Universitäres
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GERMAN
AORTIC CENTER
HAMBURG

# Steerable sheath for Target Vessel Stent Deployment: an Expert View and Results

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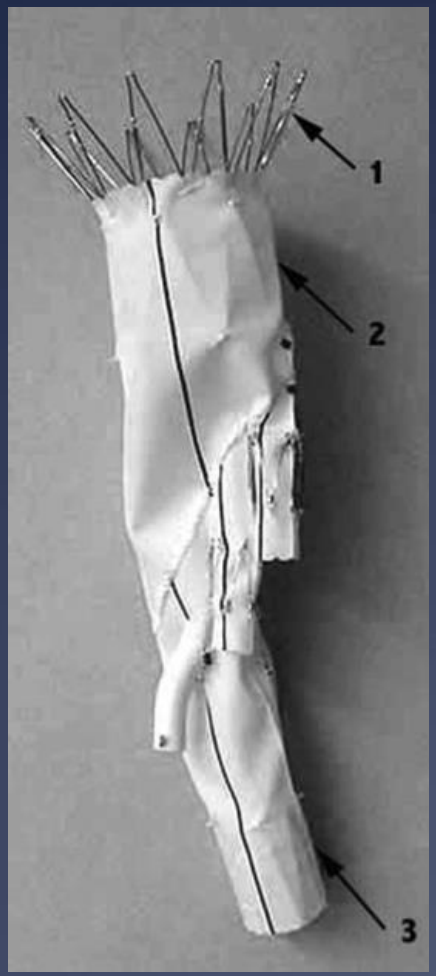
23RD INTERNATIONAL EXPERTS SYMPOSIUM
CRITICAL ISSUES
in aortic endografting 2019

# Disclosures

- Research-grants, travelling, proctoring speaking-fees, IP, royalties with Cook Medical.
- Consultant with Philips
- Speaking fees from Getinge
- IP, Consultant with Terumo Aortic
- Shareholder Mokita-Medical GmbH

# 2001 San Francisco, USA

## First branched EVAR



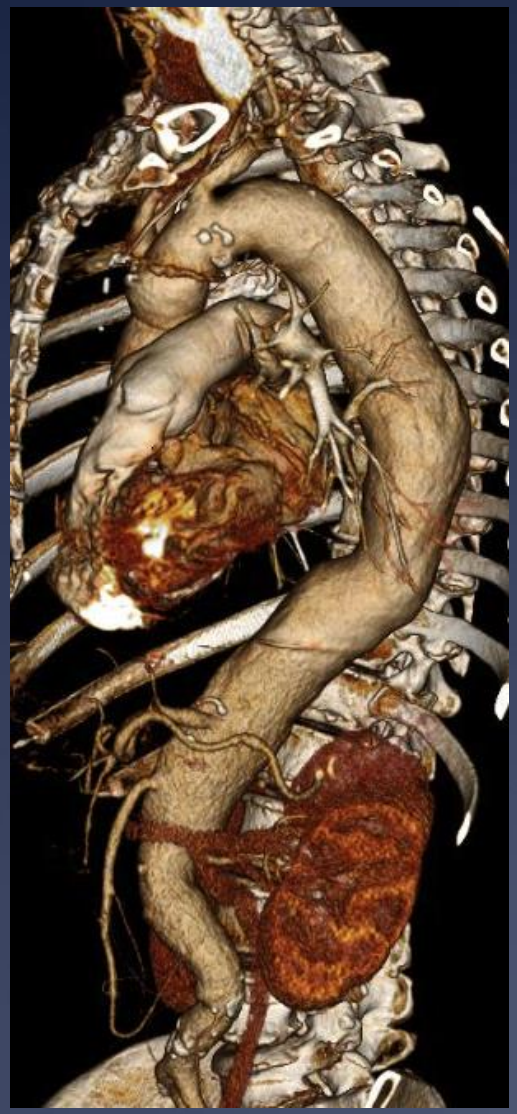


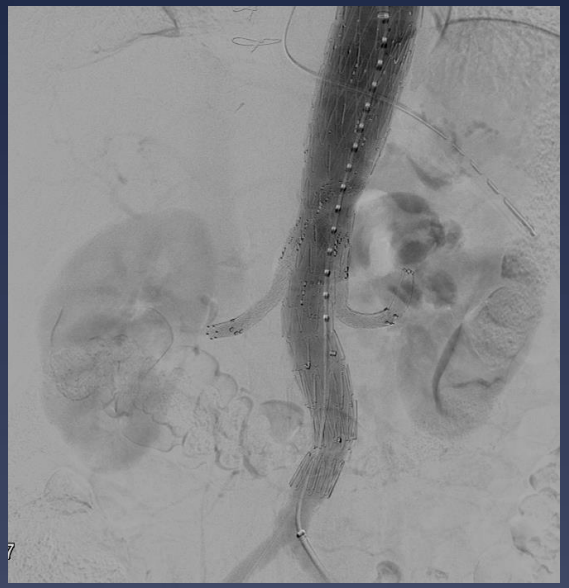
- **Timothy A. Chuter et al:**

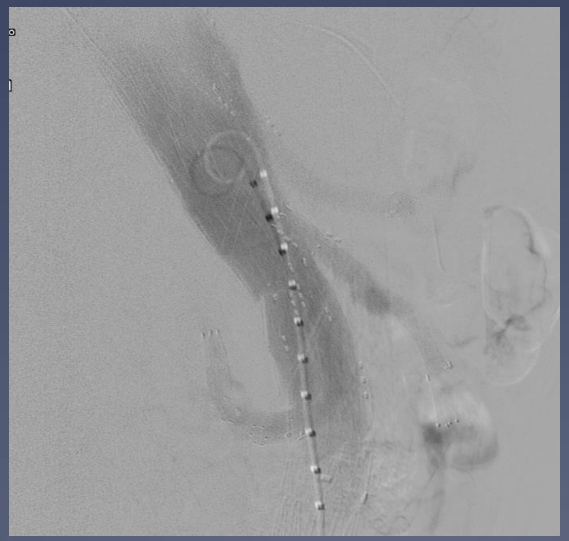
  An Endovascular System for Thoracoabdominal Aortic Aneurysm Repair.

