

THE 26<sup>TH</sup> INTERNATIONAL EXPERTS SYMPOSIUM  
**CRITICAL ISSUES**  
IN AORTIC ENDOGRAFTING

**MARCH 21 & 22 2024**  
COPENHAGEN/MALMÖ  
SCANDIC TRIANGELN, MALMÖ

# In situ laser or needle-mediated fenestrations

## What and when to choose?

Kevin Mani

Professor, Chief of vascular surgery

Uppsala university hospital



UPPSALA  
UNIVERSITET

THE 26<sup>TH</sup> INTERNATIONAL EXPERTS SYMPOSIUM

# CRITICAL ISSUES

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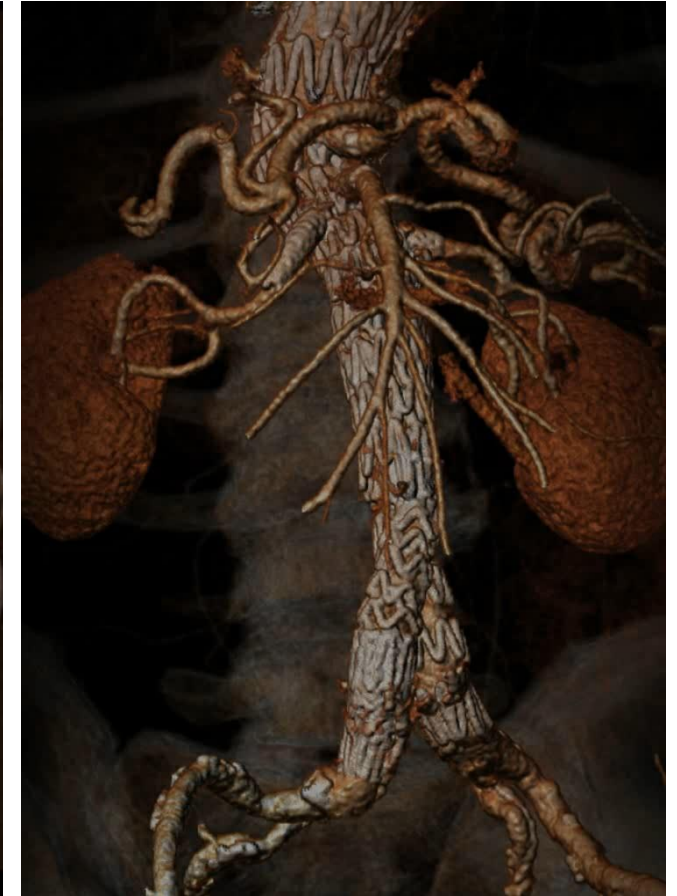
Conflict of interest

- Cook Medical Inc

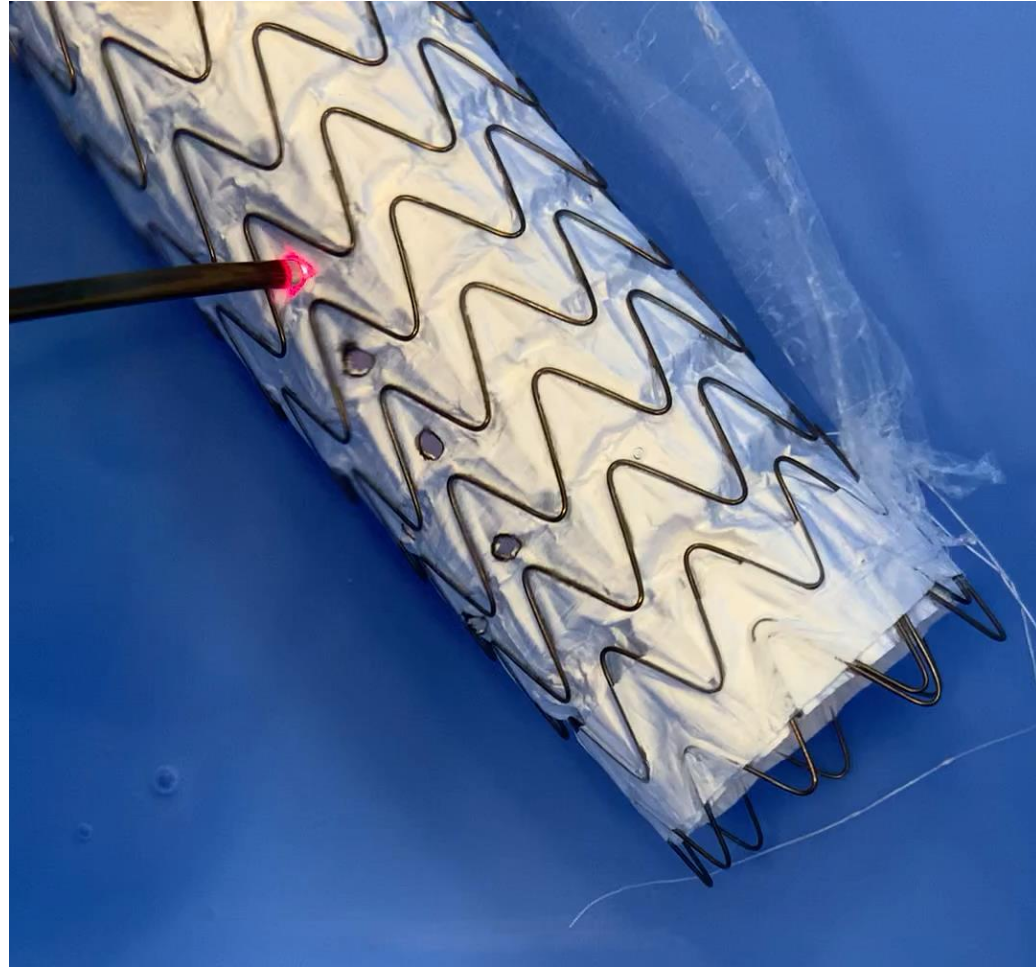
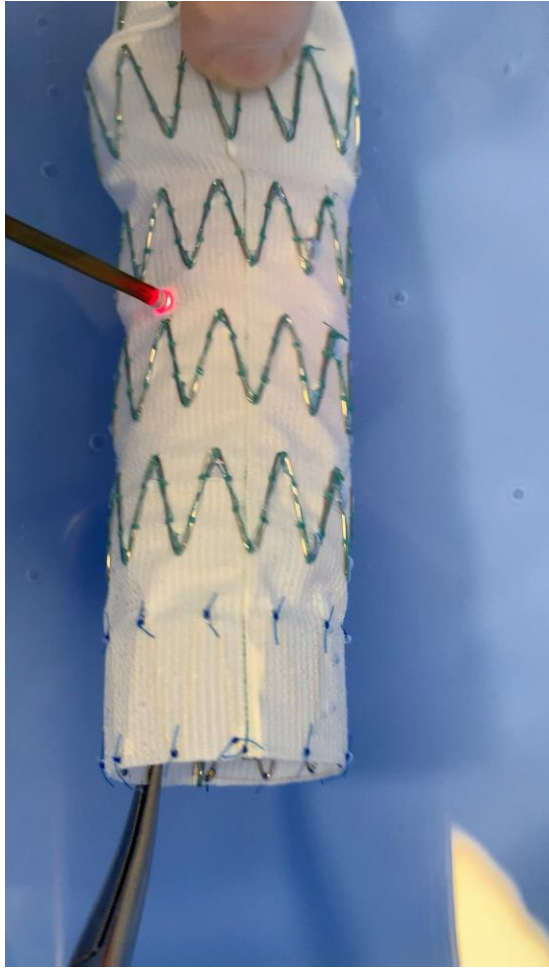


# When is in situ fenestration indicated?

- Symptomatic aortic pathology close to branch vessels
  - Aneurysm/dissection/transection involving supraaortic vessels
  - Juxta/pararenal AAA
  - Mycotic aneurysms
- Creation of endoleak (SCI)
- Management of endoleaks



