

***When is a PMEG preferable to an off-the-shelf solution  
and how can we improve the durability?***

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# Disclosures

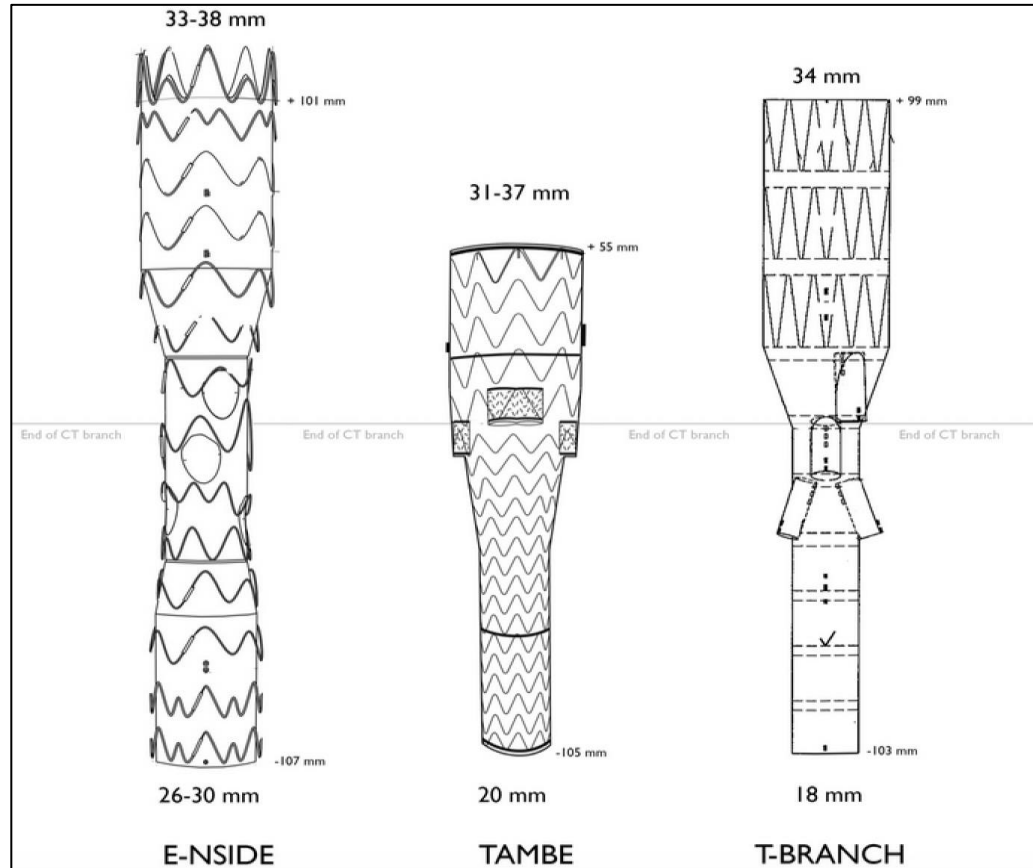
## Consultant:

- Medtronic
- Terumo Aortic
- Artivion
- Cardinal Health

# Comparison of anatomic feasibility of three different multibranched off-the-shelf stent-grafts designed for thoracoabdominal aortic aneurysms

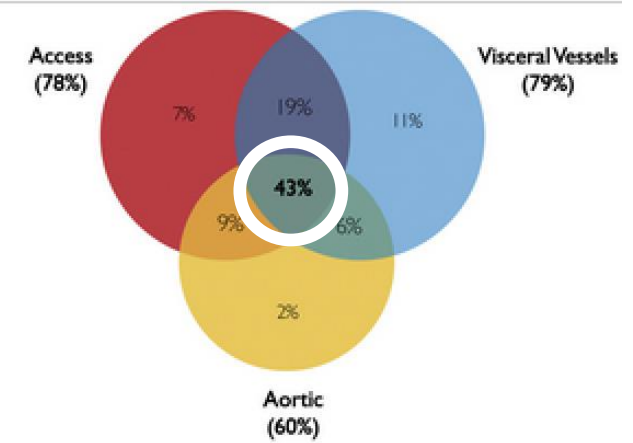
Luca Bertoglio <sup>1</sup>, Alessandro Grandi <sup>2</sup>, Niccolò Carta <sup>2</sup>, Tommaso Cambiagli <sup>3</sup>, Victor Bilman <sup>4</sup>, Germano Melissano <sup>2</sup>, Roberto Chiesa <sup>2</sup>

Journal of Vascular Surgery  
Volume 74, Issue 5, November 2021, Pages 1472-1482.e4

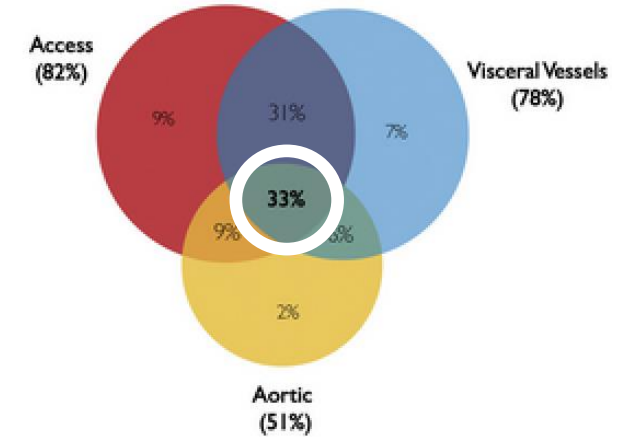


Off-the-shelf inner branch solution for bEVAR

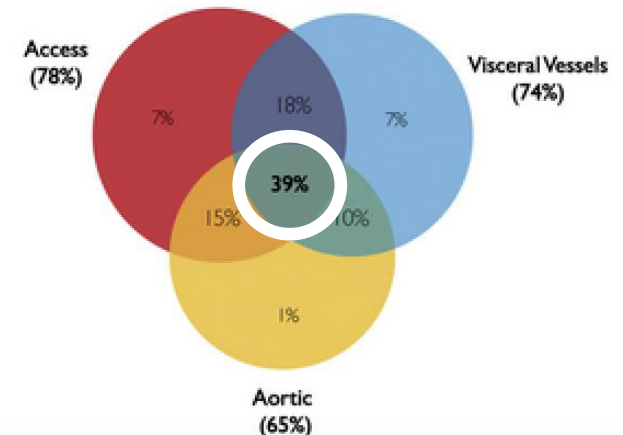
E-NSIDE



TAMBE



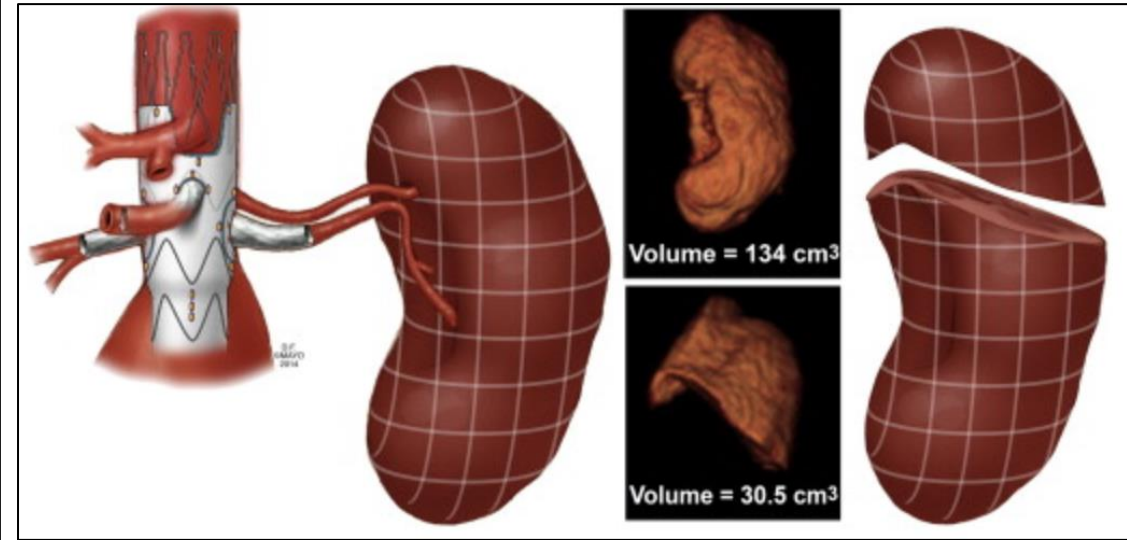
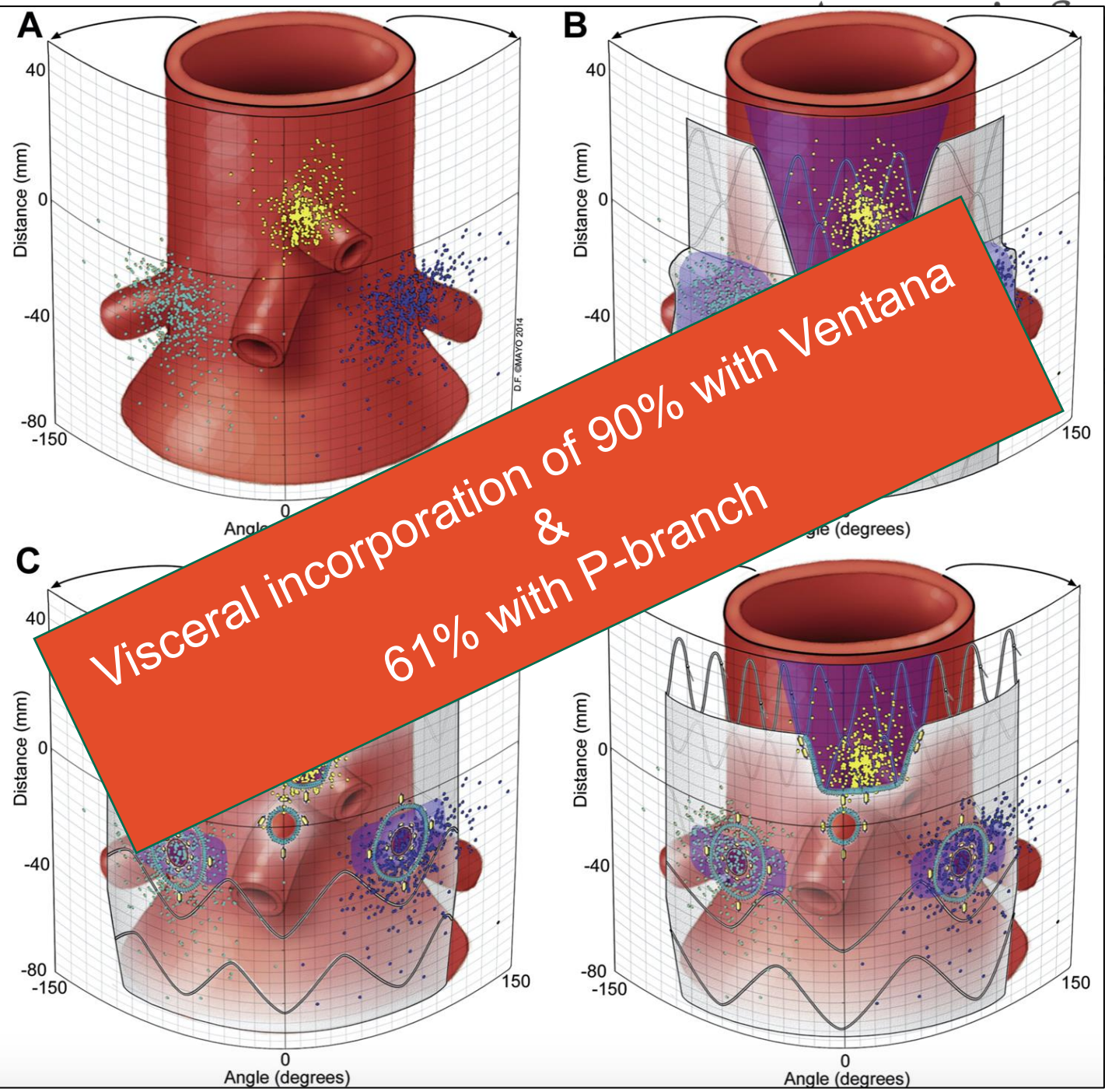
T-BRANCH



# Feasibility of off-the-shelf fenestrated stents to treat juxtarenal and pararenal aortic aneurysms

Annual Meeting of the Society for Vascular Surgery, San Francisco, Calif, May 30-June 1, 2014

Gustavo S. Oderich MD<sup>a</sup>, Thanila A. Macedo MD<sup>b</sup>, Alexandre A. Pereira MD<sup>a</sup>, Duncan MD<sup>a</sup>, Peter Gloviczki MD<sup>a</sup>, Thomas C. Bower MD<sup>a</sup>



**CLINICAL PRACTICE GUIDELINE DOCUMENT**

**Editor's Choice – European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms<sup>☆</sup>**

# **(Accessory) renal arteries**

**Preserving perfusion while achieving an adequate sealing zone**

**Accessory renal arteries (ARA) 25% uni- and 10% bilaterally**

**Preservation of ARAs with a diameter  $\geq 4$  mm is recommended**

# 1x pmFEVAR (right ARA)





*Article*

# Fenestrated Physician-Modified Endografts for Preservation of Main and Accessory Renal Arteries in Juxtarenal Aortic Aneurysms

Hon-Lai Chan <sup>†</sup>, Dimitrios D. Papazoglou <sup>\*,†</sup> , Silvan Jungi, Salome Weiss , Daniel Becker, Drosos Kotelis and Vladimir Makaloski 

***emergent and elective repair with fenestrated PMEGs 2019 - 2023***

	<b>All patients (N=37)</b>
Aneurysm diameter	64.0 ± 17.8
Infrarenal neck length	8.0 ± 5.5
Proximal landing zone <sup>a</sup>	26.9 ± 10.7
Gained landing zone through pm-fenestrations <sup>b</sup>	18.9 ± 11.4
Target vessels	47 (100)
Superior Mesenteric Artery	3 (6.4)
Renal arteries	31 (66)
Accessory renal arteries	13 (28)
Main renal artery size	5.8 ± 1.4
Accessory renal artery size	4.5 ± 1.5



