

# Midterm Outcome Of Supra-aortic Vessels Reconstruction: A Single Center Report

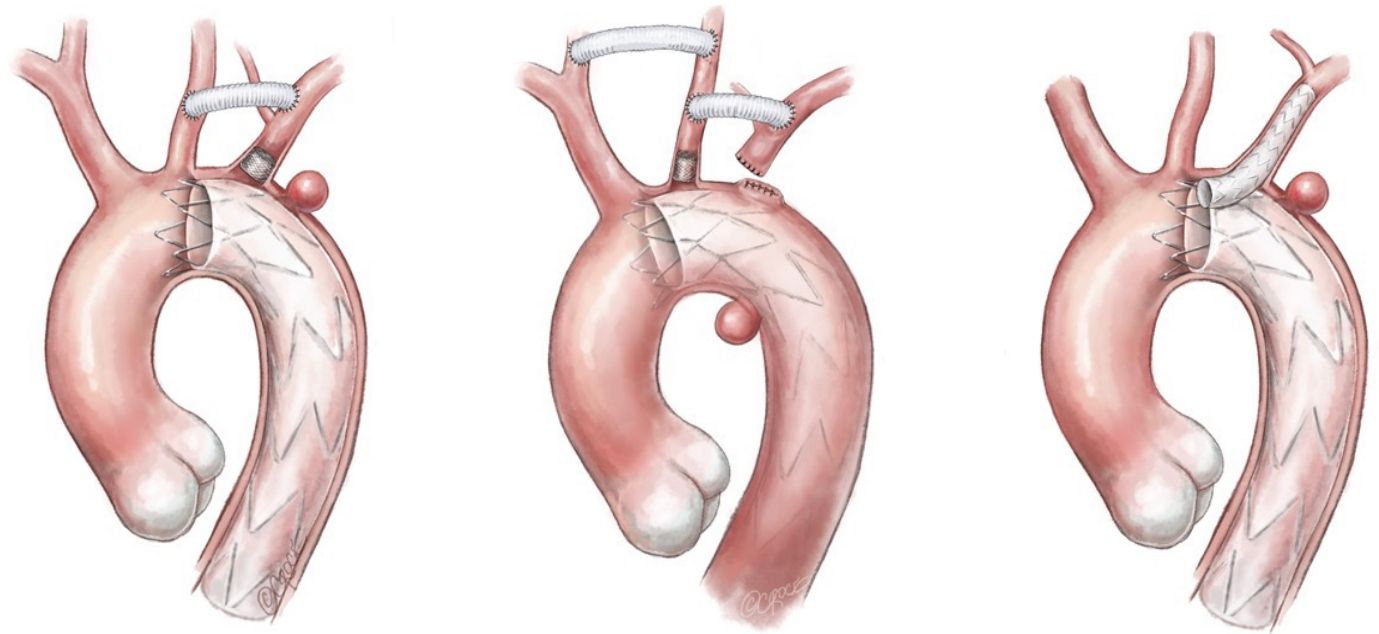
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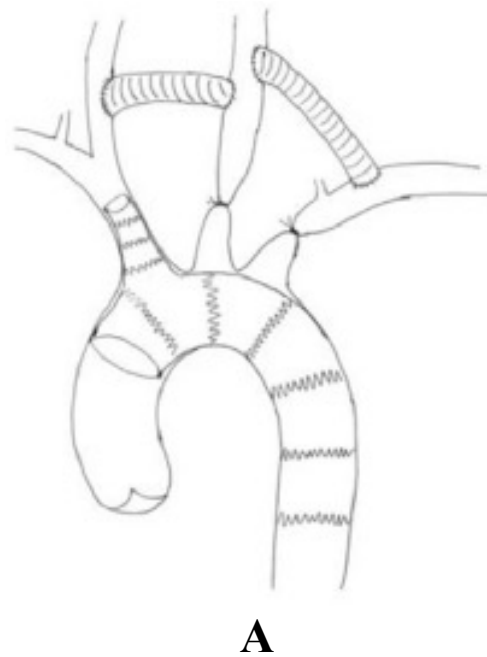
# Background

- Complex aortic arch pathologies
  - Supra-aortic vessel reconstruction
- What's the outcome?