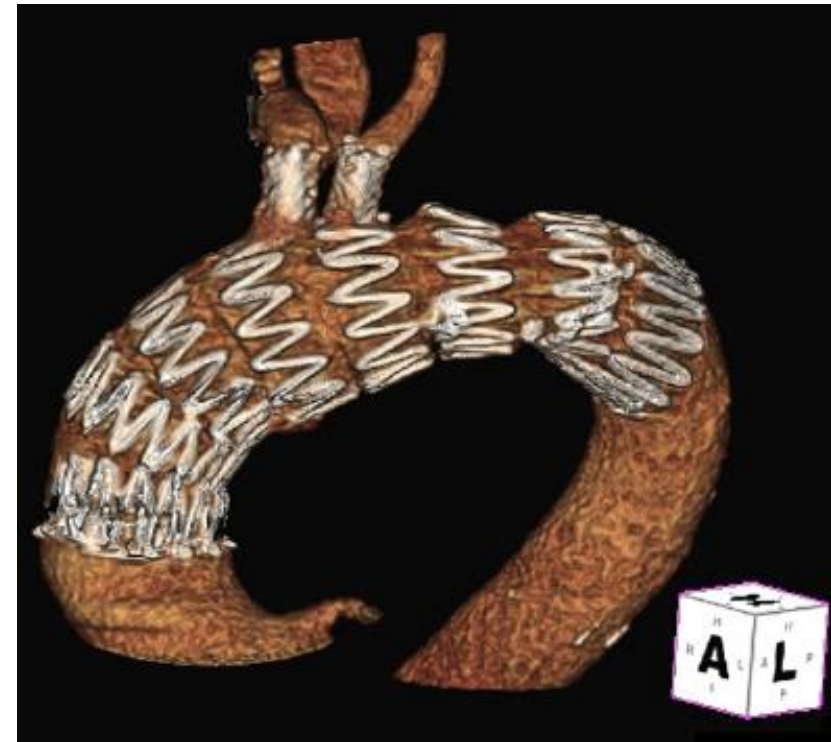
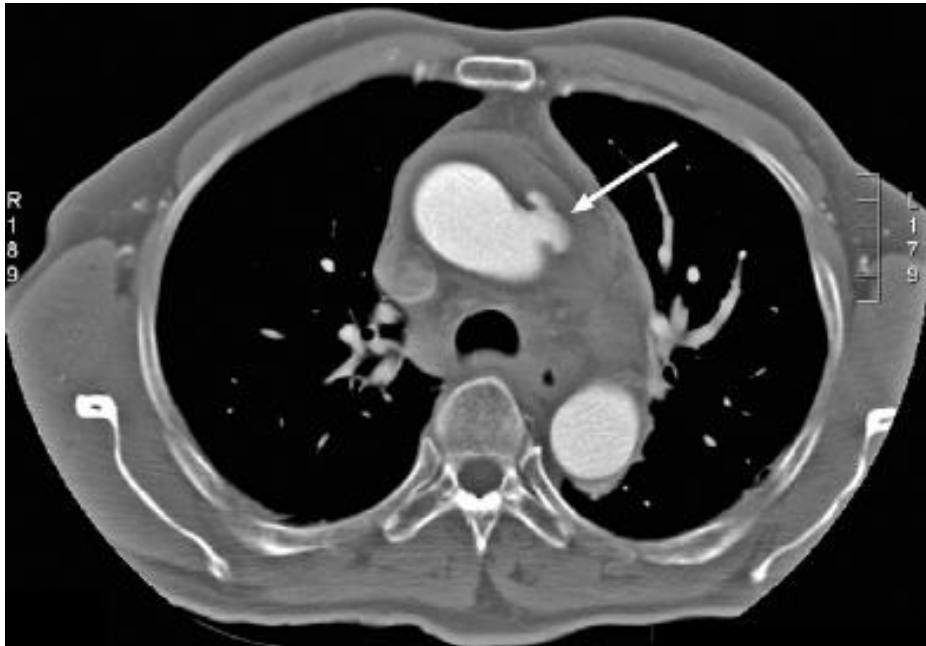
# Laser or needle



# TECHNICAL NOTE

## Endovascular total aortic arch replacement by in situ stent graft fenestration technique

Björn Sonesson, MD, PhD,<sup>a</sup> Tim Resch, MD, PhD,<sup>a</sup> Mats Allers, EBCP,<sup>b</sup> and Martin Malina, MD, PhD,<sup>a</sup> *Malmö, Sweden*



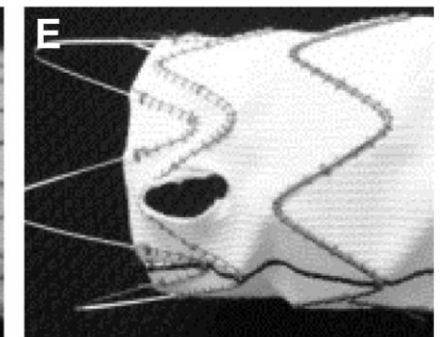
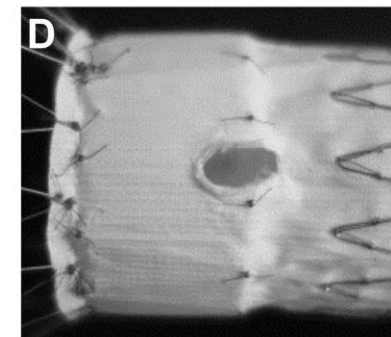
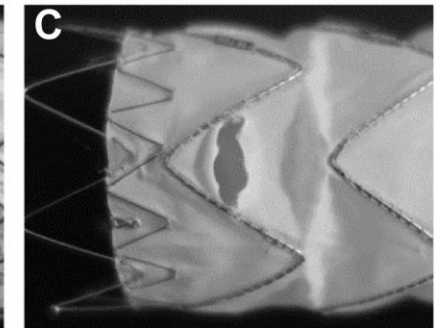
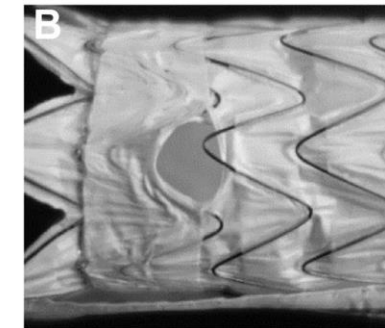
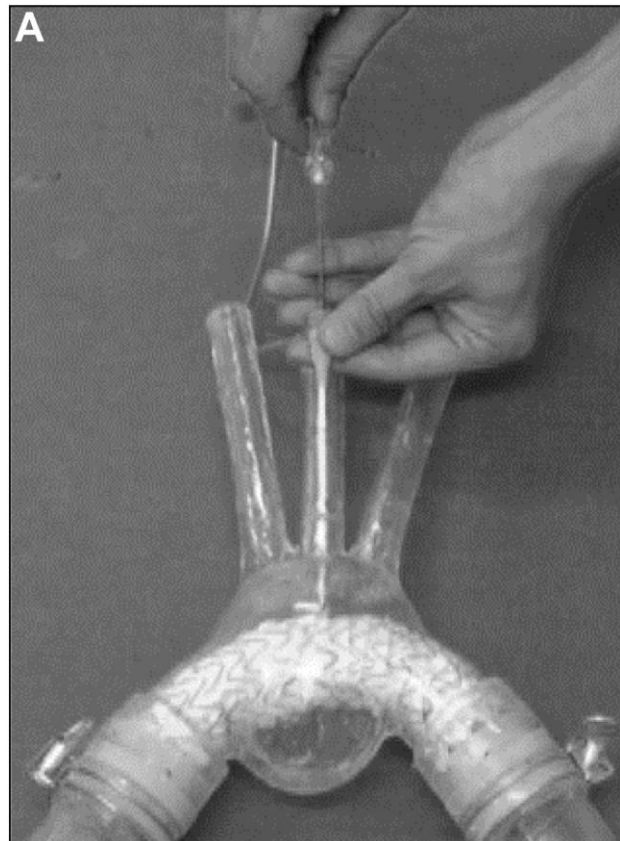
# Early clinical outcomes of retrograde in situ branched stent grafting for complex aortic arch aneurysms

Takao Ohki, MD, PhD,<sup>a</sup> Koji Maeda, MD, PhD,<sup>b</sup> Takeshi Baba, MD,<sup>a</sup> Kenjiro Kaneko, MD,<sup>c</sup>  
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*Tokyo, Narita, and Kawasaki, Japan*

Retrograde in situ branch stentgrafting (RIBS)