## Technical success

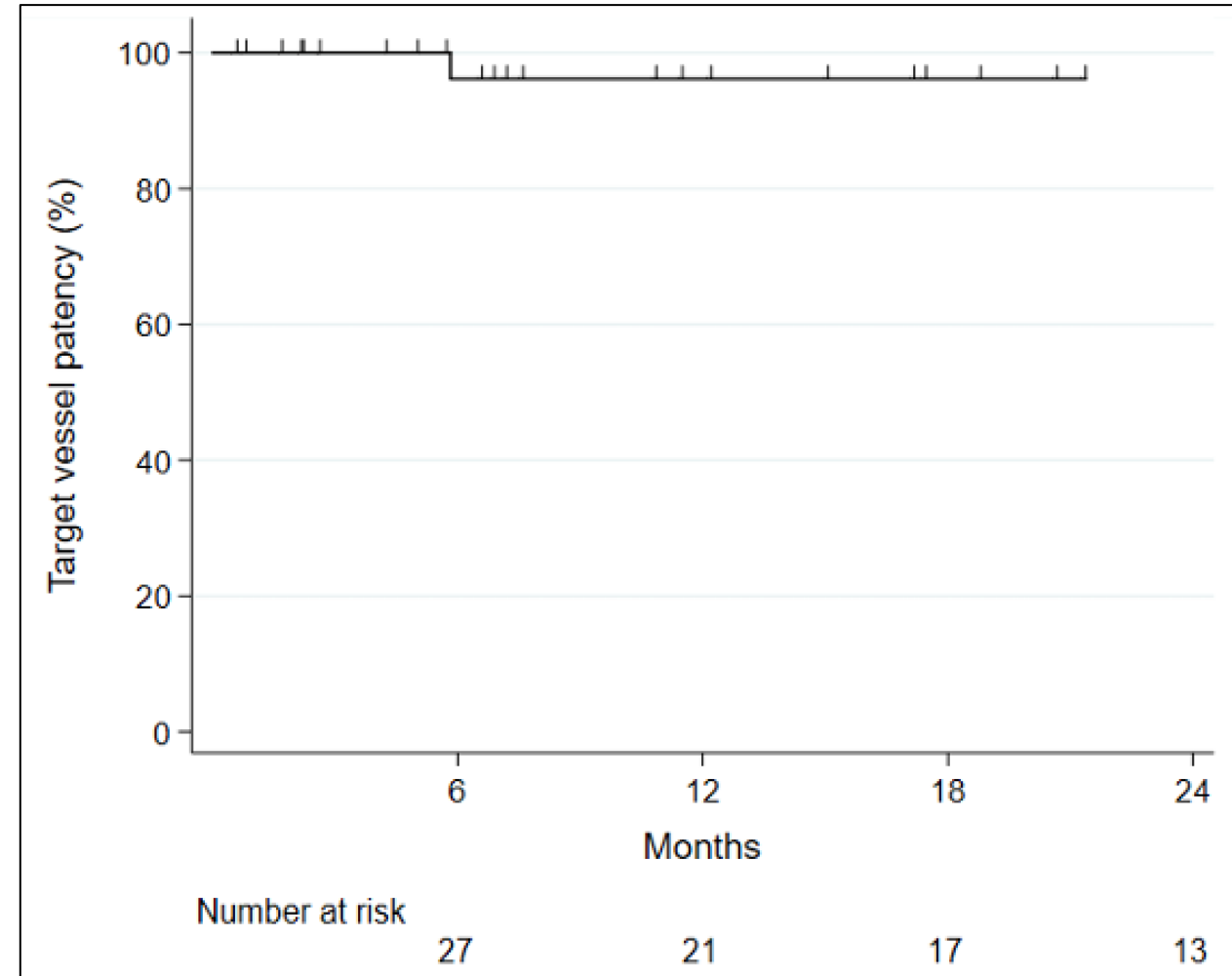
**97% (30/31)**  
**main RA**

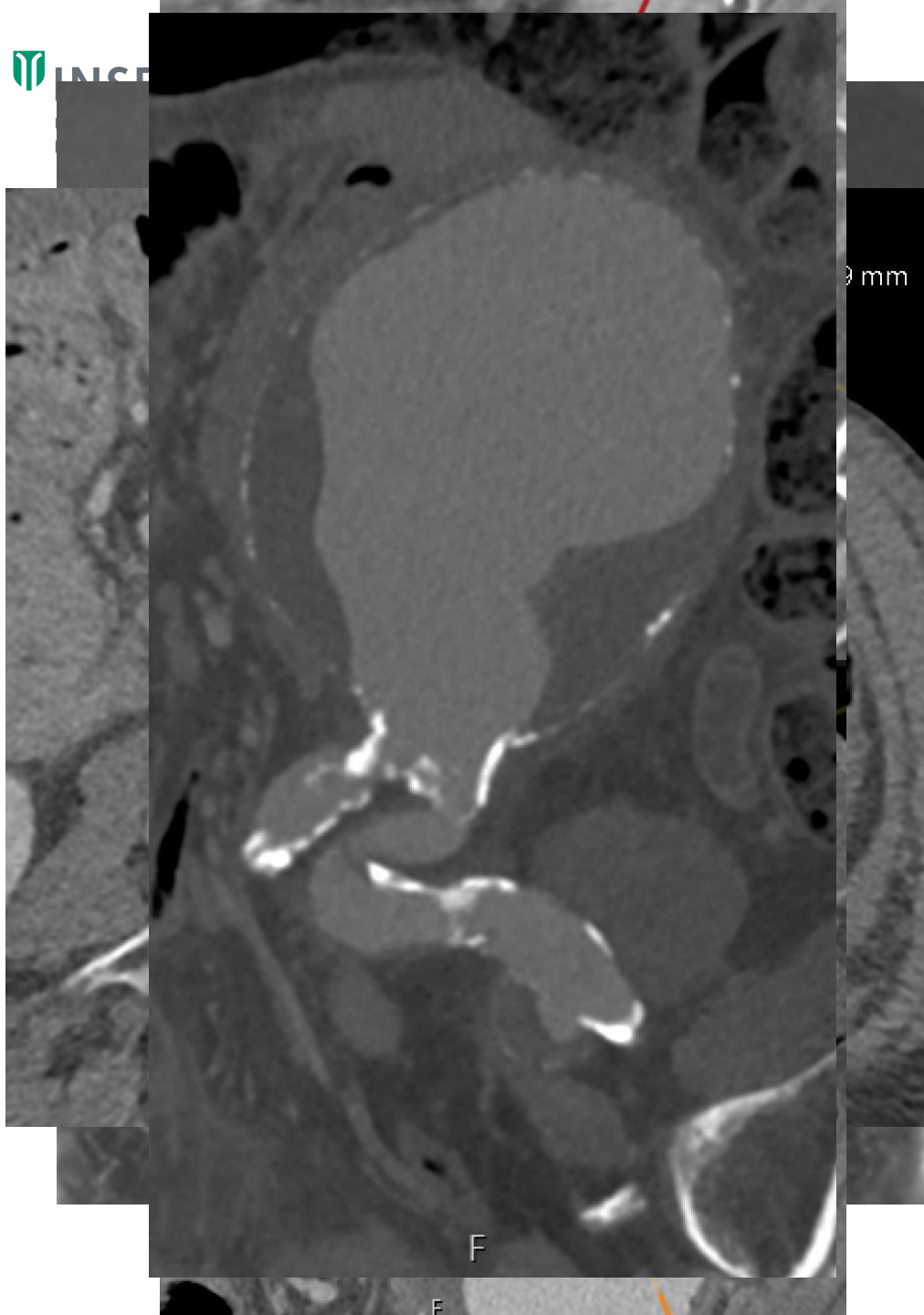
**62% (8/13)**  
**accessorry RA**

catheterized 1st  
 postop day

3 failed catheterization  
 1 dislocated bridging stent  
 1 graft infolding (conversion)

## Target vessel patency





## 71-year-old-male

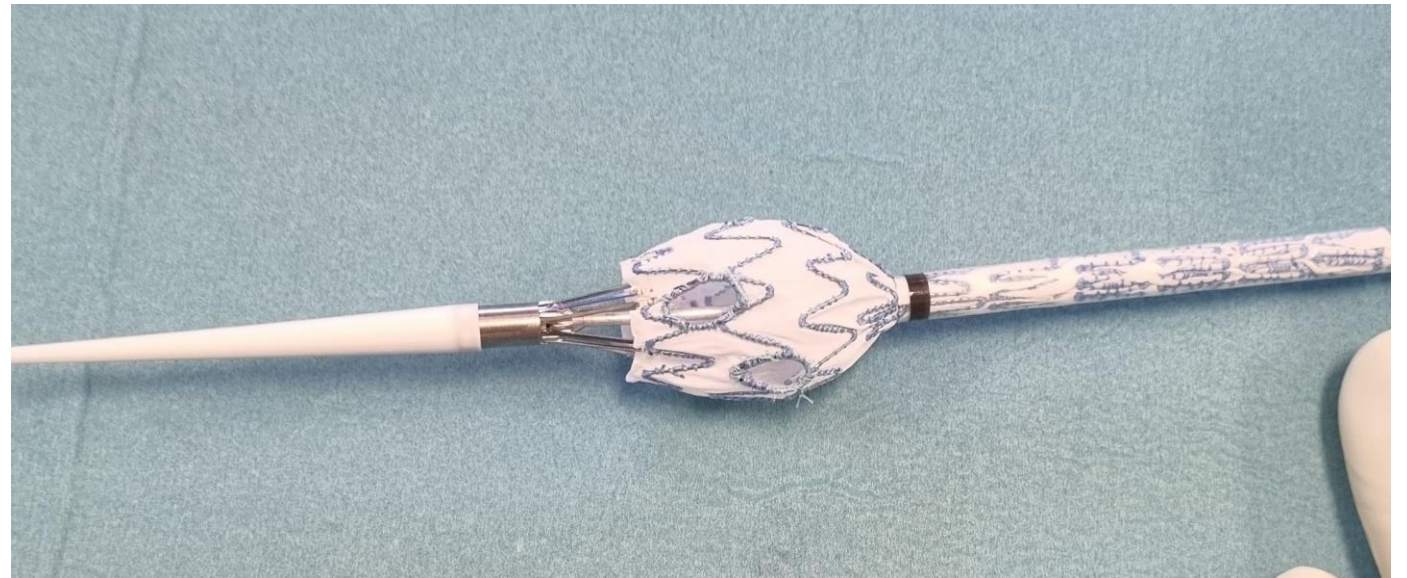
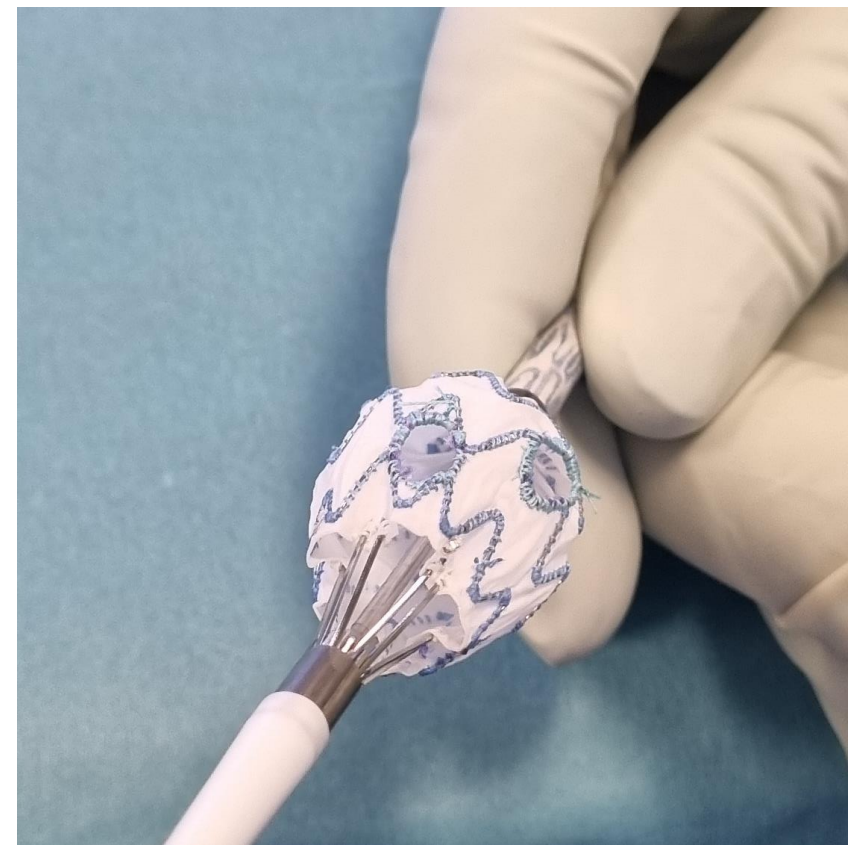
Ileo-colic resection + jejunostomy prior one month

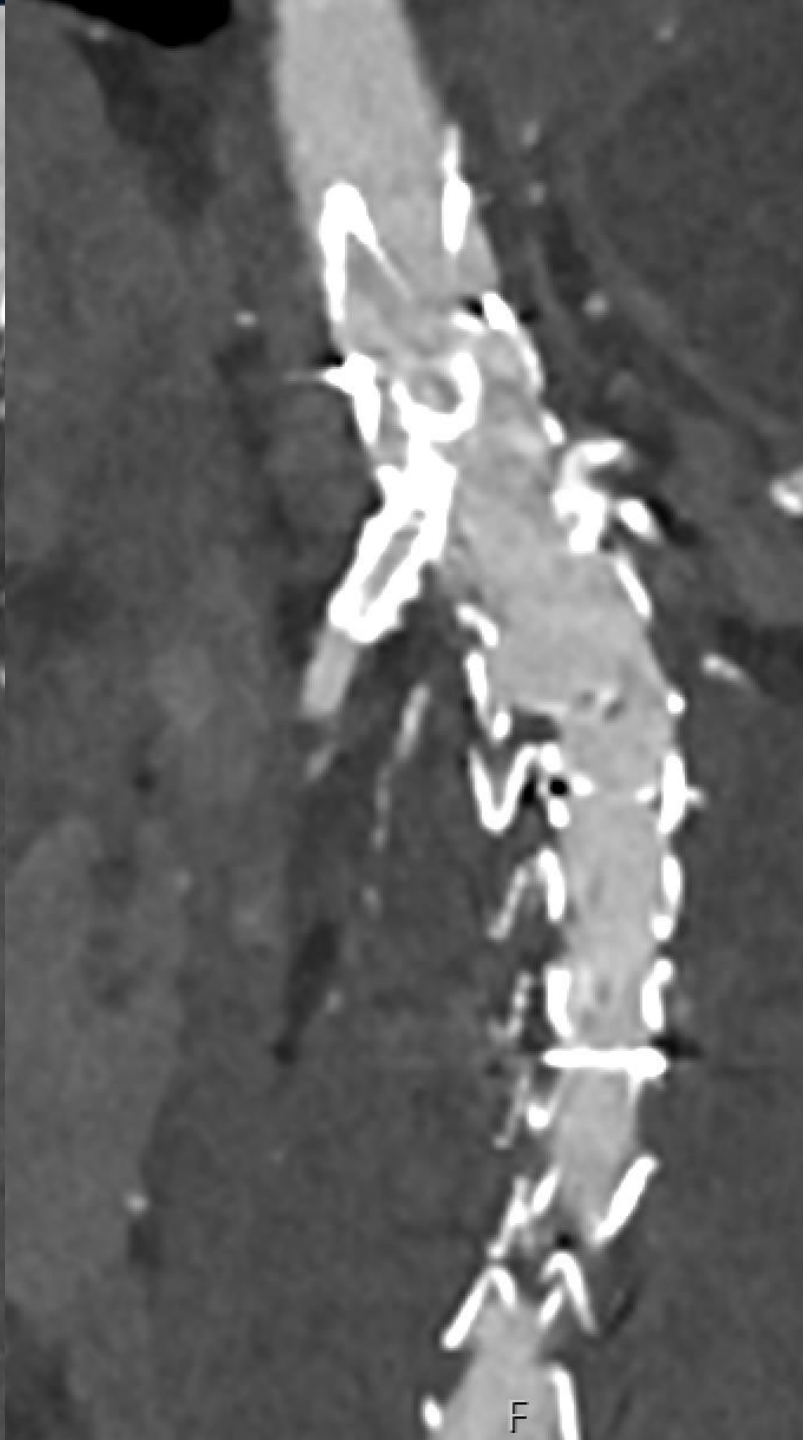
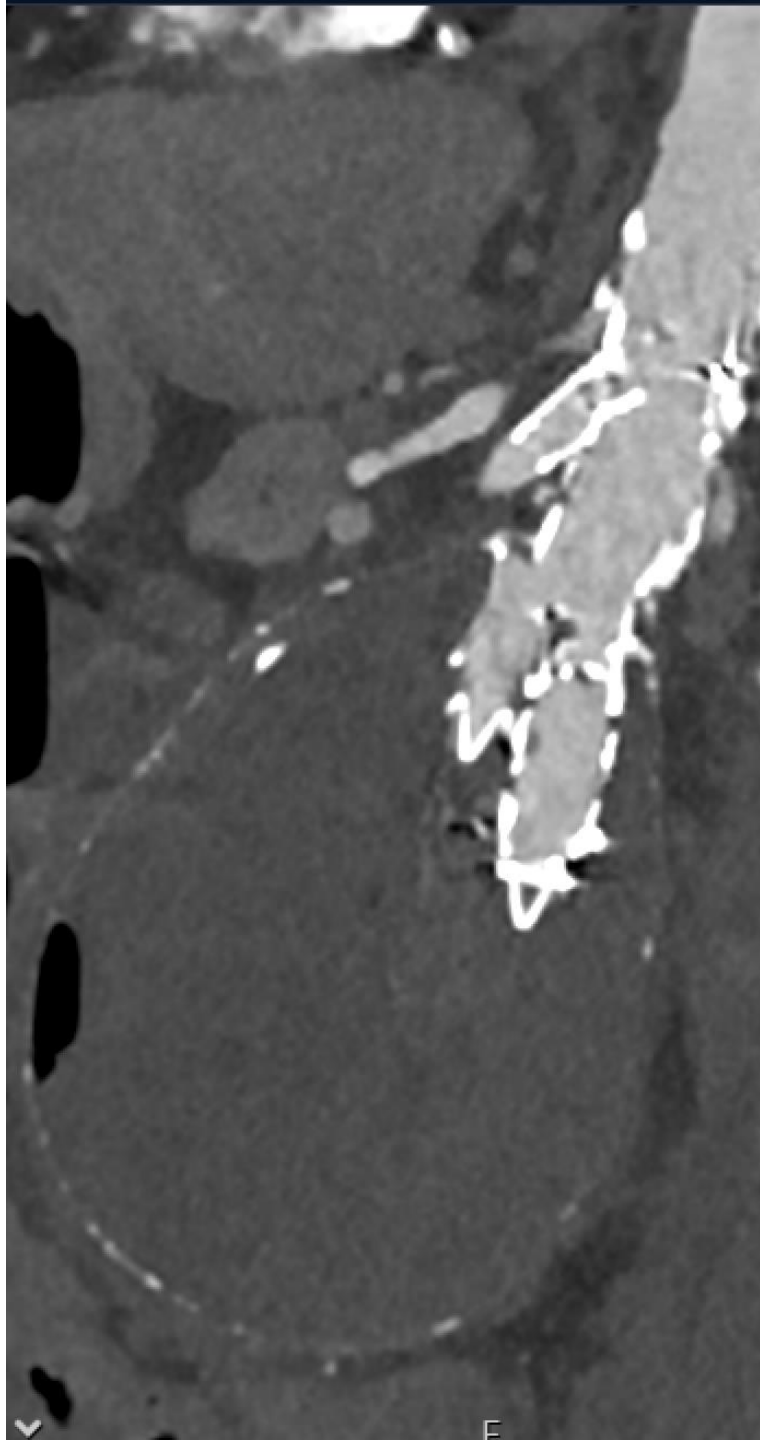
Occluded left renal artery with shrunken kidney

