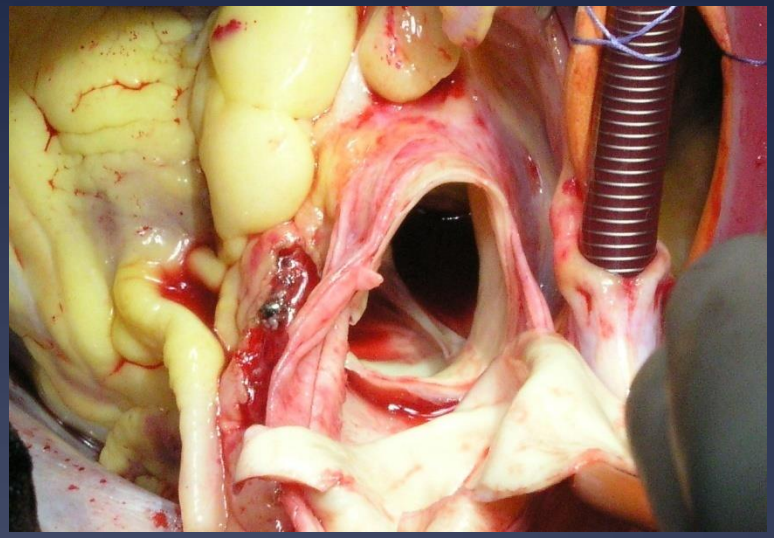
☐ Owner of a healthcare company

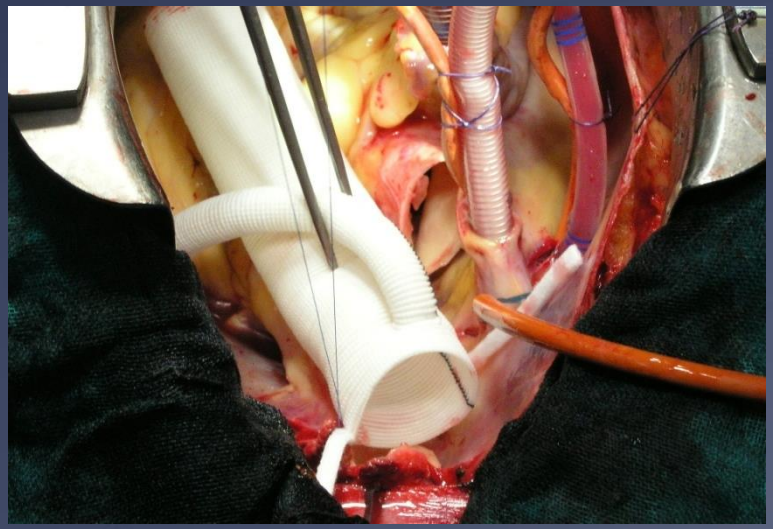
☒ Other(s)

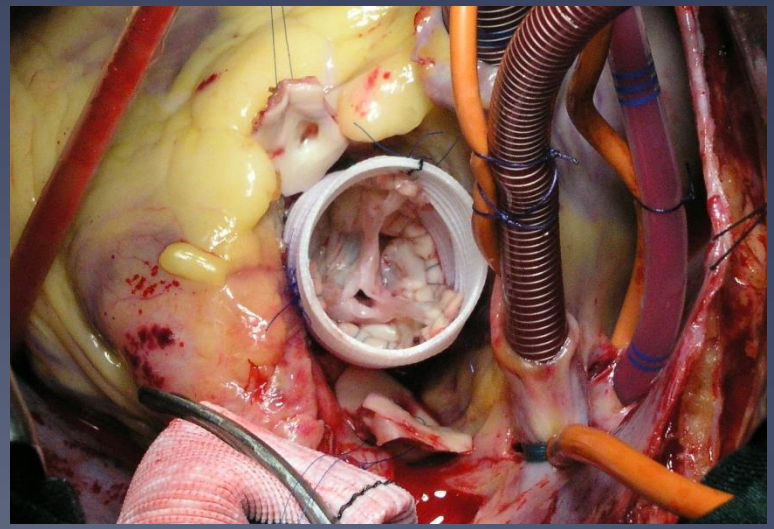
☐ I do not have any potential conflict of interest

Gold Standard for Ascending Aorta









Gold Standard for Ascending Aorta

But.....

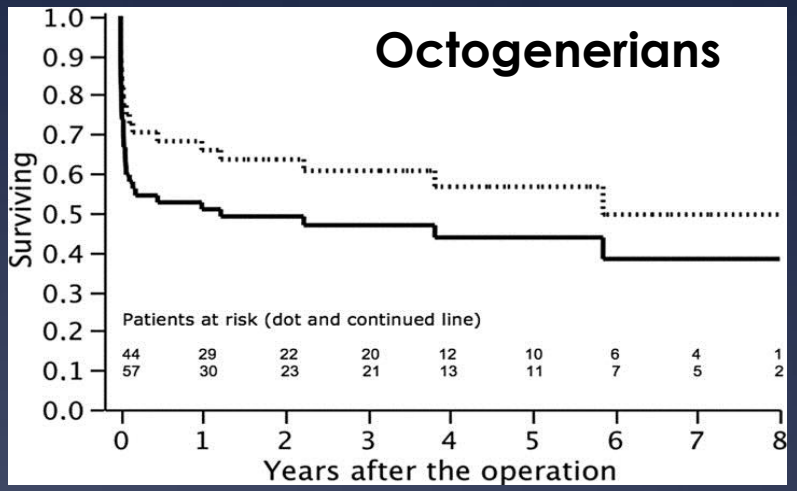
Patients with

- Old age
- Severe comorbidities
- Previous cardiac surgery

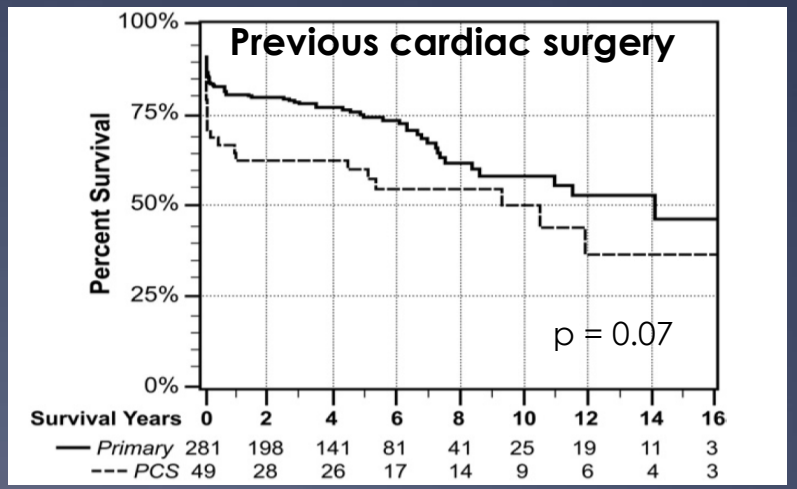
are often turned down for open surgery

and

might benefit from a less invasive therapy.



