

Case Report

Leaking sub-mitral left ventricular aneurysm (SLVA)

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Introduction

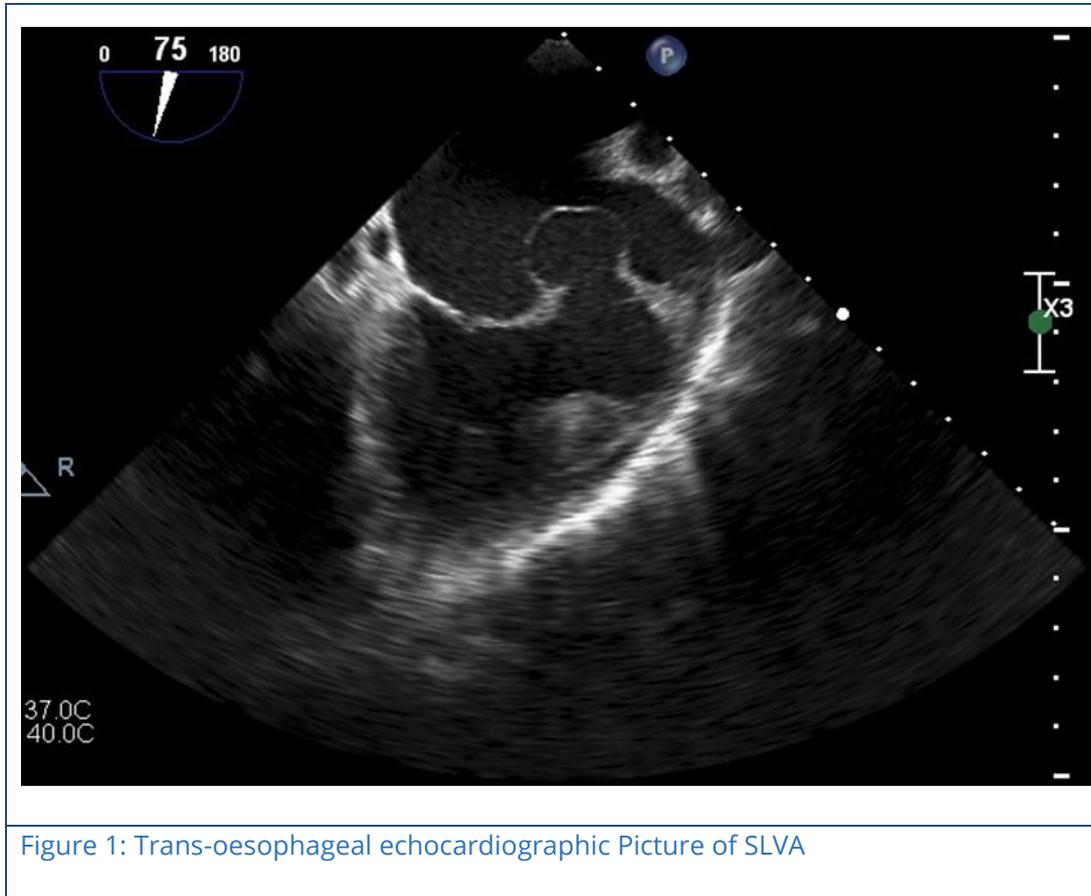
Sub-mitral left ventricular aneurysm (SLVA) is a rare condition reported in different country [1]. A number of aetiologies have been proposed for the development of this condition, but current consensus is that aneurysms are most likely due to a congenital weakness of the fibrous annulus of the valve [2]. It can present with various clinical pictures in the 2nd or 3rd decade of life [3]. Our case highlights the importance of considering SLVA in the differential diagnosis of acute heart failure with holosystolic murmur and pulmonary edema in young patients.

Case report

A 22 year old previously healthy girl transferred from local hospital sudden onset of progressively worsening dyspnea with chest discomfort for one day duration. On admission she was restless, had tachypnea with low oxygen saturation (SpO₂-78%), Heart rate 106/min, Blood pressure- 90/60mmHg, Holosystolic murmur at left lower sternal edge, B/L crackles with more on R/side and apex located at 5th intercostal space mid-clavicular line. Basic blood investigation were normal, CXR revealed Right side homogenous opacity in middle and lower zone and ECG showed sinus tachycardia. On next day she developed hypotension and severe tachypnea with hypoxia. She was intubated and transferred to intensive care unit. Echocardiography revealed evidence of perforated sub-mitral left ventricular aneurysm leaking into left atrium through the thin wall separating left atrium and aneurysm, thinned out mitral valve annulus without MR, normal left ventricular function and moderate pulmonary hypertension. She was medically managed with diuretics and inotropes then sent for surgery once she was haemodynamically stable.

Intra operatively she was found to have, large sub annular left ventricular aneurysm measuring 10cm*5cm communicating with left atrium via wind socks defect. She underwent repair of aneurysm and mechanical mitral valve replacement as repair of mitral valve was unsuccessful.

Her post-operative 2D Echo revealed successful MV replacement and LV aneurysm repair with moderate residual left and right ventricular dysfunction. She was started on oral anticoagulation and anti-failure regimen. One month follow up Echo showed improving left ventricular function.



Discussion

There are case reports available with various presentations of sub-mitral aneurysm such as progressive dyspnea due to mitral regurgitation [1], cardiogenic shock due to low stroke volume [3], chronic exertional dyspnea due to perforated aneurysm [4], myocardial ischemia due to compression of coronary artery [3], thromboembolism [6] and arrhythmias [3].

There are no reports of acute heart failure due to perforated SLVA. But our patient presented with acute pulmonary edema due to a ruptured aneurysm leaking into the left atrium. Acquired causes of SLVA are Takayasu's arteritis, tuberculosis, and endocarditis have been reported [5]. Our patient didn't have any evidence for secondary causes. Therefore, the aetiology of SLVA in our patient is thought to be congenital. Doppler echocardiography has proved to be a useful technique for the diagnosis of sub-mitral aneurysms [4] but TOE or cardiac MRI can be done to get more detail. Management of sub-mitral aneurysm involves initial medical stabilization and surgical repair with or without mitral valve replacement [2].

Our patient developed aneurysmal leak into left atrium which mimicked clinically and pathophysiologically acute Mitral regurgitation causing pulmonary edema. Her symptoms improved with diuretics and successfully underwent surgical repair with mitral valve replacement.

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