26 ISMICS Miami
ANNUAL SCIENTIFIC MEETING
10 June - 13 June 2026

Totally Thoracoscopic Mitral Valve Replacement In An Adolescent Patient: First Clinical Experience

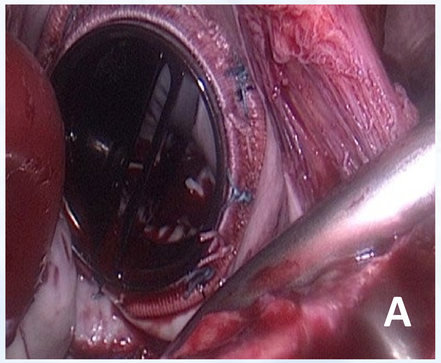
Mukhamedov Ikromzhon, Joshybaev S.D., Alibekov A.A., Rozbaev Z.N., Kenbaev A.B., Zelentsova A.A., Ukolova Y.N. **Scientific and Clinical Center of Cardiac Surgery and Transplantology, Taraz, Kazakhstan**

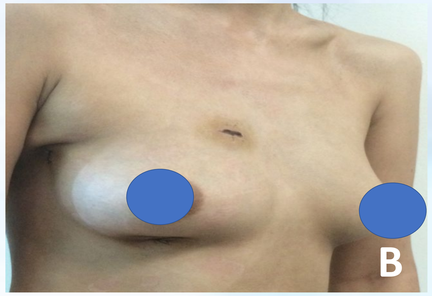
BACKGROUND

Totally thoracoscopic mitral valve replacement in adolescents represents a promising direction in cardiac surgery, combining minimal invasiveness, high clinical efficacy, and rapid postoperative recovery. This approach is particularly relevant in adolescent patients due to anatomical and physiological characteristics, as well as the significant cosmetic benefits. We present our first clinical experience of totally thoracoscopic mitral valve replacement performed through three ports.

METHODS

A 16-year-old female patient (height 152 cm, weight 48 kg) was diagnosed with congenital heart disease, mitral valve prolapse, and severe mitral regurgitation (grade III). The patient presented with dyspnea on minimal exertion, palpitations, and general weakness. The medical history included recurrent infections and progressive mitral regurgitation since 2017.The operation was performed under cardiopulmonary bypass using peripheral cannulation of the femoral artery and vein and the right internal jugular vein. Myocardial protection was achieved with antegrade Del Nido cardioplegia. A totally thoracoscopic right-sided approach using three ports was applied, with transthoracic aortic cross-clamping. Surgical steps included mitral valve inspection, resection of the affected leaflets, and implantation of a mechanical MedInzh 28 prosthesis with preservation of the posterior leaflet. The mitral valve was accessed through the left atrium. Intraoperative assessment was performed using transesophageal echocardiography.





A-Intraoperative photo
B-Skin incision after thoracoscopy

RESULTS

The procedure was completed successfully without intraoperative or in-hospital mortality and without neurological complications. Cardiopulmonary bypass time was 180 minutes, aortic cross-clamp time was 140 minutes. Duration of mechanical ventilation was 175 minutes, intensive care unit stay was 15 hours, and total postoperative hospital stay was 7 days. Transthoracic echocardiography prior to discharge demonstrated satisfactory prosthetic valve function

CONCLUSIONS

Totally thoracoscopic mitral valve replacement in adolescents is a feasible and safe technique. Further experience and long-term follow-up are required