

31st Annual State of the Art Echocardiography | San Diego, CA

February 17, 2018 | 4:00 – 4:15 PM | 15 min

TAVR Complications

Muhamed Sarić MD, PhD, MPA
Director of Noninvasive Cardiology | Echo Lab
Associate Professor of Medicine



Disclosures

Speakers Bureau (Philips, Medtronic)
Advisory Board (Siemens)

Case #1

Pericardial Effusion Post LV Wire Removal

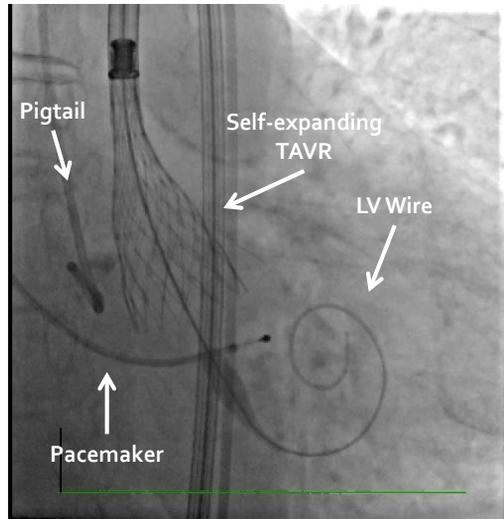


Key Point

TAVR valve are deployed over a wire introduced into the LV retrograde across the aortic valve.



TAVR Deployment Over LV Wire

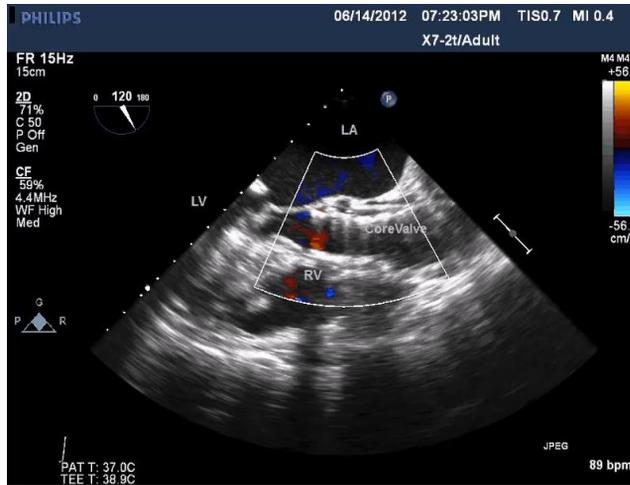


Prior to CoreValve Insertion



6:49:59 PM
No pericardial effusion

Post CoreValve Insertion But Wire Still in LV



7:23:03 PM
First TEE image of CoreValve

Post CoreValve Insertion But Wire Still in LV



7:26:036 PM
Still no effusion

Post TAVR Insertion, LV Wire Removed



7:31:06 PM
First appearance of effusion

Post TAVR Insertion, LV Wire Removed



7:39:01 PM
Massive effusion

Conclusion

Wire-related LV perforation is much less common now due to **wire redesign** and **increased interventional expertise**.



Case #2

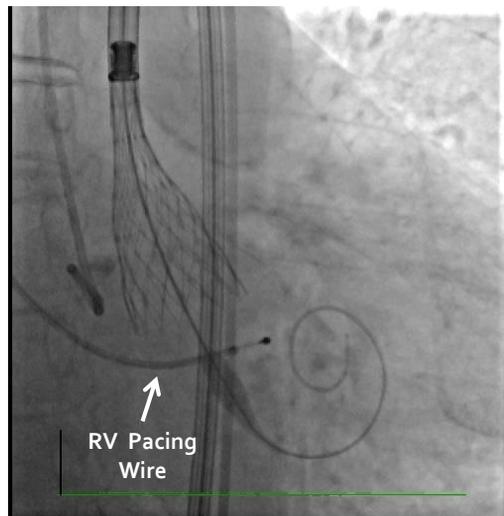
Pericardial Effusion Post RV Wire Removal



