

Thoracale aorta pathologie

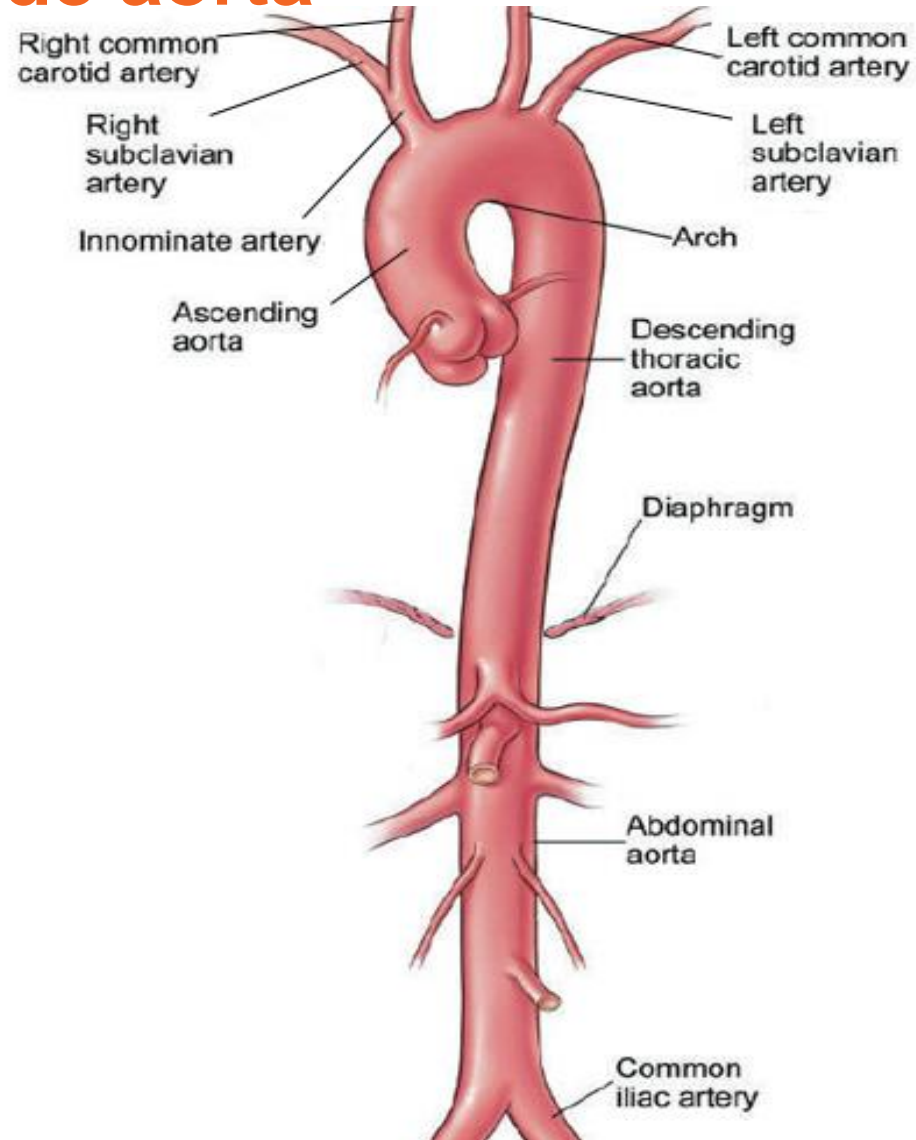
- **Aorta dissectie**

- Type A dissectie
- Type B dissectie

- **Aorta aneurysma**

- Wortel
- Ascendens
- Arcus
- Thoracaal aneurysma (TAA)
- Abdominaal aneurysma
- Thoraco-abdominaal aneurysma (TAAA)

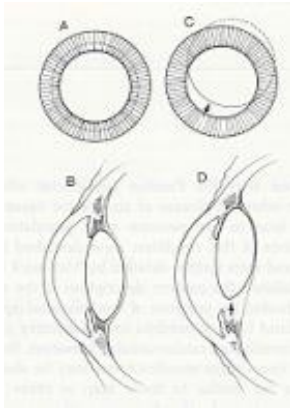
Anatomie van de aorta



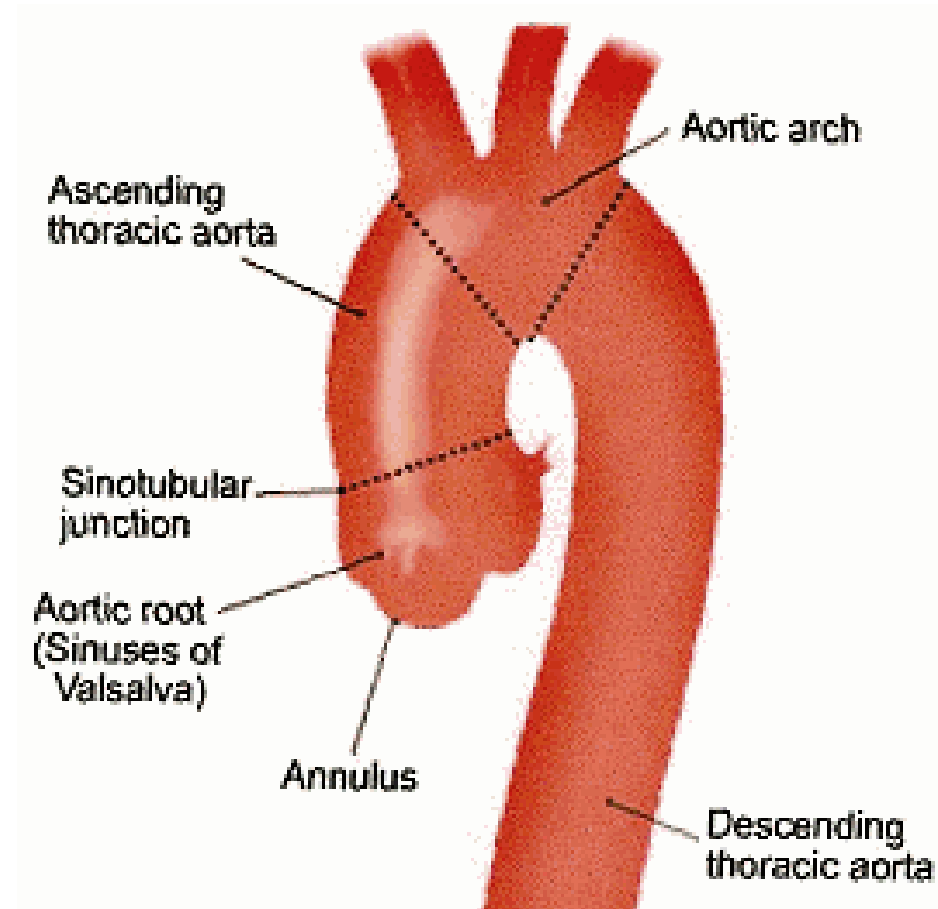
Thoracale aorta aneurysmata

- **Aneurysma: verwijding van een bloedvat >50% van de verwachte diameter**
- **Etiologie:**
 - Degeneratief
 - Post-dissectie
 - Vasculitis of aortitis (mycotisch aneurysma)
 - Genetische bindweefselziekte
 - M. Marfan
 - Loeys-Dietz syndroom
 - Ehlers-Danlos syndroom
 - Bicuspide aortaklep (primaire wandzwakte vs. post-stenotisch?)

Bindweefselziekten- MARFAN SYNDROME

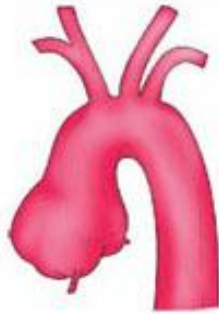


Anatomie

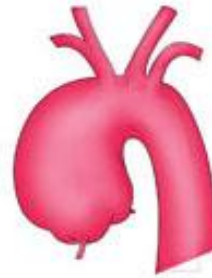


Thoracale aneurysmata

Aortic Root Aneurysm



Ascending Aortic Aneurysm



Aortic Arch Aneurysm



Descending Aortic Aneurysm



Thoracale aorta aneurysmata- indicatie tot chirurgie

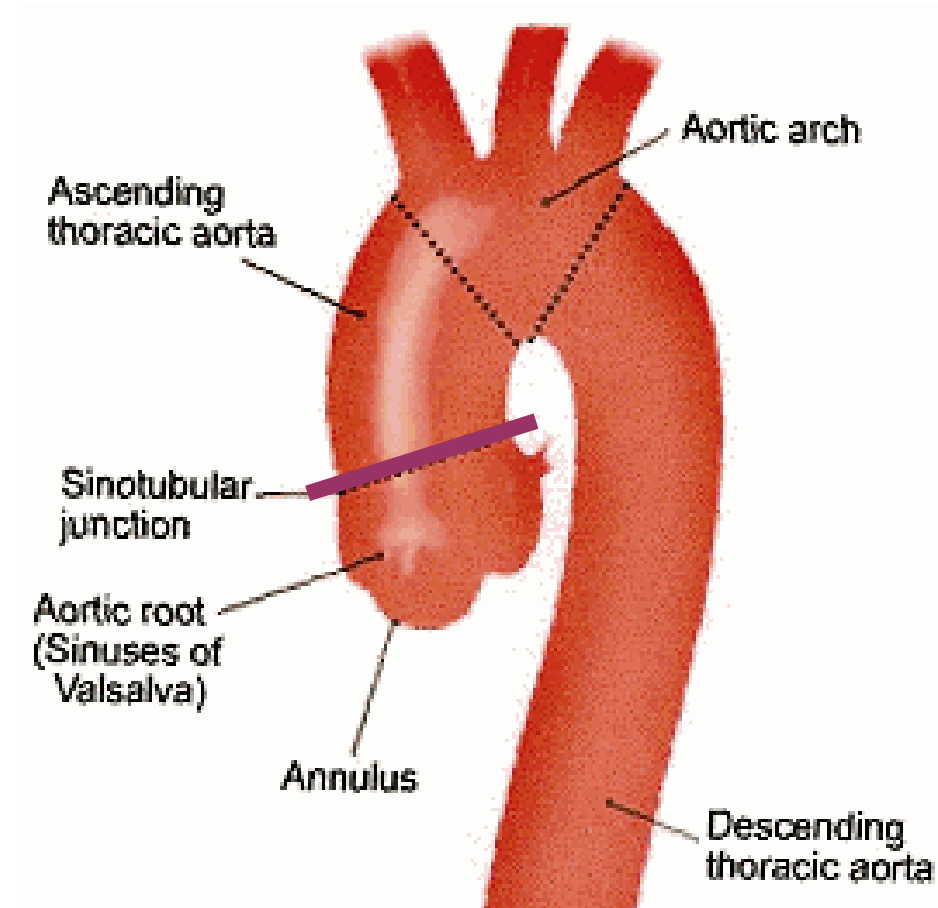
- **Preventieve operatie:**

- Voorkomen van dissectie.
- Voorkomen van ruptuur.
- Wortel of ascendens bij >55 mm.
- Descendens bij >60 mm.
- Bindweefselaandoening bij >45 mm resp >50 mm.

- **Concomitante operatie bij andere hartoperatie**

- Bij diameter >45 mm.

Aortic root



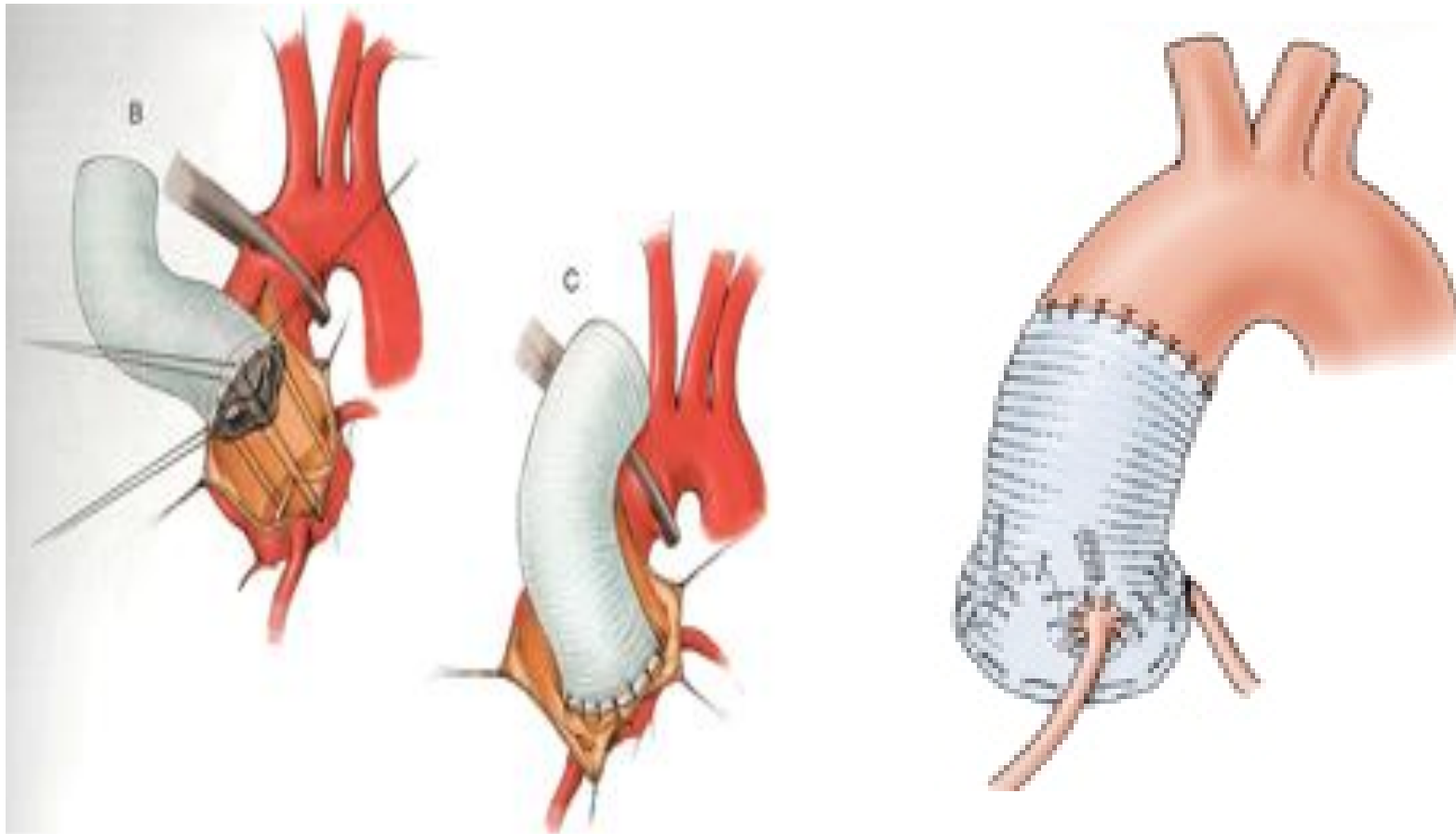
Root / Wortel vervanging

Bentall

Dauids Plastiek

Yacoubs plastiek

Bentall



Bentall procedure results

- 41 publications; surgery from 1968-2012
- N=7,165 (36,000 pt yrs), mean pooled age 46 years, 76% male
- Operative mortality: 1.2-20% (mean 5%)

