EndoAnchors can facilitate and maintain successful standard EVAR for AAAs with challenging proximal necks

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Disclosure

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I have the following potential conflicts of interest to report:

- ☒ Consulting
- ☐ Employment in industry
- ☐ Stockholder of a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)

- ☐ I do not have any potential conflict of interest

Endoanchors for patients without suitable anatomy

- Are we applying EndoAnchors to facilitate and maintain successful standard EVAR for AAAs with challenging proximal necks?

YES

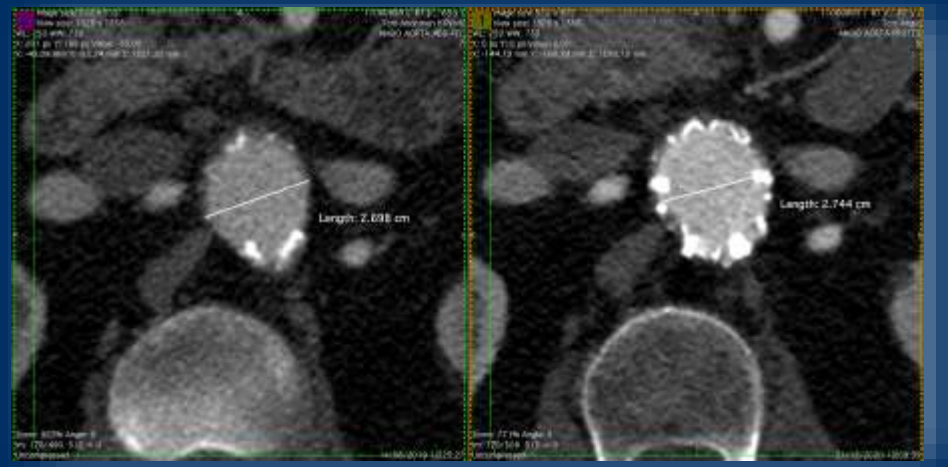
- Are we creating a neck with endoanchors?

Sometimes,

(Dilemma between proximal neck versus sealing zone)

Four Subjects

- Why ESAR?
- In whom?
- Preliminary Anatomical Study
- Importance of Technical Details



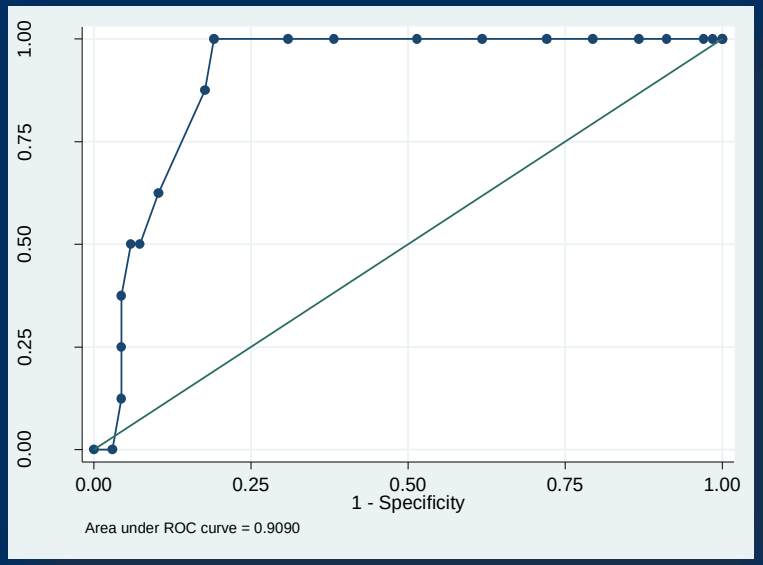
Preserve the proximal neck anatomy

Shrinkage of the aneurysmal sac

Why ESAR (Endosuture Aneurysm Repair)?

- Standard EVAR is not enough for patients with
  - Unsuitable proximal neck anatomy
  - Proximal neck within the IFU but with high risk of late endoleaks (≥30mm diameter)
  - Spanos et al: 9% incidence of proximal migration after infrarenal EVAR over a 3-year period, 22% were accompanied by a type Ia endoleak.

