

# A Case Report on Post Myocardial Infarct Ventricular Septal Rupture (PMI-VSR)



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## Introduction

Post-Myocardial Infarct Ventricular Septal Rupture (PMI-VSR) is a catastrophic mechanical complication following acute myocardial infarction, with a bimodal peak incidences of within hours and within 3-5 days. In the reperfusion era, the incidence has declined to 0.2%<sup>1</sup>. PMI-VSR has a grim prognosis with >94% mortality within one month if treated solely with medical therapy<sup>2</sup>. In 2023, among 790 STEMI patients admitted to CVMU, PMI-VSR is detected in 15 patients (1.89%) with the mortality rate of 93%. However, a substantial improvement in survival rate is observed if treated surgically, and as a result, surgical option is considered as the mainstay of treatments in PMI-VSR<sup>5</sup>.

## Case Report

A 74-year-old lady admitted with acute anterior STEMI underwent primary PCI and subtotal occlusion of mid LAD was stented with DES. The hospital stay was uneventful, and she was discharged with optimized medical therapy and cardiac rehabilitation.

At 1-month follow-up, she complained of dyspnea and loud pan-systolic murmur was heard at lower left sternal edge. TTE showed anterior and apical akinesia with muscular VSR at apical interventricular septum. After reviewing the case at the workshop and shared decision with patient and family, transcatheter septal closure with Cocoon PDA device 18/20 size was successfully deployed on 6th April 2024 which was 4 months after post index MI.

On 1 month and 6 month follow up, the patient is clinically stable with improved daily activities. Echocardiogram on follow up revealed minimal residual shunting with improved LVEF.

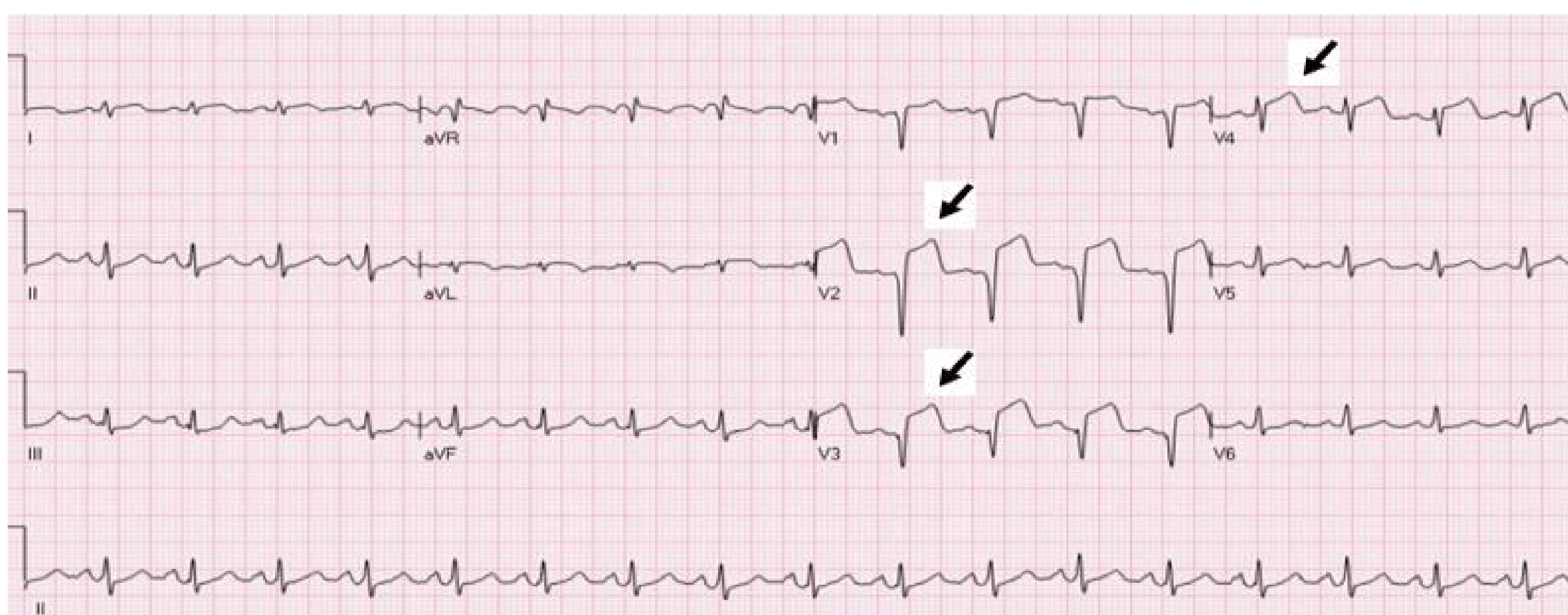


Fig 1. Electrocardiogram on admission to CCU, showing antero-septal infarction (ST elevation in V1 – V4)

