COLUMBIA UNIVERSITY
College of Physicians and Surgeons

Endovascular Repair for Type A Aortic Dissection

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CI 2016, LILLE

Conflicts

- Bolton
- WL Gore

How it differs from the thoracoabdominal aorta

- Area that needs to be covered/excluded is relatively short

✓ (~ 8 cm in length)

- Access to deliver devices do not have to be transfemoral based

✓Carotid or axillary access available

✓Transapical approach

- Hemodynamic forces
- Deployment of modular branched grafts originate from target vessel not from the endoprosthesis main body

Ascending Aortic Pathology

Off the Shelf Devices

- Unmodified TEVAR: Long (10 cm), leading nose cone
- PMEG: structural integrity, IDE, time
- Abdominal cuff: can't reach, 32-34 mm diameter, less accurate, nose cone
- ASD plug
- Amplatzer plug

Endovascular Repair of Type A Aortic Dissection: Current Experience and Technical Considerations

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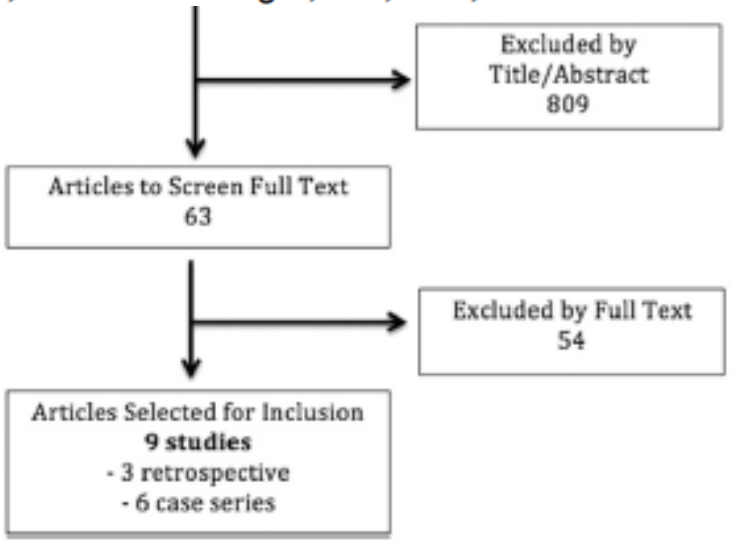


Figure. Identification process for included studies.

Technical Success, Complications, and Reintervention of TEVAR for TAAD

Study (first author)	Design[a]	n	Acute[b], No. (%)	Technical Success, No. (%)	Stroke Rate, No. (%)	Endoleaks (n)	Reintervention Rate (%)
Ye[4]	R	45	30 (67)	44 (98)	3 (6.8)	10	0
Khoynezhad[6]	R	15	6 (40)	15 (100)	2 (13)	0	0
Vallabhajosyula[7]	R	2	2 (100)	2 (100)	1 (50)	2	0
Kusagawa[8]	CS	15	15 (100)	15 (100)	0 (0)	NR[c]	20
Lu[9]	CS	15	5 (33)	15 (100)	0 (0)	0	6.7
Roselli[10]	CS	11	9 (82)	6 (55)	2 (18)	5	27
Nienaber[4]	CS	6	0 (0)	6 (100)	0 (0)	0	0
Ronchey[11]	CS	4	4 (100)	4 (100)	0 (0)	NR	0
Bernardes[12]	CS	3	2 (67)	3 (100)	0 (0)	2	66.7