Late mortality 2.3%/yr

Reoperation

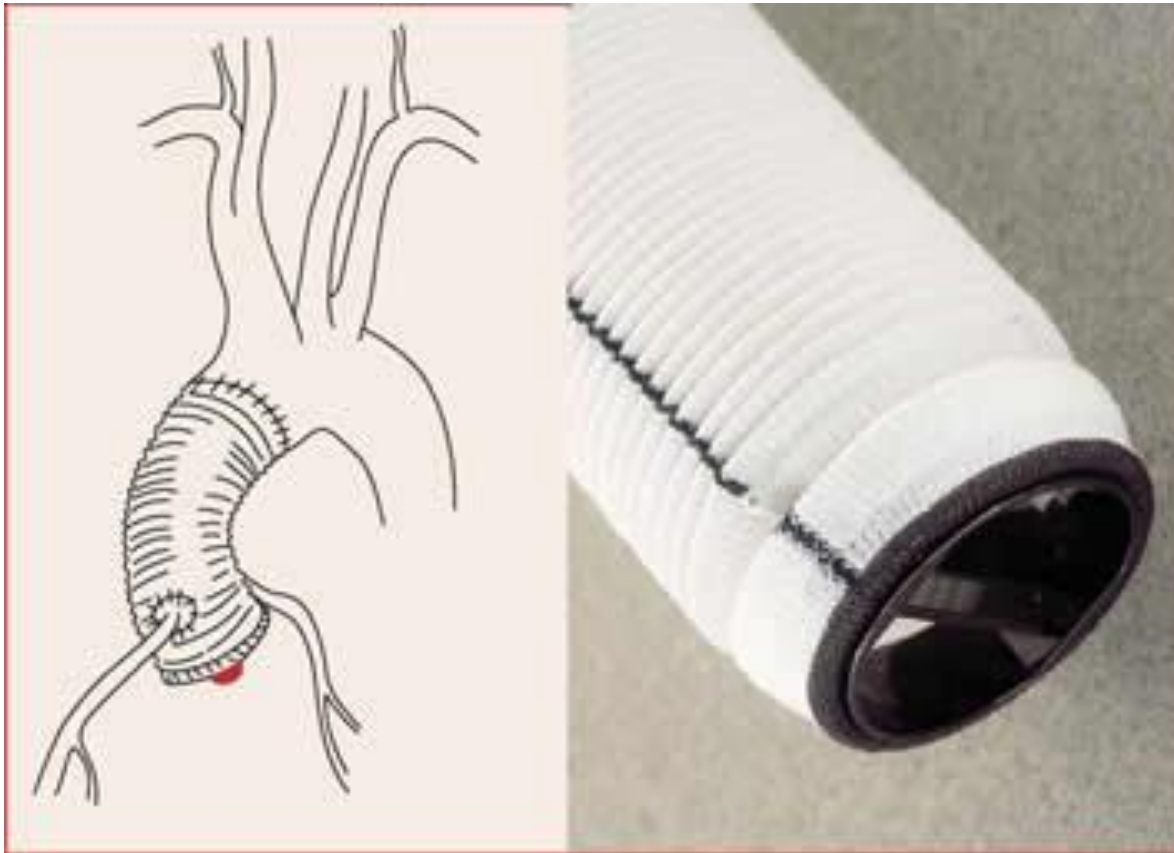
-Root 0.8%/yr

-Valve 0.6%/yr

TE 1.0%/yr

Bleeding 1.2%/yr

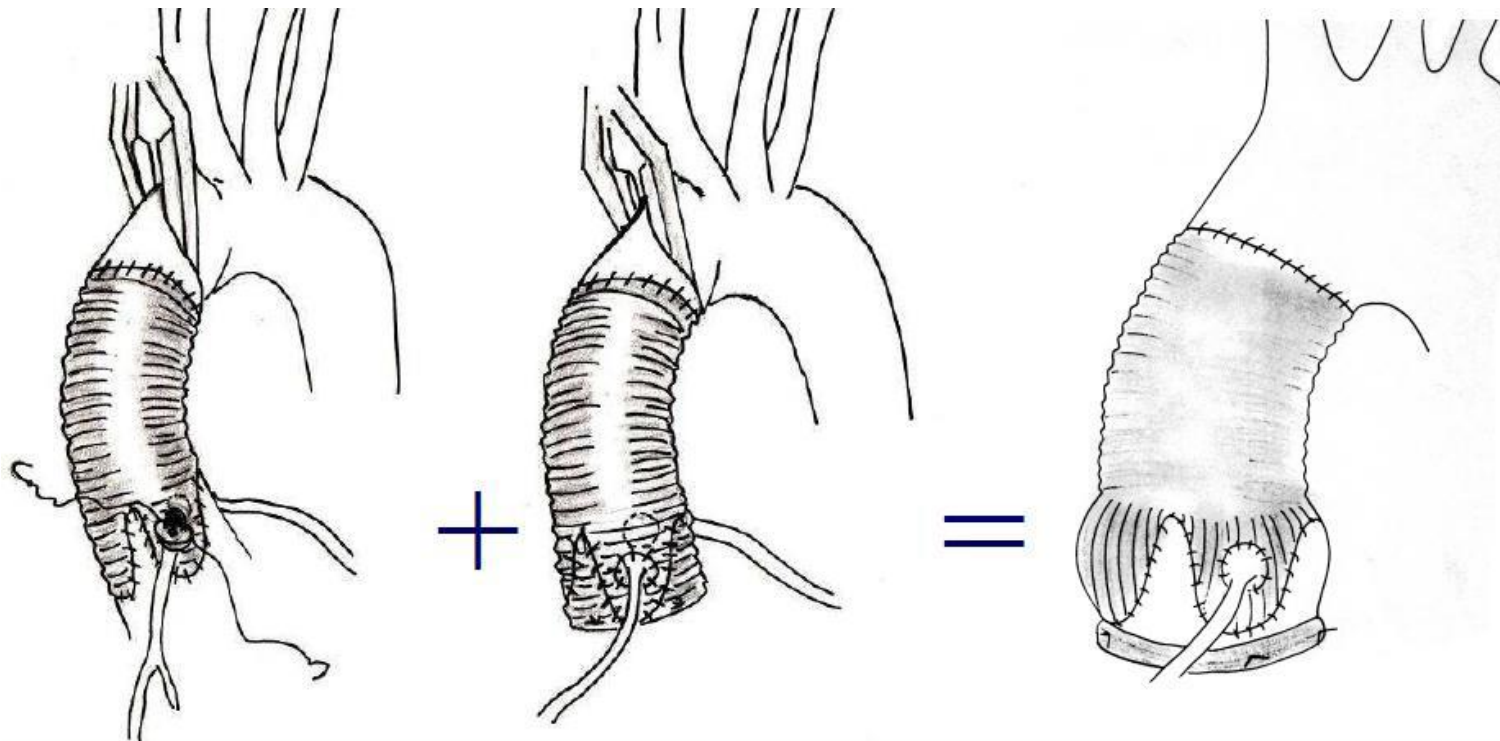
Mechanische



Biologische



Root dilataie -behandeling

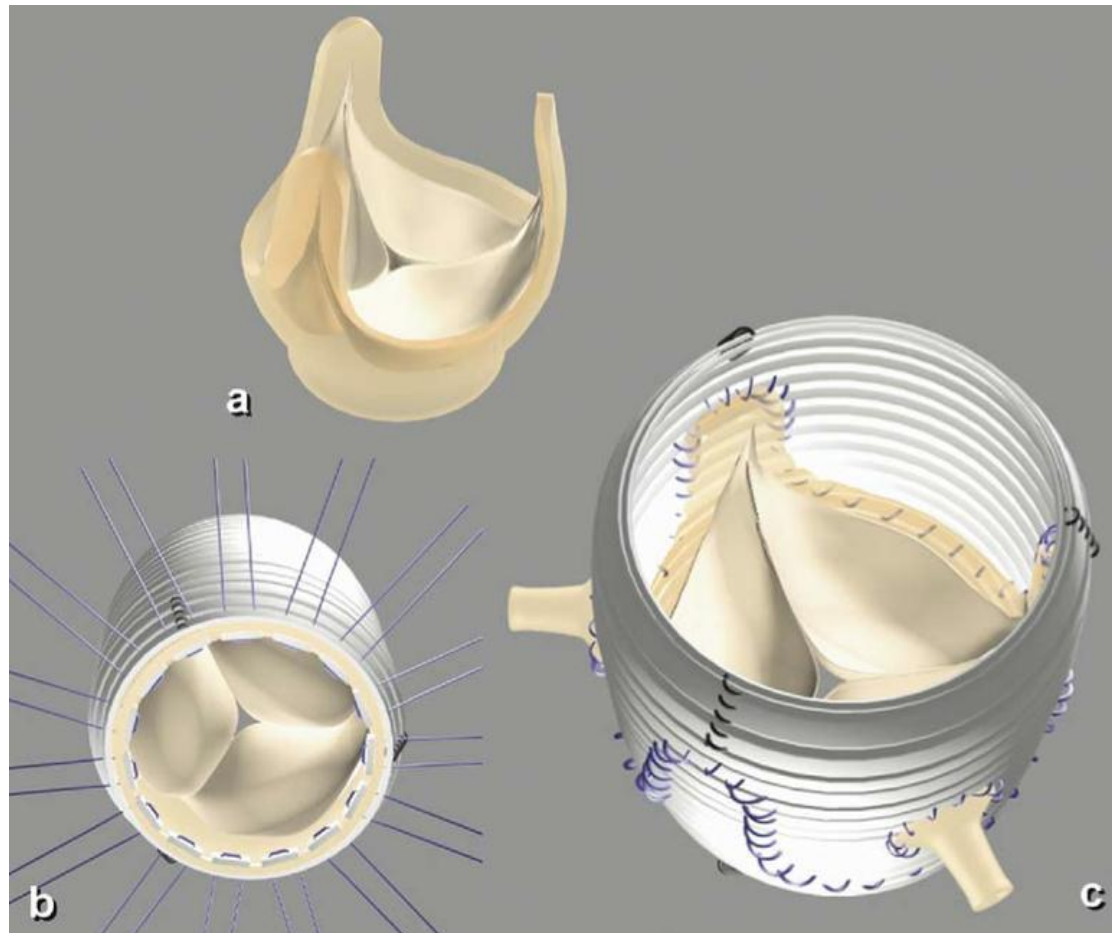


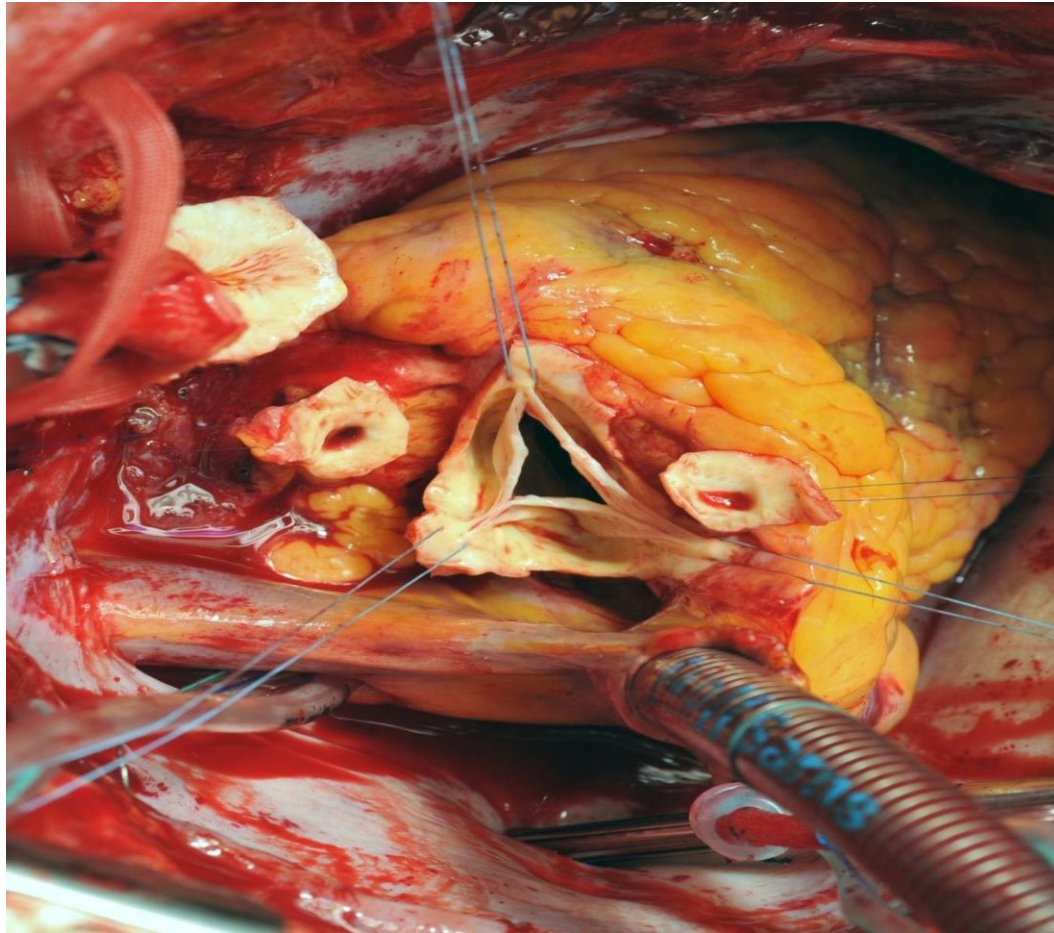
Remodeling

Reimplantation

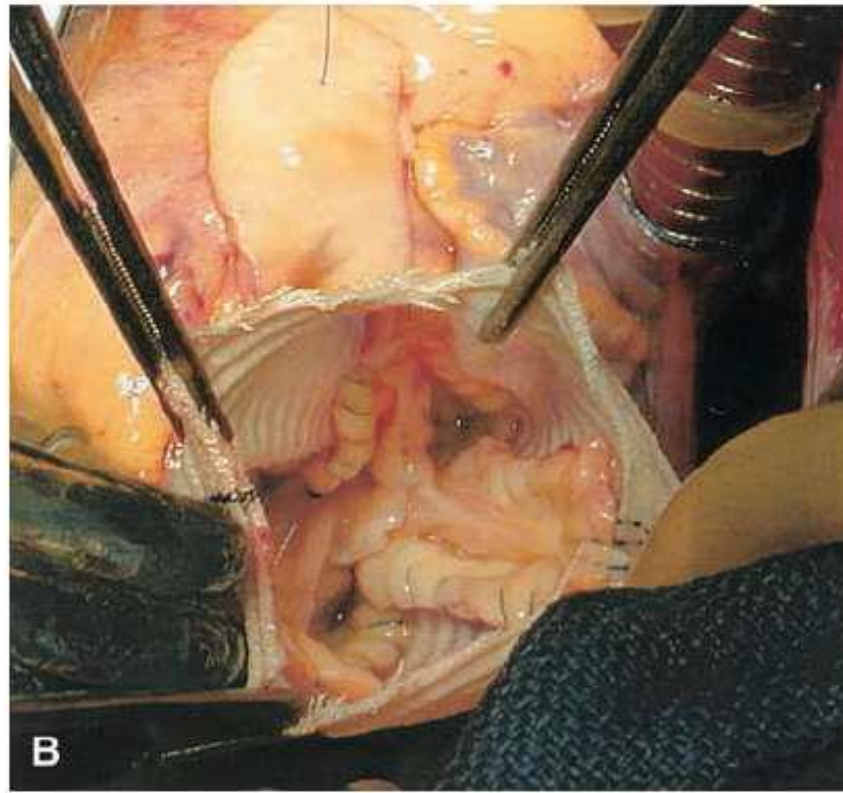
Remodeling +
subvalvular annuloplasty

Dauids plastiek

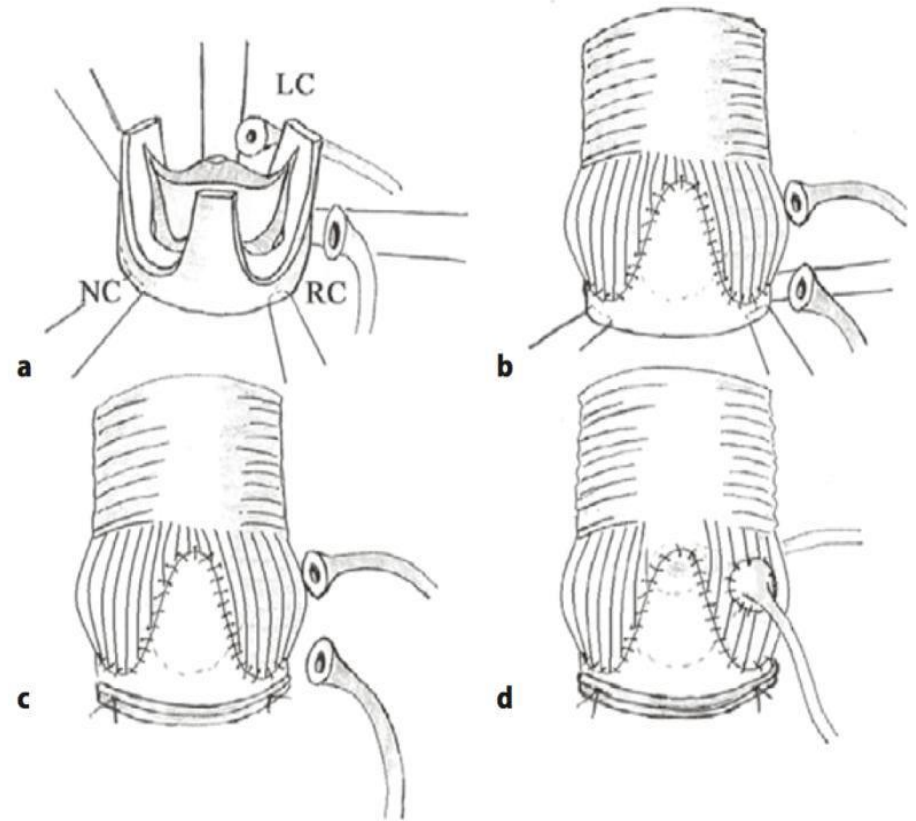
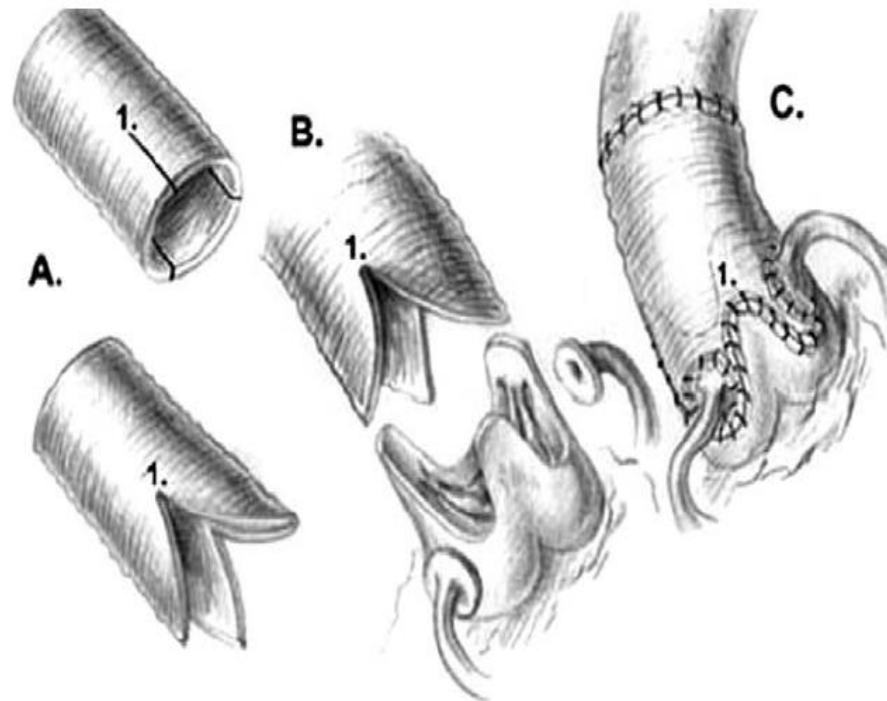


