

## EDITORIAL

## Does surgical ventricular restoration still represent a valuable option in the surgeon's armamentarium in the post-STICH era?

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Advances in medical treatment of ischemic cardiomyopathy have improved survival but have also increased the prevalence of patients with postischemic heart failure. After the discouraging results of the STICH Trial,<sup>1</sup> surgical ventricular restoration (SVR) for the treatment of patients with aneurysms or dyskinetic/akinetic antero/apical segments of the left ventricle<sup>2</sup> has been largely abandoned, leaving this ever growing patient population — and their surgeons — without an alternative therapeutic option. Although the main flaws of the STICH Trial have been criticized by several authors,<sup>3,4</sup> SVR continues to be performed in many centers with good results. Since 2008, 55 patients underwent a modified SVR procedure at our institution performed by one single surgeon. In brief, a left ventriculotomy incision of 6-8 cm is made lateral and parallel to the left anterior descending artery at the level of the akinetic/dyskinetic or aneurysmal area. Then, the left ventricular cavity is inspected for the presence of a thrombus and to delineate the borders of the aneurysm (Figure 1A). Following the plication of the distal inferior wall, which consists of running a continuous suture line from the inferior end of the incision up to the viable portion of the ventricular wall, a neo-ventricular apex is created. The patch is positioned obliquely and parallel to the septum at the level of the transition zone between the necrotic and viable tissue. Different from the original technique that used a circular patch, an endocavitary oval patch (6-7x2-2.5 cm)

is applied (Figure 1B). The patch is then sutured in place using a continuous polypropylene suture, and the rest of the procedure is accomplished by a linear closure of the adjacent tissue buttressed with Teflon strips (Figure 1C).

Compared with preoperative echocardiographic data, mean left ventricular ejection fraction was improved at follow-up (35% vs. 42.5%). This was confirmed by magnetic resonance imaging (37% vs. 43.4%), along with an improvement in left ventricular end-diastolic (131 vs. 93 mm<sup>3</sup>) and end-systolic volume index (85 vs. 59 mm<sup>3</sup>). Mean NYHA functional class also improved significantly (2.6 vs. 1.2).

What may account for the difference between our favorable results and those recorded in the STICH Trial?

Among the reasons that may explain the failure of SVR in STICH is that the procedure was performed for inappropriate indications. Our modified technique was applied only to symptomatic patients with dilated left ventricles (end-systolic volume index >60-70 mL/m<sup>2</sup>), whereas the use of ventricular reconstructive techniques in patients with non-aneurysmal akinetic or dyskinetic ventricles is still under evaluation. It is becoming more frequent to see patients presenting with thickened scars mixed with viable muscle rather than with thin stretched scar tissue (e.g. due to several attempts at percutaneous revascularization before preoperative assessment for cardiac surgery). Also in patients with mixed scars, rebuilding left ventricular geometry to a more elliptical

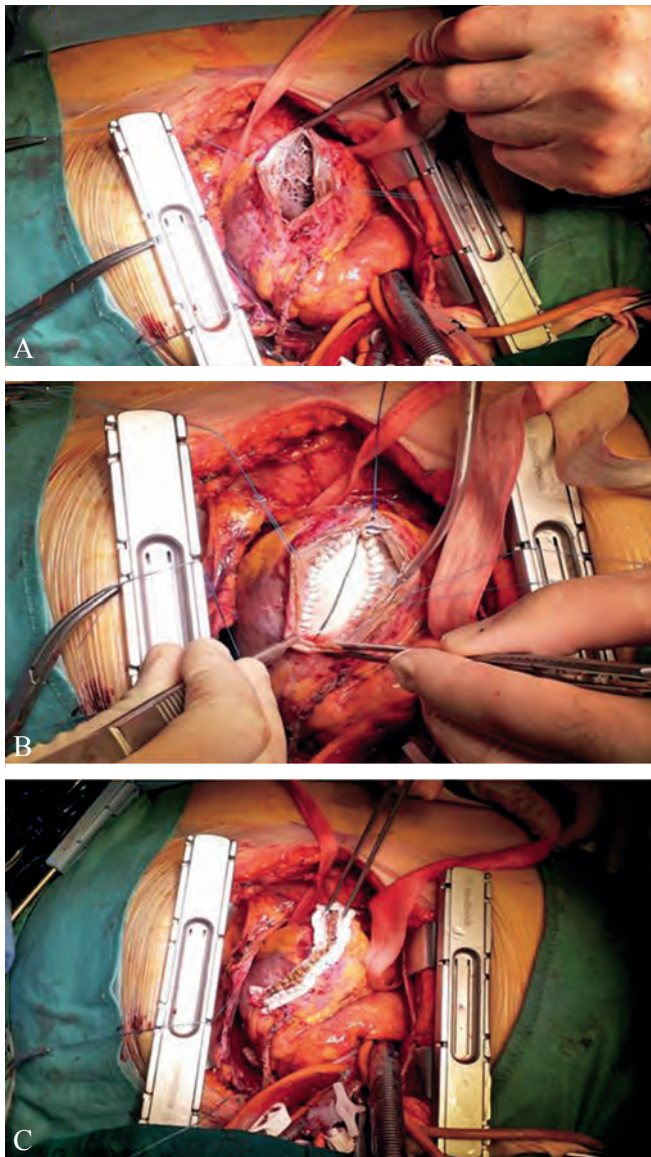


Figure 1.—A) Inspection of the left ventricular cavity; B) placement of the endocavitary oval patch; C) linear closure buttressed with Teflon strips.

shape allows more normal muscle function<sup>5,6</sup> and improves compensatory neurohormonal response.<sup>7</sup>

We believe the use of an oval patch and the creation

of a neo-apex are key to restoring ventricular function. In addition to volume reduction *per se*, as achievable also with a circular patch, restoring the architecture of the left ventricle seems to be even more crucial.<sup>8</sup> It should not go unnoticed that these patients are affected by end-stage disease, and treatment success depends upon procedural complexity and complete accomplishment of SVR by adequately addressing the different components of the “triple V” concept (*i.e.* vessel, valve, and ventricle).<sup>9</sup> The satisfactory results obtained in our series suggest that the modified technique of SVR, by restoring an elliptical normal cardiac shape and creating a neo-apex, still represents a valuable option in the surgeon’s armamentarium for appropriately selected patients. However, a randomized controlled trial is warranted to confirm the efficacy of this technique, particularly in patients with areas of mixed scar and viable muscle.

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