Horton et al JTCVS 2015

Mortality of TEVAR for TAAD

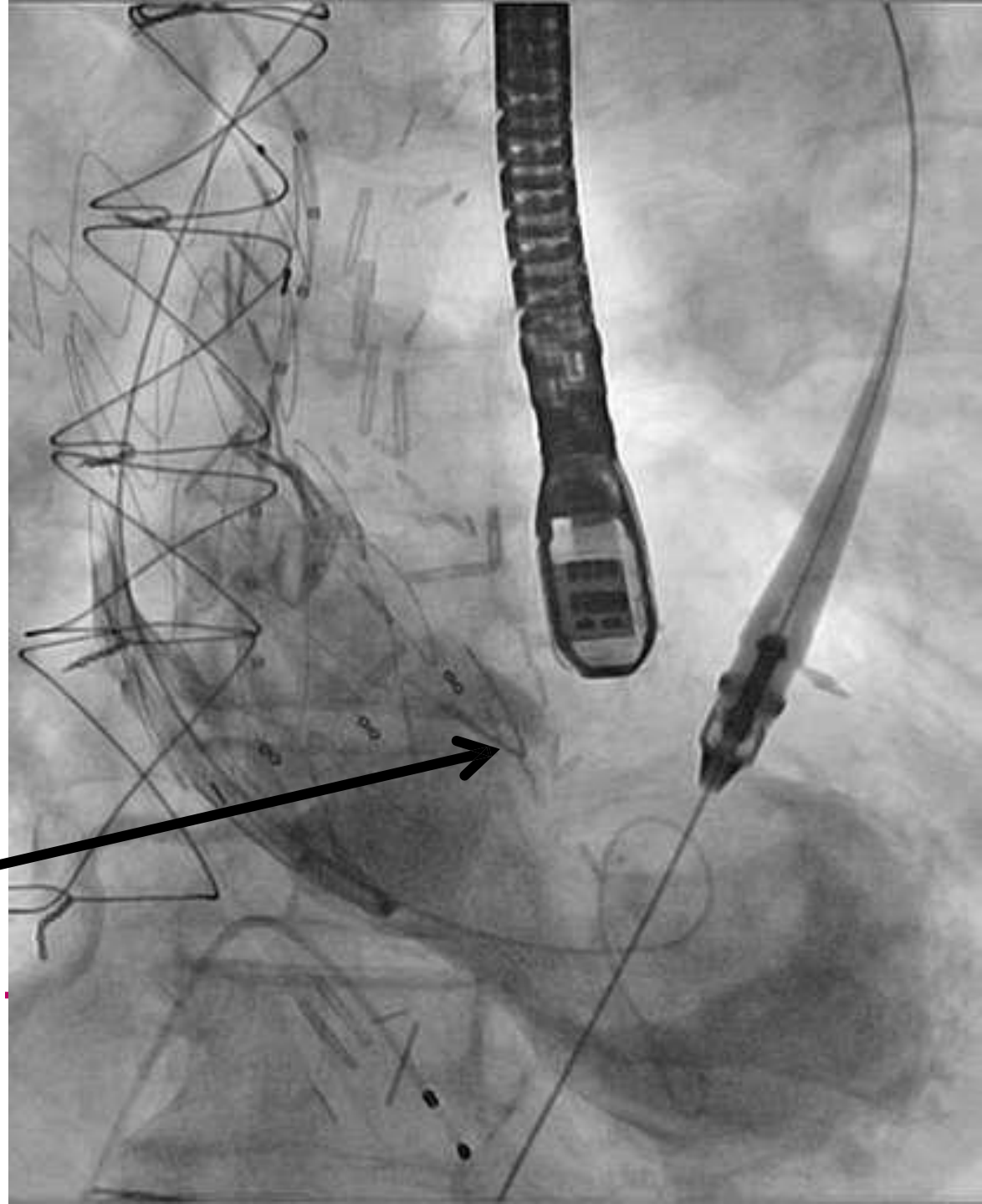
Study (first author)	n	Intraoperative Mortality, No. (%)	30-day Mortality, No. (%)	Mean Follow-Up Period (mo.)	Overall Mortality, No. (%)
Ye[4]	45	1 (2.2)	3 (6.7)	35.5	5 (11)
Khoynezhad[6]	15	0 (0)	0 (0)	8.9	2 (13)
Vallabhajosyula[7]	2	0 (0)	0 (0)	33	1 (50)
Kusagawa[8]	15	0 (0)	0 (0)	37.2	0 (0)
Lu[9]	15	0 (0)	0 (0)	22	0 (0)
Roselli[10]	11	1 (9.1)	3 (27)	12	6 (55)
Nienaber[4]	6	0 (0)	1 (17)	9-39 (range)	1 (17)
Ronchey[11]	4	0 (0)	0 (0)	15	0 (0)
Bernardes[12]	3	0 (0)	0 (0)	3.5-46.4 (range)	0 (0)

