Myectomy Plus Alfieri Technique for Outflow Tract Obstruction in Hypertrophic Cardiomyopathy

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A 56-year-old man presented with breathlessness and chest pain. Echocardiography revealed 14-mm septal hypertrophy, complete systolic anterior motion of the anterior mitral valve leaflet, severe central mitral regurgitation, and a left ventricular outflow tract gradient of 40 mm Hg increasing to 56 mm Hg on Valsalva. A diagnosis of hypertrophic cardiomyopathy was made.

Despite medical therapy, the patient’s symptoms worsened. Transesophageal echocardiography and cardiovascular magnetic resonance imaging revealed elongation of the anterior mitral valve leaflet but no significant intrinsic disease of the valve. The mitral regurgitation was thought to be central rather than posterior (as would be expected to occur as a result of the complete systolic anterior motion) because of the elongated leaflet.

The patient was referred for gradient and mitral regurgitation reduction surgery with septal myectomy and mitral valve repair. This was performed under transesophageal guidance. The myectomy was limited by the mild hypertrophy of the septal wall and by the concern of causing a ventricular septal defect if too much myocardium was excised. Because of the complex nature of the mitral valve anatomy, it was treated with the “edge-to-edge” or “Alfieri” technique, in which the A2 scallop is directly sutured to P2. The procedure was successful in abolishing the gradient during surgery.

Postoperative convalescence was unremarkable. At 6 months, there was reduced breathlessness, no rest or stress left ventricular outflow tract obstruction, and no mitral regurgitation or stenosis. A repeat cardiovascular magnetic resonance demonstrated how the Alfieri technique had altered the anatomy of the valve, with the suture creating a dual orifice and resulting in both reduced systolic anterior motion and complete resolution of the mitral regurgitation (the Figure, bottom).

The phenotypic manifestations of hypertrophic cardiomyopathy include abnormalities of the mitral valve and subvalvular apparatus that may contribute to left ventricular outflow tract obstruction if present. The Alfieri technique has previously been evaluated in a subgroup of 14 patients with hypertrophic cardiomyopathy undergoing myectomy and mi-

Figure. Cardiovascular magnetic resonance cine images before and after surgery demonstrating (left) how the Alfieri technique alters the anatomy of the mitral valve, making it dual orifice, and (right) the resultant complete resolution of the mitral regurgitation.

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tral repair to prevent or treat systolic anterior motion.³ Although that article reported only pooled medium-term follow-up data for a variety of mitral valve pathologies in which the technique was used, both this and other work suggests that for nonischemic mitral regurgitation treatment, the Alfieri technique is effective and durable and only rarely causes significant mitral stenosis.⁴ In the case discussed here, a combination of myectomy and Alfieri modification obviated the need for mitral replacement and relieved both left ventricular outflow tract obstruction and the patient’s symptoms.

Disclosures
None.

References
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