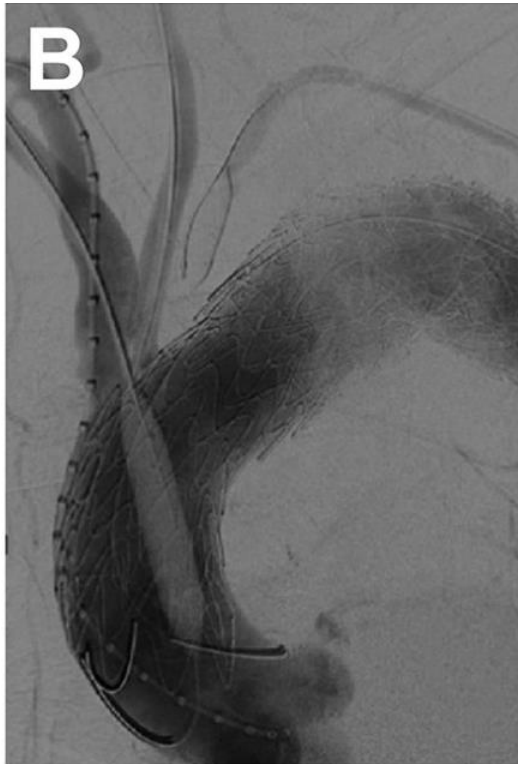
Percutaneous Transhepatic Gallbladder Drainage needle (18G, 200 mm)

Testing of different stentgrafts with 10mm balloon op – Gore TAG



# Early clinical outcomes of retrograde in situ branched stent grafting for complex aortic arch aneurysms

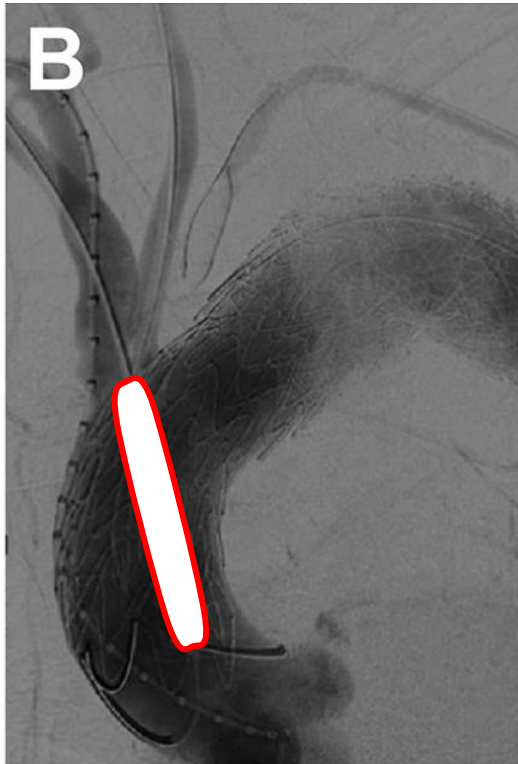
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**Gutter endoleak for arch perfusion during TEVAR**

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# Early clinical outcomes of retrograde in situ branched stent grafting for complex aortic arch aneurysms

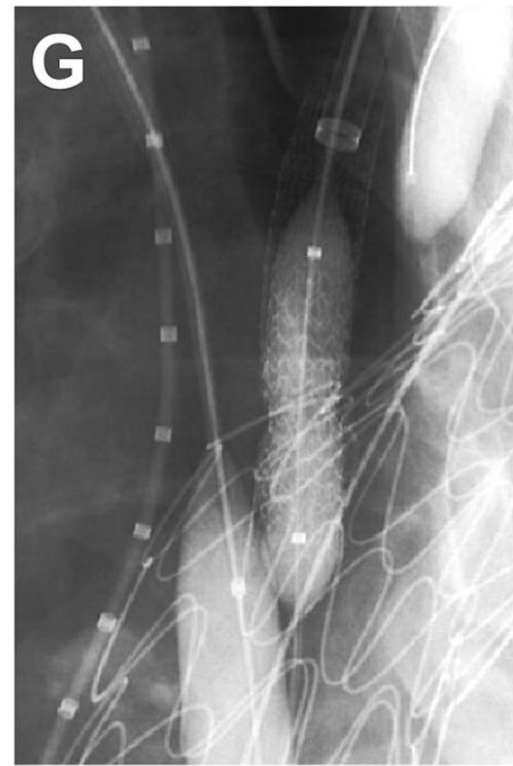
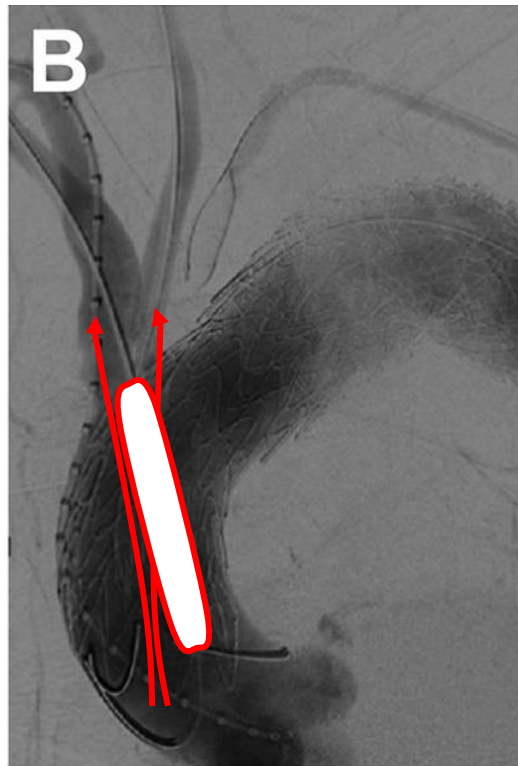
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# Early clinical outcomes of retrograde in situ branched stent grafting for complex aortic arch aneurysms

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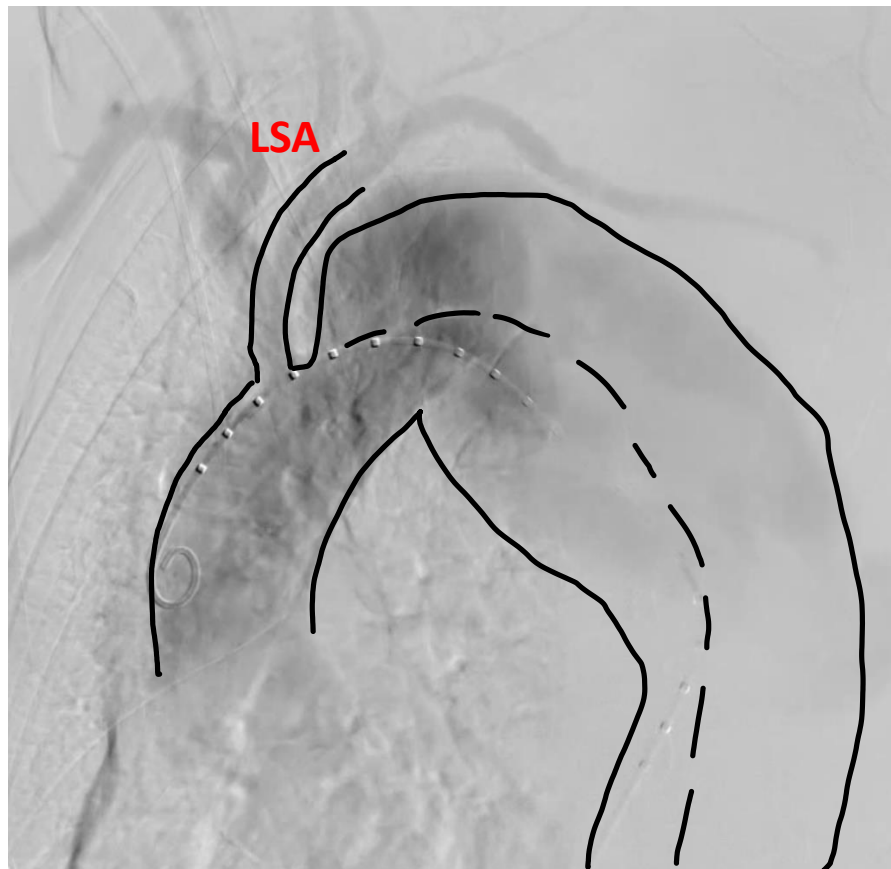