- FEVAR is to aggressive for patients with infrarenal AAA
  - Mortality <5%
  - Morbidity ≈15% (associated to renal complications, like insufficiency, occlusion, stenosis, kinking, redo)

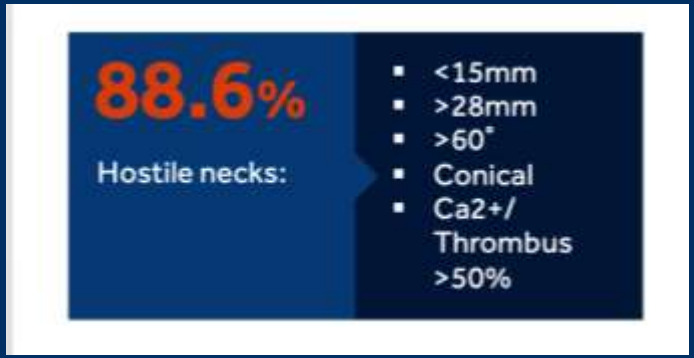


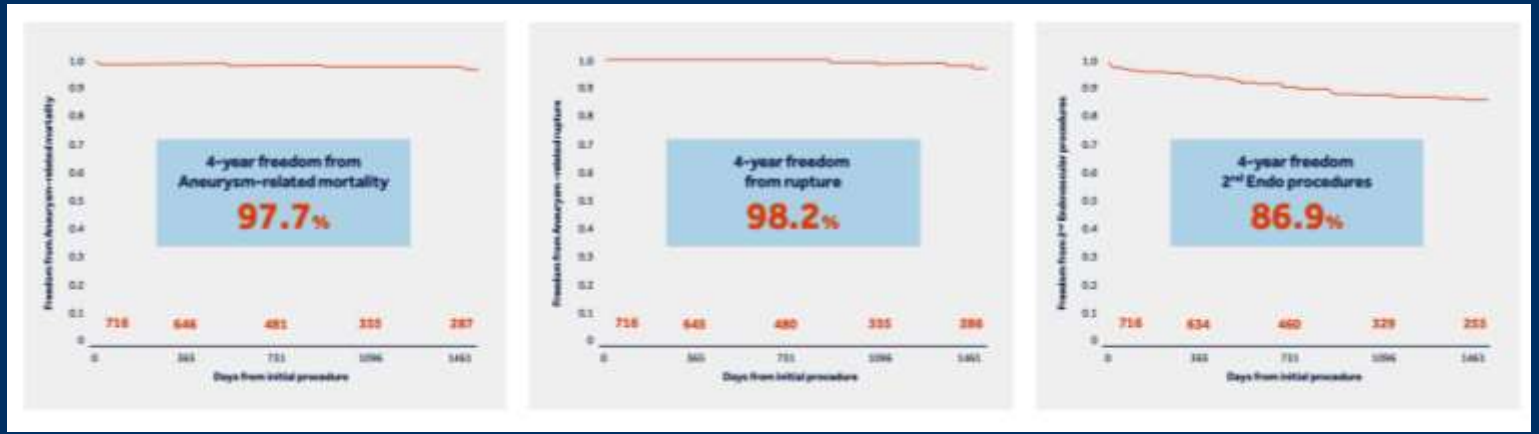
- Per ROC curve analysis, a diameter greater than or equal to 30mm at D5 (1cm below the LRA) was identified as the best cutoff point to the risk of late type IA endoleak (sensitivity 87.5% and a specificity of 82%, LR +5 and LR-0.15). Ferreira LM el al. RSAC 2018

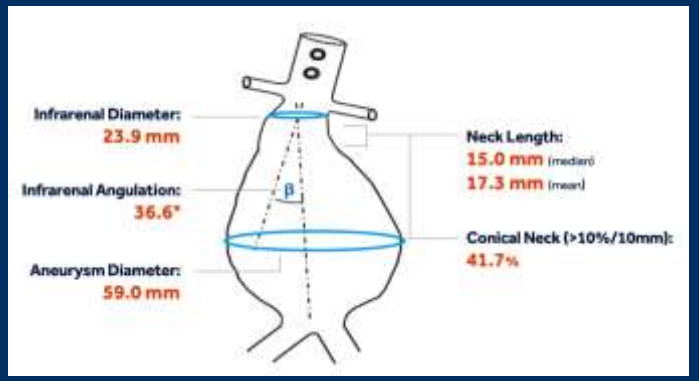
Evidence demonstrating safety and efficacy

≈50 papers

ANCHOR Registry: Primary Arm
(N=716 pts)







88.6%

Hostile necks:

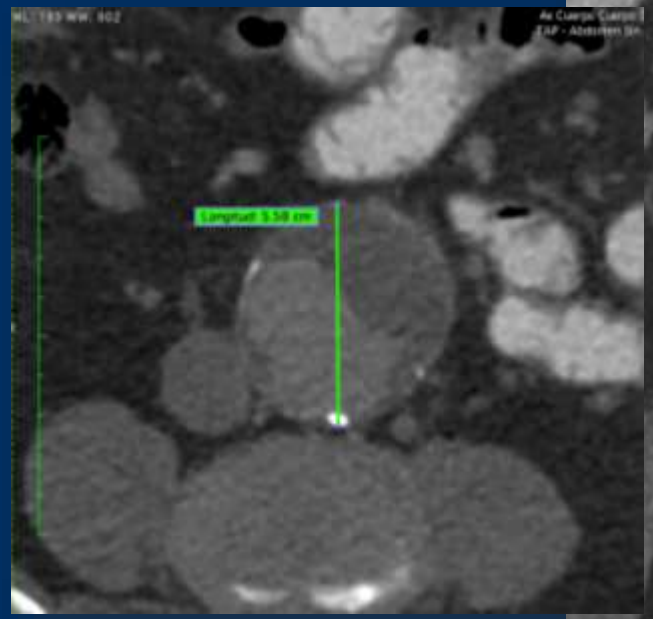
- No migration through 4 years
- Type IA endoleak at 4 years: **3.4%** (4/117)
- Through 4 years, freedom from 2nd Endo Proc to treat Type IA's: **97.7%**

In Whom?

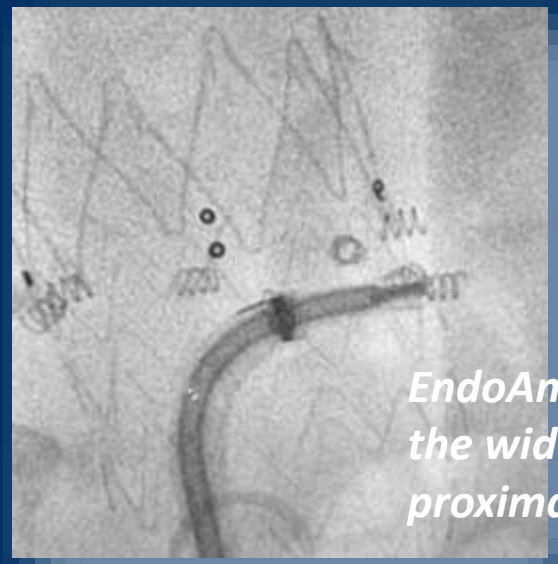
- Patients with
  - *Wide and Conical Necks*
    - Apposition of the endograft for ≥10mm
  - *Enlarging necks during FU*
    - PN more than 32mm diameter or associated to sac enlargement due to type II endoleaks
  - *Patients with high risk of endoleak due to clinical factors*
    - Anticoagulation therapy, who will have a difficult follow up, ”fragile” people with high risk to be re-intervened or followed up or “young” patients

