

Chest Pain caused by a pseudo-aortic aneurysm s/p transcatheter aortic valve replacement (TAVR) complicated by Left ventricular perforation repair

Lihua Zou, MD, Terry Bauch, MD
Geisinger Wyoming Valley, Wilkes-Barre, PA

Abstract

We present a rare case of chest pain following TAVR complicated by LV perforation with open-heart surgery and LV repair. A distortion of the proximal LAD due to formation of pseudoaneurysm was found two months later. She underwent TAVR explant, AVR and repair of pseudoaneurysm. This report illustrates the importance of early detection and prompt management of the rare conditions.

Introduction

A 76-year-old female with past medical history significant for CKD stage 3a, Factor V Leiden, hypertension, obstructive sleep apnea, hyperlipidemia, TIA, and obesity was known and monitored for aortic stenosis. She was considered a suitable candidate for TAVR secondary to symptomatic severe aortic stenosis. Preop coronary angiogram was normal. The procedure was complicated by intraoperative left ventricle perforation (LV) and cardiac tamponade. She underwent emergent open-heart surgery and LV repair. Post op, she recovered well. She started complaining of chest heaviness and chest pain with exertion two months later.

Methods and materials

Repeat ECHO was unrevealing. She underwent cardiac catheterization which suspected myocardial long bridge proximal to LAD and no evidence of atherosclerotic CAD and well seated TAVR. Cardiac CT showed that there was evidence of a LV pseudoaneurysm which likely originated at the base of the lower portion on the TAVR. The pseudoaneurysm was large and extended around the proximal LAD causing external compression and distortion of the LAD. The findings were considered not amenable to percutaneous repair.

Patient underwent redo sternotomy 5 months after initial TAVR and LV perforation repair. Sapien 3 valve was successfully explanted, and aortic valve was re-replaced. The neck of the pseudoaneurysm was found under the left coronary cusp. There was about 4 mm hole in the left ventricular wall under the left coronary cusp. This was able to be probed and clearly was the neck of the aneurysm. The pseudoaneurysm was obliterated. The surgery went well and no complications.

Results

Patient has been followed by cardiology and cardiothoracic surgery post op while doing cardiac rehab. Repeated cardiac CT 3 months after surgery was performed to assess repair of the previously noted pseudoaneurysm arising near the base of the valve and reassess the previously distorted LAD (fig. 1 and fig. 2). The finding showed LV myocardium appearing normal. The LAD is no longer distorted as the pseudoaneurysm appeared to be completely resolved. No other significant findings. ECHO showed unremarkable one year later after surgery. The patient is currently alive and doing well 4 years after the surgery.

Discussion

TAVR carries risks and complications. Pseudoaneurysm of LV following LV perforation repair can occur. This pseudoaneurysm formation can cause mechanical LAD external compression or distortion causing chest pain. For this patient, the original TAVR was explanted due to intraop finding of the cells of the Sapien 3 valves clearly covering the coronaries which was not suggested pre op. She got a new bioprosthesis of aortic valve and repair pseudoaneurysm. Cardiology and cardiothoracic surgery work together correlating finding of cardiac CT, coronary angiogram and TEE is extremely important to manage such patients.

Conclusion

TAVR carries risks and complications. Pseudoaneurysm of LV following LV perforation repair can occur. This pseudoaneurysm formation can cause mechanical LAD external compression or distortion causing chest pain. For this patient, the original TAVR was explanted due to intraop finding of the cells of the Sapien 3 valves clearly covering the coronaries which was not suggested pre op. She got a new bioprosthesis of aortic valve and repair pseudoaneurysm. Cardiology and cardiothoracic surgery work together correlating finding of cardiac CT, coronary angiogram and TEE is extremely important to manage such patients.

