How amazing is a maze procedure in the obstructive hypertrophic cardiomyopathy population?

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Hypertrophic cardiomyopathy (HCM) is among the most common genetic cardiac diseases, affecting approximately 1 in 500 individuals.¹ Prevention of atrial fibrillation (AF) in patients with HCM carries significant clinical importance, inasmuch as the combination of HCM and AF is a class I indication for anticoagulation and is associated with increased risk of heart failure-related mortality, stroke, and severe functional disability.² Although the maze procedure has been shown to reduce the risk of AF with a success rate of ~95% among patients without HCM,³ the procedure can pose a unique challenge due to hypertrophy of atrial myocytes as well as significant diastolic ventricular dysfunction prevalent in patients with HCM,⁴ and scarce evidence is available in this regard. Previous cohort studies of patients with HCM who underwent surgical intervention for AF reported that 50% to 70% remained free from AF at 1 to 3 years of follow-up.^{5,6}

In this issue, Bogachev-Prokophiev and colleagues⁷ report a single-arm (ie, without control group) cohort study of 45 patients with obstructive HCM who underwent surgical septal myectomy and “complete” maze IV procedure in a large volume HCM program. We congratulate the authors on their enterprising and aggressive approach, achieving an excellent outcome of freedom from AF episodes at 2 years of 78%. This result may be attributable to this group’s “complete” maze IV procedure with multiple applications of bipolar clamps and cryoablations for biatrial ablation lines. Perhaps more importantly, they achieved outstanding surgical results on reducing the left ventricular outflow tract obstruction gradient and eliminating the systolic anterior motion of the anterior mitral leaflet, which are the primary goals of the surgery.

Although the findings are encouraging and thought-provoking, limitations exist and the findings need to be interpreted with some caution, as discussed by the authors. Although the report comes from a large-volume center and

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Central Message

Two-year outcome of concomitant maze procedure performed with an extended septal myectomy for patients with obstructive hypertrophic cardiomyopathy and atrial fibrillation appears encouraging.

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the number of patients included in the analysis was not small compared with other reports of this patient cohort, it was still not large and there was no control group for comparison. The observed rate of AF occurrence and the reported improvement in quality of life may be due to their excellent surgical myectomy. Second, the patients routinely received β -blocker and/or amiodarone therapy before and after surgery, and the observations in this study may reflect effects of such intense medical therapy rather than the maze procedure. Third, the follow-up period was only 2 years, and notably, the freedom of AF rate appears to have progressively declined over time in the persistent AF group. Fourth, there was no active surveillance (eg, continuous loop monitoring) to detect AF in the study. Finally, the generalizability of this aggressive approach to smaller surgical programs may be limited and potentially hazardous.

Nonetheless, the clinical effects of an aggressive maze IV procedure in these patients appear to be satisfactory and encouraging. Moreover, the study is an excellent example of the need for developing surgical expertise for this cohort, as recently advocated by the experts.^{8,9}

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