

Fascicular Tachycardia



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KEYWORDS

• Fascicular tachycardia • Ventricular tachycardia • Catheter ablation • Calcium channel blockers

KEY POINTS

- Fascicular ventricular tachycardia (VT) has characteristic ECG findings with a relatively narrow QRS complex, right bundle branch block (RBBB), and most commonly left axis deviation.
- Fascicular tachycardia is slightly more prevalent in men, usually presents in young adults without structural heart disease, and has a favorable long-term prognosis.
- The most frequently described tachycardia mechanism is a macroreentrant circuit involving the left posterior fascicle with an adjacent slowly conducting zone.
- Fascicular tachycardia is usually responsive both acutely and chronically to calcium channel blockers and resistant to adenosine.
- Catheter ablation offers high success rates for tachycardia elimination with low complication rates. Ablation can be performed during tachycardia or sinus rhythm.
- The Purkinje fiber system can also be involved in different ventricular arrhythmias in patients with structural heart disease.

VT emanating from the left fascicular system has been described as early as 1972¹ and has frequently been referred to as *verapamil-sensitive tachycardia* or *idiopathic left VT*. This reentrant intrafascicular tachycardia, however, is often but not universally responsive to verapamil,² and other forms of idiopathic left ventricular tachycardia exist (eg, left ventricular outflow tract tachycardia).

Idiopathic fascicular tachycardia is usually seen in patients between 15 and 40 years of age without structural heart disease and has a male predominance (60%–80%).³ The most common presentation is exercise-induced palpitations but patients can also present with tachycardia at rest. Occasionally, incessant fascicular tachycardia can result in development of a tachycardia-induced cardiomyopathy and patients can present with symptoms of heart failure.⁴ Sudden cardiac death is infrequent in patients with fascicular tachycardia.

Diagnosis of fascicular tachycardia is suggested by a correlation of symptoms to characteristic findings on ECG and verified through an

electrophysiology study mapping the tachycardia to the left fascicular conduction system.

ECG CHARACTERISTICS OF FASCICULAR ARRHYTHMIAS

There are 3 recognized morphologies of fascicular VT classified by their regional involvement of the left fascicular system and characterized by distinct ECG patterns.⁵ The most common form involves the left posterior fascicle and on ECG presents with a characteristic RBBB with left axis deviation (**Fig. 1**). Occasionally, the left anterior fascicle is involved and the subsequent ECG pattern displays an RBBB with a right axis pattern (**Fig. 2**). Rarely, an upper septal fascicular VT with a narrow QRS complex and normal or right axis deviation has also been described. The distribution of these 3 morphologies of fascicular VT are approximately 90%, 10%, and less than 1%, respectively.^{5,6}

Left fascicular arrhythmias should be differentiated from those of papillary muscle origin, which

The authors have nothing to disclose.

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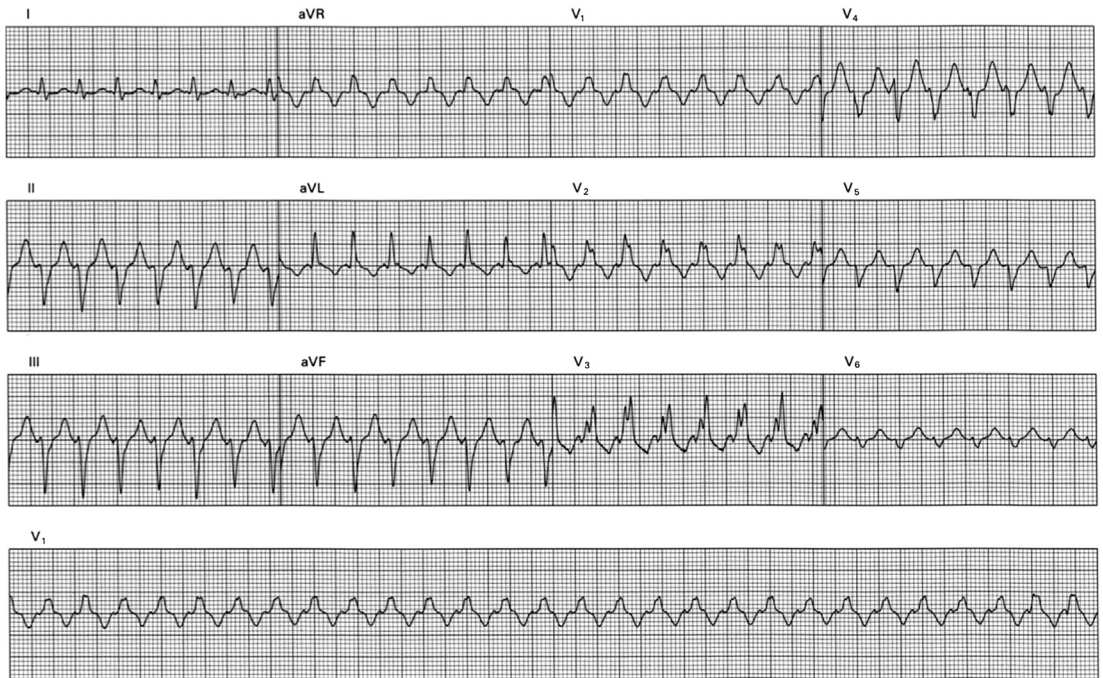