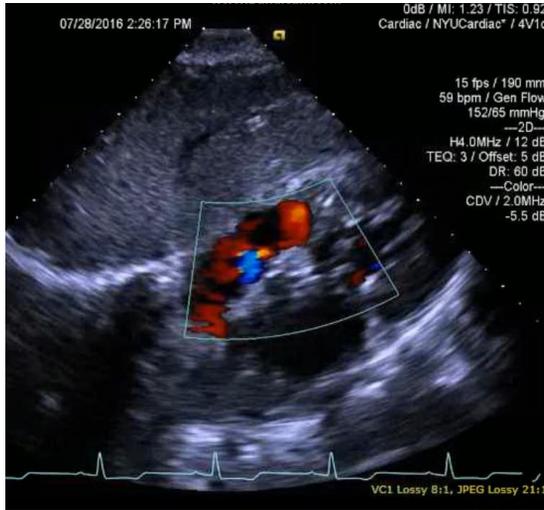
Key Point

Temporary RV pacing wire is inserted immediately prior to TAVR procedure to allow for rapid LV pacing during TAVR deployment.

TAVR Deployment Over LV Wire



Day 0 | Uneventfully implantation of a TAVR valve



No pericardial effusion

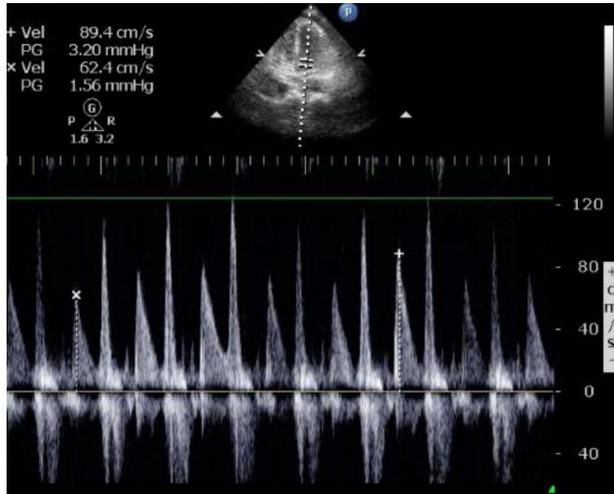
Day 1 | Hypotension minutes post removal of temporary RV pacing wire



New hemorrhagic pericardial effusion

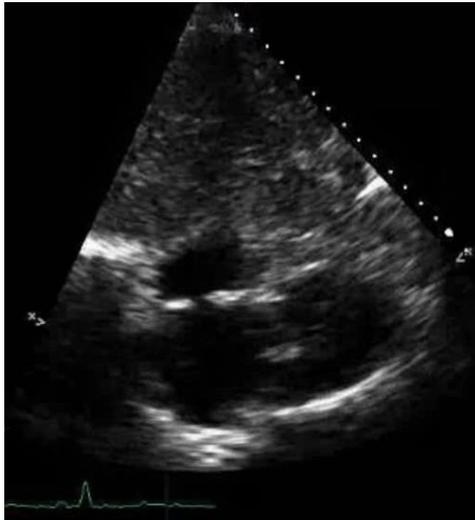
Day 1

Hypotension minutes post removal of temporary RV pacing wire

**Mitral Inflow**

 Marked respiratory variations indicative of tamponade

Day 1 | Post Pericardiocentesis



Resolution of
pericardial effusion

Conclusion

Hemodynamic deterioration soon after RV pacing wire removal should always raise a suspicion for RV perforation and tamponade.



Case #3

An Interesting Complication

Key Point

VSD or Not?

