

iBEVAR used for repair cases  
type Ia endoleak repair after chimney EVAR

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# Disclosure

Philipp Geisbüsch, M.D.

I disclose the following financial relationship(s):

**Advisory Board:** Artivion, Bentley Innomed, Medtronic

**Speakers Bureau:** Artivion, Medtronic, WL Gore, Siemens Healthcare,  
Abbott Medical, Bentley Innomed

# patient information

## symptomatic juxtarenal AAA 7.5cm

**78 y old male**

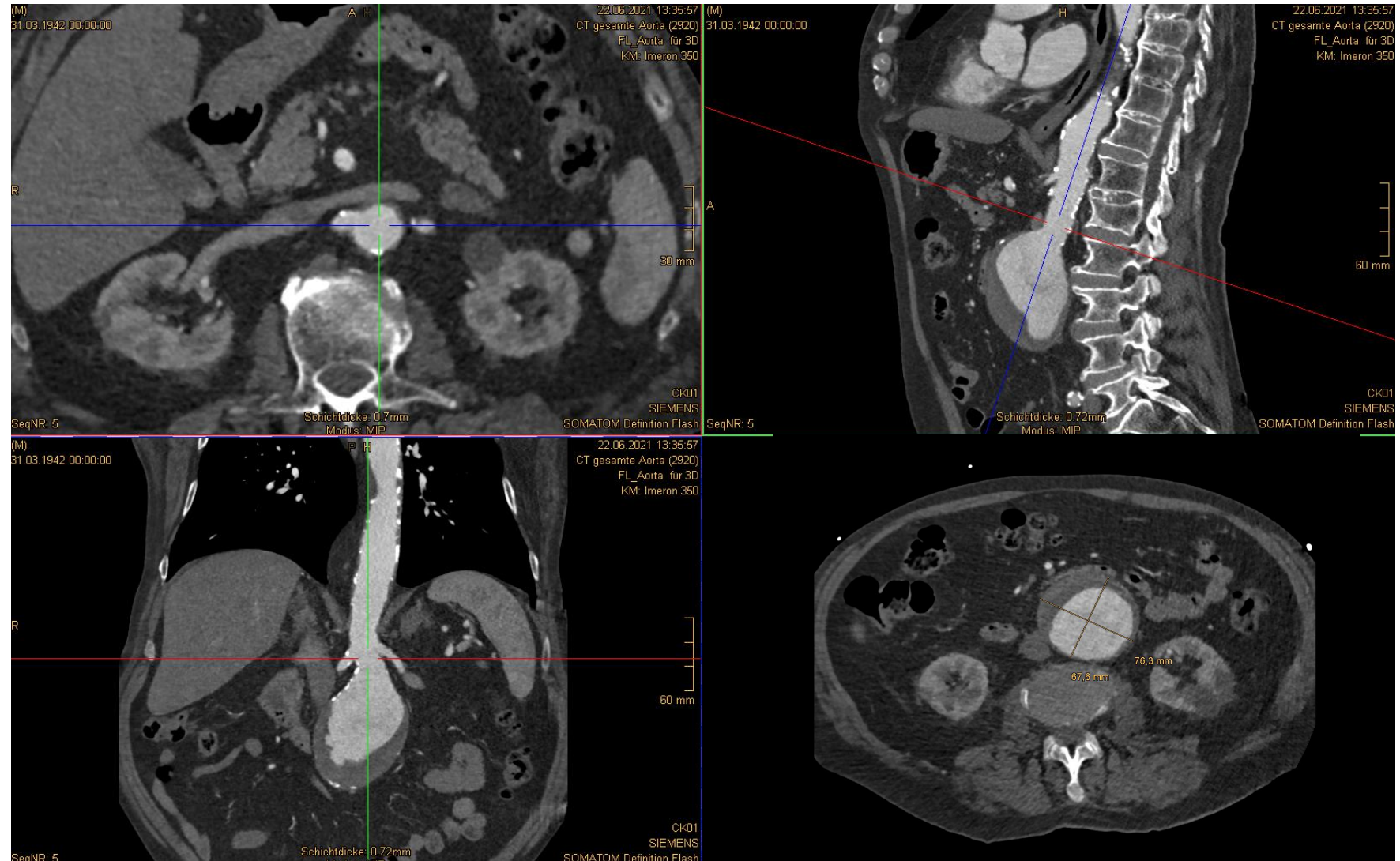
**severe abdominal pain**

**comorbidities:**

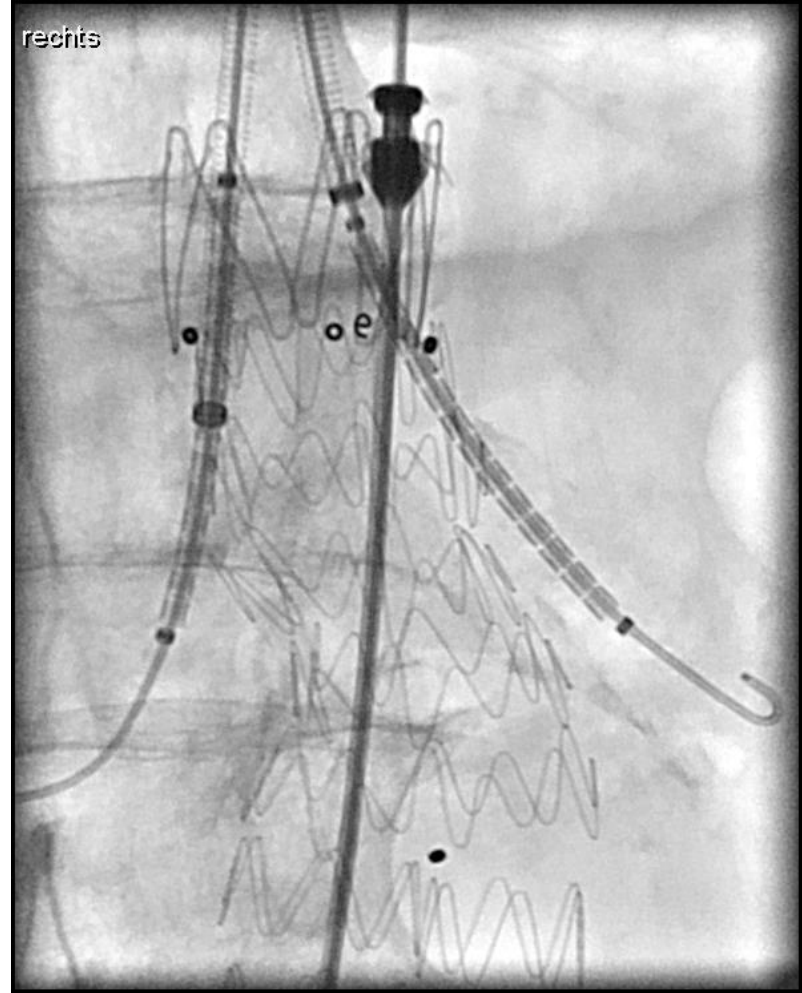
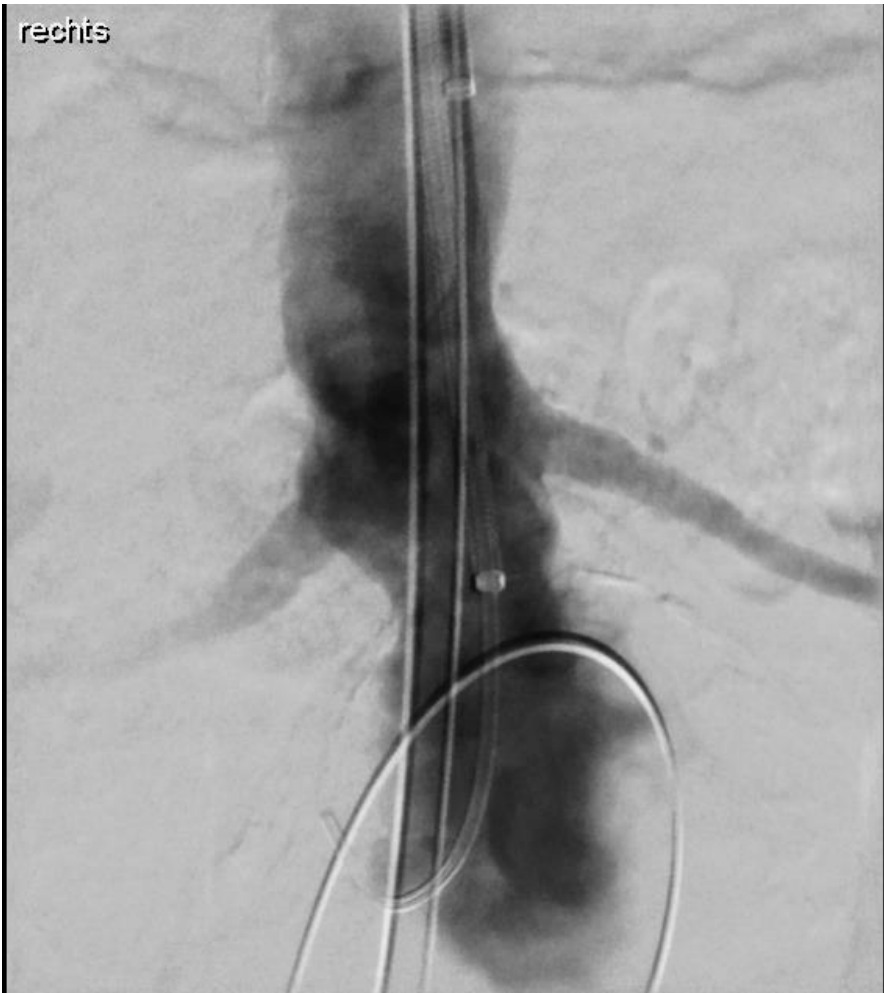
**- severe CHD**