Pararenal aortic aneurysm with 87mm DM

Diffuse calcification and severe left iliac kinking

# 2x sm FEVAR (SMA + right RA)





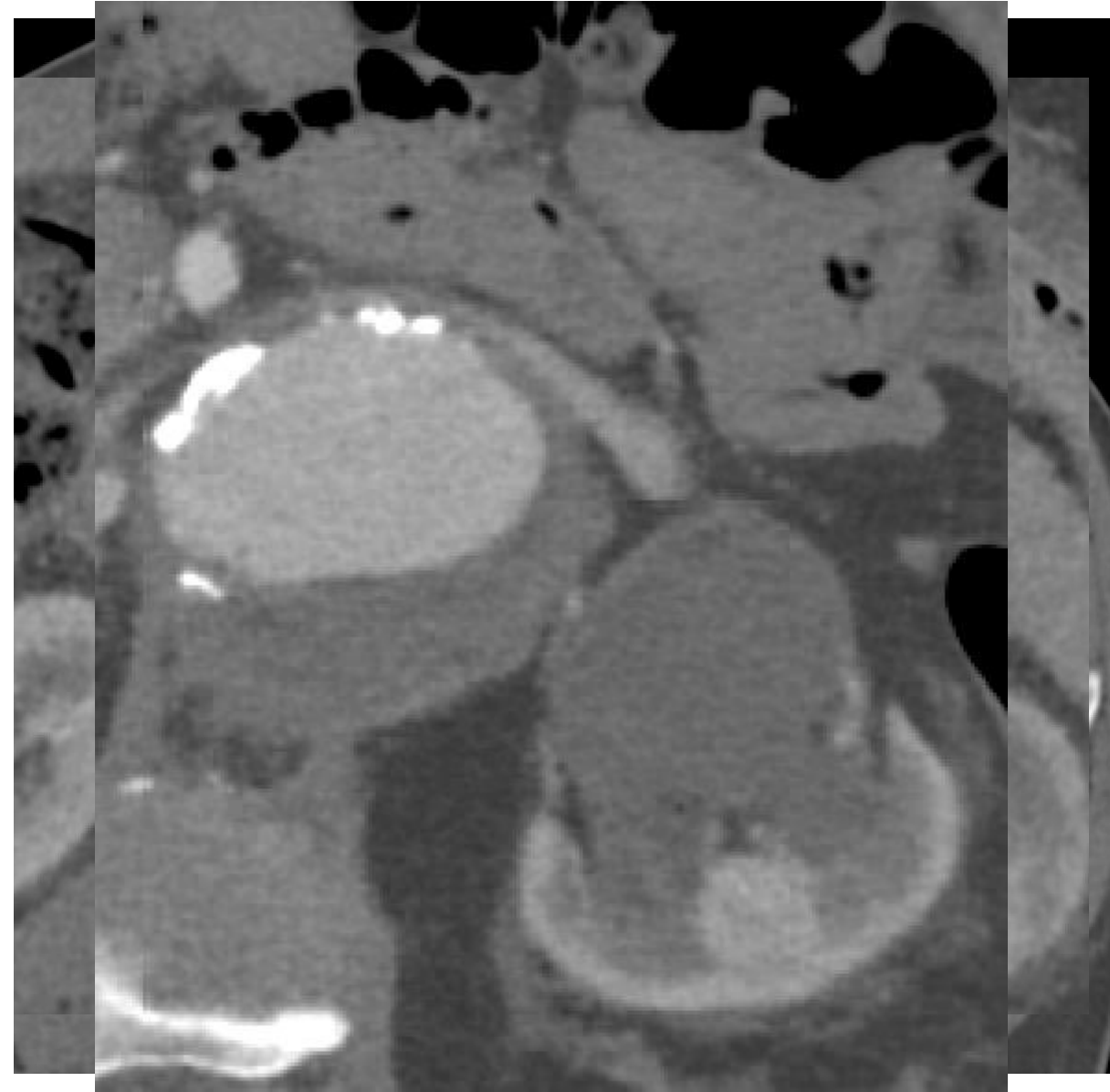
## 67-year-old-male

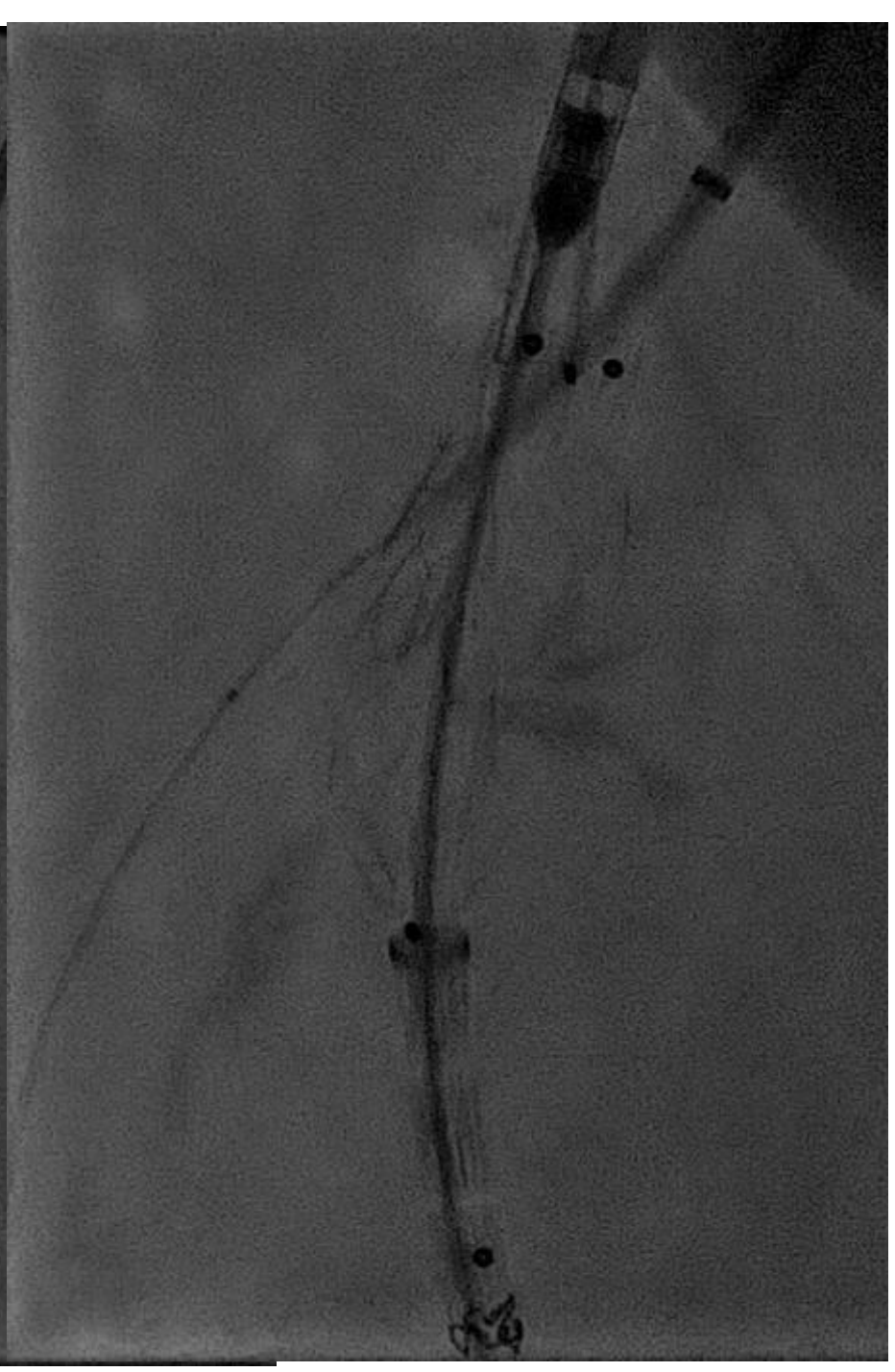
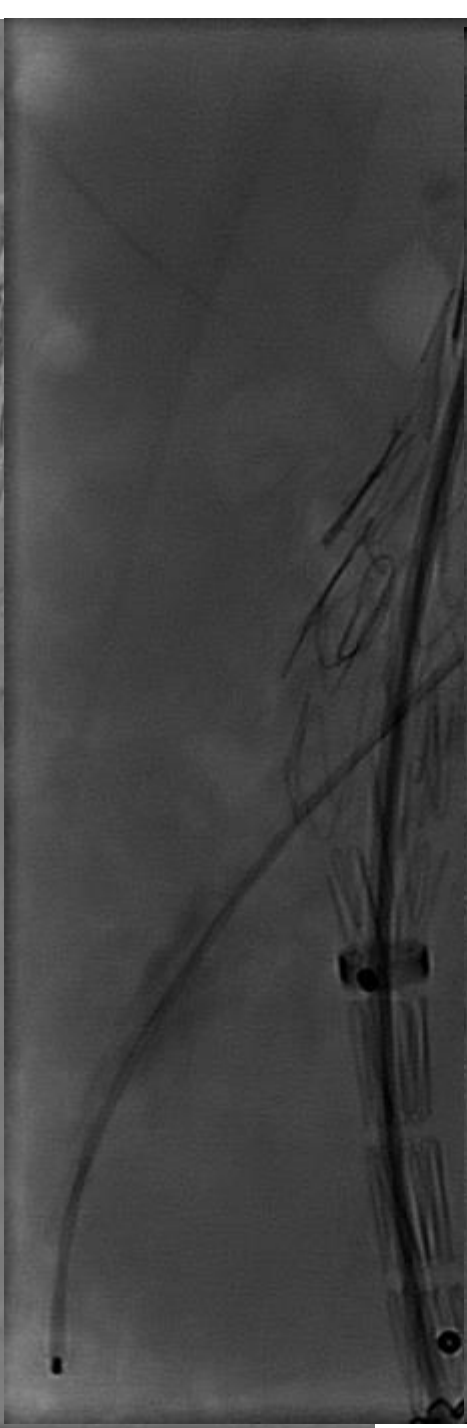
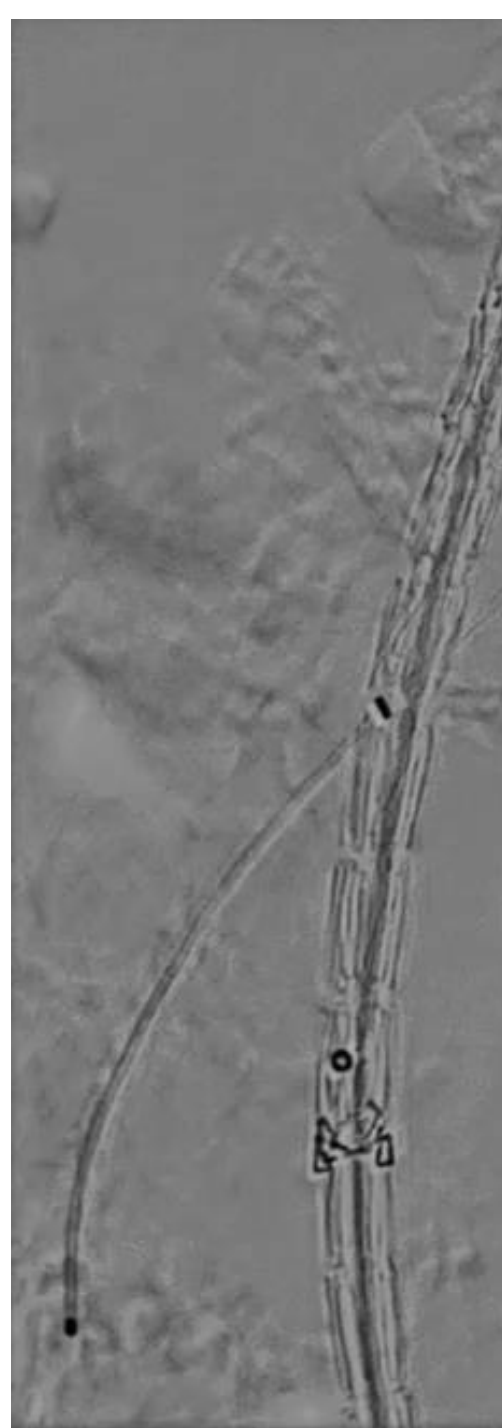
Juxtarenal aortic aneurysm with 115mm DM