# ISLF – Equipment

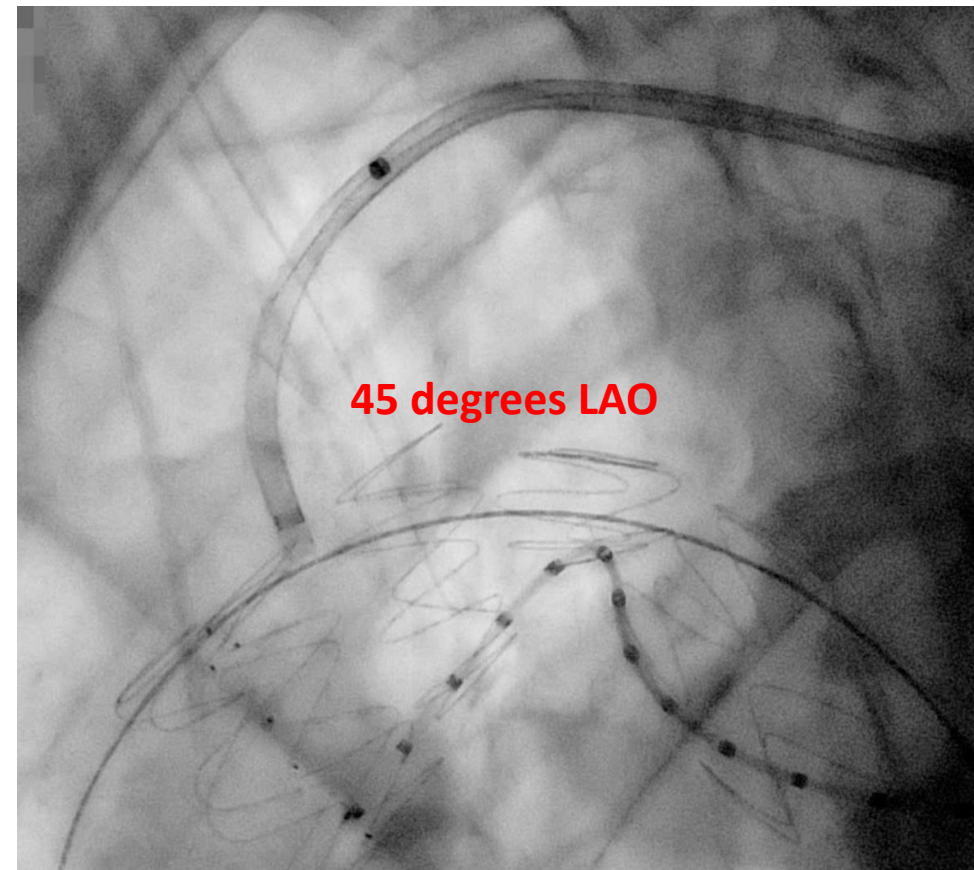
- Fusion imaging
- Steerable Sheath
- Laser Atherectomy Catheter (Turbo-Elite 2.3 or 2.0mm)
- 018 wire + plain angioplasty balloon
- Covered stent grafts



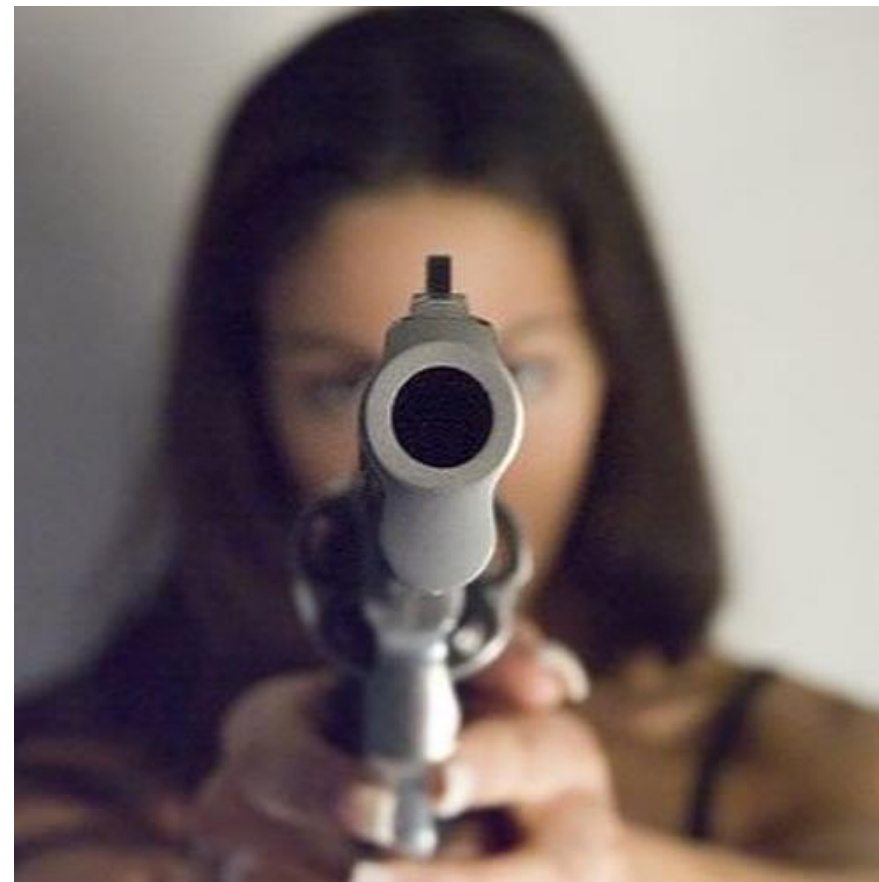
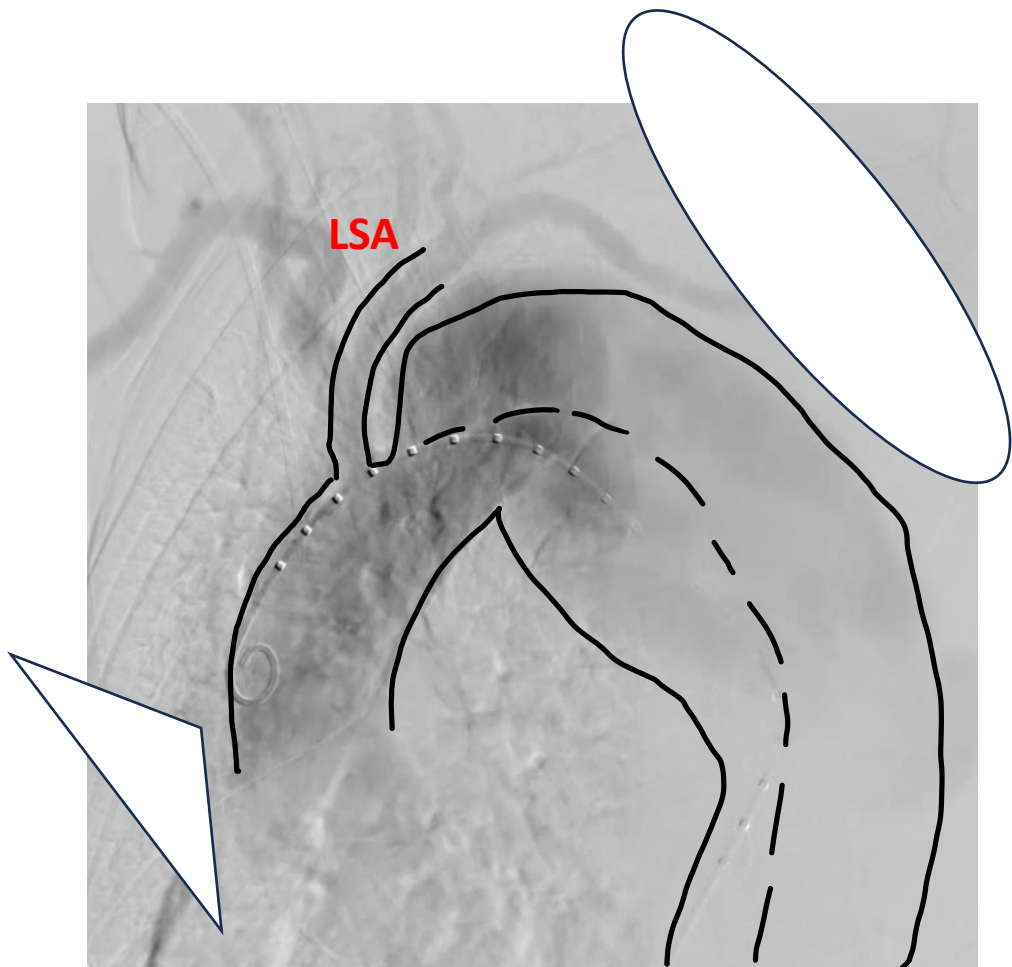
# Retrograde arch laser fenestration



