Tropical submitral left ventricular aneurysm presenting as narrow QRS tachycardia

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Introduction-
Submitral aneurysms are rare entities speculated to be either true aneurysms, or “false” aneurysms [1]. Though they may be picked up incidentally, they could also present as arrhythmias including ventricular tachycardia. However, narrow QRS tachycardia has not been reported earlier with submirtal aneurysm.

Case Report-
A 55-year-old hypertensive male presented to our institution with one episode of self limited hemodynamically stable narrow QRS tachycardia at a rate of 170 per minute, with retrograde P waves on ST segment, and no QRS alternans (Figure 1). Baseline electrocardiogram showed prolonged PR interval, right atrial enlargement, large left ventricular voltages but no manifest pre-excitation. 24 hour Holter recording and chest radiogram were normal. Transthoracic (and transoesop hageal) echocardiography (TTE) showed mildly dilated left ventricle (end diastolic dimension 53 mm), good ventricular function, a submirtal aneurysm of the basal lateral wall (figure 2A, B), and mild mitral regurgitation. Fluoroscopy showed submirtal calcification. Cardiac catheterization showed normal cardiac output, normal pulmonary artery and filling pressures and right dominant normal epicardial coronary arteries. Left ventricular angiogram (figure 3A, B) confirmed the diagnosis.

In view of minimal symptoms, small aneurysm size, and mild mitral valve involvement, he was advised serial TTE, oral anticoagulation and oral Verapamil. He was not keen for electrophysiological study. He is asymptomatic for 6 months now.

Discussion
Submitral aneurysms are believed to be caused by a congenital defect in the posterior mitral annulus or left ventricular wall. However, there is also a theory that a hematoma through a defect in the muscular fibrous junction of the posterior mitral leaflet may get contained by the epicardium and organize into a “false” aneurysm [1]. Submitral aneurysms have been reported with Takayasu’s arteritis and tubercular pericarditis, but not with other congenital cardiac anomalies [2].

Clinical presentation
The lesion is usually detected incidentally but may produce symptoms through diastolic overload (by virtue of their volume or by causing mitral regurgitation), embolism, arrhythmias, or compression of the left circumflex artery leading to ischaemic manifestations [3].

Our patient presented with a narrow QRS tachycardia, which 

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Figur I. Electrocardiogram showing regular narrow QRS tachycardia
could also be a coincidental finding.

**Prevalence**

Only around 100–120 cases of these aneurysms have been reported [3]. They occur mainly in African blacks. About 15 cases have been reported from India [4].

**Diagnosis**

Our patient had normal coronaryies, with no systemic manifestations, or history of trauma.

This aneurysm is often missed on echocardiography, unless specifically looked for. Coronary angio graphy should always be done to rule out coronary artery disease. Left ventricular angiography can confirm the diagnosis [2].

Magnetic resonance imaging is promising [2].

**Treatment**

The definite treatment is surgical [4, 5], though associated with poor outcome especially for large aneurysms with ventricular dysfunction [2]. Implantable cardioverter-defibrillators in malignant ventricular arrhythmias should be considered [6].

**Conclusion**

The occurrence of a submitral aneurysm with mild mitral valve insufficiency and no signs of heart failure and presenting with a narrow QRS tachycardia is quite unique.

Our case highlights the importance of considering submitral aneurysm in the etiological diagnosis of narrow QRS tachycardia.

**References**


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**III. Figure**

2 panel A (left anterior oblique 600 cranial 200) and panel B (right anterior oblique 300) show a left ventricular angiogram filling an aneurysm posterobasal to the mitral annulus suggestive of a submitral aneurysm (arrow).