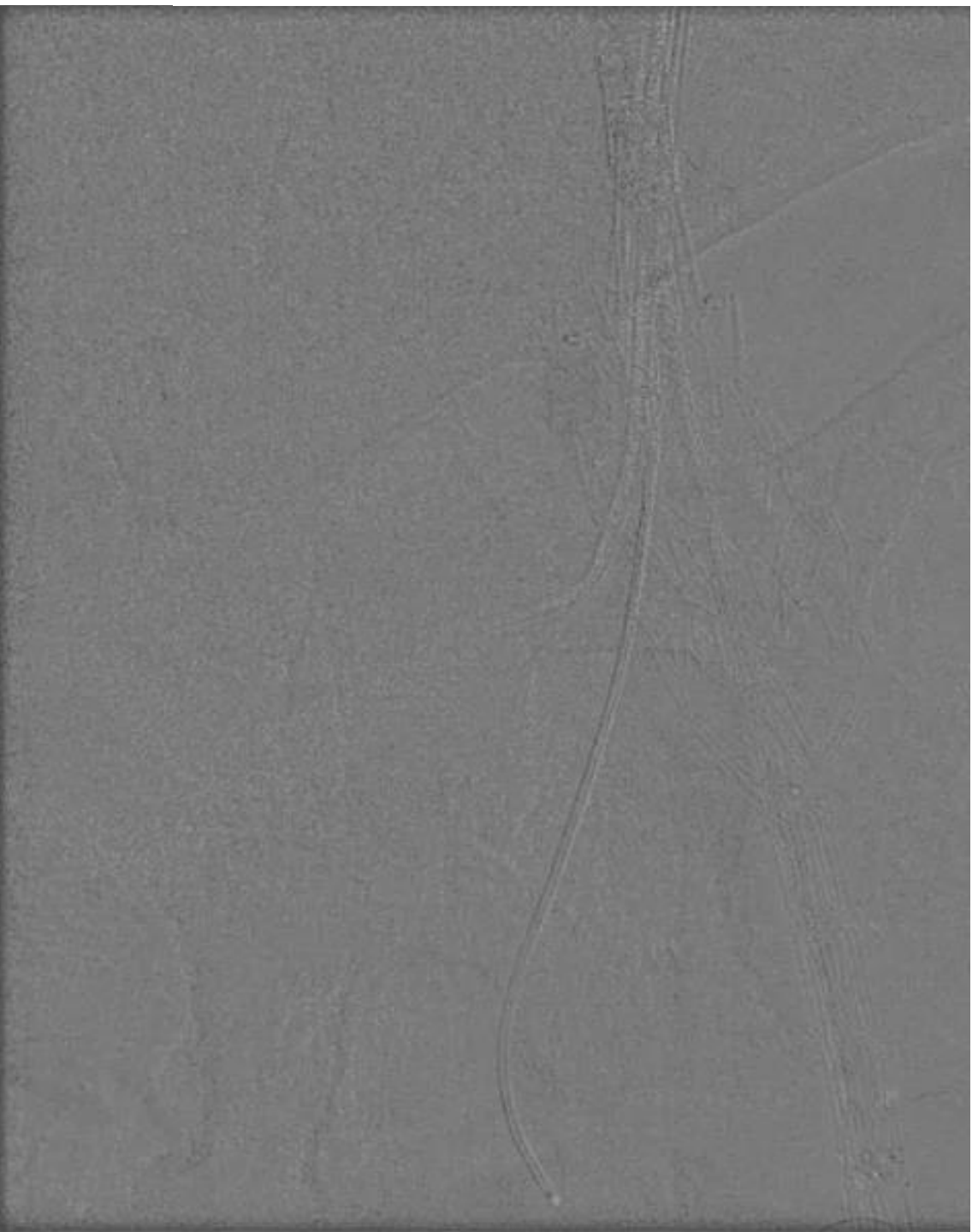
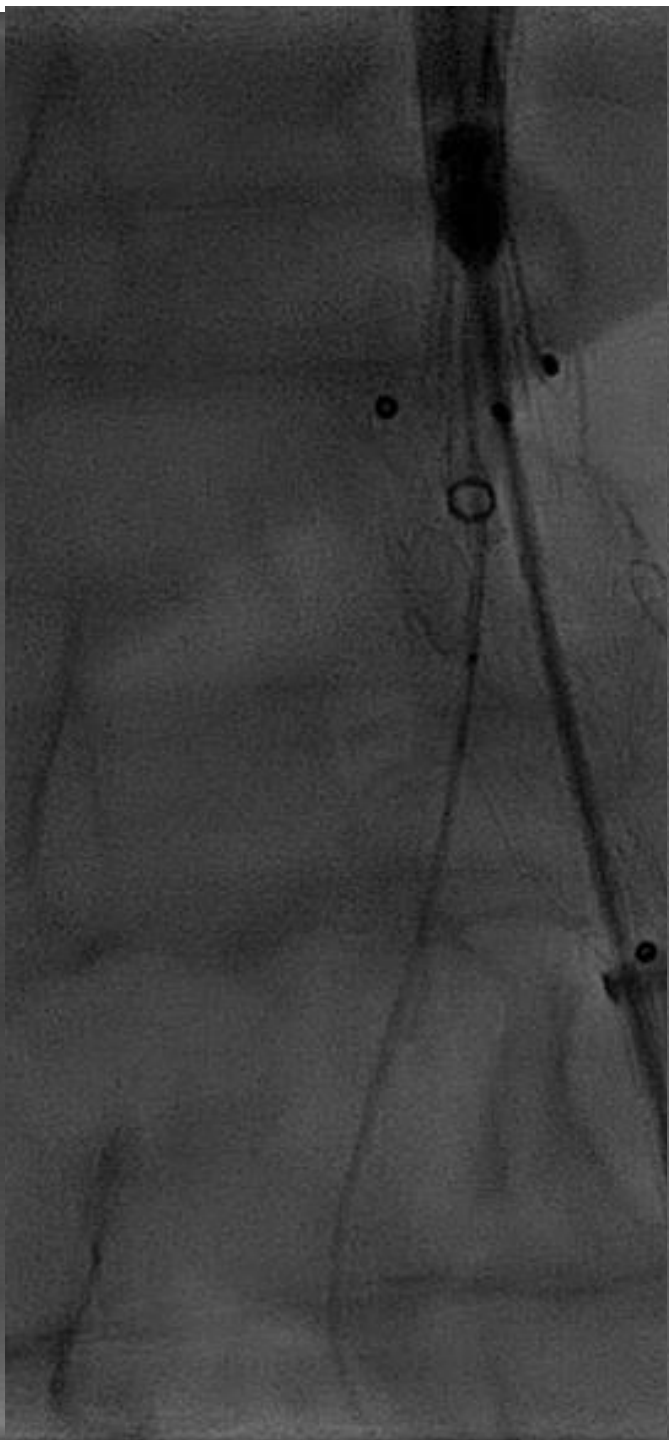
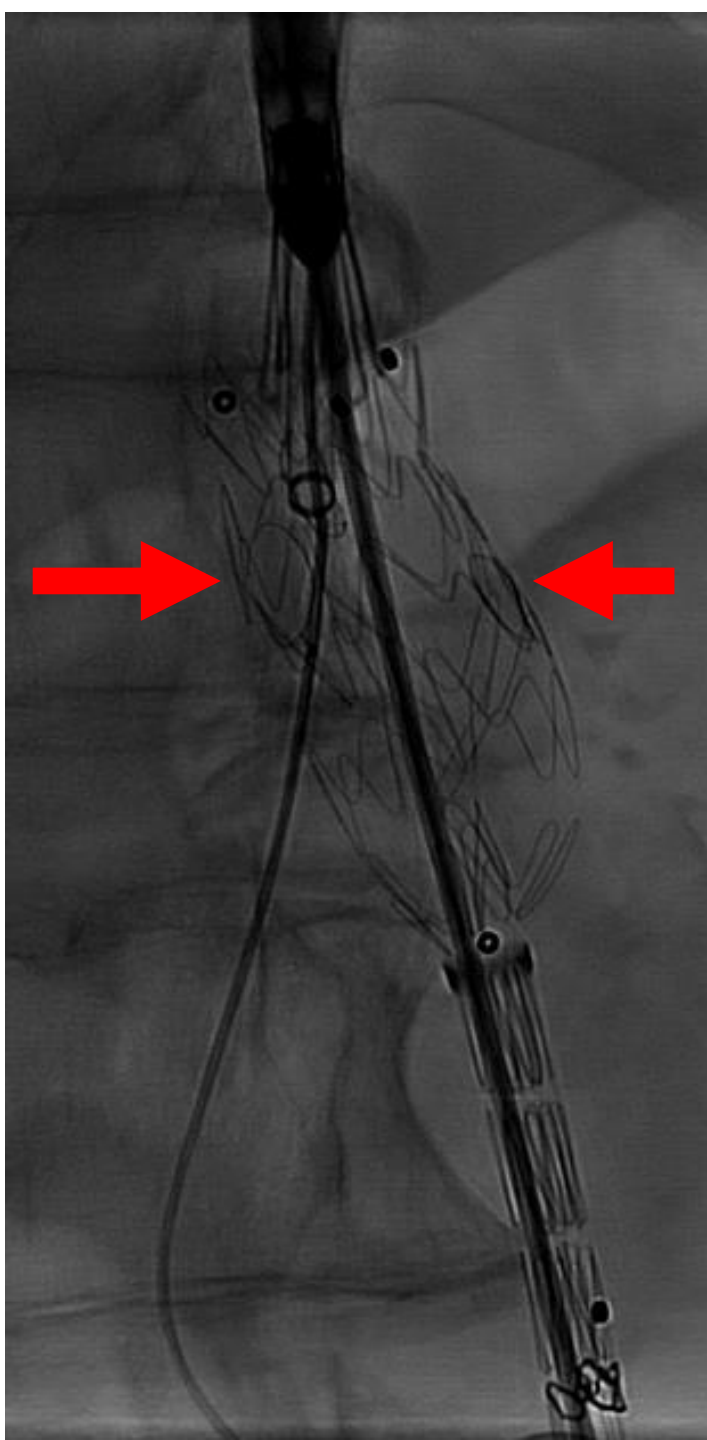
Severe calcification of the visceral aorta

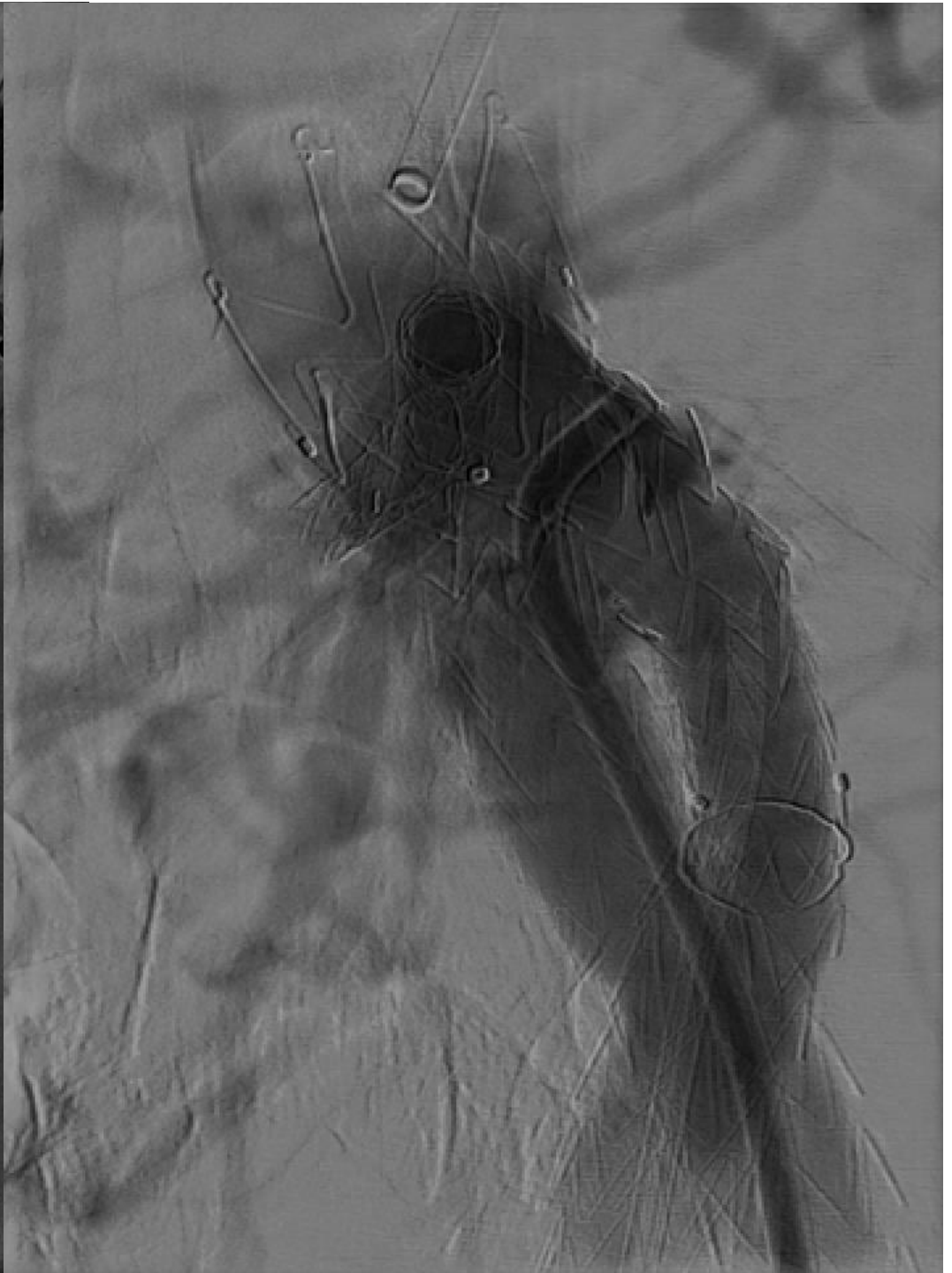
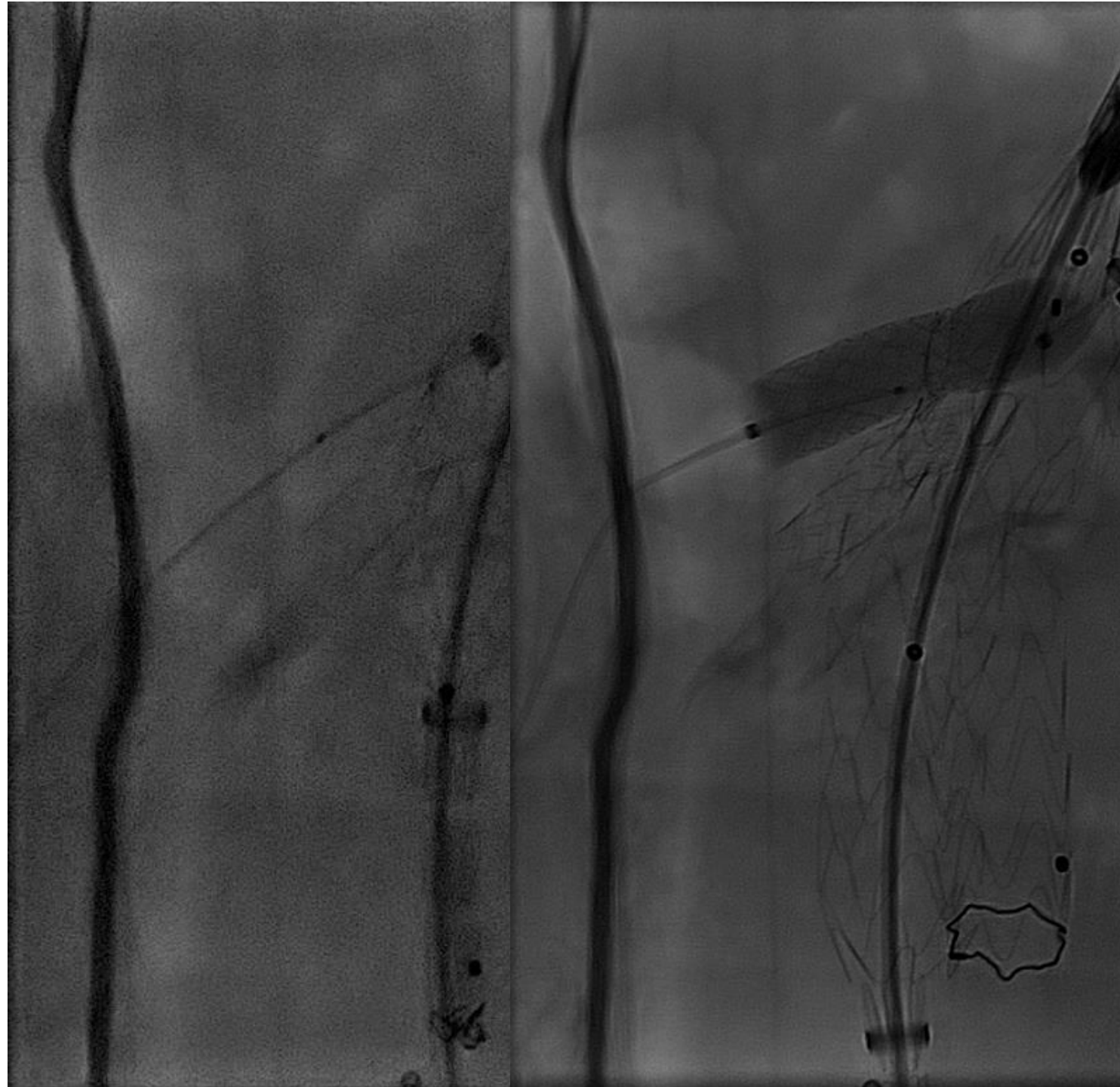
Diffuse calcification, severe left iliac kinking