# Lateral positioning of the ISF



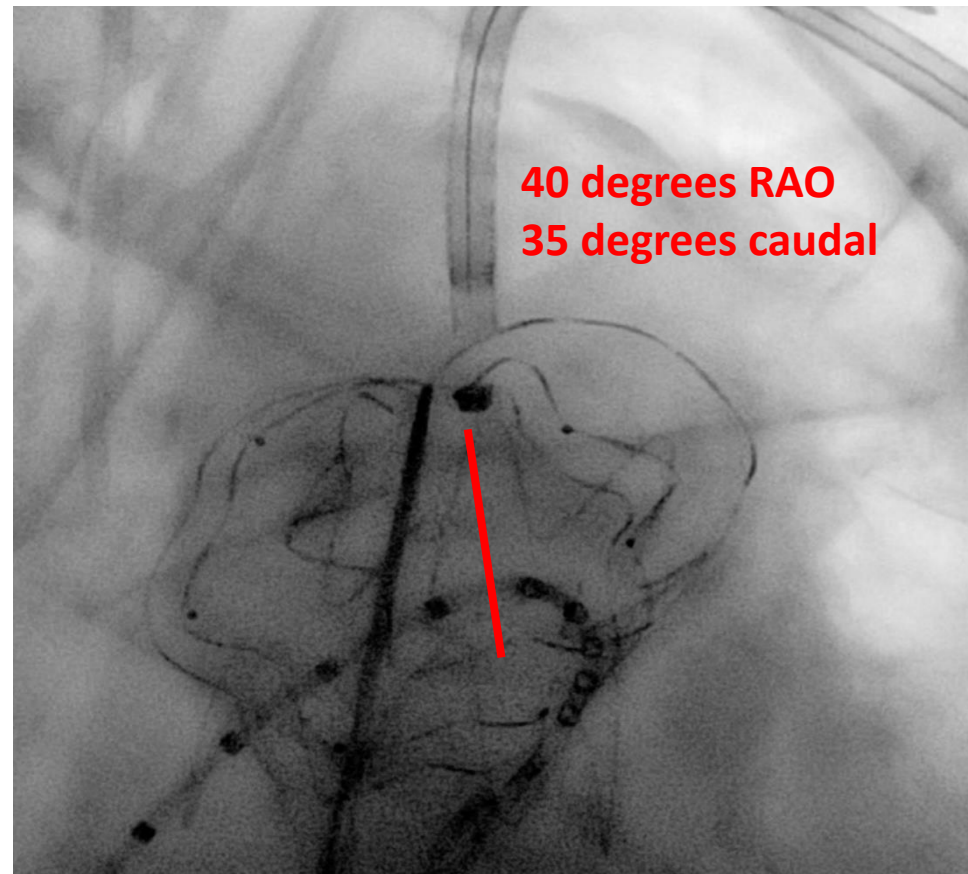
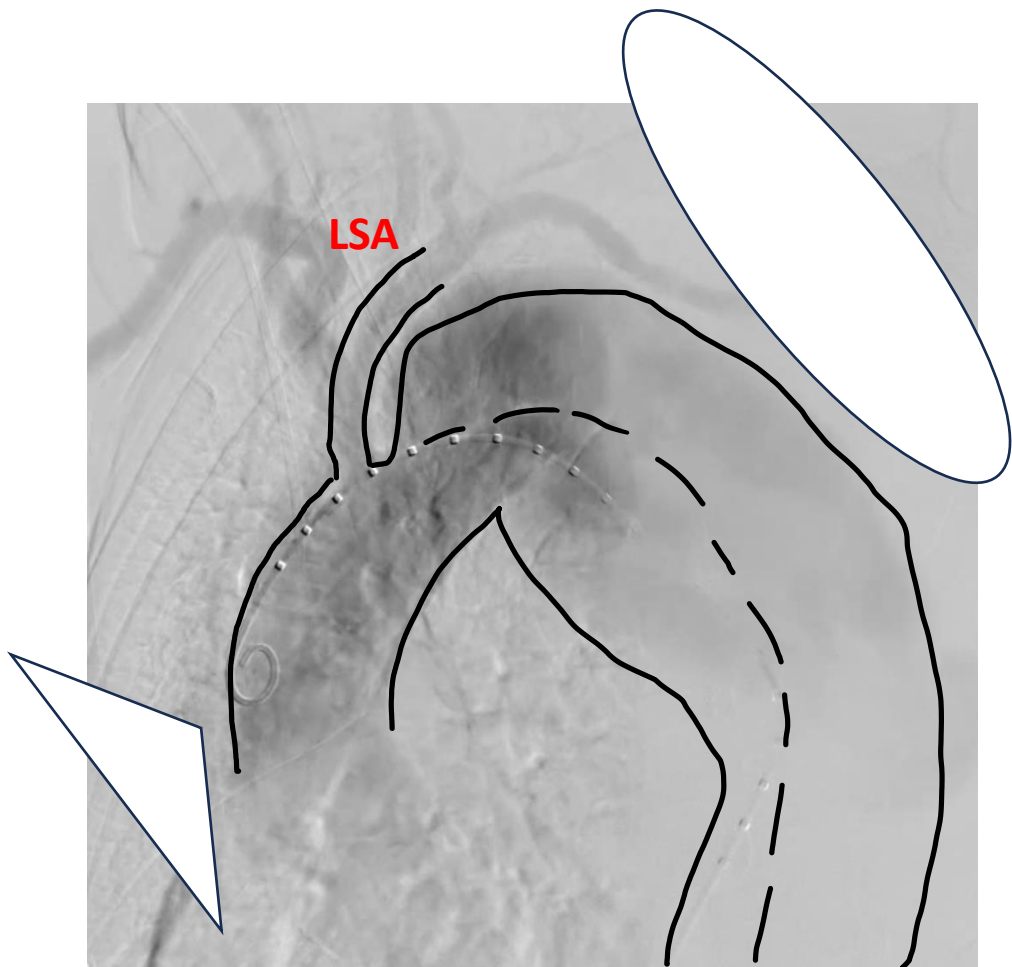
# Barrel view of the ISF