**- COPD Gold III**

**- hostile abdomen**



# 78 y old pt. with symptomatic 7.5 cm juxtarenal AAA initial treatment: chEVAR

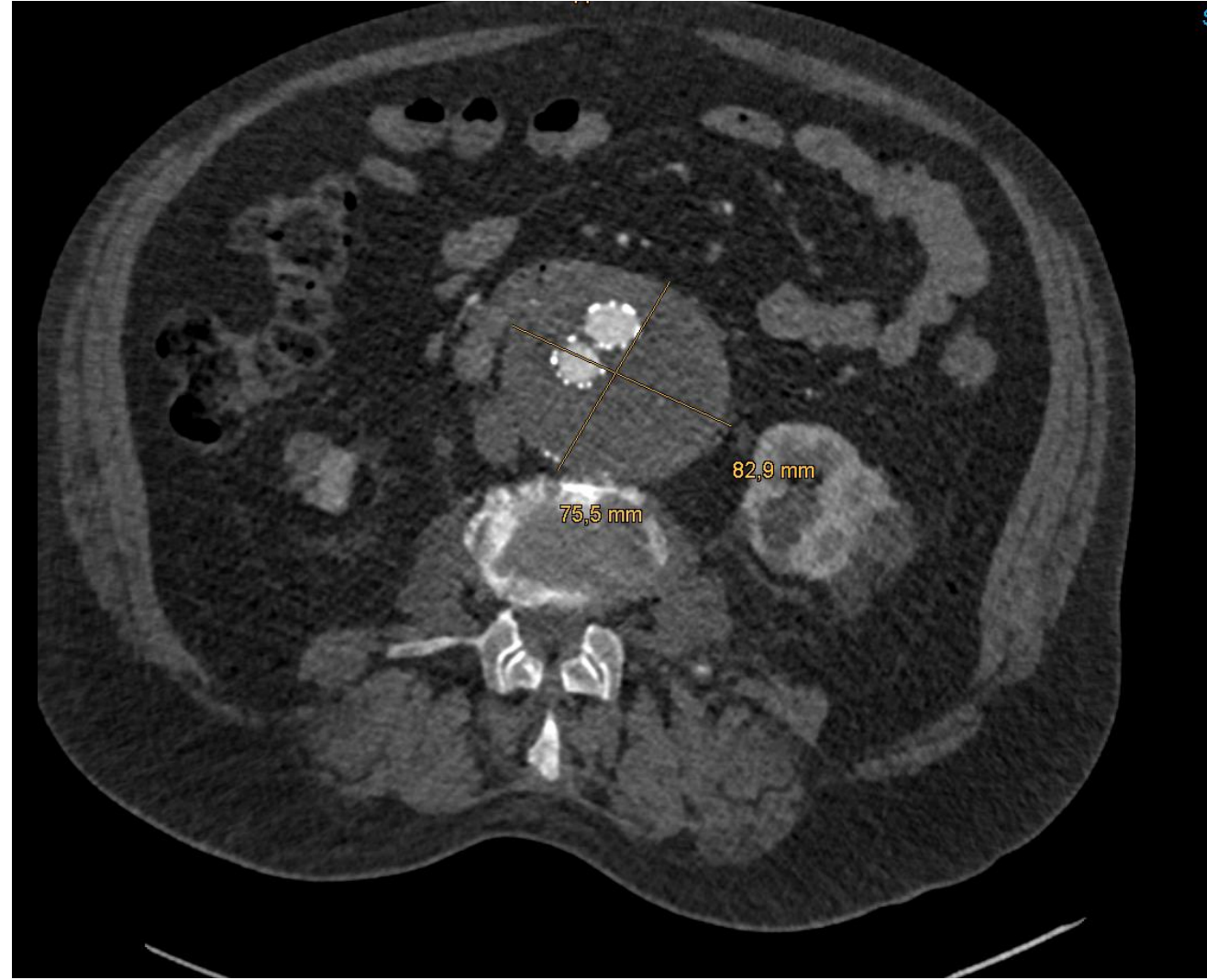
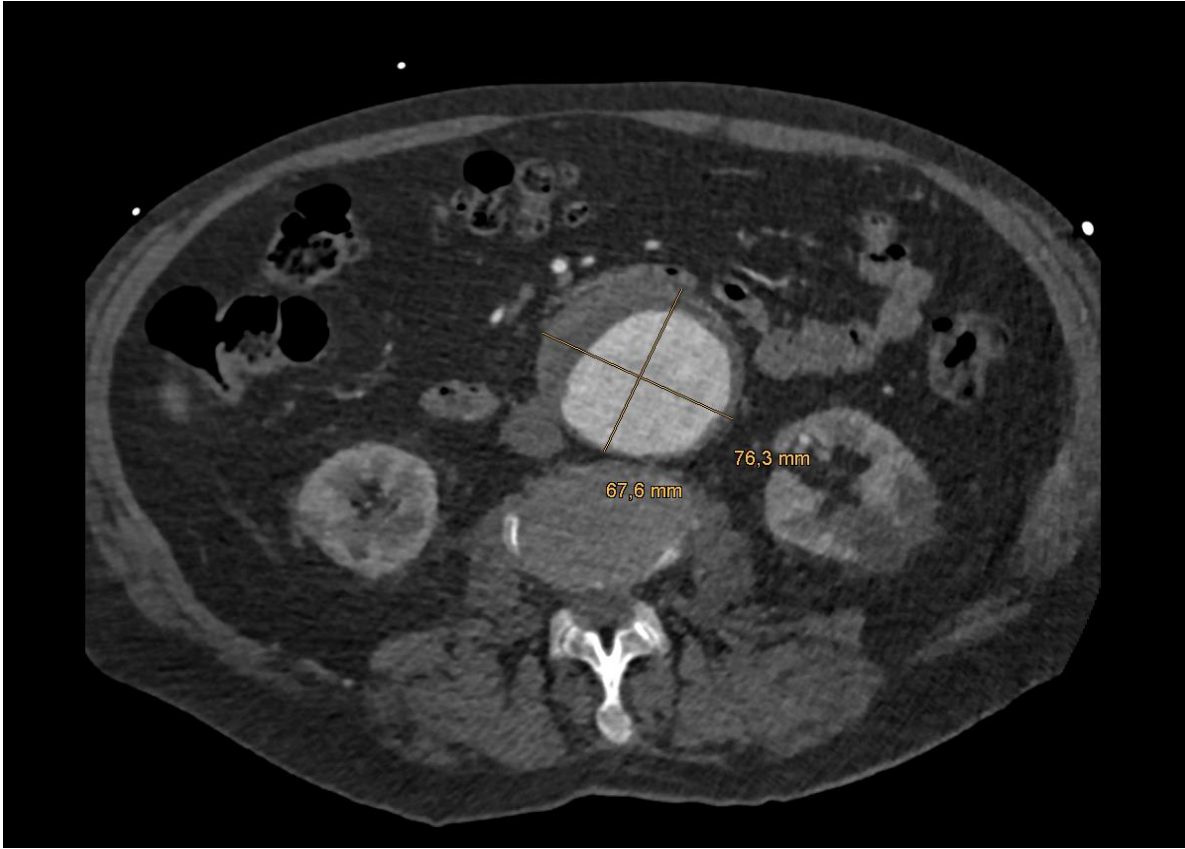


78 y old pt. with symptomatic 7.5cm juxtarenal AAA  
initial treatment: chEVAR



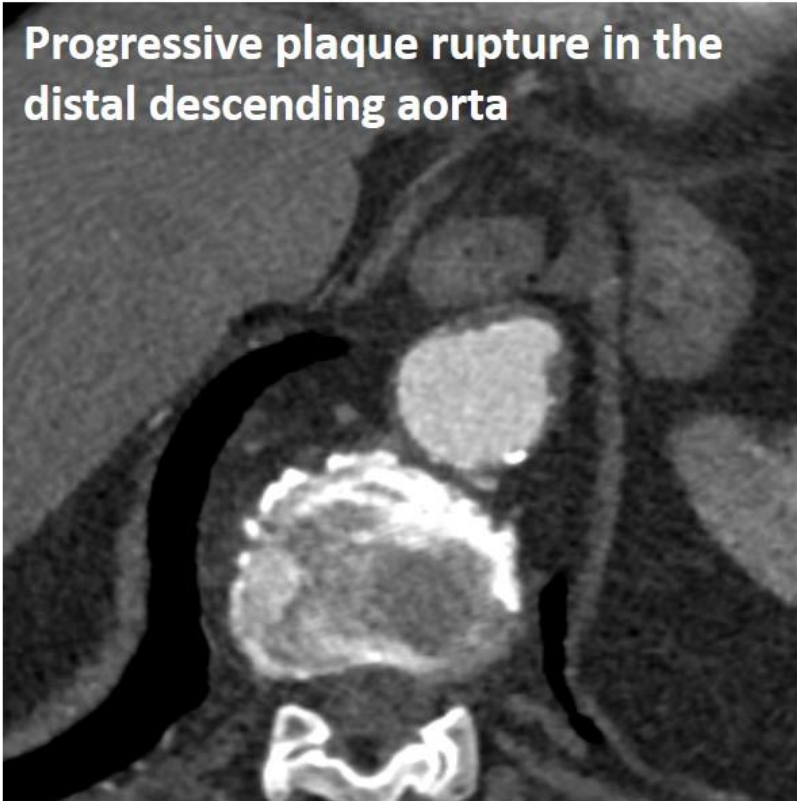
# follow up 2 years later

sac expansion

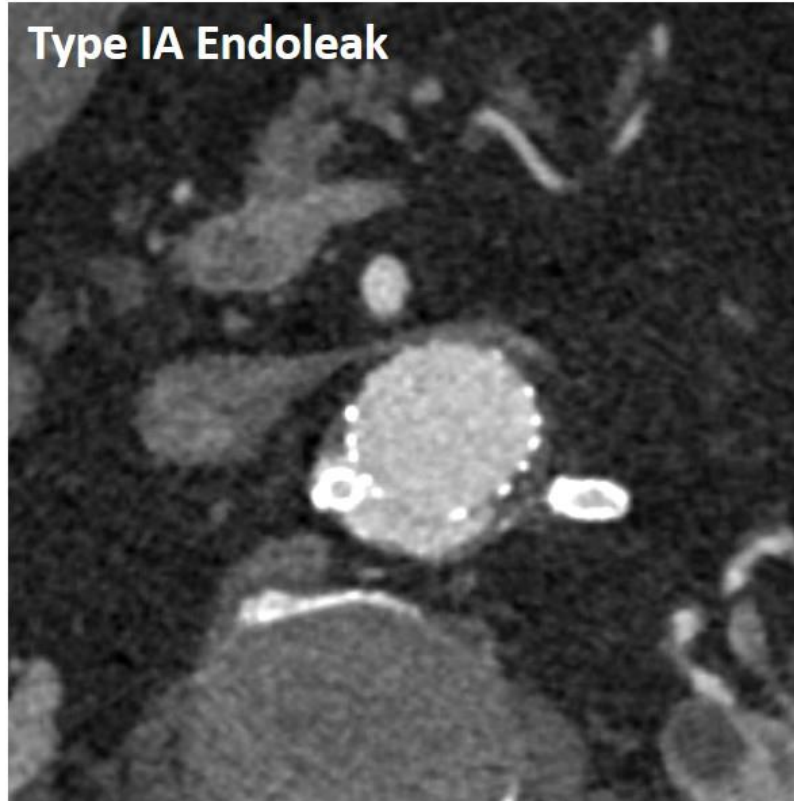


follow up 2 years later  
type Ia endoleak + progressive PAU distal descending

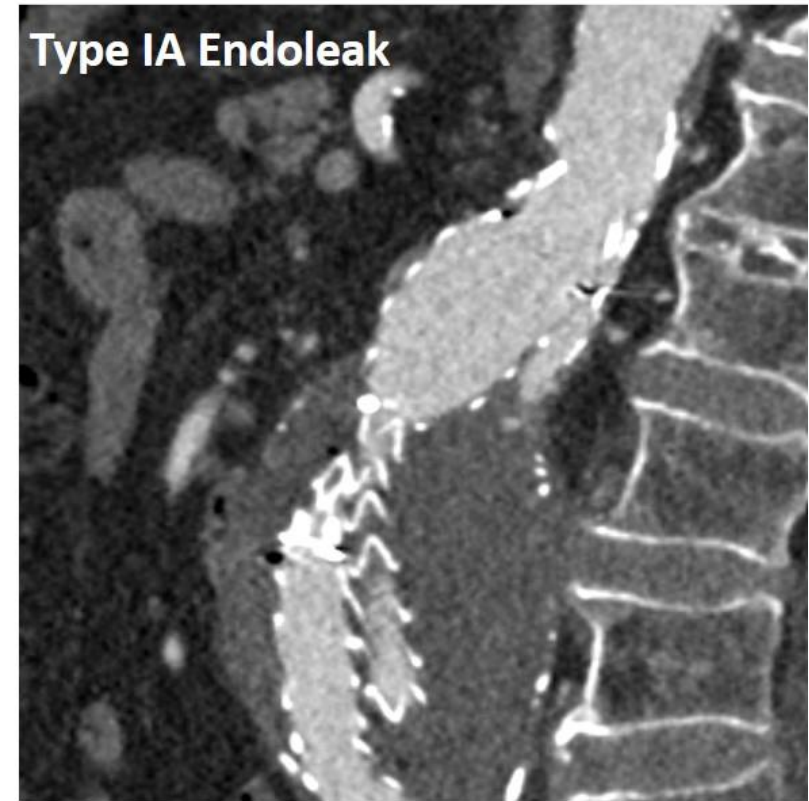
Progressive plaque rupture in the  
distal descending aorta



