

Case Series of Ventricular Septal Rupture in AMI Patients in a Tertiary Care Centre

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Abstract: *Postinfarction ventricular septal rupture PIVSR is a rare yet life-threatening complication following acute myocardial infarction AMI. Despite advancements in reperfusion therapies reducing its incidence, the mortality rate remains high. This case series highlights four patients who presented with PIVSR within 23 months at our institution. All patients were elderly, with three having diabetes, and none were smokers. Despite treatment, all patients experienced poor outcomes, with one succumbing during coronary angiography CAG. Risk factors for PIVSR include advanced age, low blood pressure, and gender, while operative mortality is also influenced by the timing of surgical repair.*

Keywords: Postinfarction, Ventricular Septal Rupture, Myocardial Infarction, Case Series, Mortality

1. Introduction

Post infarction ventricular septal rupture (PI - VSR) is a rare but life - threatening mechanical complication of acute myocardial infarction (AMI) While the incidence of PI - VSR has decreased in the era of reperfusion, the mortality rate remains extremely high.

Previous studies had relatively less number of study cases, we in our institution had 4 VSR cases in a short time of 2 - 3 months and all of them had grave prognosis, this lead us to present this case series.

2. Case Reports

Case 1

A 62 - year - old man with no previous history of cardiac disease, type 2 diabetes presented with acute anterior wall myocardial infarction. On admission, his blood pressure was 80/50 mmHg and heart rate was 112 bpm. He was lysed with Streptokinase. Next day, physical examination revealed systolic murmur (III/VI) in the left sternal border. Echocardiography showed hypokinesia of anterior wall with LVEF - 40%, Ventricular Septal Rupture of size 4mm was noted in the apical region with left to right shunt.

Case 2

A 65 - year - old hypertensive woman with no previous history of cardiac disease, presented with IWMI - time window of 6 hrs. On admission, her blood pressure was

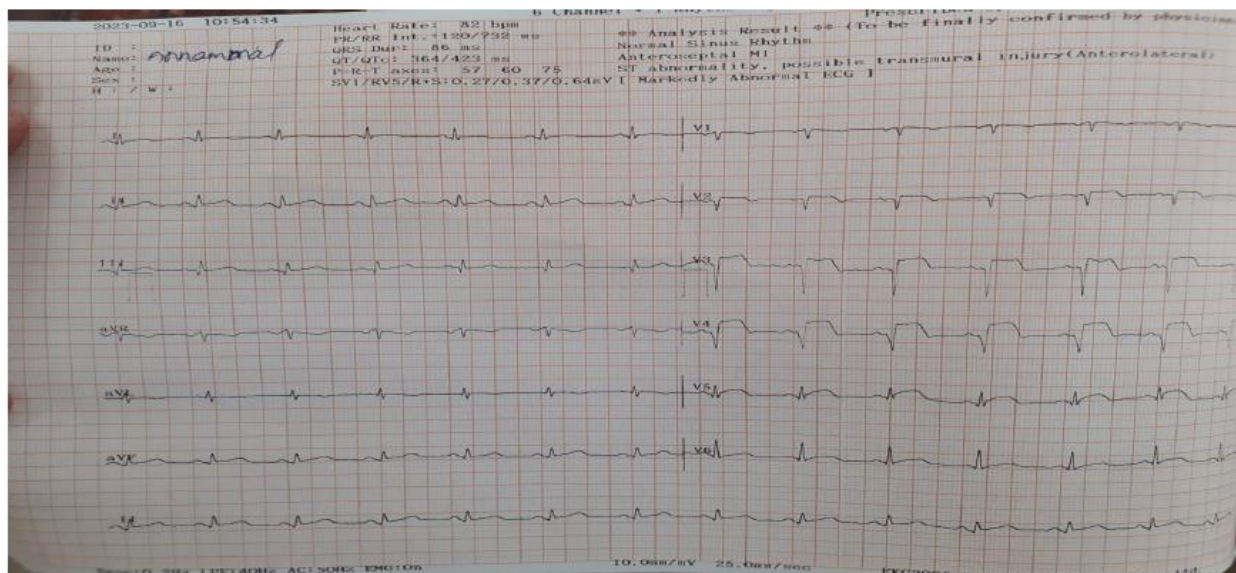
120/80 mmHg and heart rate was 90 bpm. Patient was lysed with SK. Next day, patient developed hypotension needing inotropic support. Physical examination revealed pan systolic murmur over left sternal border. Echocardiography showed hypokinesia of inferior wall with LVEF - 40%, Ventricular septal rupture was noted in the apical region measuring 4 mm with left to right shunt

Case 3

A 60 - year - old diabetic and hypertensive male, presented with acute AWMi of 8 hours duration. On admission, his blood pressure was 120/80 mmHg and heart rate was 90 bpm, following lysis with SK, patient developed vomiting and shortness of breath Physical examination revealed a systolic murmur (III/VI) on the left sternal border. Echocardiography showed hypokinesia of anterior wall with mild LV dysfunction. Ventricular septal rupture measuring 3 mm was noted in the apical region with left to right shunt.

Case 4

A 65 year old euglycemic, normotensive woman presented with chest pain of 14 hours duration. On admission, her vitals were stable, ECG showed evidence of evolved acute anterior wall MI. Echo showed Moderate LVSD. After 7 hours of admission, patient had vomiting, giddiness, SOB and palpitations. On auscultation PSM was heard over the LSB. BP crashed to 100mmHg systole, HR was 112/min. Spo2 - 90% without O2. Echo showed mid septal VSR of size 2.5cm with left to right shunt.



3. Discussion & Conclusion

The most common cause of ventricular septal rupture is full - thickness (transmural) myocardial infarction in one of the following coronary arteries:

Left anterior descending coronary artery; supplies most of the anterior portion of the interventricular septum. It can lead to apical VSR.

Dominant right coronary artery; supplies the most inferior portion of the interventricular septum. This can lead to a basal VSR.

The dominant left circumflex artery; supplies the posterior portion of the posterior descending artery that arises from the circumflex branch.

Risk factors for developing VSR in STEMI patients include advanced age, female gender, prior stroke, low BP, higher kilip class, CKD and lack of development of collateral network.

Risk factors for operative mortality include age, female gender, shock, inferior infarction, preoperative intra aortic balloon pump use, pre operative dialysis, mitral insufficiency, redo cardiac surgery, emergent surgery and timing of repair.

Previous studies showed for operated patients overall in - hospital or 30 day mortality of 42.9 %, the highest of any cardiac surgeries, 54.1 % with repair within 7 days from MI versus 18.4 % after 7 days

In our case series we noticed that all four patients were old aged, had STEMI with elevated cardiac markers. We also found that 3 out of 4 were diabetic and non - smokers. Unfortunately, all 4 patients expired, among them, one patient went into arrest during CAG.

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