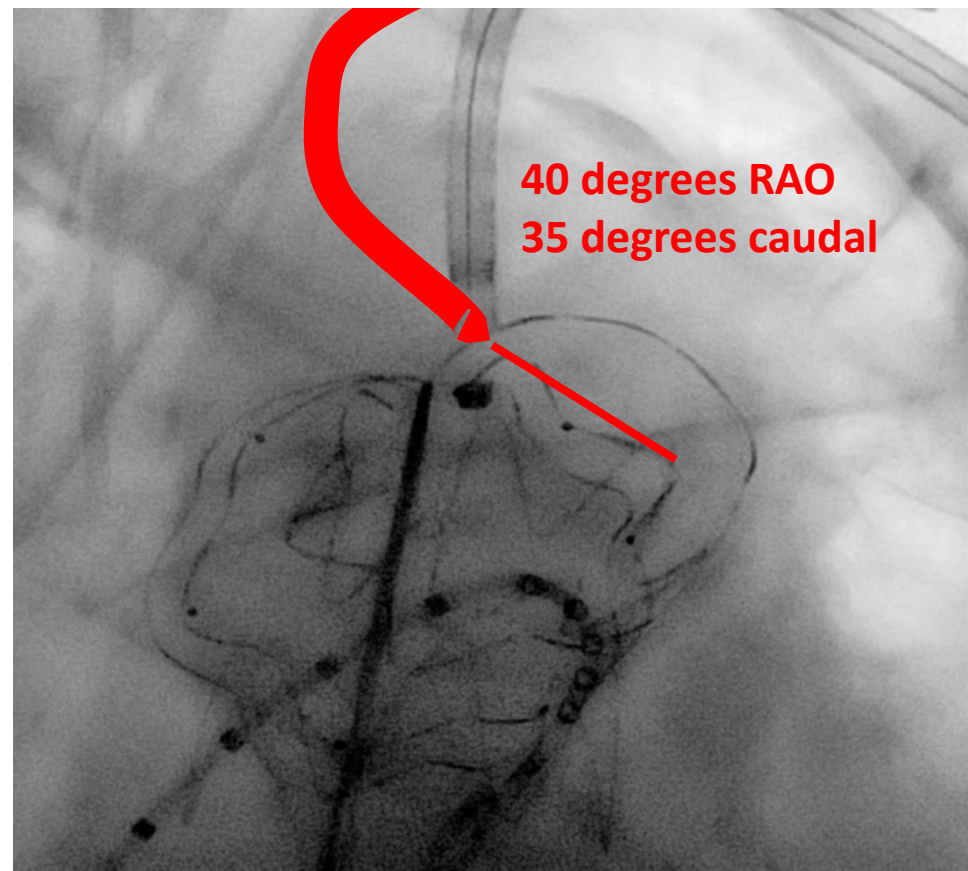
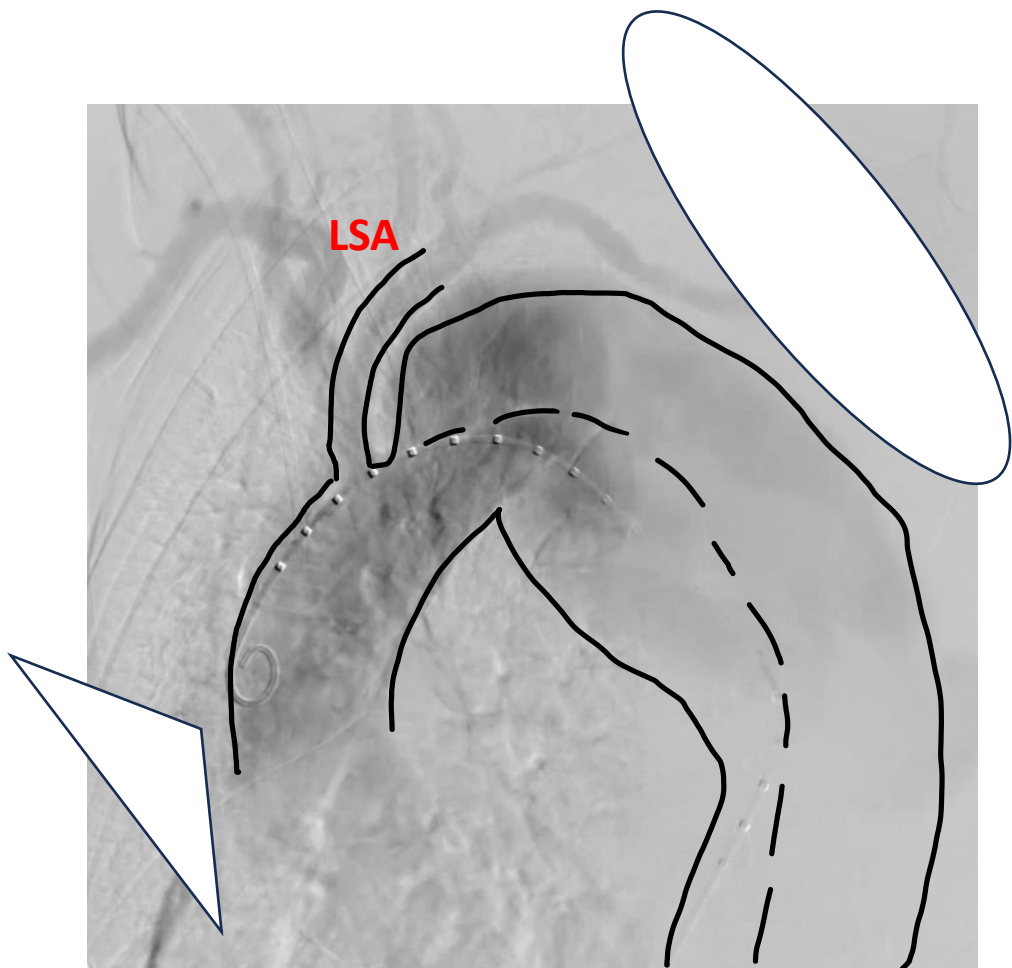
**Looking down the barrel**



# Barrel view of the ISF



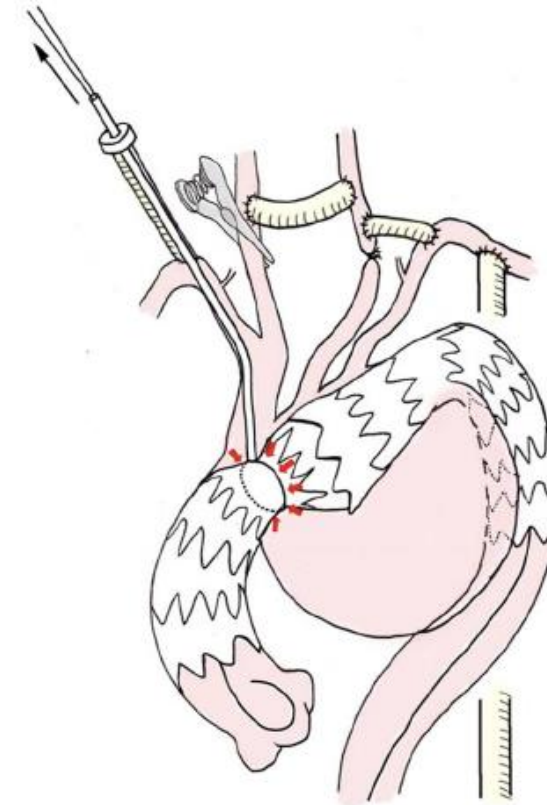
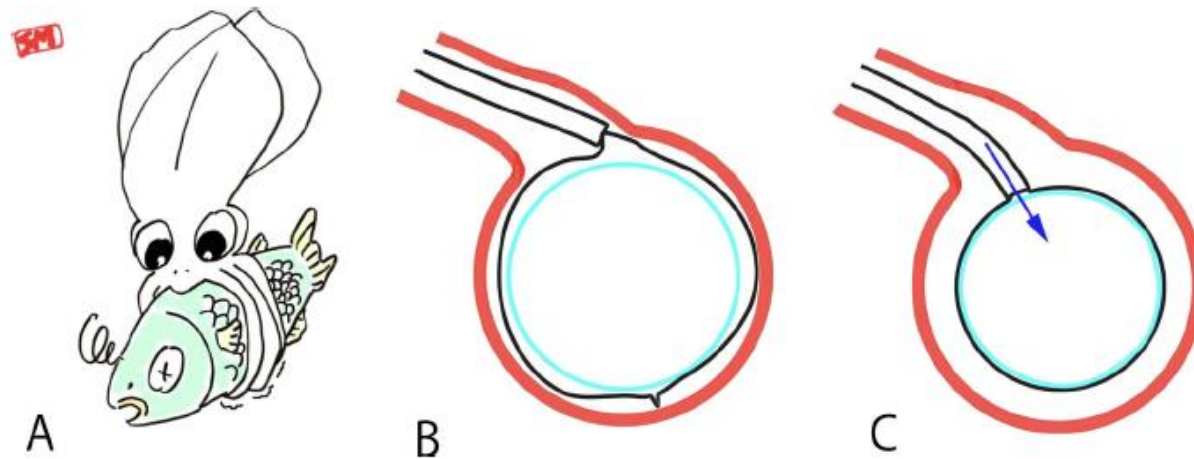
# Barrel view of the ISF





