# ENDOANCHORS SHOULD BE ROUTINELY USED IN EVAR: FOR THE MOTION

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#### Presenter Disclosure

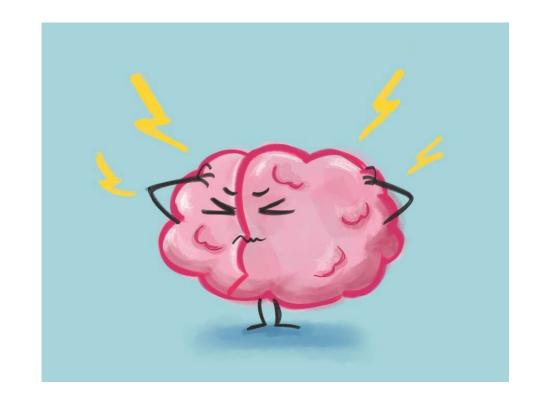
**Presenter:** Rikesh Parekh

• I have no current relationships with commercial entities



#### 2 scenarios

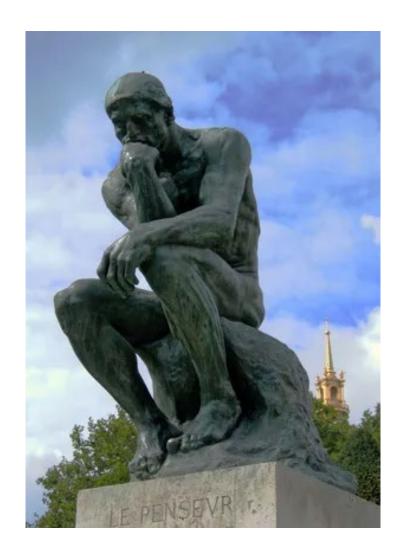
Scenario 1: Midnight on call and you get called about a 9 cm ruptured AAA with previous EVAR, normal neck anatomy, lost to surveillance. You call the OR team and book the case as an explant with supraceliac clamp, and prepare for a long night ahead of you.



Scenario 2: You're sipping coffee/tea/beverage of your choice in afternoon clinic. and you see a patient who you put in an EVAR with EndoAnchors in 5 years ago, who comes by with a thank you card for you as their aneurysm sac has shrunk from 6 cm to 3 cm



• Which do you prefer???

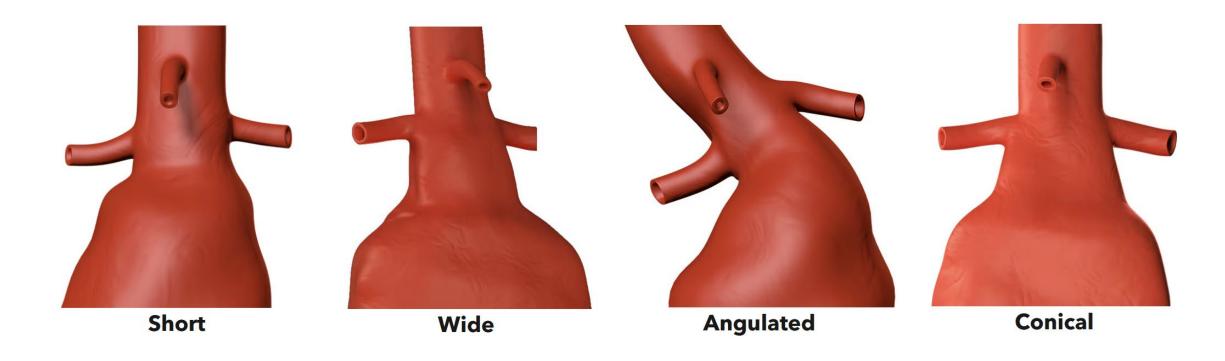


#### • What are EndoAnchors?





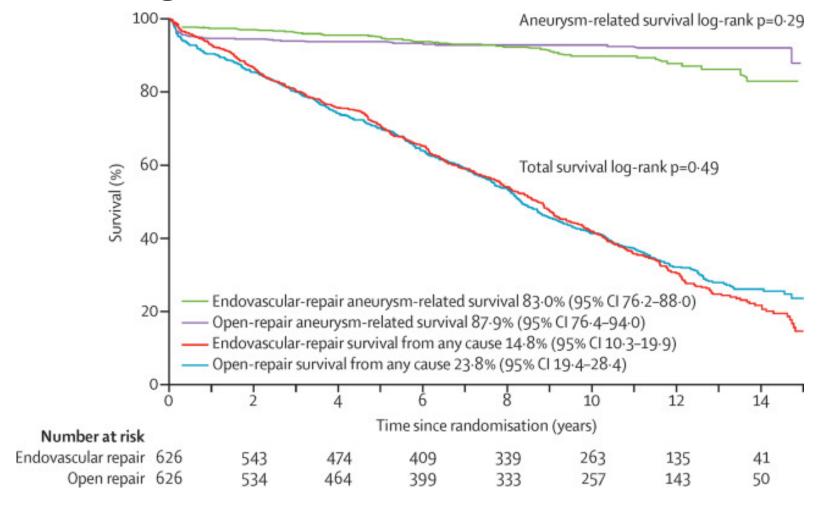
• One option for endovascular management of "hostile" necks:



## Tradeoff of endovascular vs open surgery is often durability for upfront risk

- Results of the EVAR-1, DREAM, and OVER trials:
  - EVAR-1: Early mortality benefit of EVAR is lost at 2 years; aneurysm related rupture (6)
    - 4.9% difference in aneurysm related survival over 15 years favoring open
    - Increased malignancy related deaths after 8 years ?radiation related
  - DREAM: Early mortality benefit of EVAR lost at 3 years; No benefit at 12 years
  - OVER: Similar results for overall mortality at 9 years
- How can we maintain the early mortality benefit seen with EVAR in the long term?

## Can we maintain the early mortality benefit seen with EVAR in the long term?



### **Main Points**

- Promote Sac Regression
- Reduce Incidence of Type 1A Endoleaks
- Less Surveillance, Less Radiation, Less Malignancy
- Cost, Difficulty and Time Considerations

#### What does the data show for EndoAnchors?

#### ANCHOR

- Heli-FX EndoAnchor System Global Registry
- Started in 2012, currently 1090 patients enrolled, prospective database
- 5 year data, short necks:
  - Freedom from aneurysm related mortality  $90.1\% \pm 4.5\%$
  - Freedom from any endovascular or surgical secondary procedure  $76.9 \pm 7.2\%$
  - Freedom from rupture  $95.6 \pm 3.2\%$  (Arko et al, JVS, 2023)

- What does the data show for EndoAnchors?
- ANCHOR (cont'd)
  - 68.2% patients had sac regression
  - 13.2% patients had stable sacs
  - 18.2% increased sac diameter
  - (Arko et al, JVS 2023)

- Sac regression is an important predictor of aneurysm related mortality after EVAR
  - VQI Data: 14,817 patients had a 1-year imaging study post EVAR.
    40% of sacs regressed, 35% remained stable, and 25% expanded
    - In the propensity-matched cohort, patients with **failure to regress experienced lower long-term survival** (77% at 10 years compared with 82% for patients with sac regression; P = .01) (O'Donnell et al., JVS 2019)

#### Sac regression is an important predictor of aneurysm related mortality after EVAR

- For patients with sac regression at one year (46% of 949 patients), five year all-cause mortality rate was 20%, compared with 28% for stable sac (p=0.007) and 37% for the sac expansion (p=0.010) cohorts (ENGAGE Global Registry) (Li et al., European Journal of Vascular and Endovascular Surgery, 2024)
- No rupture, surgical, or endovascular conversion was reported in the sac regression group of another series of 371 patients (Retrospective Study) (Houbballah et al., JVS, 2010)

- EndoAnchors can reduce the rate of Type 1A Endoleaks when used primarily
  - Pooled data from the EVAR-1, DREAM, OVER, and ACE trials report an overall Type 1A Endoleak rate of 4.3% (Powell et al., British Journal of Surgery, 2017)
  - ANCHOR: 4 year data shows 3.4% Type 1A Endoleak rate with EndoAnchors, challenging anatomy (Jordan WD et al, JVS 2014)
  - Systematic Review, Meta Analysis by Qamhawi et al: 3.5% with EndoAnchors (455 patients) (15.4 months) (Qamhawi et al, European Journal of Vascular and Endovascular Surgery, 2020)
  - Systematic Review, Meta Analysis by Karaolanis et al: 6.2% with EndoAnchors (968 patients) (6 months follow-up) (Karaolanis et al, Vascular, 2020)

#### Reduced risk of rupture with sac shrinkage, can decrease surveillance intervals

- 540 patients, 5.3 year median follow-up
- No ruptures in sac regression group suggests depressurization
- Only 1 reintervention in <40 mm; 6 of 8 patients that re-expanded to >45 mm did so after at least 3 years
- 3 year surveillance interval is safe once <40 mm diameter (Andraska et al, JVS 2022)</li>
- This is a way to reduce the potential radiation related deaths seen in long term follow-up in patients who may otherwise undergo more frequent CT scans

- Cost of EndoAnchors: \$4950
- Additional Case Time: 17 minutes average
- Difficulty Level: Low

- Custom Fenestrated / Branch Device Cost: >\$40,000 (plus additional stents, ICU stay)
- Fenestrated / Branch Device Case Time: Hours
- Open repair of rupture: Average cost of \$33,709 (Fernando et al, JVS 2020)
- Difficulty Level: High

#### Conclusion:

EndoAnchors can reduce the incidence of Type 1A endoleaks, promote aortic sac regression, and are a cost effective straightforward way to improve long term endovascular outcomes with minimal risk and therefore should be used routinely in EVAR

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Thank you for your attention

#### Rebuttal

- Counterarguments include increased radiation, cost, procedural time, complications (maldeployment of anchors), difficult to explant
- All of these are minimal long term compared to the management of late endoleak/aneurysm sac expansion/rupture
- Randomized control trials with long term follow-up are required