Anatomical Considerations

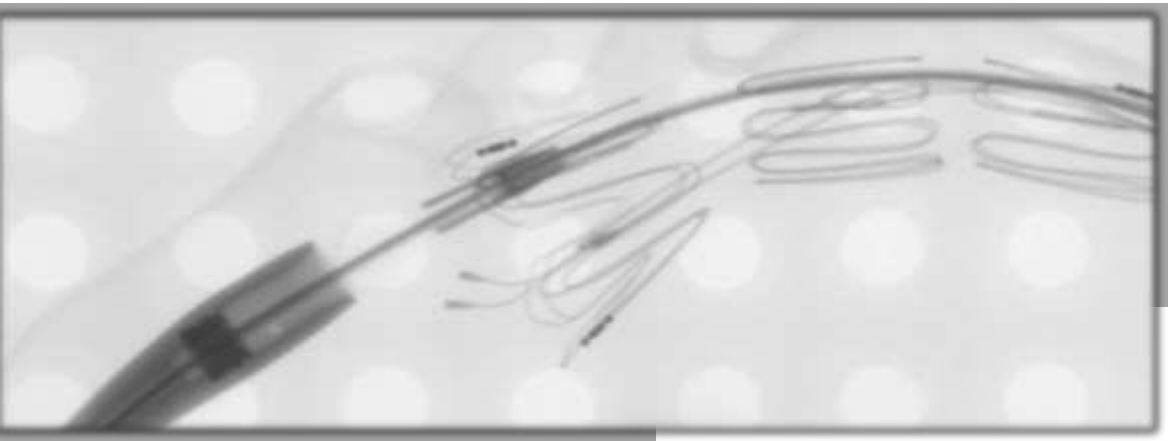
- Proximal and distal landing zone ≥ 20mm
- Fenestration distal to STJ, minimum distance between intimal fenestration and STJ ≥ 10 mm
- Absence of coronary bypass grafts originating from the ascending aorta
- True lumen aortic diameter ≤ 38mm AND total aortic diameter ≤ 46mm
- Absence of grade 3/4 regurgitation
- Iliofemoral vessels > 7mm diameter and < 90° angulation (24F)

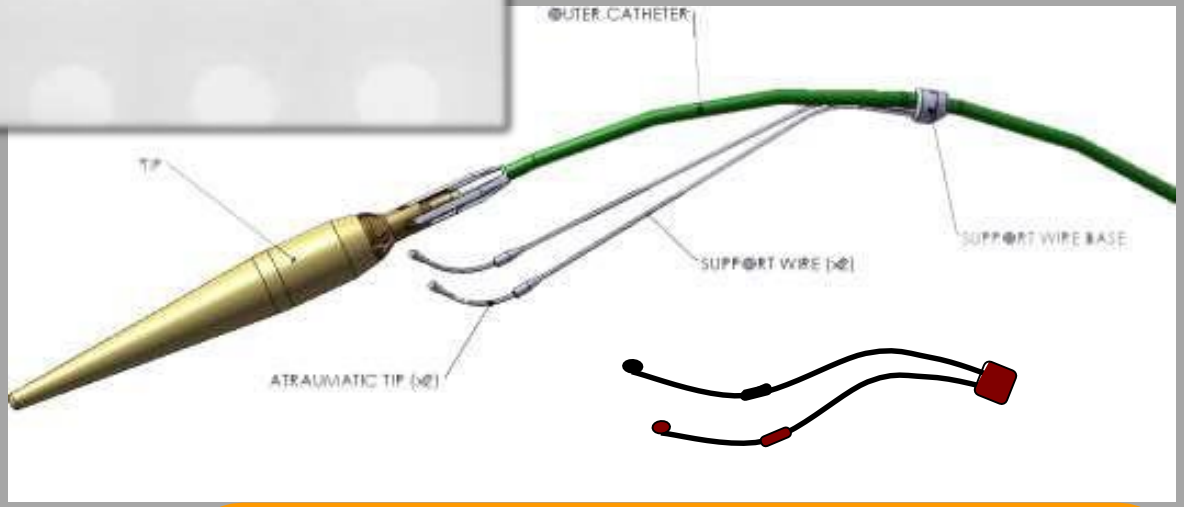
Acute aortic insufficiency with hypotension upon deployment

