Klinikum rechts der Isar
Technische Universität München

VEITH SYMPOSIUM
Connecting The Vascular Community
51st
Tuesday – Saturday, November 19-23, 2024

Value Of Preemptive Embolization Of AAA Side Branches (IMA And Lumbars) Prior To EVAR: Objective Evidence That It Prevents Sac Enlargement

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Disclosure

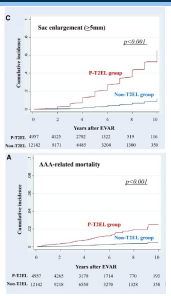
- I have the following potential conflicts of interest to report:
  - Grants and Speaking Fees from:
    - Artivion
    - BD
    - Cook Medical
    - Getinge
    - Endologix
    - Medtronic
    - Terumo Aortic

T2EL and late outcomes after EVAR

ORIGINAL RESEARCH ARTICLE Circulation. 2022;145:1056–1066.

Nationwide Analysis of Persistent Type II Endoleak and Late Outcomes of Endovascular Abdominal Aortic Aneurysm Repair in Japan: A Propensity-Matched Analysis

- JACSM Registry 2006 – 2015
- N=17 099 pts
- correlation between p-T2EL and late adverse events after EVAR
  - sac enlargement
  - AAA–related mortality



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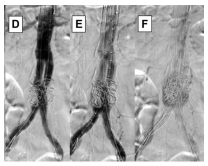
Prevention of Typ-2-Endoleaks

AAA Sac-Embolization



Dosluoglu HH et al. J Vasc Surg. 2019

Pre-emptive embolization of side branches of AAA sac

Branzan D et al. J Vasc Surg. 2021

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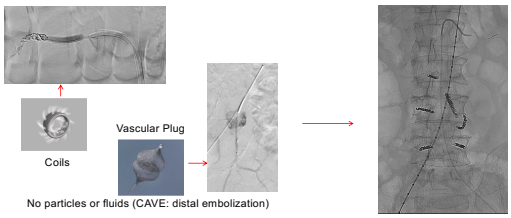
Occlusion of the ostial segment of LA and IMA



Branzan D, et al. Endointervention. 2018 Sep 20;14(7):328-335.

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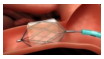
Techniques for LA and IMA Embolization

‚Standard'-Coils	3-D / Volume-Coils	MVP (Medtronic)	Shape Memory Polymer
			
	e.g. Penumbra 400 Coil	0.021" ID-compatible	**4F** (.038" min ID)

- Superior packing density / occlusion
- Less procedure / radiation time

- Higher costs

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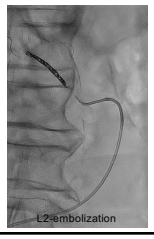
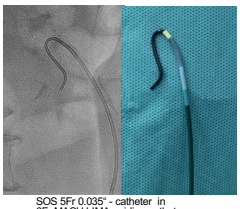
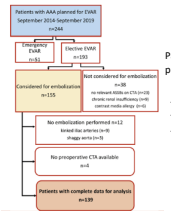
Pre-emptive coil-embolization of aortic sidebranches pre-EVAR





SOS 5Fr 0.035" - catheter in
6Fr MACH LIMA-guiding-catheter

Short-term outcomes of side branch embolization and EVAR



Patients to be excluded from pre-EVAR coil-embolization:

- Urgent repair required
- Renal insufficiency
- LA to be covered with the stent graft (LA2)

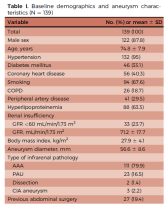


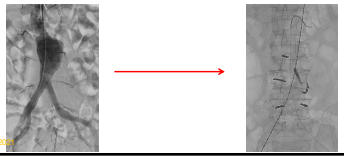
Table I. Baseline demographics and aneurysm characteristics (N = 139)