Type IA Endoleak



Type IA Endoleak



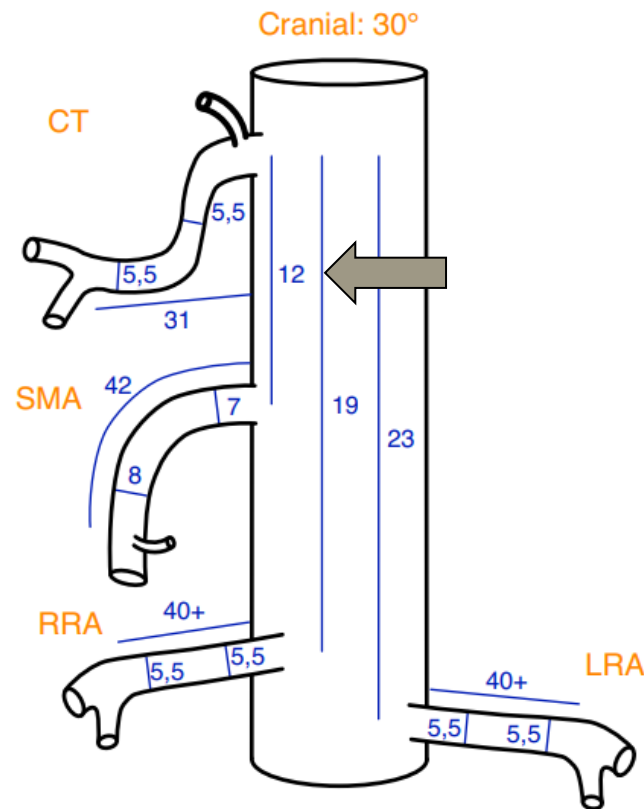
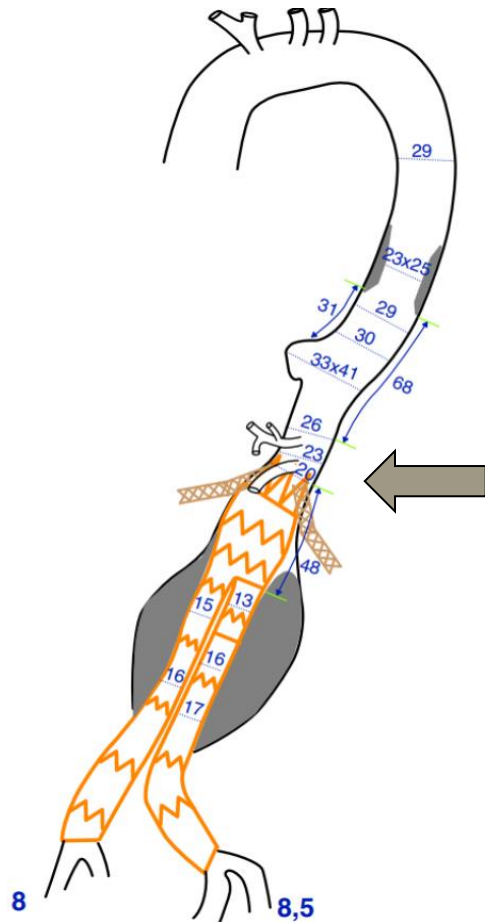




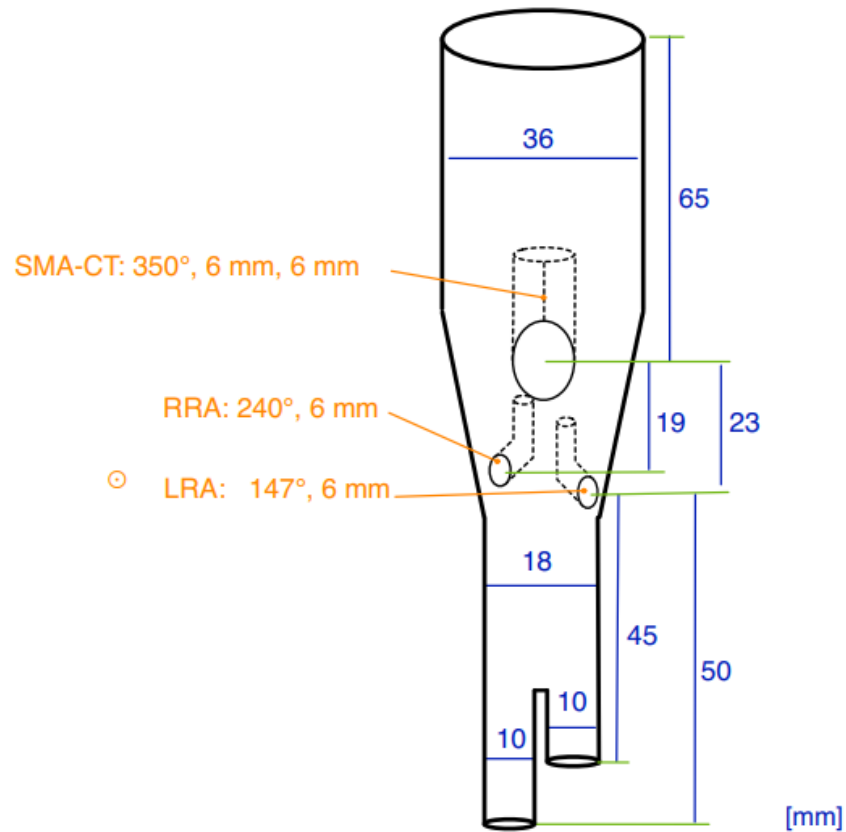
# morphological challenges

challenges:

1. focal small aortic diameter (20mm)
2. proximity SMA / CT (12mm)
3. posterior position of the chimneys
4. proximity of chimneys + SMA
5. plaque at ostium SMA



# device planning



**E-xtra Design MultiBranch**  
Stent Graft System

**Custom-Made Solution**

- Produced in **only 22 working days**
- Not 1 but **3 different solutions**:
  - Inner branches
  - Semi branches **NEW**
  - Twin branches **NEW**

extreme tapering 36mm → 18mm

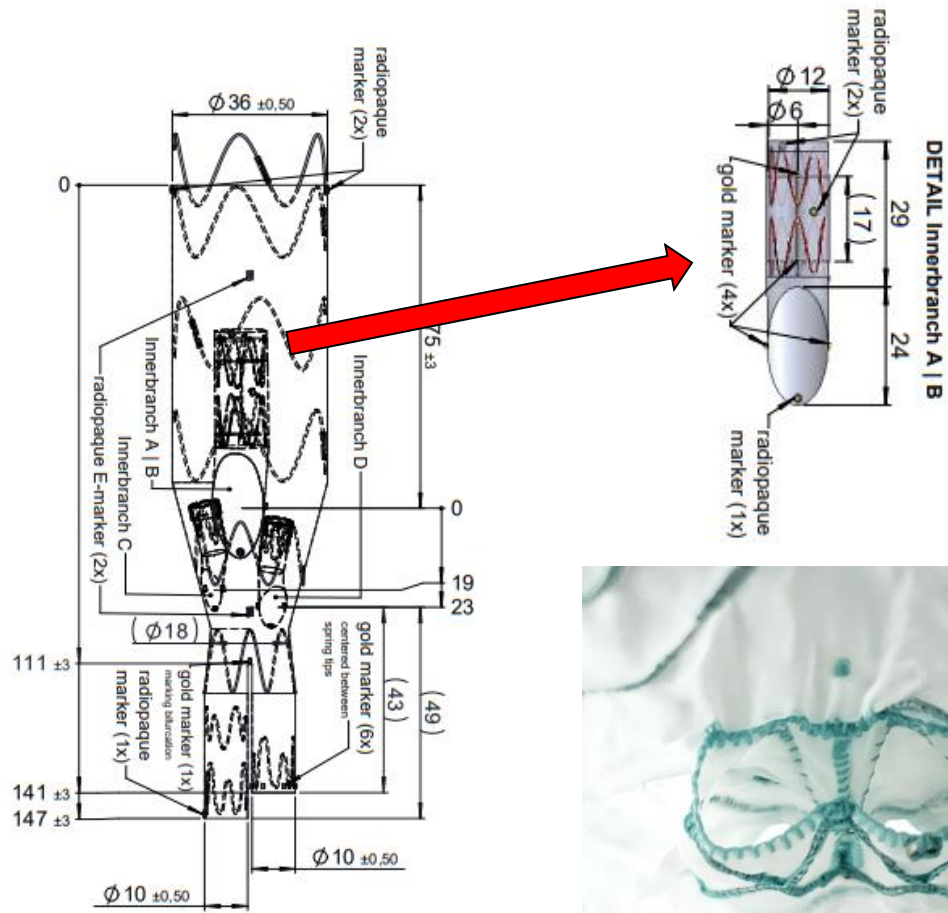
twin branch

posterior oriented ibranches

bifurcated design

# device planning: twin branch

two separate tubes that converge in one ostium and one cannulation area



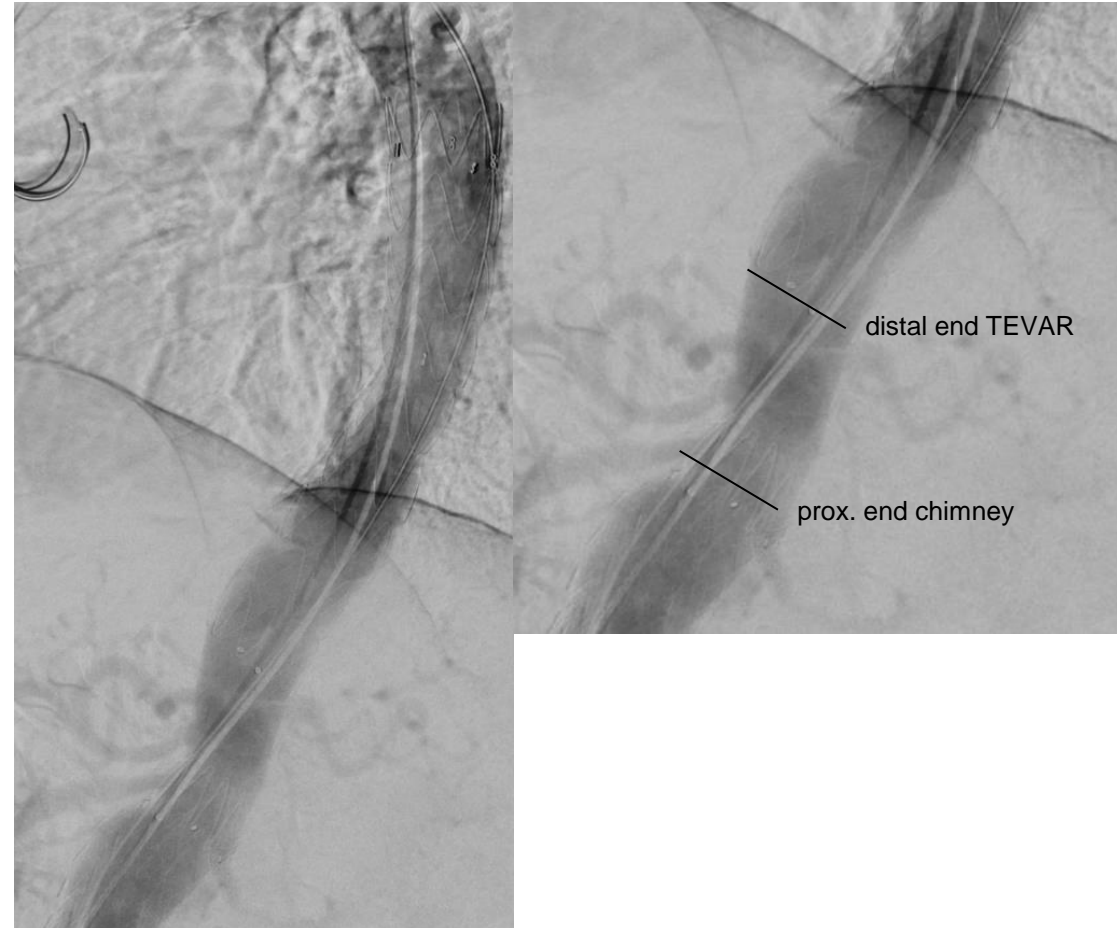
	<b>Twin branch</b>
Diameter <b>D</b> [mm]	2 x Ø6 2 x Ø7 2 x Ø8
Length <b>L</b> [mm]	29 (Ø6) 29 (Ø7) 29 (Ø8)
Orientation	anterograde, retrograde
Marker configuration	1x <u>round marker</u> and 2x <u>tube marker</u> at the <u>ostium</u> 1x <u>round marker</u> <u>one each tube</u> 2 <u>gold tubes</u> <u>marking the effective overlap zone</u>
<u>Overview</u>	