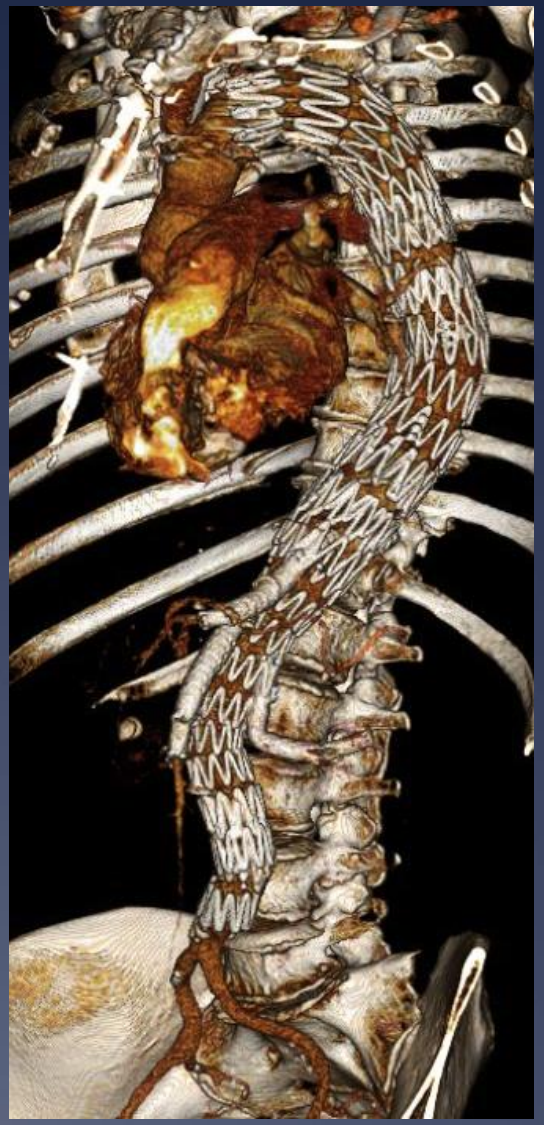
  **JEVT 2001;8:25-33.**

# Zenith® T-Branch:
## Off the Shelf Thoracoabdominal Endograft



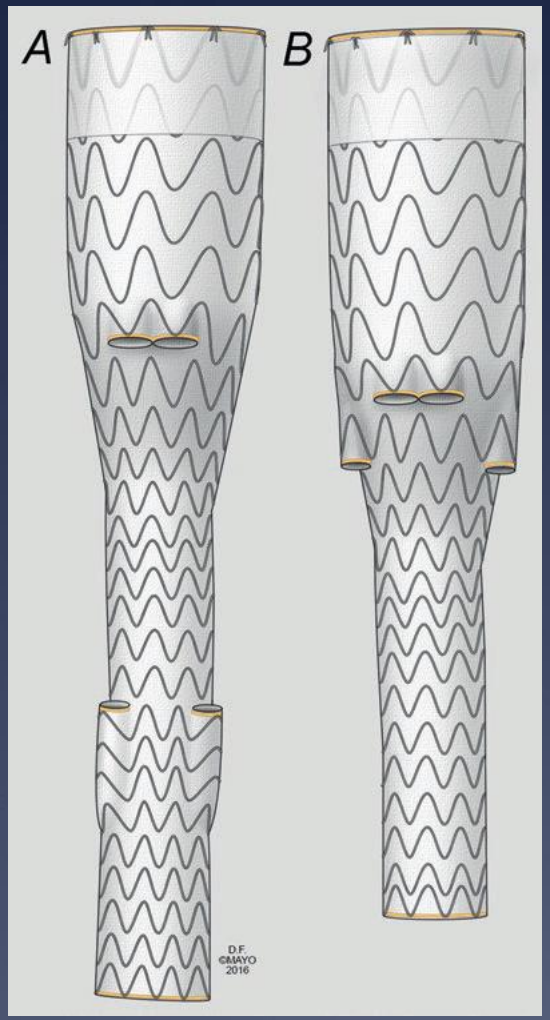




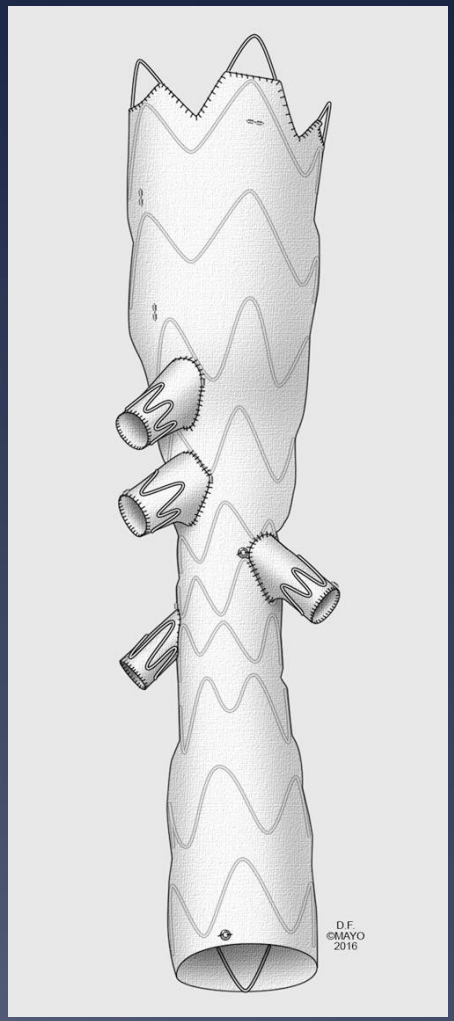


# Market Maturation


Cook t-branch




Gore Tambe




Jotec Xtra-Design

Illustrations from Oderich: Endovascular Aortic Repair

# Right or Left ?

## Right brachial access is safe for branched endovascular aneurysm repair in complex aortic disease

Beatrice Fiorucci, MD, Tilo Kölbel, MD, PhD, Fiona Rohlffs, MD, Franziska Heidemann, MD, Sebastian Eike Debus, MD, PhD, *and* Nikolaos Tsilimparis, MD, PhD, *Hamburg, Germany*

**ABSTRACT**

**Background:** The risk of perioperative cerebrovascular events in endovascular repair of thoracic and thoracoabdominal aneurysms is reported from 2% to 15%. The unavoidable use of an upper extremity access during branched endovascular aneurysm repair (b-EVAR) may play a role in embolic brain injuries. For this reason, some advocate the use of a left-sided upper access to avoid crossing the origin of supra-aortic vessels. However, the assumption that right brachial access has a higher risk for stroke during b-EVAR has not been confirmed in the literature.

**Conclusions:** The postoperative stroke rate in b-EVAR with the use of a right brachial access in our experience was in line with the literature for treatment of thoracic and thoracoabdominal aortic aneurysms. We conclude that the right brachial access with the use of a stabilizing through-and-through wire is a safe approach during b-EVAR. (J Vasc Surg 2017;66:360-6.)

Fiorucci et al. 2017; J Vasc Surg 66:360-6

# Unavoidable Upper Extremity Access ?

- Occlusion/stenosis
- Thrombotic/shaggy
- AV-fistula
- LIMA Bypass
- Antegrade branches after arch-repair

# TAAA after Arch-Branch Graft


* „No“ antegrade access

# Upper Extremity Access Complications

- Hematoma
- Nerve damage
- Plexus damage
- Stroke
- Rupture
- Ischemia
- Prolonged operating time

