Feasibility of TAVR in Patients with Prior Endovascular Aortic Stent Grafts

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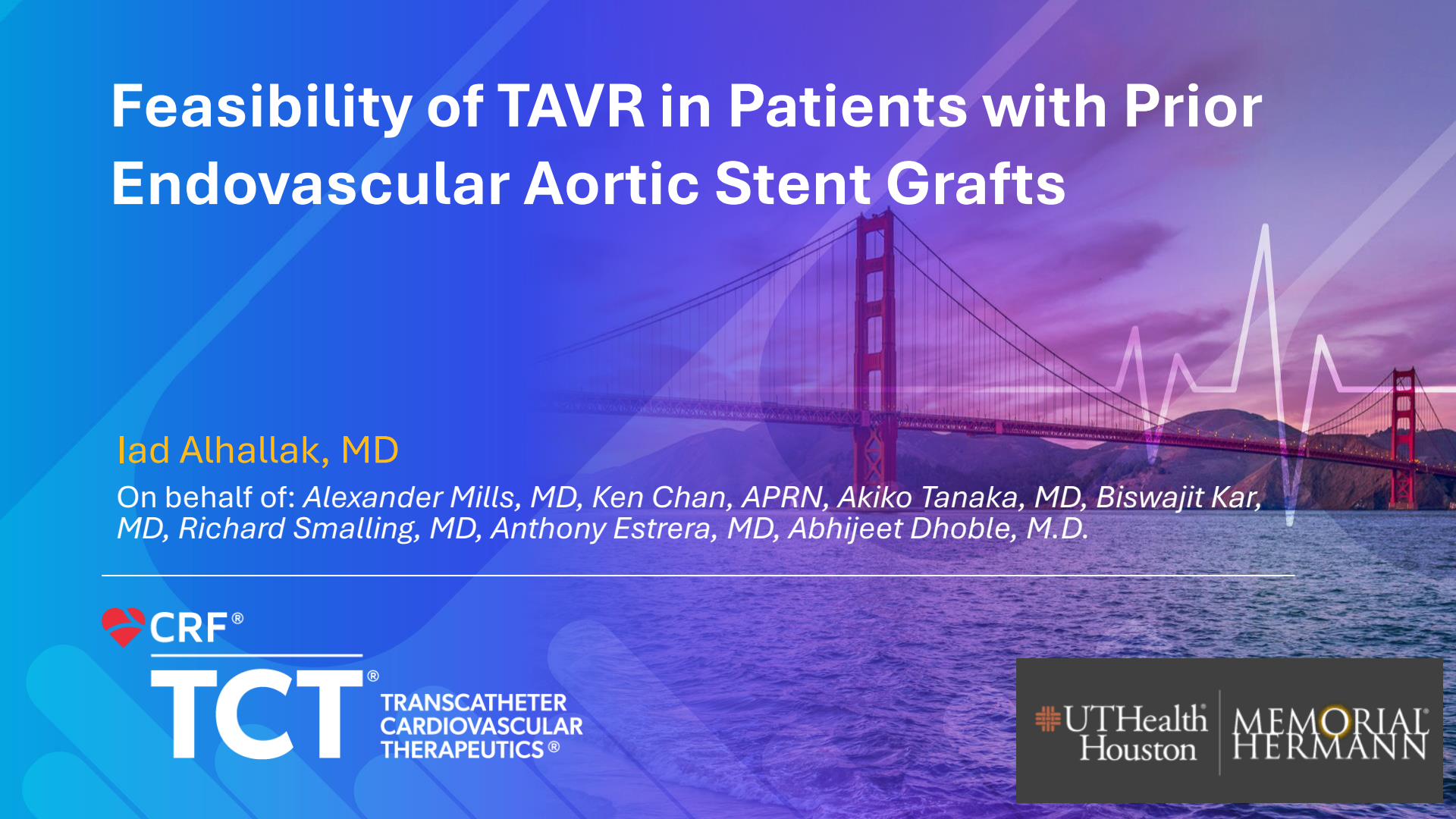
On behalf of: *Alexander Mills, MD, Ken Chan, APRN, Akiko Tanaka, MD, Biswajit Kar, MD, Richard Smalling, MD, Anthony Estrera, MD, Abhijeet Dhoble, M.D.*



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Disclosure of Relevant Financial Relationships

I, Iad Alhallak DO NOT have any financial relationships to disclose.