Wide and long Neck

- 65 y/o male. PMH: Stable CAD and HIV+ with enlarging AAA



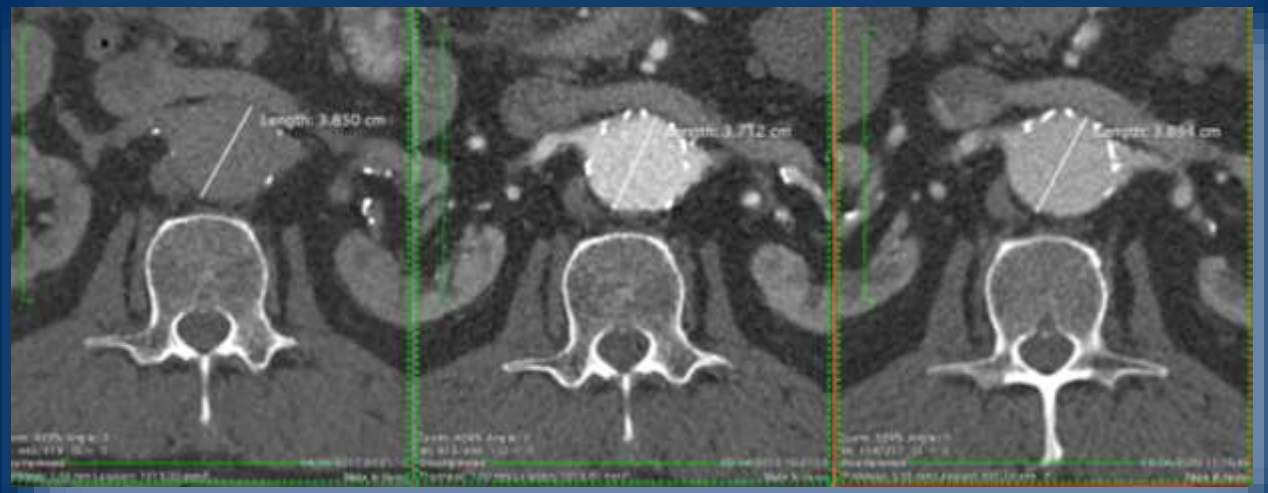
Endograft deployment

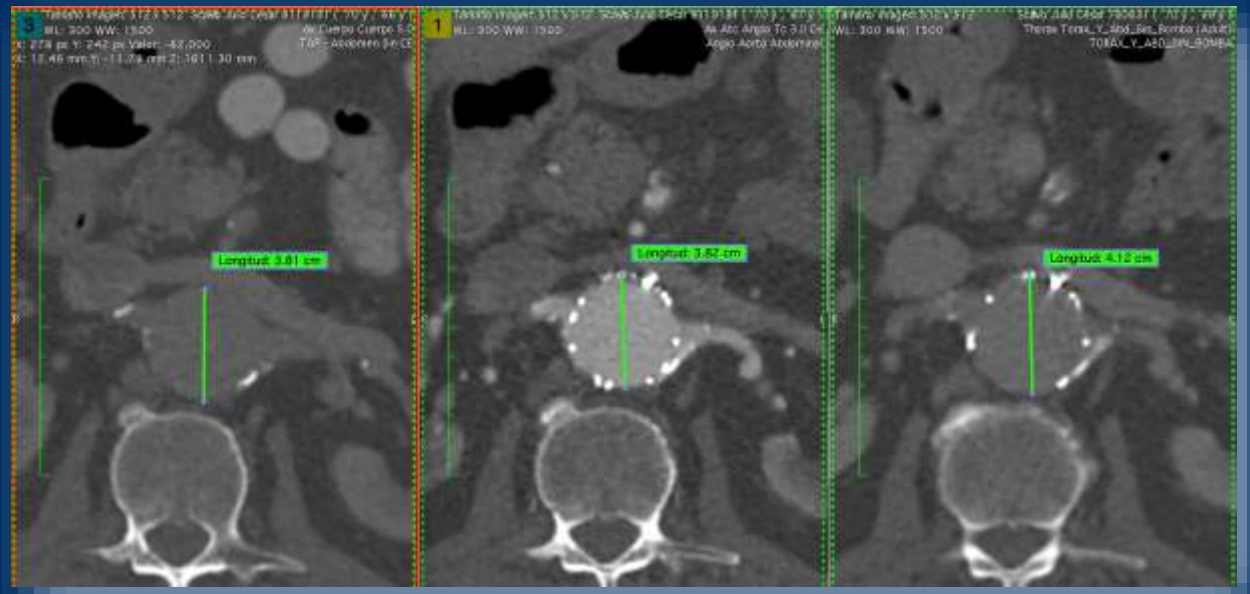


EndoAnchors at the wide proximal neck

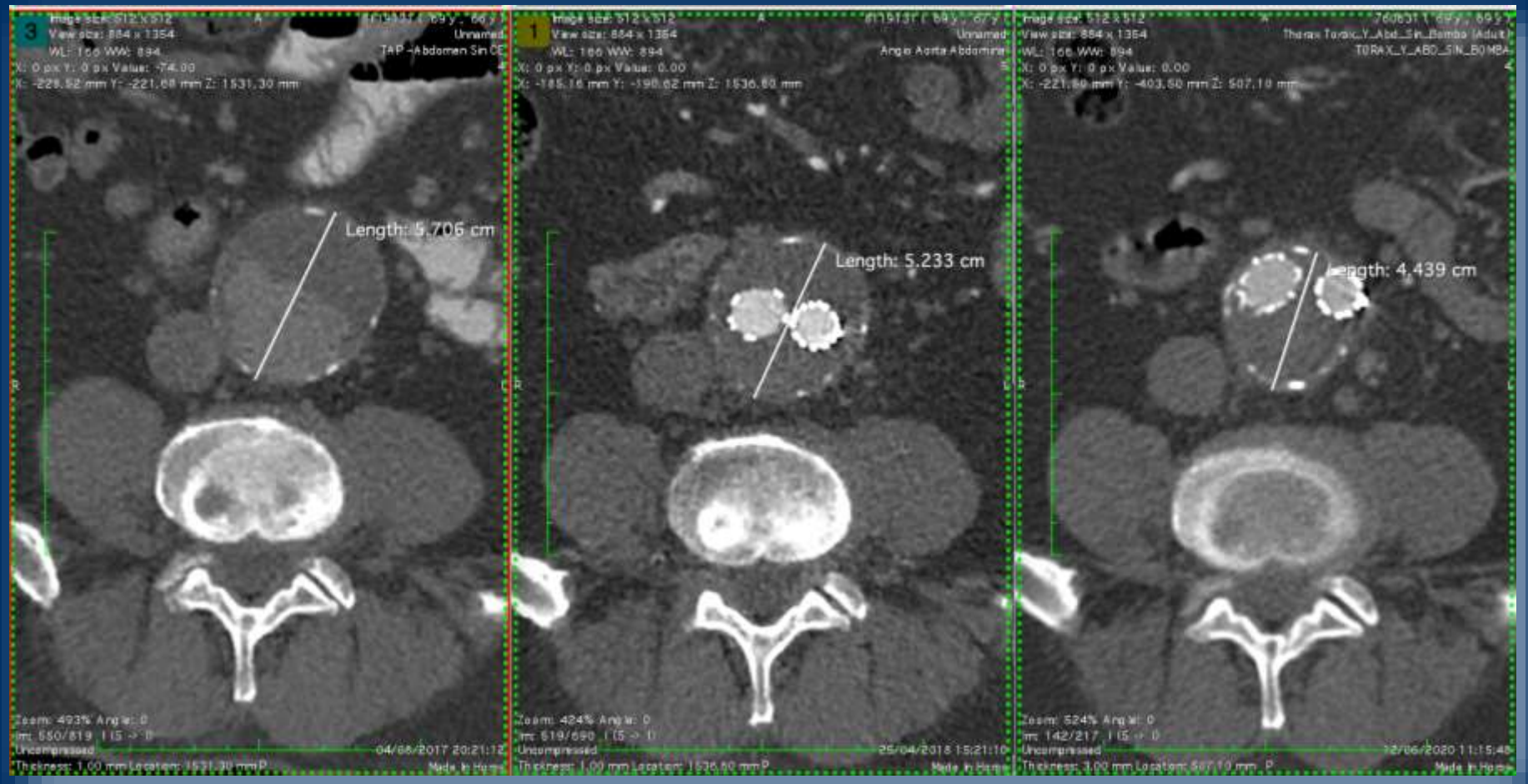
Completion Angiogram

Mild dilatation of the pararenal aorta and the proximal infrarenal neck without a proximal endoleak after 3 years