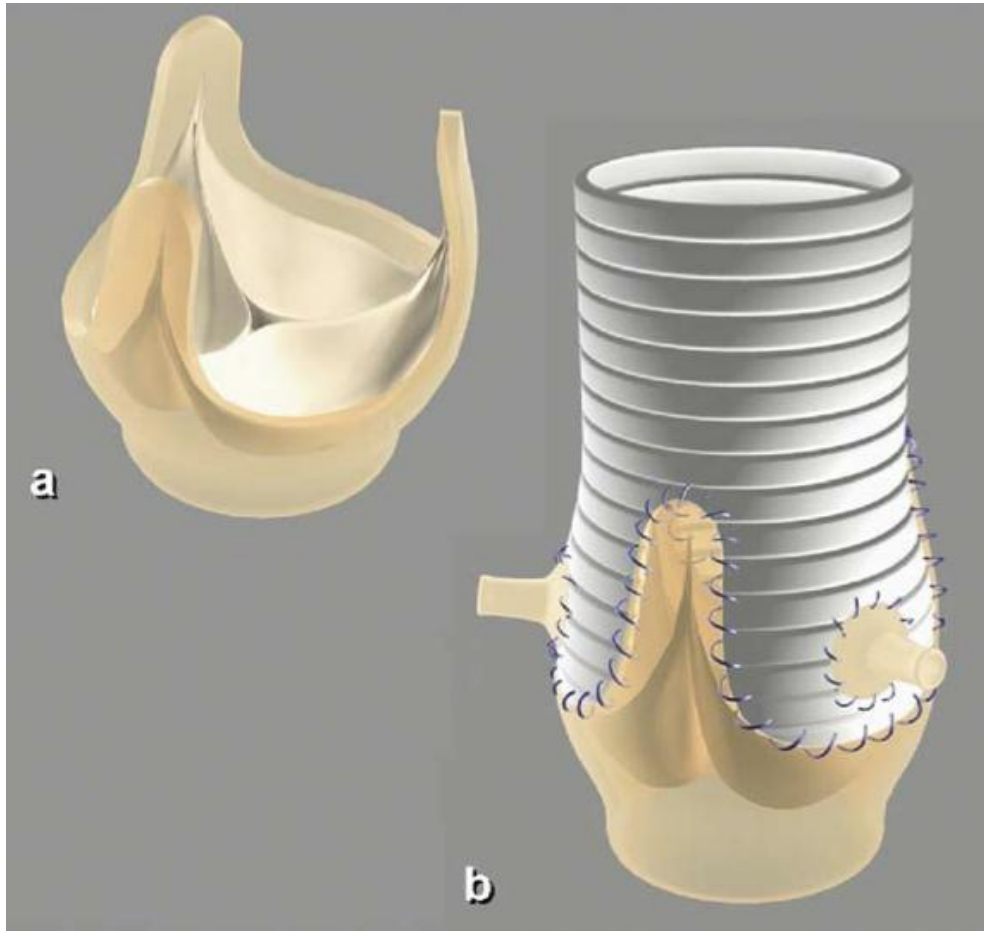


Dauids Plastiek



Yacoub's plastic





Is it safe???



David vs Yacoub

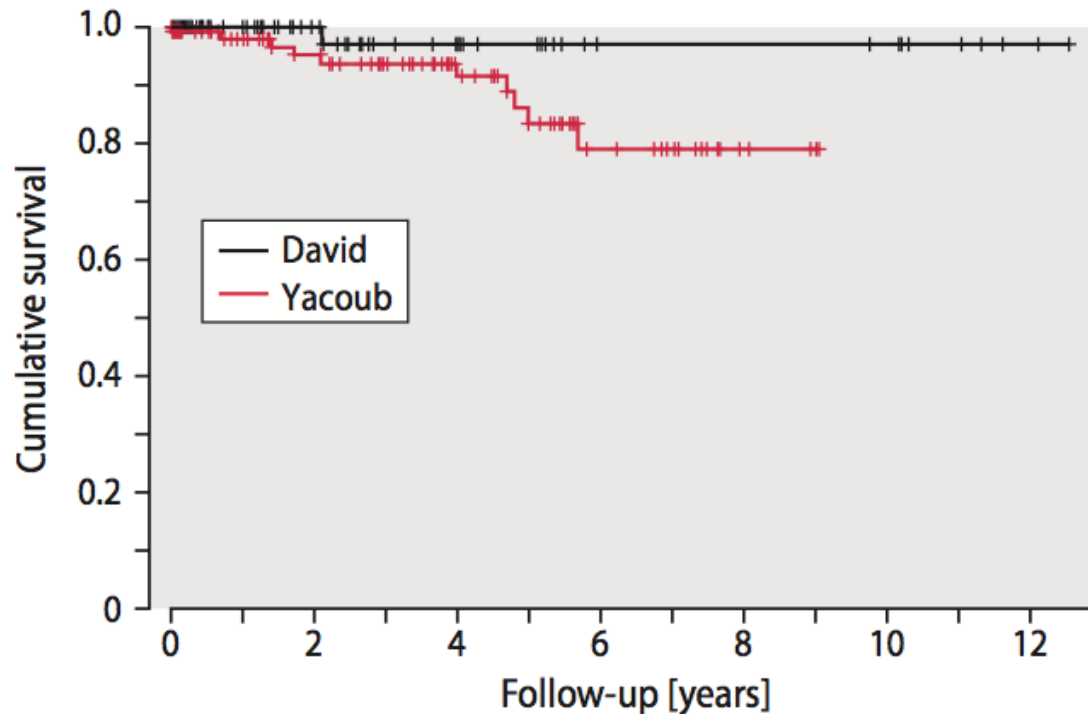


Fig. 4. Valve-related reoperations: actuarial freedom from valve-related reoperations in all patients undergoing valve-sparing aortic root replacement, stratified by technique. Censored patient data are indicated by ticks to the curves. The difference is not quite significant ($p=0.065$)

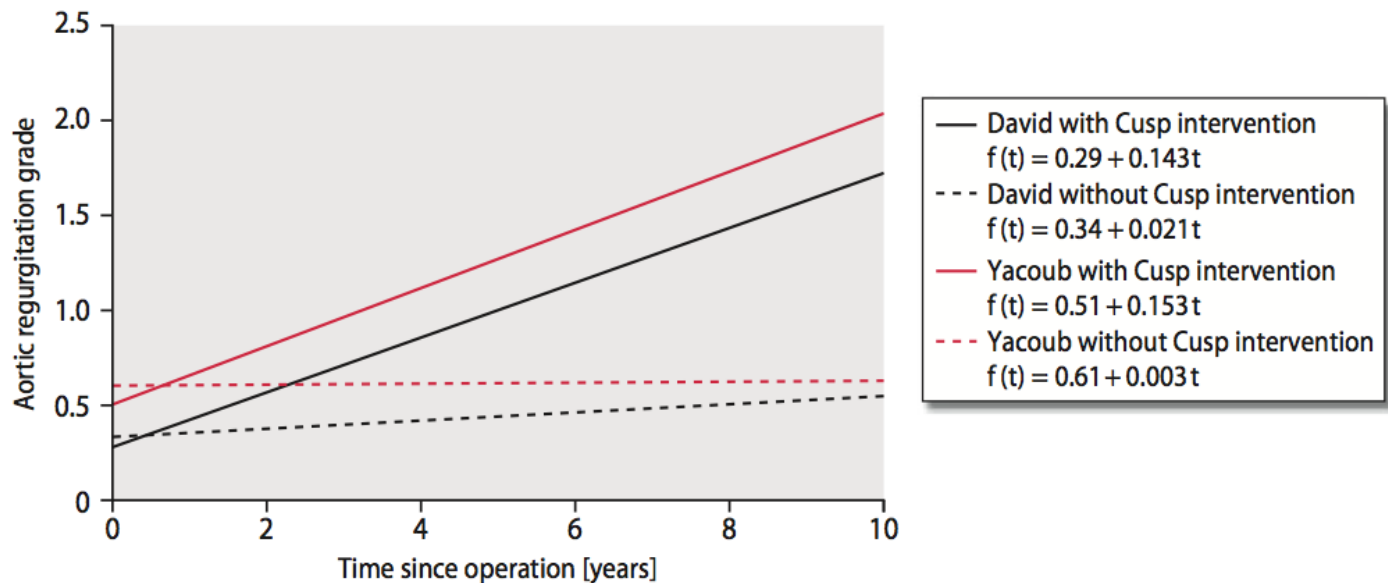
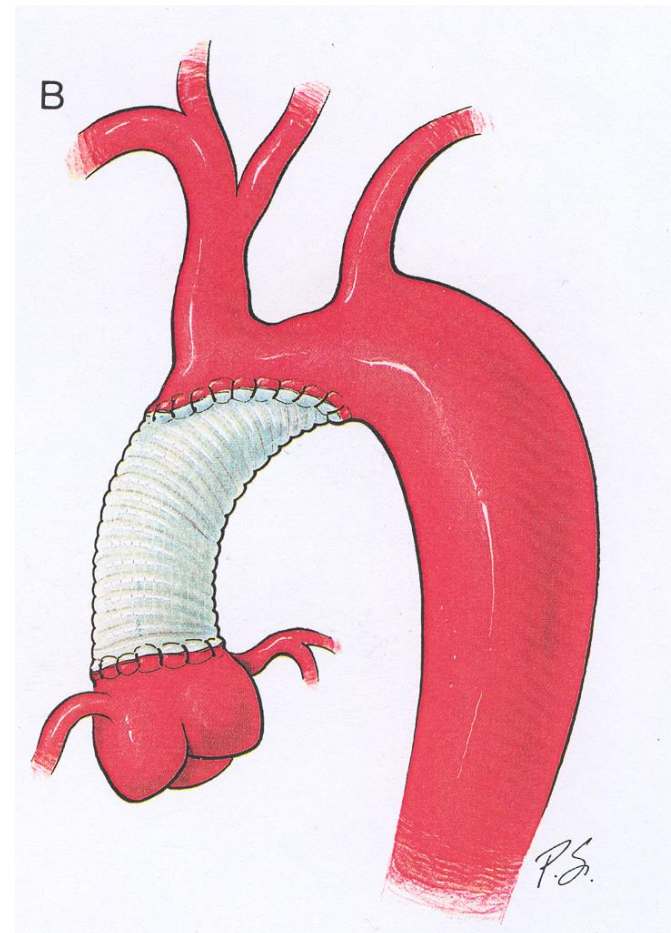
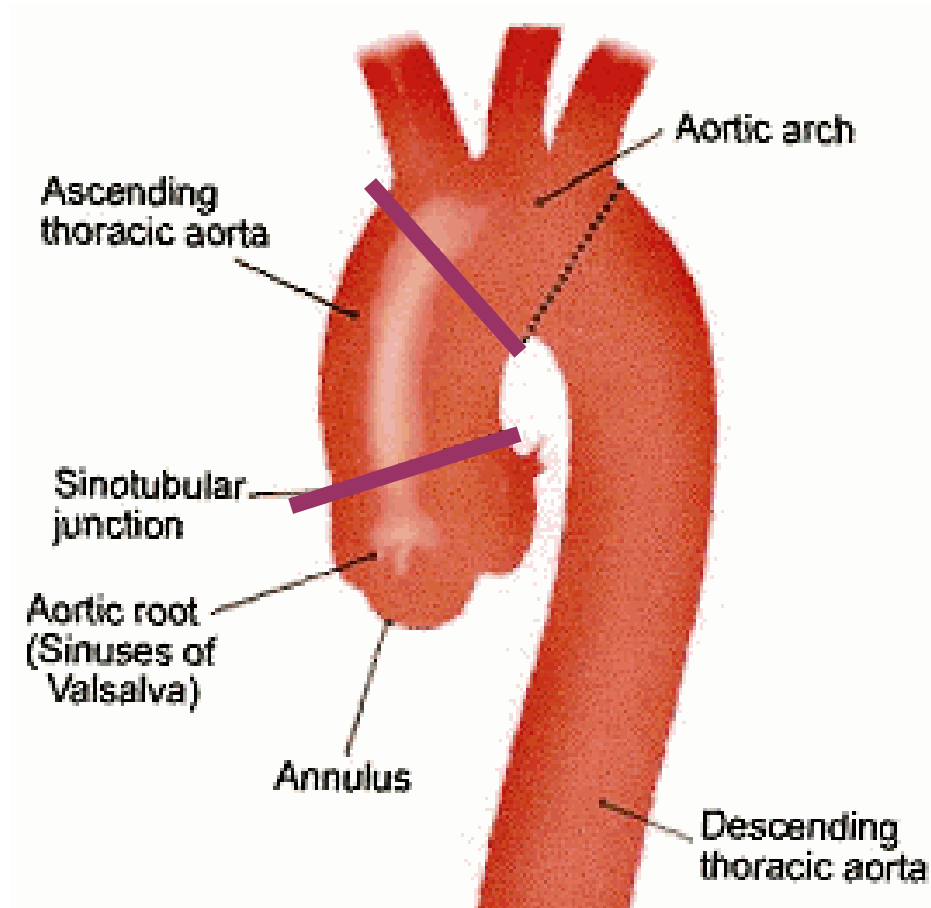
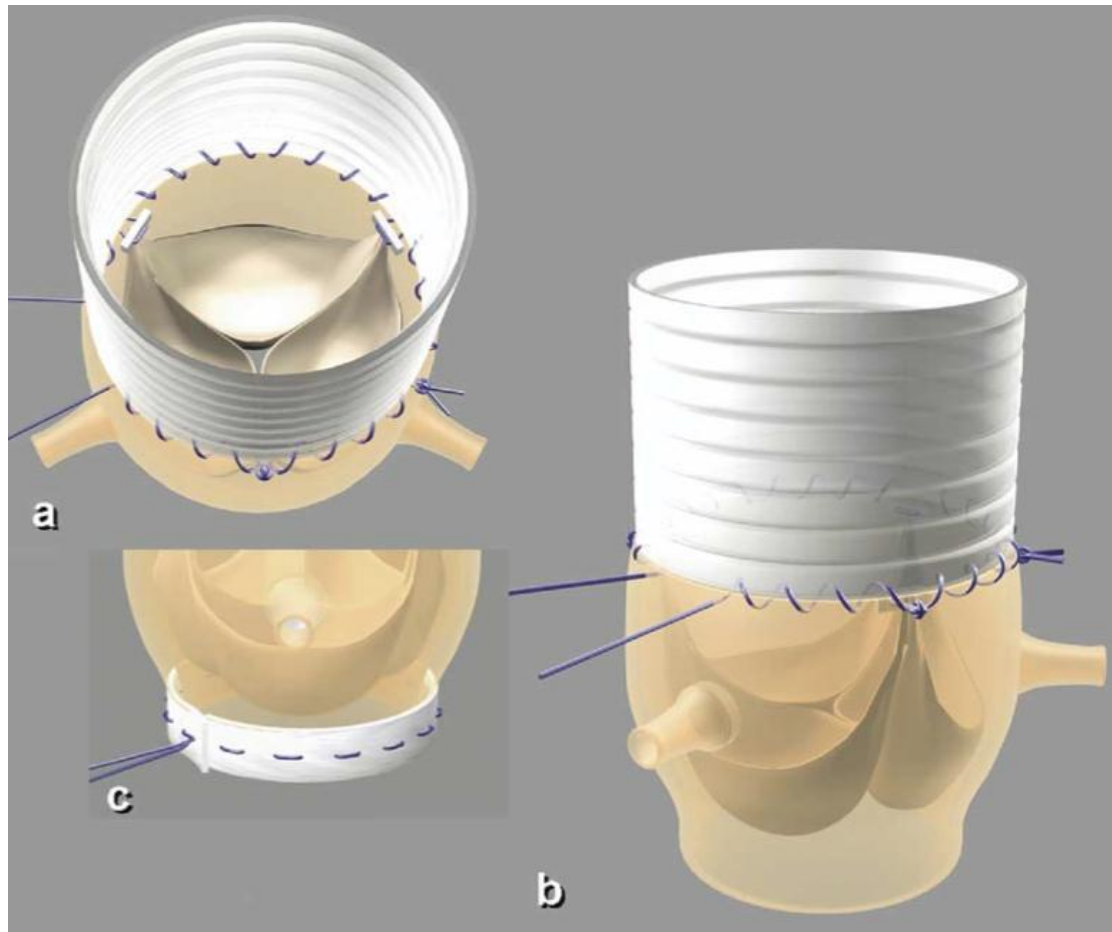


