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Extended vertical trans-septal versus left atrial approach to mitral valve: Freeman experience of 1017 patients

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Statement of the Problem: Mitral valve can be accessed through left atrium or via inter-atrial septum. Although left atrium is the traditional approach, trans-septal approach gives better exposure in difficult cases. This retrospective study was designed to evaluate the safety, pitfalls and effectiveness of the extended vertical trans-septal approach for routine mitral valve exposure.

Methodology & Theoretical Orientation: It is a retrospective study of 1017 consecutive patients undergoing an isolated primary mitral valve procedure (repair, replacement) through a median sternotomy between the years 2000 and 2015 by eight different surgeons. Out of these 135 patients were operated by extended vertical trans-septal approach (EVTSA, group A) while 882 patients were accessed through traditional left atrial (LA, group B) approach via posterior inter-atrial groove.

Findings: There were 135 patients (M/F=56/79) in group A and 882 patients (M/F=398/484) in group B. Logistic euro score was significantly lower in EVTSA group (0.61 vs. 0.90 $p=0.000001$). In LA group, there were more patients with pre-operative TIA or stroke (94 vs. 6 $p=0.005$), and this difference was statistically significant. Cumulative cross clamp time was 82 (44-212) minutes (EVTSA) and 78 (30-360) minutes (LA) groups ($p=0.271$) while cardiopulmonary bypass time was 107 (58-290) and 114 (43-602) minutes ($p=0.121$). Post-operative blood loss was 415 ml (EVTSA) versus 427 (LA) ml ($p=0.273$). No significant difference was found in the incidence of post-operative atrial fibrillation ($p=0.22$) or heart block requiring permanent pacemaker ($p=0.14$).

Conclusion & Significance: Extended vertical trans-septal approach is safe and reproducible. It gives excellent exposure of the mitral valve. It is reasonable way to routinely expose mitral valve without significant increase in cross clamp time, post-operative arrhythmia, heart block or bleeding.

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