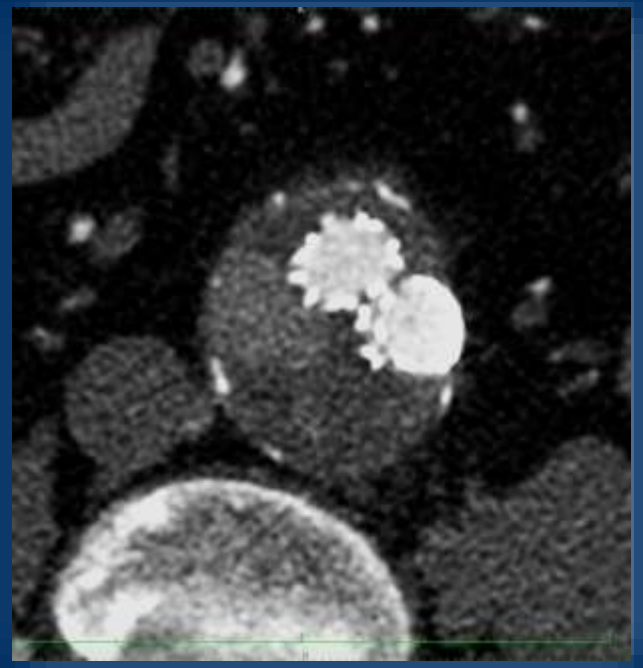


Shrinkage of the aneurysmal sac

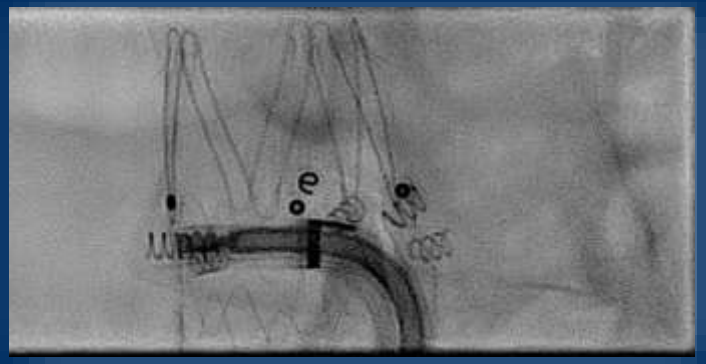


June 2017 ***April 2018*** ***June 2020***

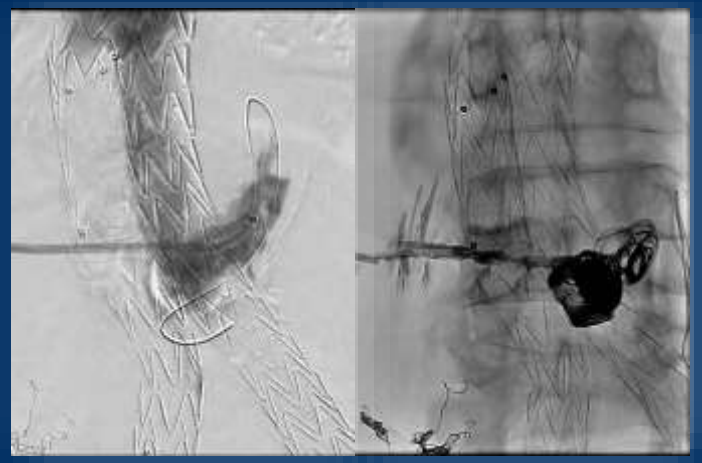
Enlargement of the proximal neck with a type II endoleak and ***enlargement of the sac >10mm***