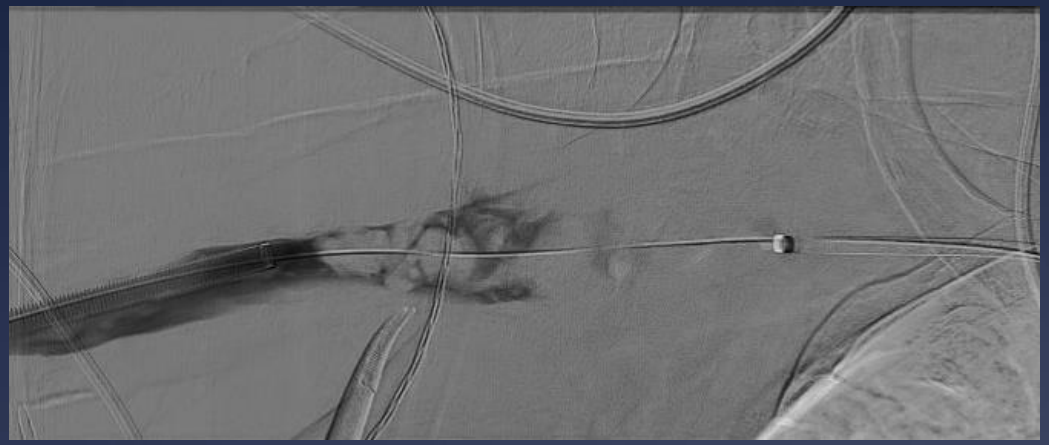
# Branched EVAR

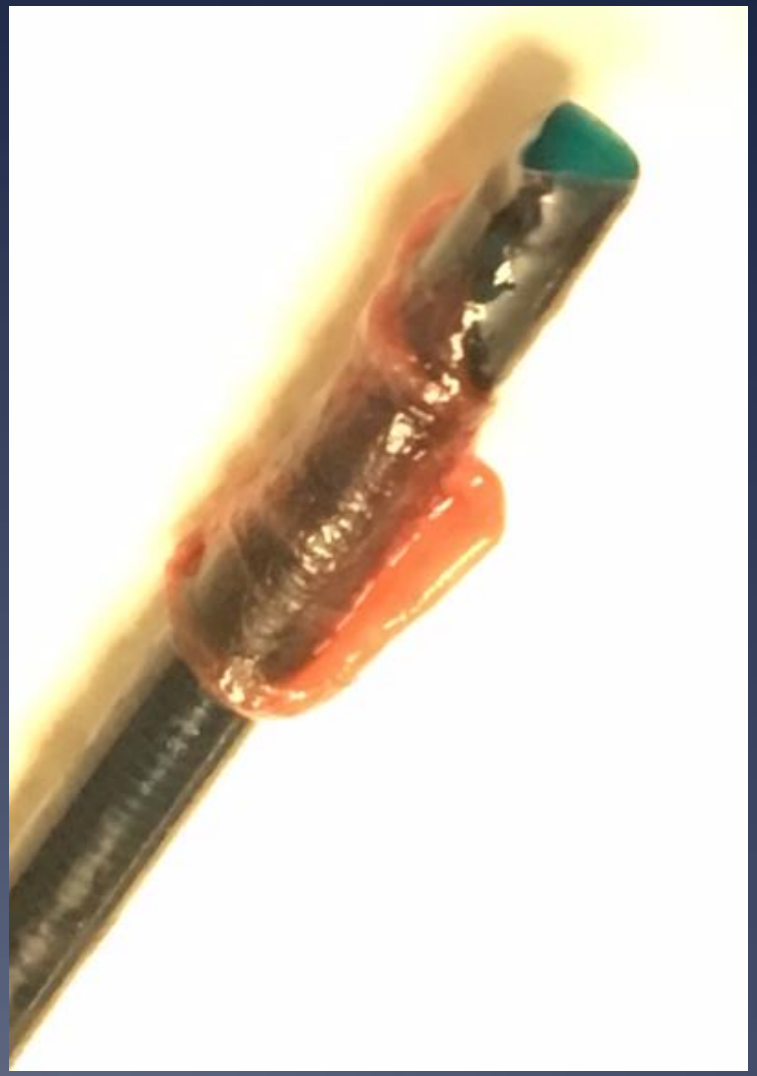
Hamburg Experience 2015-2017: n=94

- UEA complications:
  - Brachial artery revision: 5 (5.3%)

