

Innovative Endovascular Stapling Technique Using Endoron Aortoseal in Challenging Infrarenal Aortic Neck

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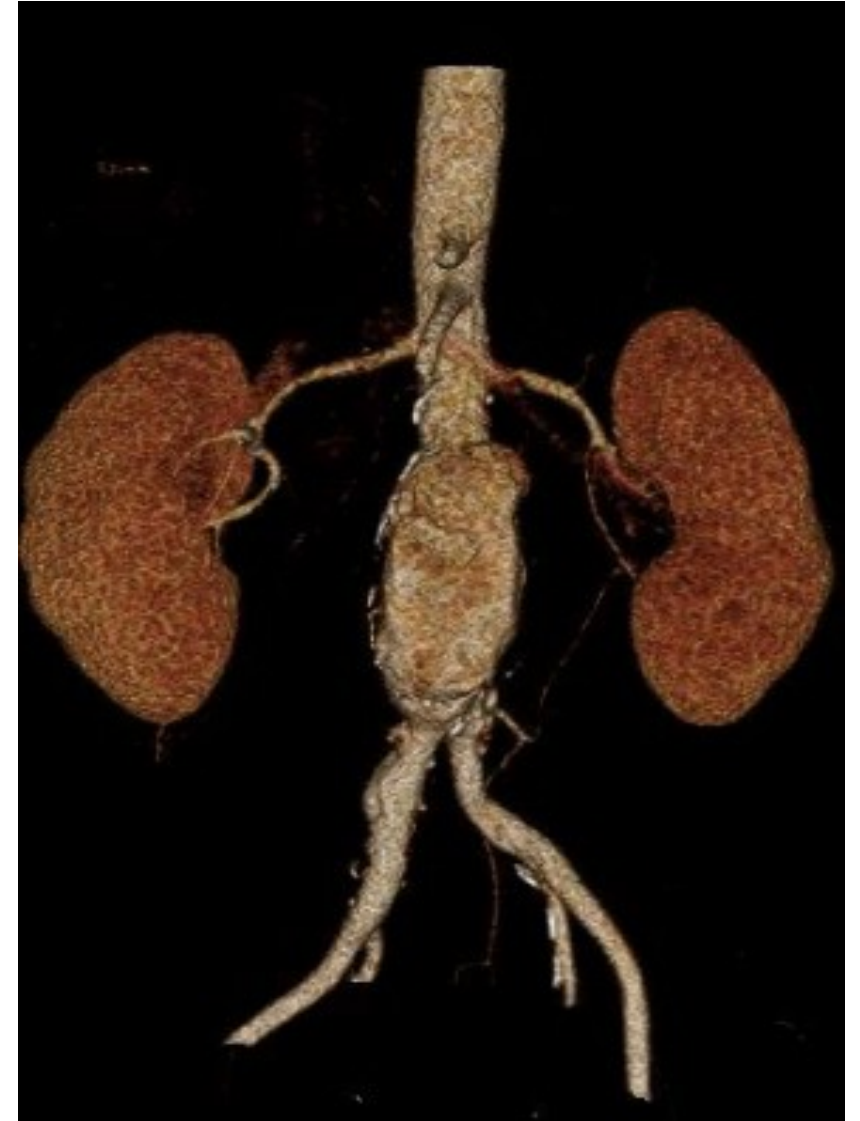


Disclosures

- No relevant disclosures

Patient

- 63 yo male presented with an incidentally discovered infrarenal AAA on screening CT scan for lung cancer.
- **Past Medical History:**
 - Type 2 DM, CAD, COPD
- **Past Surgical History:**
 - None
- **Social History:**
 - Former smoker
- **Meds:**
 - ASA 81, Lipitor 80 mg, lisinopril, Jardiance 25 mg



CTA

- **Max diameter:** 5.9 cm
- **Neck length:** 10.9 mm
- **REIA:** 9.4 cm
- **LEIA:** 9.9 cm
- **Neck angulation:** 25 degrees



Operative planning

- Preoperative NST - reversible moderate inferior and apicolateral wall defects
- Good exercise tolerance (METs 6-7), no anginal symptoms - moderate surgical risk
- After extensive discussion (open vs. endo), patient elected to undergo EVAR

