Operative Techniques in Thoracic and Cardiovascular Surgery

Transmitral Septal Myectomy

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In patients undergoing operative intervention for hypertrophic cardiomyopathy (HCM), intrinsic abnormalities of the mitral valve may need to be addressed at the time of septal myectomy. Advantages of a transmitral approach to septal myectomy include a panoramic view of the septum and the exposure necessary to address concomitant mitral valve pathology. Herein, we describe our technique for transmitral septal myectomy in symptomatic patients with HCM. The transmitral approach to septal myectomy should be given consideration as the preferred approach for the surgical treatment of HCM.
Operative Techniques in Thoracic and Cardiovasculary Surgery 22:216–223

KEYWORDS hypertrophic cardiomyopathy, septal myectomy, mitral valve

Introduction

The pathophysiology of left ventricular outflow tract (LVOT) obstruction in patients with hypertrophic obstructive cardiomyopathy results from interaction of the anterior leaflet of the mitral valve and the interventricular septum. The transaortic approach to septal myectomy, described by Morrow in 1968, is the conventional approach to surgical treatment of hypertrophic obstructive cardiomyopathy and provides reliable reduction in LVOT gradients.[1,2] This approach has inherent limitations, however, including impaired visualization of the ventricular septum, potential injury to aortic valve cusps, and lack of exposure of the mitral valve and subvalvular apparatus. Further, morphologic abnormalities of the mitral valve requiring surgical intervention at the time of myectomy occur in up to 10%-20% of patients.[3-6]

Alternatively, transmitral septal myectomy (TMSM), first reported by Lillehei and Levy in 1963 for subaortic stenosis, offers distinct advantages.[7] These include a wide view of the ventricular septum, minimized risk of damage to the aortic valve cusps, and the opportunity to assess and intervene upon pathology of the mitral valve. Additionally, improved exposure of the ventricular septum by both the attending and the resident facilitates the teaching of septal myectomy.

We recently reported our results with this approach in 20 consecutive patients. In these patients, the TMSM approach was utilized at the discretion of an operating surgeon with extensive mitral valve experience and was based on assessment of the patient's clinical status and preexisting mitral valve pathology. Specific mitral valve repair strategy or replacement was based on preoperative or intraoperative evaluation of the mitral valve. The operative technique is described in thefollowing pages (Figures 1-6).

Funding for this study was provided by internal funding from the Division of Cardiac Surgery at the University of Maryland School of Medicine.
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1522-2942/$–see front matter
https://doi.org/10.1053/j.optechstcvs.2018.06.002

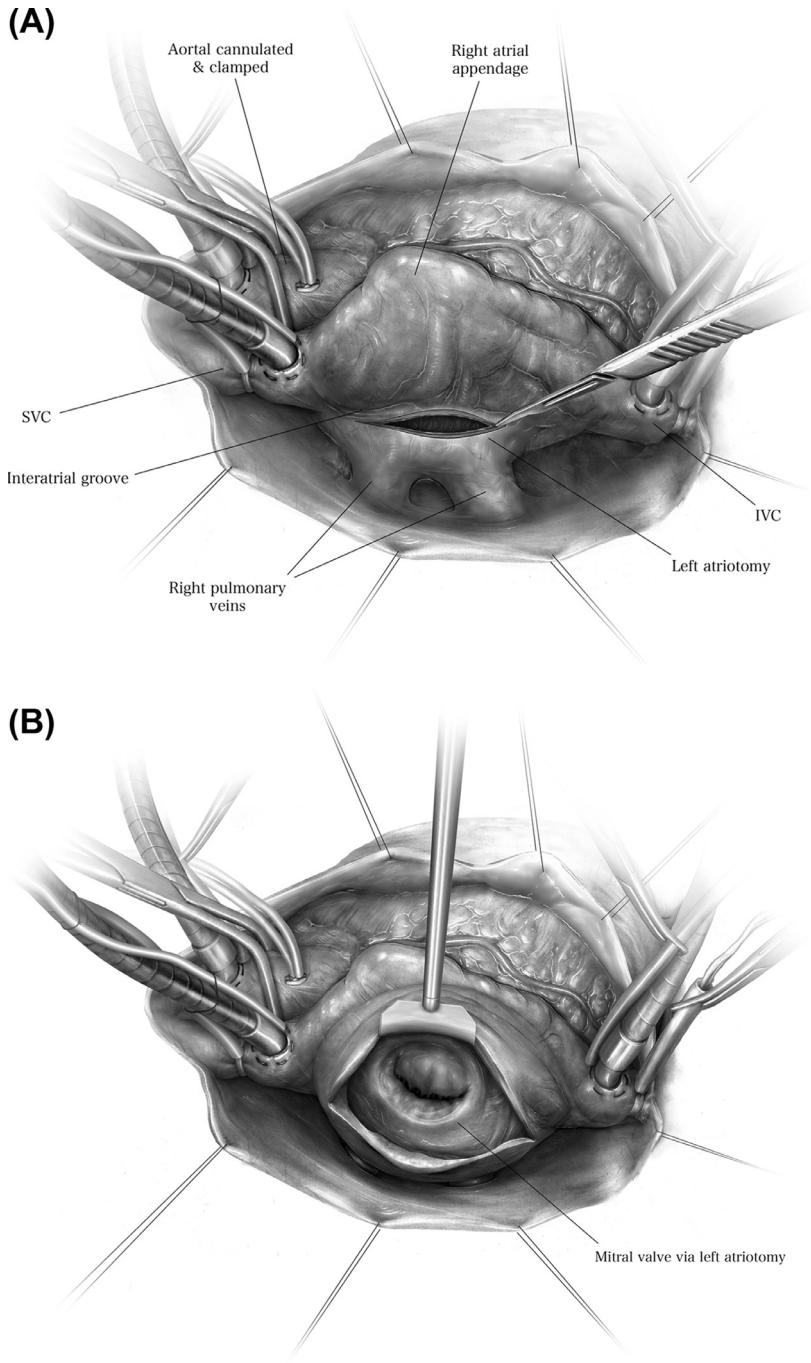

Figure 1 (A) Bicaval cannulation is used to establish cardiopulmonary bypass. (B) exposure of the mitral valve is enhanced by mobilization of the superior and inferior vena cavae, liberation of the left side of the pericardium, and a generous left atriotomy.