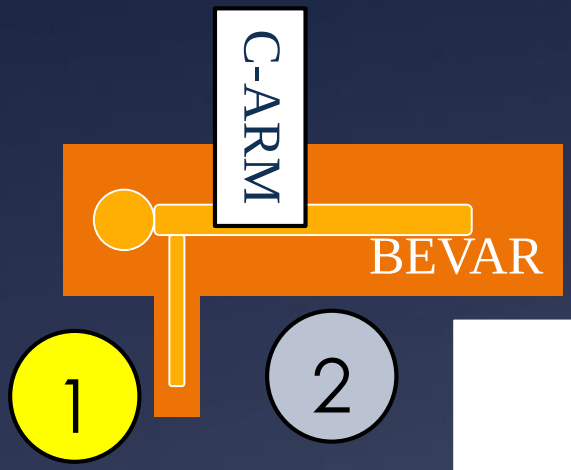
Unpublished data

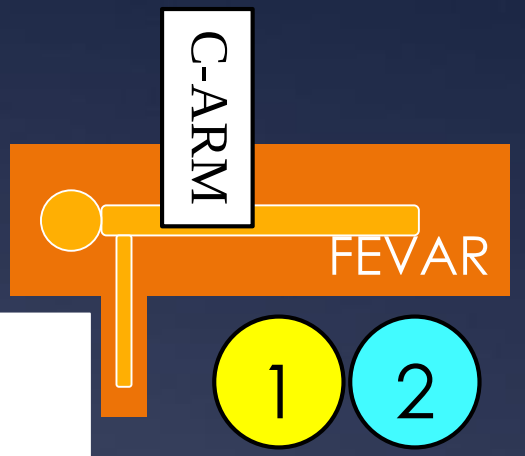
# Brachial Artery Rupture

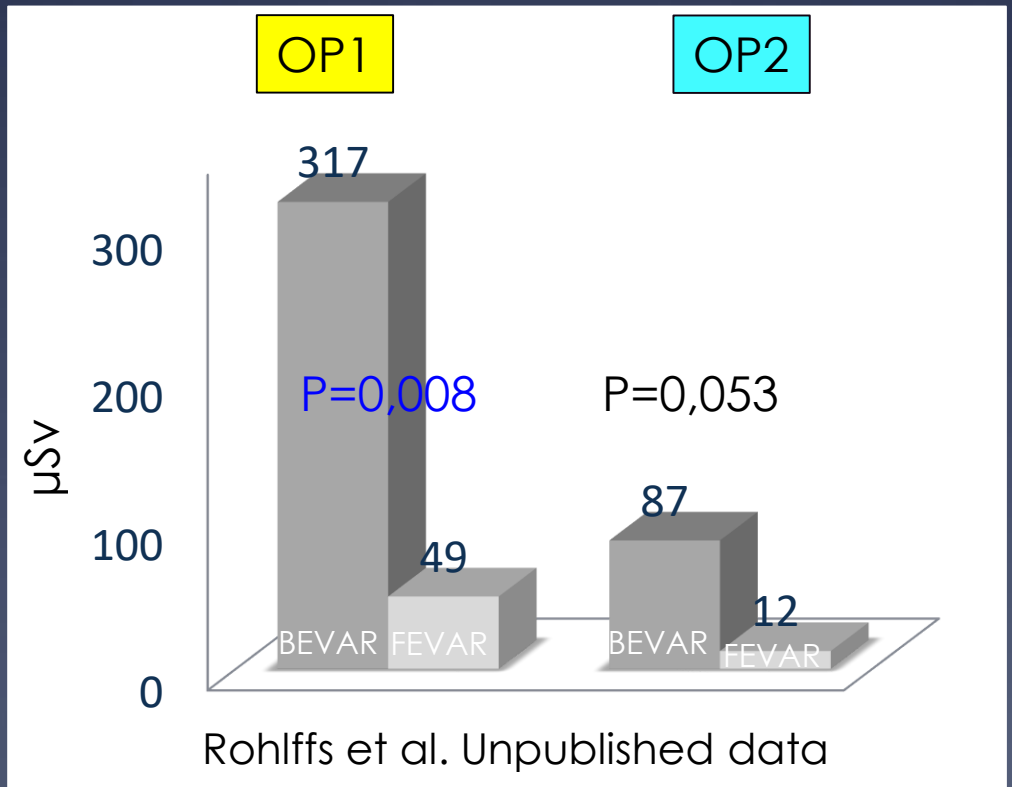




# Radiation Exposure in TAAA-Repair



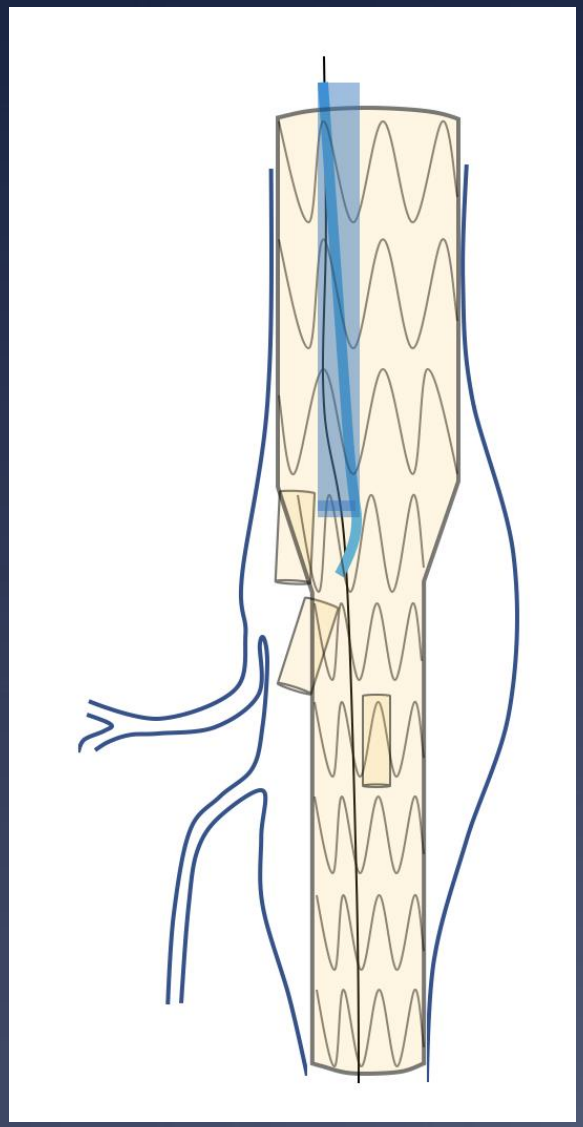



