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Images in Cardiology

Giant ischemic left ventricular submitral aneurysm

Jivtesh S. Pahwa *, *Devendra Patil, Jasleen Kohli, Milind S. Phadke, Charan P. Lajewar, Prafulla G. Kerkar*

Seth G S Medical College and King Edward VII Memorial Hospital, Mumbai, India

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A 48-year-male presented to the emergency department with hypotension and hemodynamic collapse. His 12-lead electrocardiogram showed monomorphic ventricular tachycardia of inferior axis, left bundle branch morphology (Panel A), and was cardioverted with DC shock. He had suffered inferior wall myocardial infarction and had undergone percutaneous coronary intervention with two stents to the proximal and mid-right coronary artery (RCA) three months back. Attempt to open the totally occluded posterior descending artery failed (Supplementary Video 1). Echocardiography showed akinetic, scarred apical inferior, entire infero-septal, and infero-lateral segments of the left ventricle (LV). There was mild mitral regurgitation. A wide-necked (4.0 cm) giant aneurysm (8.0 cm × 7.8 cm) arising from the basal and mid-lateral inferior LV, at its junction with posterior mitral leaflet, was noted (Panel B). Color Doppler imaging showed blood entering the cavity from the LV in systole and returning from the cavity into the ventricle in diastole (Panel C, Supplementary Video 2). Cardiac magnetic resonance imaging (CMR) confirmed these findings. Aneurysm had thin muscular wall with echogenicity similar to the ventricular myocardium (Panel D, Supplementary Video 3). Gadolinium-enhanced CMR demonstrated a large layered clot attached to the roof of the aneurysm (Panel E). Coronary angiogram (CAG) revealed patent stents followed by near total occlusion of distal RCA with poor distal run-off. Left anterior descending and circumflex arteries were normal. The giant thin-walled posteriorly placed aneurysm was resected and patch closure of the neck was done (Panel F). Postsurgical recovery was uneventful.

* *Corresponding author.*
E-mail address: jivtesh84@gmail.com (J.S. Pahwa).

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Submitral aneurysms (SMAs) are described predominantly in the African population and are mostly due to a congenital weakness of the fibrous annulus of the valve. Ischemic aneurysms, as in our case, are usually localized to the apex and result from anterior wall myocardial infarction. Ischemic origin of SMA is extremely rare. The territory supplied by PDA, which unfortunately could not be revascularized, underwent scarring and remodeling, thereby resulting in a giant SMA. Ventricular aneurysm can present with arrhythmias (as in our case), thromboembolism, heart failure, and ventricular rupture. Coronary revascularization and aneurysm repair is the treatment of choice.

Conflicts of interest

The authors have none to declare.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.ihj.2015.10.383.