Fig. 6. Estimation of aortic regurgitation (AR) with time in patients undergoing valve-sparing aortic root replacement, stratified by technique and by use/non-use of concomitant cusp interventions (predominately central plication). There is no evidence that the mean intercepts differ depending on whether there were cusp interventions or not ($p=0.38$), but there was significant evidence of an increase in the annual progression rate of AR with cusp interventions for both surgical techniques ($p<0.001$). Adapted from [8]; with permission from the American Association for Thoracic Surgery

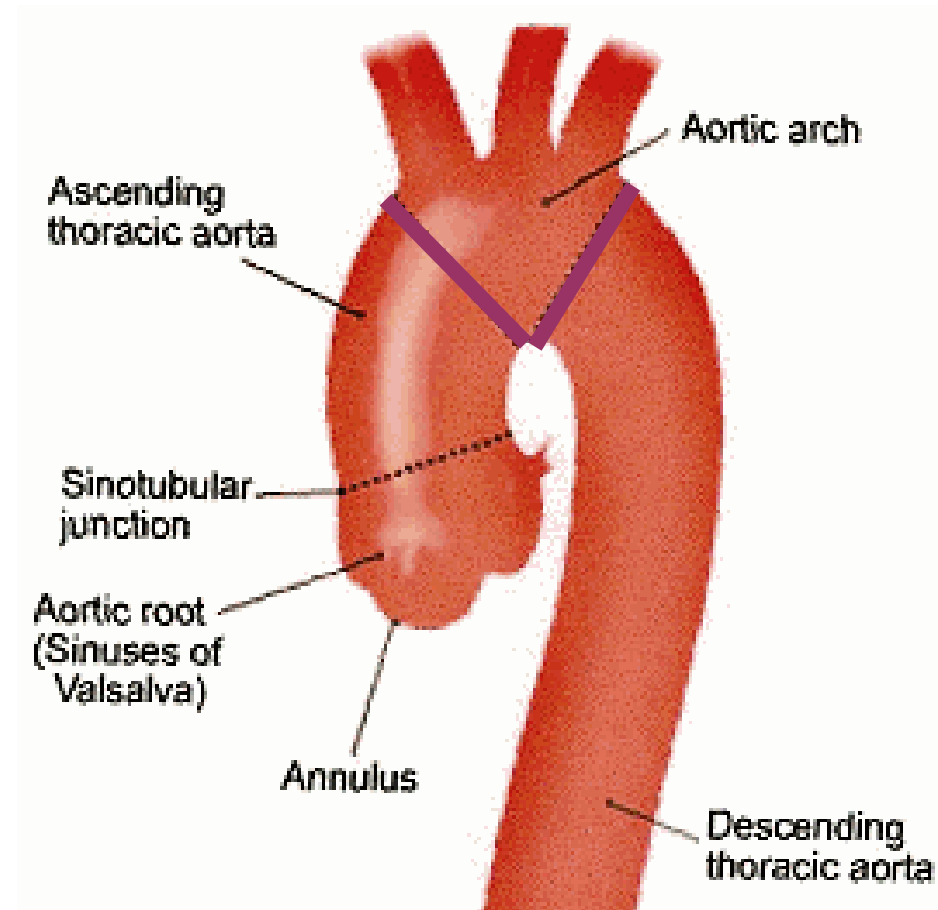
Supra coronaire Aorta ascendens (SCAR)



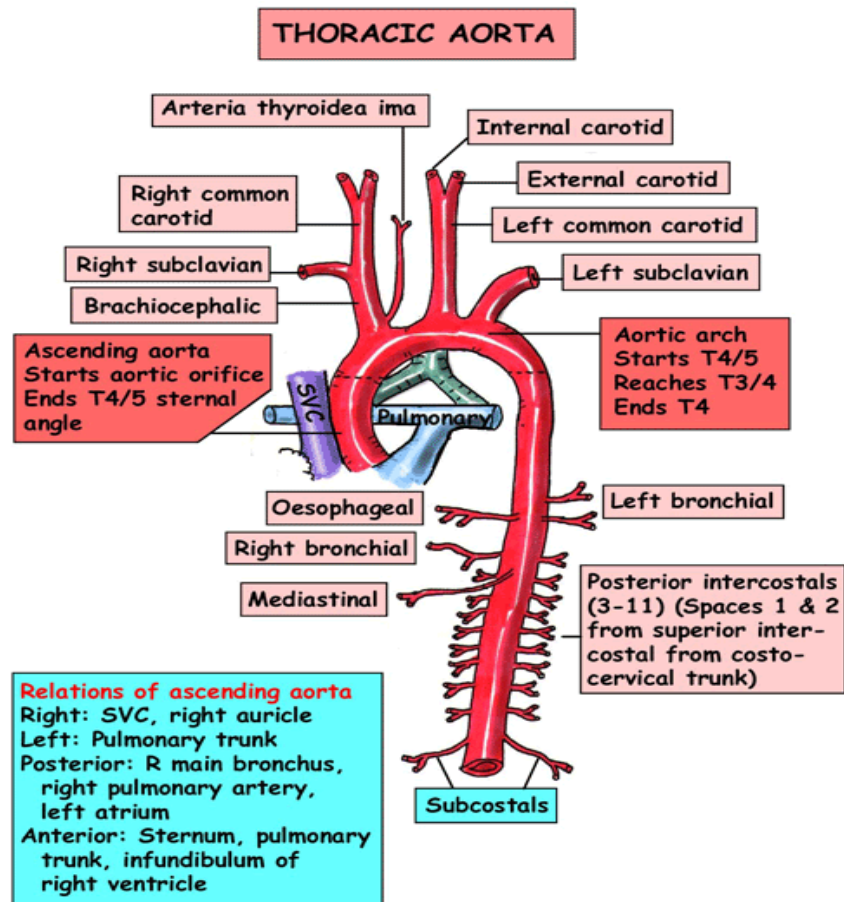
SCAR



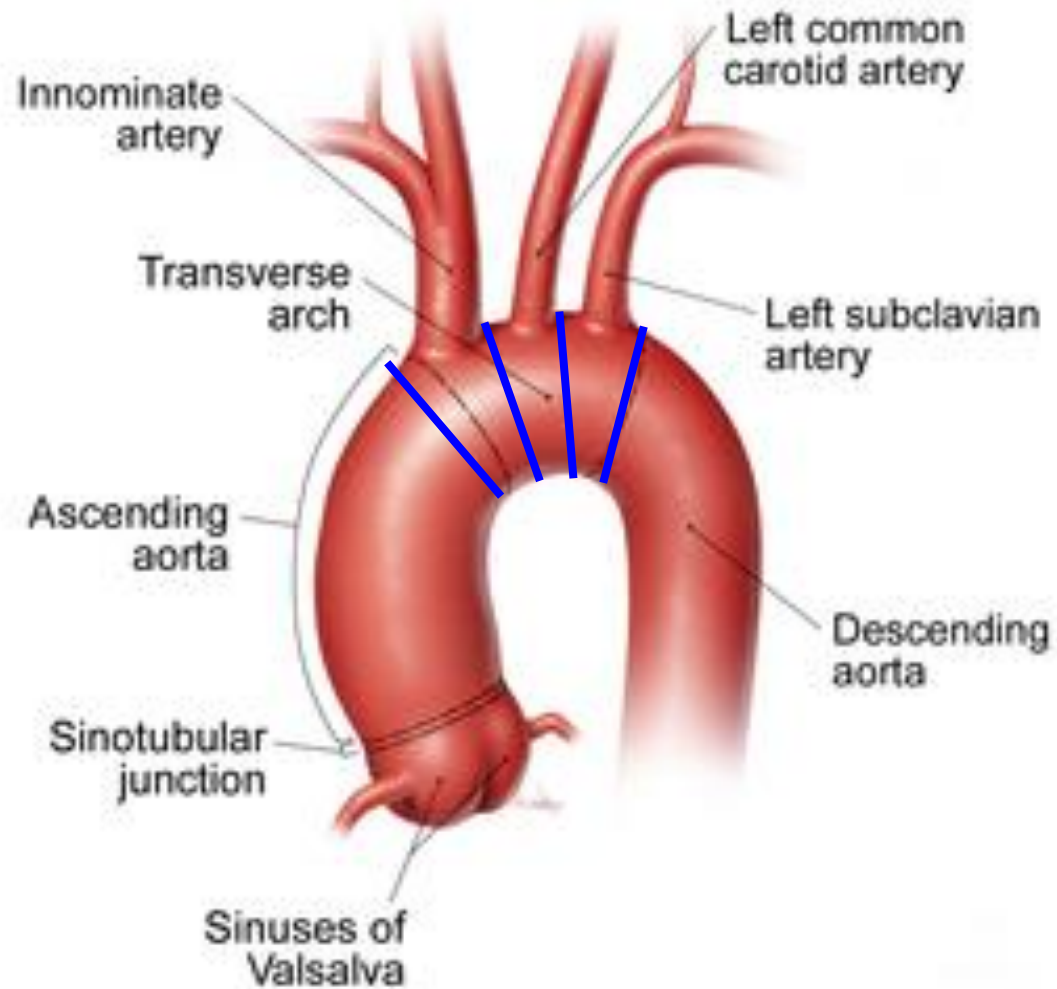
Aortic arch



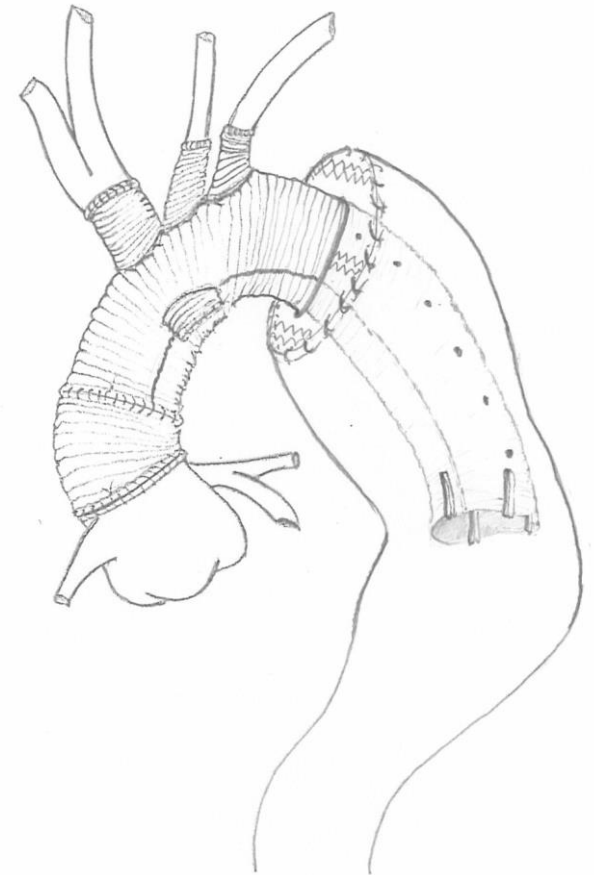
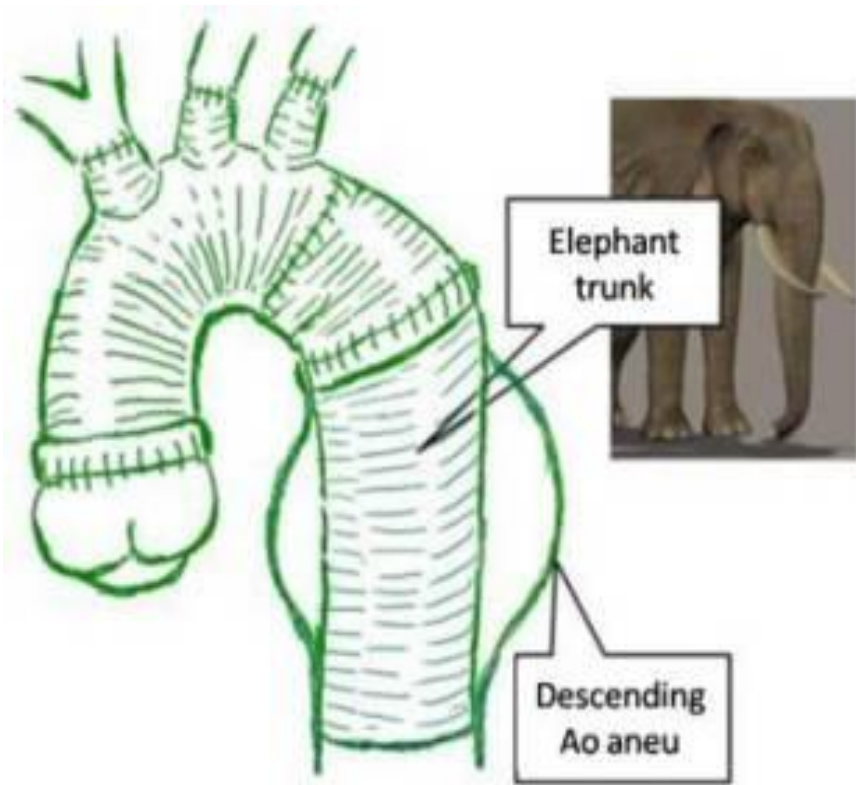
Aortic arcus anatomie