Fig. 1. Twelve-lead electrocardiogram of the most common form of fascicular ventricular tachycardia involving the left posterior fascicle. Note the characteristic right bundle branch block and left axis deviation.

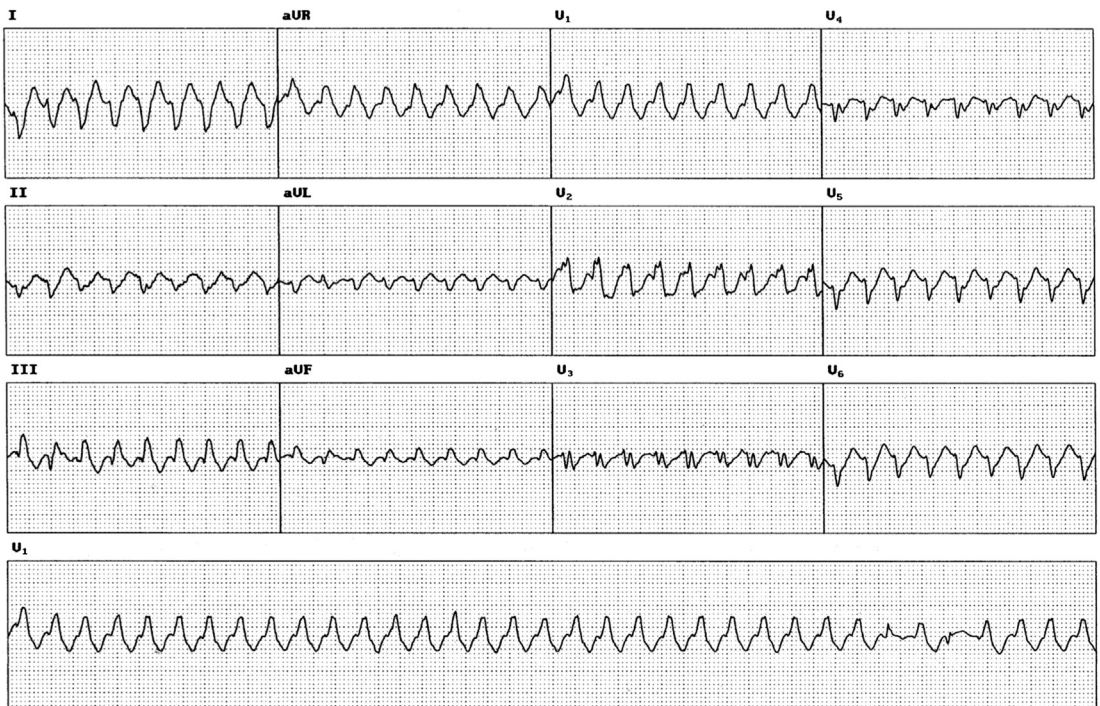


Fig. 2. Twelve-lead electrocardiogram of a fascicular tachycardia involving the left anterior fascicle. Note the right bundle branch block and rightward axis.

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