Suboptimal infrarenal neck

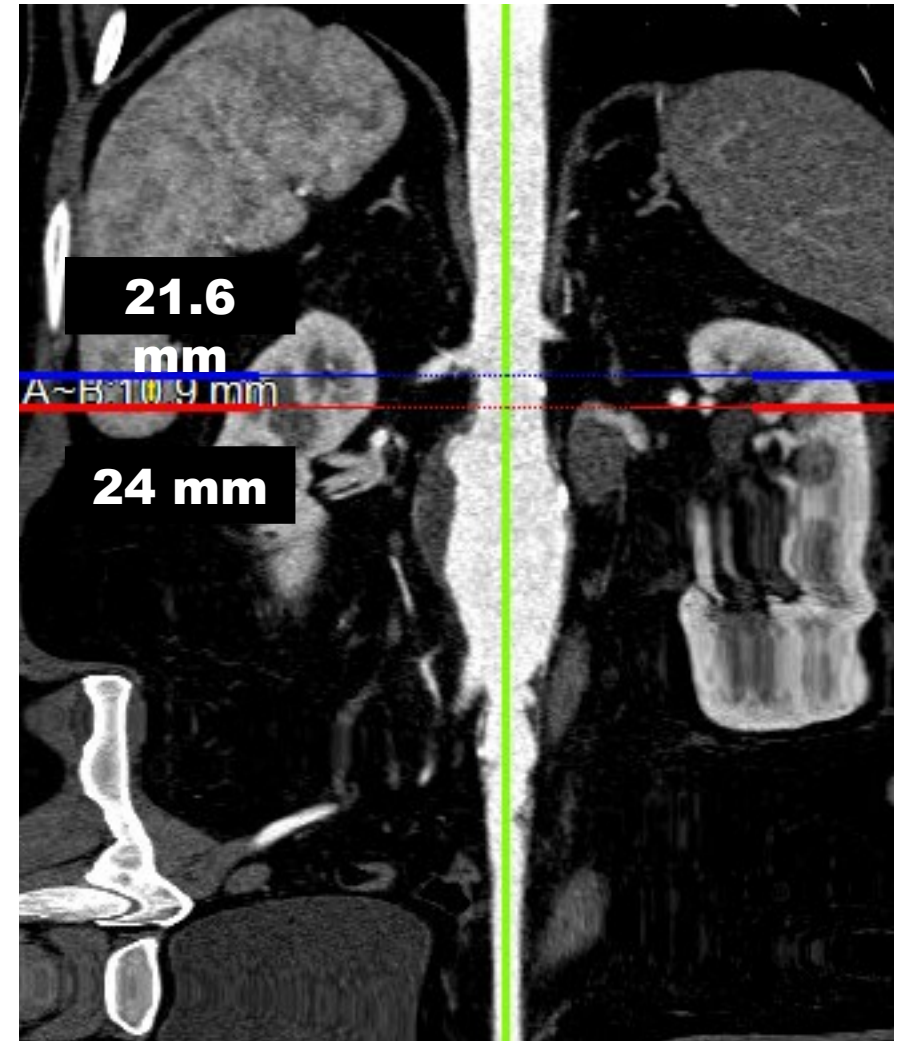
- Short aortic neck - 10.9 mm
- Reverse taper - 21.6 to 24.0 mm
- Moderate mural thrombus burden



EndoSuture aneurysm repair (ESAR)

- **76.9% freedom from reinterventions and 95.6% from rupture at 5 years¹**
- **Superior sac regression (81 vs 48.7%)²**