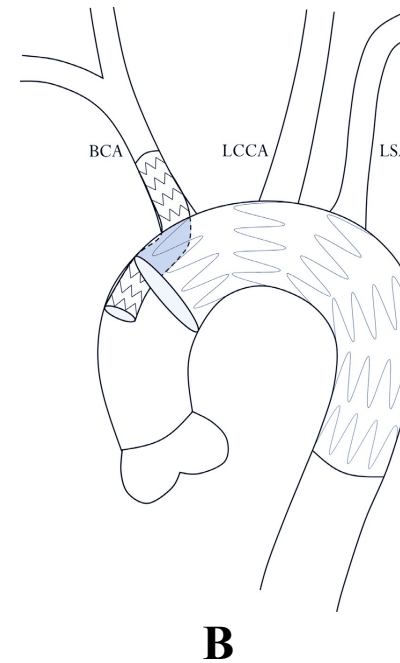


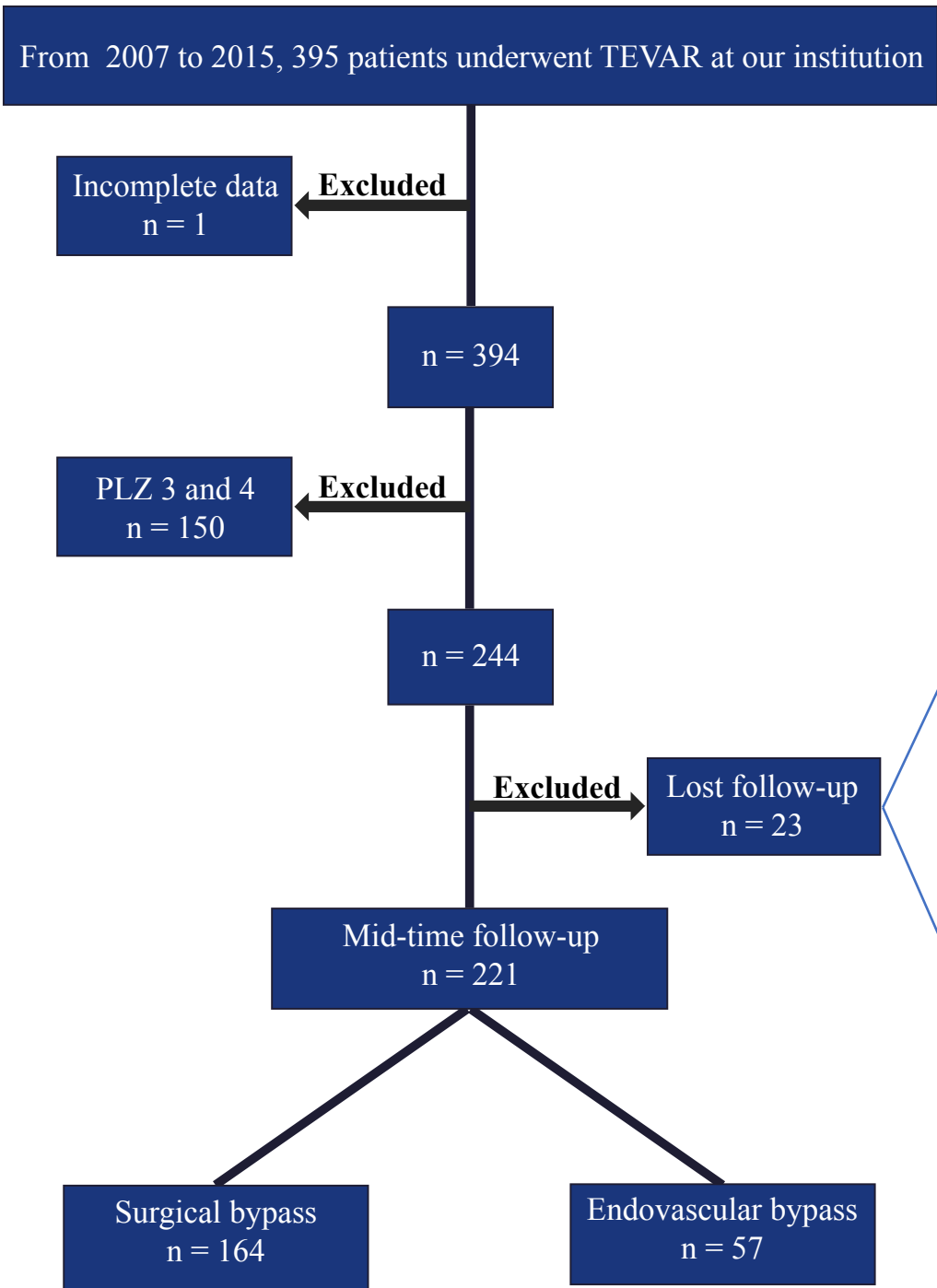
# Objective

- Compare the midterm outcome of surgical versus endovascular bypass in TEVAR.