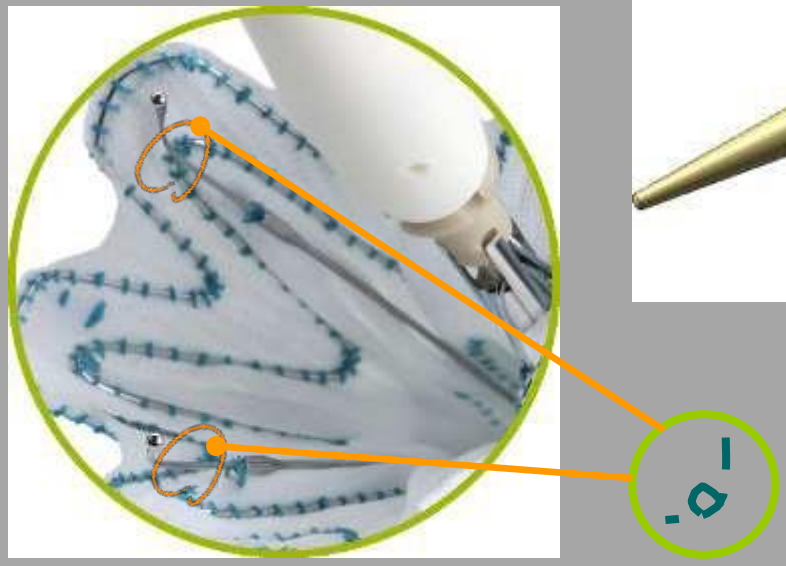
Leading edge of ***Free flow*** prevents normal aortic valve closure



Bolton -- Deployment control and avoid retroflex achieved through Supporting wires

