# “Chest Pain Conundrum: A case report on Systolic Anterior Motion of the Mitral Valve Leaflet in a Non-hypertrophic Cardiomyopathy Patient”

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**Introduction:**

SAM, or systolic anterior motion of the mitral valve, is a well-documented phenomenon associated with left ventricular outflow tract obstruction and hemodynamic compromise. This Condition can manifest in patients regardless of the presence of hypertrophic cardiomyopathy or not.

**Case Presentation:**

22 Years Old, Gentleman with known case of hyperthyroidism presented to our casualty with Left Sided and Central Chest pain Since past 4 days. He described it as heaviness in nature and non-radiating and occur at rest. It Associated with Fever for 1 day and a productive cough for the past 1 weeks. Initial Vital sign was normal. On auscultation, there was a loud pansystolic murmur with splitting of second heart sound best heard at left parasternal edge. ECG Showed ST elevation at lead 11, V2, V3 with PR depression at Lead 11 and AVF. Bedside ECHO done and noted systolic anterior motion of mitral valve with hyperdynamic and good cardiac contractility, No thickening Left Ventricle. IV Drip 4 pint NS over 24 hour was started. Repeated Formal echo on day 2 of admission showed Trivial MR with mitral in flow normal in pattern.

**Discussion:**

The occurrence of this phenomenon has been described in older patients, but it is unusual in a young patient without evidence of HCM and has not been previously reported in the literature.

Once identified, treatment consists of maintaining adequate preload through volume resuscitation. Patients also benefit from increased diastolic filling time from the negative chronotropic effect of beta blockers.

In cases in which there is a significant hemodynamic compromise, volume resuscitation is the preferred therapy over vasopressors to avoid further worsening of gradients. This highlights the importance of urgent imaging and the identification of SAM in its contribution to LVOT obstruction in appropriate resuscitative management.

**Conclusion:**

It is important to recognize the clinical manifestations of SAM and its role in maintaining an appropriate hemodynamic status. A hyperdynamic ventricle with reduced diastolic filling time and reduced preload predisposes to SAM. Echocardiography and cardiac MRI are great modalities to diagnose this phenomenon.

**Key words:** SAM, Murmur, chest pain