Piccardo et al. 2009, Ann Thor Surg 88:491-7



Estrera et al. 2010, Ann Thorac Surg 89:1467–74

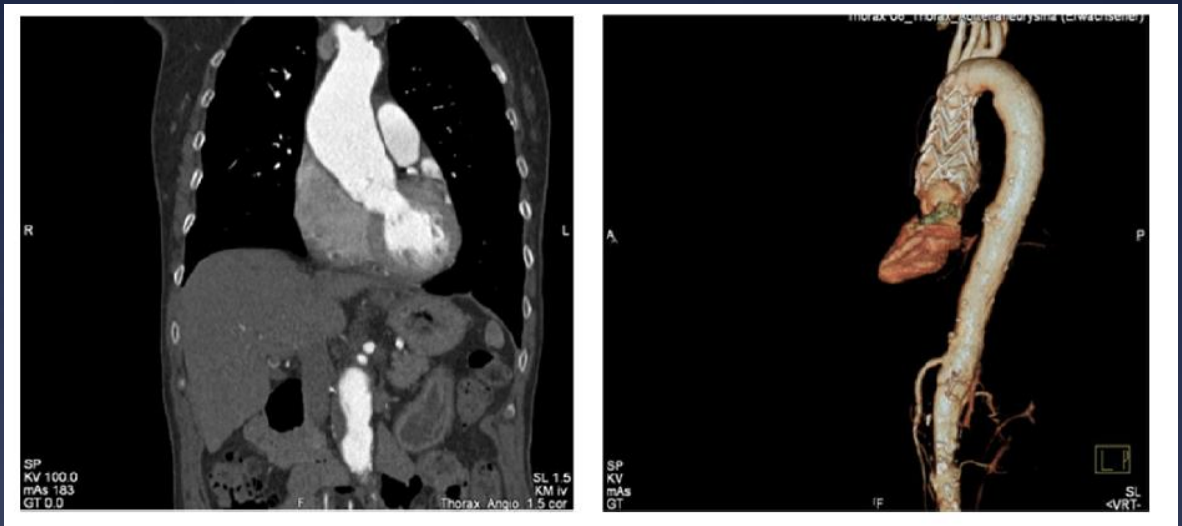
Ascending Aorta

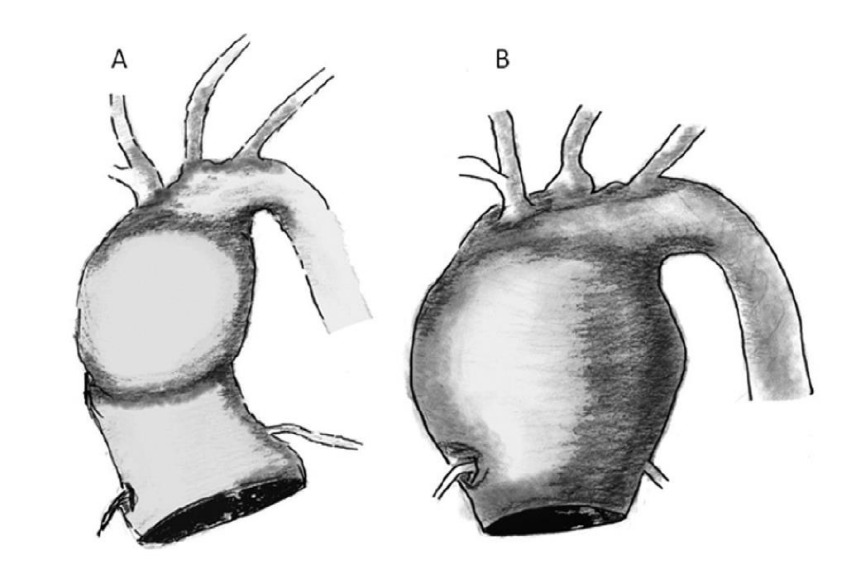
Pathologies to be treated:

- Ascending aneurysm
- Lesions post surgery:
  - Pseudoaneurysm
  - Postsurgery bleeding
  - Residual Dissection
  - Lost TAVI
- Type A dissection

Ascending Aneurysm

* Most are conical and lack proximal landing zone.

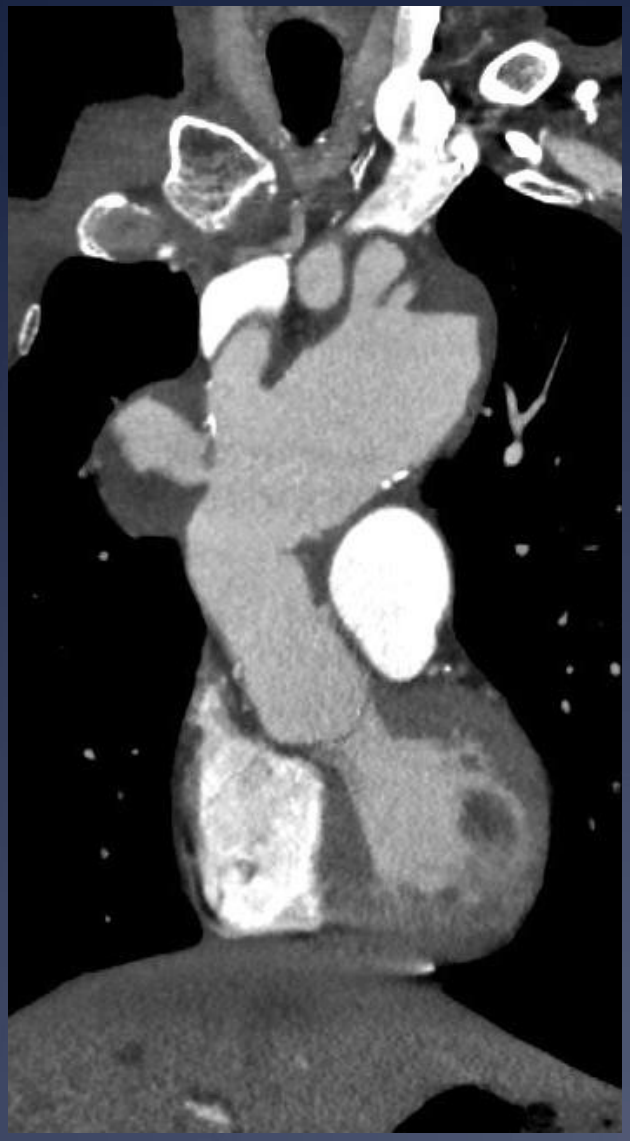


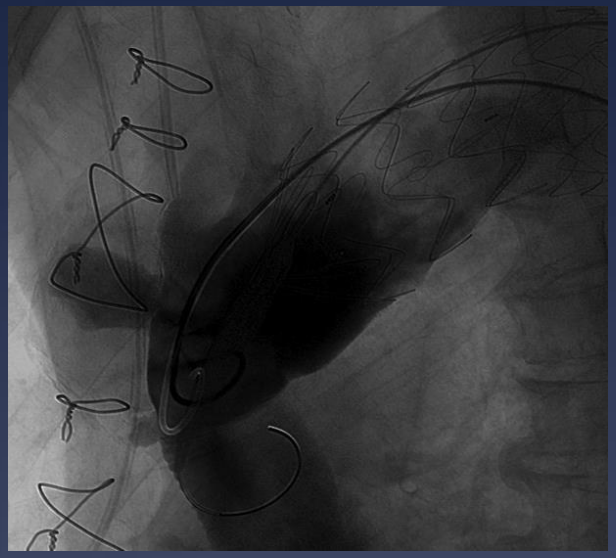


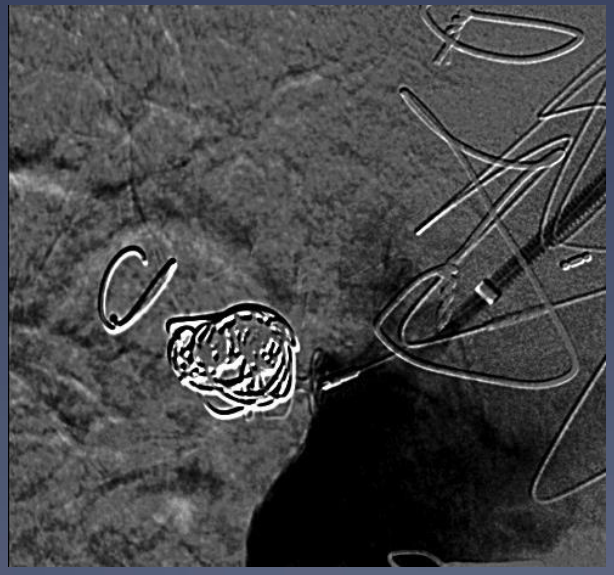
* Endovascular exclusion usually not possible in native vessel