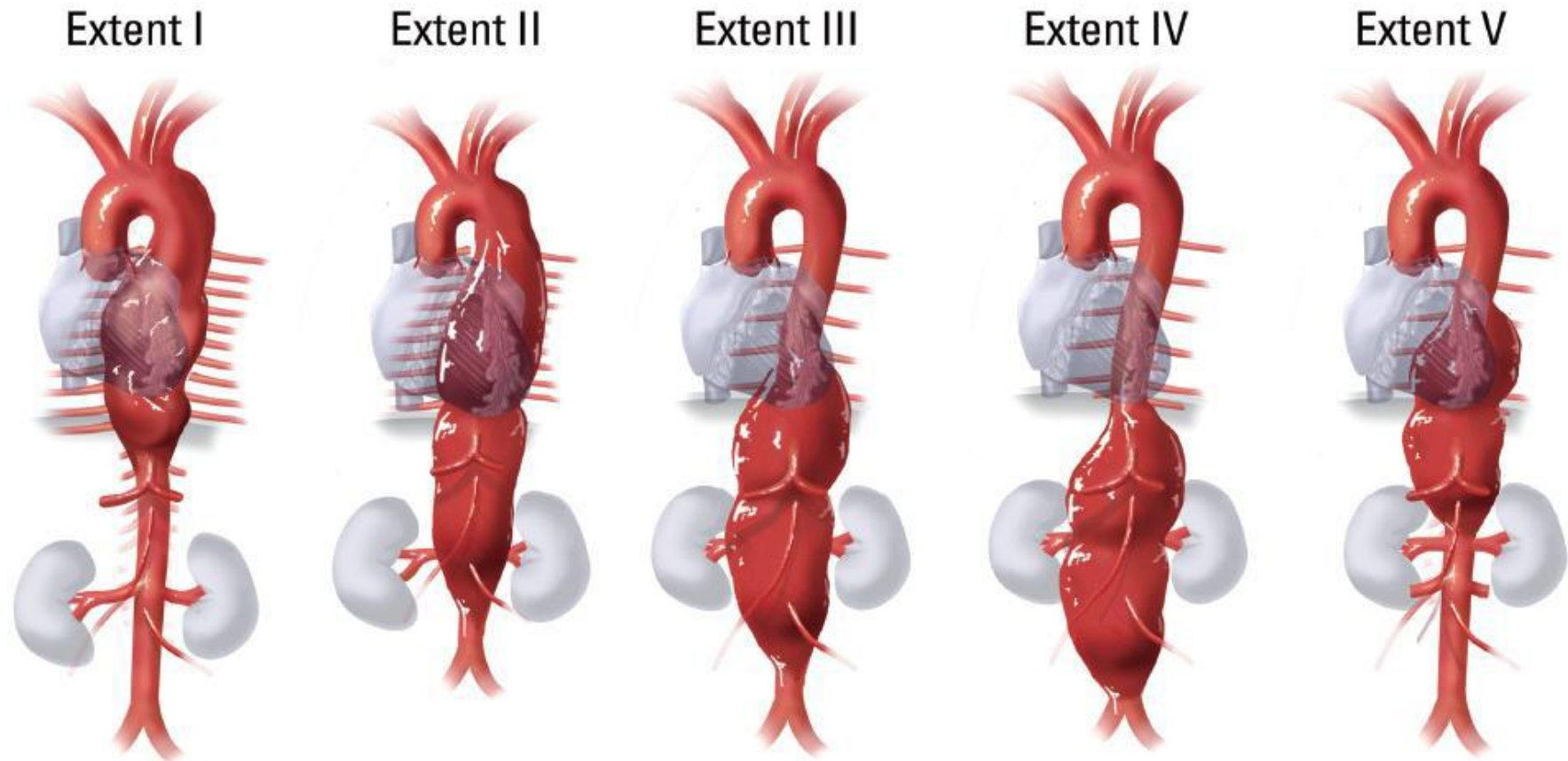
Aortic arcus



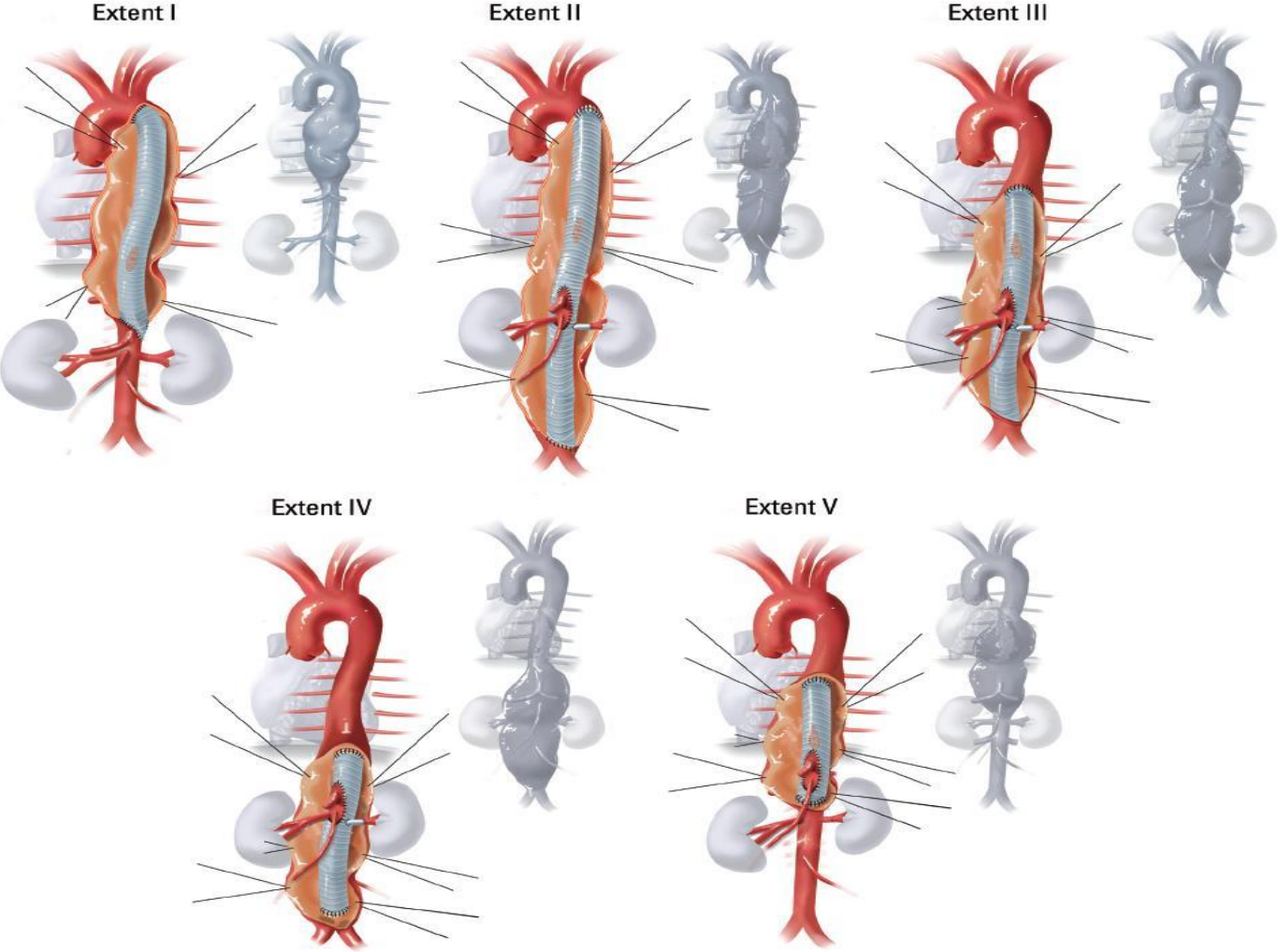
Arch and beyond.....

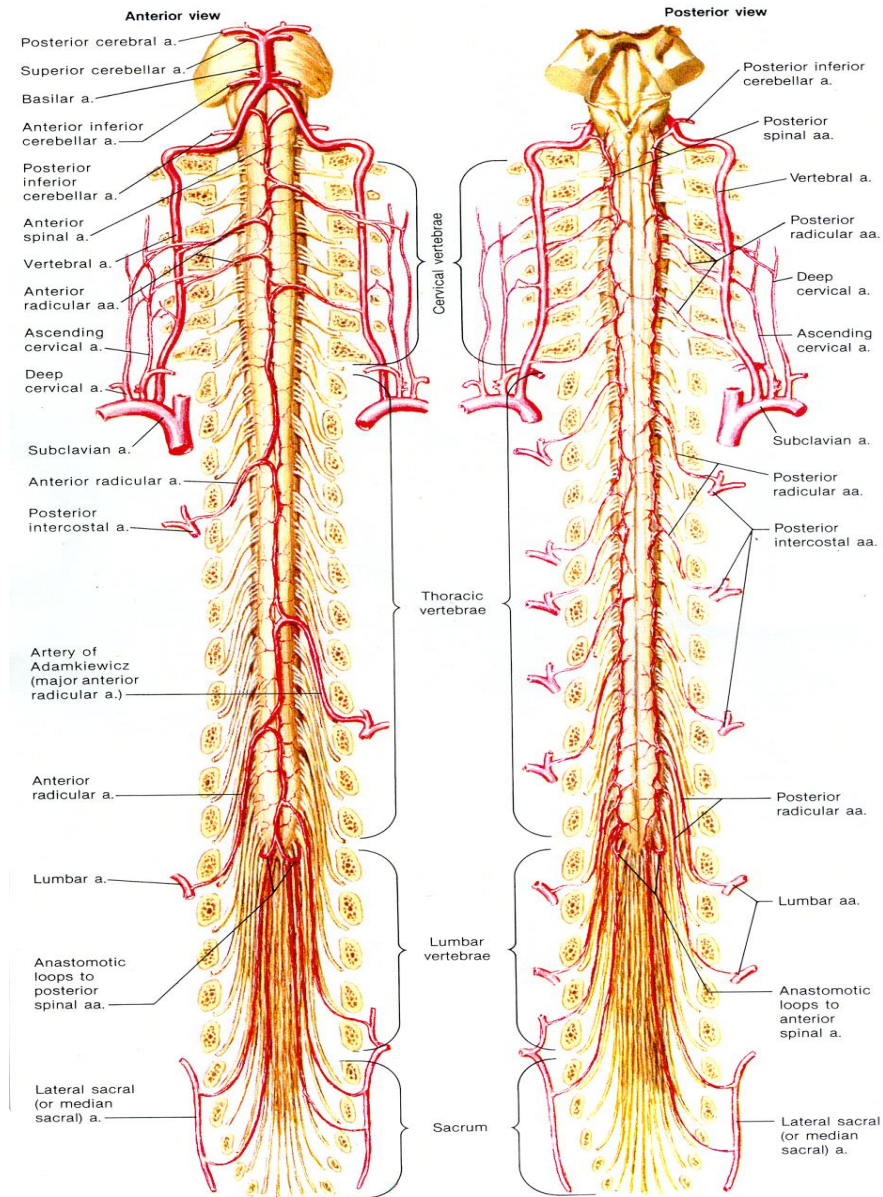


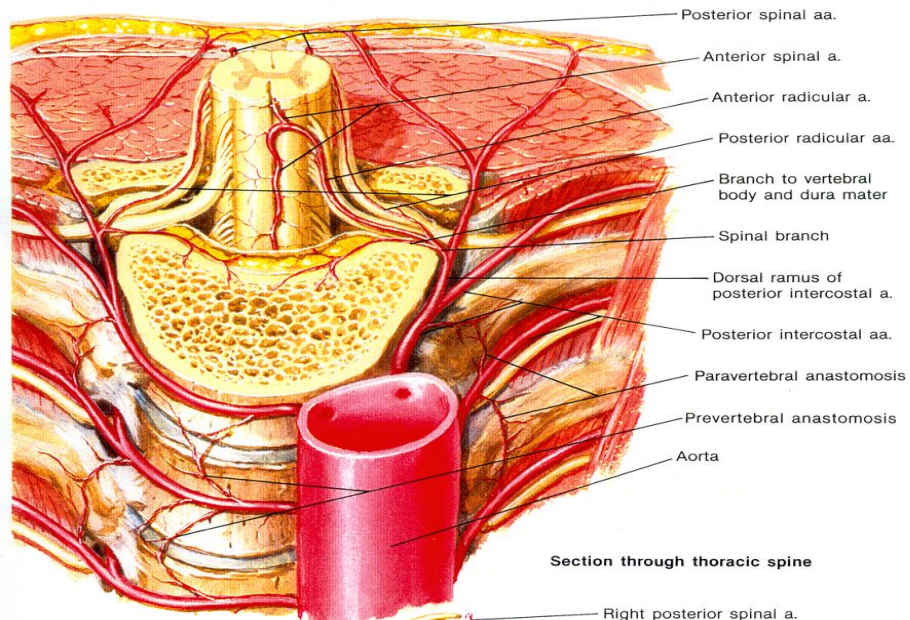
Thoracoabdominal aorta aneurysma



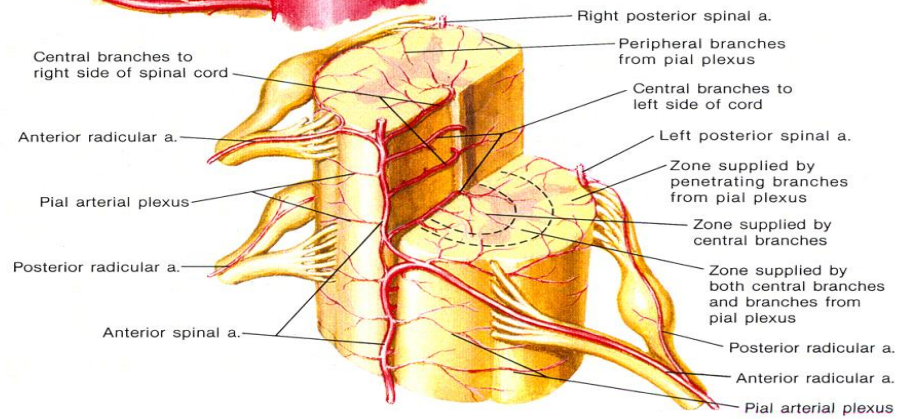
Repair







Section through thoracic spine



Actieve bypass: links-links bypass

aorto- of atrio - femorale bypass
centrifugaalpomp
heat-exchanger
heparine gecoat circuit

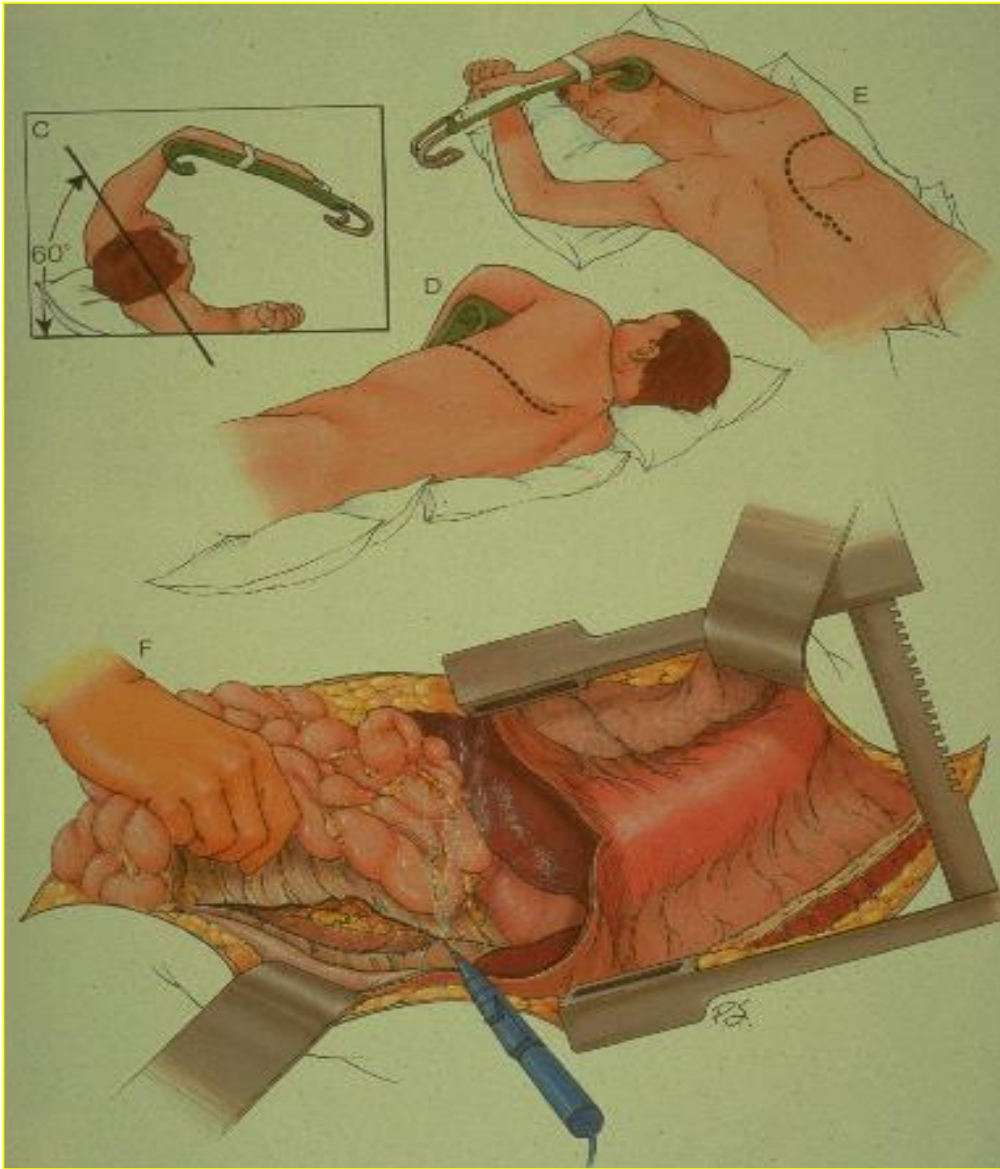
Liquordrainage

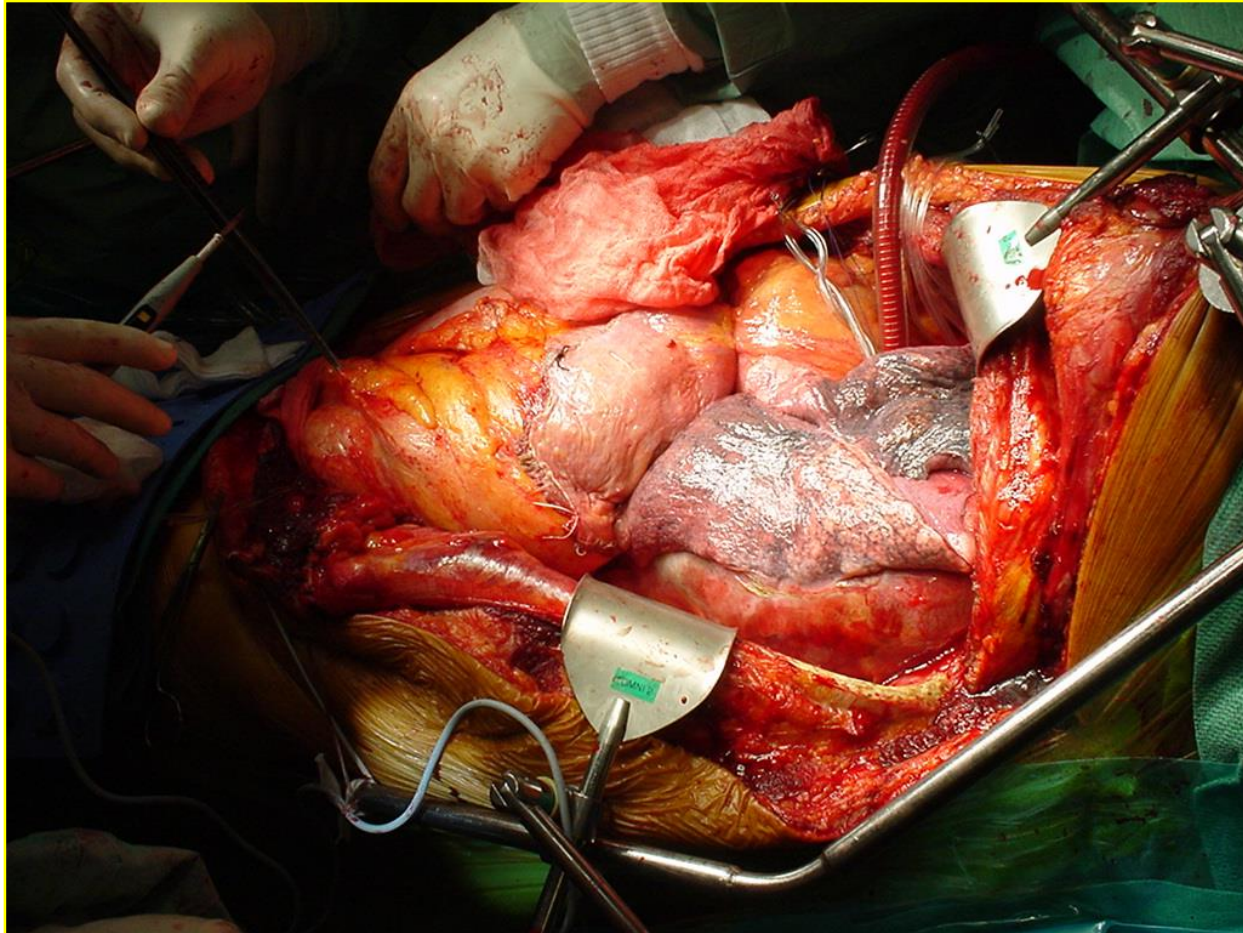
verlaging van de liquordruk (< 10 mmHg)