VS





# Demographic

- Mean f/u → 41 months ( $\pm 30.9$ )
- Hospital stay → 23.9 days ( $\pm 31.2$ )
- Male 86%, average age 58.6 yrs ( $\pm 16.3$ )

	n	%	Surgical Bypass		Endovascular Bypass		
Aortic dissection	131	54.4	113	62.8	18	29.5	<.0001
<i>Type A dissection</i>	33	25.2	32	28.3	1	5.6	<.0001
<i>Type B dissection</i>	98	74.8	81	71.7	17	94.4	<.0001
Aortic aneurysm	55	22.8	30	16.7	25	41.	<.0001
TAI	24	10	17	9.4	7	11.5	N/S

# Supra-aortic vessels reconstruction

	<b>n</b>	<b>%</b>
<b>PLZ0 (n = 63)</b>		
<b>Surgical bypass</b>	<b>54</b>	<b>85.7</b>
<b>Endovascular + surgical bypass</b>	<b>9</b>	<b>14.3</b>
<b>PLZ 1 (n = 55)</b>		
<b>Surgical bypass</b>	<b>30</b>	<b>54.5</b>
<b>Endovascular bypass</b>	<b>25</b>	<b>45.5</b>
<b>PLZ 2 (n = 126)</b>		
<b>No LSA revascularization</b>	<b>68</b>	<b>54.0</b>
<b>Surgical bypass</b>	<b>31</b>	<b>24.6</b>
<b>Endovascular bypass</b>	<b>27</b>	<b>21.4</b>

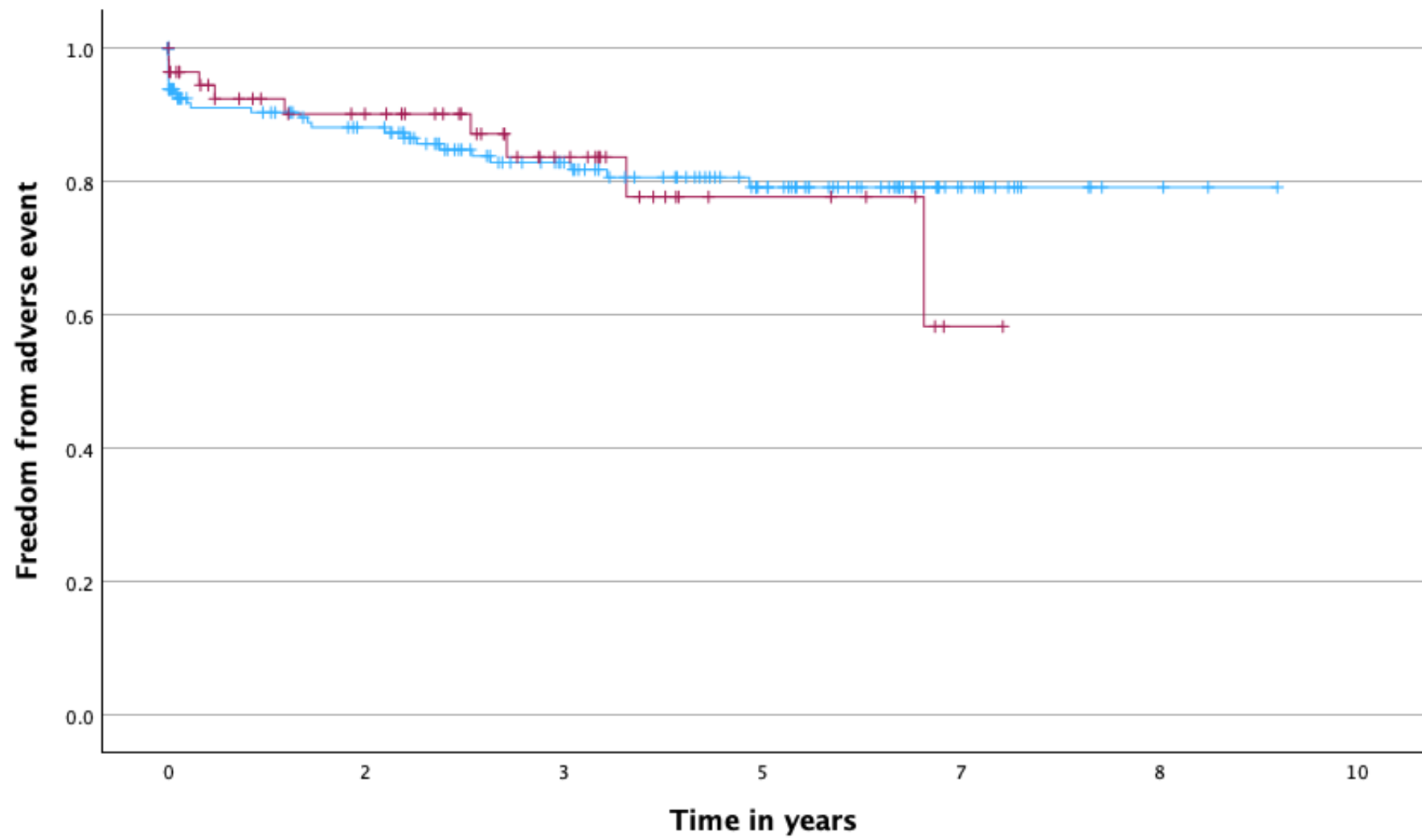
<b>Mortality</b>							
	<b>Surgical Bypass</b>		<b>Endovascular Bypass</b>				
	<b>N = 244</b>		<b>n = 183</b>		<b>n = 61</b>		
	n	%	n	%	n	%	p-value
<b>Overall mortality</b>	54	22.1	42	23.0	12	19.7	N/S
<b>30 days mortality</b>	25	10.2	21	11.5	4	6.6	N/S
<i>Massive bleeding</i>	8	32.0	7	33.3	1	25.0	
<i>Sepsis</i>	6	24.0	3	14.3	3	75.0	
<i>Stroke</i>	3	12.0	3	14.3	-	-	
<i>Aortic rupture</i>	3	12.0	3	14.3	-	-	
<i>Others</i>	5	4.0	1	4.8	-	-	
<b>Late mortality</b>	41	16.8	33	18.0	8	13.1	N/S