• **Mitigates adverse effects or hostile neck?**



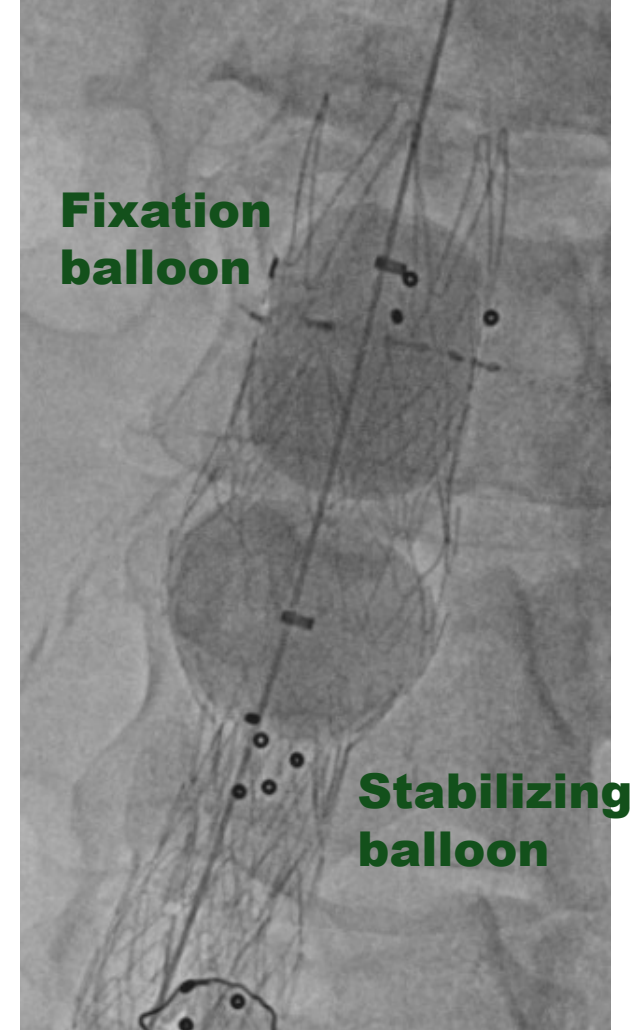
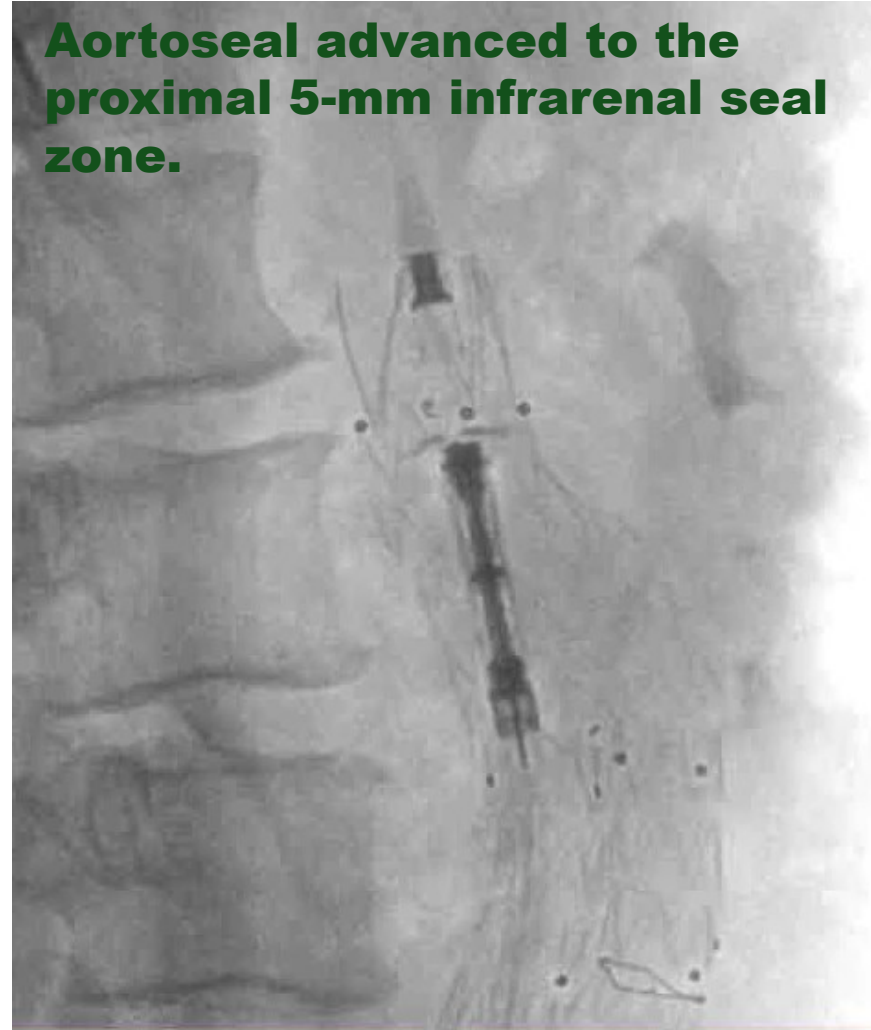
1- Glick AS, et al. Outcomes of endosuture aneurysm repair in patients with short neck abdominal aortic aneurysm from the ANCHOR registry. J Vasc Surg. 2023