References

1. Carroll JD, Mack MJ, Vemulapalli S, et al. STS-ACC-TVT Registry of TAVR. J. Am Coll Cardiol 2020; 76:2492
2. Liang Y, Dhoble A, Pakanati A, et al. Catastrophic Cardiac Events during Transcatheter Aortic Valve Replacement. Can J Cardiol 2021 May 13; S0828-282X (21)00246-4

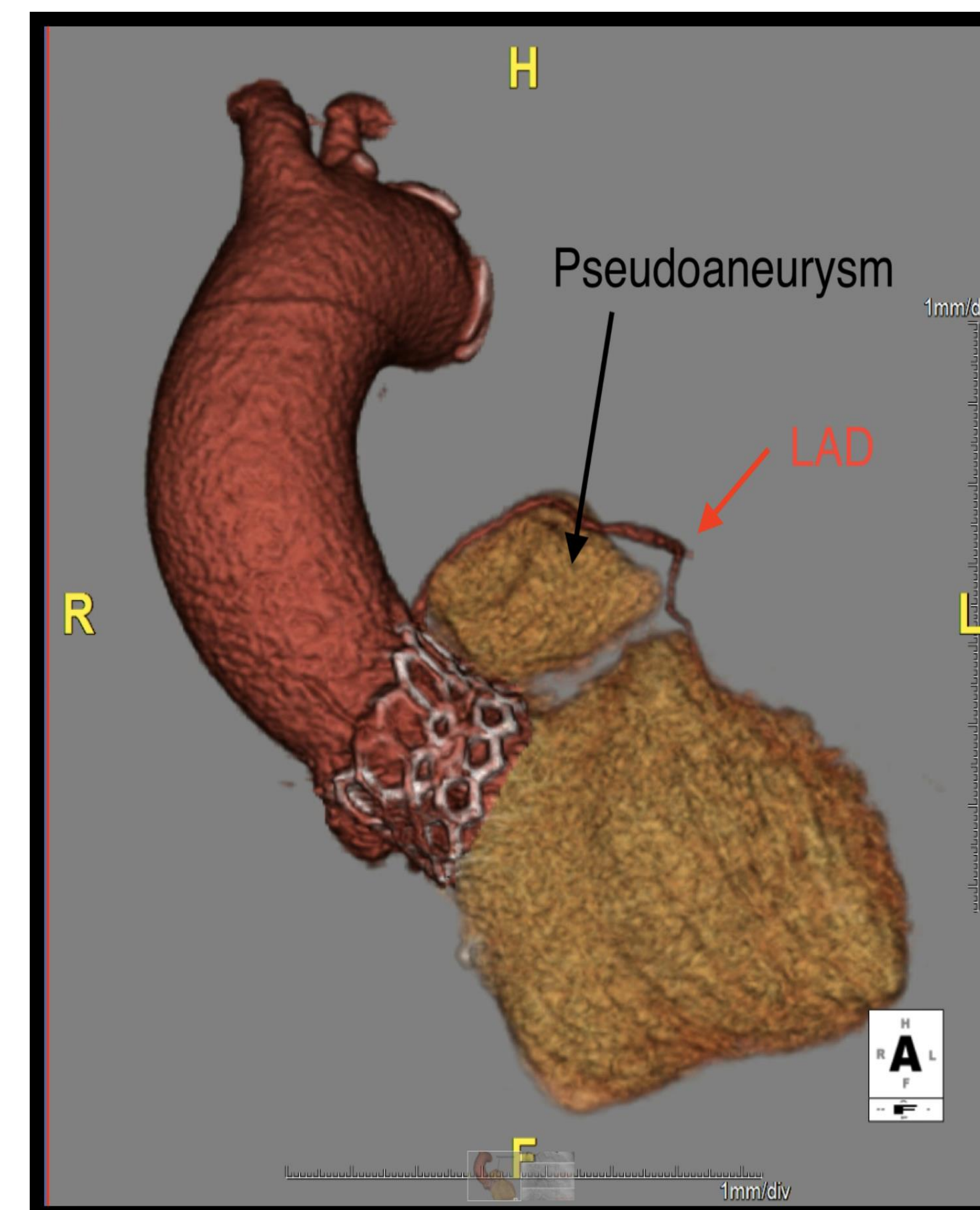


Figure 1. Label in 20pt Arial.

