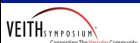




Transcaval Approach For Endoleak Embolization: A Minimally Invasive Hot Needle Approach And Other Technical Tips Including How To Close The Aortic Access Site

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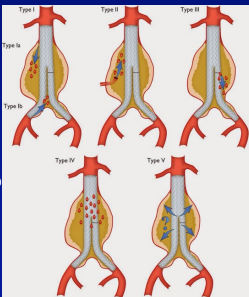


Disclosures

- Consultant: BD, Boston Scientific, Contego Medical, Cordis, Endologix, Inspire MD, Medtronic, Rapid Medical, Shockwave, Penumbra, Vivasure, Nectero, Reflow
- Stock options: Inspire MD and Centerline Biomedical, Reflow
- VIVA Physicians, Board Member
- Research Studies: Abbott, Endologix, Surmodics, W.L. Gore, Terumo Aortic, NIH, Boston Scientific, Merit, Contego Medical, Inspire MD, Reva Medical, Penumbra, Medalliance, Nectero



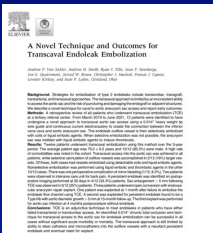



Endoleaks

- Type I
 - A Proximal
 - B Distal
- Type II
- Type III
 - A Component junction
 - A Fabric failure
- Type IV
- Type V

Transcaval Embolization

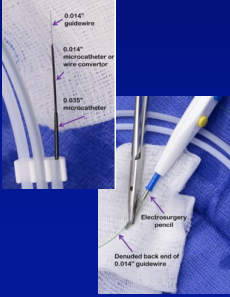


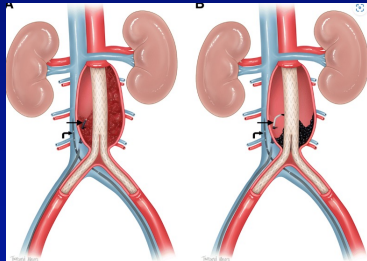


- Typically described using TIPS needles
 - 14 and 16 Gauge
 - Risk of Inadvertent injury to other organs and the graft
- Hot Wire Technique