## References

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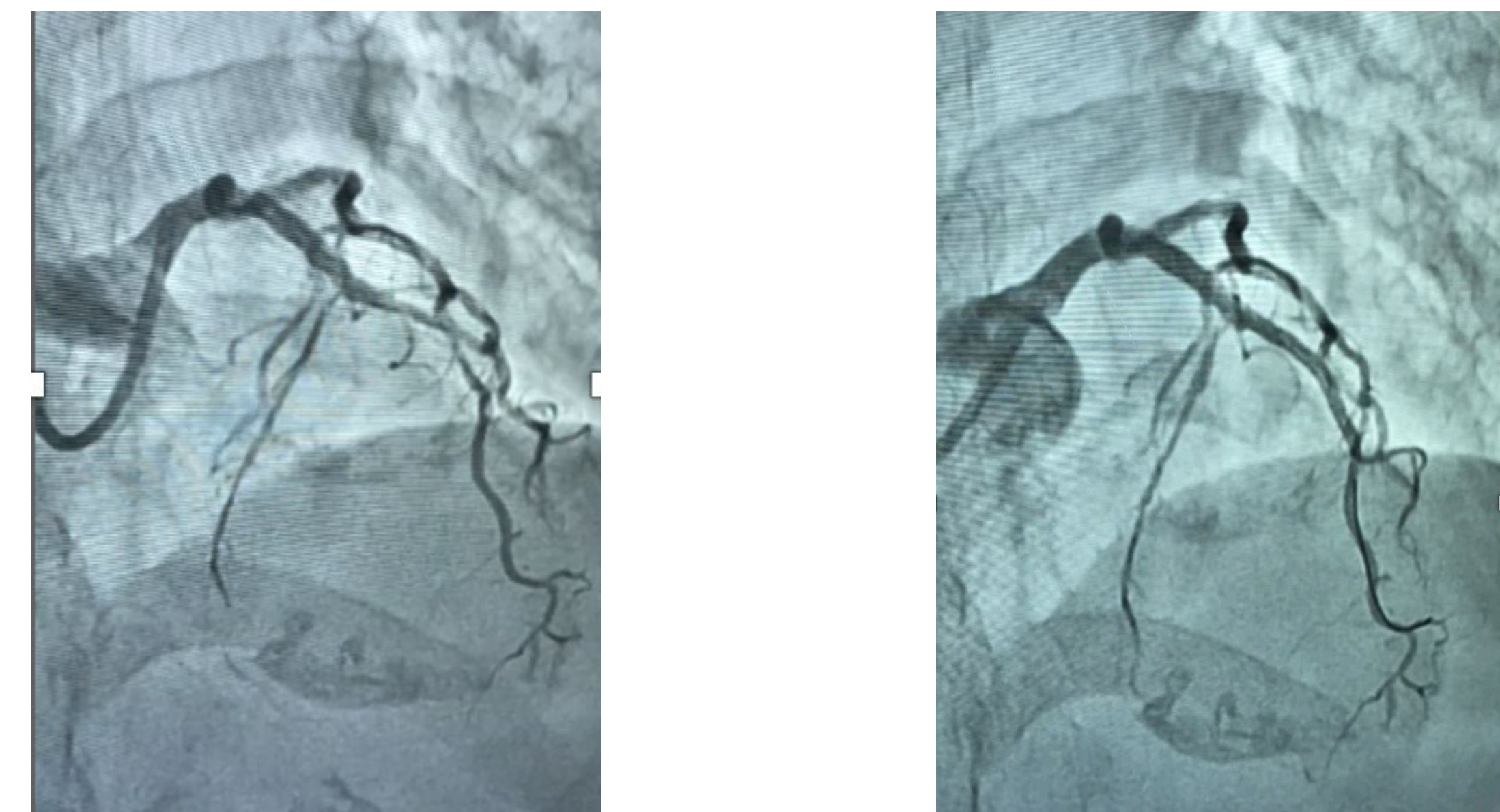


Fig 2. Coronary angiogram showing single vessel disease. Type II LAD with mLAD 99% stenosis, mRCA 40% stenosis, and dRCA 30% stenosis. DES to m-LAD (pre and post PCI)

## Discussion

PMI-VSR is a fatal complication. The concept of “optimal time” for PMI-VSR closure is still controversial and differs individually. For instance, in hemodynamically stable patients with favorable VSR anatomy, early corrective surgery should be considered to avert potential hemodynamic compromise<sup>1</sup>. However, delaying surgery is proposed in cases with complex anatomy and concerns for tissue fragility<sup>4</sup>. In recent decades, transcatheter septal closure of PMI-VSR has emerged as an alternative with a high success rate<sup>3</sup>. In the aforementioned case, delayed TSC approach was used. This case became the first successful milestone case for device closure in PMI-VSR patients in Myanmar.