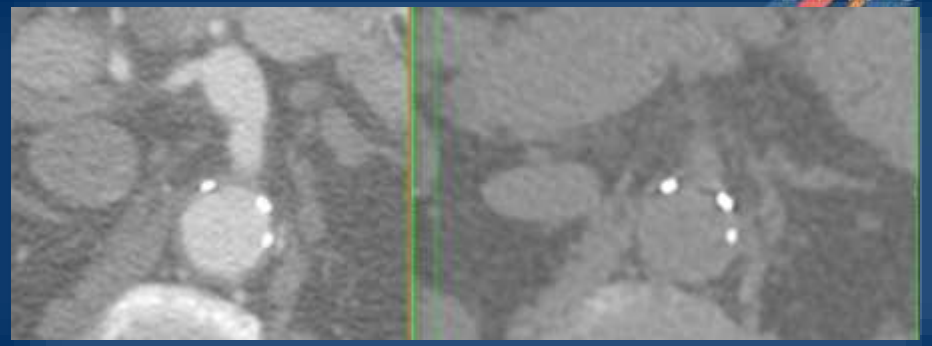
Type II Endoleak



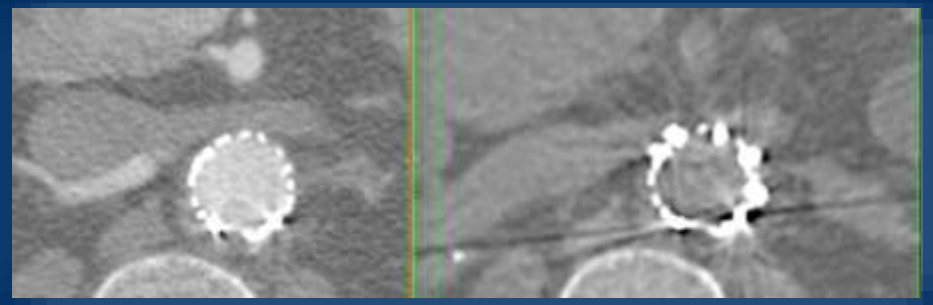
EndoAnchors at the proximal neck



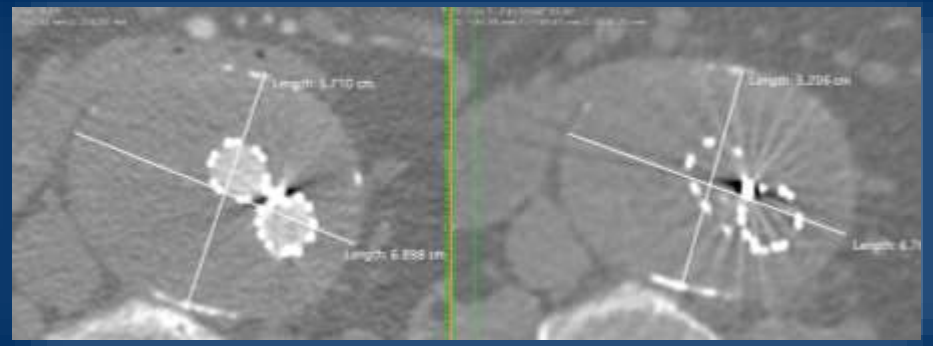
Embolization of the TIIEL w/coils y Onix®



