TAVR Complications

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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

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

First appearance of effusion

7:31:06 PM

Massive effusion

7:39:01 PM

Post TAVR Insertion, LV Wire Removed
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?

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**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

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

Rare but Catastrophic

- Annular rupture is a rare event, but is associated with a mortality rate of ~50%.
- It is typically associated with balloon expansion, and is therefore very uncommon with self-expanding valves.

Balloon Expandable TAVR  Self-expanding TAVR

CASE Cardiovascular Imaging Case Reports

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 Hisamatsu, MD, Cezar S. Stuniloe, MD, Hasan Jilaihawi, MD, Ricardo J. Benenstein, MD, Larry Latson, MD, Mathew R. Williams, MD, and Muhamed Saric, MD, PhD, New York, New York

CASE 2017;1(2):70-74
A Team Approach for Replacing Heart Valves

Thank You!

New York University Langone Medical Center