

## New Indian Lv Shape and Volume Retaining Triple Patch Technique for Ventricular Septal Rupture Repair

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### Introduction

Surgery for ischaemic ventricular rupture is a daunting task. A new surgical technique is being described which will help in successful surgical intervention of this challenging lesion.

### Short Case Summary

40 year old male underwent proximal LAD stenting after thrombectomy for acute anterior wall MI. 4 days after stenting a new holosystolic murmur was detected, with a 2: 1 L-R shunt and echo showed a 2.5 cm anterior ventricular septal rupture with patient going into pulmonary oedema. He was taken up for emergency ventricular septal rupture closure with a double patch - the New Indian Repair for ventricular septal rupture. Here an initial patch of bovine pericardium is used to cover the defect, followed by a generous patch of PTFE which covers most of the IVS and reaches up to the ventricular free wall. The space between the 2 layers of patch is filled with bio glue. Ventricular shape is maintained by a PTFE patch to close the ventriculotomy incision avoiding tension on the ventriculotomy incision and maintaining the elliptical shape and volume of LV. The patient had an uneventful postoperative period.

### Procedure

Following a median sternotomy, ascending aortic and bicaval cannulation, antegrade cardioplegia is administered and LV is opened parallel to LAD, the ventricular septal rupture of 2.5 x 2.5 cm was identified and status of mitral valve and papillary muscles are noted. Initial placement of bovine pericardial patch is fashioned through healthy myocardium in the septum. Once this is completed a generous patch of Teflon is fashioned excluding the septum (Figure 1). The space between the 2 layers is filled with bio glue. When the ventricular margins are friable a further patch of Teflon is used to close the ventriculotomy incision to avoid tension on the margins taking care to maintain the ventricular volumes. Adequate deairing should be performed and TEE confirms the efficacy of closure and ventricular function status.



**Figure 1:** Generous patch of Teflon overlay over bovine pericardial patch.

### Discussion

Methods to repair the ventricular septal rupture surgically ends up compromising on the shape of LV. Volume of LV is often given enough surgical attention. Shape is also an important consideration perhaps to a greater extent than volume. Once sphericity index become more LV ejection fractions falls and morbidity and mortality increases [1-3]. Adding a patch to close the ventriculotomy incision helps in reducing the tension and bleeding while avoiding closure with Teflon felt bolstering helps in keeping the LV apex at a lower plane and maintains the elliptical shape and keeps the sphericity index low. This maintains the natural ejection shape of LV and gives the best outcome. We had good surgical outcome in 5 patients recently repaired with the above technique. It reduces postoperative neurological complications also as the LV shape is maintained and pooling of LV blood at apex is avoided as in other methods of surgical repair which distorts the LV shape [4,5].

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