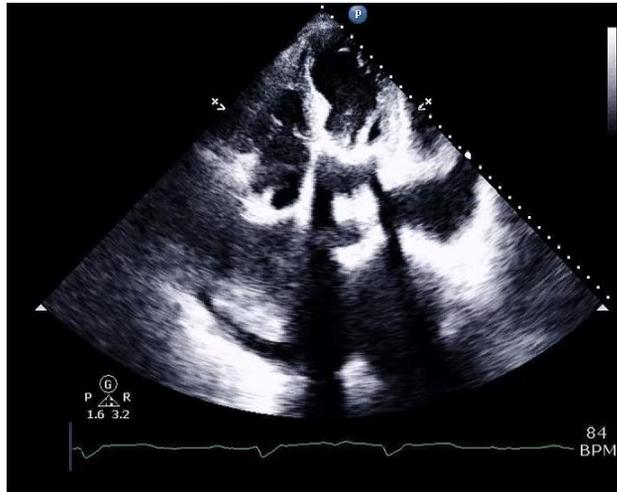


Case Presentation

91-year-old man

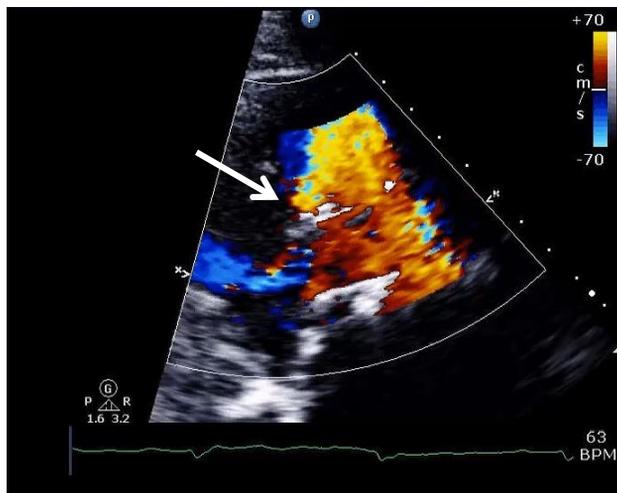
- Originally presented with **severe symptomatic high-gradient aortic stenosis** (ACC/AHA Stage D₁)
 - Underwent successful percutaneous transfemoral **TAVR** using a self-expanding valve followed by **postdilation**
 - **4 months later**, developed progressive **congestive heart failure** with preserved left ventricular ejection fraction
 - Admitted to another institution and underwent TTE
- 

Several Weeks Post CoreValve | Severe new-onset heart failure with normal LVEF



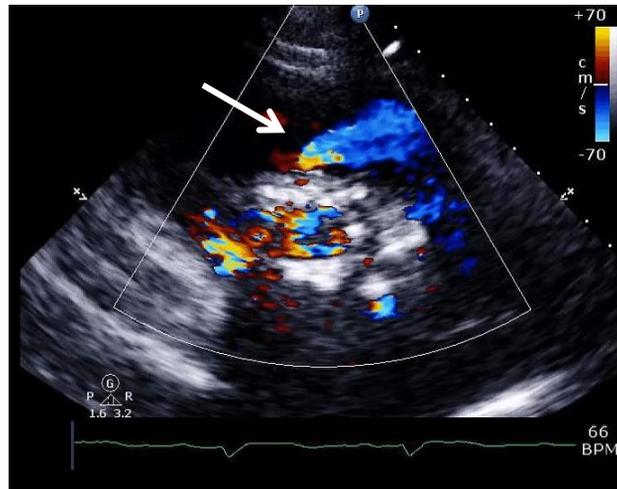
Bilateral pleural effusions

Several Weeks Post CoreValve | Severe new-onset heart failure with preserved LVEF



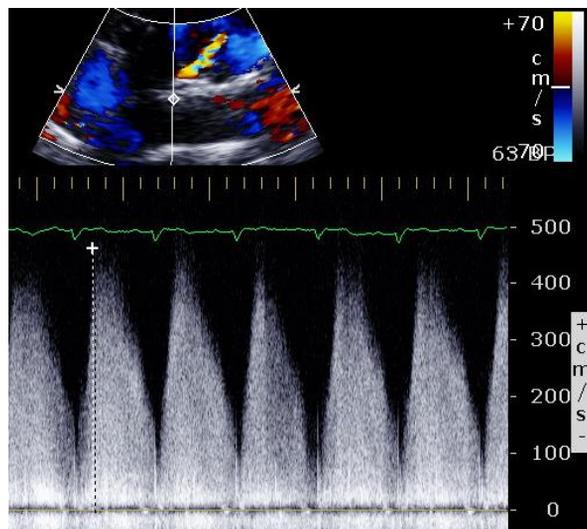
Abnormal color Doppler jet at caudal end of CoreValve

Several Weeks Post CoreValve | Severe new-onset heart failure with preserved LVEF