# procedure planning

staged approach to reduce risk for paraplegia

## I. TEVAR

- Valiant Captivia Medtronic 36-34-150
- exclude PAU
- create optimal prox. LZ 2 cm above CT



# procedure planning

staged approach to reduce risk for paraplegia

I. TEVAR (Valiant Captivia Medtronic 36-34-150)

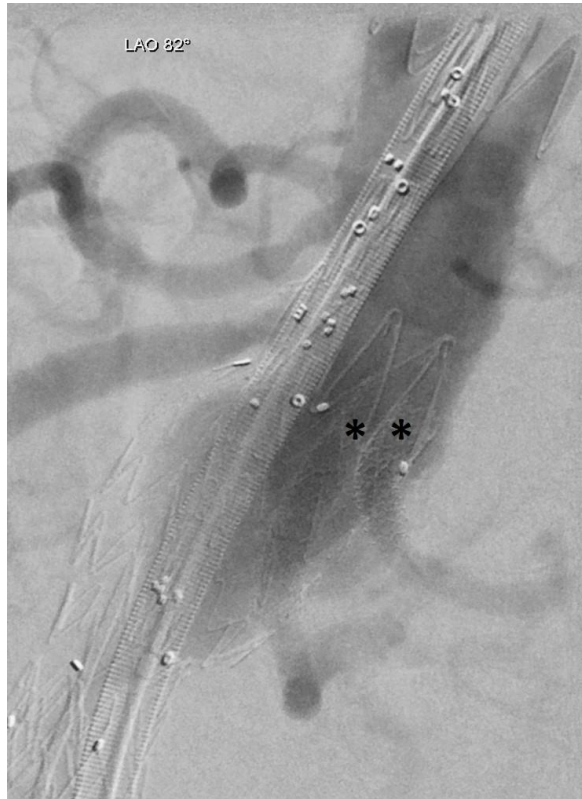
II. iBEVAR

- femoral percutaneous acces + left transaxillary acces

- partial graft deployment to allow max. space for cannulation of

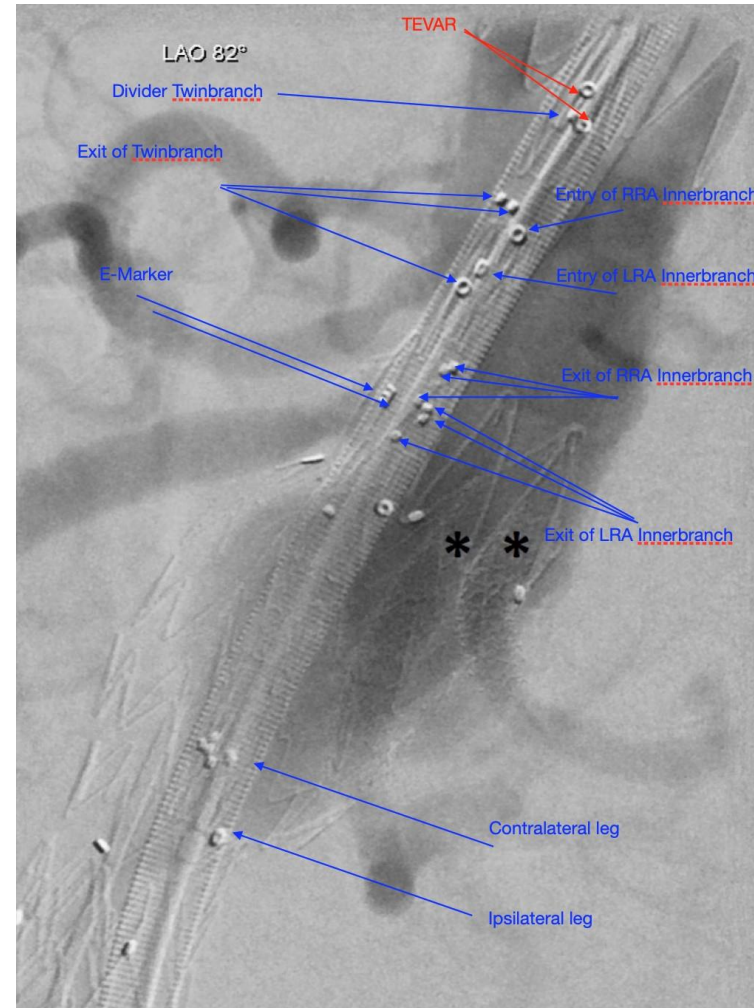
chimneys & target vessels

# iBEVAR procedure

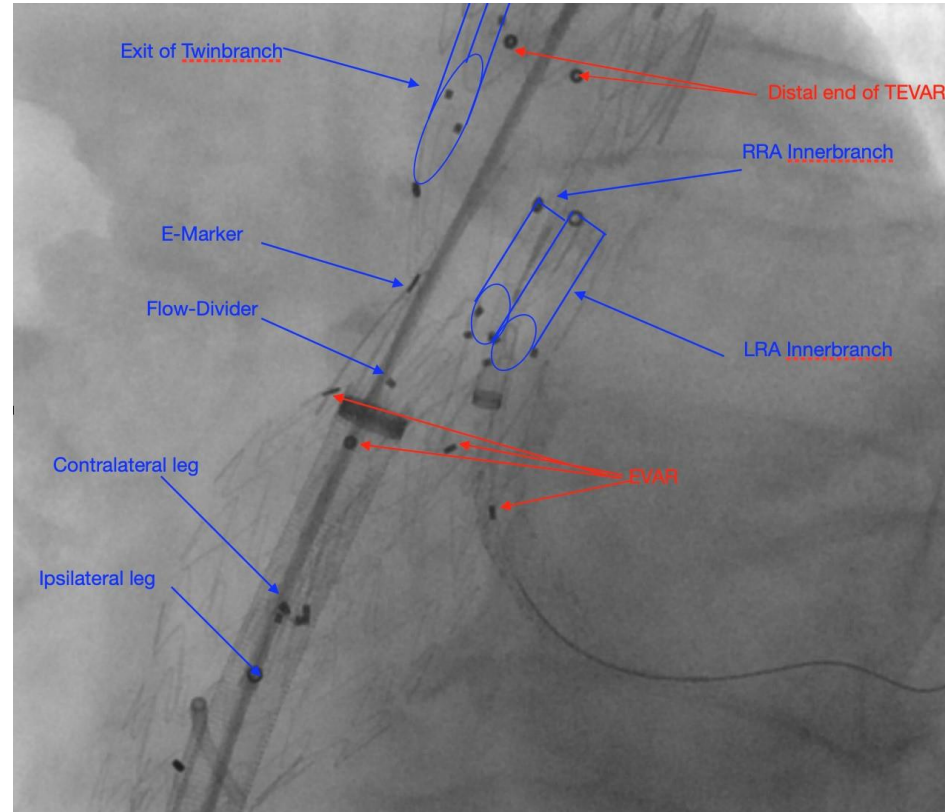


Insertion of the custom made device.

Note the close proximity of the CT, SMA and both chimneys (\*)