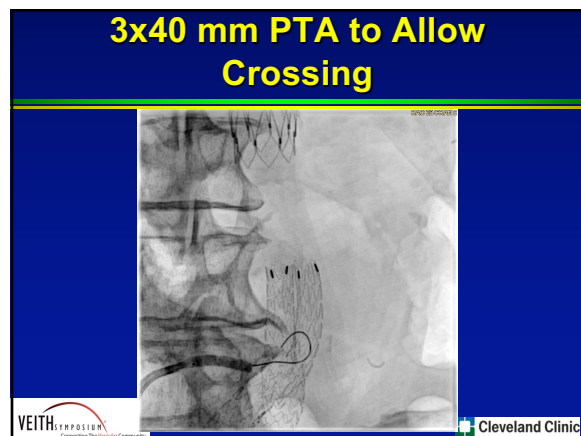
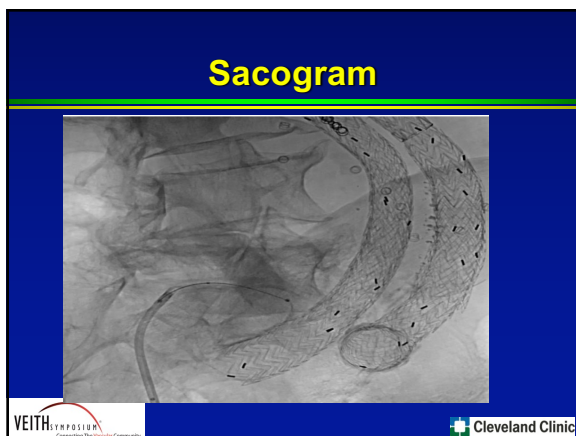
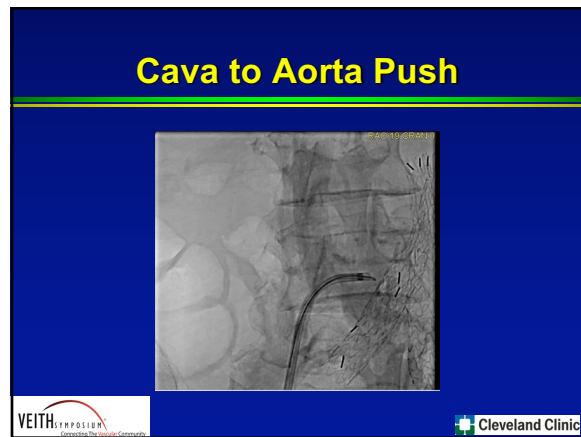
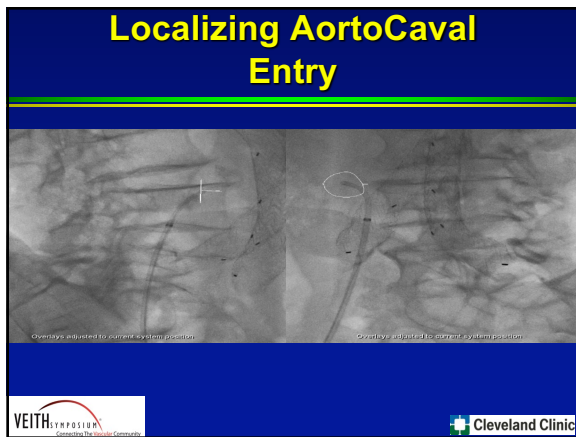
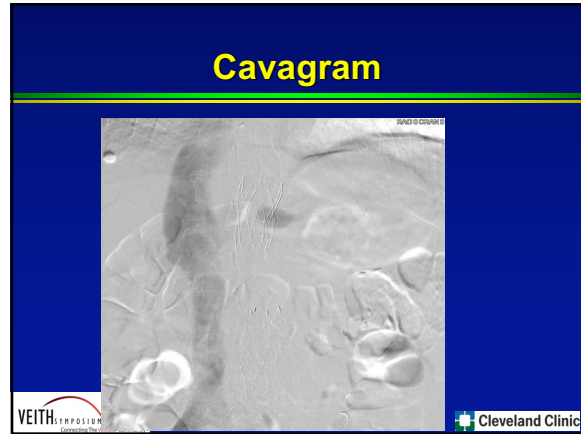
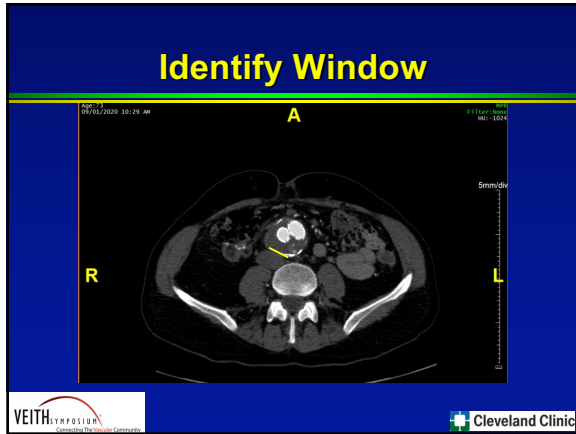




Transcaval Access

There is a better way

- DynaCT and merge to prep imaging
- Femoral Venogram 6F
- Oscor 6.5F steerable 55cm long sheath
- 0.35" Crossing Catheter 90cm
- 0.14" Crossing Catheter 135cm
- 0.14" CTO wire Halibert 300cm
- Continuous Cautery 50 Joules



