Septal Myectomy in Obstructive Hypertrophic Cardiomyopathy High Risk Patients

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Septal Myectomy in Obstructive Hypertrophic Cardiomyopathy High Risk Patients

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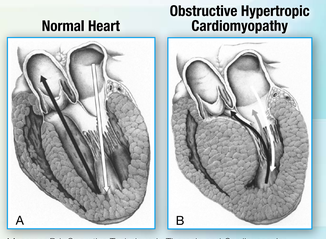
Background

Hypertrophic Cardiomyopathy (HCM) is characterized by excessive thickening of the heart muscle and myocardial disarray. Approximately 25% of the 1 in 500 individuals diagnosed with HCM have obstruction. Septal myectomy is considered the "gold standard" for treatment of HCM, with majority of patients receiving surgery at an average age of 50. In this retrospective study, the cohort having septal myectomy performed represent an older population averaging 70.6 years and are frequently admitted with other health complications resulting in concomitant procedures.



Messmer BJ: Operative Technique in Thoracic and Cardiovascular Surgery, 2004.

Objective

Patients of an elderly, high-risk population were evaluated to determine if conducting a septal myectomy is an effective method for health and relief of symptoms.

Methods

Patient data was retrospectively reviewed for 34 patients receiving a septal myectomy within the Lehigh Valley Health Network from 2006-2013. A cohort of 20 patients ranging from 60-84 years of age was selected. Data was obtained using the Lehigh Valley Health Network's database and further analyzed in regards to effectiveness of septal myectomy in elderly and high-risk populations.

Result Figures

Table 1. Characteristics of Patients Undergoing Septal Myectomy

Characteristic	No. (% of n or mean ± SD)
Demography	
Men	6 (30)
Age (years)	70.6 ± 6.0
Height (cm)	162.8 ± 11.1
Weight (kg)	86.7 ± 18.6
BMI	33 ± 8.1
Pulse	66.4 ± 8.7
Symptoms[1]	
Dyspnea	20 (100)
Angina	8 (40)
Syncope	5 (25)
Family History[2]	
Coronary Artery Disease	6 (30)
Myocardial Infarction	3 (15)
IHSS/HOCM	2 (10)
Hypertension	1 (5)
Hyperlipidemia	1 (5)

[1]60% of patients had multiple symptoms, [2]45% of patients did not report contributory family history.

Table 2. Operative Procedures in 20 Elderly Myectomy Patients

Operation[1]	No. (%)
Septal Myectomy	20 (100)
AVR	4 (20)
MVRepair/Replacement	4 (20)
CABG	4 (20)
Left MAZE	3 (15)
Resection of Papillary Muscle	3 (15)
Redo Sternotomy	2 (10)
Patch VSD	1 (5)
Left Atrium Extraction	1 (5)
AV Repair	1 (5)
Plication of MVL	1 (5)
Repair Coronary Sinus	1 (5)
Ovale Closure	1 (5)
Repair Aortic Rupture	1 (5)

[1]75% of patients had concomitant procedures

AVR=aortic valve replacement, CABG=coronary artery bypass graft, MV=mitral valve, VSD=ventricular septal defect, AVRepair=aortic valve repair, MVR=mitral valve replacement, MVL=mitral valve leaflet.

Table 3. Preoperative and Postoperative Data in 20 Elderly Patients

Finding	No. (% of n, mean ± SD) or median with IQR)
Preoperative	
Septal Wall Thickness (cm)	2.29 ± .45
Peak LVOT Gradient (mmHg)	68; 57.5-89
Postoperative	
Peak LVOT Gradient (mmHg)	9; 6-19.5
Mass of Muscle Removed (g)	4.97 ± 1.99
Length of Stay (days)	5; 5-9.25
Permanent Pacemaker	7 (35)
Readmitted	3 (15)

Average patient functionality scores increased from 3/10 to 8/10 postoperatively.

Excised Heart Muscle

Pre-Myectomy LVOT **Post-Myectomy LVOT**

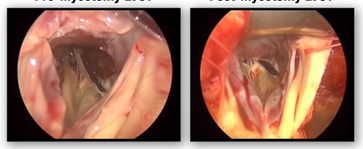
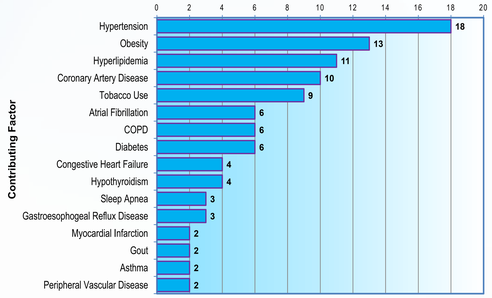


Figure 1. Major Contributory Factors and Previous Medical History or Myectomy Patients



Results

All 20 patients were evaluated pre and post surgery, with 0 mortalities. Pre-surgery interventricular thickness was 2.29 ± .45 cm. Average mass of muscle removed was 4.97 ± 1.99 grams. LVOT gradient was reduced from a median of 68 mmHg to 9 mmHg immediately postmyectomy, with an average length of stay of 5 days. Permanent pacemakers were required in 35% of patients, and 15% were readmitted.

Conclusion

High risk patients showed significant decreases in LVOT gradients and functionality following septal myectomy. For high-risk patients presenting obstructive HCM, septal myectomy is an effective method that should be used as the first treatment of choice.