

## Comparison of Peri- and Post-Operative Outcomes of Three Left Atrial Incisions: Conventional Direct, Transseptal and Superior Septal Left Atriotomy

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**Abstract :** Background & objective: Mitral valve surgeries are mainly performed by median sternotomy with conventional direct atriotomy. Good exposure to the mitral valve is challenging, especially for acute pathologies, where left atrium dilation does not occur. Other atriotomies, such as transseptal or superior septal, are used as they allow better access and visualization. Peri- and postoperative outcomes of these three different left atriotomies were compared. Methods: Patients undergoing mitral valve surgery between January 2010 and December 2020 were included and divided into three groups: group 1 (conventional direct, n=115), group 2 (transseptal, n=33) and group 3 (superior septal, n=59). To improve the sampling size, all patients underwent mitral valve surgery with or without associated procedures (CABG, aortic-tricuspid surgery, Maze procedure). The study protocol was approved by SwissEthics. Results: No difference was shown for the etiology of mitral valve disease, except endocarditis, which was more frequent in group 3 ( $p = 0.014$ ). Elective surgeries and isolated mitral valve surgery were more frequent in group 1 ( $p = 0.008$ ,  $p = 0.011$ ) and aortic clamping and cardiopulmonary bypass were shorter ( $p = 0.002$ ,  $p < 0.001$ ). Group 3 had more emergency procedures ( $p = 0.011$ ) and longer lengths of intensive care unit and hospital stay ( $p = 0.000$ ,  $p = 0.003$ ). There was no difference in permanent pacemaker implantation, postoperative complications and mortality between the groups. Conclusion: Mitral valve surgeries can be safely performed using those three left atriotomies. Conventional direct may lead to shorter aortic clamping and cardiopulmonary bypass times. Superior septal is mostly used for acute pathologies, and it does not increase postoperative arrhythmias and permanent pacemaker implantation. However, intensive care unit and hospital lengths of stay were found to be longer in this group. In our opinion, this outcome is more related to the pathology and type of surgery than the incision itself.

**Keywords :** Mitral valve surgery, cardiac surgery, atriotomy, Operative outcomes

**Conference Title :** ICCCS 2023 : International Conference on Cardiology and Cardiac Surgery

**Conference Location :** Zurich, Switzerland

**Conference Dates :** January 16-17, 2023