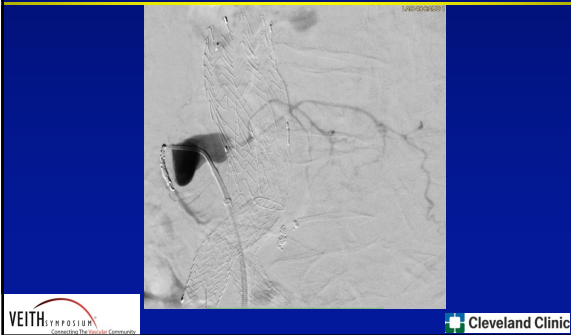
Endoleak Identification



IMA Embolization



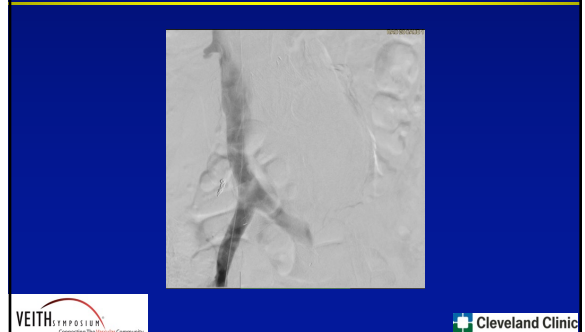
Secondary Feeders



NBCA Glue Lumbar Outflow



Completion Cavagram





CCF Experience

- 12 patients
 - (83% men, average age 79 ± 6 years) between 3/2019 – 6/2021
- Type II endoleak with AAA sac diameter increase ≥5 mm
- Average AAA of 7.8 ± 2.2 cm.

Factor	Total (N = 12)
Age	79.2 ± 6.6
Male	10 (83.3)
BMI	26.7 ± 6.5
Hypertension	12 (100.0)
Hypertlipidemia	10 (83.3)
Coronary Artery Disease	8 (66.7)
Ejection Fraction	55.2 ± 8.1
Diabetes	1 (8.3)
Creatinine	1.07 ± 0.5
COPD	8 (66.7)
Tobacco use	
Never	1 (8.3)
Former	10 (83.3)
Active	1 (8.3)
Months since EVAR implantation	51.4 (1.3, 113.1)
Number of prior embolizations	1 (0, 2)
Aneurysm sac diameter (cm)	7.8 ± 2.2
Aneurysm sac growth (mm)	8.4 ± 7.2
IMA patent	3 (25.0)
Patent lumbar arteries	4 (33.3)

Data presented as n (%), mean ± standard deviation, or median (lower limit, upper limit).




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Results

- 5 pts previous transarterial or translumbar embolization
- Median time between EVAR and transcaval embolization was 51.4 months (range, 1.5-113.1).

Factor	Total (N = 12)
Transcaval balloon dilation	3 (25.0)
Embolic coils	2 (16.7)
n-BCA	10 (83.3)
total n-BCA volume	2 (1, 5)
Thrombin injection	8 (66.7)
Thrombin amount (IU)	20,000 (20,000, 40,000)
FLOSEAL injection	2 (16.7)
FLOSEAL volume (mL)	5 (5, 15)
Operative time (min)	110.7 ± 38.7
Iodinated contrast volume (mL)	75 (20, 120)
Estimated blood loss	5 (5, 25)
Radiation dose (mGy)	2,984 (1,471, 8,320)
Fluoroscopy time (min)	44.3 (31.5, 57.1)

Data presented as n (%), mean ± standard deviation, or median (lower limit, upper limit).


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Results

- Median follow-up 6.5 months (range, 0-14.8)
- Embolization success 66.7%
- Selective cannulation of outflow vessels was accomplished in two patients
- Nonselective embolization was performed using liquid embolic and thrombotic agents
- One occult type I found






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Table IV. Perioperative complications and follow-up

Factor	Total (N = 12)
Length of follow-up (months)	6.5 (0, 14.8)
Perioperative complication	1 (8.3)
Nontarget embolization	0 (0.0)
Persistent endoleak	4 (33.3)
Sac enlargement > 5 mm	1 (8.3)
Aortic rupture	0 (0.0)
Conversion to open repair	3 (25.0)

Data presented as n (%) or median (lower limit, upper limit).


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Conclusions

- Transcaval embolization is successful
- DynaCT key in marking crossing target
- Crossing with heated wire safer and easier than TIPS needle
- Finding outflow vessels can be difficult
- Nonselective embolization with thrombin and Floseal helpful

