Effectiveness of surgical closure of left atrial appendage during minimal invasive mitral valve surgery



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21 ISMICS RE-IMAGINED

Background: Left atrial appendage (LAA) closure reduces the risk of stroke complications in patients with atrial fibrillation. Closure of the appendage can be done surgically using sutures from the inside of the left atrium or from the outside. Closure can be performed also with staplers inserted surgically through full sternotomy access as well as left minithoracotomy or even thoracoscopically. Another method is endovascular LAA closure using devices inserted into the appendage. This type of procedure excludes the volume of left atrial appendage from inside. Until now only the external staplers have provided safe and durable LAA occlusion. We aimed to assess the effectiveness of surgical closure of the left atrial appendage during minimal invasive mitral valve surgery through right minithoracotomy.

Results: There were 12 women and 7 men with mean age of 67.6 years. TEE was performed between 0.5 and 5 years after surgery, with an average of 1.8 years. Complete occlusion was confirmed in 17 (89.5%) cases. The remaining 2 (10.5%) patients had a trace leakage (diameter of 1mm).

Methods: From 2012 to 2017, 50 patients with mitral valve disease and atrial fibrillation underwent minimal invasive mitral valve surgery and surgical closure of left atrial appendage. The appendage was sutured from the inside using a double row monofilament 3/0 continuous suture. All patients were operated on through the right minithoracotomy in the 4th intercostal space. After a mean 1.8 years follow-up period, patients were invited for a check-up examination. 19 patients responded to the invitation and were examined using transthoracic (TTE) and transesophageal echocardiography (TEE). TEE was performed to assess if the LAA had been closed efficiently and to verify eventual residual flows, leakages or stumps.

Conclusions: Surgical suturing of the left atrial appendage during minimally invasive mitral valve surgery through the right minithoracotomy is an effective technique with durable results.