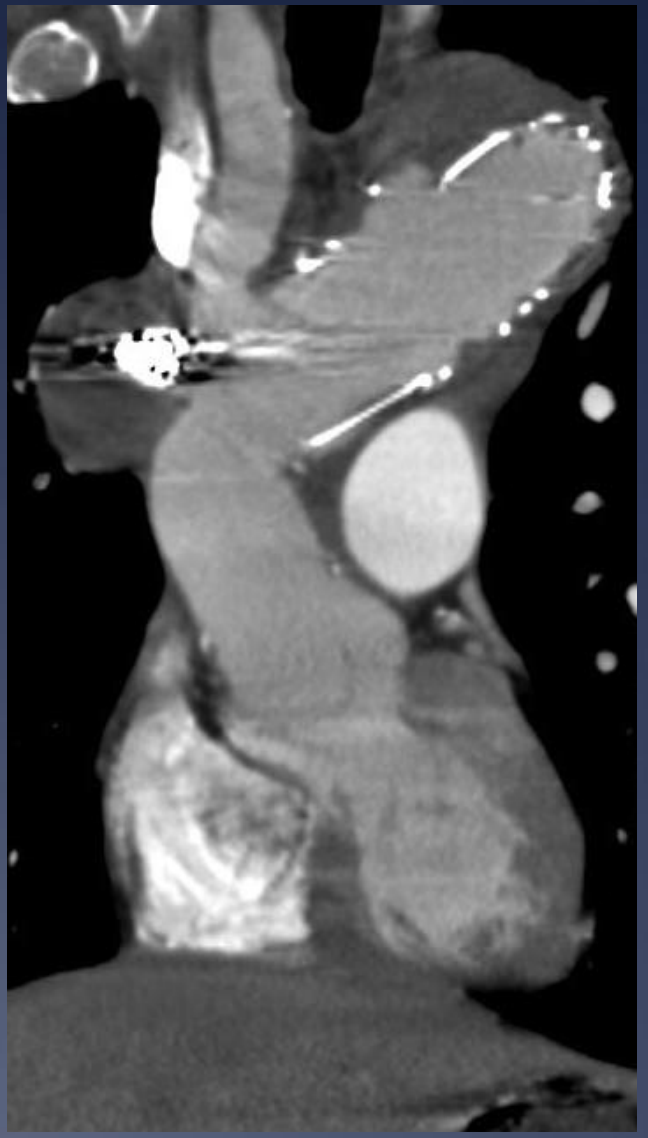
Figures from: Kolvenbach et al. 2011; J Vasc Surg 53: 1431-8