No migration



No enlargement of the neck



Shrinkage of the sac

Open Surgical Conversion due to endotension

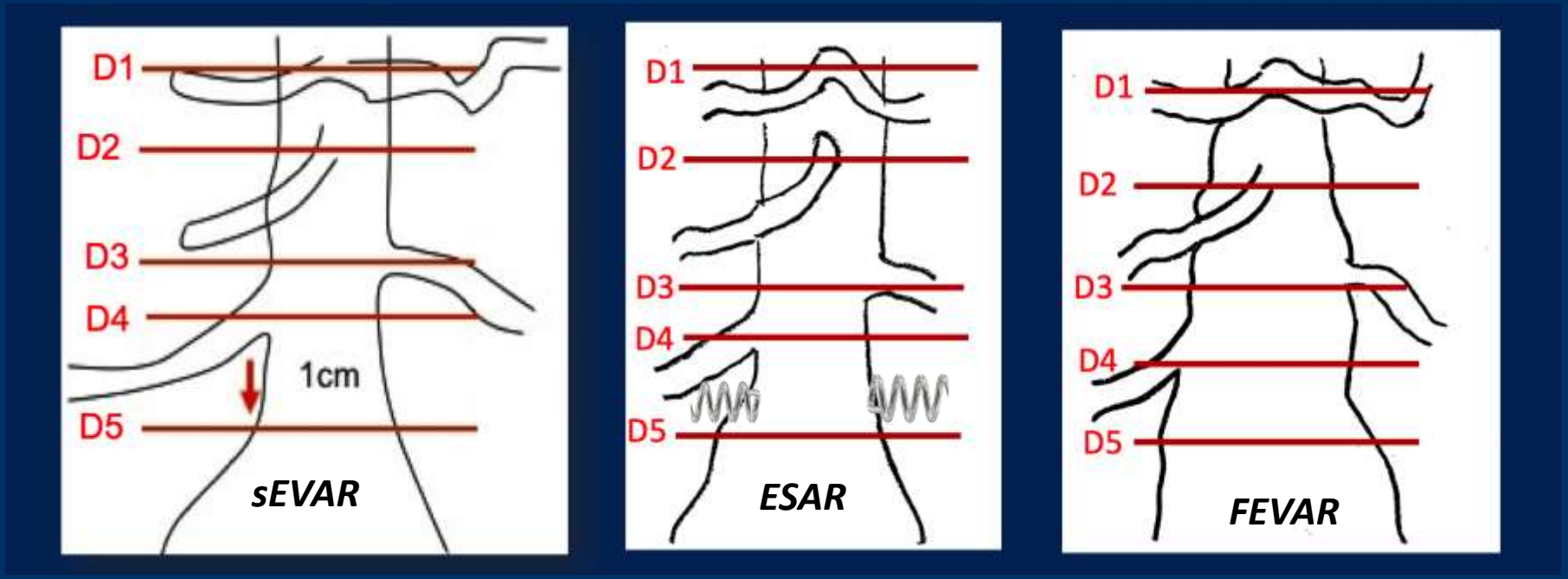
- 1st STEP
  - R retroperitoneal approach
  - Banding of the CIA

Open Surgical Conversion

- 2nd Step
  - L retroperitoneal mini-laparotomy
  - sacotomy,
  - Ligation of the IMA, upper lumbar arteries and oversew of the sac wall

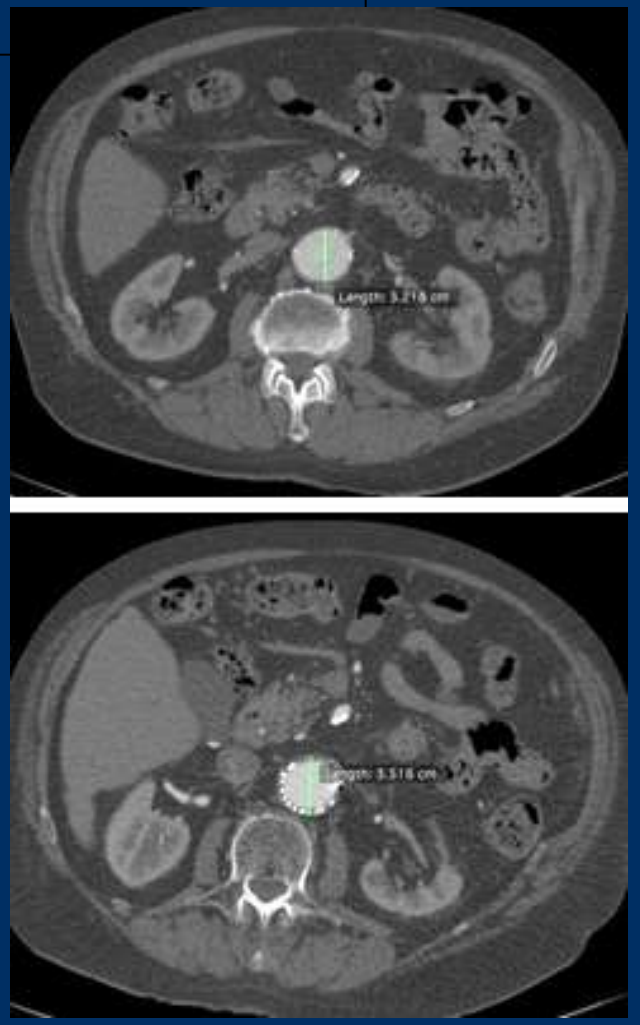
Preliminary Anatomical PN Analysis

- The aortic diameters were measured, at the level of the celiac trunk (D1), superior mesenteric artery (D2), renal arteries (D3 and D4), 1 cm below the lowest renal artery (D5), maximal aneurysmal sac (D6).
- Preoperative and last follow-up aortic diameters were compared by paired t-test.