Left-sided hydronephrosis

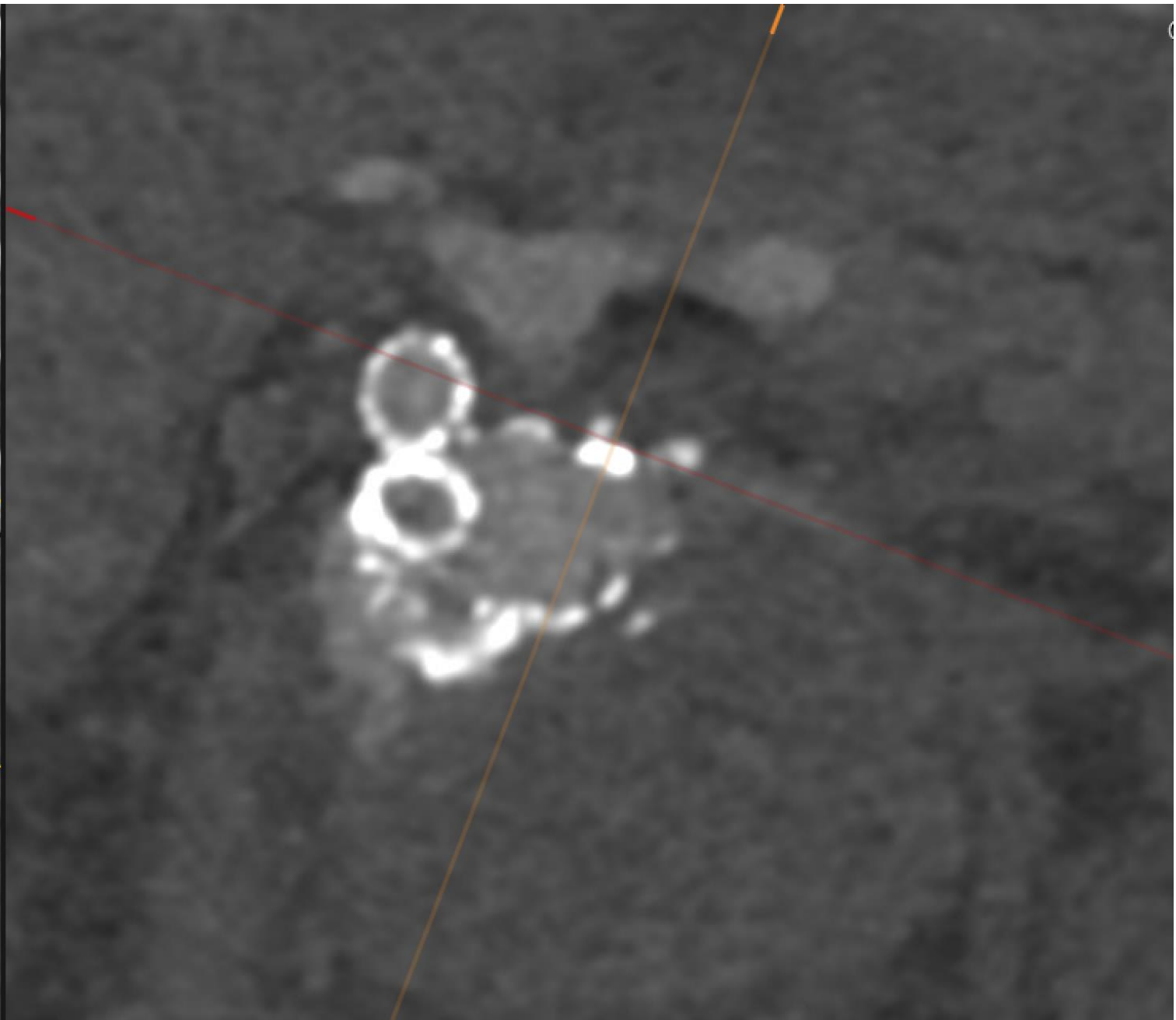
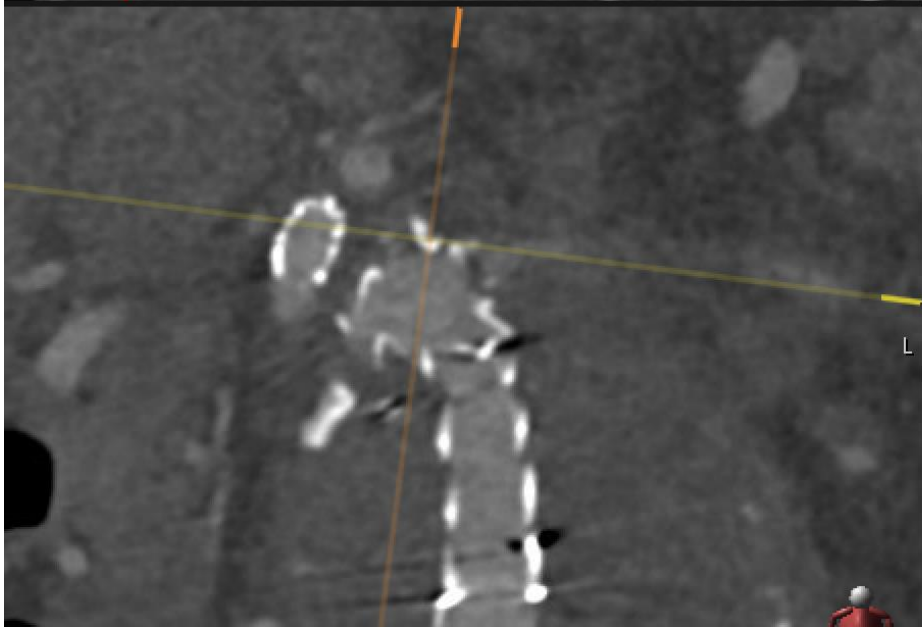
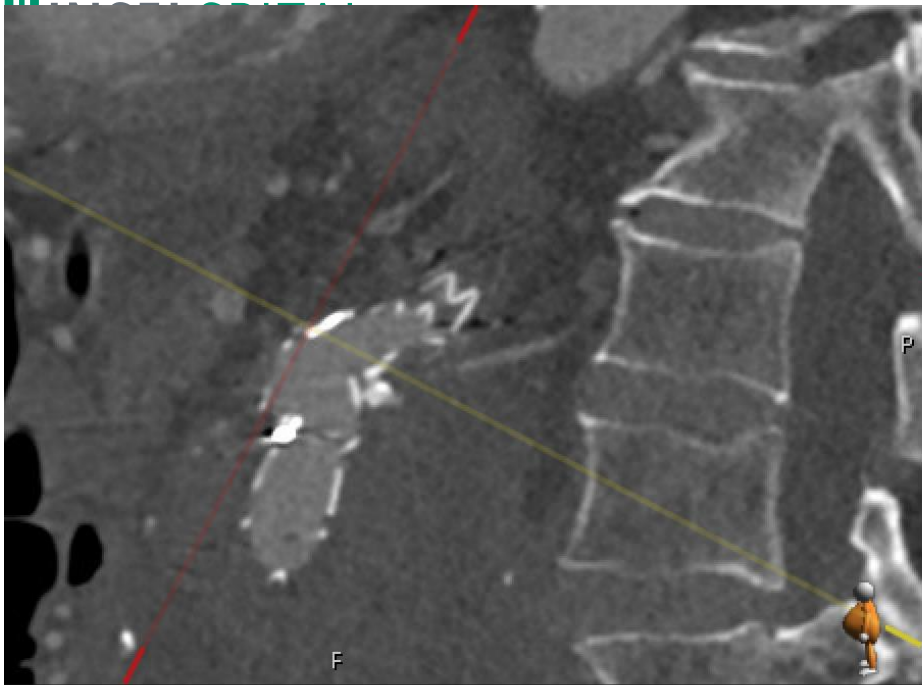


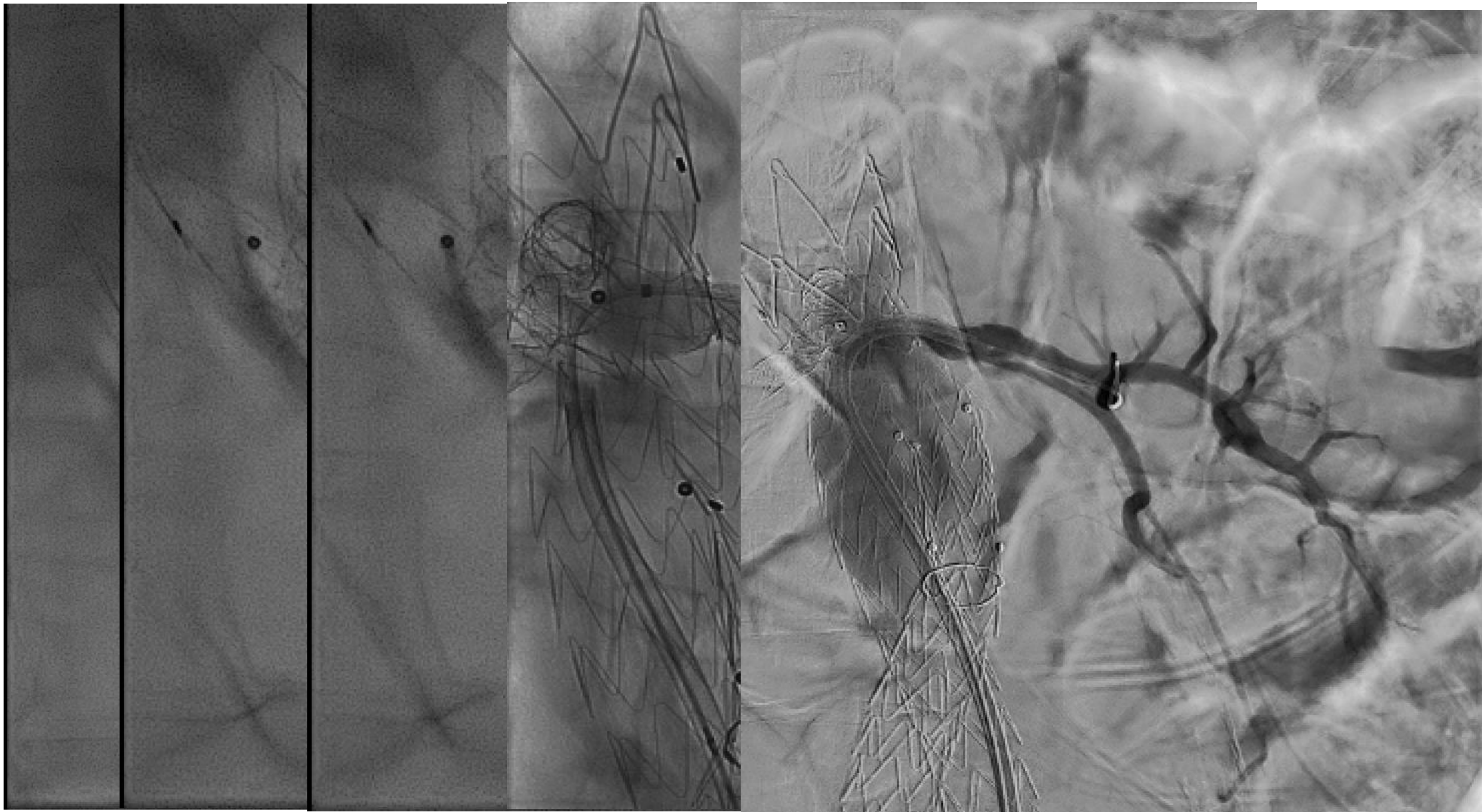








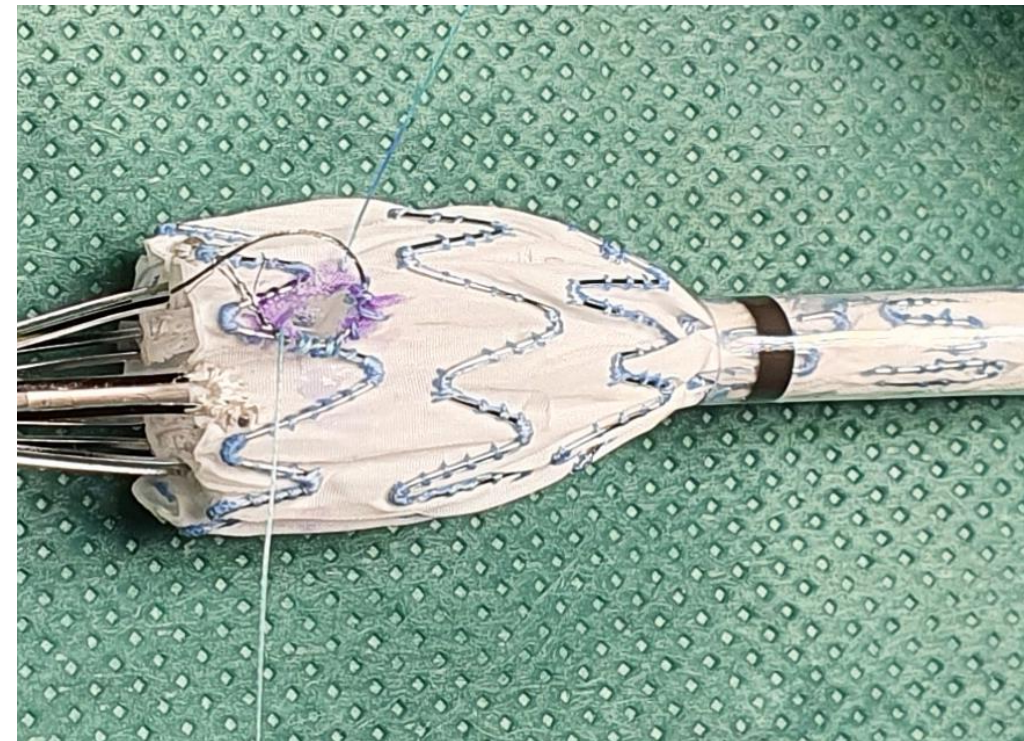




# Surgeon-modified fenestrated endovascular aortic repair for ruptured anastomotic aneurysm after open thoracoabdominal repair

Silvan Jungi <sup>1</sup>, Zoe Sangalli <sup>1</sup>, Jürg Schmidli <sup>1</sup>, Vladimir Makaloski <sup>1</sup>

