Transapical Approach to Myectomy in Pediatric Patients with Hypertrophic Cardiomyopathy: Early and Mid-term Results

Thompson, Alex MD (Pediatric cardiology fellow), Dearani, Joseph MD, Towe, Eric MD, Palfreeman, Jared, Schaff, Hartzell MD, Johnson, Jonathan N. MD, Cetta, Frank MD
Mayo Clinic, Rochester, MN

Background
The transapical approach for myectomy in hypertrophic cardiomyopathy (HCM) has been utilized in the subset of HCM patients with mid- and apical cavity obliteration. However, minimal outcome data are reported after the use of transapical myectomy in pediatric cases.

Methods
We retrospectively reviewed the electronic medical records for pediatric patients (< age 21yrs) with HCM who underwent a transapical approach for myectomy from 2002-2016.

Results
Overall, 23 pediatric patients (12 males) with HCM had a transapical approach to myectomy performed. Transaortic approach was concomitantly performed in 16/23 patients (70%). The mean age at the time of operation was 14 ± 4.0 years (range 4 - 20). Preoperative symptoms included: dyspnea (91%), pre-syncope (61%), chest pain (65%), and syncope (35%). There were 19/23 (83%) patients with mid LV cavity obstruction. 4/23 patients (17%) had no obstruction, but surgical indication was to increase LV cavity size. In those patients, the mean left ventricular end systolic dimension (LVESD) by echocardiogram was 21.5 mm ± 4.6 mm.

Mid-ventricular obstruction was successfully relieved in 18/19 (95%) obstructive patients. Early complications included complete heart block in 3 patients requiring a pacemaker. One patient had ventricular tachycardia which was transient and did not recur. There was one aneurysm related to the apical incision. There were two early reoperations: one patient underwent mitral valve repair, and a second was listed for and underwent cardiac transplantation. Twenty two patients (96%) had post-operative follow-up available (median 3.5 years; IQR 1.6-5.6). Symptoms improved in 95% of patients. The number of patients in NYHA class 3 or 4 heart failure decreased from 10/23 (43%) to 3/23 (13%) post-operatively (p<0.0001). Overall survival at five years post-surgery was 100%.

Conclusion
The transapical approach in pediatric patients provides excellent exposure for mid ventricular and apical myectomy with reduction of gradient and symptoms.