

# Anterior Submitral Aneurysm: Rare Entity

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**Abstract:-** We present a case of exertional dyspnea Class III and congestive heart failure (CHF). 2DEcho showed a rare presentation anterior submitral LV aneurysm. He improved symptomatically with diuretics, ACEI( angiotensin Converting enzyme inhibitor) and beta blockers. Aim of presenting this case is because a rare presentation and which can lead to CHF.

**Keywords:-** Submitral aneurysm CHF rare presentation 2DECHO dyspnea.

## I. INTRODUCTION

Submitral aneurysm (SMA) is a outpouching of left ventricular (LV) wall of congenital origin, which invariably occurs adjacent to the posterior leaflet of mitral valve. SMA is usually seen in young adults with various clinical presentation like severe mitral regurgitation, heart failure, systemic embolism, ventricular arrhythmias, and even sudden cardiac death. African blacks account for the majority of the SMA cases reported in world literature, with an estimated incidence of 34 per 10,000 cardiovascular illnesses.

Anterior location of submitral aneurysm is even rarer as in our case.<sup>1</sup>

## II. CASE HISTORY

53/M presented with exertional dyspnea grade III since last 2 months. Clinical examination revealed no leg odema, JVP was normal, S1 S2 normal, S3 was present, short EDM, no S4, chest showed bibasal crepts. CXR showed cardiomegaly and ECG showed LVH. He was treated with diuretic, ACEI (Angiotensin Converting Enzyme Inhibitor), beta blockers and improved symptomatically.

The Echo image shows dilated LA/LV with moderate LV dysfunction. Stretched PFO with Left to right shunt, mild AR and mild aortic root dilation.

**The important findings are aneurysmal cavity from aortomitral junction communicating with LV. There is flow in systole from LV to aneurysm and back to aneurysm in diastole. The aneurysm is arising from anterior aspect of mitral annulus so its anterior submitral aneurysm.** Submitral aneurysm arising below PML and commissure is more common than anterior submitral aneurysm.

Surgical correction was planned but he lost follow up after two visits.

## III. DISCUSSION

LV aneurysm in the absence of ischemic heart disease is rare,<sup>2</sup> but may be seen in other conditions like congenital origin, secondary to trauma, connective tissue disorders, primary myocardial, or infective heart disease. Chagas' disease, infective endocarditis, and idiopathic or in viral myocarditis also seen LV aneurysms of infective origin. Subvalvular LV aneurysms are least common.<sup>3</sup> Anatomy of the mitral annulus is supposed mechanism for congenital aneurysms below the posterior leaflet. Two thirds of the mitral annulus is related to the posterior leaflet which is attached to the myocardium of LV by annular tissue (mitral ring). The mitral ring is immediate externally related to the epicardium in the atrioventricular groove. A dehiscence of this muscular-fibrous union will result in a SMA below the posterior leaflet.<sup>3</sup> Surgical replacement of mitral valve can present with morphologically identical aneurysms in the same position. The remaining one-third of the mitral annulus is formed by the fibrous union between the aortic and mitral valves through the so called "mitral-aortic intervalvular fibrosa". Perforation of the latter structure has been described only as a consequence of infective endocarditis.<sup>3</sup> The exact nature or cause of the defect in subvalvular aneurysms is uncertain. The predilection for constant anatomic sites in the absence of evidence of coronary atherosclerosis, infection, or trauma would favor a congenital cause. Although their pathogenesis appears to be similar, it is uncertain, however, whether the dehiscence between the annulus and the related structure is a primary failure of union or a later spontaneous separation. SMA patients can present with left heart failure, with progressive cardiac decompensation or with angina. Usually, the lesion is detected incidentally in an otherwise asymptomatic person.

Our patient presented with exertional dyspnea and cardiomegaly on chest X ray.

Valvular regurgitation is almost invariably present in such patients.<sup>4</sup> Our patient has mid AR and moderate MR. Ventricular tachycardia has been also reported as presentation.

An accurate diagnosis can be made by left ventricular angiography.<sup>4</sup> Although the aneurysm can also be detected noninvasively by echocardiography, it can be missed by experts, especially if it is located in the posterior

wall.<sup>5</sup>Magnetic resonance imaging is a promising tool for diagnosing these aneurysms. SMAs can rupture spontaneously or be the source of systemic emboli,<sup>4</sup> and have risk malignant ventricular arrhythmias .<sup>6</sup>

The Surgery is a definite treatment,<sup>7</sup> but medical treatment is done in high surgical risk patients, and

implantable cardioverter-defibrillators in cases with malignant ventricular arrhythmias, should be considered.<sup>8</sup>

#### IV. CONCLUSION

Submitral Aneurysm is a rare entity and anterior SMA is rarer than posterior. We found anterior is our case and intent to present to discuss such rare finding. It can lead to CHF and surgical correction is only treatment.