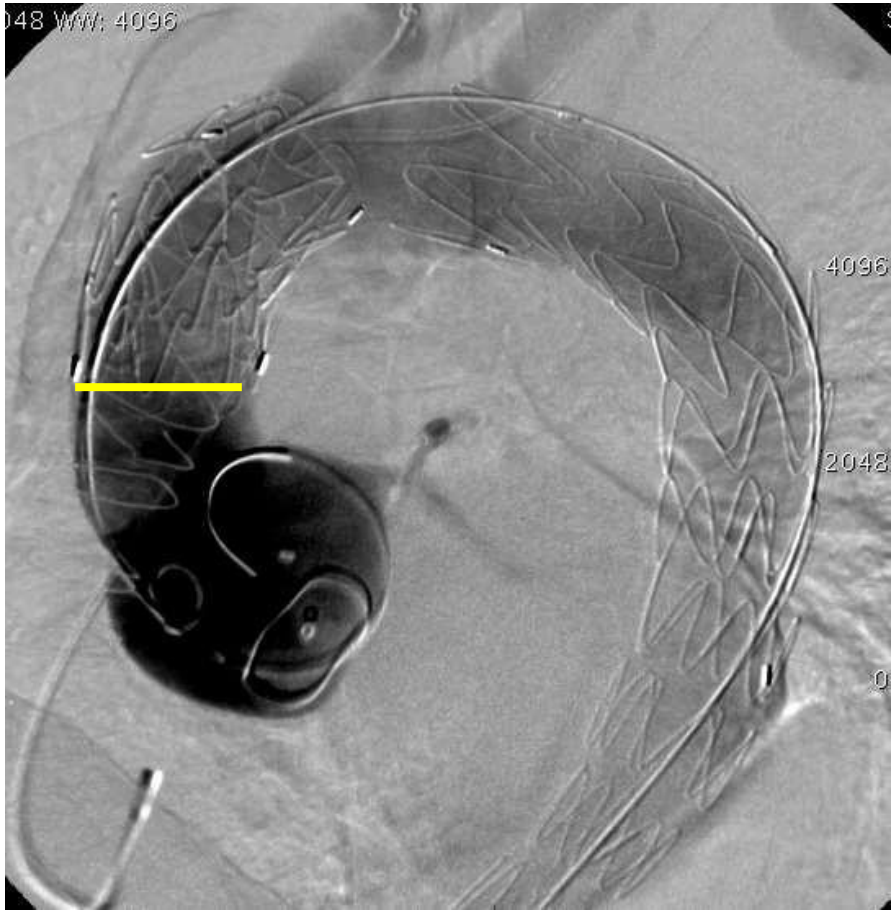


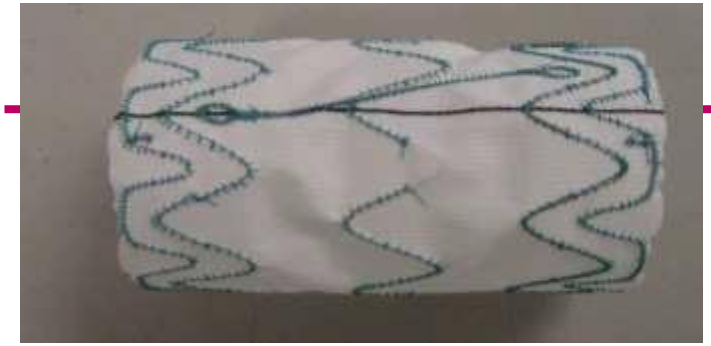




Atraumatic Support Wires **hold** the inferior portion of **the graft to avoid retroflex**

Ascending Cases Experience





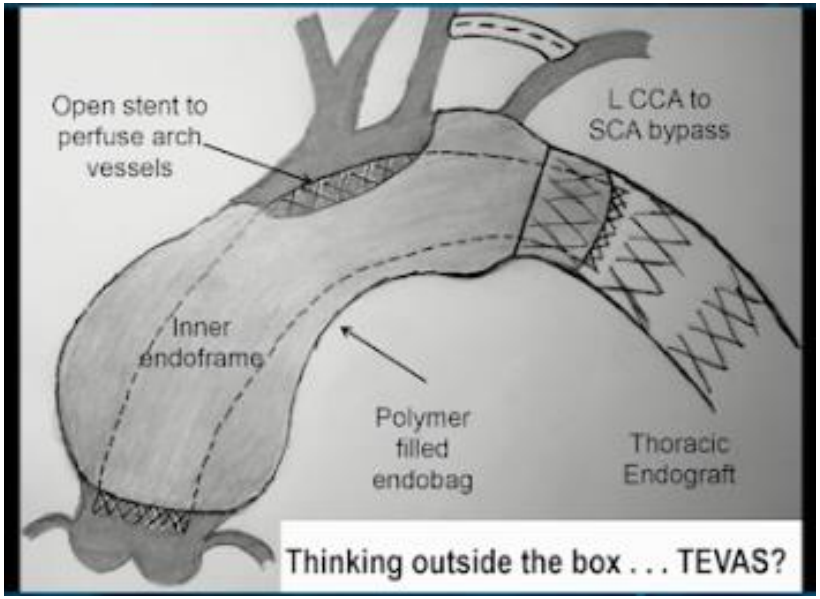
Oblique deployment avoided

What is needed to continue forward progress

- Multidisciplinary teams with CT surgeons on board
  - ✓ Fully hybrid endovascular suite
  - ✓ Pump capability → Margin for error miniscule
  - ✓ Transapical access capabilities
- Technological needs:
  - ✓ Protection of wire in left ventricle
  - ✓ Short bullet tip with no leading bare stent
  - ✓ Smaller profile for carotid access
  - ✓ Branched grafts with bridging stent-grafts to achieve secure seal and fixation

The body is a collection of tubes waiting to be stented"----*Anonymous*

- Coronary branches are stiff and unstable
- Flexible balloon expandable SG that can be attached to current TAVR



Thank you