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The use of EVAR in extreme hostile anatomies: Insights from the EAGLE Registry

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Disclosure

Speaker name:

Marc van Sambeek

I have the following potential conflicts of interest to report:

Consulting and speakersfee

WL Gore & Associates

Medtronic

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W.L Gore & Associates

Philips Medical Systems

What is unfavorable anatomy?



There's no univocal definition.

In general:

Neck length ≤ 15 mm?

Neck angulation $\geq 60^\circ$?

Double angled necks?

Irregular (thrombus, bulge, calcium)?

Wide (> 28 mm)?



Endoleak
Migration



Rupture

Or outside instructions for use??

The literature on hostile neck



NEGATIVE

Liberalized interpretation of the **instructions for use** is associated with **increased risk** of aneurysm sac enlargement, which can lead to re-intervention and rupture of the aneurysm.

Schanzer A, et al. Circulation. 2011;123:2848-55

In a meta-analysis it was demonstrated that patients treated with **hostile neck anatomy** were at significantly increased risk for operative morbidity, additional adjunctive procedures at treatment, Type I endoleak at one year, and aneurysm related mortality at one year.

Antoniou GA, et al. J Vasc Surg 2013;57:527-538.

The literature on hostile neck



POSITIVE

Real-world, global experience shows promising results and indicates that endovascular AAA repair is **safe and effective** in patients with **challenging aortic neck anatomy**.

Broos PP, et al. J Vasc Surg 2015;62:312-318

Emergency EVAR provides **excellent results** for treatment of RAAA patients with **both FNA and HNA**.

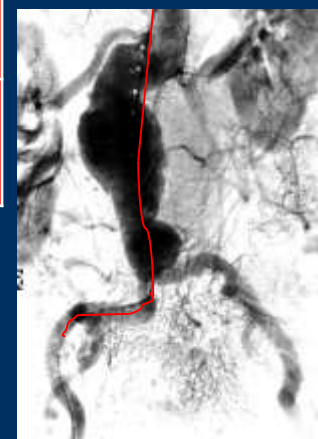
EVAR in RAAAs with HNA is technically feasible and safe in experienced endovascular centres.

Broos PP, et al. EJVES 2015;50:313-319

Experience matters






	> 15 mm neck length	10-15 mm neck length	5-10 mm neck length	< 5 mm neck length
< 60° neck angulation	Inside IFU	Inside IFU	Challenging anatomy	Extreme anatomy
60-90° neck angulation	Inside IFU	Challenging anatomy	Extreme anatomy	
> 90° neck angulation	Challenging anatomy	Challenging anatomy		





The aim of this study is to describe the performance of the Endurant Stent Graft System for endovascular repair of **anatomically challenging aneurysms** and to critically assess current guidelines for anatomic eligibility to endovascular treatment.



EAGLE AAA Morphology Inclusion Criteria		Proximal Neck Length		
		> 15mm	10-15mm	5-10mm
Proximal Neck Angulation	Infrarenal $\leq 60^\circ$ AND Suprarenal $\leq 45^\circ$	X Inside IFU	X Inside IFU	 56 INCLUSION
	Infrarenal $60^\circ-75^\circ$ AND suprarenal $\leq 60^\circ$ OR Suprarenal $45^\circ-60^\circ$ AND infrarenal $\leq 75^\circ$	X Inside IFU	 15 INCLUSION	X Extreme
	Infrarenal $75^\circ-90^\circ$ AND suprarenal $\leq 75^\circ$ OR Suprarenal $60^\circ-75^\circ$ AND infrarenal $\leq 90^\circ$	 79 INCLUSION	X Extreme	X Extreme

N=150, 23 sites, 8 countries

First treated: 09-2012

Last treated: 10-2017



Morphology

Variabel	Overall N=150	Short <u>neck</u> N=56	Medium <u>neck</u> N=15	Long <u>neck</u> N=79
<u>Suprenal angulation</u>	33.5 [15.7– 52]	19.9 ± 11.9	32.0 [11.0-48]	47.5 ± 18.8
<u>Infrarenal angulation</u>	59.2 ± 24.4	34.1 ± 19.4	67.0 [58.0-74.0]	77 [74.0-82.0]
<u>Neck length</u>	22.2 ± 13.8	8 [7-9]	12 [11-13]	30.5 ± 11.5
<u>Neck diam</u>	22.8 ± 3.1	23 ± 2.7	24 [22-25]	23 [20-24]
<u>AAA diam</u>	59.0 [54.7-70.0]	61.1 ± 10.6	64 [57-75]	59 [55-70]
Acces <u>right femoral</u>	9.2 ± 2.0	9.0 ± 1.7	9.0 [8-9.2]	9.4 ± 2.2
Access <u>left femoral</u>	9.2 ± 2.2	9.0 [8-10]	9.0 [8-10]	9.0 [8-11]

30-day follow-up

	Overall N=150
30-day or in <u>hospital</u> mort*	3 (2.0%)
1-month FU	140 (93.3%)
No show	2
<u>Death (additional)</u> **	4
Missing	4
1-month imaging	121
No imaging	19
Missing	5
Type 1A endoleak ***	4
Sec <u>Interventions</u>	4
Type 1 endoleak	2
<u>Limb occlusion</u>	1
<u>Malposition</u> ****	1

* Cerebral hemorrhage
Dialysis refused
Heartfailure

**** Malpositioned
extension

1-year follow-up (cumulative)



	Overall N=150
1-year FU	107 (71.3%)
1-year mort*	12
AAA-related	1
1-year imaging	103
Sec Interventions*	7
Type-1A**	4
Limb occlusion	1
Malposition	1
Limb kinking	1

AAA related mortality: MOF after open conversion
2 Conversions for a Type 1A and a graft occlusion



Conclusion



These are just preliminary results
Further and long-term follow-up is required

The initial results are promising



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