Pseudoaneurysm



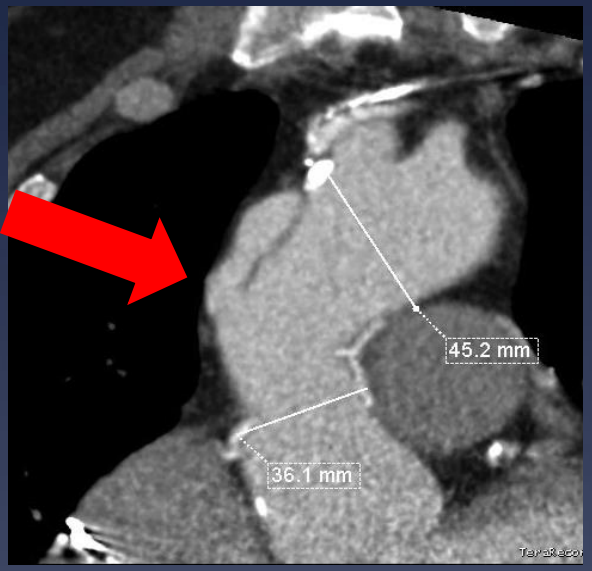


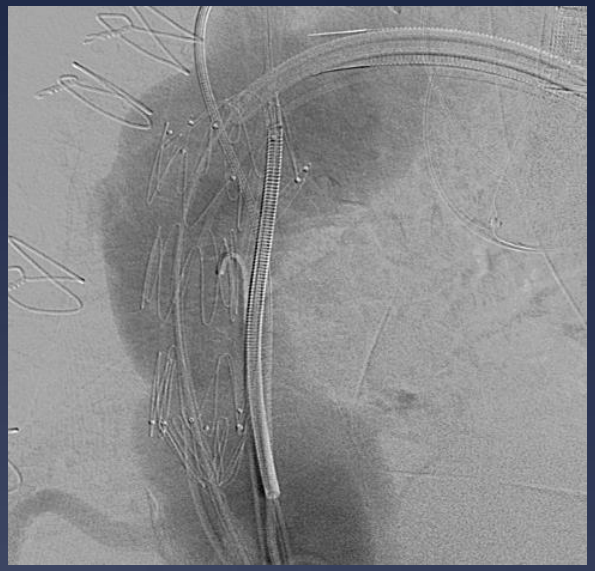


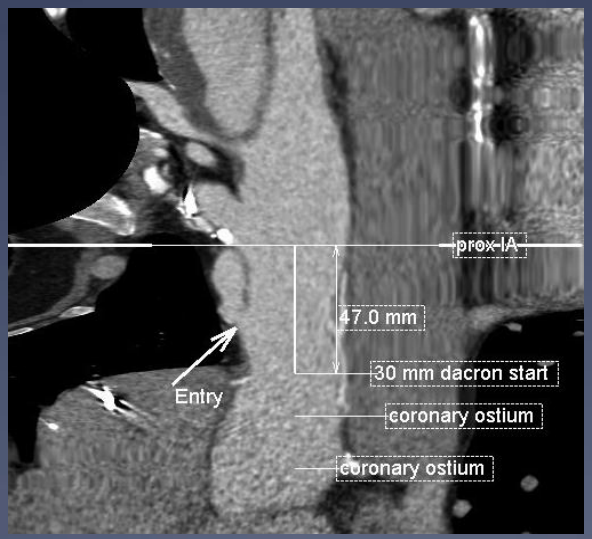


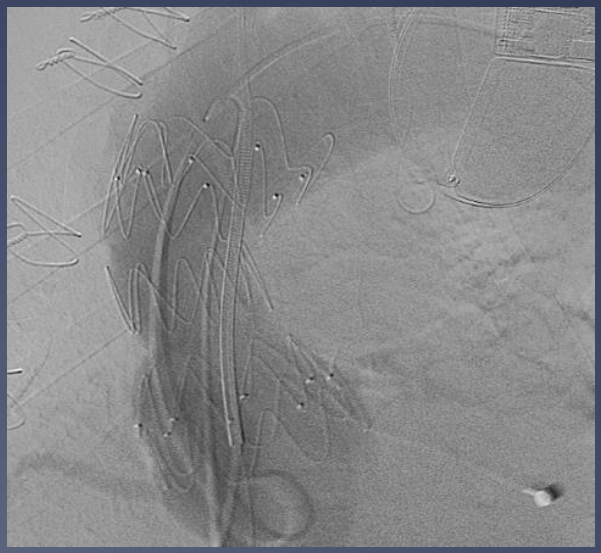
Postsurgery Bleeding

Residual Dissection

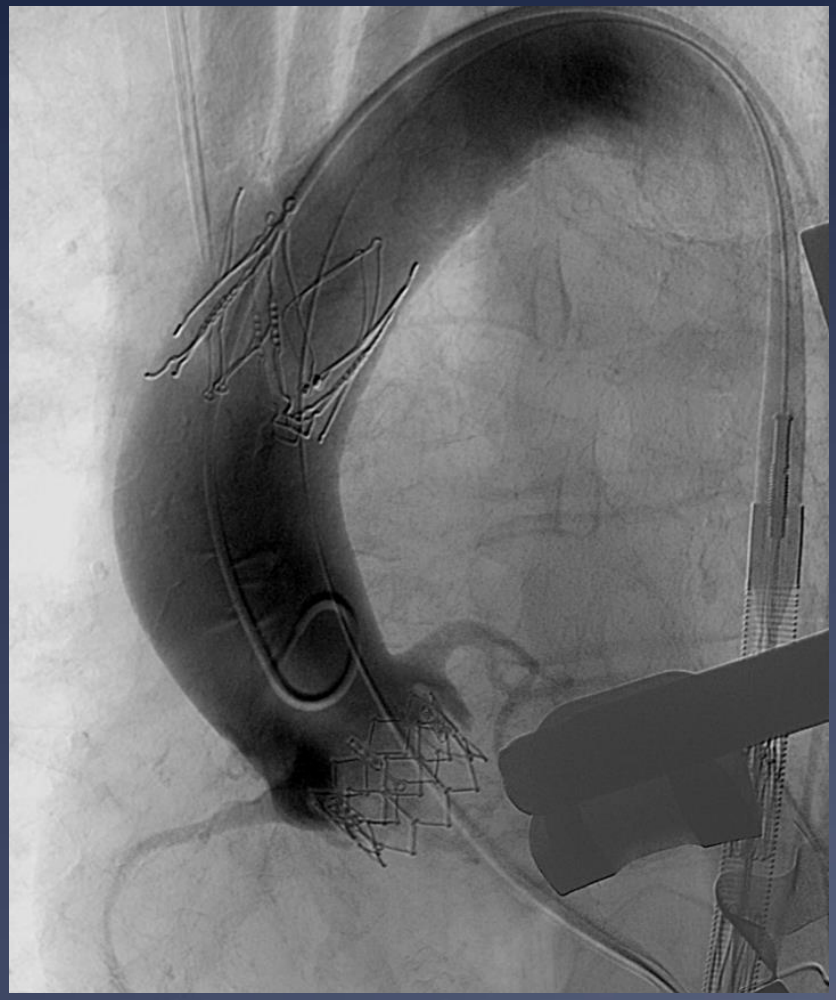


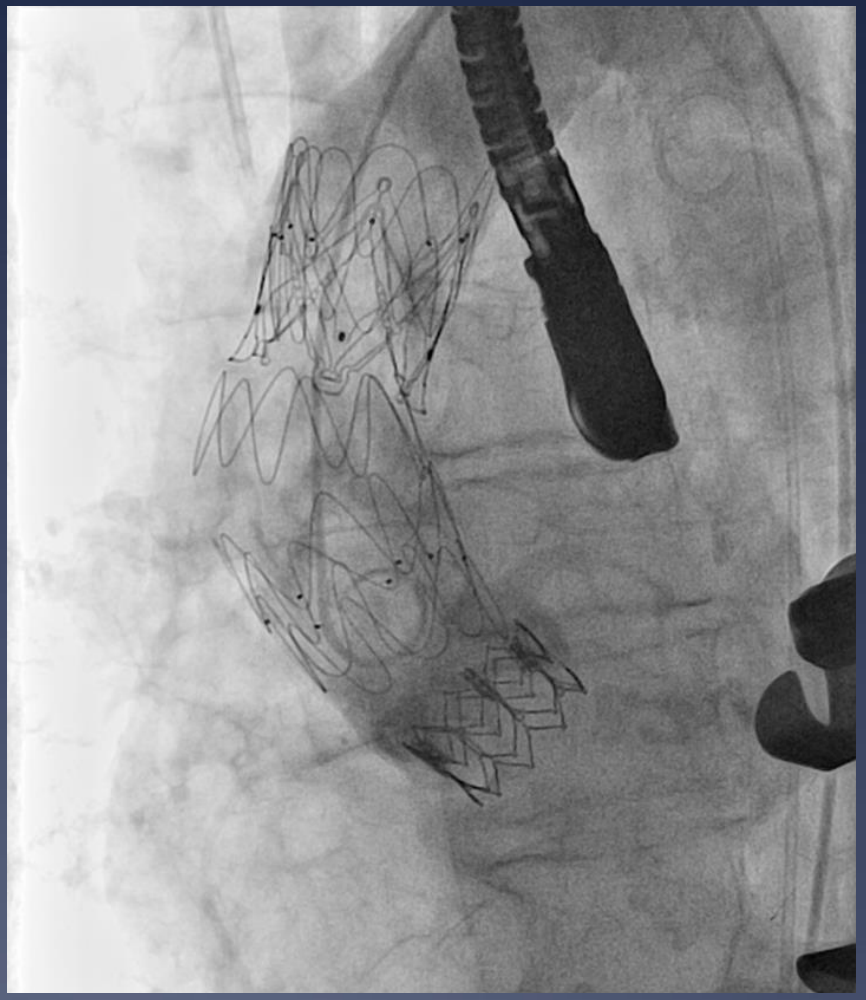






Lost TAVI





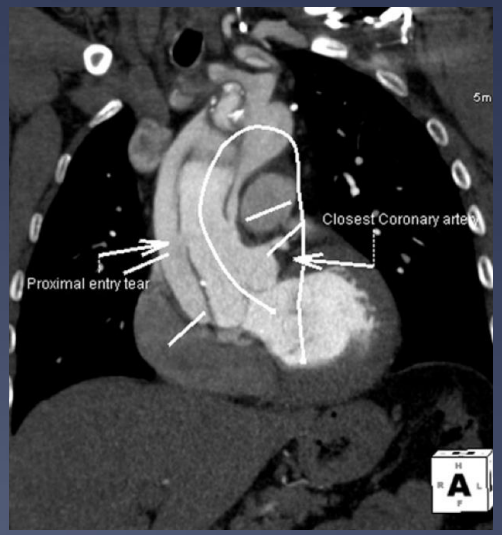
Type A Dissection

Endovascular Approaches to Acute Aortic Type A Dissection: A CT-Based Feasibility Study

J. Sobocinski [a], N. O'Brien [a], B. Maurel [b], M. Bartoli [c], Y. Goueffic [d], T. Sassard [e], M. Midulla [f], M. Koussa [a], A. Vincentelli [a], S. Haulon [a,*]

Conclusion

Approximately half of the patients currently undergoing open repair of an acute type A dissection could potentially be candidates for an endovascular repair. It is reasonable to extrapolate that the same proportion of patients who currently refused surgery on the basis of being unfit for open repair would have anatomy suitable for an endovascular repair. Clinical studies should be conducted in this subgroup of patients to determine a potential future role of endovascular repair in acute type A dissections.