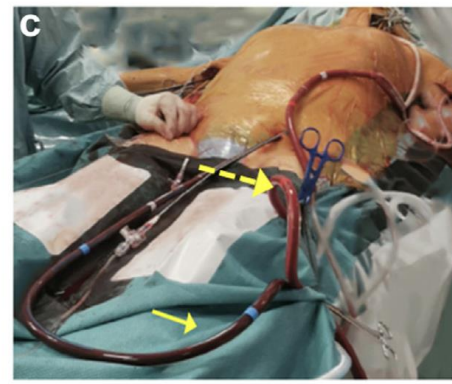
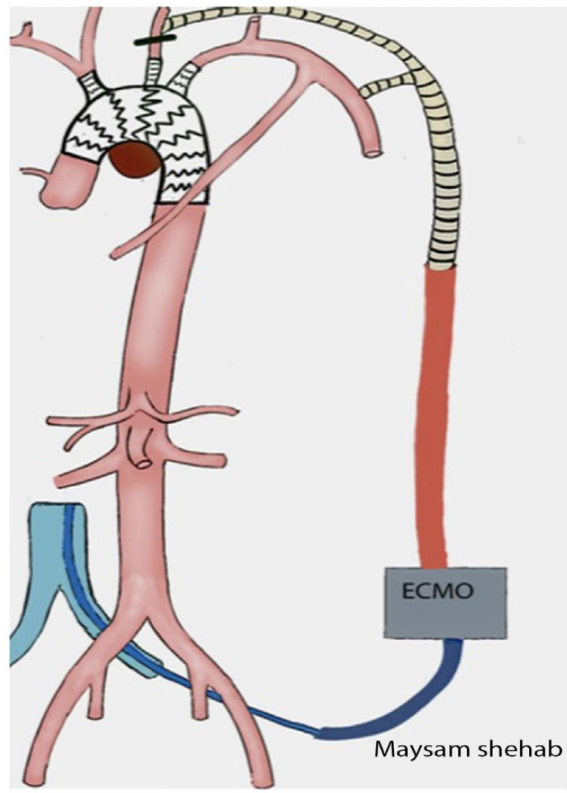
# “Squid-Capture” Modified In Situ Stent–Graft Fenestration Technique for Aortic Arch Aneurysm Repair

Norio Hongo • Shinji Miyamoto • Rieko Shuto • Tomoyuki Wada •  
Noritaka Kamei • Aiko Sato • Shunro Matsumoto • Hiro Kiyosue •  
Hiromu Mori



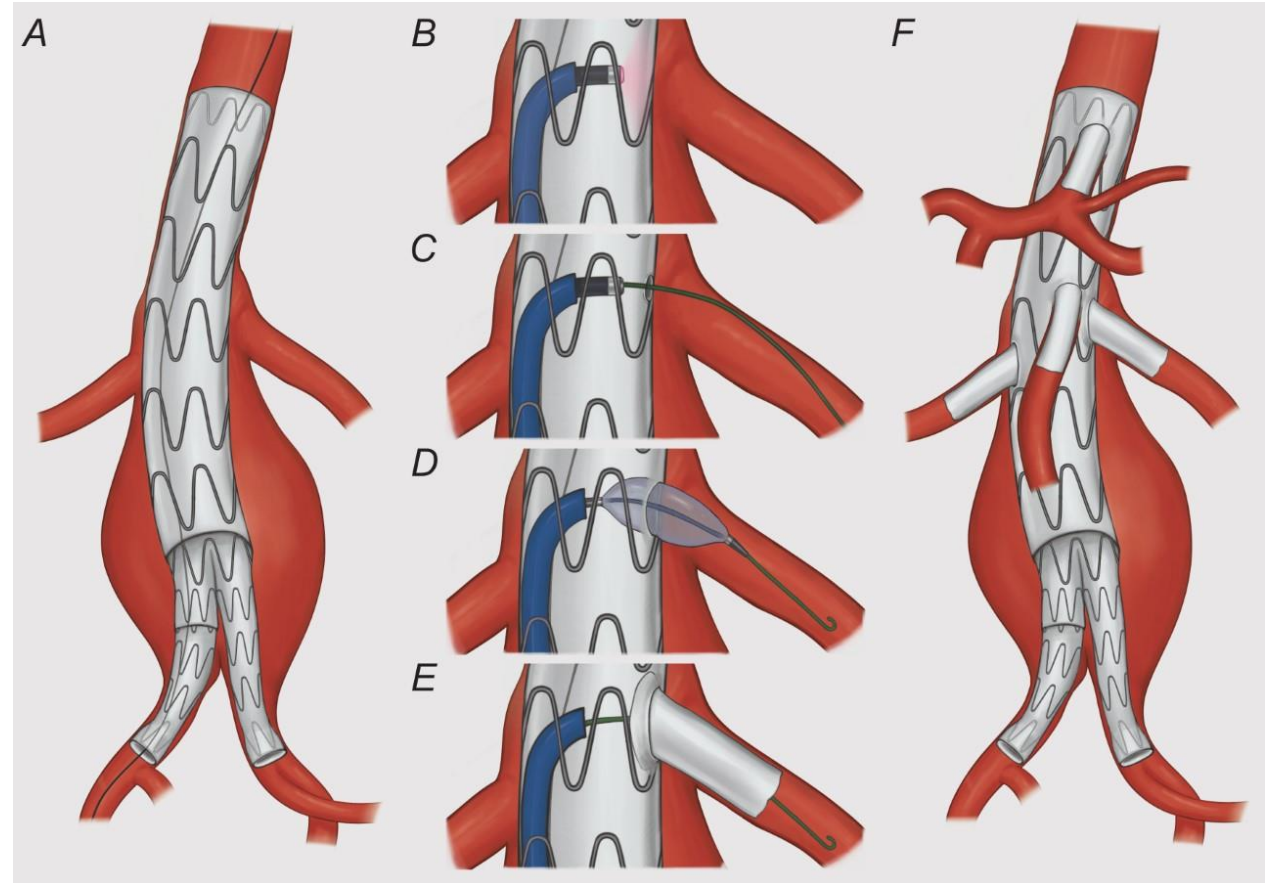
# Urgent endovascular mycotic aortic arch aneurysm repair using in situ laser fenestration and selective arterial perfusion with venoarterial extracorporeal membrane oxygenation

Maysam Shehab, MD,<sup>a</sup> Kevin Mani, MD, PhD,<sup>a</sup> Marek Kuzniar, MD, PhD,<sup>a</sup> Shinji Miyamoto, MD,<sup>b</sup> Sten Lindgren, BA,<sup>a</sup> and Anders Wanhainen, MD, PhD,<sup>a,c</sup> *Uppsala and Umeå, Sweden; and Oita, Japan*







# Antegrade fenestration in paravisceral AAA

- Pre-stenting to mark visceral vessels
- Less suitable for needle fenestrations?
- Covering of reno-visceral arteries
- Risk for visceral malperfusion



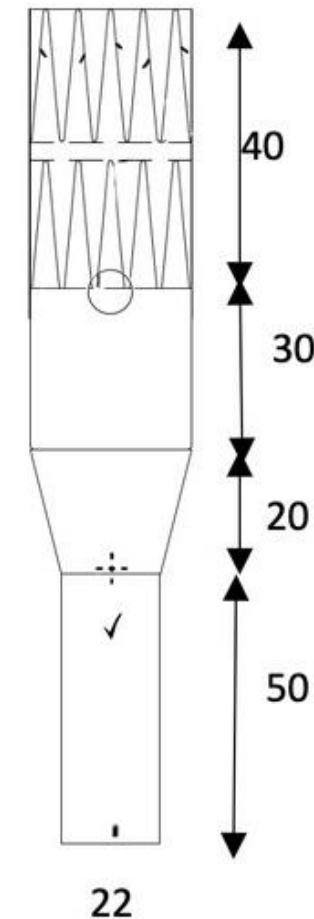
# Pre-made single fenestrated device

## Off-the-Shelf Single-Fenestrated Endograft for Emergent Juxtarenal and Pararenal Abdominal Aortic Aneurysm

Gísli Gunnar Jónsson, MD<sup>1\*</sup> , Maysam Shehab, MD<sup>1,2\*</sup> , Anders Wanhainen, MD, PhD<sup>1,3</sup> , Kevin Mani, MD, PhD<sup>1</sup>, Marek Kuzniar, MD, PhD<sup>1</sup>, and David Lindström, MD, PhD<sup>1</sup> 

- Pre-made fen for SMA with intended ISLF for remaining viscerals
- Allows emergency treatment of the reno-visceral segment
- Design completely avoids ischemia for the SMA, and shortens ischemia for kidneys and celiac organs