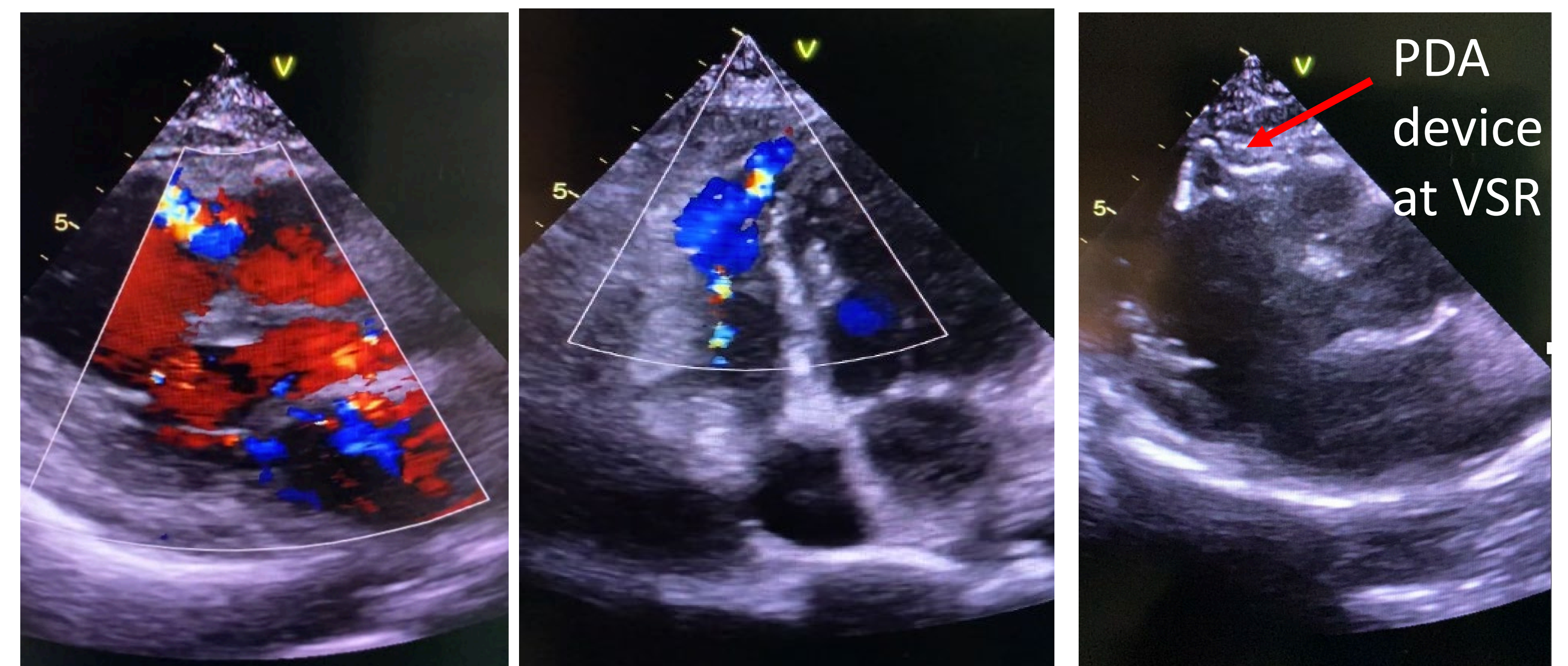


Fig 3. TTE showing small muscular VSR at lower interventricular septum

Fig 4. TTE showing Post TSC Device well seated in situ with minimal residual shunt

## Conclusion

PMI VSR is a rare complication with a grim prognosis. The “Best” management was defined as amelioration or elimination of hemodynamic burden related to the shunt resulting from PMI-VSR. The mortality of the patient has been reduced from > 94 % to 42 % with the use of delayed transcatheter septal closure for PMI-VSR<sup>5</sup>.