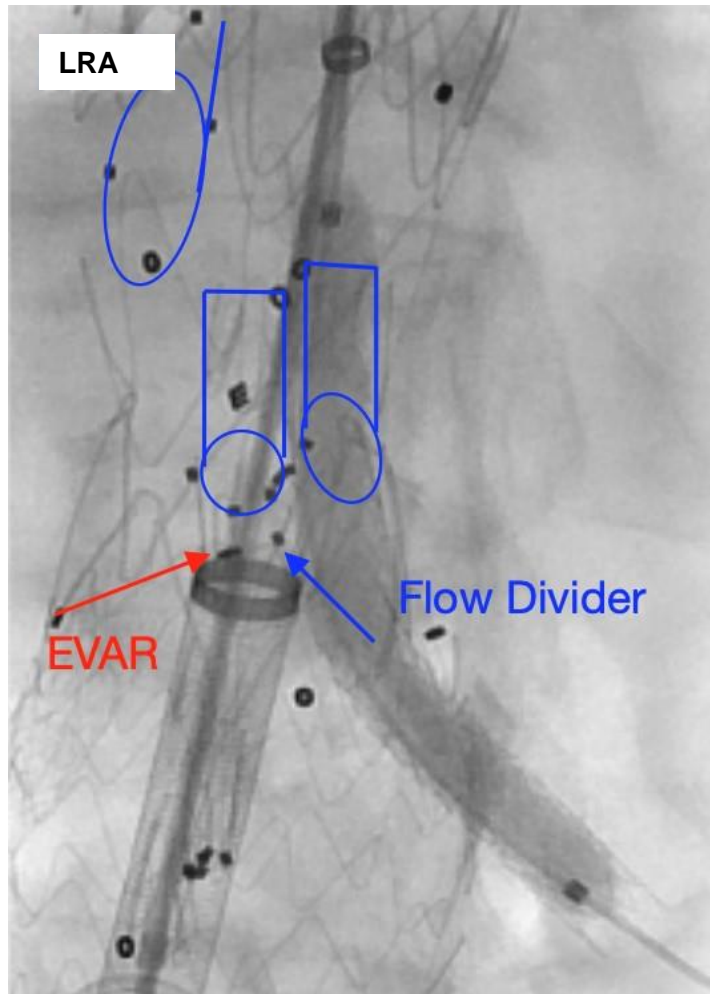


# iBEVAR procedure



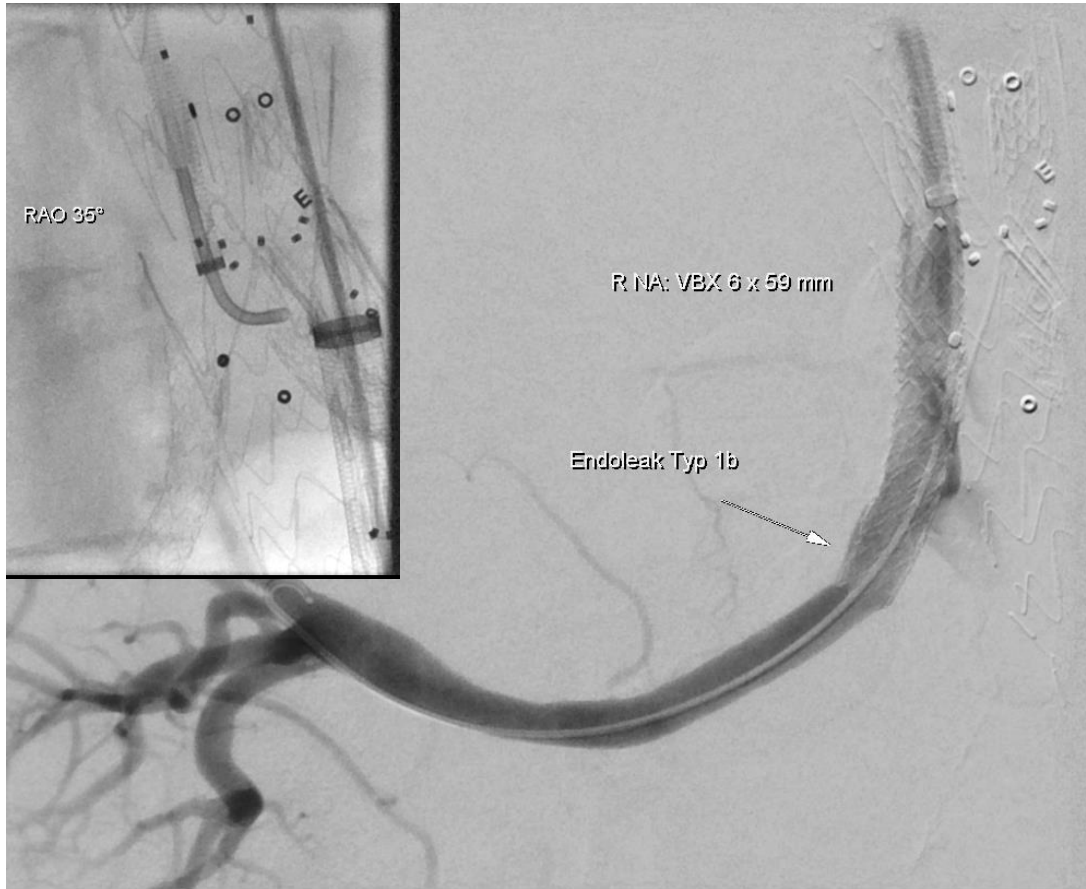
partial deployment of the CMD until all inner branches opened but the bifurcated part was still constrained

# iBEVAR procedure bridging stent left renal artery



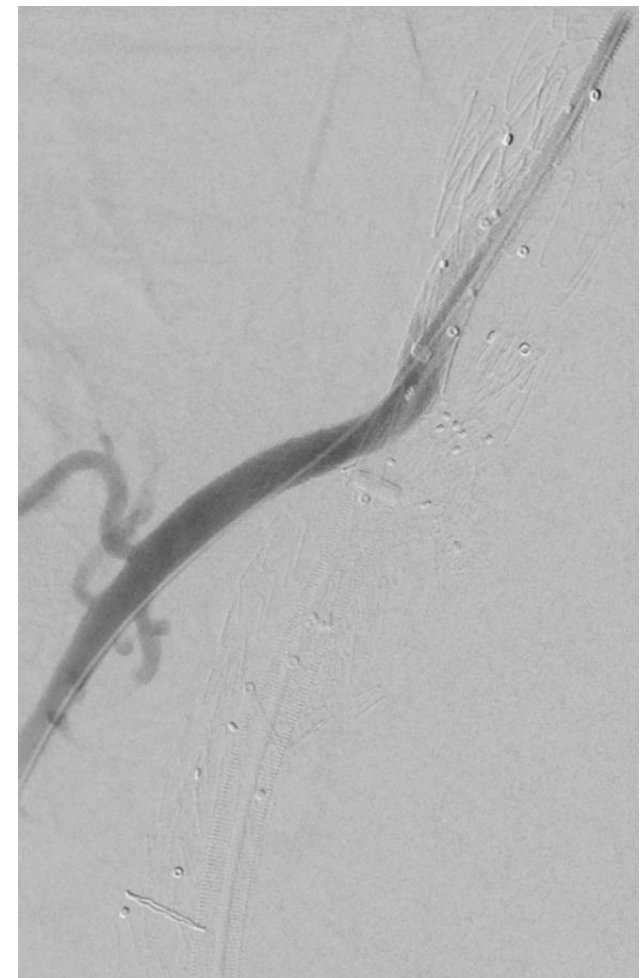
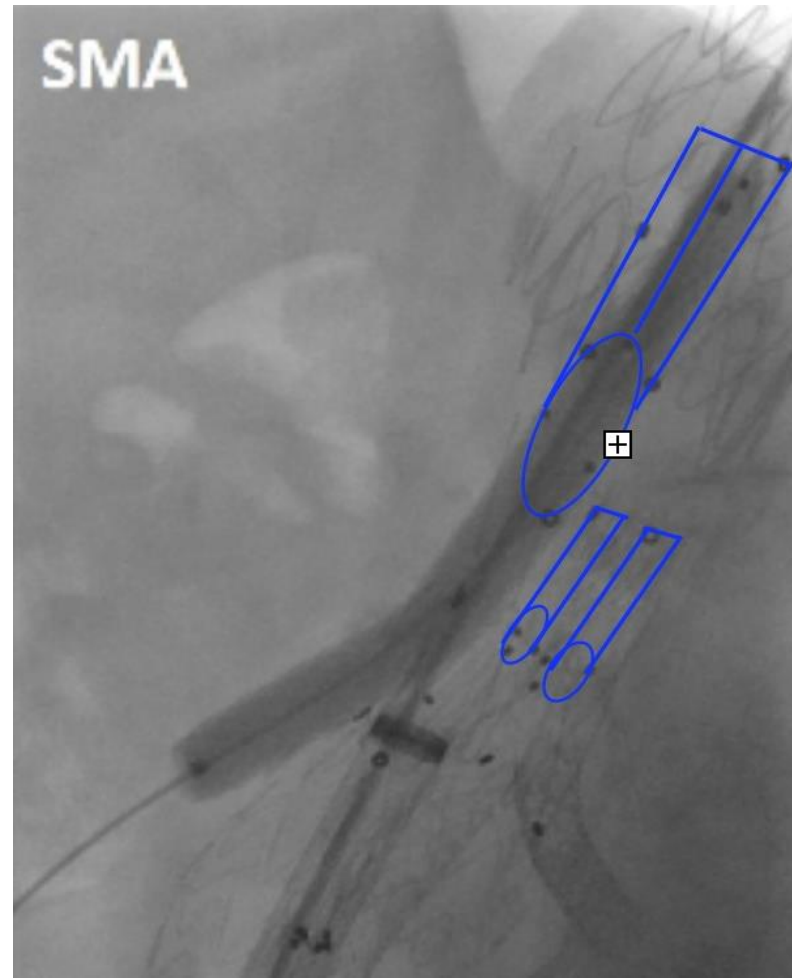


# iBEVAR procedure bridging stents right renal artery



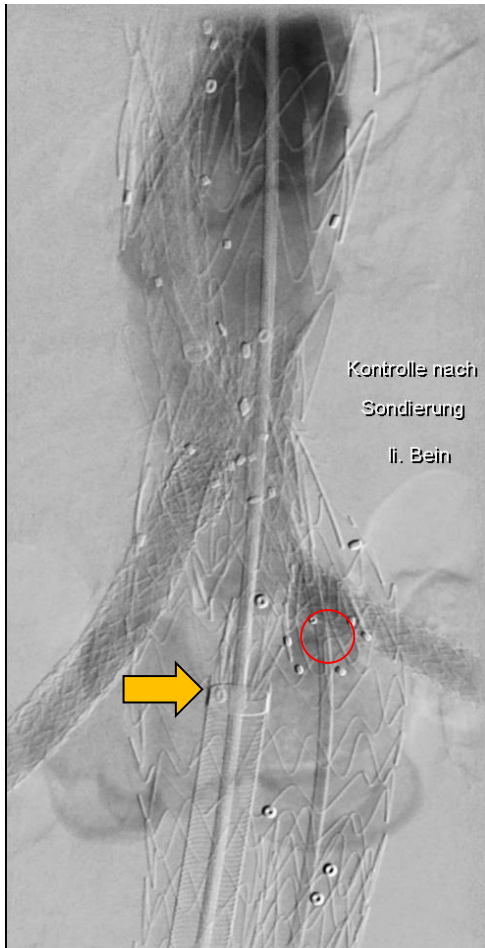
VBX 6x59 + Advanta 7x39

# iBEVAR procedure bridging stent SMA in twin branch



SMA: VBX 8x79

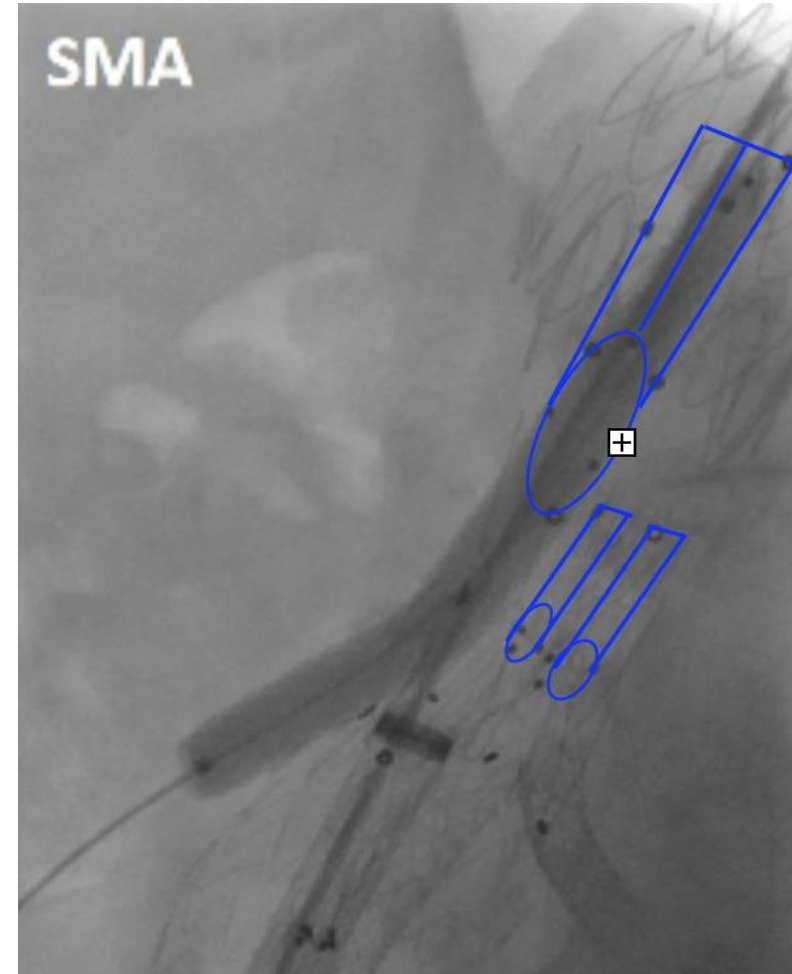
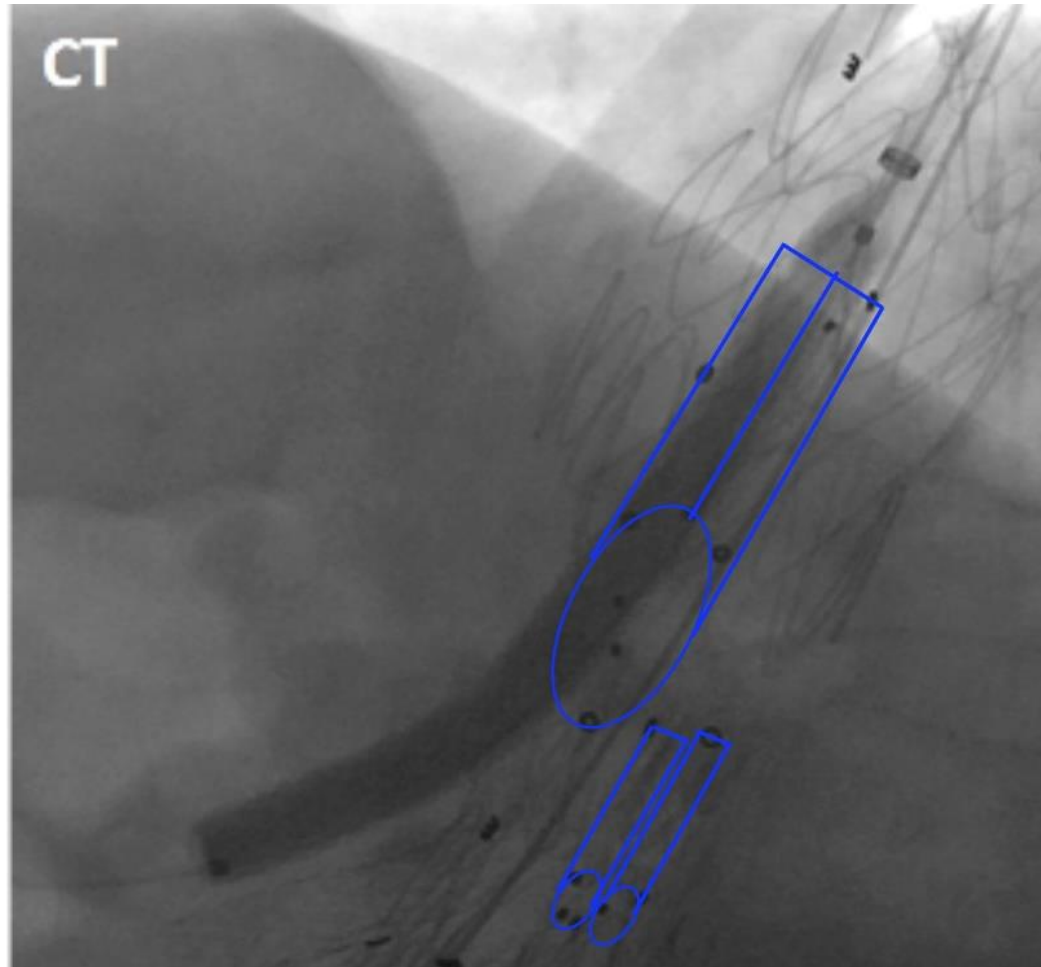
# iBEVAR procedure distal completion with iliac limbs