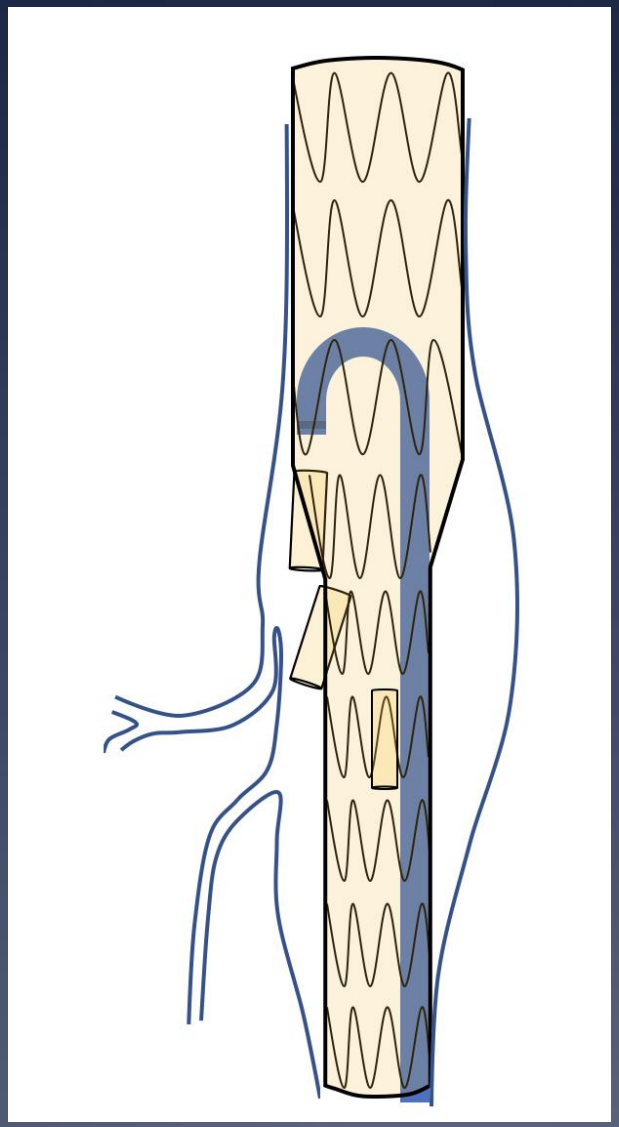




Rohlffs et al. Unpublished data

# Is Upper Extremity Access Really Unavoidable in BEVAR?

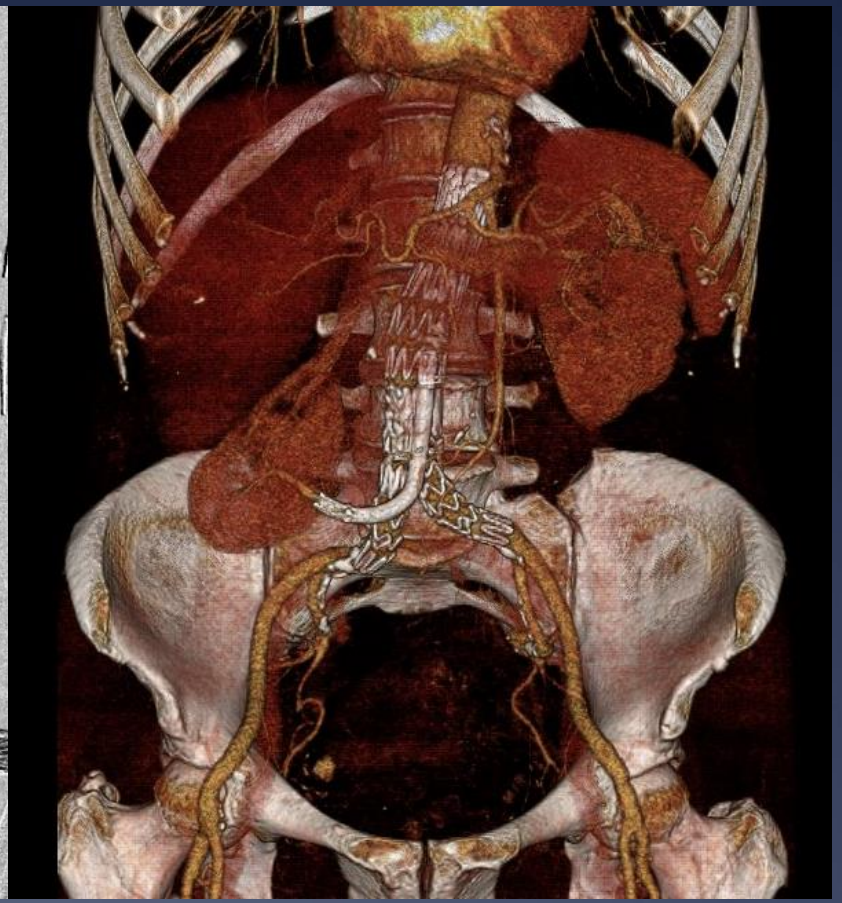
# How About.....