Abnormal color Doppler jet from CoreValve region to RVOT

Several Weeks Post CoreValve | Severe new-onset heart failure with normal LVEF



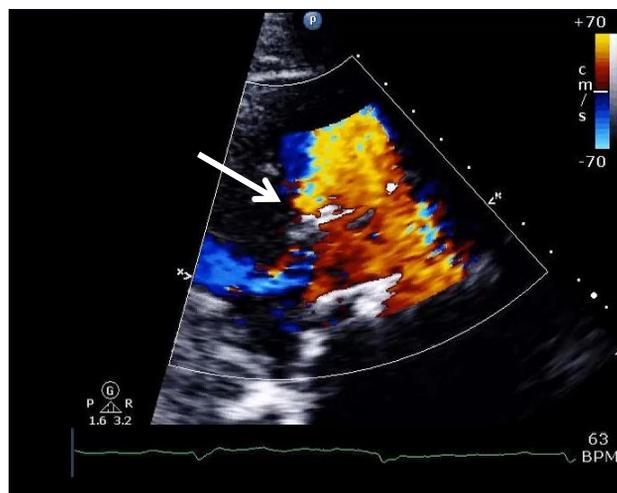
Systolic AND diastolic flow

Question

TTE findings at outside hospital were interpreted as:
Small, hemodynamically insignificant perimembranous VSD

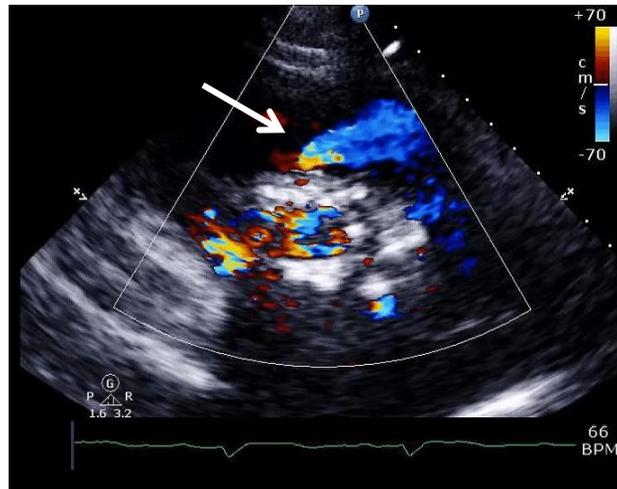
Were they right?

Several Weeks Post CoreValve | Severe new-onset heart failure with preserved LVEF



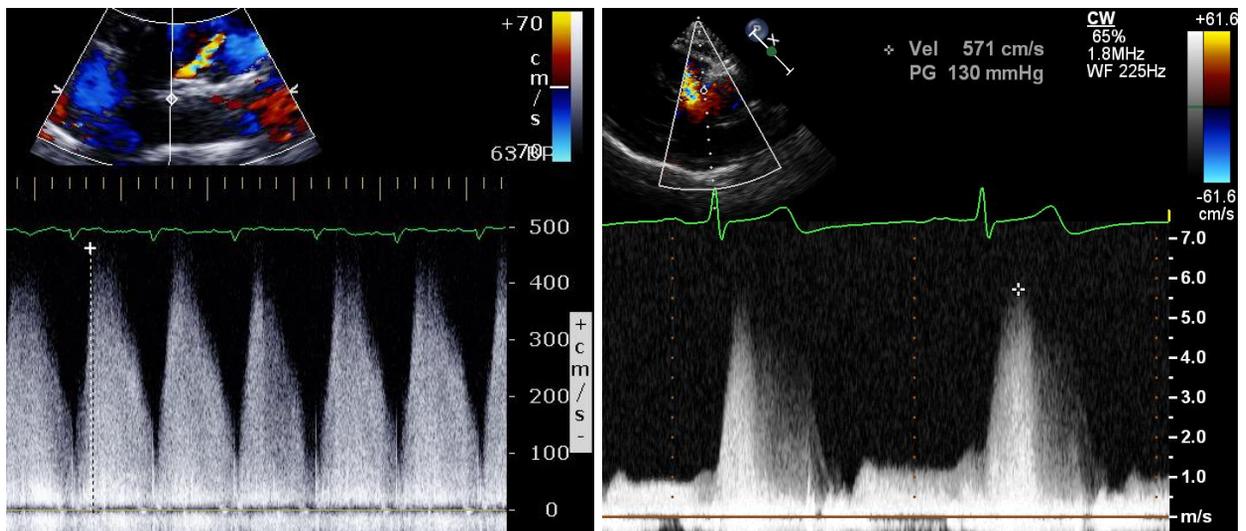
Abnormal color Doppler jet at caudal end of CoreValve

Several Weeks Post CoreValve | Severe new-onset heart failure with preserved LVEF