To avoid complete aortic occlusion the graft was further deployed until the contralateral limb opened up

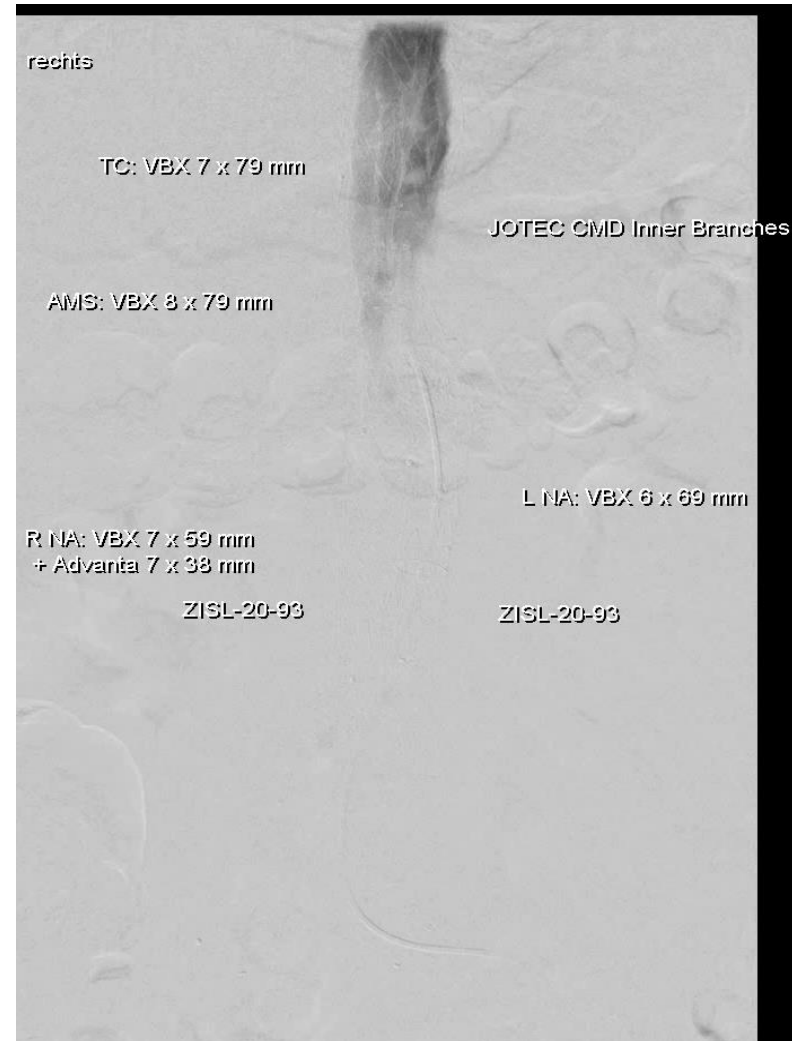
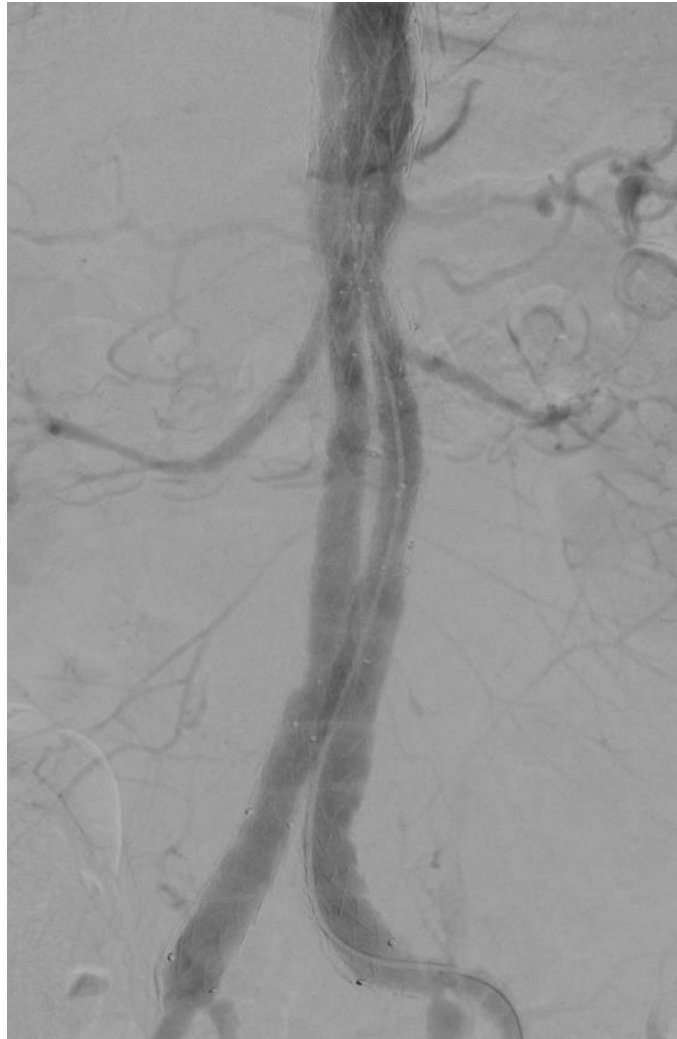
The contralateral limb was cannulated and completed followed by the ipsilateral side

# iBEVAR procedure bridging stent CT in twin branch

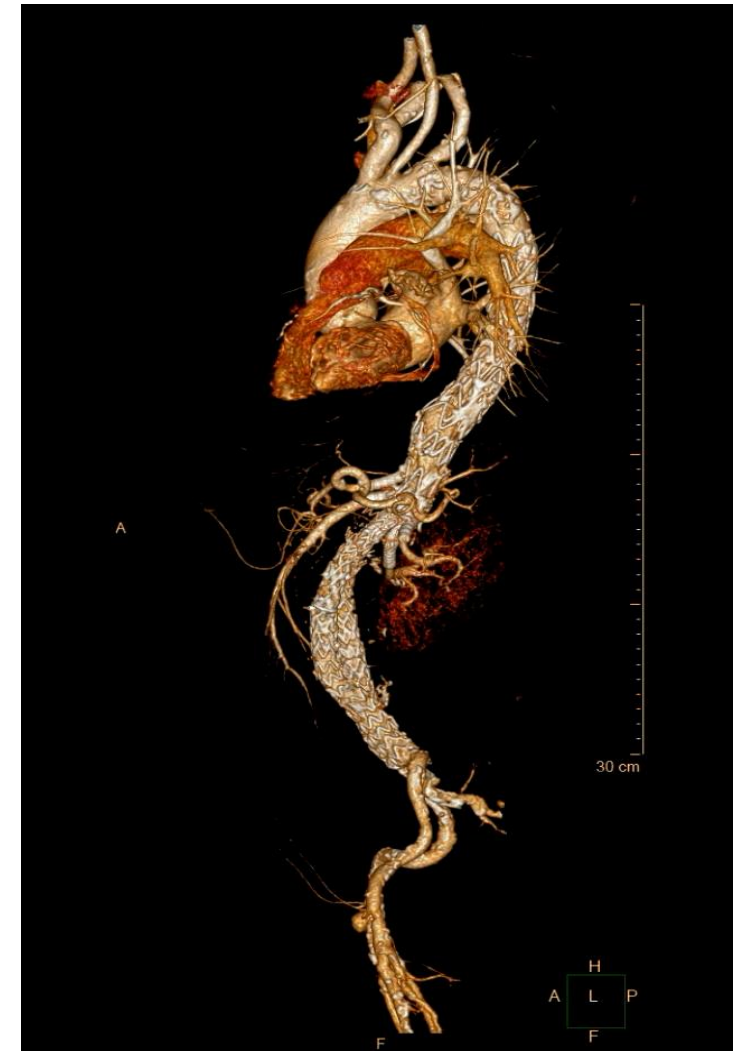
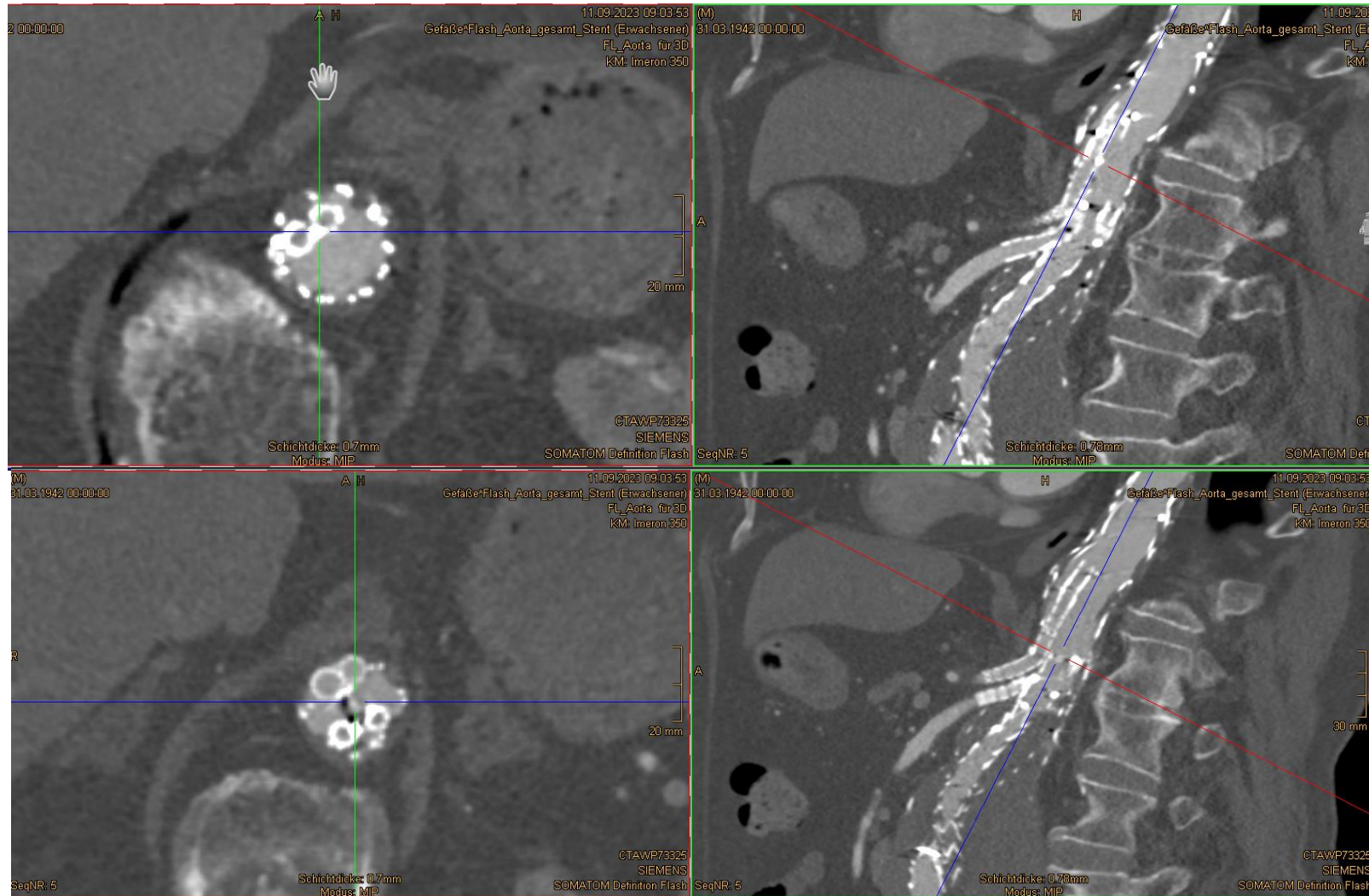