28,34  
Barbs in proximal stent



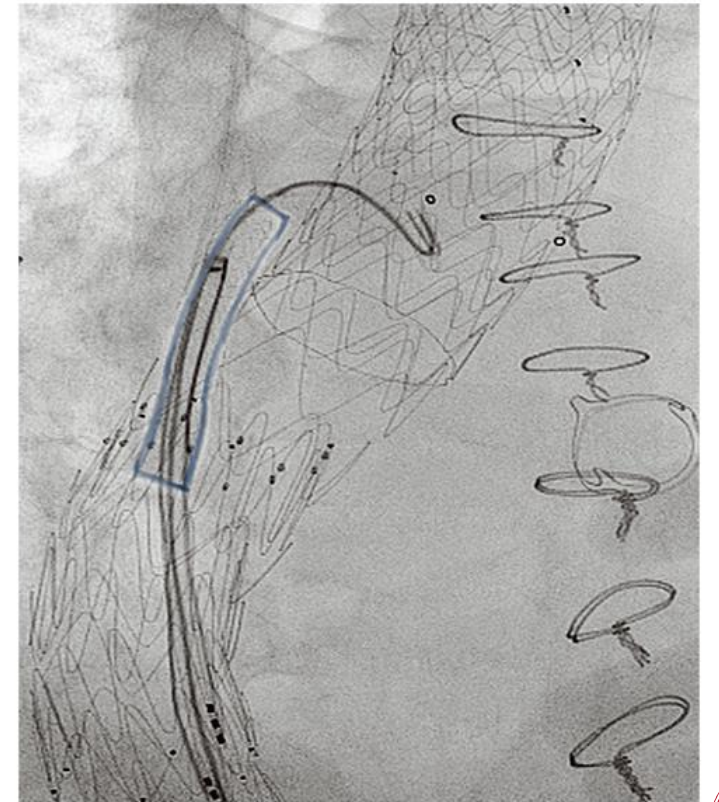
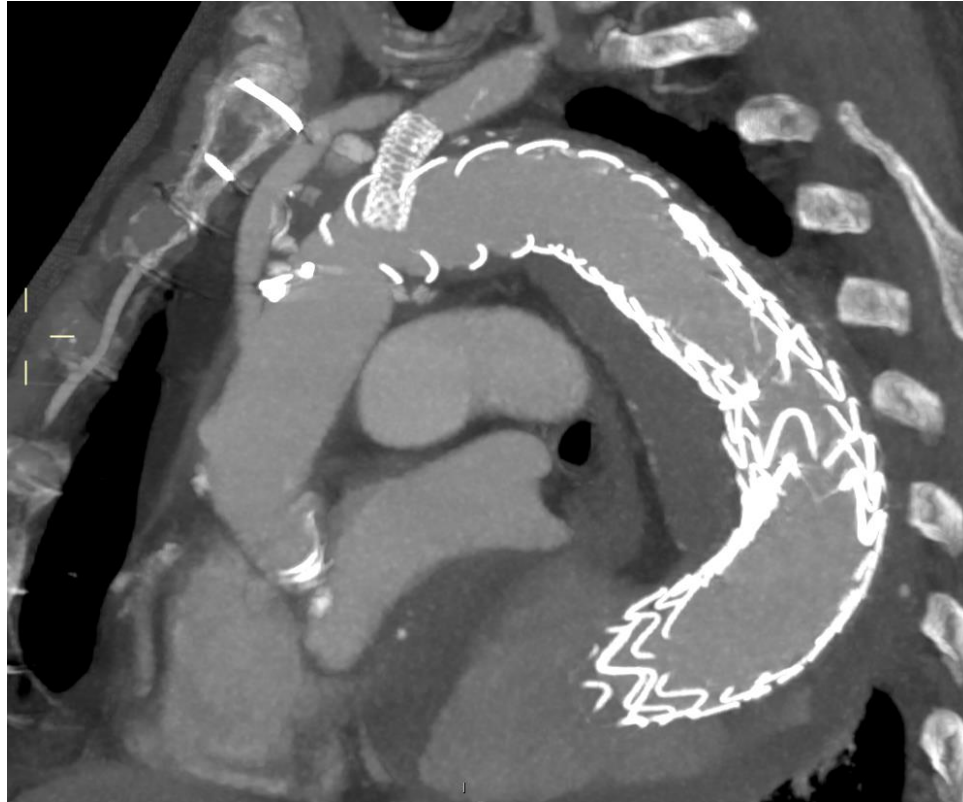
28 and 34 mm

No scallop

Can treat >90% of  
juxta/pararenal  
aneurysms

# In situ laser fenestration of the Thoraflex Hybrid frozen elephant trunk for emergent revascularization of the left subclavian artery and laser fenestration for spinal cord perfusion

Maysam Shehab, MD,<sup>a</sup> Anders Wanhainen, MD, PhD,<sup>a,b</sup> Gustaf Tegler, MD, PhD,<sup>a</sup> Kevin Mani, MD, PhD,<sup>a</sup> and Marek Kuzniar, MD, PhD,<sup>a</sup> *Uppsala and Umeå, Sweden*

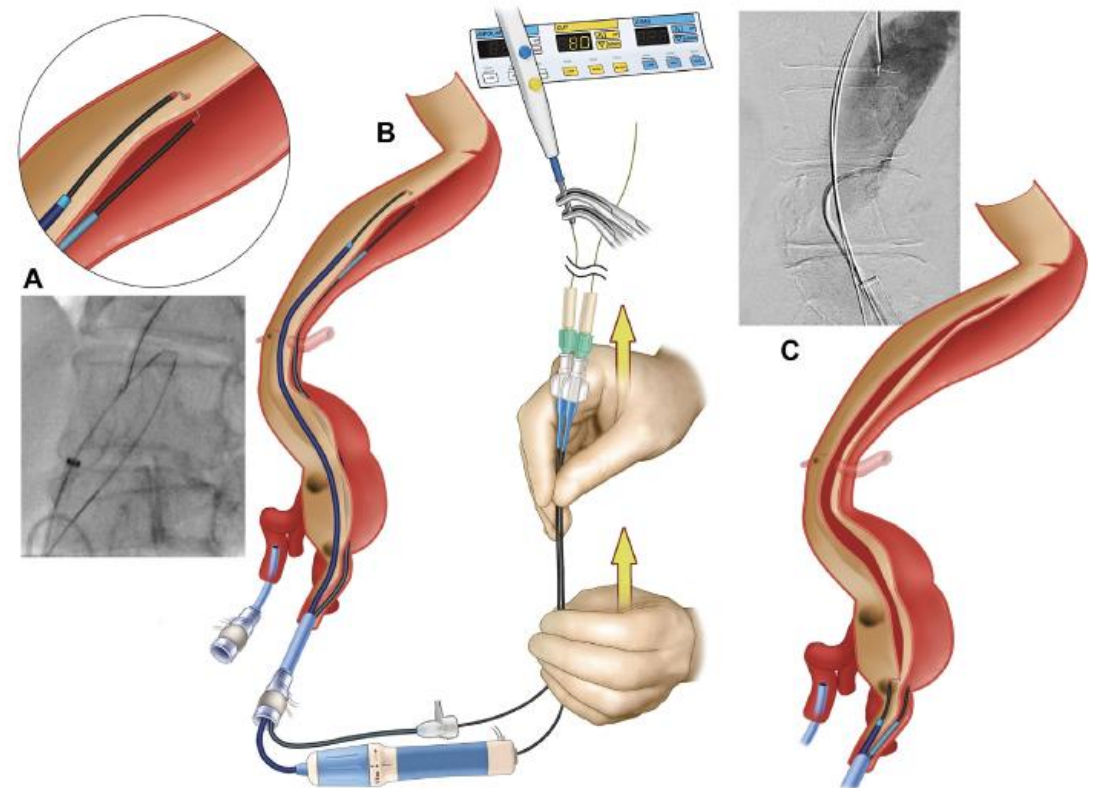


# “New kid on the block” – Intravascular electrocautery

From the Society for Vascular Surgery

## Transcatheter electrocautery septotomy technique for chronic postdissection aortic aneurysms

Aidin Baghbani-Oskouei, MD,<sup>a</sup> Safa Savadi, MD,<sup>a</sup> Thomas Mesnard, MD,<sup>a</sup> Titia Sulzer, BSc,<sup>a</sup>  
Aleem K. Mirza, MD,<sup>a</sup> Shadman Baig, MD,<sup>b</sup> Carlos H. Timaran, MD,<sup>b</sup> and  
Gustavo S. Oderich, MD,<sup>a</sup> *Houston and Dallas, TX*



# Electrocautery septotomy and in situ fenestration – experimental setting



# Conclusions

- ISF – in patient customisation of stentgrafts for complex symptomatic pathology
- Cold laser + dacron grafts (retrograde + antegrade)
- Needle for retrograde puncture
- Various techniques for arch/visceral perfusion