From Oderich: EVAR-Textbook

# Case 1



Makaloski et al. 2018; J Endovasc Ther 25:566-70

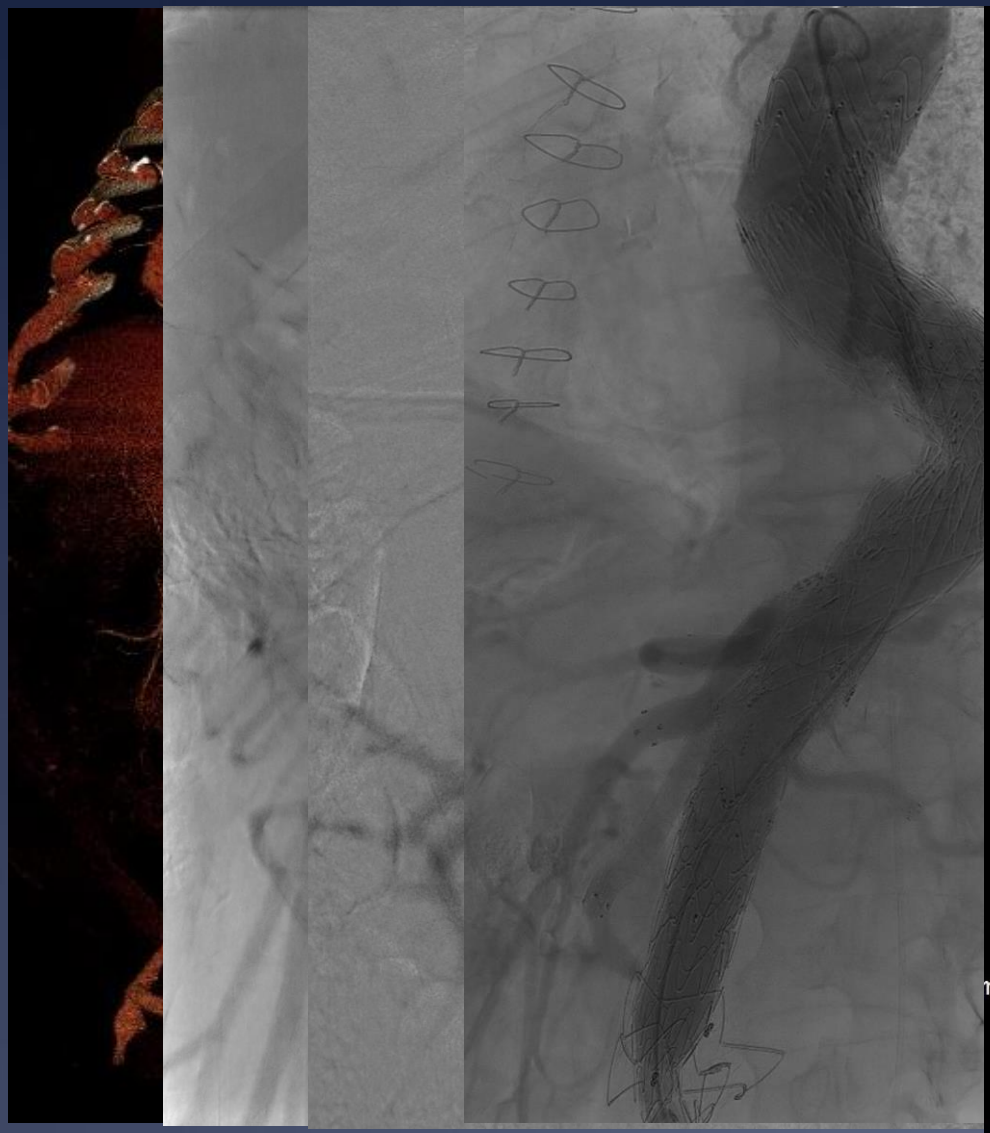
# Case 2

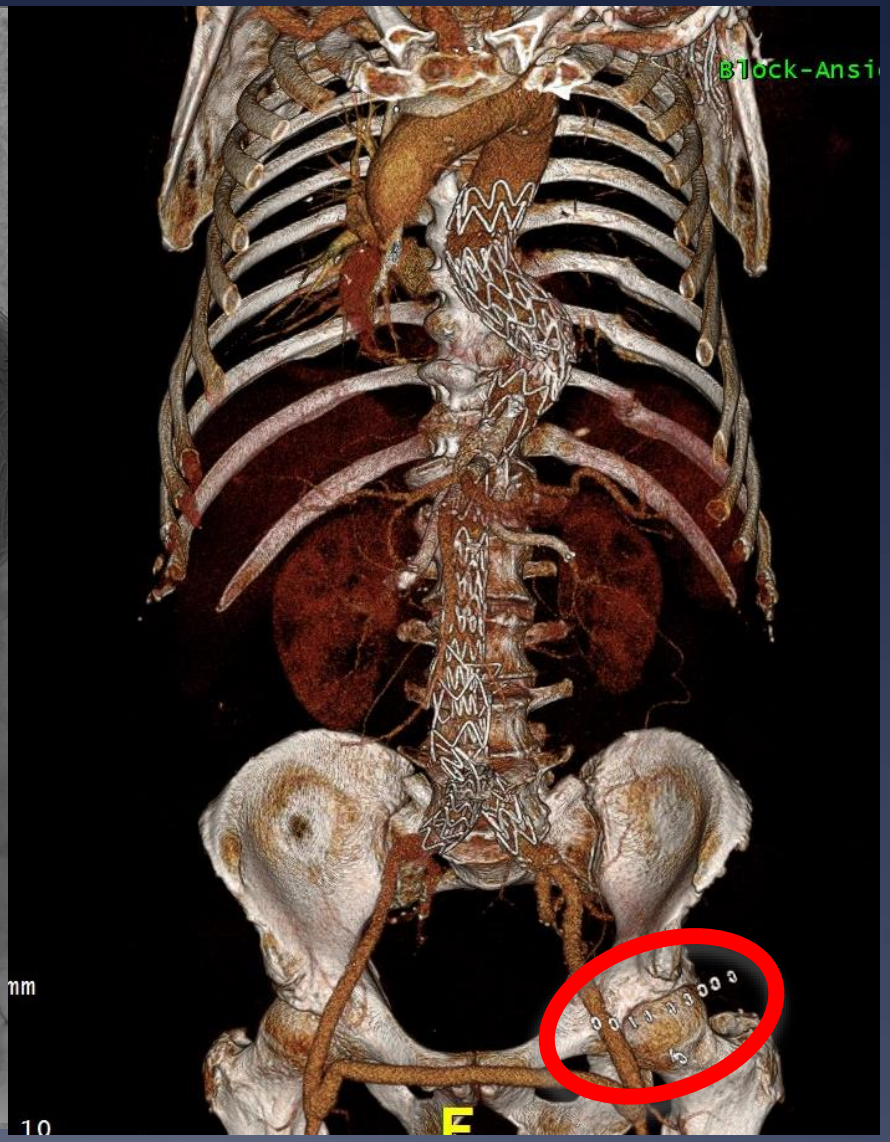
Makaloski et al. 2018; J Endovasc Ther 25:566-70

# Case 3

Makaloski et al. 2018; J Endovasc Ther 25:566-70

# Case 4






Makaloski et al. 2018; J Endovasc Ther 25:566-70

