


Prophylactic Endoanchors In TEVAR For Complex Anatomy Decrease Endoleaks And Reintervention Rates: Indications And Technical Tips For Their Use

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Disclosures

Consultant: Endospa, Getinge, Medtronic Inc, Penumbra, Terumo Aortic, Philips, WL Gore
 Speakers' Bureau: Medtronic Inc., Penumbra, Terumo Aortic, WL Gore
 Advisory Board: Endoron, Endospa, Medtronic Inc., Philips

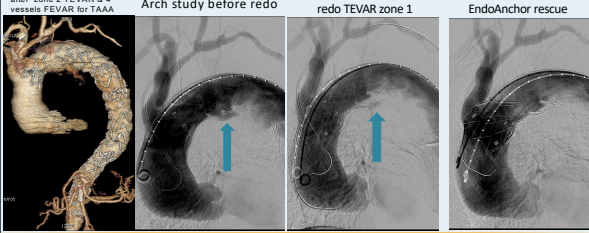


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Therapeutic EndoAnchors to treat type I Endoleak in TEVAR

Proximal type I endoleak 1yr after zone 2 TEVAR & 4 vessels FEVAR for TAAA



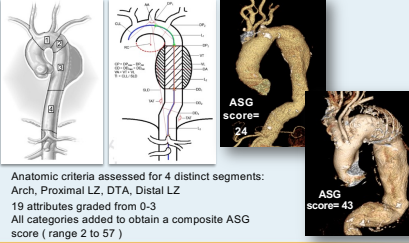
Arch study before redo Persistent endoleak after redo TEVAR zone 1 Resolved endoleak after EndoAnchor rescue

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Indications for prophylactic EndoAnchors

ANATOMIC SEVERITY GRADING SCORE

Anatomic severity grading score for primary descending thoracic aortas predicts postoperative difficulty and aortic-related reinterventions after thoracic endovascular aortic repair



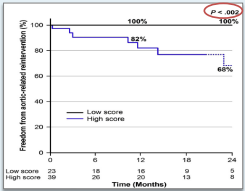
- Anatomic criteria assessed for 4 distinct segments: Arch, Proximal LZ, DTA, Distal LZ
- 19 attributes graded from 0-3
- All categories added to obtain a composite ASG score (range 2 to 57)

J Vasc Surg 2016;64:912-20.

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Indications for prophylactic EndoAnchors Predicting TEVAR failures

Freedom from aortic related reintervention

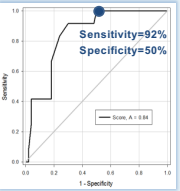


100% 92% 66%

Time (Months)

Low score 23 High score 30

*For an ASG score ≥ 24



Sensitivity=92% Specificity=50% Score: A = 0.84

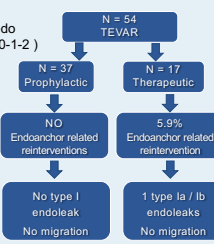
J Vasc Surg 2016;64:912-20.

This novel anatomic severity grading system can successfully identify patients at increased risk of endoleak requiring reintervention following TEVAR for primary DTA

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Indications for prophylactic EndoAnchors Case Series of Challenging TEVARs

54 TEVAR: 27 index & 27 redo
 67% landed in the arch (Z:0-1-2)
 41% Zones 0-1



N = 54 TEVAR

- N = 37 Prophylactic
 - NO Endoanchor related reinterventions
 - No type I endoleak
 - No migration
- N = 17 Therapeutic
 - 5.9% Endoanchor related reinterventions
 - 1 type Ia / Ib endoleaks
 - No migration

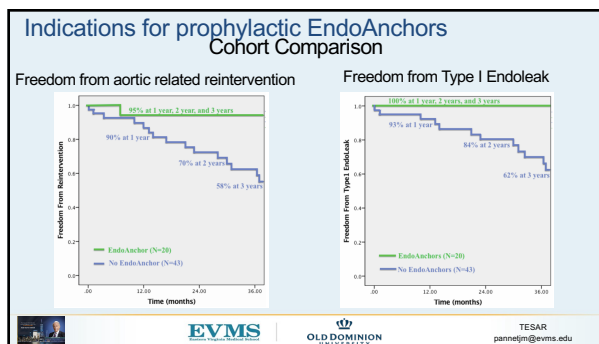
J Cardiovasc Surg 2016;57:716-29

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Indications for prophylactic EndoAnchors Cohort Comparison

Outcome of 63 TEVAR for DTA with high ASG scores without vs with EndoAnchors

	All (N=63)	No EA (N=43)	EA (N=20)	p value
Technical Success	62 (98.4%)	42 (97.6%)	20 (100%)	0.398
Reintervention	22 (35%)	21 (48%)	1 (5%)	0.001
Type 1 Endoleak	18 (28.5%)	18 (41%)	0	0.001
30 day mortality	3 (4.8%)	1 (2.3%)	2 (10%)	0.952
Late aortic related mortality	4 (6.34%)	3 (7%)	1 (5%)	0.495



Technical Tips for TESAR

Recommended Heli-FX Guide Selection			
Aortic Inner Diameter	18-28 mm	28-38 mm	38-42 mm
Guide Tip Reach	22 mm	32 mm	42 mm

Deployment: all about the angle of attack
The Guide and Applier must be positioned at a perpendicular angle to the aortic wall

Technical Tips for TESAR

The outer curve arch deployment requires a guide with smaller radius

Easy Zone 1

Tricky Zone 1

Technical Tips for TESAR

Ascending deployment in RAO view

Side arch deployment in barrel view

Technical Tips for decreasing migration


Distal edge of TEVAR Zone 5 @ celiac

Cephalad migration @ 1 year Without EndoAnchors


CTA @ 3 years after zone 6 TEVAR with prophylactic EndoAnchors and no migration

Technical tips for decreasing endoleaks & migration


Placement of EndoAnchors at the inner curvature of the arch




Prophylactic indication: preventing upward migration





Zone of EndoAnchor	No. of EndoAnchors
Zone 0	12
Zone 1	75
Zone 2	61
Zone 3	39
Zone 4	8
Zone 5	169
Zone 6	86
Zone 7	84
Zone 8	132
Zone 9	98





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Summary


EndoAnchors can improve TEVAR outcomes by treating endoleaks and by preventing endoleaks and graft migration


To decrease the need for aortic reinterventions after TEVAR, EndoAnchors are best used at the inner curve of the arch to treat or prevent type Ia endoleaks and at the distal end of the graft to prevent cephalad graft migration and type Ib endoleaks





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