celiac trunc: VBX 7x79

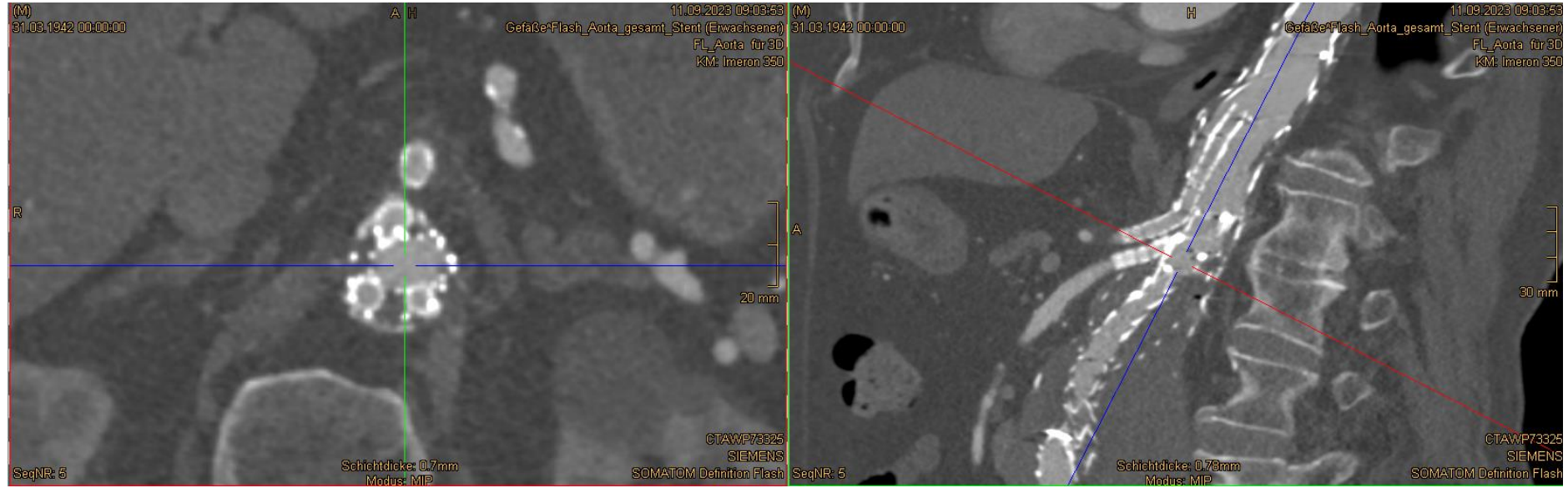
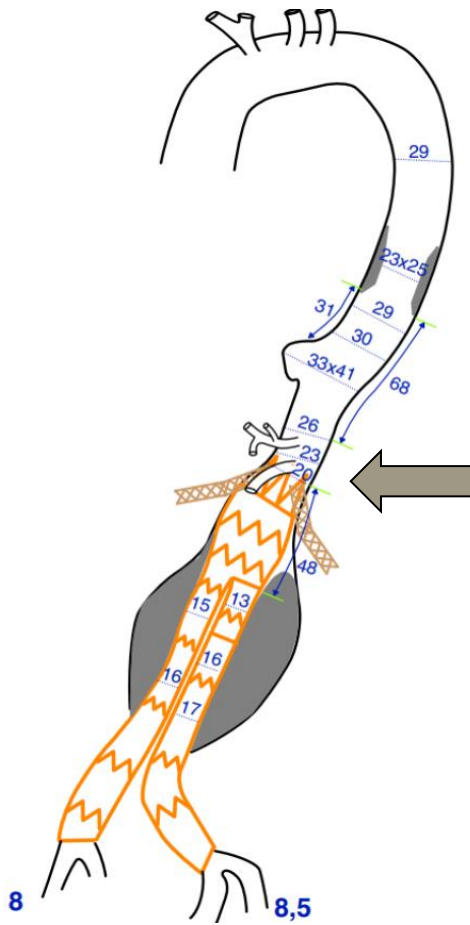
# iBEVAR procedure final result



# iBEVAR procedure postoperative CTA



# iBEVAR procedure postoperative CTA

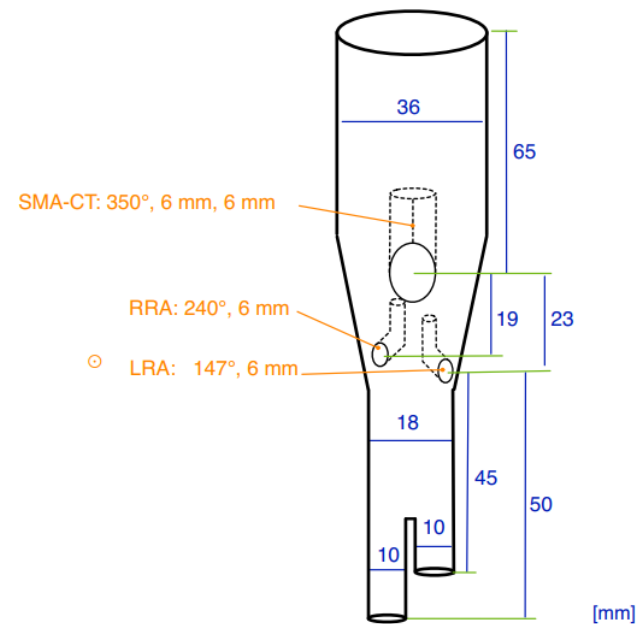


# iBEVAR for repair cases

1. The E-xtra Design MultiBranch Stent Graft System with inner branches offers some unique stent design options that allow safe treatment of very challenging and complex repair situations such as shown in this case.

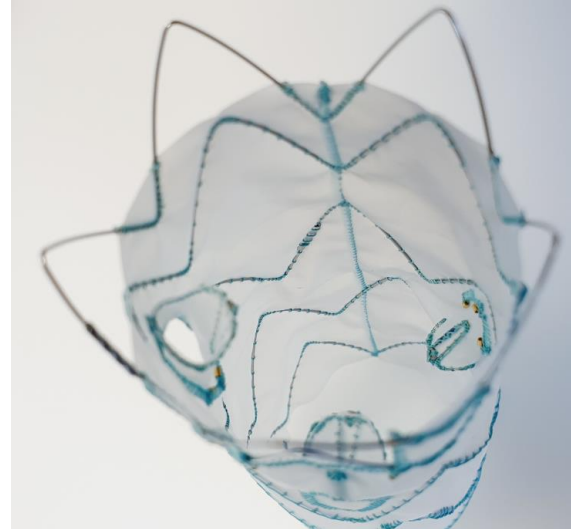
## 2. Design options used

- twin branch (double inner branch)
- posterior oriented branches
- extreme graft tapering
- bifurcated end design





# iBEVAR semibranches



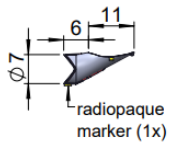
## Technical advantages

- Good option to treat type Ia endoleak after EVAR, juxta-, pararenal aneurysms and dissections
- Compact design allowing small implant diameter especially in its median part
- Allows short proximal stent graft length
- Useful for small distances between target vessels