## Reintervention and Adverse Events

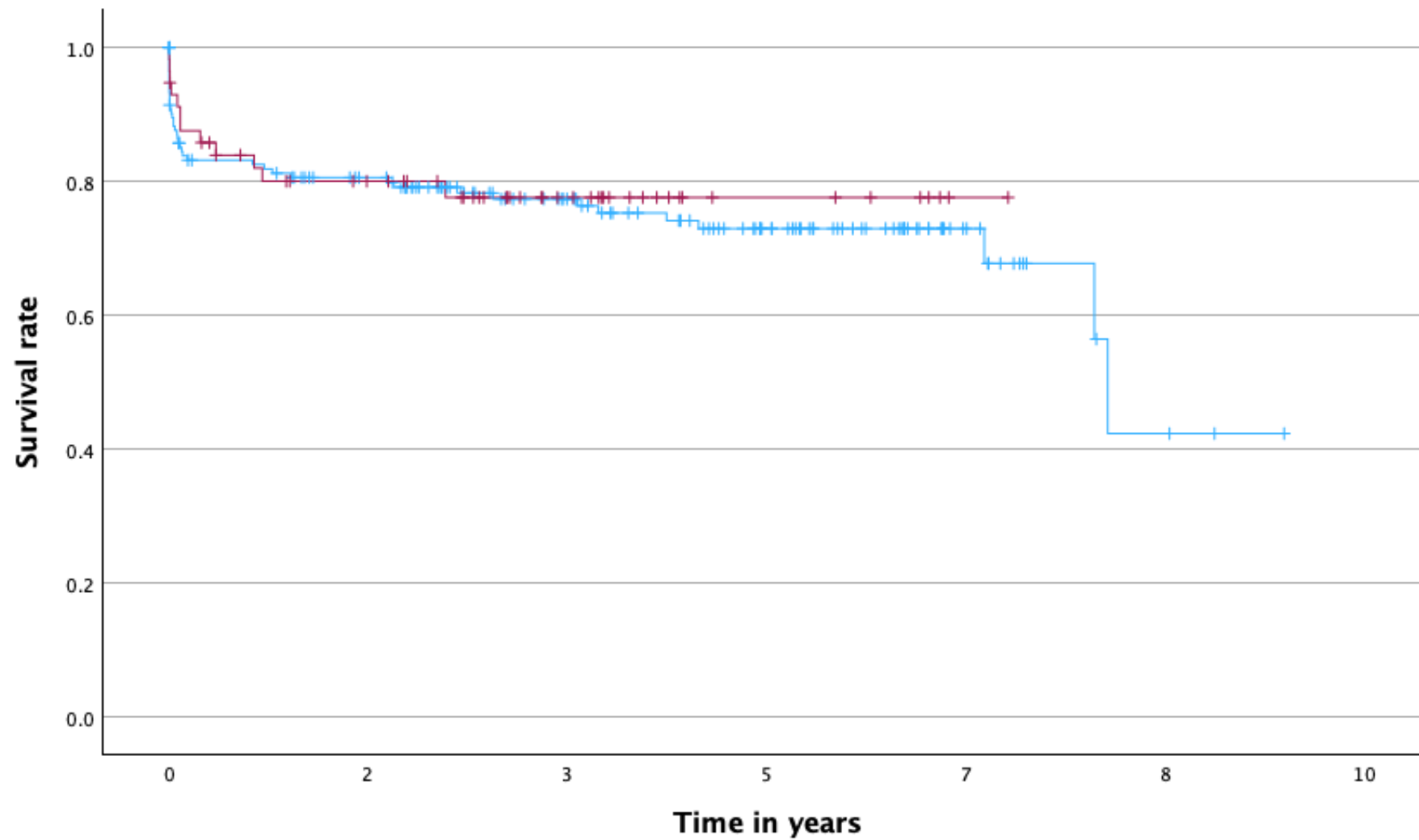
	Overall		Surgical		Endovascular		p-value
	N = 221		n = 164		n = 57		
	n	%	n	%	n	%	
<b>Reintervention</b>	36	16.3	29	17.7	7	12.3	N/S
<b>Intraluminal occlusion/stenosis</b>	8	3.6	5	3.0	3	5.3	N/S
<b>Device migration</b>	5	2.3	4	2.4	1	1.8	N/S
<b>Spinal cord ischemia</b>	4	1.8	4	2.4	0	0.0	N/S
<b>Stroke</b>	24	10.9	19	11.6	5	8.8	
<b>Immediate endoleak*</b>	47	21.3	30	18.3	17	29.8	N/S
<i>Spontaneous resolution</i>	34	72.3	23	76.7	11	64.7	N/S
<i>Persistent endoleak</i>	11	23.4	7	23.3	6	35.3	N/S

\* Type I endoleak discovered at the end of TEVAR or present in the first post operative CT scan





Number of vessels at risk	1	2	3	4	5	6	7	8	9	10
Surgical bypass	124	105	82	66	50	33	10	3	1	-
Endovascular bypass	40	34	23	12	7	4	1	-	-	-