# Steerable Sheath in TAAA

**Use of a Steerable Sheath for Retrograde Access to Antegrade Branches in Branched Stent-Graft Repair of Complex Aortic Aneurysms**

Vladimir Makaloski, MD[1], Nikolaos Tsilimparis, MD, PhD[1], Fiona Rohlffs, MD[1], Konstantinos Spanos, MD[1], E. Sebastian Debus, MD, PhD[1], and Tilo Kölbel, MD, PhD[1]

Journal of Endovascular Therapy
2018, Vol. 25(5) 566–570

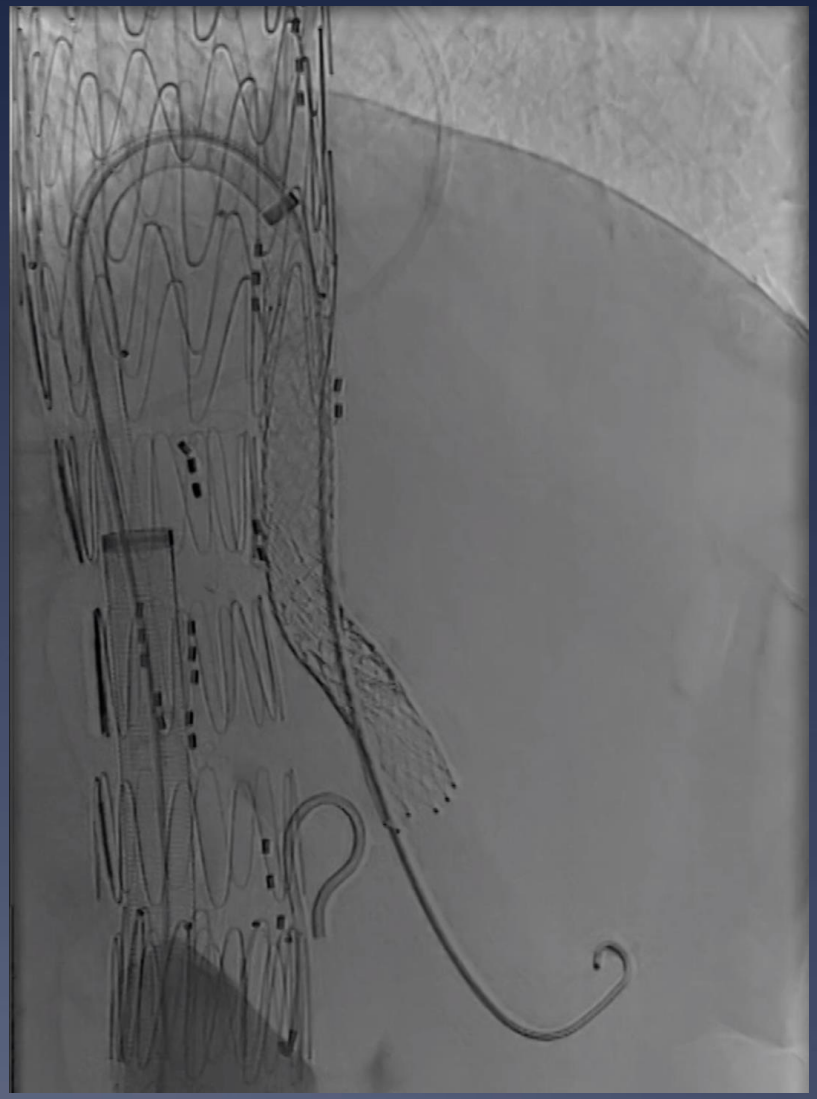
DOI: 10.1177/1526602818794965
www.jevt.org
SAGE

