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Commentary: Every picture tells a story

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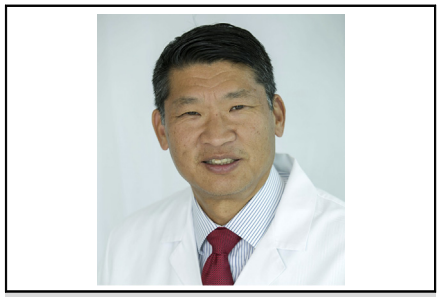

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CENTRAL MESSAGE

Images illustrate the efficacy of transapical myectomy in management of apical hypertrophic cardiomyopathy.

Sun and colleagues[1] present a case of hypertrophic cardiomyopathy (HCM) managed by transapical myectomy, a technique their group has described to treat midventricular obstruction in the apical variant of HCM.[2] This patient had undergone transaortic septal myectomy (SM) at another institution without relief of heart failure symptoms. He had residual diffuse hypertrophy with a septal thickness of 4.8 cm and a small left ventricular cavity. Pictures and a video clip of the transthoracic echocardiogram illustrate the patient's heart before and after apical myectomy.

HCM is a genetic disease of the myocardium characterized by hypertrophic ventricular muscle and heart failure symptoms caused by left ventricular outflow tract (LVOT) obstruction and/or diastolic dysfunction. Multiple phenotypic patterns of hypertrophy can affect the basal, midventricular, and apical septum causing LVOT obstruction. In some cases, the free wall is involved, resulting in concentric hypertrophy. Extended septal myectomy, commonly performed via a transaortic approach, is the surgical treatment of choice for HCM patients with LVOT obstruction and symptoms refractory to medical therapy. This technique effectively relieves heart failure symptoms and restores life expectancy to that of the general population.[3]

Myectomy must be tailored to each patient's anatomy. This case shows that transaortic SM alone may be insufficient and ineffective in a patient with diffuse septal hypertrophy and midventricular obstruction. Additionally, some patients have papillary muscle anomalies or intrinsic pathology of the mitral valve that require intervention. Excellent preoperative imaging is essential to identify such anatomical features and to develop a surgical plan. Transthoracic and transesophageal echocardiography and cardiac magnetic resonance imaging provide detailed pathoanatomic data and are the most useful modalities for planning septal resection. These studies, if completed, may have provided this patient's original surgeon with valuable assistance to perform a more effective operation or to determine that referral to a more experienced HCM center was advisable.

The images display the extent of myectomy achievable via a transapical approach. This case shows that symptoms of heart failure may be caused not only by LVOT obstruction but also by diastolic dysfunction and a small LV cavity. The pre- and post-resection echocardiographic images provide striking visual confirmation of the degree of resection and improvement in LV cavity dimensions.

Providing optimal care to patients with HCM requires a multidisciplinary team, including cardiologists and cardiac surgeons with experience in contemporary management of HCM. An HCM center offers comprehensive diagnostic and treatment options, including genetic testing, echocardiography and cardiac magnetic resonance imaging, surgical SM, and alcohol septal ablation.[4] Proficiency in management of atrial fibrillation and implantation of cardioverter/defibrillators is mandatory, along with staff to counsel and support HCM patients. Centers performing higher volumes of SM achieve superior outcomes compared with lower volume centers.[5]

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This case is a beautiful example of the efficacy of transapical myectomy in treating apical HCM. More broadly, it exemplifies the importance of imaging in the management of structural heart disease: from diagnosis, to treatment planning, to evaluation of therapeutic results.

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