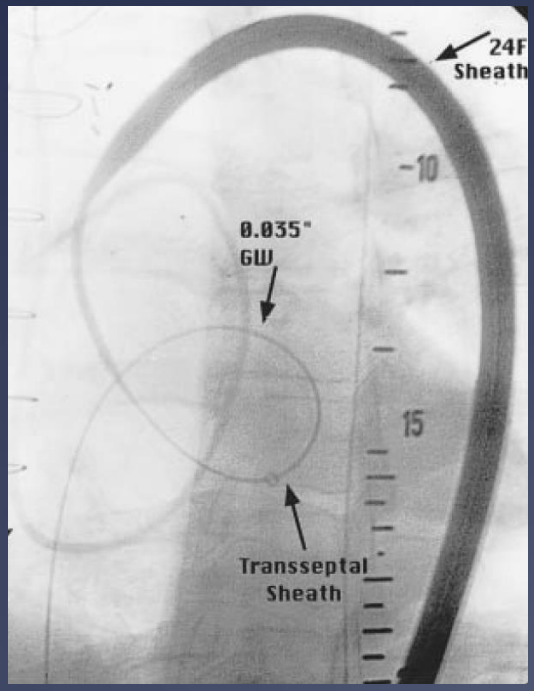


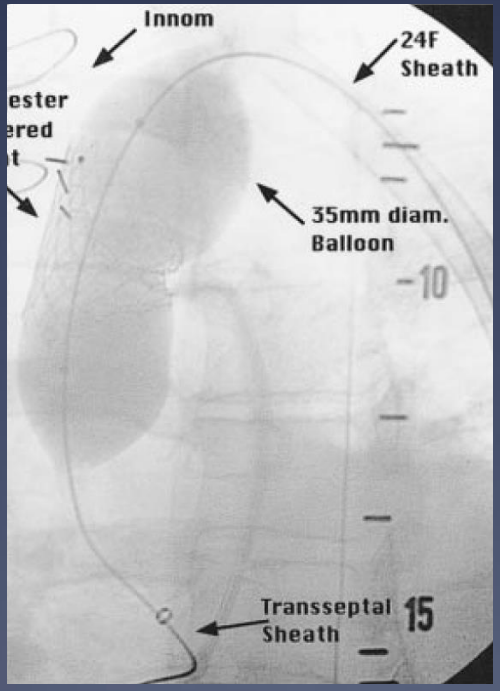
Sobocinski et al 2011, EJVES 42: 442-7

Type A Dissection

Transseptal Guidewire Stabilization Facilitates Stent-Graft Deployment for Persistent Proximal Ascending Aortic Dissection

Gerald Dorros, MD; Ari M. Dorros, MD; Sara Planton, RN; Daniel O'Hair, MD; and Mahmoud Zayed, MD





Dorros et al. 2000, JEVT 7: 506-12

Type A Dissection

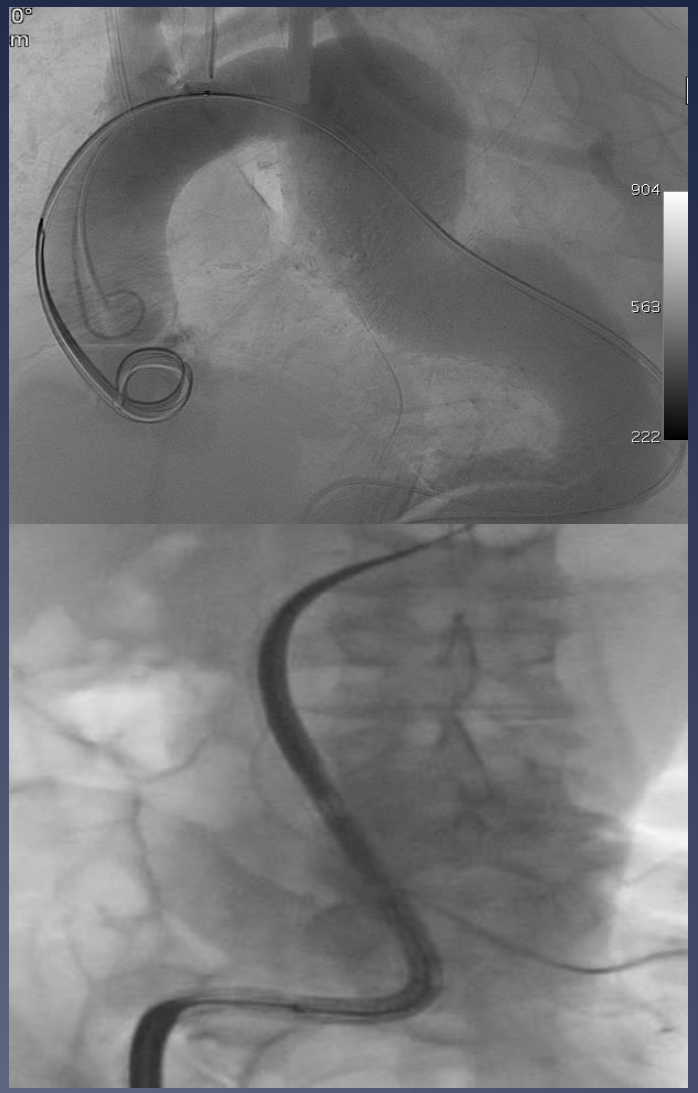
The first endovascular repair of an acute type A dissection using an endograft designed for the ascending aorta

Matthew J. Metcalfe, MD, MRCS, Alan Karthikesalingam, MRCS, Steve A. Black, FRCS, Ian M. Loftus, MD, FRCS, Robert Morgan, FRCR, and Matt M. Thompson, MD, FRCS,

Metcalfe et al. 2012, J Vasc Surg 55: 220-2

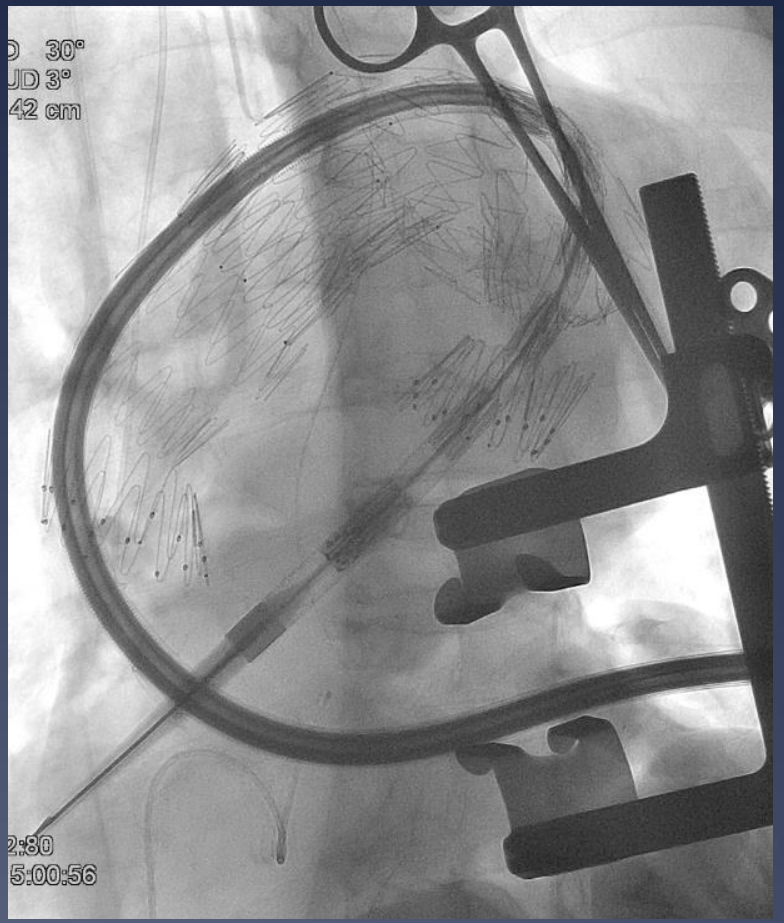
Limitations of Transfemoral Access

- Distance to ascending and arch
- Tortuosity and kinking
- Hemodynamic forces
- Left ventricular wire-position
- Difficult true lumen access
- Apposition



