Innovative Approaches and Future Horizons to Ascending Aortic Pathologies: What can be done and what Problems Remain

Ralf R. Kolvenbach
Duesseldorf FRG
Conflict of Interest: None
MORPHOLOGY ASCENDING AORTA (N = 58 PATIENTS)

75% 25% Type A Dissection
TEVAR ASCENDING AORTA

- Transoesophageal Ultrasound
- Intraoperative Coronary-angiography
- Rapid Ventricular Pacing
- Transvalvular Manipulations
TRANSVALVULAR MANIPULATION IS ESSENTIAL
The variation of the antero-posterior and transverse diameters of the ascending aorta during the cardiac cycle were 8.4% and 7.3%, respectively. A personalized approach for planning endovascular devices must be considered.
ASCENDING AORTIC PSEUDO ANEURYSMS

- Previous Ascending repair = ideal case

Tubular landing zone
TRUE ASCENDING ANEURYSMS
TECHNICAL ISSUES: GRAFT KINKING
TRUE ASCENDING ANEURYSM
ASCENDING AORTIC ANEURYSMS

Ascending and Aortic Arch Aneurysm, 7cm, symptomatic

prev. replacement of the aortic valve
Hypertension
TYP 2 ENDOLEAK VIA THE INNOMINATE ARTERY
Endoleaks

ENDOLEAK TYP 2 – COILING THE SAC AND THE INNOMINATE ARTERY VIA RIGHT TRANSBRACHIAL ACCESS + AMPLATZ OCCLUDER
COILING – NO ENDOLEAK

Occluder
ASCENDING ANEURYSMS – TECHNICAL ISSUES – DEBRANCHING AND COIL EMBOLIZATION
OPTIMAL LENGTH OF THE GRAFT TO AVOID REGURGITATION
Trimming of the graft to appropriate length

Off Label
Optimal Length of the graft
EMBOLIZING ASCENDING AORTIC THROMBUS
THROMBUS
TYPE A DISSECTION

Valve-sparing aortic root reconstruction (modified David procedure)

Morbidity / Mortality : 28%
TYPE A DISSECTIONS - LIMITATIONS
TYPE A DISSECTION
AND PAU - IDEAL CASE
Type A Dissection Clamp related after CABG

Combination: Bare Metal + Medtronic Graft
TYPE A DISSECTION
TYPE A DISSECTION     THE ROLE OF BARE METAL STENTS
Type A Dissection    The role of Bare Metal Stents
PSEUDO ANEURYSM
DEDICATED GRAFTS REQUIRED
WRAPPING ASCENDING ANEURYSMS (4.5CM – 5.5CM)
TRUE ANEURYSMS - WRAPPING
TRUE ANEURYSMS - WRAPPING

5.7 cm - 4.2 cm

Wrapping Ascending Aneurysm (4.5 cm – 5.5 cm)
ACTIVE GRAFT FIXATION
APTUS STAPLER
## RESULTS

- **Patients:** 30
- **Mortality:** 2
- **Stroke:** 1
- **MI:** 1
- **Type I Leak:** 2
- **Techn. Success:** 28/30
- **Mortality + MAE:** 12.1%
- **TAVI:** 26.0%

### Aneurysms:
- 9

### Pau:
- 3

### Dissection:
- 5

### Thrombus:
- 3

### Supravalv. Landing Zone
- Arch aneurysms: 10

---

*Endovascular management of ascending aortic pathology*
CONCLUSION

• A wide range of ascending pathology can be treated with endografts

• Bare Metal Stents can be a real alternative in Type A Dissections

• Many True aneurysms are not ready for prime time yet!
Innovative Approaches and Future Horizons to Ascending Aortic Pathologies: What can be done and what Problems Remain

Ralf R. Kolvenbach
Duesseldorf FRG