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IMAGES IN MEDICINE

Left Idiopathic Ventricular Tachycardia Amenable to Radiofrequency Ablation*

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KEY WORDS: *idiopathic ventricular tachycardia; antiarrhythmic drugs; radiofrequency ablation*

ABSTRACT

A case of idiopathic left posterior fascicular ventricular tachycardia is presented in a young patient, who was finally cured by radiofrequency ablation applied at the left inferoapical area of the left ventricle.

An 18-year-old gentleman with a 5-year-long history of palpitations was referred for radiofrequency ablation of a wide-QRS complex tachycardia. He admitted having 2-3 tachycardia episodes per year, which had recently increased in frequency despite therapy with a beta blocker, recently combined with the antiarrhythmic medication flecainide (100 mg bid). The morphology of the tachycardia on the 12-lead electrocardiogram indicated a right bundle branch block with a left axis deviation at a cycle length of 290 ms (207 bpm) (Fig. 1A). Cardiac work-up revealed a normal heart anatomy by echocardiography, while a treadmill test was normal with no provokable arrhythmia.

During the electrophysiology study, the tachycardia was induced with difficulty and its focus was localized at the inferoapical area of the left ventricle (Fig. 1B, arrow). In this location, a Purkinje potential was recorded preceding the ventricular electrogram

ABBREVIATION
LIVT = left idiopathic ventricular tachycardia

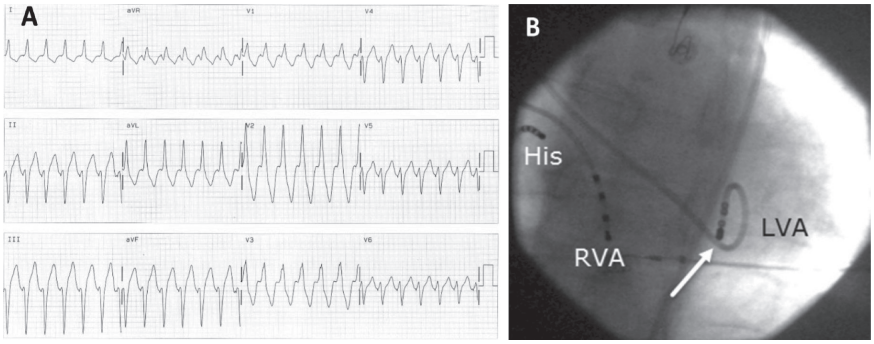

FIGURE 1. A. Surface electrocardiogram of patient's clinical tachycardia. **B**. Fluoroscopic image of the position of the successful ablation site of the tachycardia (arrow). See text for discussion. LVA = left ventricular apex; RVA = right ventricular apex.

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and subsequent application of radiofrequency energy at this site led to abolition of the tachycardia which was then rendered noninducible with programmed cardiac stimulation. The procedure was uncomplicated and the patient was discharged home the next day. During follow-up no arrhythmia recurrence was noted over the ensuing 5 years.

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In approximately 10% of patients with ventricular tachycardia, no underlying structural heart disease is detected.[1] In the majority the focus of the tachycardia is identified at the right ventricular outflow tract. Left idiopathic ventricular tachycardia (LIVT), first described in 1979,[2] represents about 10-15% of all types of idiopathic ventricular tachycardia. Triggered activity and reentry have been postulated as the mechanisms of LIVT.[3] The most common form of LIVT is a reentrant tachycardia involving the posterior fascicle as the retrograde arm of the circuit, which extends from the basal to the mid-apical region of the interventricular septum. Electrocardiographically it displays a right bundle branch block –like morphology with a left axis deviation (Fig. 1A). LIVT may respond to verapamil,[4] and other antiarrhythmic agents,[1,3] but is also amenable to catheter ablation,[5-7] which is recommended when symptoms are severe and pharmacologic treatment is not effective, poorly tolerated or not preferred by the patient. Ablation is highly successful and usually targets the distal posterior fascicle (Fig. 1B, arrow) and may be guided by recording a Purkinje potential preceding the ventricular electrogram.

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