Abnormal color Doppler jet from CoreValve to RVOT

Several Weeks Post CoreValve | Severe new-onset heart failure with normal LVEF

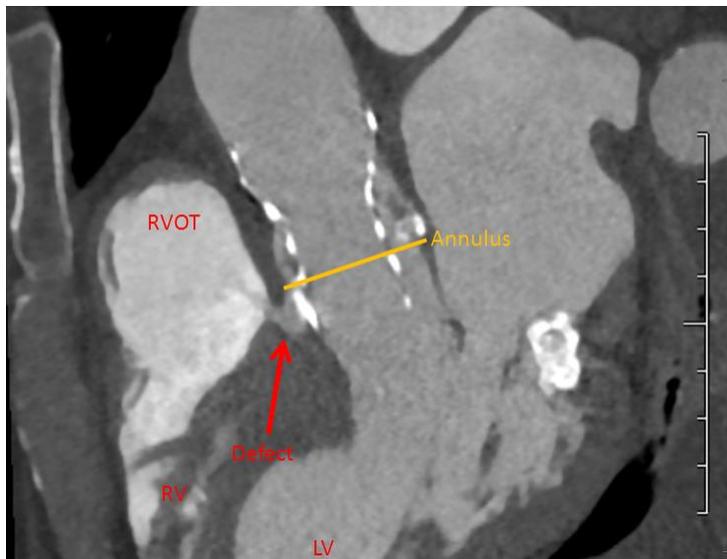


THIS PATIENT – Continuous Flow

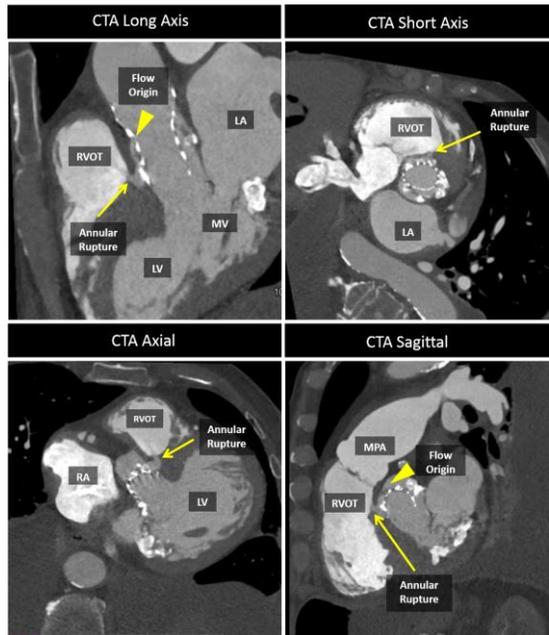
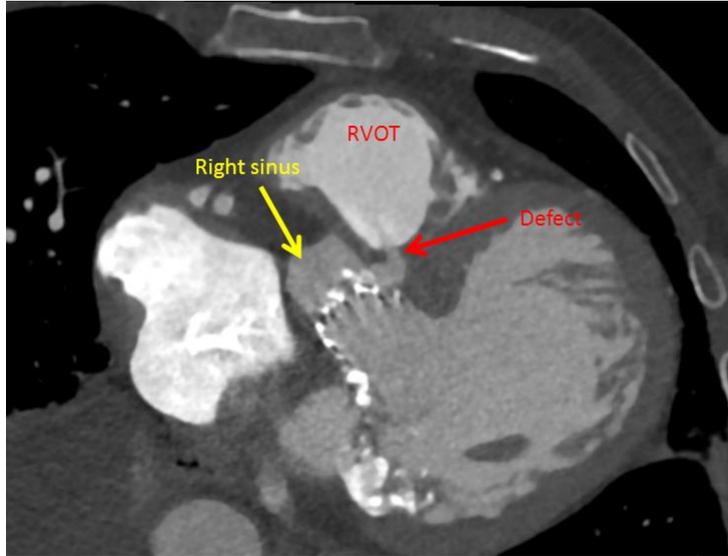
ANOTHER PATIENT – True VSD; Predominant Systolic Flow

