Frozen Elephant Trunk in Chronic Aortic Dissection and Endovascular Treatment of the Downstream Aorta

D.-S. Dohle, H. El-Beyrouti, C.-F. Vahl

Department of Cardiothoracic and Vascular Surgery, University Medical Center, Johannes-Gutenberg University, Mainz, Germany
Diagnosis & Symptoms

- 52 y/o male patient, 70 kg, 176 cm
- chronic arch dissection with fast growing arch
- thoracic pain
- root aneurysm with severe AR

History

- s/p isolated proximal repair for acute type A dissection 10/2016 elsewhere
- hypertension
- nicotine and history of i.v. drug abuse
FET + Bentall in CAD, Case 1

Preoperative Imaging
Surgical Strategy

- mech. Bentall procedure (ONX 25 mm)
- Zone 2 FET (EVITA 30 mm)
- LSA Bypass
Operative Data & Result

Operative data

- CPB time 291 min
- X-clamp time 203 min
- DHCA @ 24°C
  - distal ischemia 31 min
  - cerebral perfusion 48 min

Postoperative course

- extubated after 12 h
- ICU for 3 days
- discharged home 11th POD
Patient History

Diagnosis & Symptoms

- 66 y/o male, 88 kg, 187 cm
- Symptomatic fast growing aortic arch aneurysm

History

- chronic type B dissection
- s/p apoplex 2009
- intermittent tachyarrhythmia
- hypertension, hyperlipidemia
Surgical Strategy

- Two-staged approach: Z2 FET + TEVAR
1st stage Z2 FET

Operative data (33 mm EVITA):
- CPB time 220 min
- X-clamp time 95 min
- DHCA @ 24°C
  - distal ischemia 20 min
  - cerebral perfusion 37 min

Postoperative course:
- extubated after 18 h
- ICU for 4 days
- discharged 14th POD
2nd stage TEVAR after 3 month

2nd stage TEVAR:
- Relay NBS 36 x 154 x 36
- Relay NBS 36 x 154 x 32

Postoperative course
- extubated in OR
- discharged 5th POD
**Patient History**

**Diagnosis & Symptoms**
- 41 y/o female, 81 kg, 191 cm
- Symptomatic descending aneurysm with gothic arch

**History**
- Marfan syndrome
- s/p sternal plasty for pectus excavatum (1990)
- reduced LVEF
Surgical Strategy

- Two-staged approach: Z2 FET + TEVAR

Gothic arch

> 50 mm

> 170 mm
FET and 2nd stage TEVAR in Aneurysm, Case 3

1st stage Z2 FET

Operative data (24 mm EVITA):
- CPB time 235 min
- X-clamp time 69 min
- DHCA @ 24°C
  - distal ischemia 21 min
  - cerebral perfusion 43 min

Postoperative course:
- extubated after 8 h
- ICU for 2 days
- discharged 10th POD
FET and 2nd stage TEVAR in Aneurysm, Case 3

2nd stage TEVAR after 3 month

2nd stage TEVAR:
- Cook Zenith 24x105x24
- Spinal drainage

Postoperative course:
- extubated in OR
- discharged 6th POD
Patient History

Diagnosis & Symptoms
- 73 y/o male, 84 kg, 186 cm
- symptomatic Growing arch aneurysm > 55 mm

History
- chronic Type B dissection
- s/p Y prosthesis with increasing abdominal aneurysm
FET and 2nd stage TEVAR
+ 3rd stage bEVAR in TAAA, Case 4

**Surgical Strategy**

- 1st stage Z2 FET
- 2nd stage TEVAR
- 3rd stage bEVAR

Abdominal FL aneurysm

> 50 mm
FET and 2nd stage TEVAR
+ 3rd stage bEVAR in TAAA, Case 4
1st stage Z2 FET

Operative data (36 mm EVITA):
- CPB time 220min
- X-clamp time 112 min
- DHCA @ 26°C
  - distal ischemia 29 min
  - cerebral perfusion 43 min

Postoperative course
- extubated after 10 h
- ICU for 2 days
- discharged 12th POD
FET and 2\textsuperscript{nd} stage TEVAR
+ 3\textsuperscript{rd} stage FEVAR in TAAA, Case 4

2\textsuperscript{nd} stage TEVAR and 3\textsuperscript{rd} stage bEVAR planning