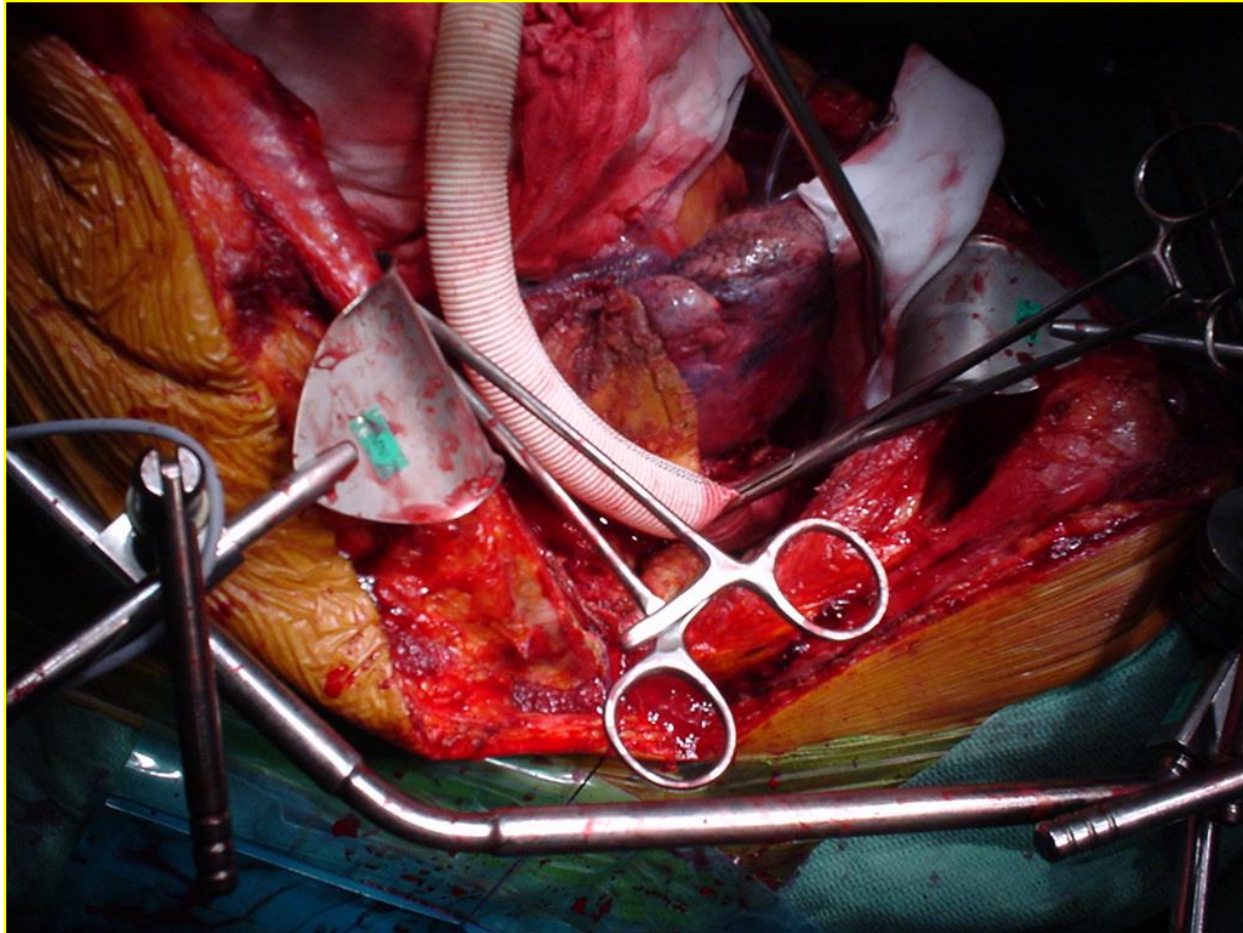
toename ruggemergperfusiedruk

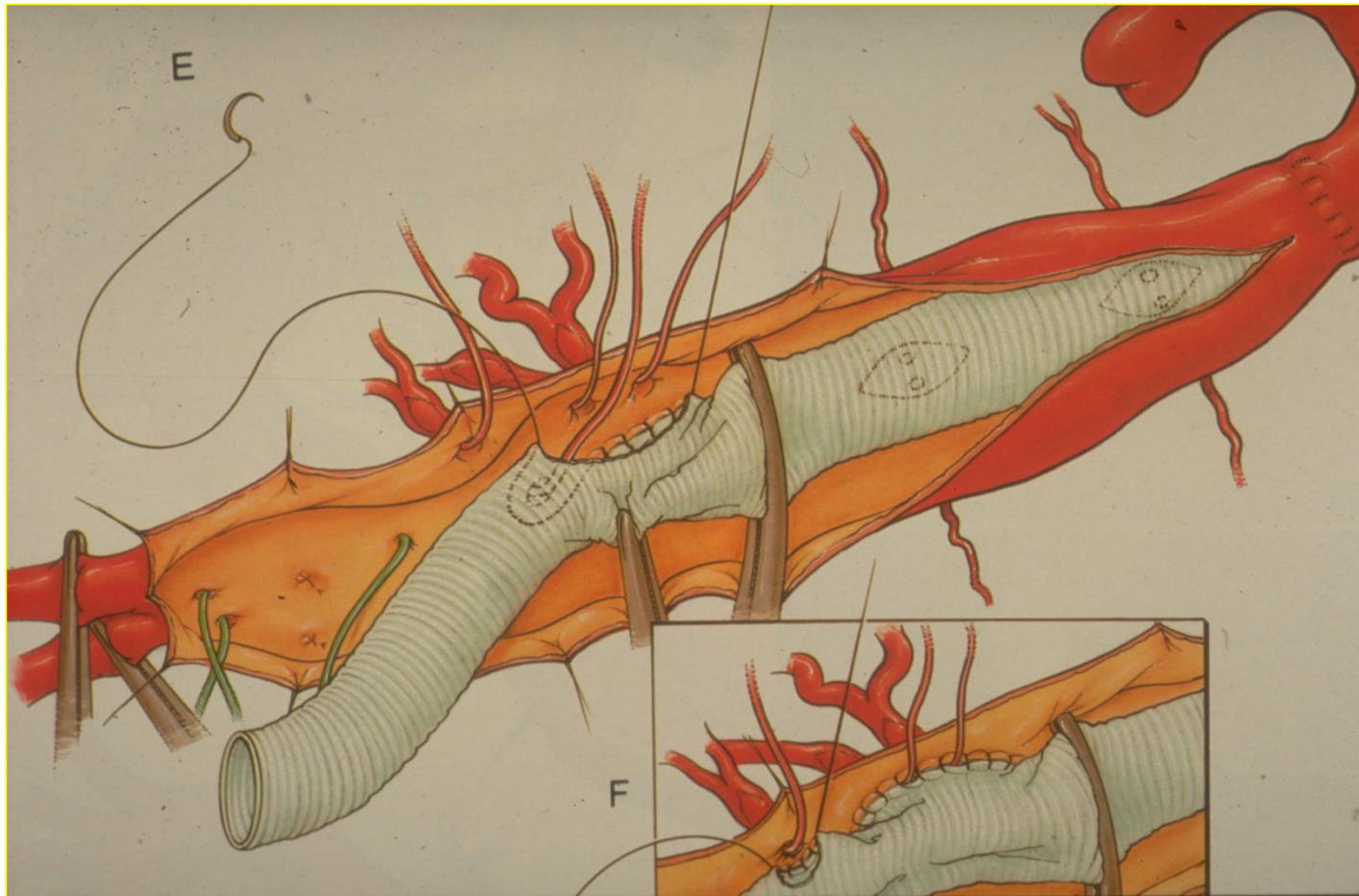
3 dagen post-operatief liquordrainage

- voorkomt verlate paraplegie
- preventie bij perioden van post-operatieve hypotensie









SEP monitoring

- **controle sensibele zenuwen aan posterior en laterale zijde ruggemerg**
- **stimulatie van de n. tibialis**
- **potentiaalmeting bij cerebrale cortex**
 - **latentietijd**
 - **amplitude**

MEP monitoring

controle motorische voorhoorn cellen

- **informatie over doorbloeding a. spinalis anterior**

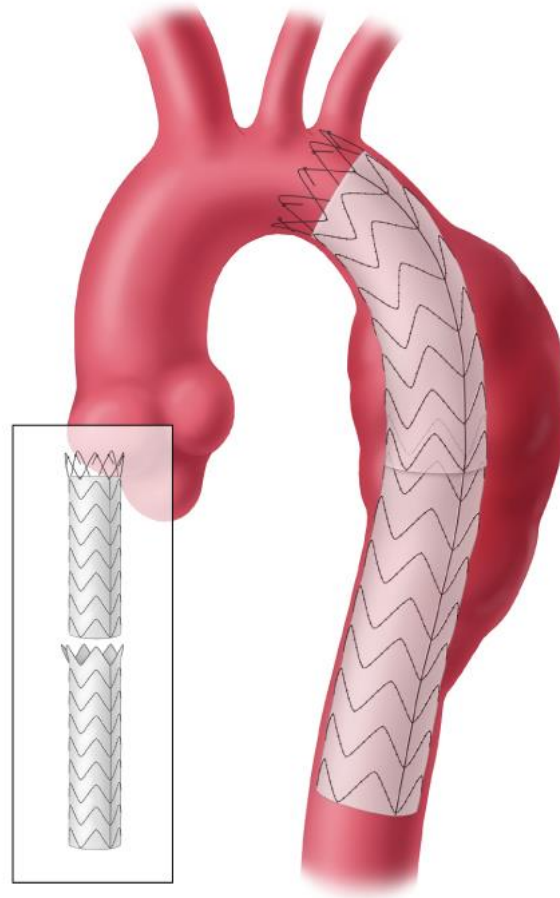
stimulatie motorische cortex: 500 Volt !

Meting in beenspier (myogene MEP)

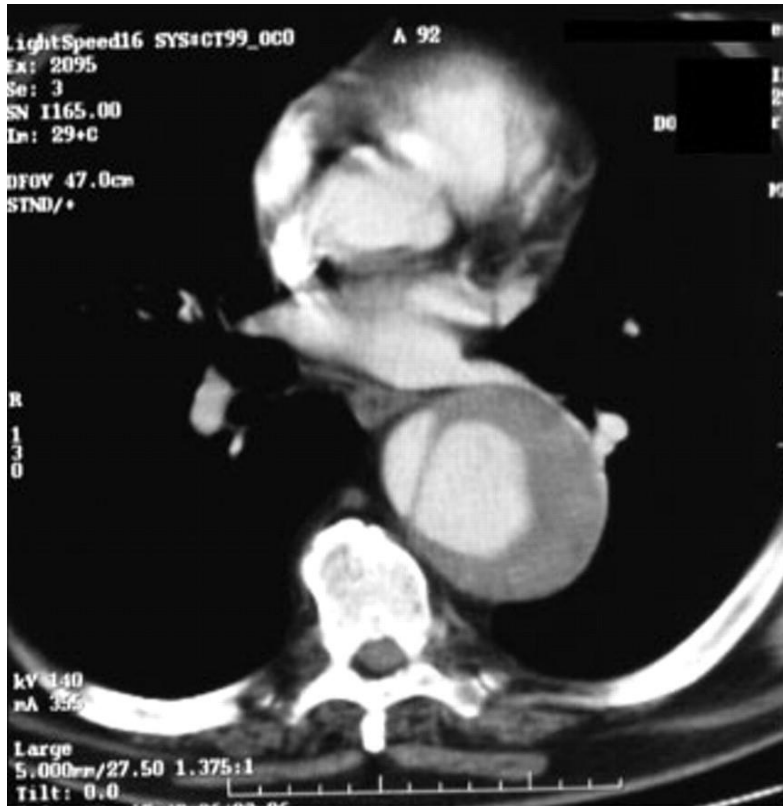
TAAA Chirurgie

- **Open TAAA resectie:**
 - Mortaliteit 10%
 - Paraplegie 10%

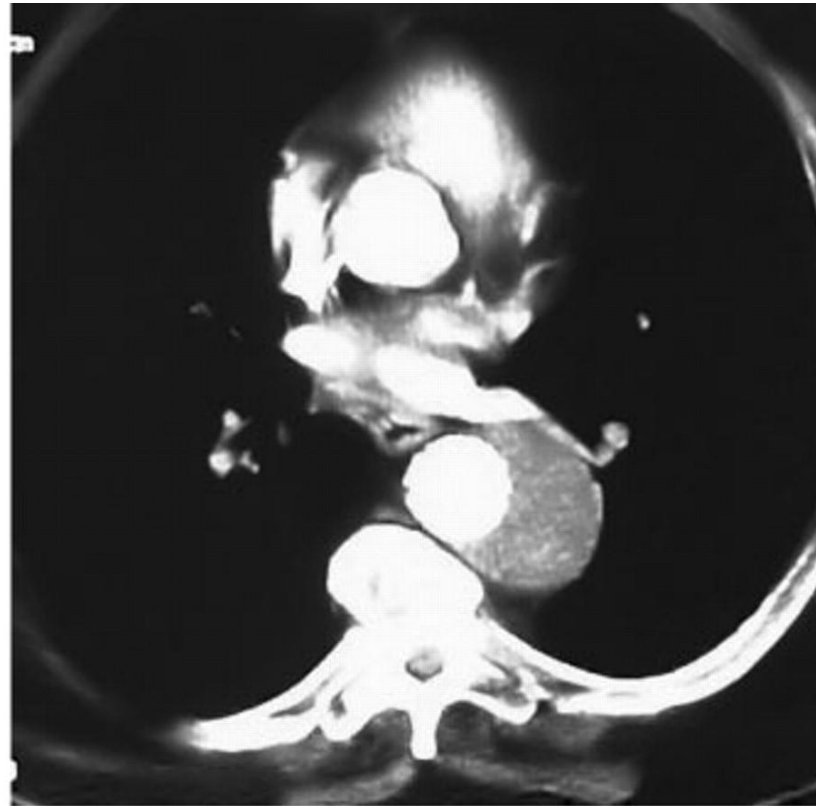
TEVAR



CT scan

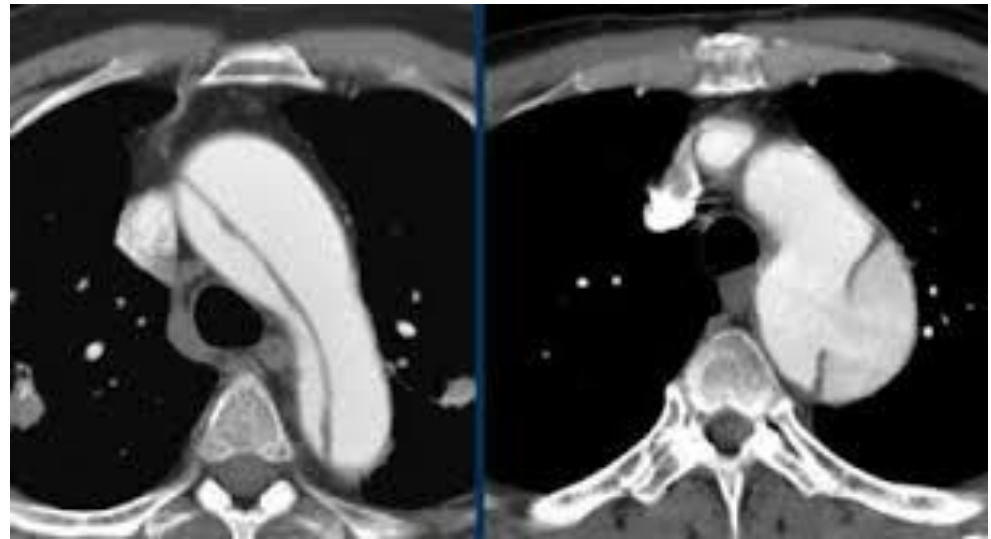


A

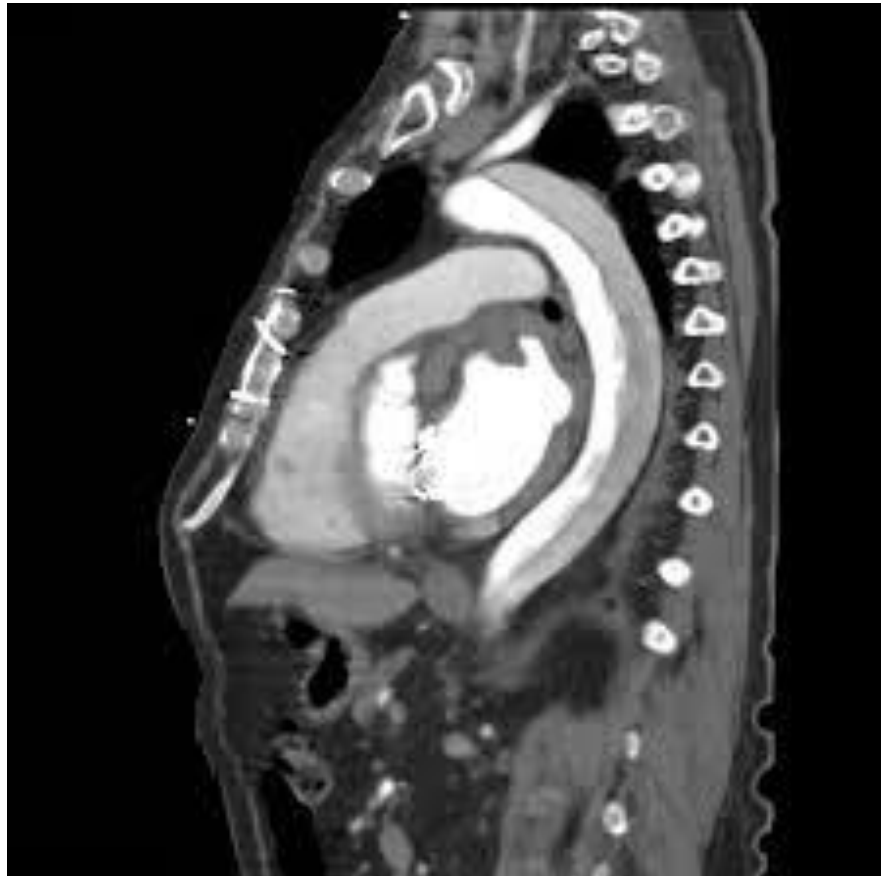


B

Entry tear



False lumen



General considerations - lifestyle

Discourage: competitive sports and isometric heavy weight lifting - to reduce aortic wall shear stress
body contact sport activities