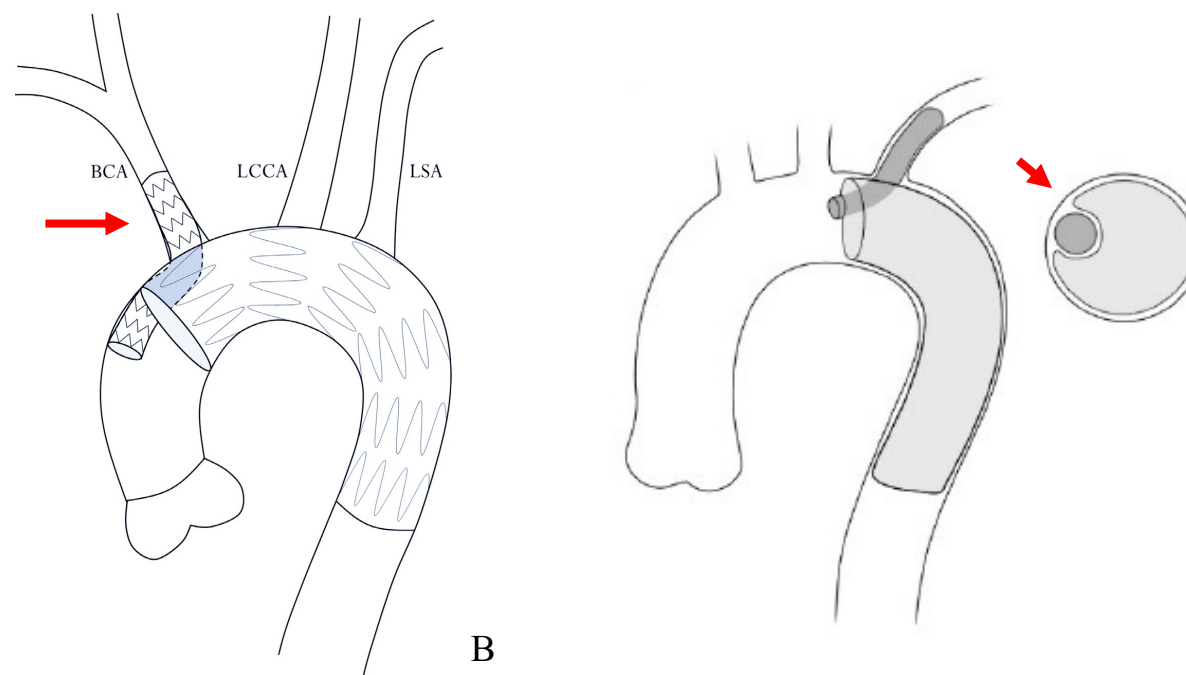
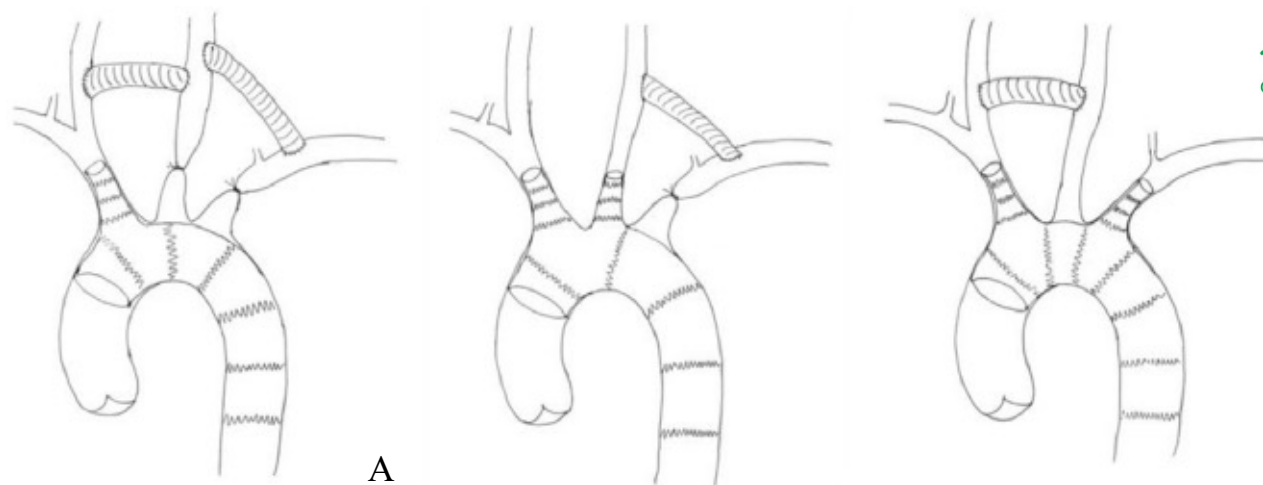


Number of patients at risk	1	2	3	4	5	6	7	8	9	10
Surgical bypass	123	105	82	66	50	33	10	3	1	-
Endovascular bypass	39	34	23	12	7	5	-	-	-	-



# Discussion

- Surgical plan
  - Anatomy
  - Pathology
    - Emergent vs elective
  - PLZ
    - 2cm
    - TAI
  - Chimney
    - 10mm of healthy aorta



A – Andrasi, T. B., et al. (2017). "Supra-aortic interventions for endovascular exclusion of the entire aortic arch." *J Vasc Surg* 66(1): 281-297 e282.

B – Al-Hakim, R. (2018). "Advanced Techniques in Thoracic Endovascular Aortic Repair: Chimneys/Periscopes, Fenestrated Endografts, and Branched Devices." *Tech Vasc Interv Radiol* 21(3): 146-155.

# Conclusion

- Endovascular bypass of the supra-aortic vessels not inferior to surgical bypass
  - Tailored approach
  - Good mid-term patency rate
  - Low rate of complications after surgery