Septal myectomy remains the gold standard

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Online publish-ahead-of-print 26 June 2012

This editorial refers to ‘A contemporary European experience with surgical septal myectomy in hypertrophic cardiomyopathy’, by A. Iacovoni et al., on page 2080.

Improvements in the understanding of the haemodynamic abnormalities and pathophysiology of obstructive hypertrophic cardiomyopathy (HCM), as well as advances in surgical techniques have resulted in septal myectomy being the preferred treatment option for severe symptoms refractory to medical therapy. The recent American College of Cardiology (ACC)/American Heart Association (AHA) guidelines emphasized the importance of focused expertise in the diagnosis, and medical and surgical management of HCM. Consequently, there are a growing number of centres dedicated to HCM in the USA.

The study of Iacovoni et al. has important implications for the management of obstructive HCM in Europe. After the introduction of alcohol septal ablation (ASA) ~15–20 years ago, septal myectomy has essentially disappeared in Europe. In fact, a recent review article on the management of obstructive HCM by a European institution did not even acknowledge septal myectomy as a treatment option in the management of patients with heart failure symptoms related to outflow obstruction. This has resulted in the vast majority of patients with symptomatic HCM in Europe being treated with ASA, and in the process denied the option of septal myectomy.

Surgical techniques for relief of left ventricular outflow tract obstruction in HCM have been employed since the early 1960s. Cleland reported on transaortic septal myotomy, and Morrow described transaortic myotomy and myectomy, and so began the era of surgery for treatment of dynamic obstruction to the left ventricular outflow tract. Soon, septal myectomy was also performed regularly elsewhere in the world, including Europe (e.g., Germany and Switzerland), Canada, and New Zealand. Therefore, septal myectomy surgery has successfully served patients worldwide very well for more than four decades. However, the prominence of myectomy changed in the mid 1990s when ASA was introduced, and this was particularly evident in Europe. Nevertheless, myectomy is currently the treatment of choice for most patients with symptomatic HCM refractory to medical therapy based on consensus, recommendations, and guidelines of the AHA, ACC, and ESC.

The debate between septal myectomy and ASA has been one of the most contentious controversies in cardiovascular medicine over the last decade. Myths and inaccuracies about septal myectomy include: high operative mortality; ineffectiveness in many patients; development of myocardial infarction and need for an implantable cardioverter defibrillator (ICD); and the common occurrence of complete heart block, ventricular septal defect, and recurrent obstruction after septal myectomy. However, the data demonstrate low operative mortality (<1%), excellent late survival that is similar to that expected in the general population, substantial improvement in symptoms in 90–95% of patients, absence of myocardial scar, a rate of sudden death and appropriate ICD discharge that is significantly lower than the general HCM population, and exceedingly low recurrence of obstruction (<2%). The literature also emphasizes the importance of focused surgical expertise, i.e., expert professionals as part of a HCM centre with a commitment and dedication to a thorough understanding of the disease. The importance of this in obtaining optimal medical therapy and excellent surgical results present in the literature cannot be overemphasized.

The literature has documented the dramatic and definitive haemodynamic benefits from septal myectomy. In this report from Bergamo, Italy, Iacovoni and colleagues reported excellent outcome of septal myectomy in a recently developed HCM centre in Europe. This is important as Europe has been largely dominated by the extensive use of ASA. The goal of the study was to demonstrate that septal myectomy is safe and effective and can be accomplished successfully at a centre that has implemented a systematic approach to the care of patients with HCM. The authors retrospectively reviewed 124 consecutive patients with heart failure symptoms due to obstructive HCM who underwent extended left ventricular septal myectomy. Early mortality was very low (<1%), outflow tract gradients were significantly reduced from a mean of 95 mmHg to 12 mmHg, and systolic anterior motion-mediated mitral regurgitation was substantially reduced or eliminated. The vast majority (96%) of patients were free of symptomatic heart failure at a median follow-up of 20 months.
This report is consistent with numerous other reports that have documented the dramatic and definitive benefits with septal myectomy. These results are similar to ours at the Mayo Clinic, as well as other institutions: Cleveland Clinic, Toronto General, Tufts (Boston), Roosevelt-St. Lukes (New York), University of Michigan, and European centres in Rotterdam and Florence, among others. All have documented low early mortality and morbidity, improved quality of life, and excellent late survival. In addition, recent studies have demonstrated similar late survival in patients with obstructive HCM that undergo septal myectomy compared with an age-matched population, and a reduction in the risk of sudden cardiac death or appropriate ICD discharge following successful septal myectomy. As a result, septal myectomy can be expected to improve symptoms and late survival safely.

The goal of this editorial is not to underscore the ongoing controversy between ASA and septal myectomy. Rather, the objective is to highlight that septal myectomy can be performed safely and effectively when it is performed in an institution dedicated to a thorough understanding of HCM, including cardiology, cardiovascular surgery, anaesthesia, critical care, imaging, and genetics. There are a limited number of surgeons who have, at present, significant experience with septal myectomy. Indeed, this is not a procedure to be performed occasionally as it is a difficult operation to do well, i.e. to have early mortality <1%, consistent reduction in gradient to <10 mmHg, need for permanent pacemaker <2%, and iatrogenic ventricular septal defect <1%. Although the learning curve for septal myectomy is steep, the technique of septal myectomy can be mastered, as demonstrated by Iacovoni et al., given sufficient volume and focused expertise.

The outstanding results reported here from Italy highlight that a surgical programme can be created de novo... and be very successful. Patients with obstructive HCM obtain great benefit from septal myectomy and these results should provide confidence to the cardiovascular community and encourage more patient referrals for myectomy. Also, the findings in this paper should be a stimulus for other institutions elsewhere in Europe to initiate HCM programmes, so that septal myectomy returns proficiently and safely into the mainstream of the patient arena.

Conflict of interest: none declared.

References
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