[J Vasc Surg Cases Innov Tech. 2021 Jul 1;7\(3\):484-487.](#)



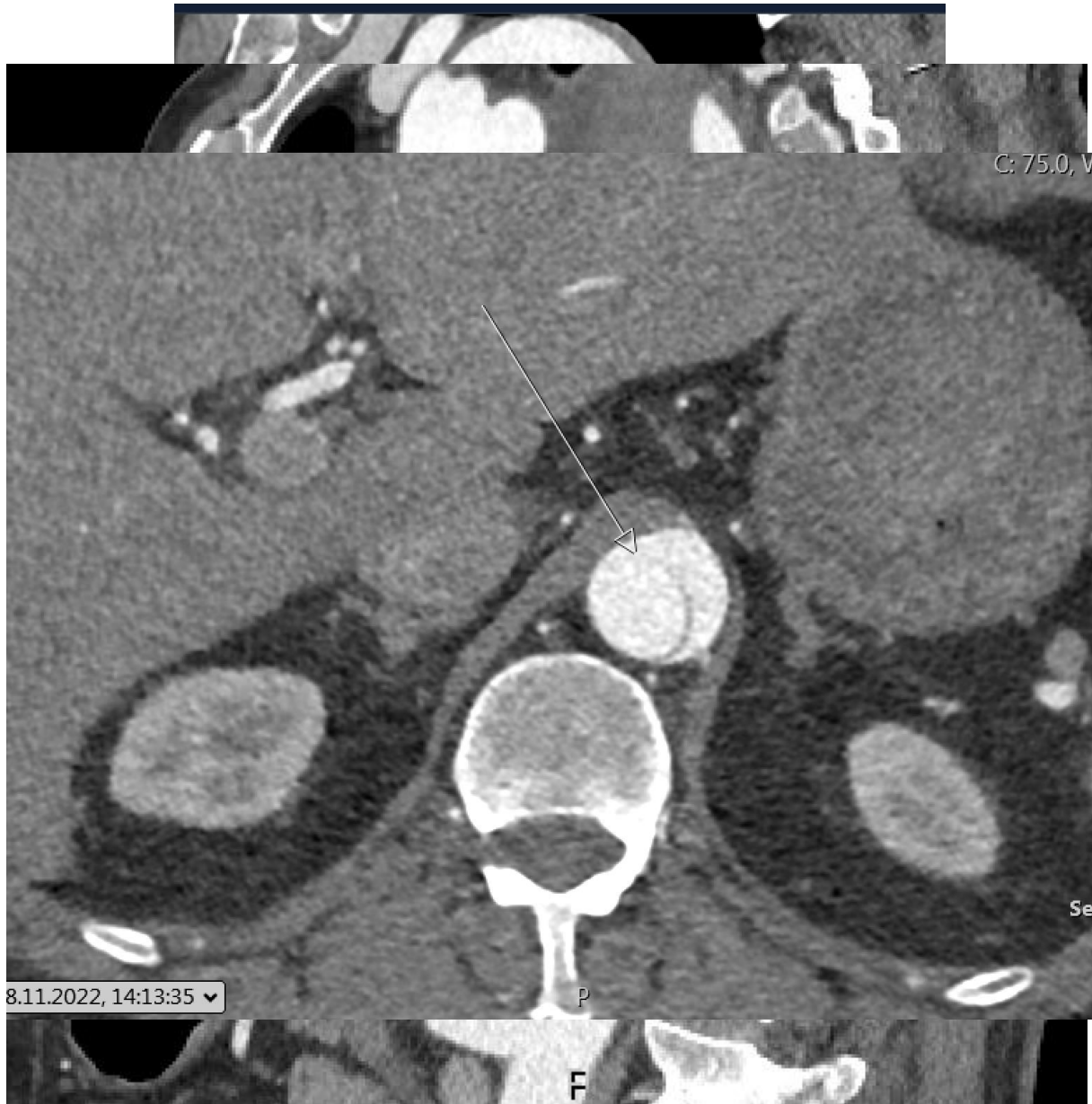
# 71-year-old-male

Complicated acute type B aortic dissection

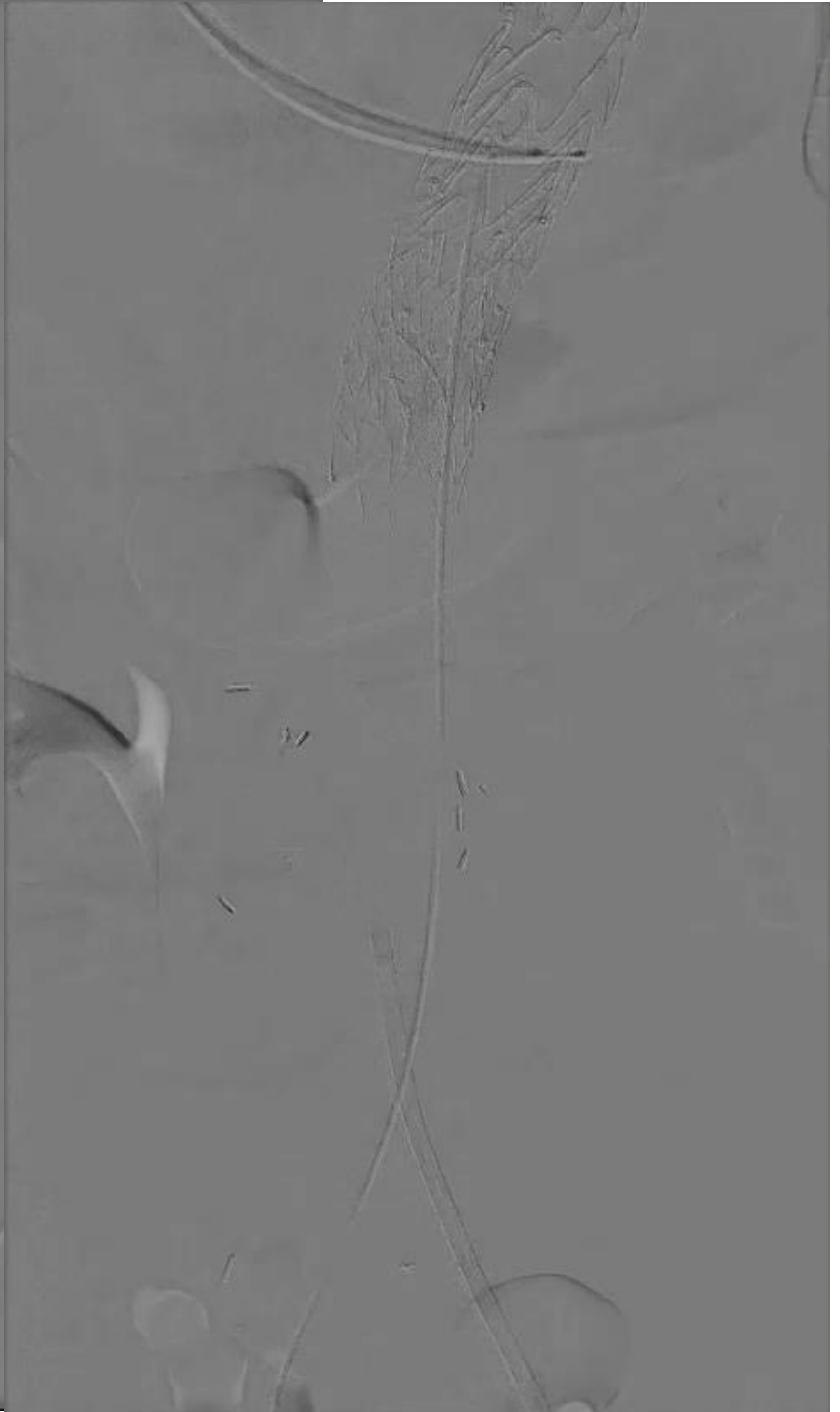
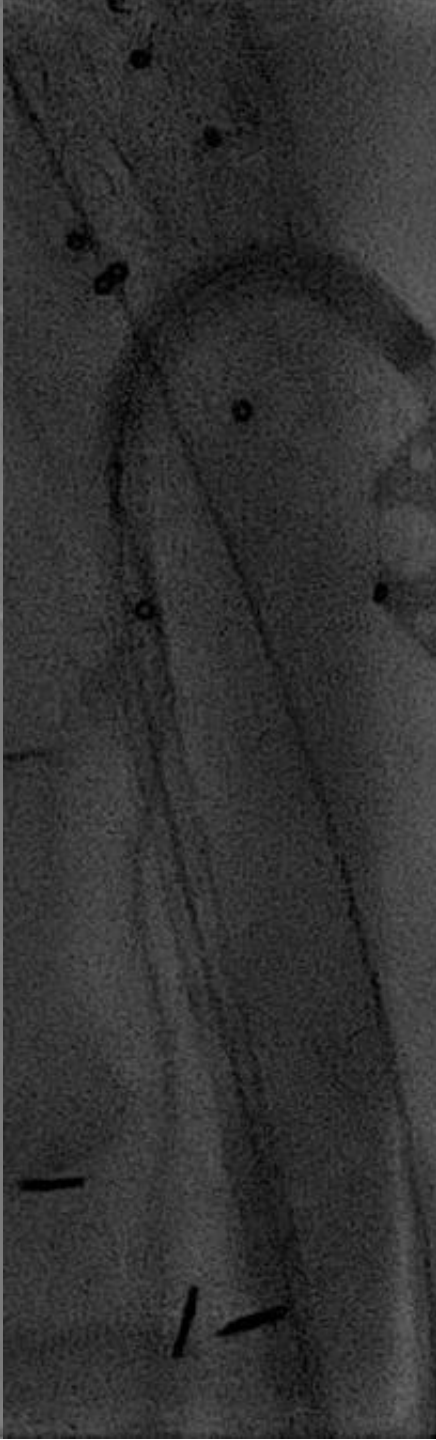
Acute kidney injury

Persistent hypertension (5x antihypertensive)

Refractory back pain

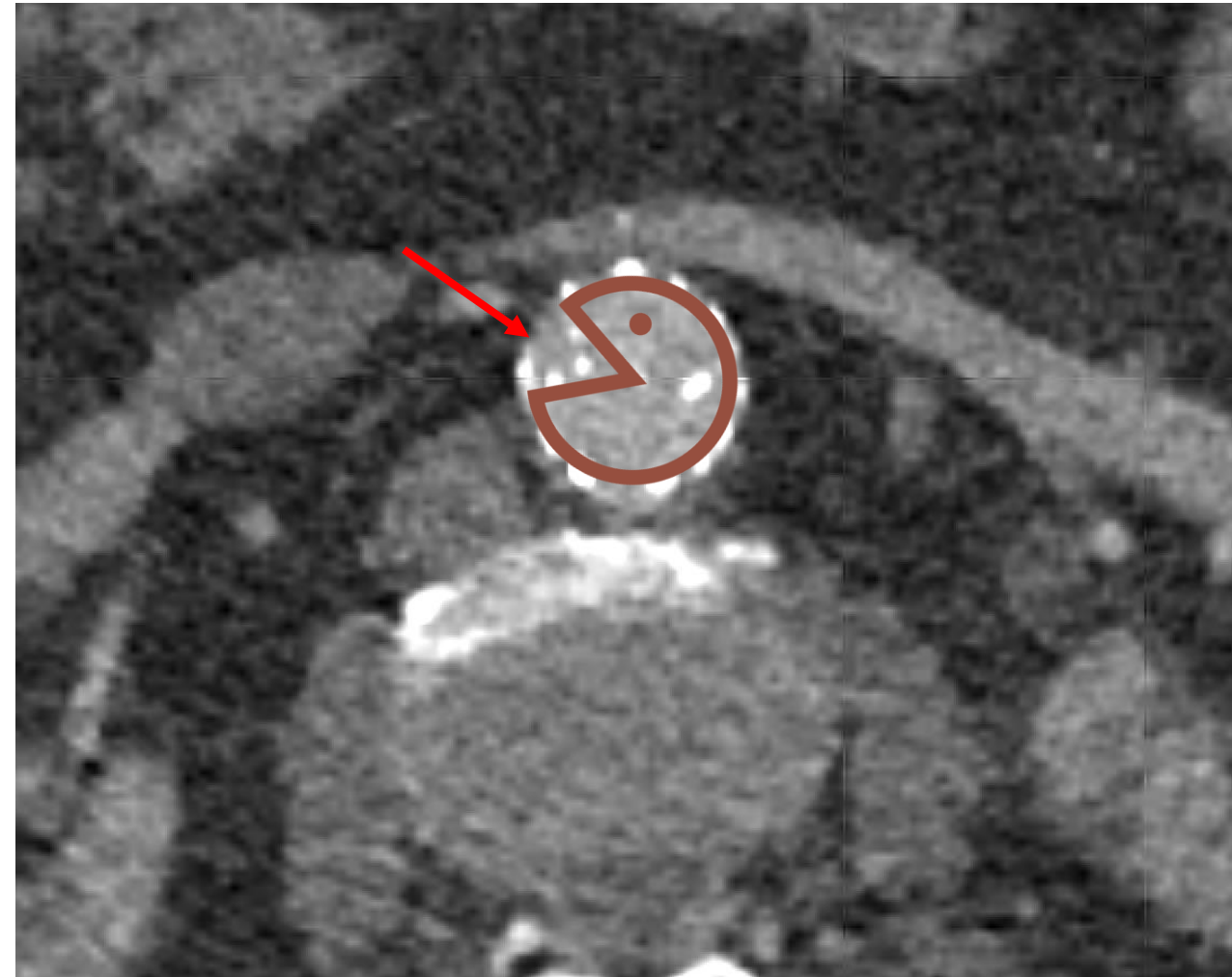






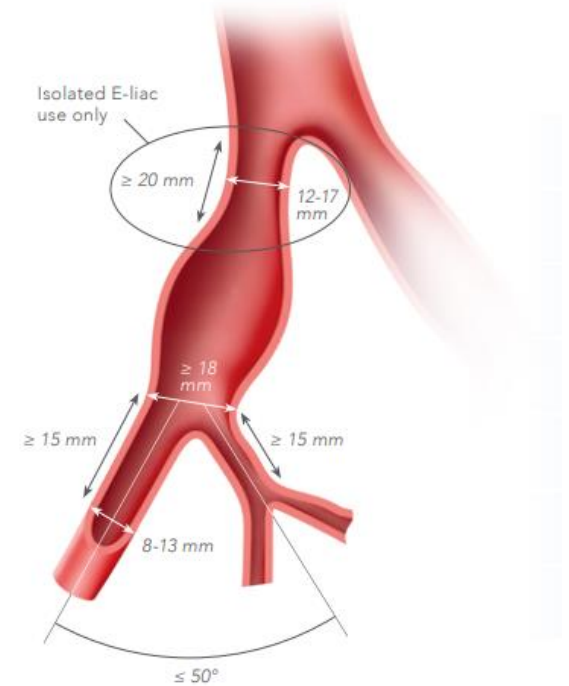
# Avoid infolding while re-sheating!

...it can go south...