2- Muhs BE. Matched cohort comparison of endovascular abdominal aortic aneurysm repair with and without EndoAnchors. J Vasc Surg. 2018

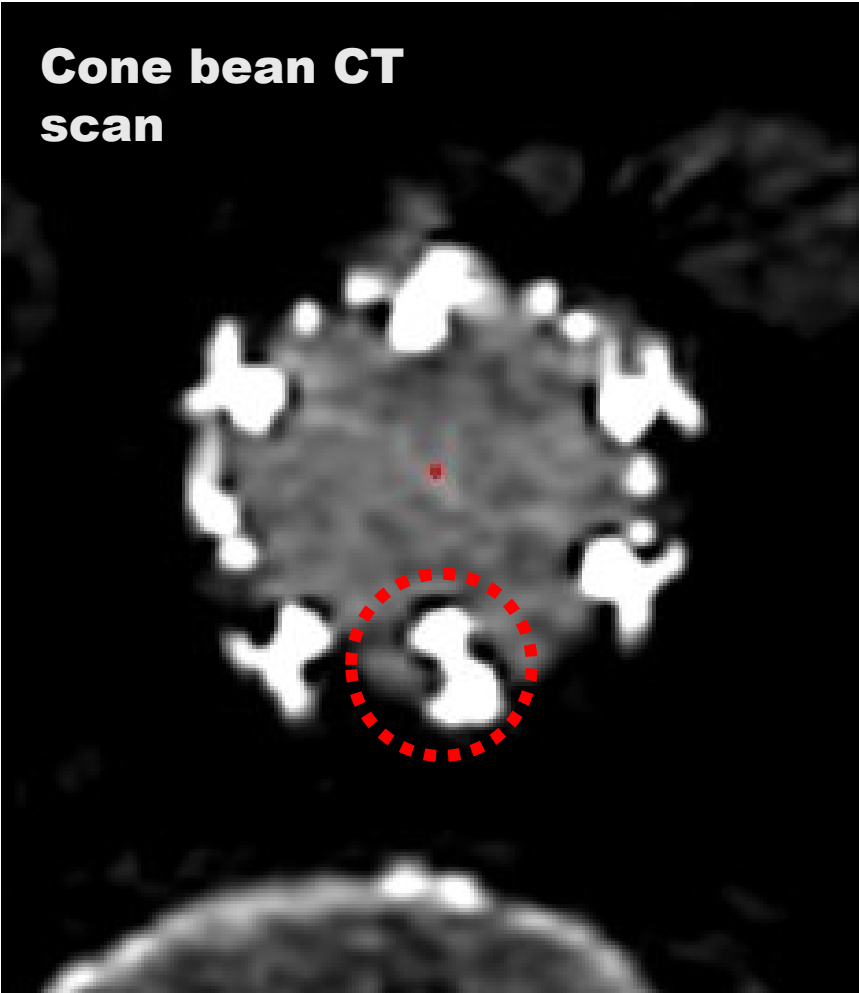
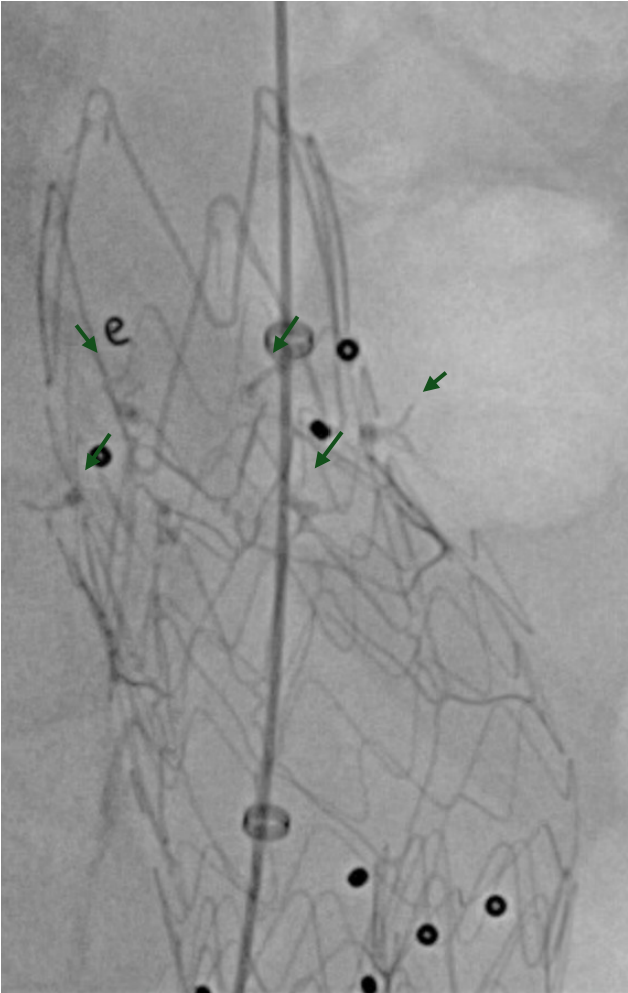
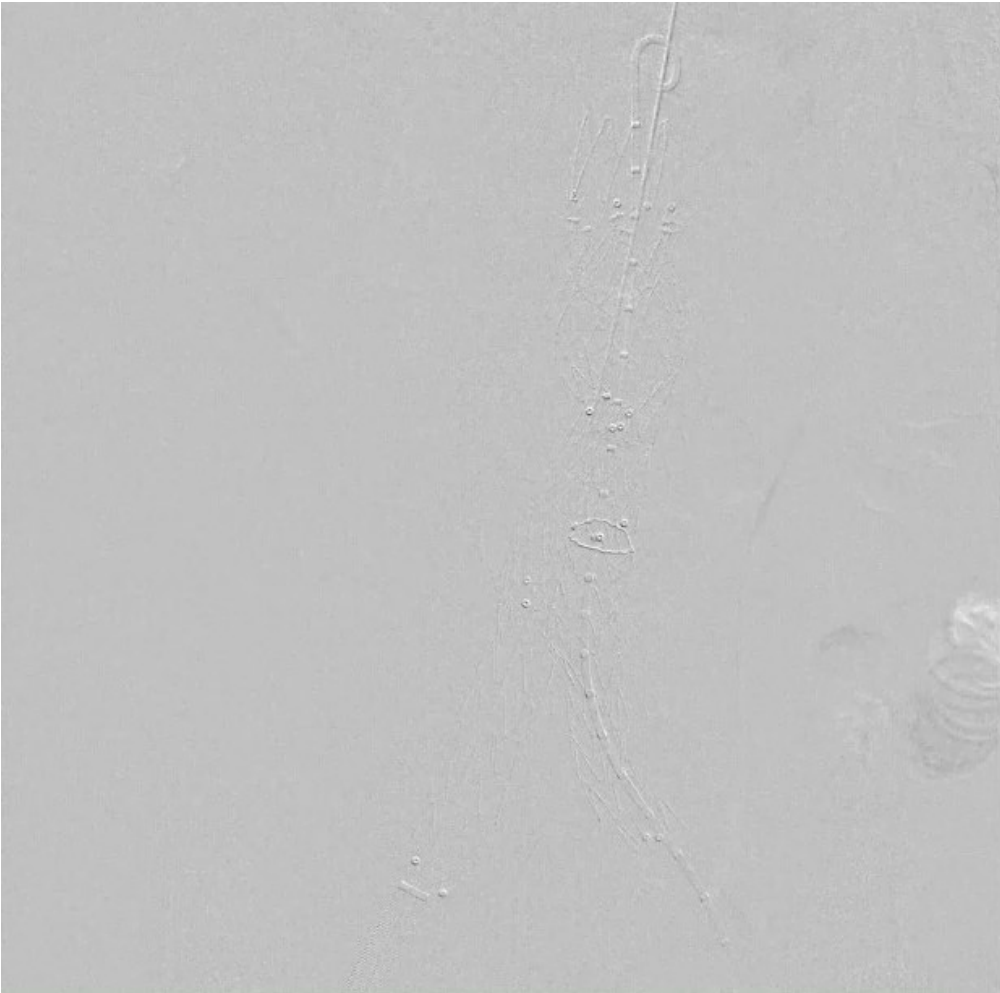
EVAR with endostapling