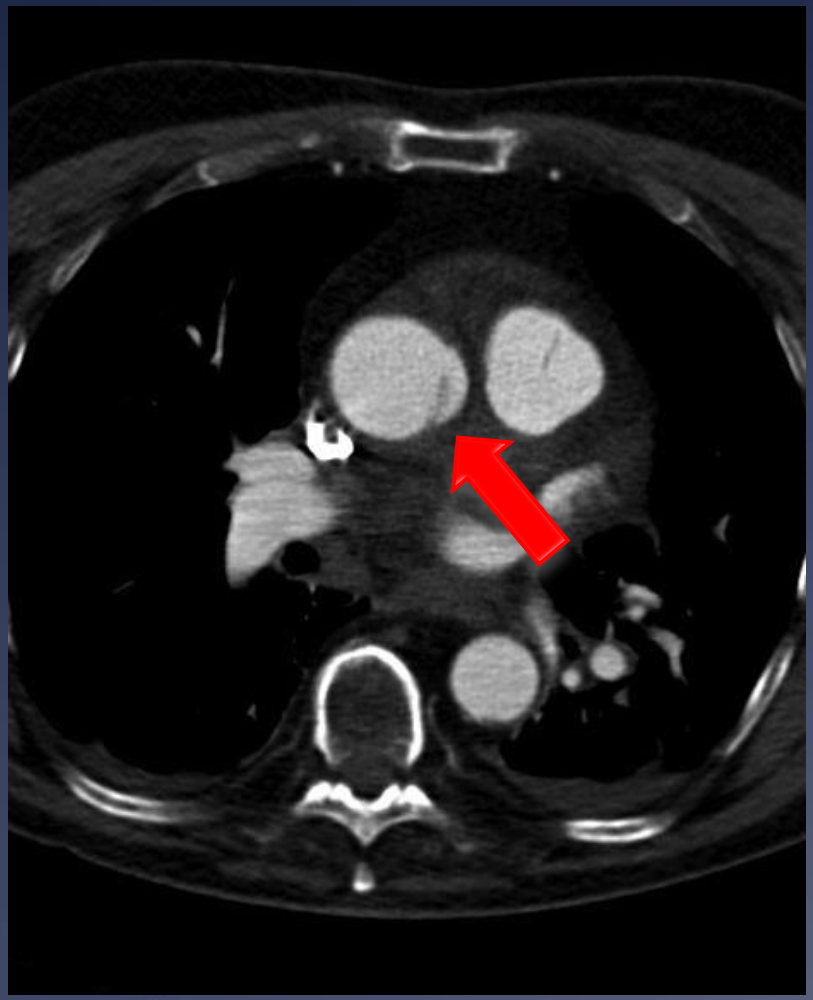
Transapical TEVAR

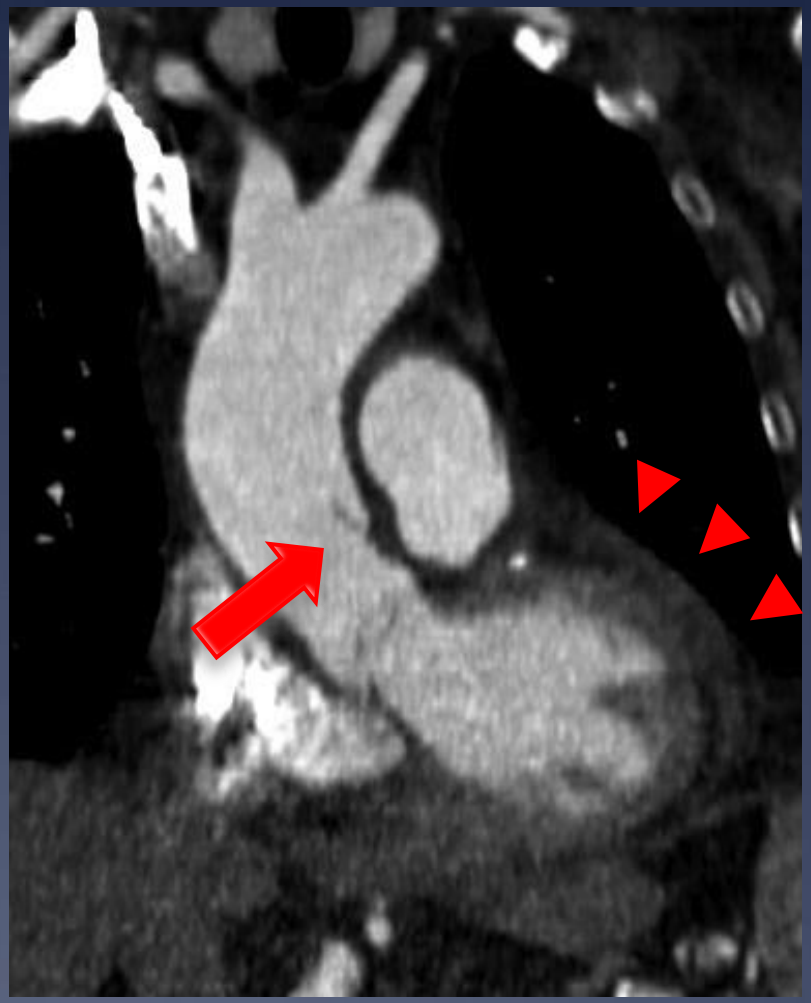
MacDonald et al 2009, JVS 49: 759-62



Kölbel et al 2012, Vascular 19: 308-12

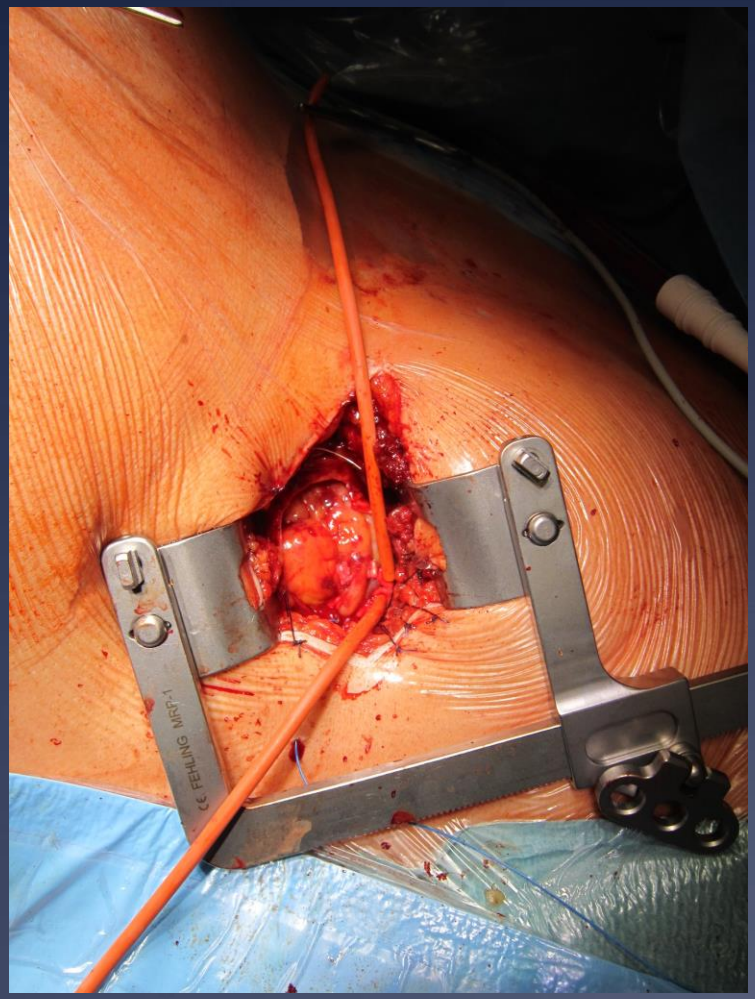
Transapical TEVAR

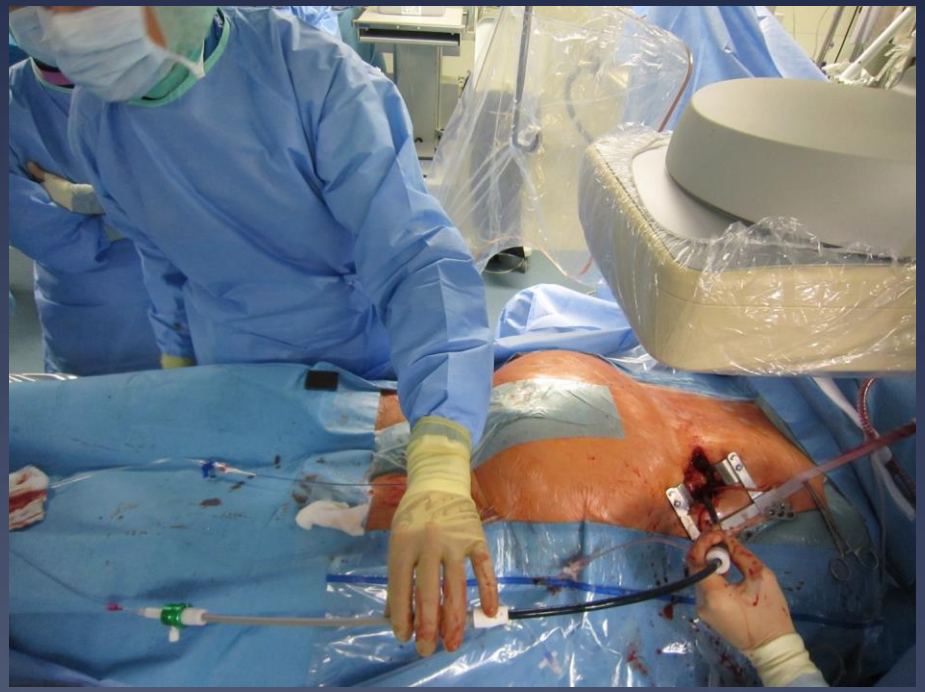