Variable	No. (%) or mean ± SD
Total	139 (100)
Male sex	122 (87.8)
Age, years	74.8 ± 7.9
Hypertension	132 (95)
Diabetes mellitus	45 (32.1)
Coronary heart disease	56 (40.3)
Smoking	94 (67.6)
COPD	26 (18.7)
Peripheral artery disease	41 (29.5)
Hyperlipoproteinemia	88 (63.3)
Renal insufficiency	
GFR: <60 mL/min/1.73 m²	33 (23.7)
GFR: mL/min/1.73 m²	71.2 ± 17.7
Body mass index, kg/m²	27.9 ± 4.1
Aneurysm diameter, mm	56.6 ± 8.6
Type of infrarenal pathology	
AAA	99 (71.9)
PAU	23 (16.5)
Dissection	2 (1.4)
CIA aneurysm	3 (2.2)
Previous abdominal surgery	27 (19.4)

Branzan D, et al. J Vasc Surg. 2021

Short-term outcomes of side branch embolization and EVAR

	Patent	Coiled		Open before EVAR	
		n	%	n	%
LA	481	370	77	111	23
IMA	108	86	80	22	20
Median	5 (1-8)	3 (1-8)		1 (0-5)	



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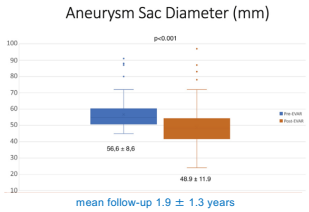
Short-term outcomes of side branch embolization and EVAR



mean follow-up 1.9 ± 1.3 years

Branzan D, et al. J Vasc Surg. 2021

AAA sac shrinkage compared to literature

	VQI	VSGN	ENGAGE Registry	Leipzig Cohort
Follow-up (Y)	1	1	2	1.9 ± 1.3
N	14 817	1 802	698	139
AAA – Regression (%)	40	52	57	86
AAA – Stable (%)	35	39	40	7
AAA – Expansion (%)	25	9	3	7

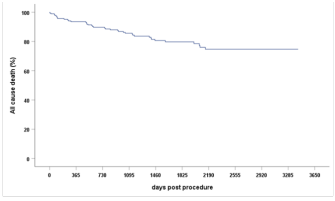
(J Vasc Surg 2019;69:414-22.) (J Vasc Surg 2018;67:157-64.) (J Vasc Surg 2020;71:780-9.) (J Vasc Surg 2021;73:1973-9.)

Long-term outcomes of side branch embolization and EVAR

- 183 patients AAA (Leipzig: 2014-2020)
  - LA embolized: 667/559 = 82.7%
  - IMA embolized:105/134 = 78 %
- Mean FU: 4.5 ± 1.3 years
  - T2EL: 1.64 %
  - AAA sack-shrinkage: 77.2 %

Data under review

Long-term outcomes of side branch embolization and EVAR



KM-estimate (±SE)		93.5±1.8	89.7±2.3	85.6±2.6	80.6±3.1	79.7±3.2	74.7±3.8	74.7±3.8	74.7±3.8	74.7±3.8
No. at Risk	190	171	160	137	107	79	51	22	8	2	0

Data under review

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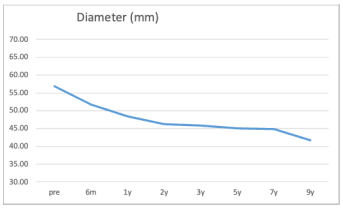
Long-term outcomes of side branch embolization and EVAR



No. at risk 159	49	126	110	89	48	20	3

Data under review

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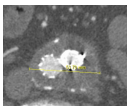
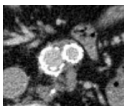
Long-term outcomes of side branch embolization and EVAR

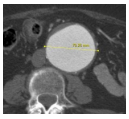
61 yo male
AAA Ø 54mm



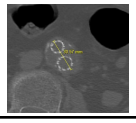
@ 6-years FU
Coiling + EVAR



72 yo female
AAA Ø 70mm



@ 5-years FU
Coiling + EVAR



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Conclusions

- Preventive embolization of ASSBs in patients with AAA is safe and effective in preventing T2EL after EVAR.
- Shrinkage of the aneurysm sac and thus, successful EVAR, was observed in a high proportion of patients during long-term follow-up.
- Definitive evidence for routine embolization of ASSBs to prevent T2EL after EVAR and promote shrinkage of the AAA sac requires a randomized controlled trial which is currently under planning.

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Thank you!

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