**28x14x103mm Medtronic
Endurant**

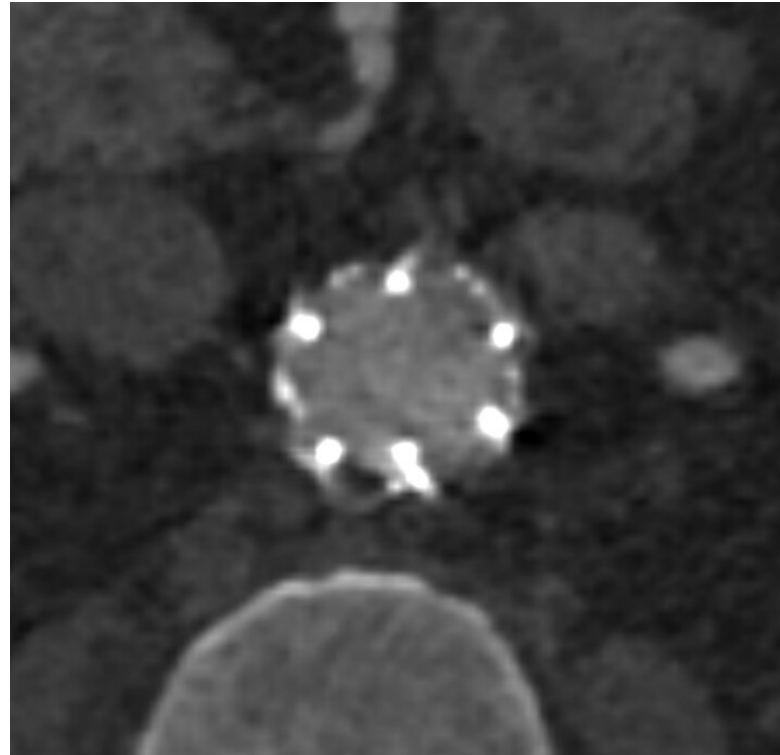


Completion



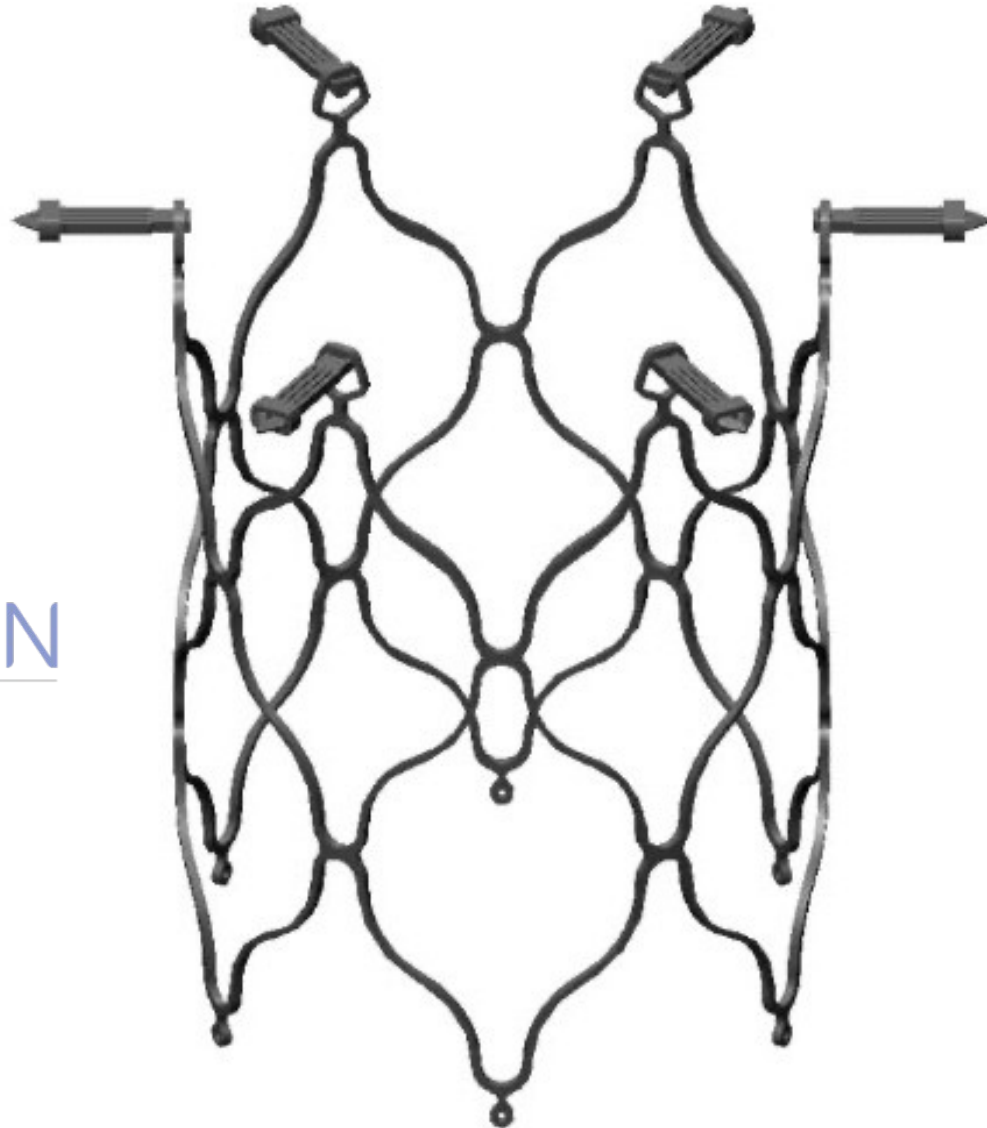
Postoperative course and follow-up

- Patient discharged on POD1 after uneventful hospital course
- Follow-up CTA - 1 year**