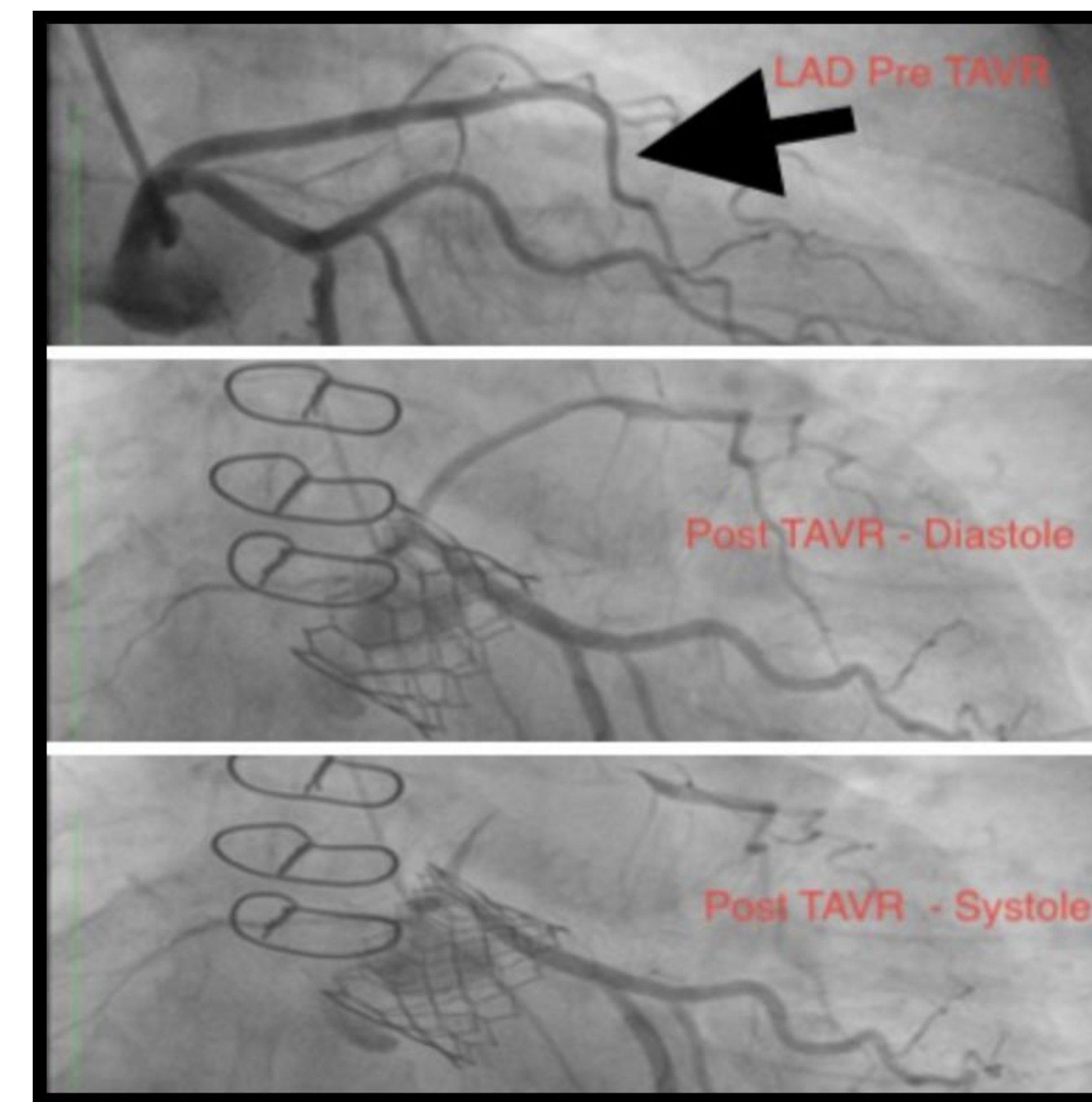


Figure 2. Label in 20pt Arial.