## Instead of Iliac Branch Devices (IBD)

- 20-35% of iliac aneurysms treatable according to instructions for use (IFU)<sup>1,2</sup>
- Most common exclusion criteria
  - Internal Iliac artery diameter > 11.4/13.5mm
  - Common iliac artery diameter < 16/17/18mm
  - Iliac bifurcation diameter < 18mm



<sup>1</sup> Muzepper, M. et. al. (2020) *Ann Vasc Surg*

<sup>2</sup> Li, Z. et. al. (2022). *Frontiers in Cardiovascular Medicine*



## Novel Surgeon-Modified Fenestrated Iliac Stent Graft

Journal of Endovascular Therapy

1–8

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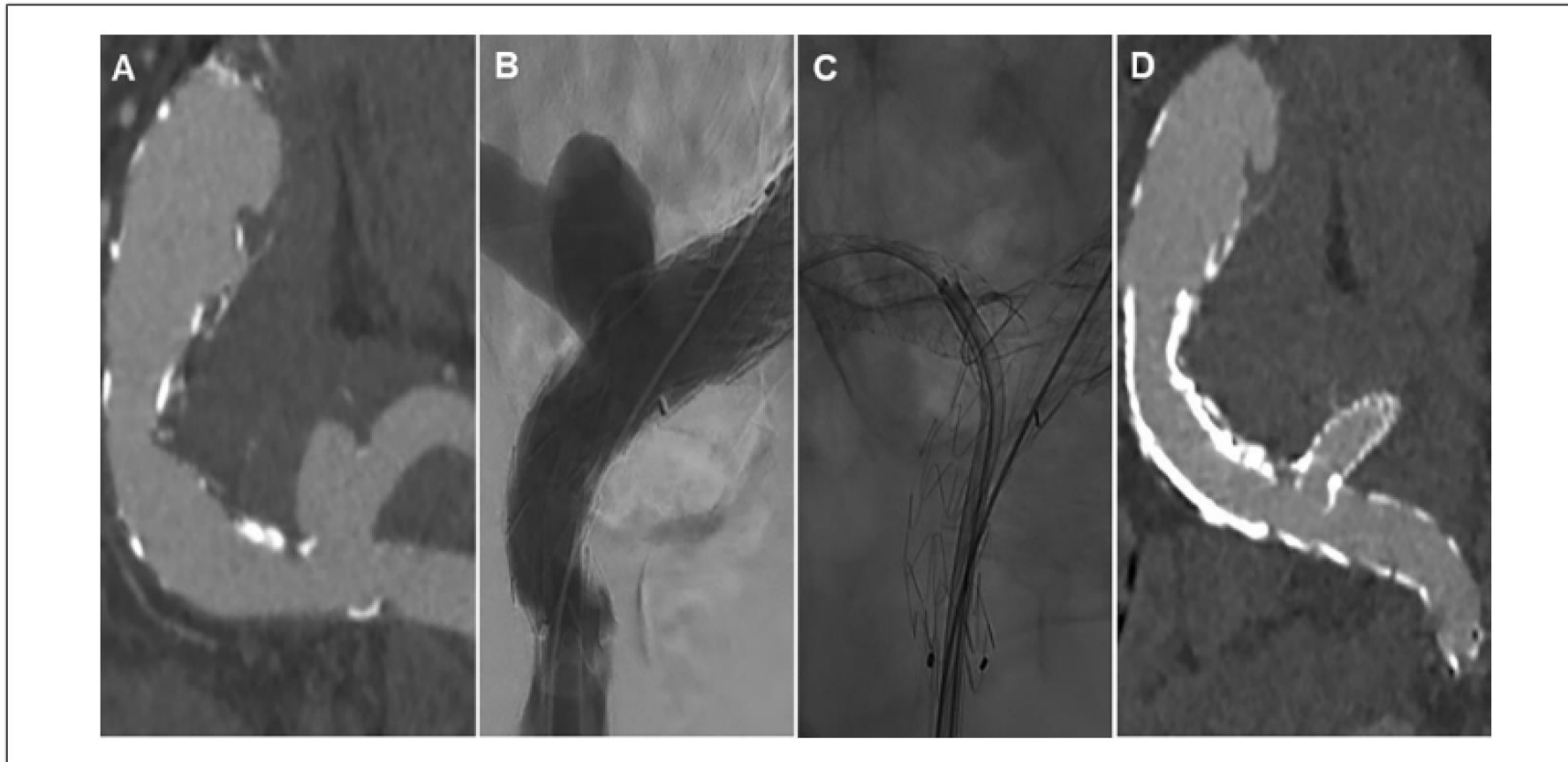
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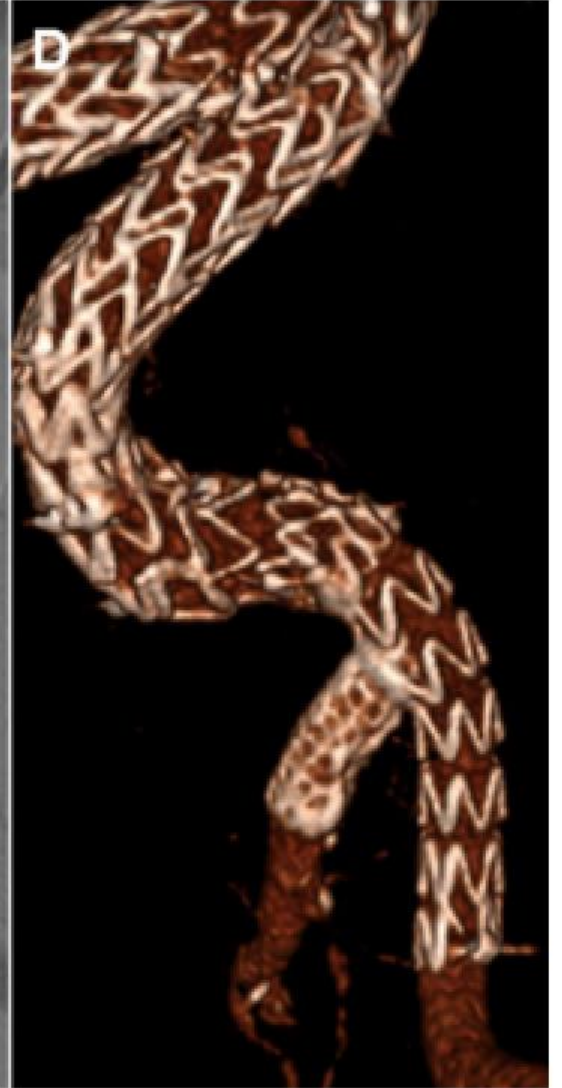
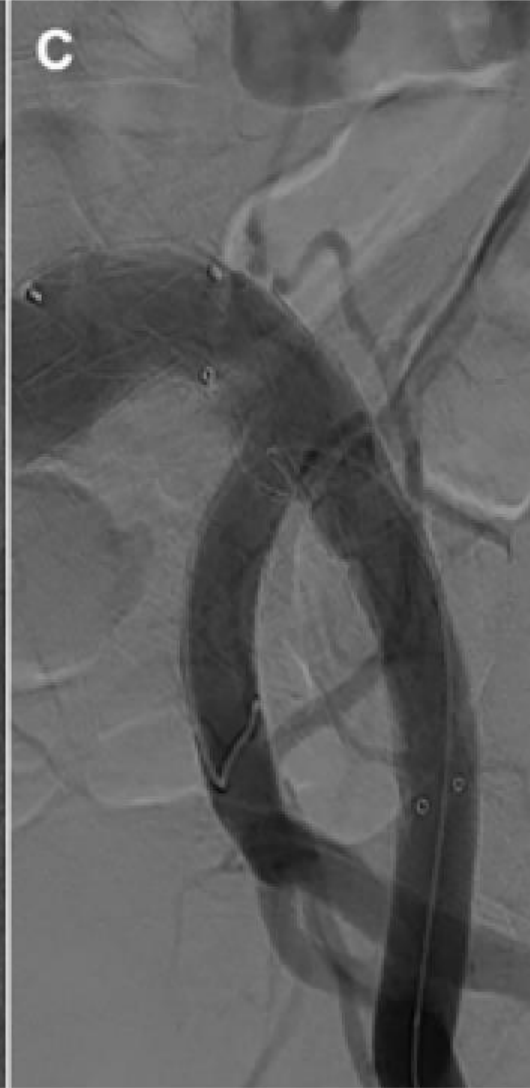
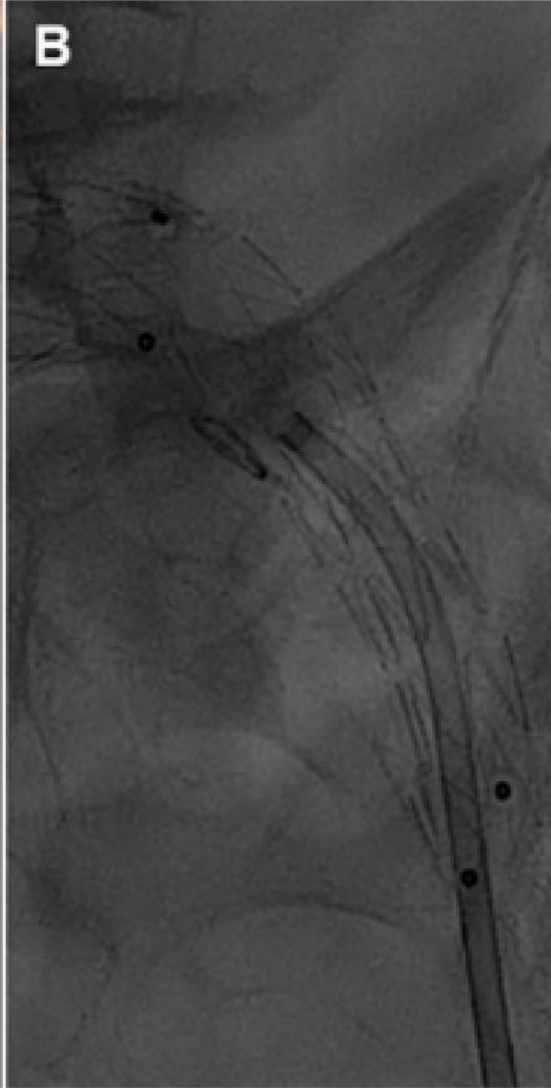
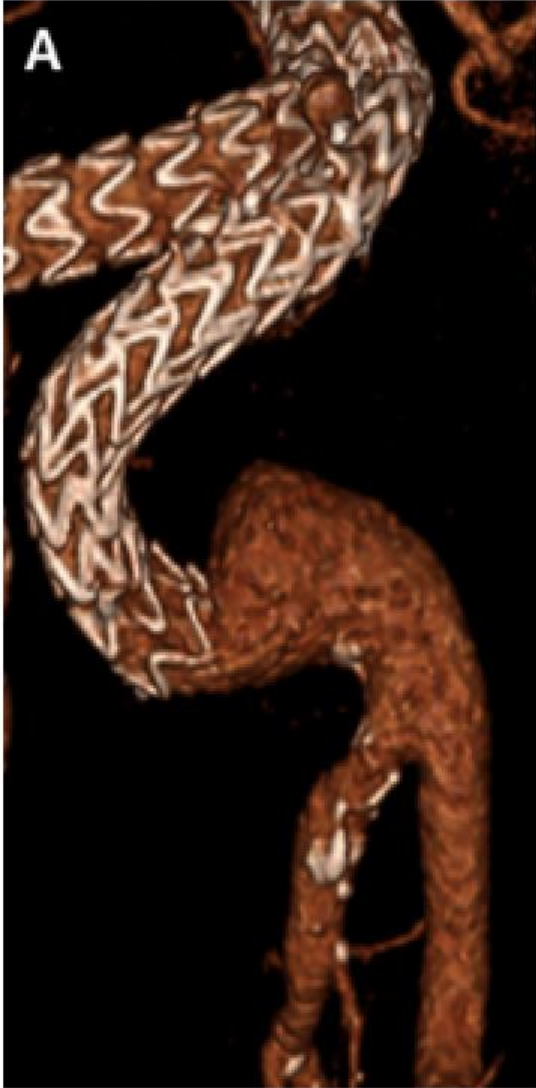
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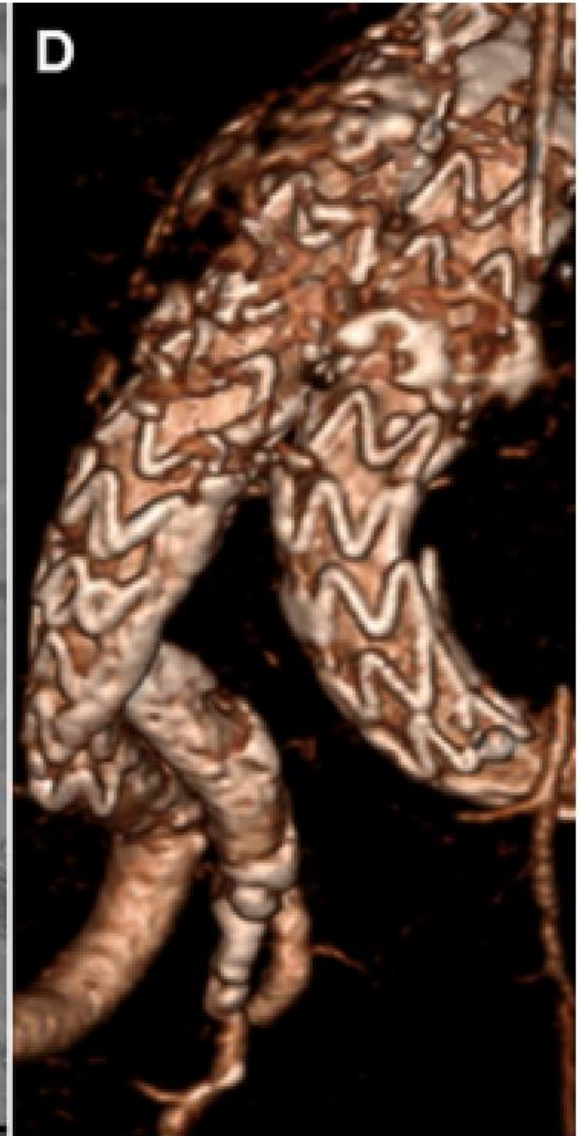
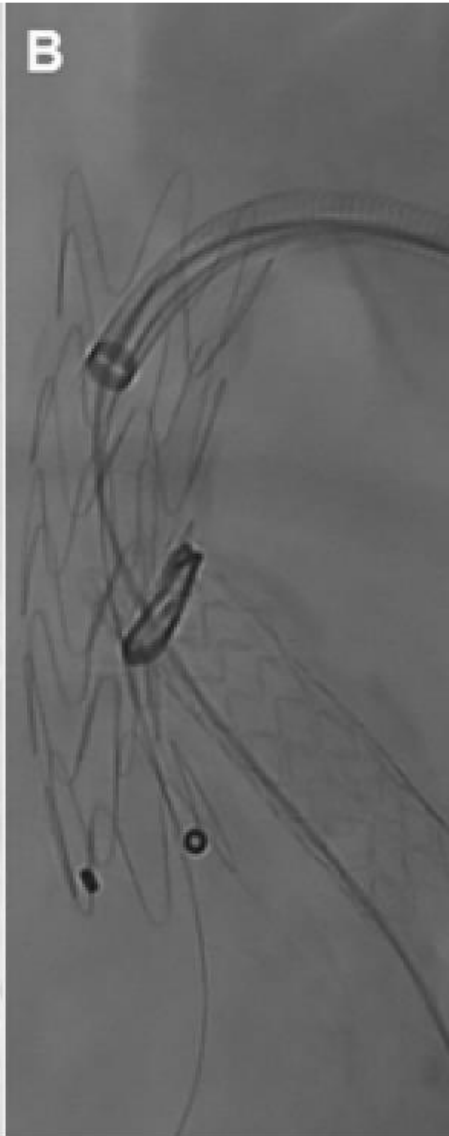
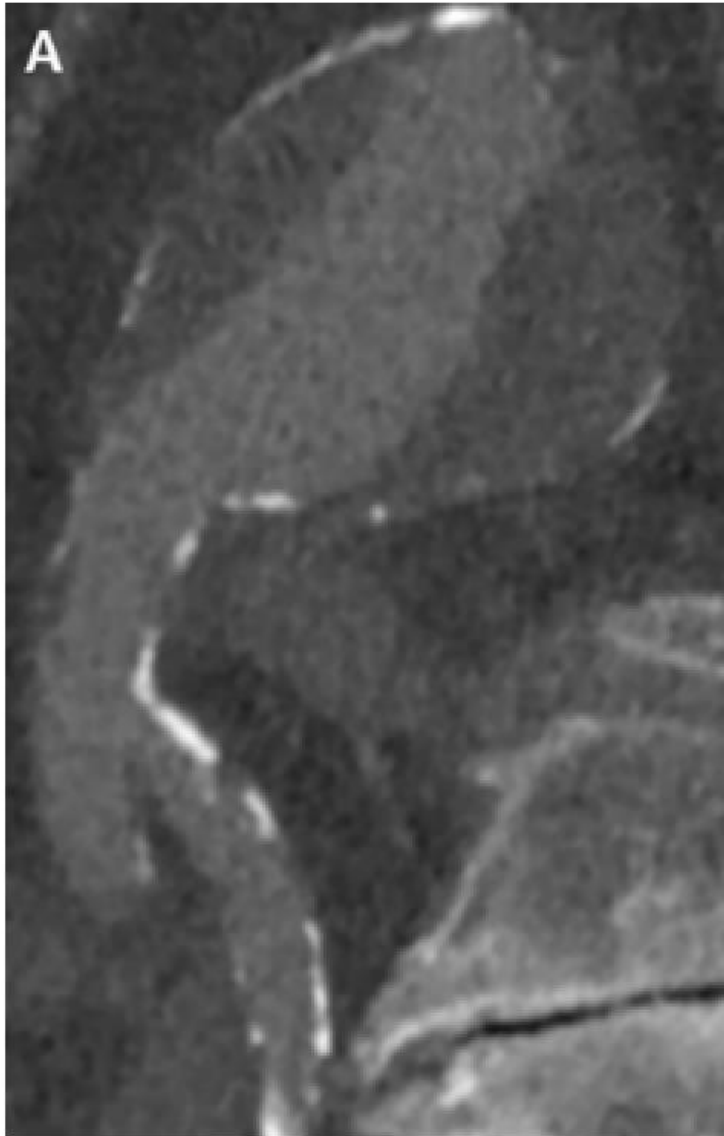
[www.jevt.org](http://www.jevt.org)