Leisure sportive activities with low static/low dynamic stress acceptable

Medical

Blood pressure - 130/80 mm Hg

Avoid blood pressure peaks

Indications

Progressive thoracic aortic enlargement: >10 mm/year

False lumen aneurysms: with total aortic diameter >60 mm

Malperfusion syndrome

Recurrent pain

“optimal treatment in patients with chronic AD is, however, unclear”

2014 ESC Guidelines on the diagnosis and treatment of aortic diseases

Open Repair

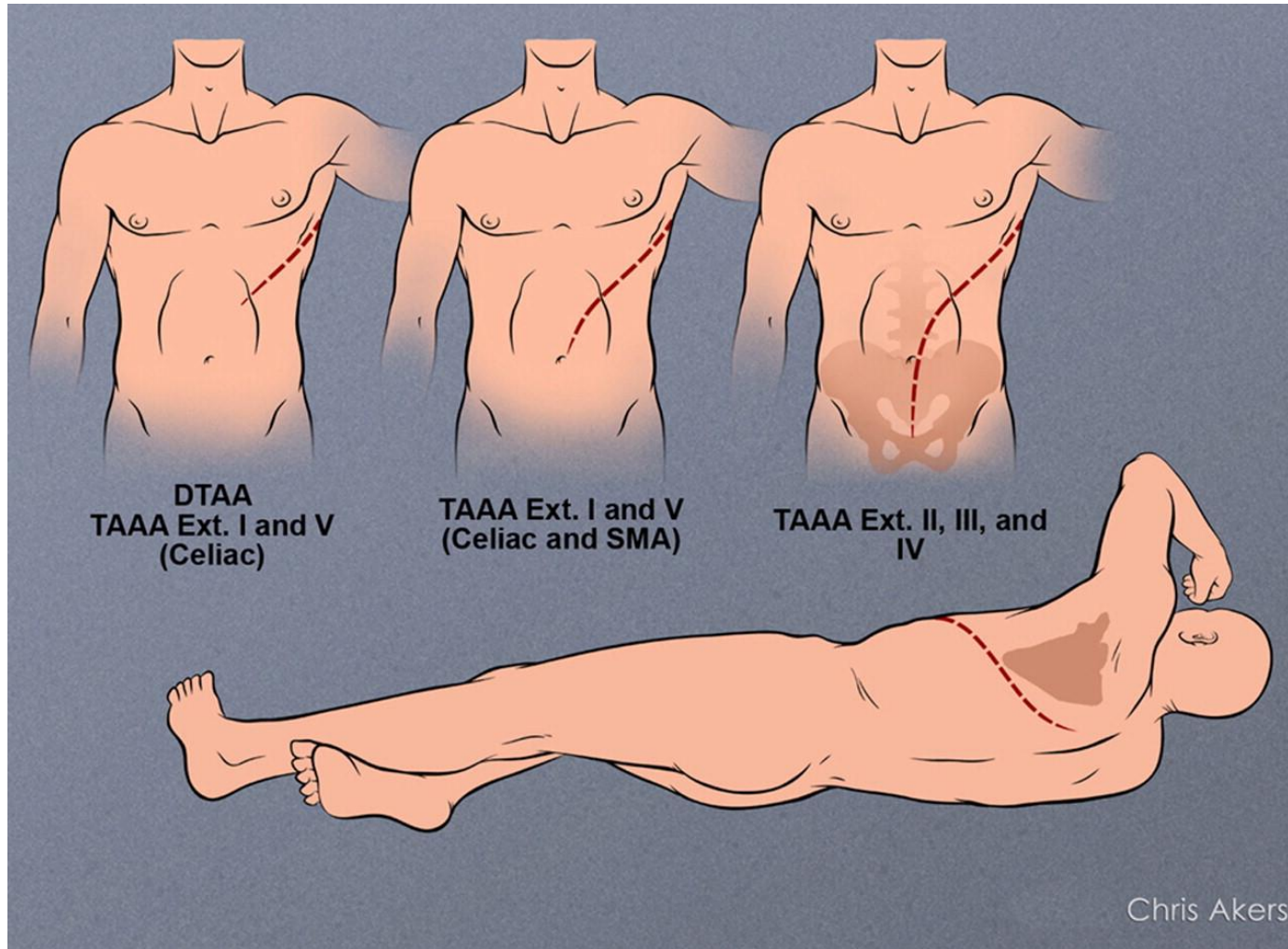
High mortality and morbidity

Left-left bypass

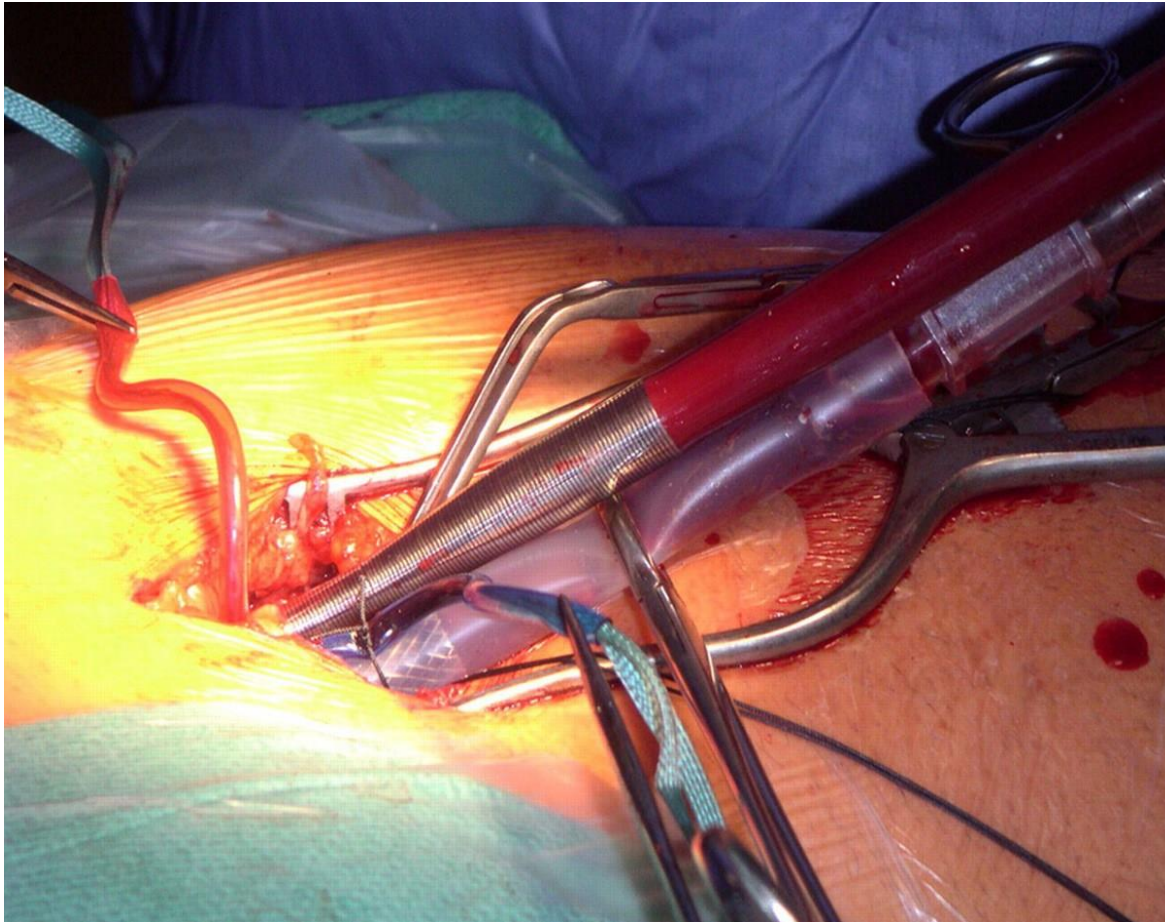
Partial ECC

Deep cooling

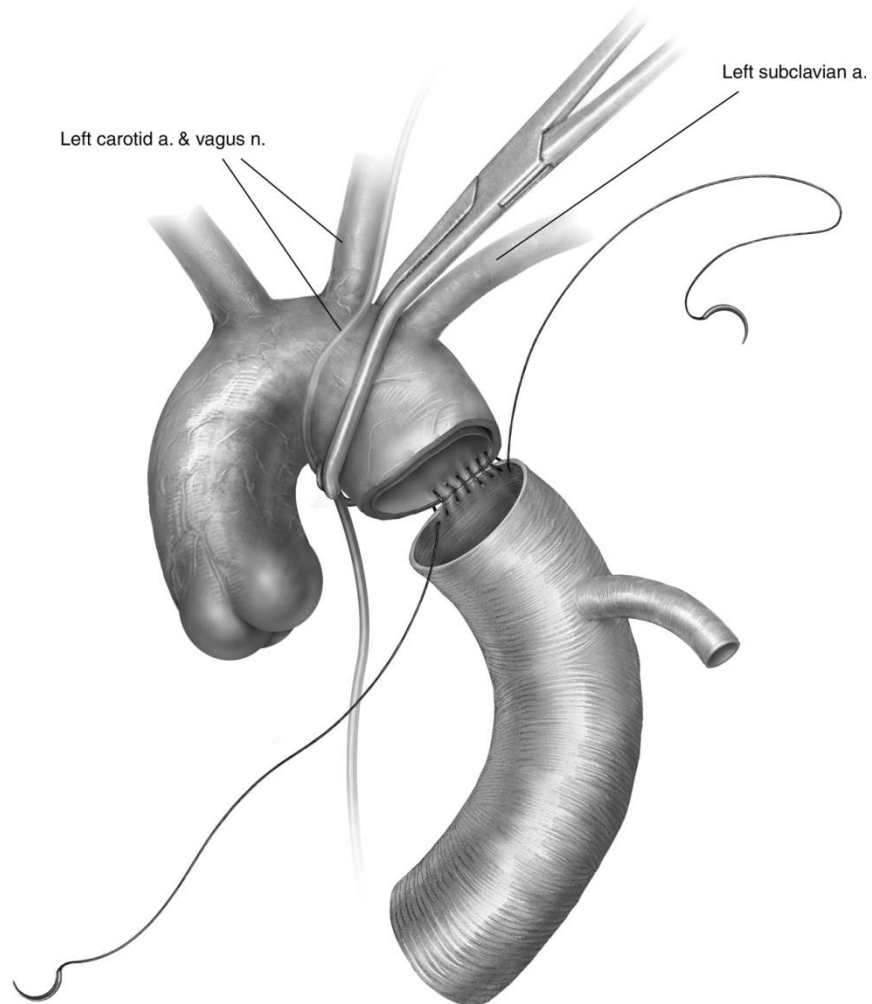
Incision



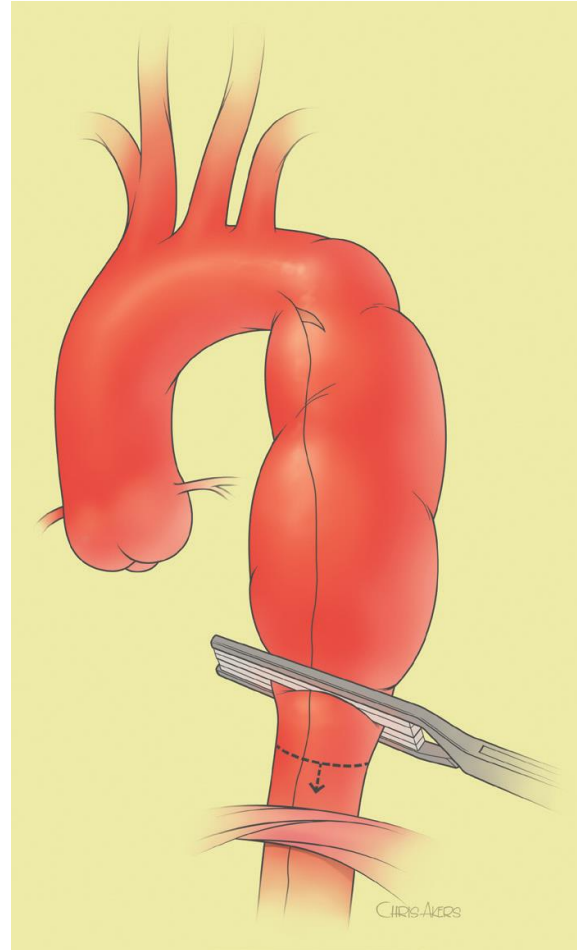
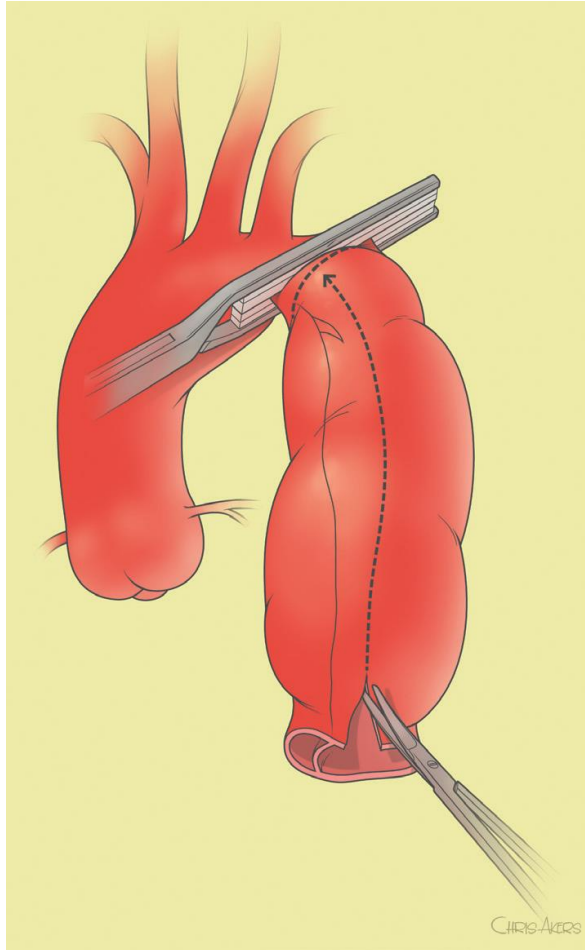
Partial ECC