- Case series n=4, 8 target vessels
- Technical Success 8/8
- Procedural time unchanged

Makaloski et al. 2018; J Endovasc Ther 25:566-70

# Hamburg Experience

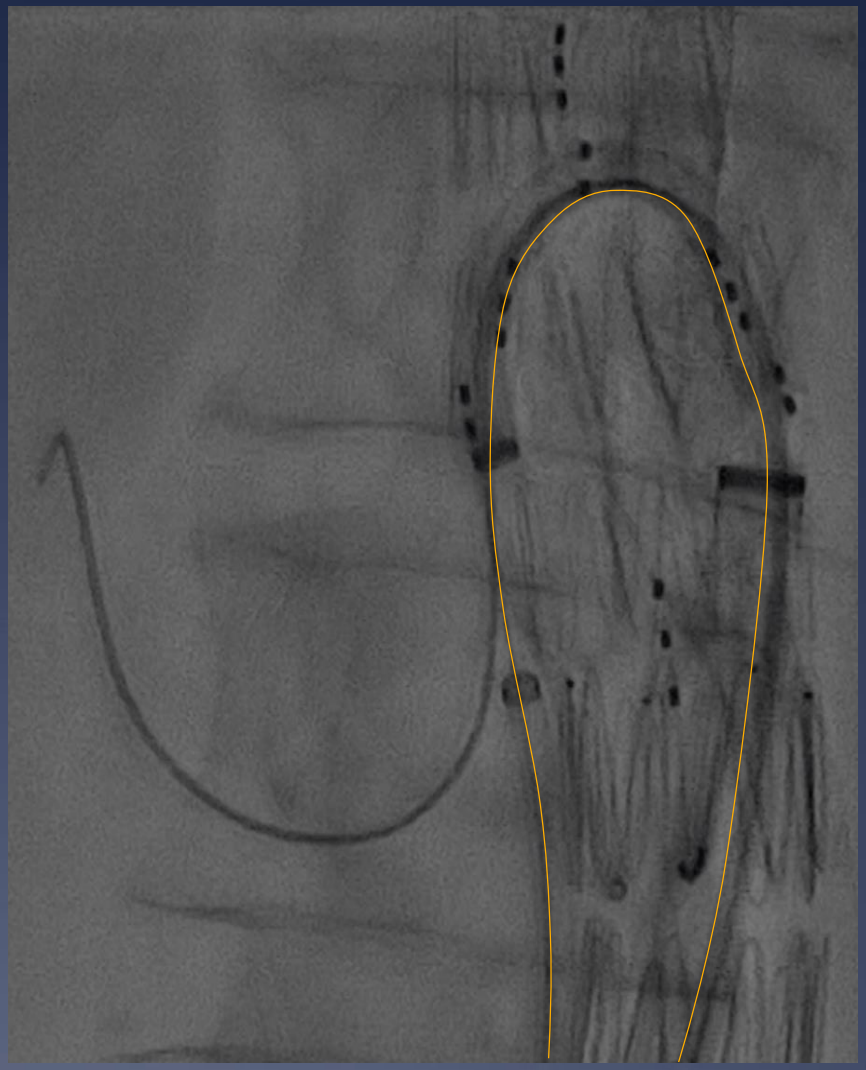
- Jan 2018 – Mar 2019
- n=35
- 54% male, age 71y
- CMD bEVAR 20
- T-branch 15
- Target vessels 112
  - Per patient: 3,2
- Inadequate UEA 15
  - Diameter/tortouisity 5
  - Arch anatomy 8
  - Shaggy aorta 1



# Hamburg Experience

Results:

- Technical success: 111 (99%)
- Mortality 0
- Stroke 0
- Fluoroscopy time: 93min
- DAP: 27575 cG/cm$^2$
- Contrast volume: 134ml
- TV-complications: 1 (1%)
  - Renal artery dissection 1
- Stabilisation technique 25 (70%)



# Conclusion

- Endovascular repair of TAAA has matured over 15 years and can be considered gold-standard in TAAA-repair.
- Upper extremity  access for antegrade branches in TAAA repair is avoidable.
- Successrate of femoral access with steerable sheath has become my favorite access in BEVAR.