Inside Out: Left Ventricular Aneurysm Following Transcatheter Aortic Vale Replacement

Sebastian Carrasquillo, MD; Jose Ruiz-Morales, MD; Kerolos Fahmi, MD; Srinivasan Sattiraju, MD; Andres Pineda Maldonado, MD; Daniel Soffer, MD.
Department of Cardiology, University of Florida College of Medicine – Jacksonville, FL

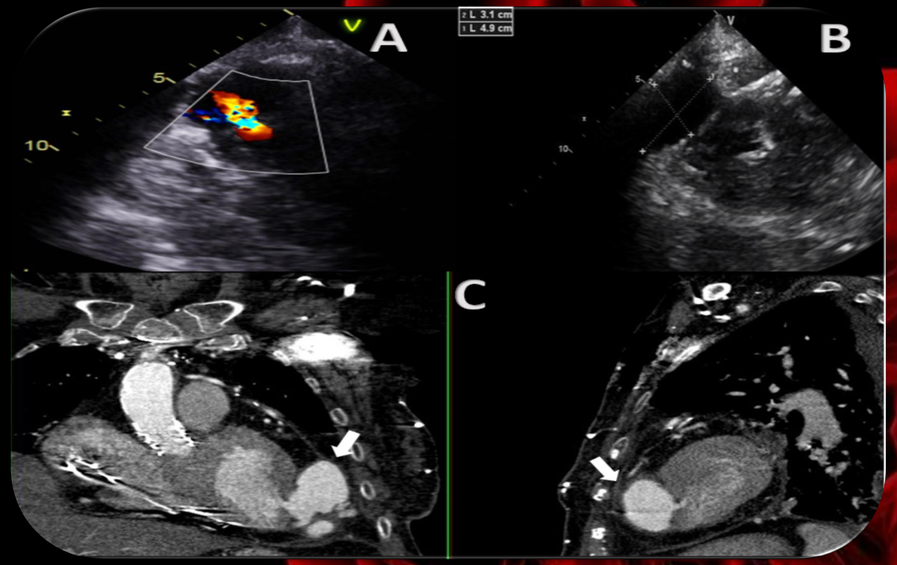
Patient History

An 86-year-old female underwent transapical transcatheter aortic valve replacement (TAVR) for critical aortic stenosis. On post-operative day 2, transthoracic echocardiogram (TTE) findings demonstrated a anechoic loculated collection measuring 3.1x4.5cm in apical region of the left ventricle communicating to the main chamber by color Doppler imaging suggestive of pseudoanuerysm (Figure 1: A & B). During this time patient was hemodynamically stable but with mild shortness of breath. 3D computed tomography revealed a pseudoaneurysm along the distal anterior wall measuring 5.19cm x 2.98cm x 6.2cm (Figure 1: C). The patient subsequently underwent pseudoaneurysm closure with a 10mm ventricular septal defect (VSD) closure device via Amplatz delivery sheath (Figure 2). Follow up transthoracic echocardiogram with color Doppler confirmed successful placement of VSD closure device without evidence of color flow across the device (Figure 3). Patient was evaluated three months later at routine outpatient follow up by TTE without interval change and marked improvement of symptoms.

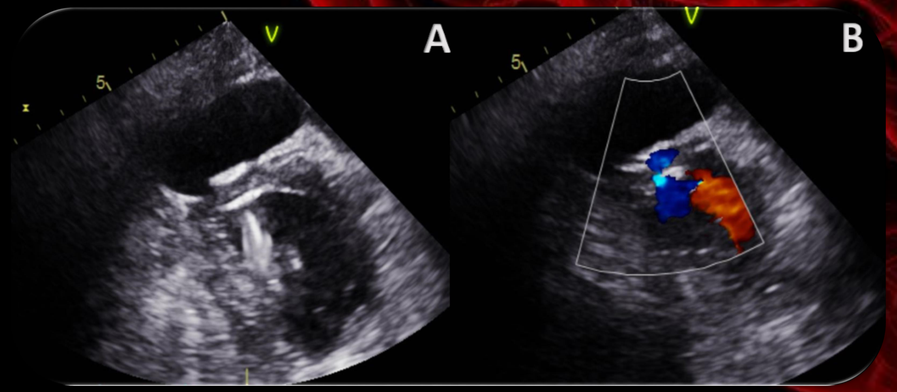
Contact Information

Sebastian.Carrasquillomontalvo@jax.ufl.edu
Jose.Ruizmorales@jax.ufl.edu

Figure 1 & 3: Imaging Studies



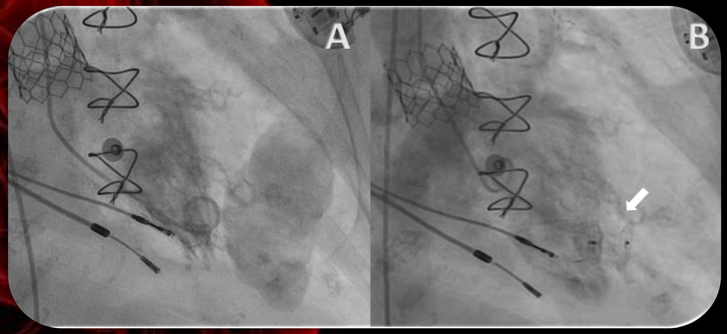
Top: Figure 1 Bottom: Figure 3



Conclusion

Left ventricular pseudoaneurysm is commonly associated with complications following myocardial infarction, surgical valve replacement, thoracic aortic surgery and endocarditis. Pseudoaneurysm following TAVR has a reported incidence rate of less than 1% (1). Coil embolization and septal occlusion devices provide the safest therapeutic option (2). To this date, 11 reported cases involving percutaneous closure of left ventricular pseudoaneurysm exist. Our case depicts the feasibility of successful percutaneous intervention of a left ventricular pseudoaneurysm under conscious sedation using fluoroscopic and TTE guidance.

Figure 2: Angiogram



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2) Kumar, P. V., Alli, O., Bjarnason, H., Hagler, D. J., Sundt, T. M., & Rihal, C. S. (2012). Percutaneous therapeutic approaches to closure of cardiac pseudoaneurysms. *Catheterization and Cardiovascular Interventions*, *80*(4), 687-699.