Preliminary Anatomical Analysis of the Yuxtarenal aorta

- Yuxta-visceral aortic dilatation was universal in the three groups from D1 to D4.
- At the level of D5 (1cm below LRA), while in the EVAR group the aorta underwent a statistically significant growth [25.18 ± 5.55mm vs 27.45 ± 6.64 mm (p = .01)], in the ESAR group the aortic neck remained stable [30.91 ± 8.53 vs 32.27 ± 10.46 mm (p = .16)], and in the FEVAR group, D5 increased the diamenter from 32.22 ± 7 , 51 mm (p = .08), again without significancy.



Technical Details

- The only predictor on multivariate analysis for two or more EndoAnchors with inadequate aortic wall penetration was being an occasional user.

Predictors of inadequate EndoAnchors aortic wall penetration for the Endosutured therapy in hostile neck patients

Abstract

J Cardiovasc Surg (Torino). 2020 Dec;61(6):738-744.

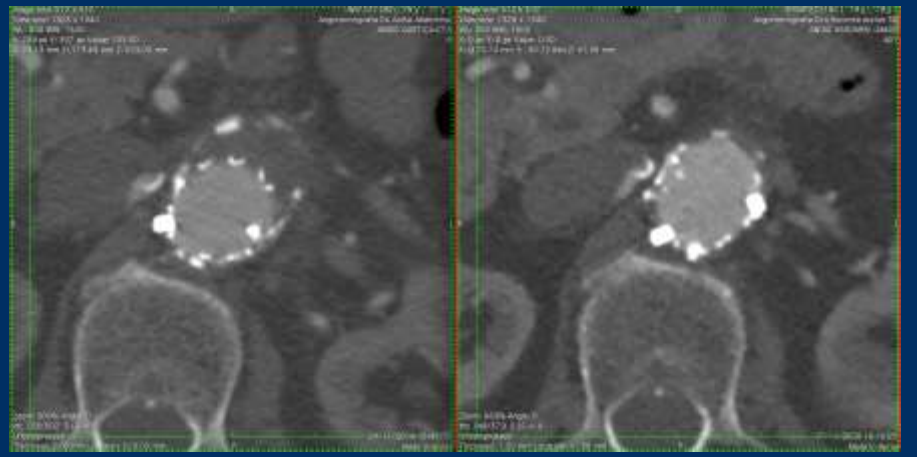
In this subcohort of ANCHOR patients, almost 30% of the EndoAnchor implants had maldeployment

Analysis of the position of EndoAnchor implants in therapeutic use during endovascular aneurysm repair

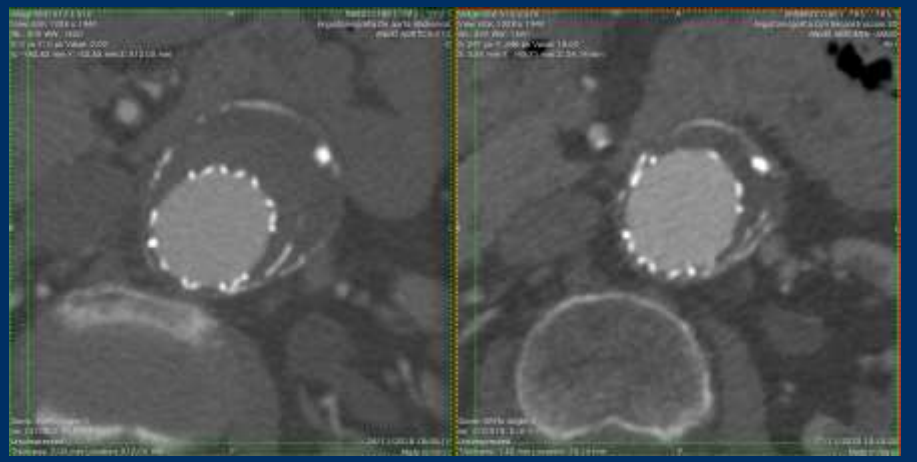
J Vasc Surg 2019;69:1726-35

Conclusion – Endoanchors

- Our mid-term experience suggests that EAs can stabilize high-risk seal zones, with significant sac regression.
- ESAR has shown low rates of migration and type I endoleak, probably reflecting the absence of significant dilatation of the yuxtarenal aorta
- However, EA use in hostile neck anatomy should not be considered an easy approach. Maldeployment can be prevented by careful preoperative planning and measured intraoperative deployment.



Proximal Neck (D5)



Sac shrinkage