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## Images in Cardiology

# Ruptured submitral aneurysm



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### ABSTRACT

Submitral aneurysm is a rare entity, with around few hundred cases reported till date. Presentation can be varied. We describe here a case of submitral aneurysm in a young male with rupture into the left atrium cavity.

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Submitral aneurysm, first described in 1812 and the first case reported in 1962,<sup>1</sup> presents at young age. Most common presentation is moderate–severe mitral regurgitation, resulting in gradual worsening dyspnea. Acute rupture of aneurysm into left atrial cavity has also been previously reported.<sup>2</sup> Presentation with ventricular tachycardia, thromboembolism, left ventricular diastolic overload, infective endocarditis, left circumflex artery, and left main artery obstruction has been reported.<sup>3–8</sup> A congenital maldevelopment, resulting in weakness of the posterior mitral fibrous annulus causing formation of a true aneurysm, has been considered as an etiology. Presence of a membranous submitral curtain has been proposed as a possible mechanism.<sup>7</sup> Diagnosis in utero has been made, supporting a congenital etiology.<sup>9</sup> The association with takayasu arteritis, HIV infection, tuberculosis, and rheumatic carditis has been described.<sup>10–12</sup> Though initially reported in Africans, the disease has been documented across

the globe and in different races. Du Toit et al. have classified the aneurysm into 3 types as – Type I, single localized neck; Type II, multiple necks; and Type III, involvement of the entire posterior mitral annulus.<sup>12</sup>

We describe a case of ruptured submitral aneurysm into left atrium. A 34-year-old male patient presented with complaints of breathing difficulty, orthopnea, and expectoration for one week. Examination revealed tachycardia, presence of a third heart sound, pansystolic murmur of mitral regurgitation, and bilateral basal crepitations in chest, suggesting left ventricular failure. Transesophageal (Fig. 1) and transthoracic (Fig. 2) 2D-Echo revealed the presence of a submitral aneurysm that had ruptured into the left atrium. The patient was put on intravenous diuretics and oral vasodilators, and upon stabilization, was discharged and referred to cardiovascular surgery for surgical repair. The patient, however, refused any surgical intervention and is on medical follow-up.

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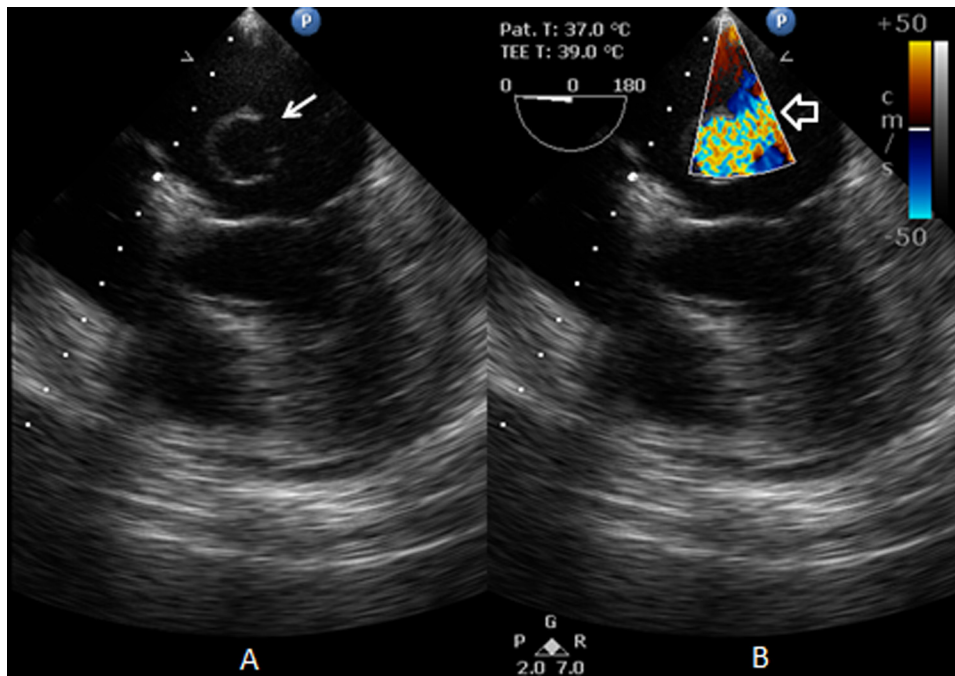


Fig. 1 – Transesophageal 4 chamber, 2D-Echo (A) and color image (B) showing the submitral aneurysm in cross-section in left atrium (solid arrow) with systolic regurgitation jet through the ruptured site (hollow arrow).

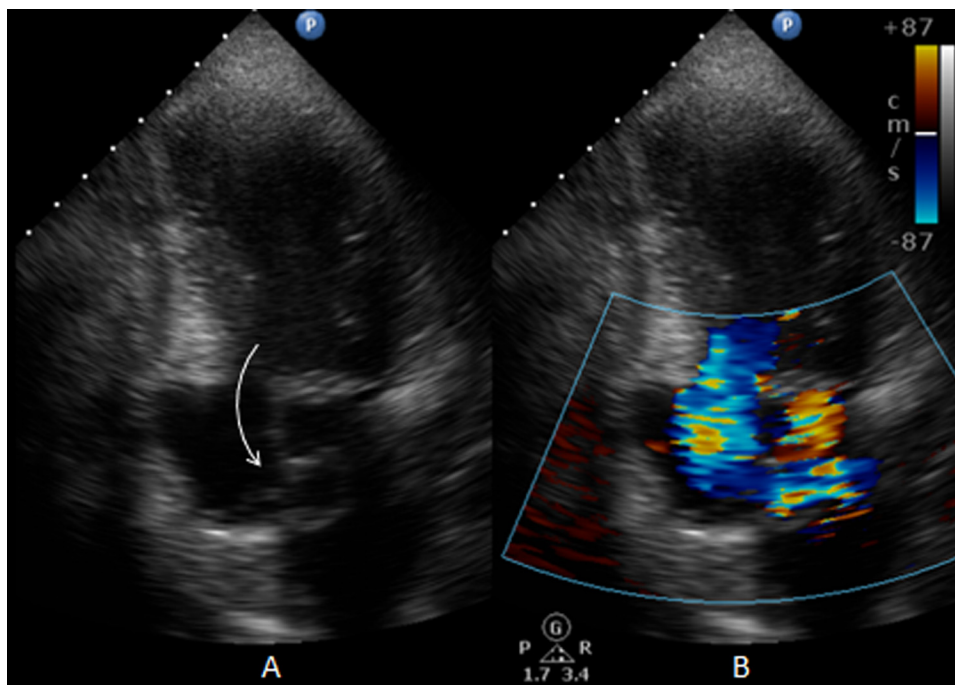


Fig. 2 – Transthoracic apical 2 chamber, 2D-Echo (A) and color image (B) showing the aneurysm tunneling through the submitral space into left atrium (curved arrow) with systolic regurgitation jet from left ventricle to left atrium via the aneurysm.

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## Conflicts of interest

The authors have none to declare.

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## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.ihj.2015.07.005](https://doi.org/10.1016/j.ihj.2015.07.005).

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