No endoleaks, stable AAA sac

Aortoseal's dual fixation mechanism



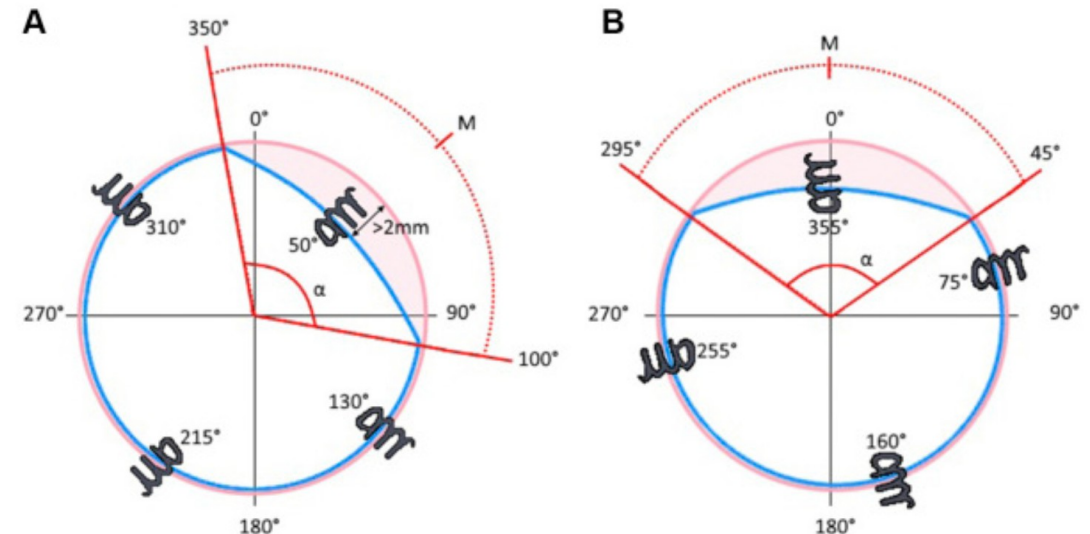
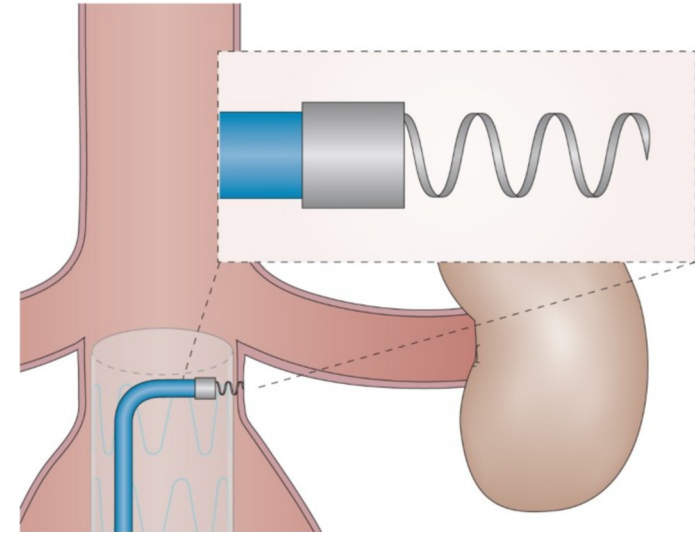
→ **Transmural
fixation**

→ **Enhanced radial
force**

 **ENDORON**
VASCULAR SUTURING

Challenges in Endoanchor deployment

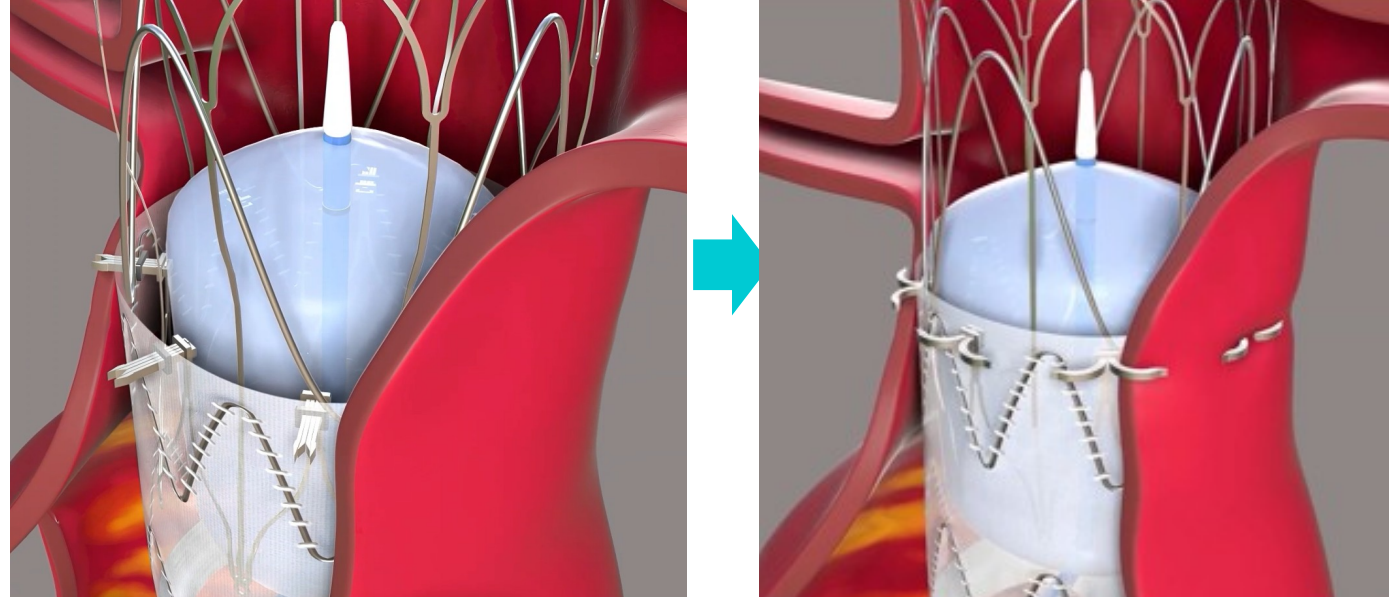
- Sequential individual deployment
- Angulation errors/incomplete penetration - 30% of patients
- Symmetrical distribution not always reproducible
- Embolization risk



Goudekting SR et al. Analysis of the position of EndoAnchor implants in therapeutic use during endovascular aneurysm repair. J Vasc Surg. 2019

Aortoseal's simplified deployment system

- Two orthogonal fluoro views to deploy all endostaples: ↓ radiation and procedure time
- **29.8 minutes** of fluoro time: shorter than the average time of 35.3 minutes reported in ANCHOR registry¹.