Silvan Jungi, MD<sup>1</sup> , Dimitrios D. Papazoglou, MD<sup>1</sup>, Hon-Lai Chan, MD<sup>1</sup>,  
Jürg Schmidli, MD, PhD<sup>1</sup>, and Vladimir Makaloski, MD, PhD<sup>1</sup> 







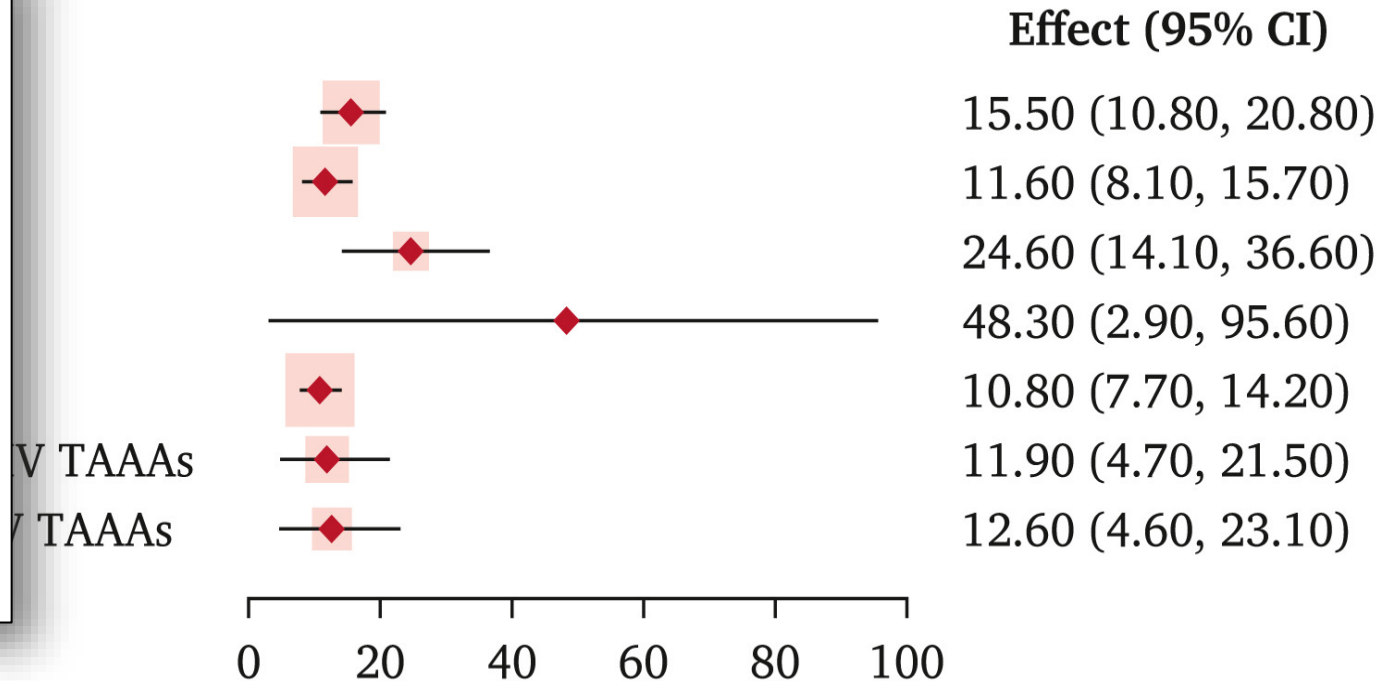
**SYSTEMATIC REVIEW**

**Systematic Review and Meta-analysis of Physician Modified Endografts for Treatment of Thoraco-Abdominal and Complex Abdominal Aortic Aneurysms**

Ryan Gouveia e Melo <sup>a,\*</sup>, Carlota Fernández Prendes <sup>a</sup>, Daniel Caldeira <sup>b</sup>, Jan Stana <sup>a</sup>, Barbara Rantner <sup>a</sup>, Anders Wanhainen <sup>c</sup>, Gustavo S. Oderich <sup>d</sup>, Nikolaos Tsilimparis <sup>a</sup>

**Conclusion**

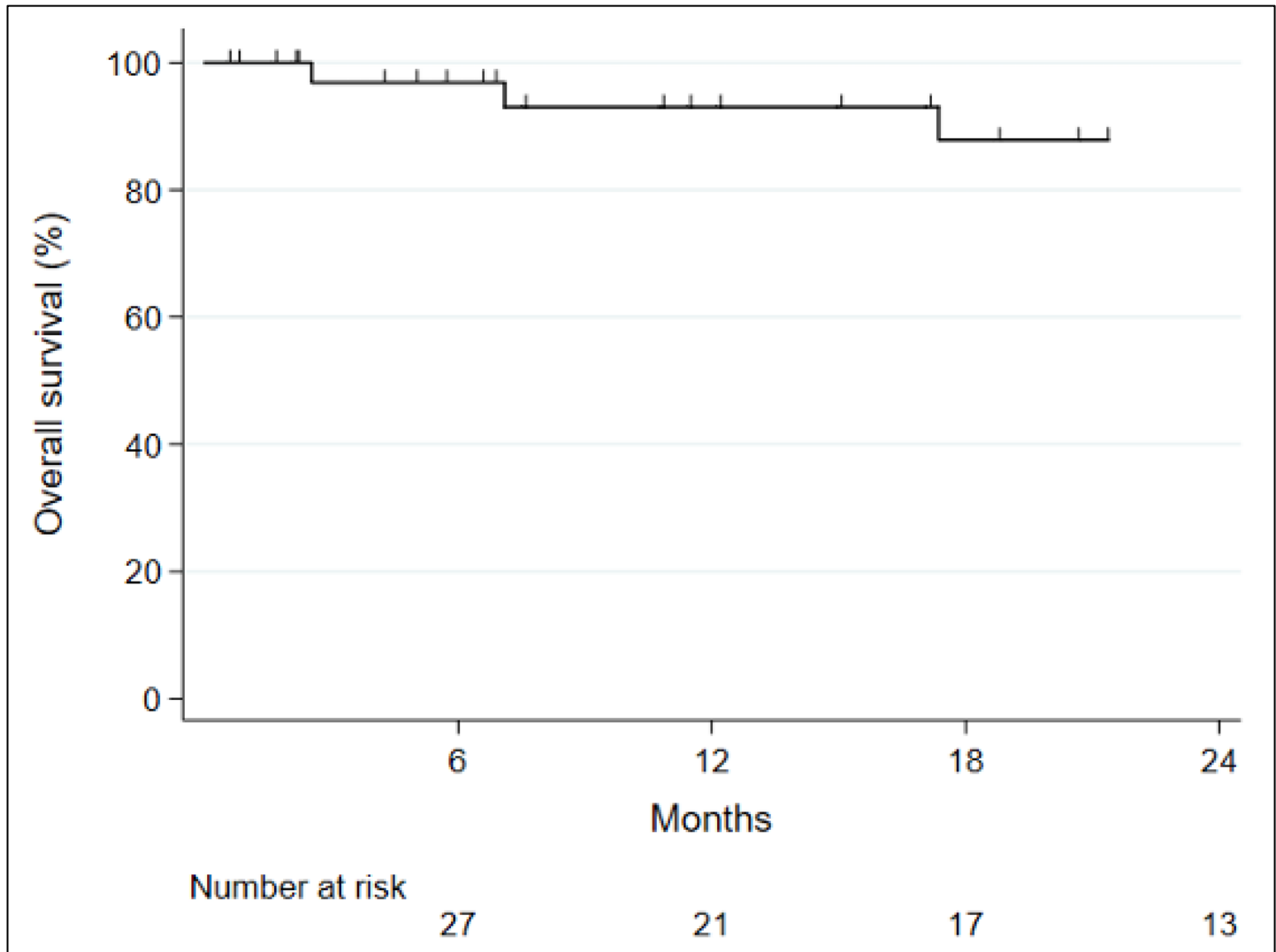
Physician modified fenestrated or branched grafts for endovascular aortic repair is feasible and safe in short term follow up. However, the quality of the available data was low and consisted mainly of retrospective single centre studies with limited follow up, which made it difficult to assess the durability of the method. Overall, worse outcomes were observed in urgent cases and for more extensive aneurysms. Fenestrations were also associated with worse outcomes than branches. Lack of homogeneous reporting across studies highlighted the need for better and more accurate data regarding this technique.



Article  
**Fenestrated Physician-Modified Endografts for Preservation of Main and Accessory Renal Arteries in Juxtarenal Aortic Aneurysms**

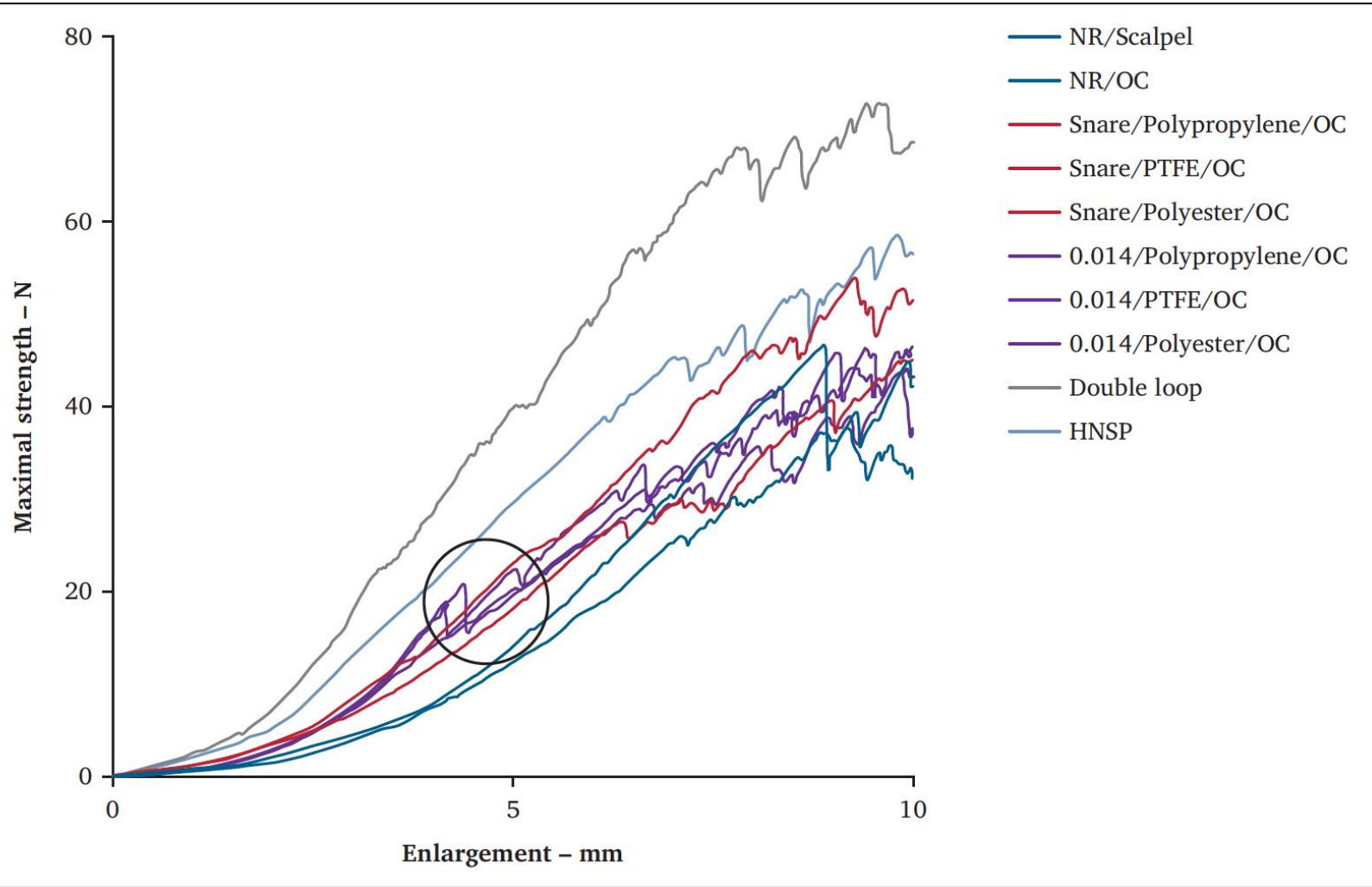
Hon-Lai Chan <sup>†</sup>, Dimitrios D. Papazoglou <sup>\*,†</sup>, Silvan Jungi, Salome Weiss, Daniel Becker, Drosos Kotelis and Vladimir Makaloski

# Follow-up 18 month (1 – 47)



# Mechanical Performance Assessment Graft

Jennifer Canonge <sup>a,b</sup>, Frédéric Heim <sup>a,c</sup>, Nabil Chakfé <sup>a,d</sup>, Raphael Coscas <sup>e,f</sup>



# Discussion

- Learning curve (all events were in the first half)
- Preserving ARA < 4mm should be reconsidered
- Large stent-graft might be difficult to re-sheat

# ....there are unmet needs

- Making it safe in every hand
- Support from the industry
  - recognizing the potential benefit
  - organised promotion
  - using manufacturer kit, tips&tricks sessions, workshops





# Conclusion

- Helpful in urgent/emergency cases, no delay!
- High rate of technical success for larger vessel, limited one for ARA
- Can be used in all anatomies, but it's outside IFU
- The surgeon bears the whole responsibility!

***„What we do is meaningful and  
what we decide to make is important“***

***Robert Downey Jr.  
best supporting role 2024  
„Oppenheimer“***



# Thank you for your attention