Kölbel et al. 2013; Ann Thor Surg 95:694-6

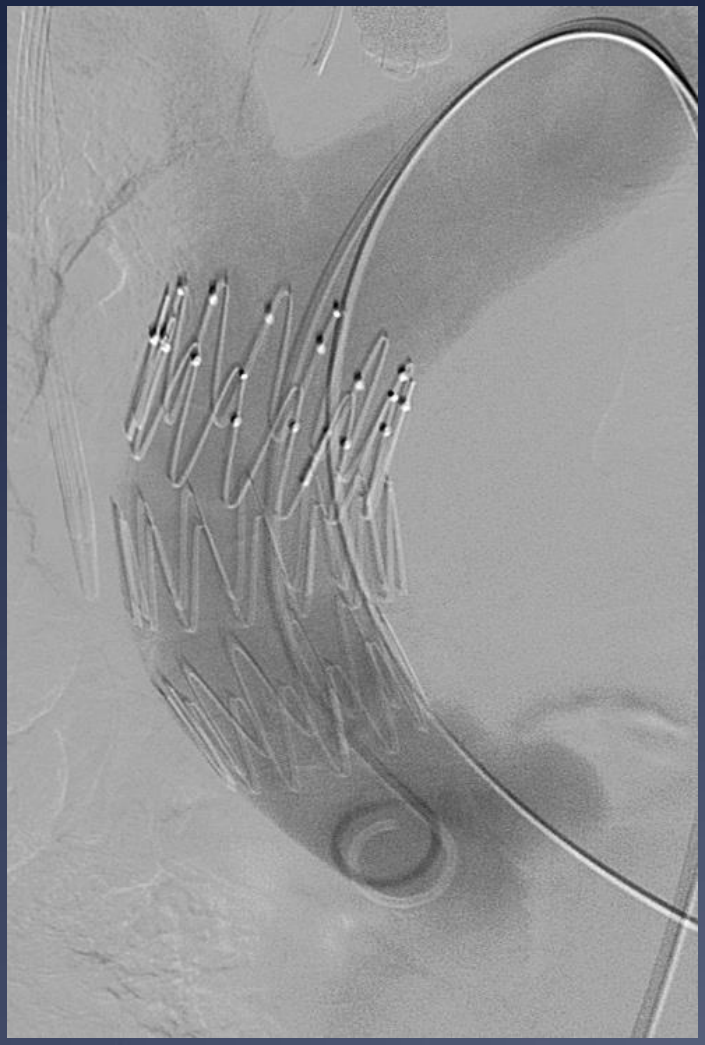
Transapical TEVAR





Kölbel et al. 2013; Ann Thor Surg 95:694-6

Transapical TEVAR



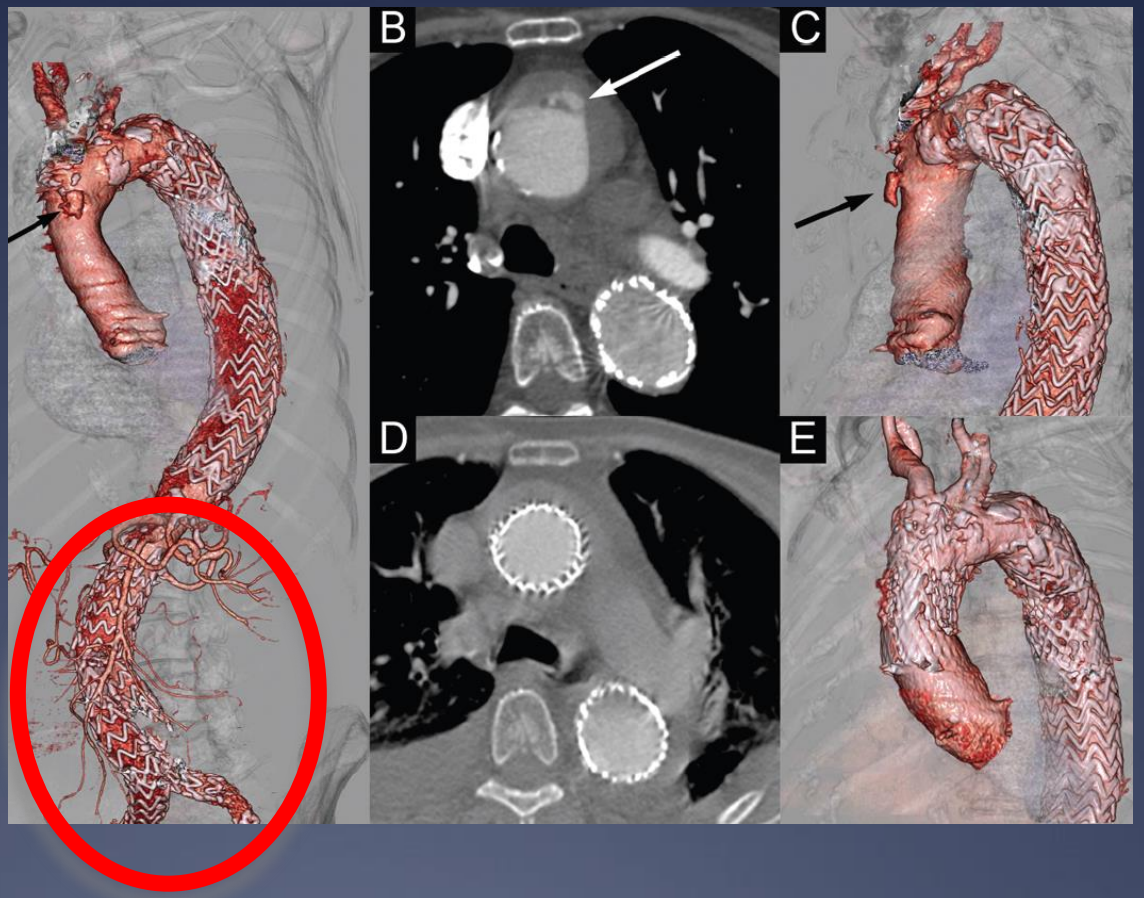
Kölbel et al. 2013; Ann Thor Surg 95:694-6