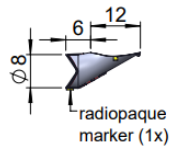
# iBEVAR semibranches



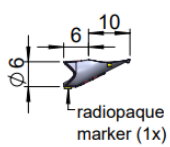
DETAIL Semibranch A



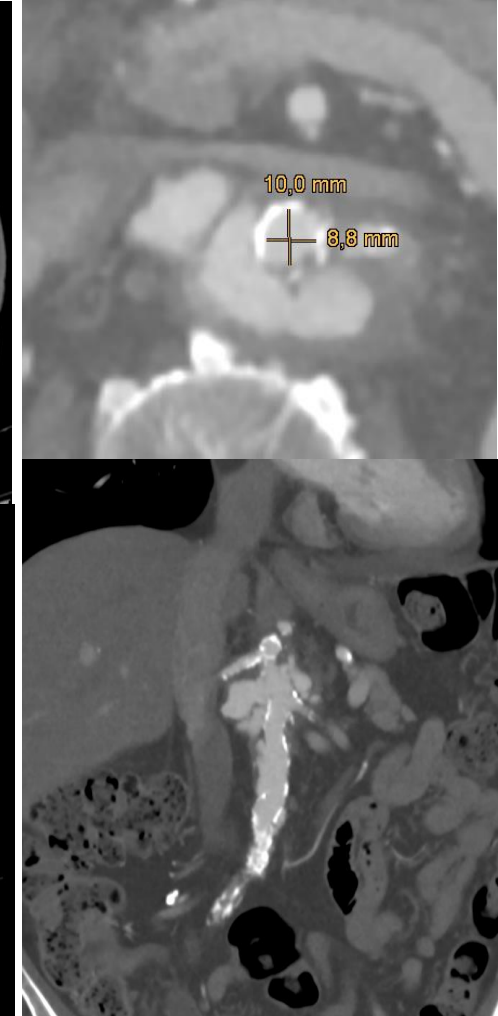
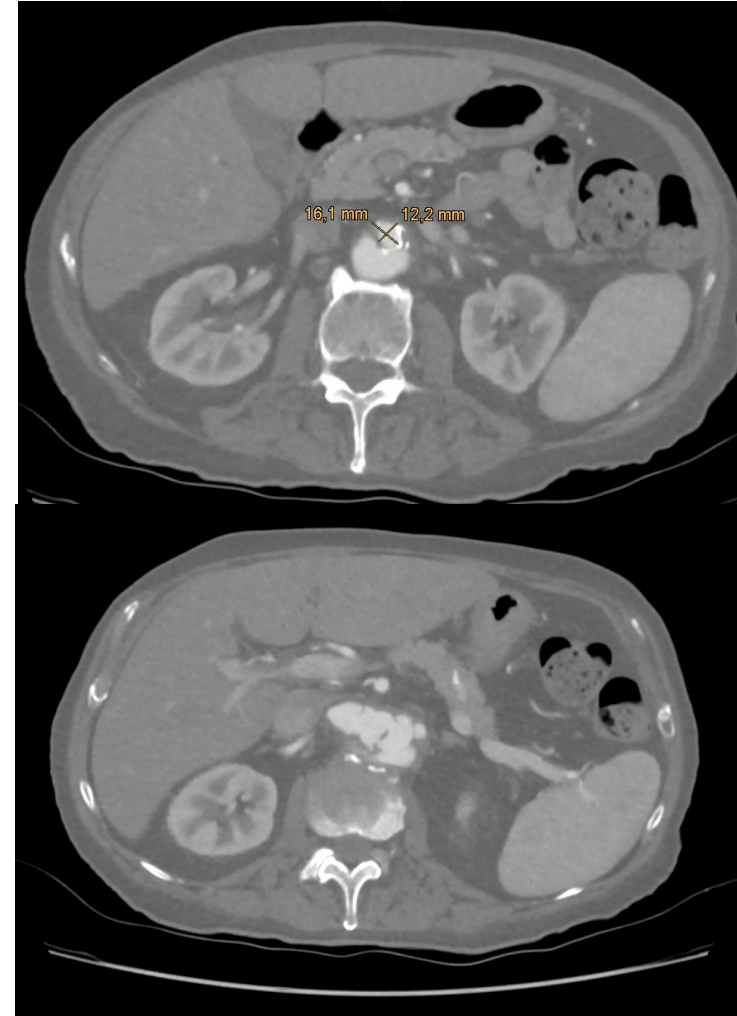
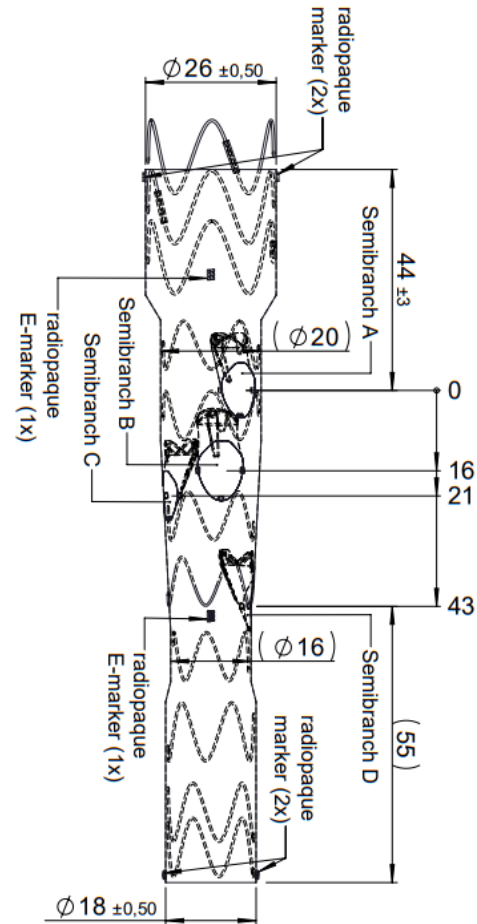
DETAIL Semibranch B



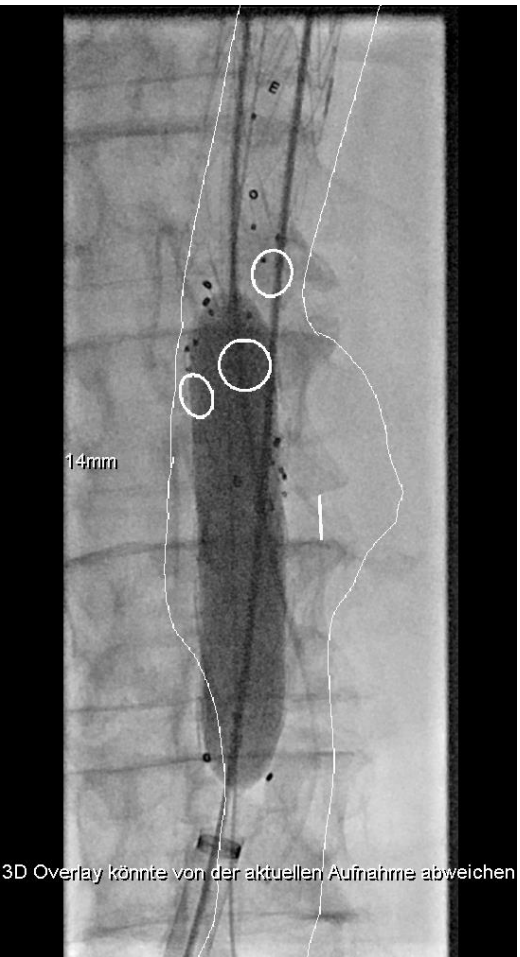
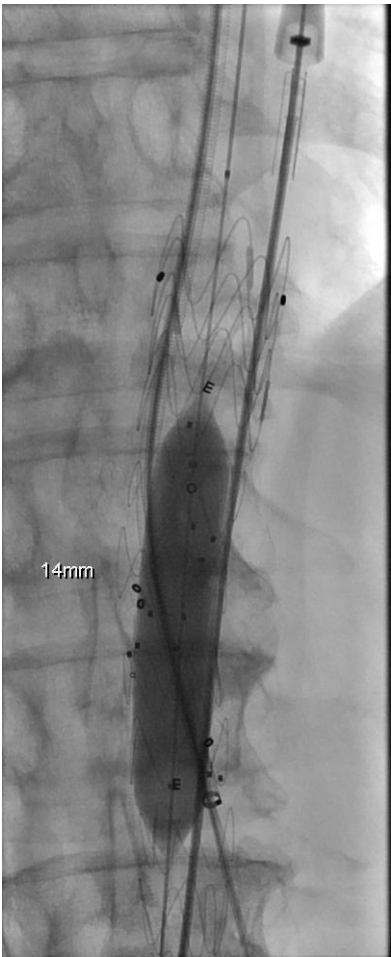
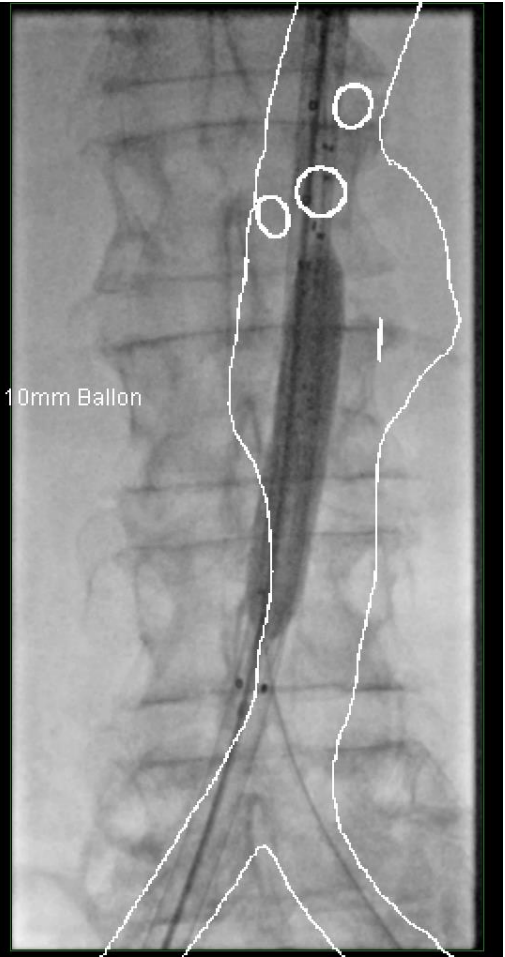
DETAIL Semibranch C + D



Marking of the Semibranches:



# iBEVAR semibranches

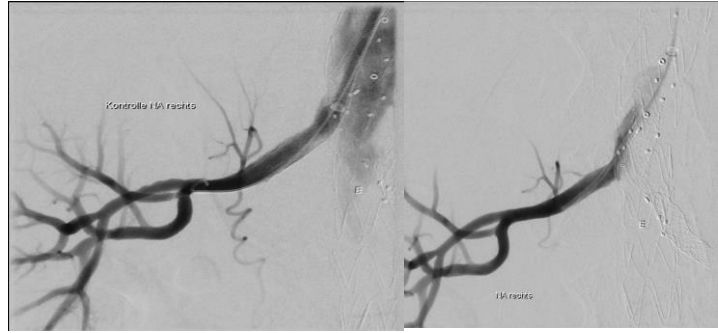
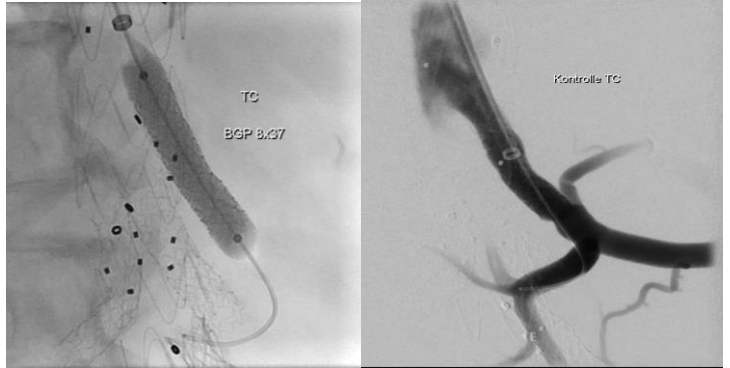


# iBEVAR semibranches

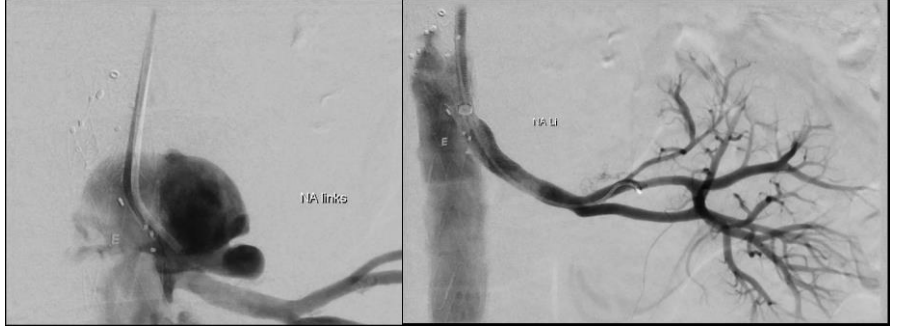
SMA



CT



right RA



left RA