Aorto-RV Fistula: Transthoracic Echocardiography

CONTRAST CT CONFIRMS ANNULAR RUPTURE

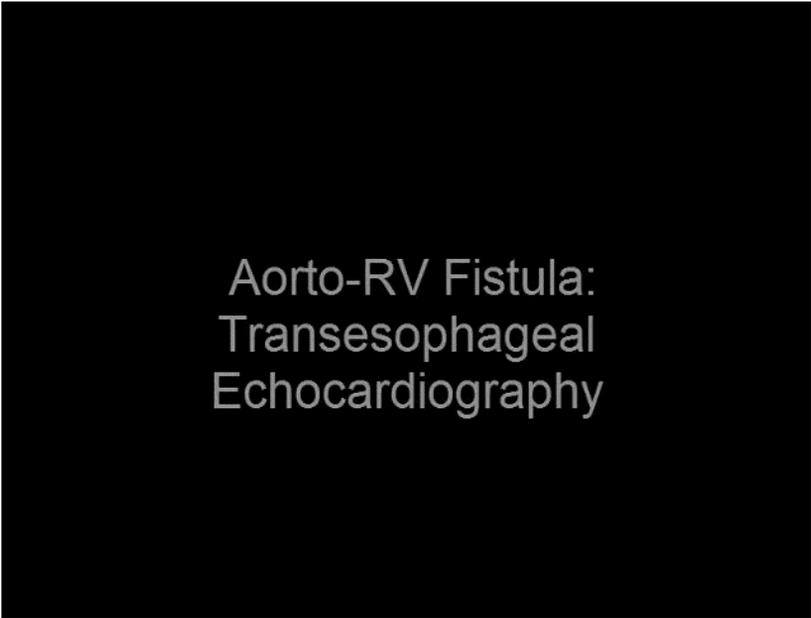


CONTRAST CT CONFIRMS ANNULAR RUPTURE



TEE & Fluoroscopy Guided Closure

Aorta-to-RV communication closed using an 8-mm Amplatzer Vascular Plug (AVP)

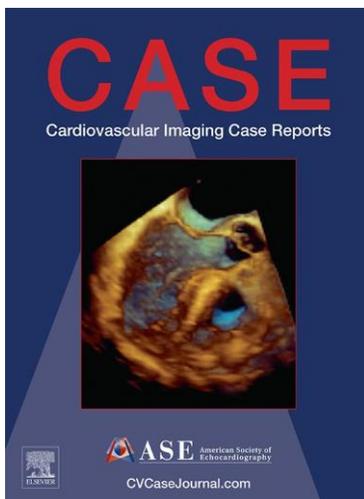
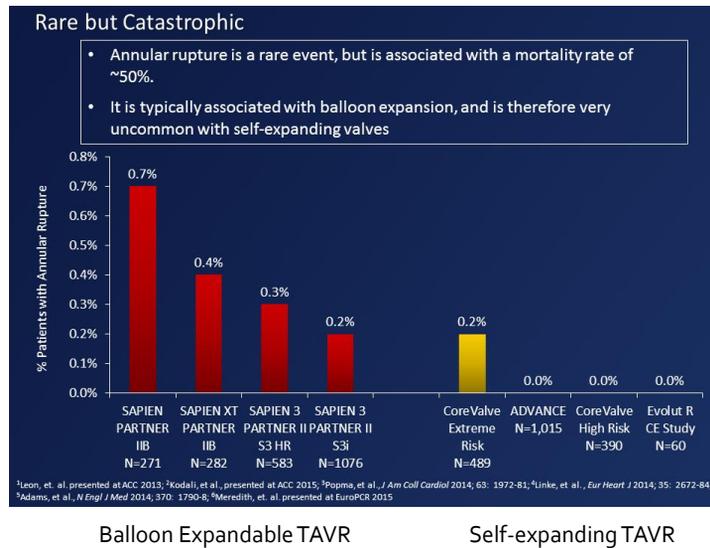


Aorto-RV Fistula:
Transesophageal
Echocardiography

Cine Fluoroscopy:
Aorto-RV Fistula Closure

Transesophageal
Echocardiography
Aorto-RV Fistula Closure

ANNULAR RUPTURE POST TAVR



PERCUTANEOUS PERILS

Aorto-Right Ventricular Fistula Post-Transcatheter Aortic Valve Replacement: Multimodality Imaging of Successful Percutaneous Closure

Alan F. Vainrib, MD, Homam Ibrahim, MD, Kazuhiro Hisamoto, MD, Cezar S. Staniloae, MD, Hasan Jilaihawi, MD, Ricardo J. Benenstien, MD, Larry Latson, MD, Mathew R. Williams, MD, and Muhamed Saric, MD, PhD, *New York, New York*

CASE 2017;1(2):70-74

NYU TAVR TEAM



Thank You!



New York University Langone Medical Center