Transapical TEVAR

24m postop.

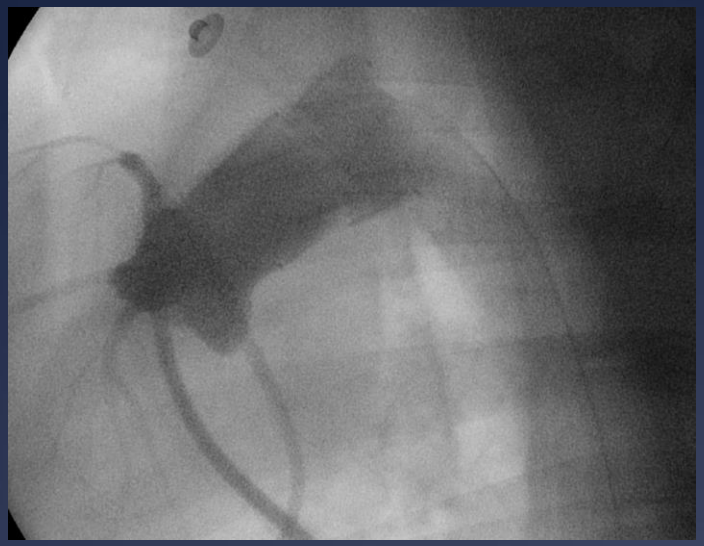
Recent Casereport

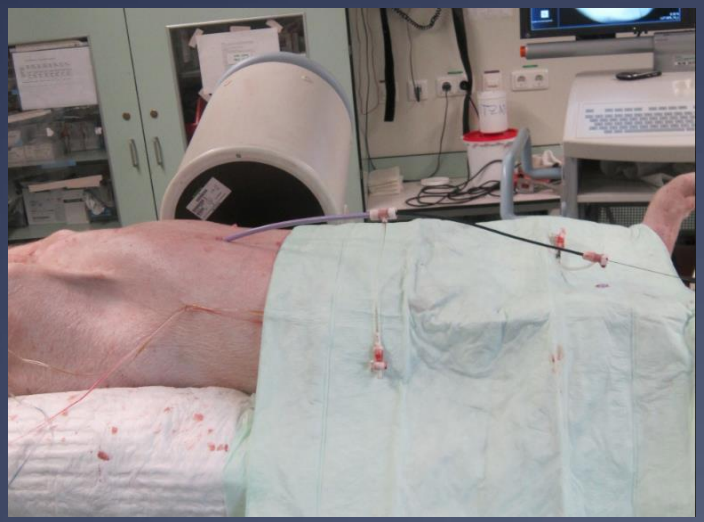
- "Dissecting hematma of the ascending aorta"
- From cardiovascular unit familiar with TAVI
- „Inaccessible peripheral vessels"
- „The procedure was a success"
- FU 8 days

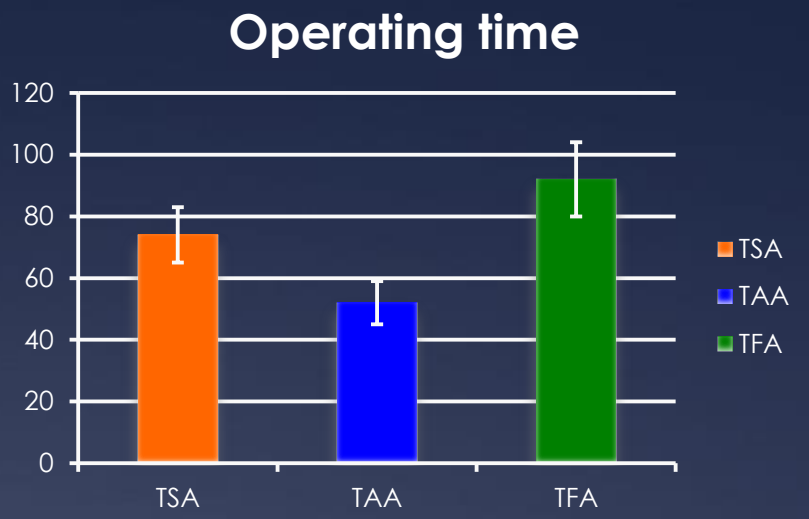


Pinaud et al. 2013, Eur Heart J; Epub

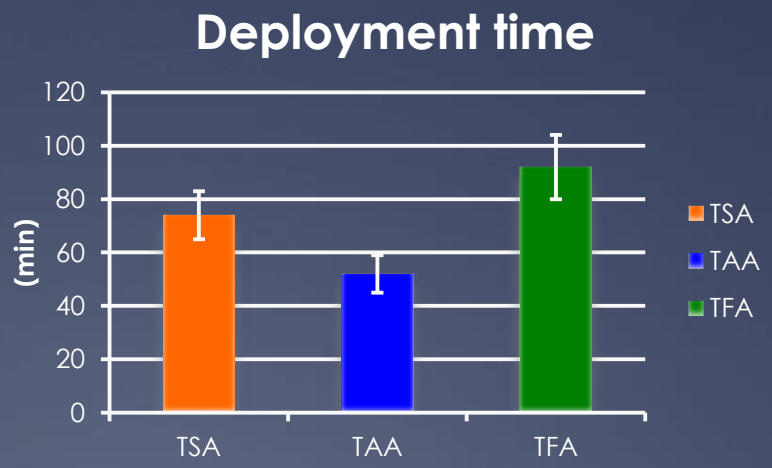
Experimental data







Transseptal vs. Transapical vs. Transfemoral Access



Wipper et al. 2013, submitted

Is the Endovascular Aproach Realistic?:

- Yes, in selected cases.
- Remaining problems:
  - Pulsatility, movement of aortic arch
  - Impact of endografts on AV unknown
  - Proximal seal
  - Patient selection
  - Best access.
- Most beneficial after previous surgery:
  - Higher risk in Redo-surgery
  - Safe proximal landing.

How I Do It:

- Wait for cases.
- Choose appropriate technique, implant, access.
- Know morbidity and mortality of open surgery.

Summary

- Endovascular Treatment of ascending aorta potentially beneficial in selected patients.
- Postsurgery lesions and Type A dissection work.
- Ascending aneurysms in native vessel do not.
- Transfemoral delivery challenging, transapical access route potentially easier.
- Currently available stent-grafts do not meet requirements.
- Role of endovascular treatment in the ascending aorta yet to be defined.

University Heart Center Hamburg

GERMAN AORTIC CENTER HAMBURG

Thanks to:

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