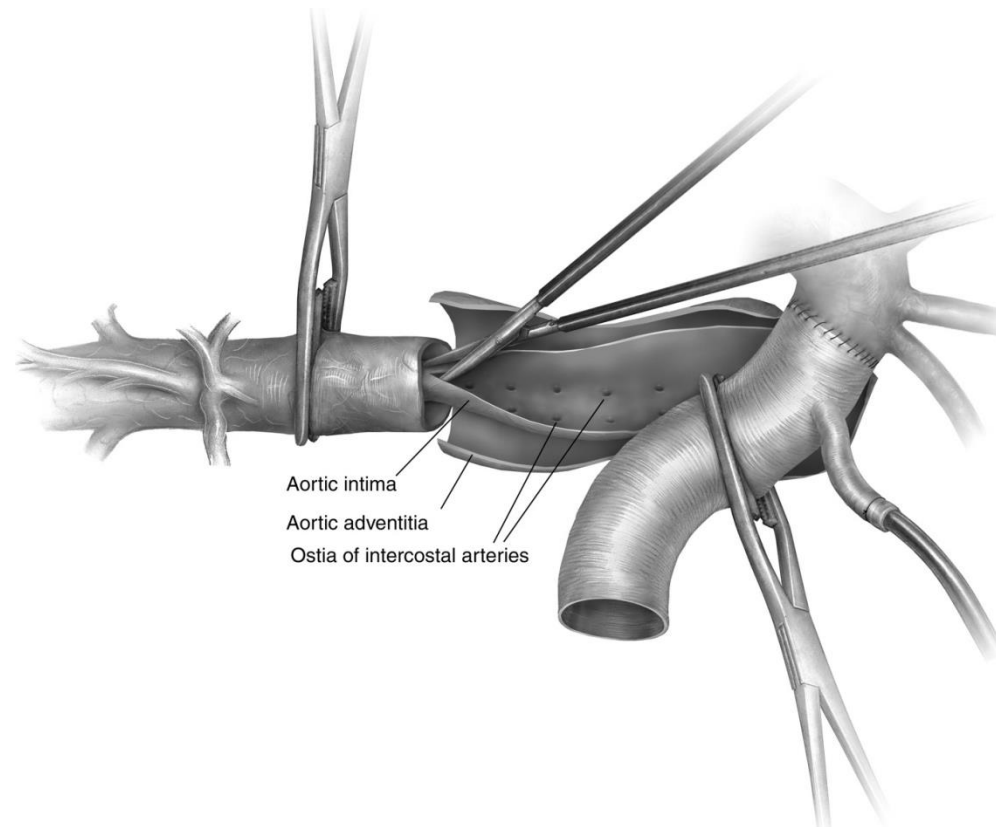
Proximal anastomosis



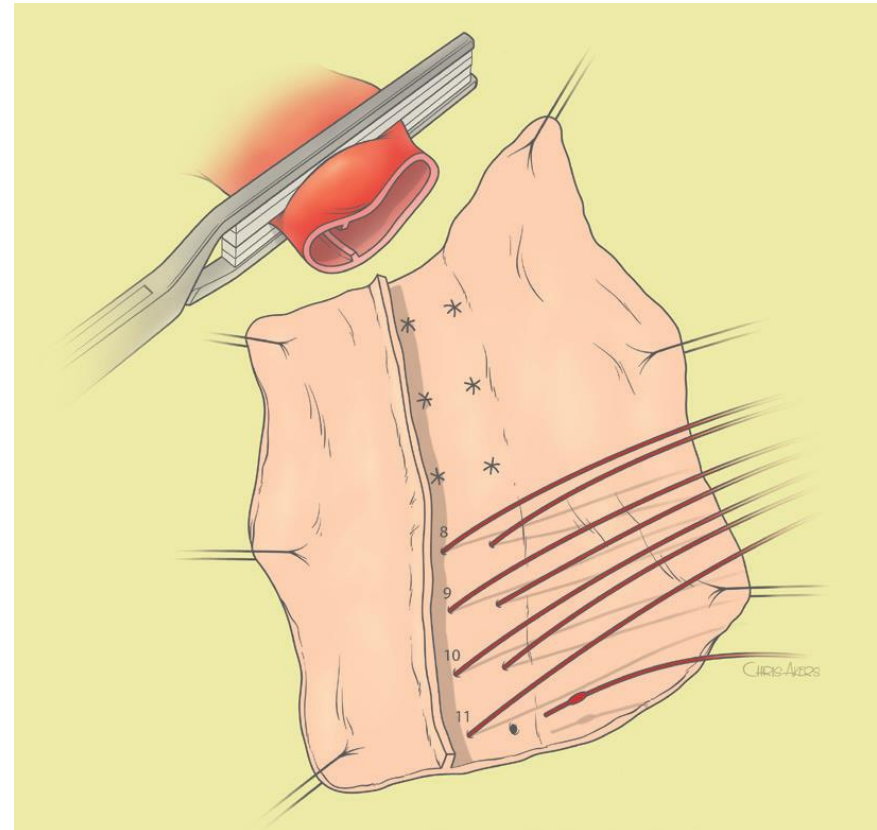
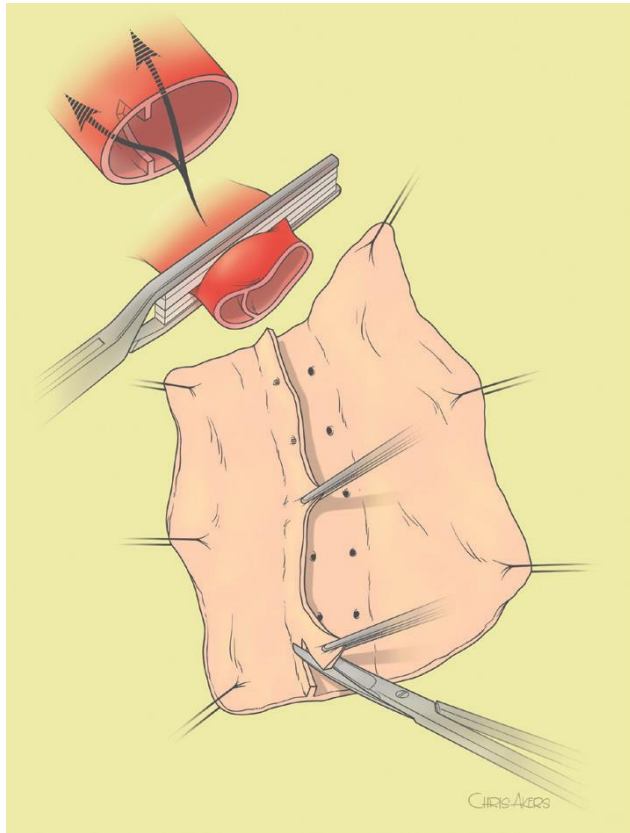
Sequential clamping



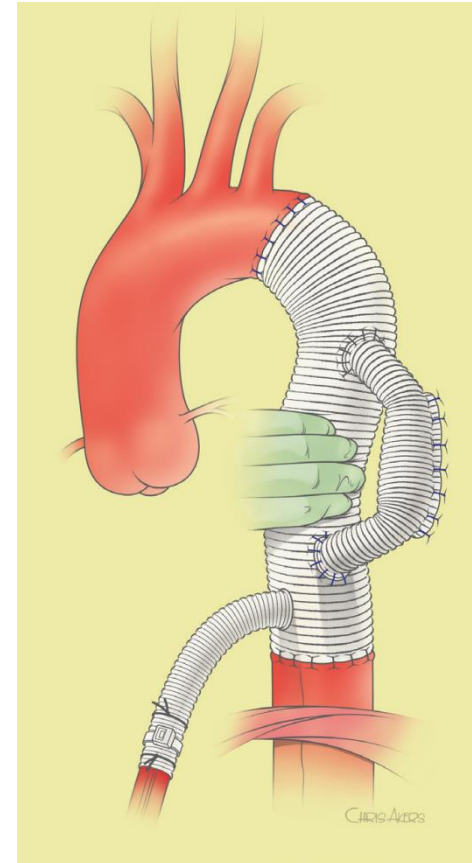
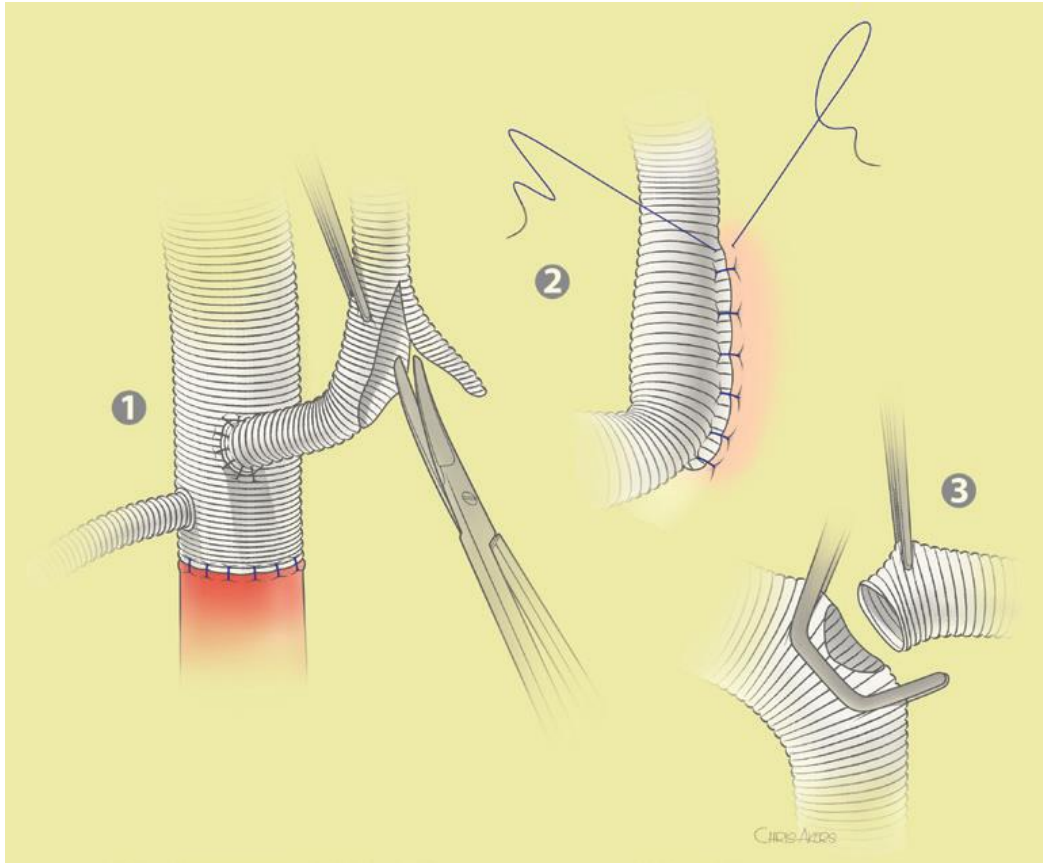
Distal clamping



Intercostal branches



Reimplantation and completion of repair



Completed repair



Post-operative outcomes

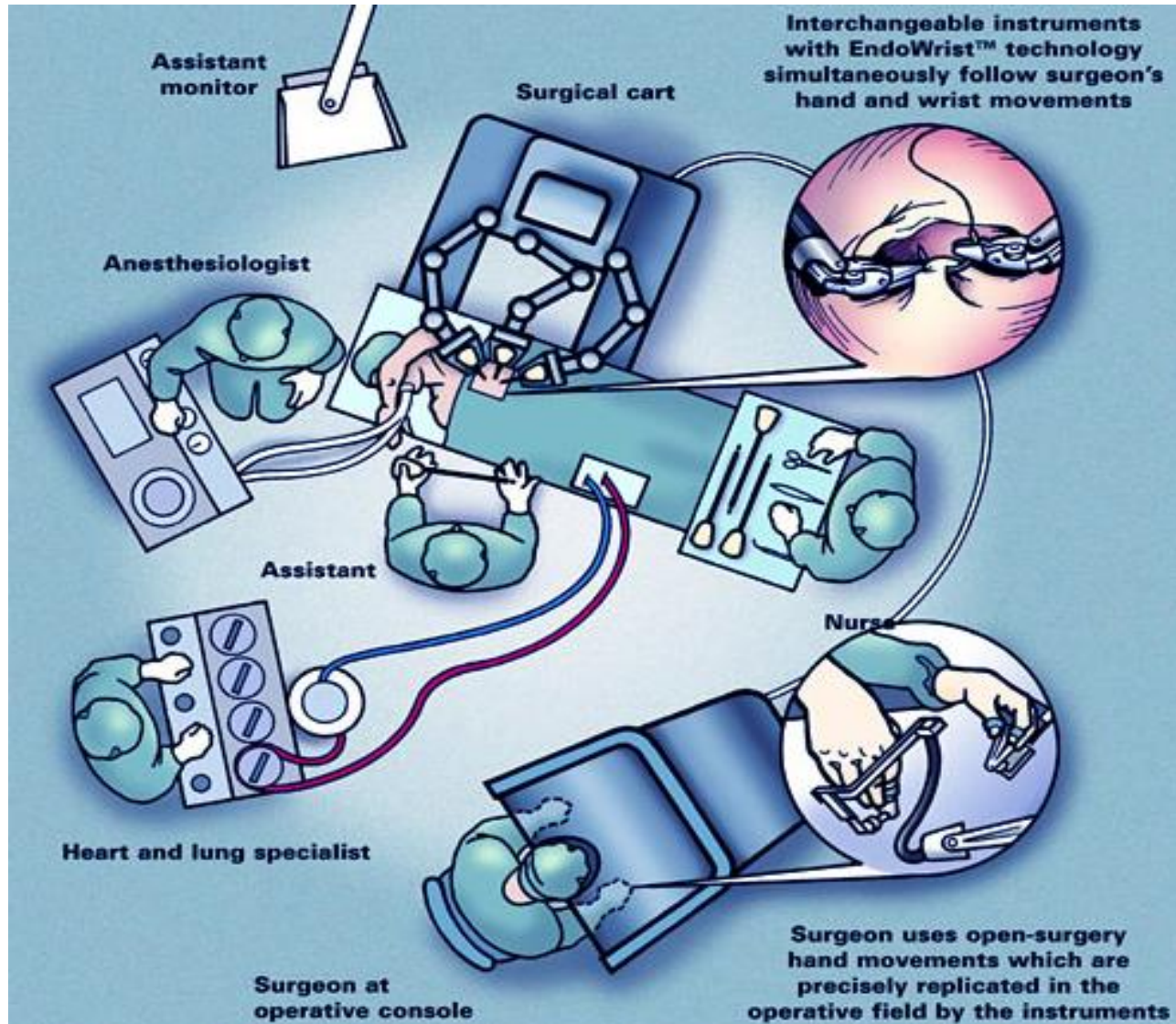
Complications	N [%] (total =240)
Prolonged intubation (>48 hours)	56 [23]
Tracheostomy	9 [4]
Mean length of stay (days)	13.2±9.0
Dialysis on discharge	12 [5]
Stroke	7 [2.9]
Immediate neurologic deficit	2 [0.8]
Delayed neurologic deficit	3 [1.3]
Permanent neurologic deficit	3 [1.3]
30-day mortality	20 [8.3]

Estrera et Al *Ann Cardiothorac Surg* 2014;3(4):375-384

Future- Hybrid approach



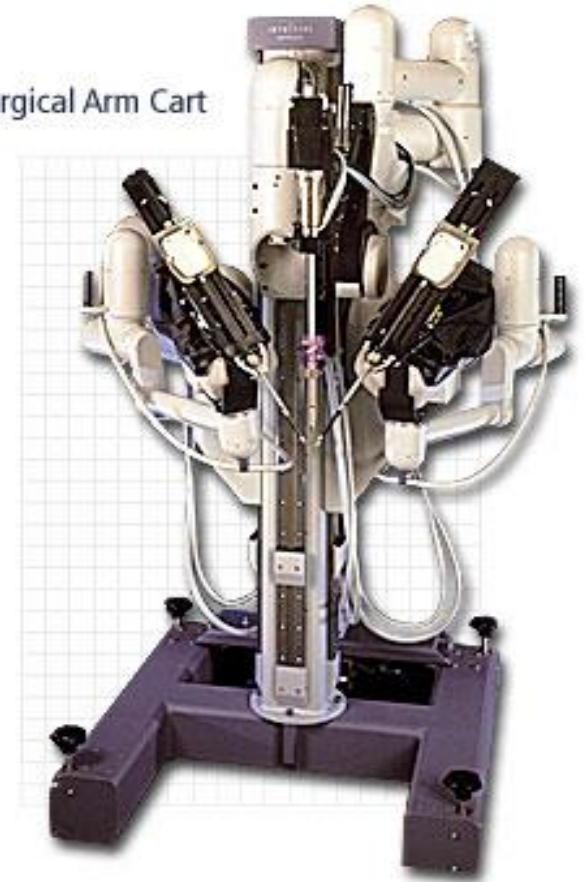
Robotchirurgie: principes



The daVinci™ Surgical System instrument hand control



Surgical Arm Cart



Dank u



St Antonius Ziekenhuis is een van de grootste ziekenhuizen in Nederland. Het ziekenhuis is gespecialiseerd in de behandeling van verschillende ziekten en aandoeningen. Het ziekenhuis heeft een uitgebreid aanbod aan diensten en is bekend om zijn hoge kwaliteit van zorg. Het ziekenhuis is onderdeel van de St Antonius Groep en is gevestigd in Eindhoven. Het ziekenhuis heeft een lange geschiedenis en is een van de meest toonaangevende ziekenhuizen in Nederland. Het ziekenhuis is bekend om zijn innovatieve aanpak en zijn focus op de patiënt. Het ziekenhuis heeft een uitgebreid aanbod aan diensten en is bekend om zijn hoge kwaliteit van zorg. Het ziekenhuis is onderdeel van de St Antonius Groep en is gevestigd in Eindhoven. Het ziekenhuis heeft een lange geschiedenis en is een van de meest toonaangevende ziekenhuizen in Nederland. Het ziekenhuis is bekend om zijn innovatieve aanpak en zijn focus op de patiënt.