Fig. 1: SMA in long axis



Fig. 2: SMA filling from LV in systole

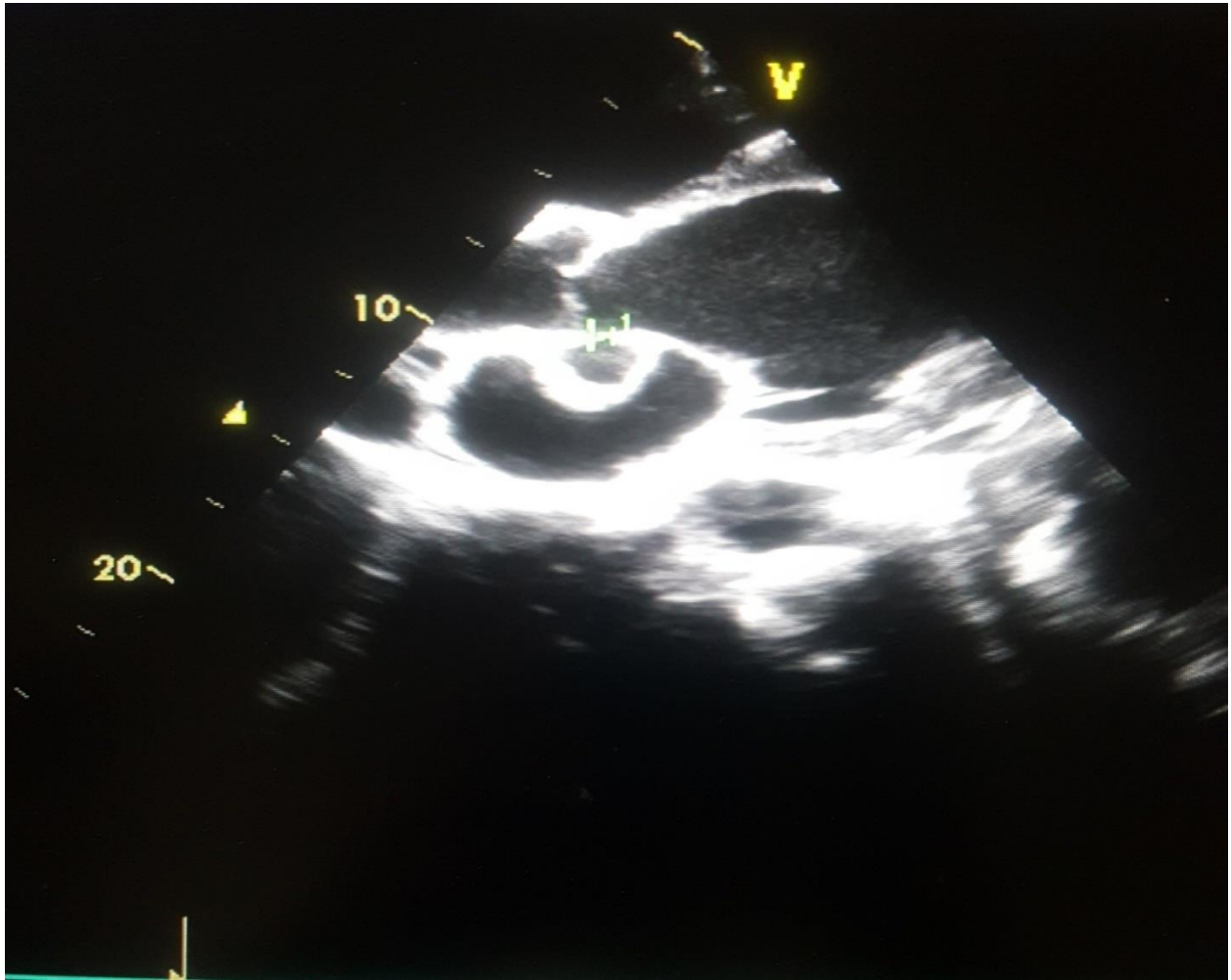


Fig. 3: SMA without color



Fig. 4: SMA in 4 chamber

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