



Submitral Aneurysm-A Rare Presentation of Ventricular Tachycardia

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Abstract

Submitral aneurysm is a rare entity with most cases described in the African population. Sporadic case reports in the last two decades has documented their existence in the Indian population. Ischemic origin of a Submitral aneurysm is extremely rare. Patients may present with heart failure, thromboembolism, ventricular arrhythmias or sudden cardiac death. We present a case of a submitral aneurysm presenting to us with ventricular tachycardia to the emergency department.

Key words

Submitral Aneurysm; Ventricular Tachycardia

Case Report

A 65-year-old male presented to the emergency department with hypotension and hemodynamic collapse. His ECG showed monomorphic ventricular tachycardia right axis with right bundle branch morphology (Figure 1). The precise location on ECG was anterolateral mitral annular VT. It was DC cardioverted with 360J. He had an old history of inferior wall myocardial infarction 3 years back. His baseline ECG showed QS pattern in inferior leads (Figure 2). The patient had stopped his medications. His serum electrolytes and troponin T were normal. Echocardiography revealed akinetic apical inferior, inferolateral, and inferoseptal segments of the left ventricle. A 6 X 6 cm wide-necked aneurysm was seen arising from the mid and basal inferior wall of LV at its junction with posterior mitral leaflet. A large clot was noted in this aneurysm (Figure 3). The patient was planned for further investigations but due to financial constraints, he requested for discharge. On discharge his blood pressure was 100/70 mmHg with normal sinus rhythm [1].

Discussion

In 1812 Corvisart first described Submitral Aneurysm (SMA) and since then, worldwide only 100-120 cases have been reported [2]. Thus, SMA is a rare entity and most cases have been described in an African population [3]. Its etiology is still a subject of debate but it is mostly due to a congenital weakness of the fibrous annulus of the valve [4]. The co-existence of this condition with Takayasu's arteritis, tuberculosis pericarditis, following mitral valve endocarditis or mitral valve replacement, and as a sequel to electrophysiology studies has been reported [5]. Ischemic origin of SMA is extremely rare. SMA has varied clinical manifestations like heart failure, systemic thromboembolism, ventricular wall

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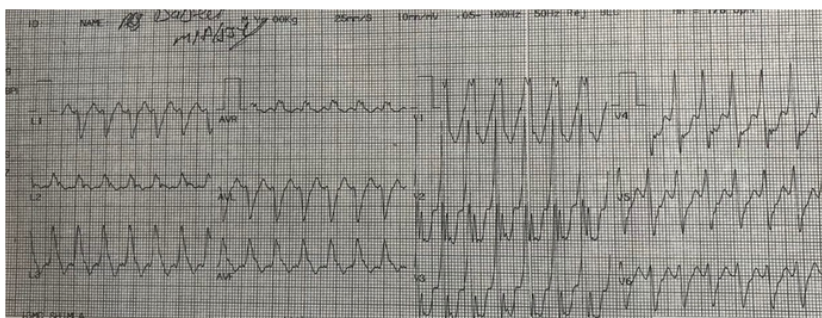


Figure 1: ECG showing monomorphic ventricular tachycardia with right bundle branch morphology, precise location anterolateral mitral annular VT

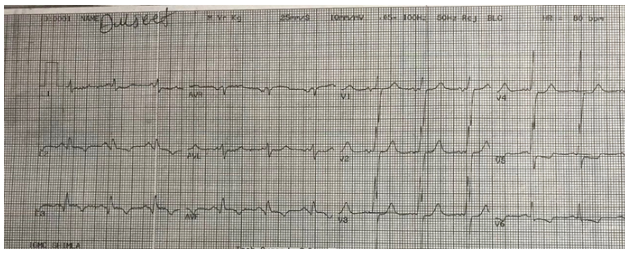


Figure 2: Post DC shock ECG showing QS pattern in inferior leads

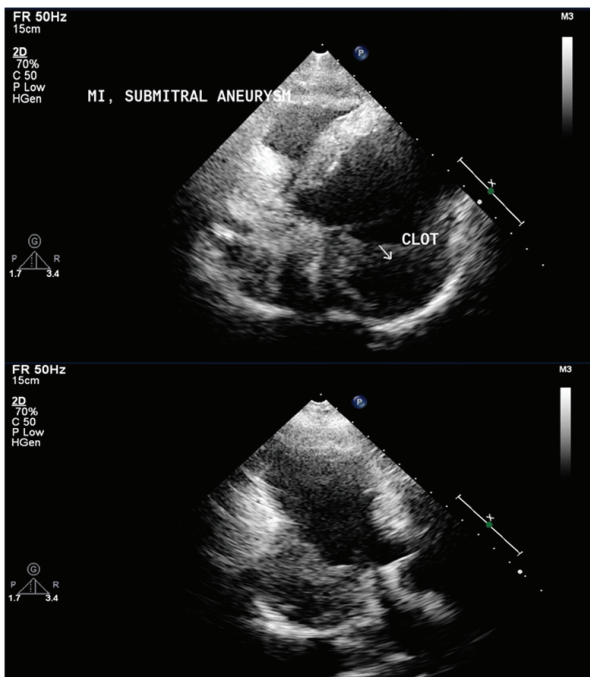


Figure 3: Transthoracic Echocardiograph image showing wide necked SMA with the presence of a large clot

rupture, ventricular arrhythmias or sometimes-sudden cardiac death. According to the Coronary Artery Surgery Study, the incidence of the left ventricular aneurysm in patients with acute myocardial infarction was 7.6% and symptomatic intractable ventricular arrhythmias were documented in approximately 15% of patients [6]. The usual sites of LVA are the anterior and apical segments (80%), and rarely in the inferior wall (5–10%). SMAs may provide the arrhythmogenic substrate for reentry circuit which can manifest in RBBB or LBBB like morphology VT. Management strategies for VTs are directed towards prevention of sudden death and recurrent life-threatening arrhythmias by antiarrhythmic drug therapy, defibrillator

implantation (if refractory to ablation) or aneurysmectomy [3].

Conclusion

Early recognition of this condition is important to prevent and treat various complications that can arise due to SMA. This case illustrates that SMA can present as VT to the emergency department and it should be suspected when there are QS-waves in the ECG.

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