1: Arko FR, Stanley GA, Pearce BJ, et al. Endosuture aneurysm repair in patients treated with Endurant II/IIIs in conjunction with Heli-FX EndoAnchor implants for short-neck abdominal aortic aneurysm. J Vasc Surg. 2019;70:732–740.

Aortoseal IFU

- Neck length ≥ 10 mm
- Absence of significant aortic wall calcification, mural thrombus
- Neck angulation $< 75^\circ$
- **Technical success:** deployment of at least four out of six endostaples

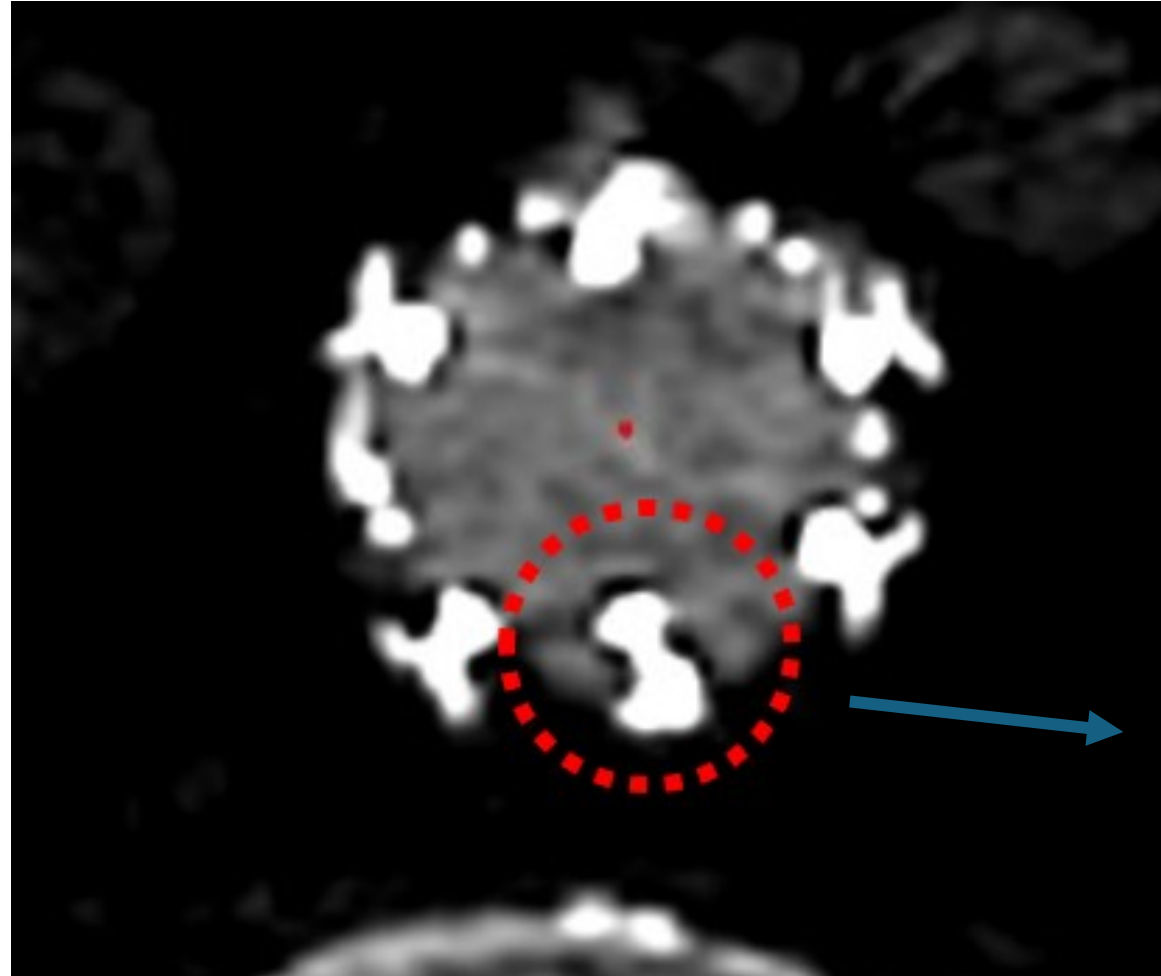
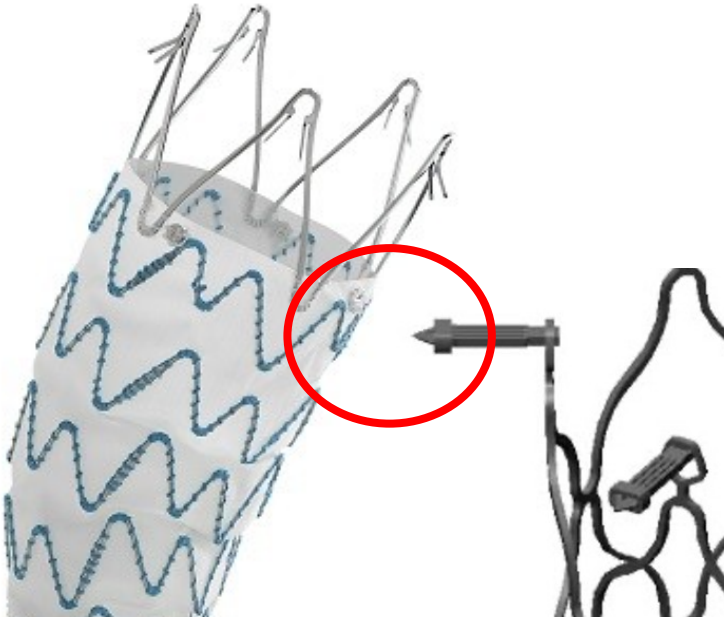
Two sizes available:

- *Small*
- 19-22 mm necks
- *Large*
- 23-29 mm necks

Endograft-agnostic



Limitation: interaction with stent struts



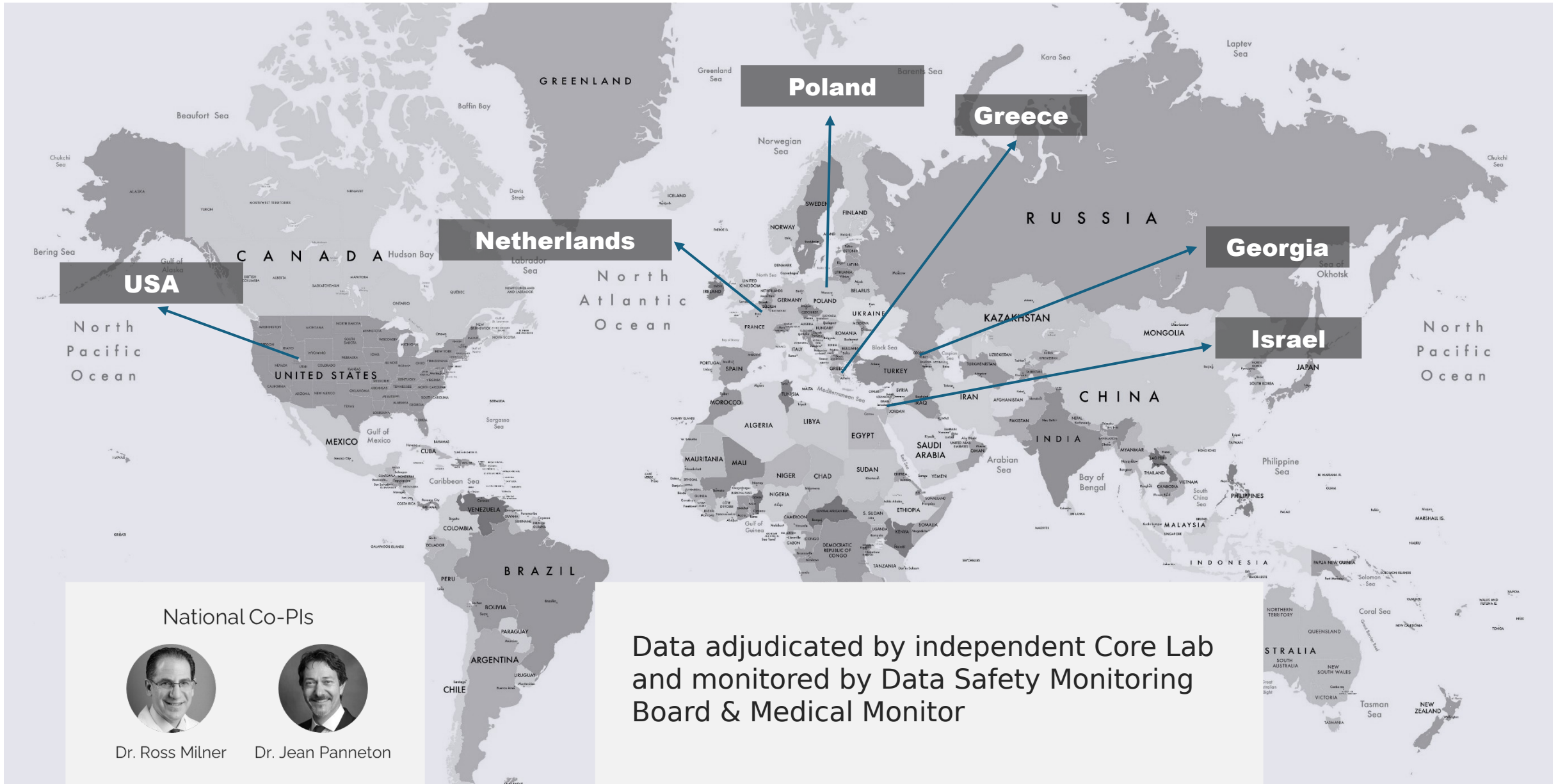
**Maldeployed
staple**

Conclusions

- Aortoseal offers a safe, low-complexity adjunctive strategy in ESAR
- This case supports the feasibility and potential of Aortoseal to improve outcomes in ESAR
- Awaiting long term results from the **SEAL trial**



SEAL International Early Feasibility Study



National Co-PIs



Dr. Ross Milner



Dr. Jean Panneton

Data adjudicated by independent Core Lab and monitored by Data Safety Monitoring Board & Medical Monitor

Thank you!

