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PERCUTANEOUS INTERVENTION IN BASAL VENTRICULAR SEPTAL RUPTURE

Cardiology

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ABSTRACT

Basal ventricular septal rupture (VSR) is an uncommon but lethal complication of acute myocardial infarction, with high mortality if untreated. Surgical repair is standard, but percutaneous device closure offers a minimally invasive option in selected high-risk patients.

KEYWORDS

Case Presentation
A 54-year-old male presented 48 hours after onset of chest pain. ECG revealed inferior wall myocardial infarction. Examination showed a pan-systolic murmur at the cardiac base. Transthoracic echocardiography demonstrated a basal muscular VSR measuring 10 mm with significant left-to-right shunt (Qp/Qs = 2.4) and preserved left ventricular systolic function. Given prohibitive surgical risk (EuroSCORE II = 26%), the patient underwent percutaneous closure using a 12 mm Amplatzer™ muscular VSD occluder via transfemoral approach under transesophageal echocardiographic and fluoroscopic guidance. Immediate post-procedure assessment showed near-complete elimination of the shunt and stable hemodynamics.

Clinical Findings:
On examination, the patient was hemodynamically stable with blood pressure 130/80 mmHg, pulse rate 66 beats/min, and oxygen saturation (SpO_2) 98% on room air. Cardiovascular examination revealed a pan-systolic murmur best heard over the base of the heart.

Diagnosis:
Late-presenting inferior wall MI complicated by basal ventricular septal rupture (VSR). Routine blood investigations were within normal limits except for elevated troponin levels.

Pre-procedural Echocardiography:
2D echocardiography demonstrated a moderate basal VSR measuring approximately 7 mm, with mild left ventricular dysfunction and hypokinesia involving the mid and basal inferior segments, inferoseptum, and inferior wall (fig.1).

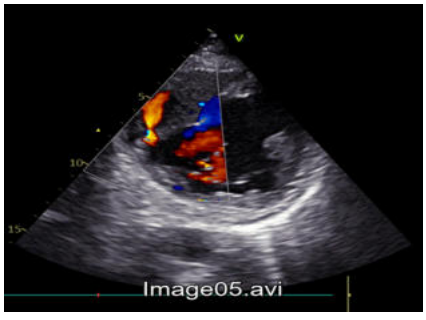

Figure :1 Pre-procedural echocardiography

PROCEDURE:
LIMA diagnostic catheter with straight tip terumo wire taken to cross the VSD through LV side. After successfully crossing the wire it was parked in the Pulmonary artery and snared out from venous end making an arteriovenous loop (fig. 2). A 10 Fr amplatz guide was advanced antegradely over the wire from the venous side. The tip of delivery sheath was then crossed into LV base and device was conveyed through delivery sheath under fluoroscopic guidance. The Amplatzer Septal occlude 10 mm size was successfully deployed across the defect. Post device closure echo mentioned in figure 3.

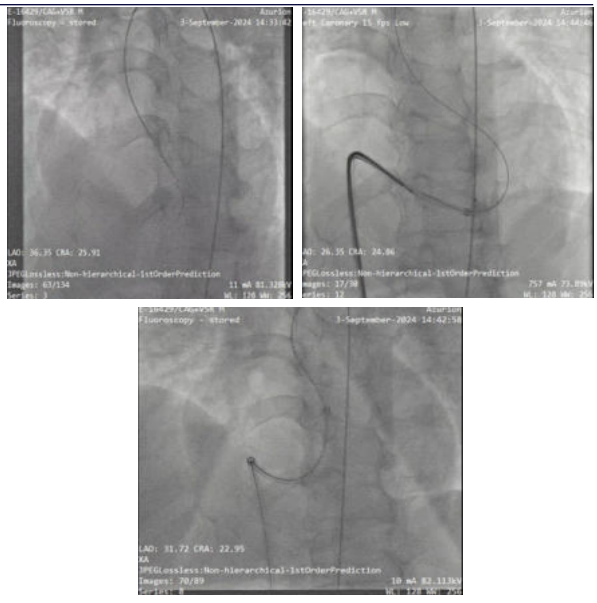

Figure:2 Fluoroscopic images of the procedure

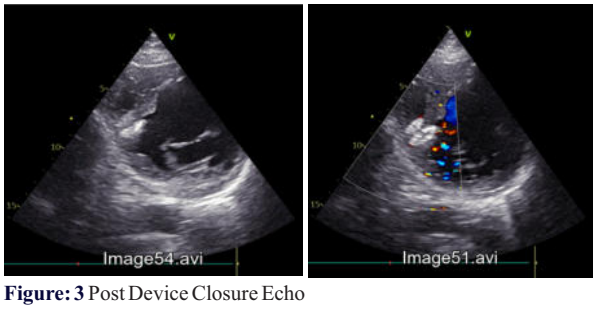

Figure: 3 Post Device Closure Echo

Take Home Message
- Patient underwent VSR device closure successfully and has been asymptomatic and doing well on follow up
- Ventricular septal rupture after acute myocardial infarction is a lethal mechanical complication of acute coronary syndromes.
- Early surgical closure is recommended, but implementation of such an indication in clinical practice is heterogeneous among centres because of the excessive surgical risk perceived by operators
- Transcatheter closure of ventricular septal rupture emerged as a possible alternative to surgery in selected cases. However, limited information is available for such a procedure, which is currently an off-label indication.