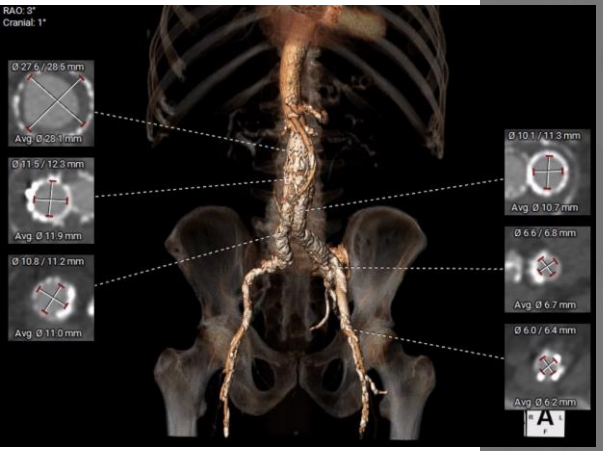
Background

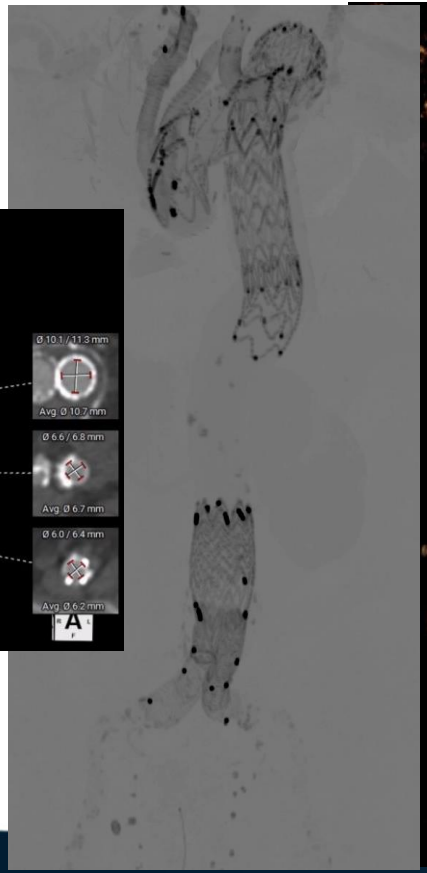
- Beyond small case series, the safety and feasibility of the TAVR has not been well studied in patients with aortic endografts
- In this study, we evaluated the safety and feasibility of patients undergoing transcatheter aortic valve replacement (TAVR) through prior endovascular aortic stent grafts.

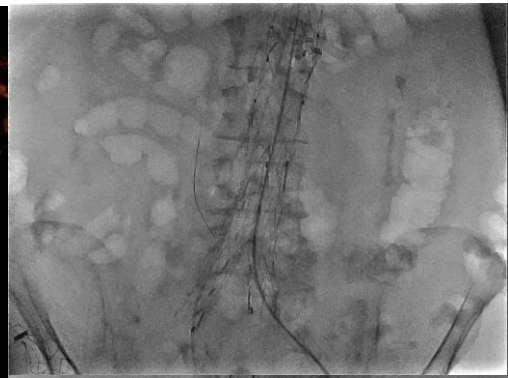
Methods

- Single center, Retrospective review from 2012 to 2025
- 23 patients identified
  - 19 with prior endovascular abdominal aortic grafts
  - 3 with prior thoracic endovascular grafts
  - 1 with open abdominal repair with bifurcation graft
- All underwent TAVR with the Balloon expandable (Sapien) platform

Examples and Range of Aortic Grafts







Baseline Characteristics

- Mean Age 80 years; 91% were male
- Median time from graft placement to TAVR 5.1
- NYHA Class III or IV symptoms 78%
- Median STS score 5.4%
- Transfemoral Access 87% of cases, remainder via axillary
- Valve deployment was successful in all patients with no perioperative complications

Post-Procedural Events

- Two patients developed atrial fibrillation
- One needed temporary dialysis
- One developed pleural effusions
- One had a stroke

- Median length of stay was 3 days
- No in-hospital or 30-day deaths

Univariate Analysis

Baseline Characteristics	Odds Ratio	95% Confidence Interval	*P* Value
Age	1.273	1.040 - 1.714	*0.017*
Pre-Operative AV Mean Gradient	1.241	1.060 - 1.757	*0.001*
Intraoperative Estimated Blood Loss	1.010	1.000 -1.035	*0.047*
Transfemoral Approach	0.088	0.003 - 1.191	0.066
Intraoperative AV Mean Gradient	1.188	0.996 - 1.560	0.056

BMI, NYHA score, STS score, previous PCI, previous CABG, endovascular stent graft type, days between TAVR and endovascular stent graft, aortic annulus diameter, aortic valve area, left ventricular EF, and intraoperative aortic valve regurgitation had no association with post procedural events.

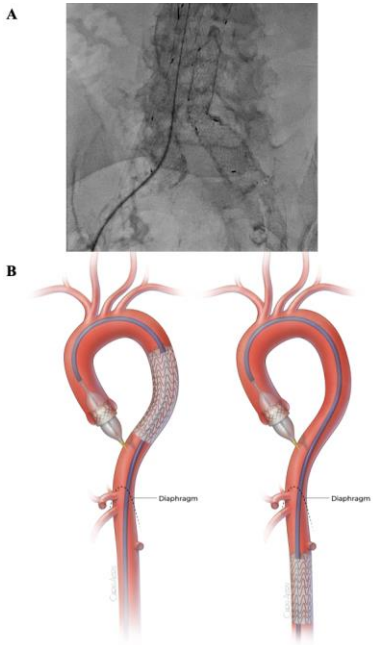
Discussion

- In our cohort, a higher preoperative mean aortic valve gradient was associated with risk of adverse events in univariate analysis
  - This association in the literature is inconclusive

Khalili H et al. *JACC Cardiovasc Interv.* 2022;15:1837-48
Matta A et al. *Am J Med.* 2022;135:745-51 Takagi H et al. *Heart Lung.* 2019;48:519-29

Conclusion and Limitations

- TAVR is technically feasible and safe in patients with prior endovascular aortic stent grafts, with acceptable short-term outcomes when performed at experienced centers
- This study is limited by single-center nature, and a small sample size, limiting statistical power, and generalizability



Acknowledgement

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