

# IDIOPATHIC LEFT VENTRICULAR TACHYCARDIA : A CASE REPORT

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## ABSTRACT

Accurate diagnosis of wide QRS complex tachycardia is difficult in emergent situations. Idiopathic Left Ventricular Tachycardia (ILVT) is a ventricular tachycardia characterized by right bundle branch block (RBBB) and left axis deviation (LAD) on electrocardiogram, its accounts for 10-15% of all left ventricular tachycardias. We present case of ILVT in a young 32-year-old gentleman presenting with unstable hemodynamic and a wide-complex right bundle, left axis deviation on electrocardiogram. Electrical cardioversion was given and the ILVT was terminated. Verapamil 80 mg twice daily was given, and he planned to radiofrequency ablation. It is important for emergency physicians to recognize the electrocardiographic features of ILVT and to manage these patients appropriately.

**Keywords :** idiopathic left ventricular tachycardia, synchronized cardioversion, verapamil

## INTRODUCTION

Idiopathic Left Ventricular Tachycardia (ILVT) is a ventricular tachycardia characterized by right bundle branch block (RBBB) and left axis deviation (LAD) on electrocardiogram. It occurs predominantly in young males (15–40 years old) without structural heart disease, metabolic or genetic abnormalities.<sup>3,7,8</sup> In 1981, Belhassen et al<sup>2</sup> demonstrated that intravenous administration of verapamil significantly decreased the reccurent rate of ILVT in afflicted patients. In this paper, we present a case of ILVT followed by a review of patient characteristics and management options.

## CASE PRESENTATION

A 32-year-old male presented to the Emergency Unit with a sudden onset of palpitations and chest discomfort. He had three similiar episodes previously. On

presentation, the patient was haemodynamically stable, composmentis, Blood Pressure (BP) of 120/80 mmHg. On cardiac examination, S1 and S2 were normal, no murmurs, or additional sounds. The chest was clear on auscultation. Laboratory tests revealed normal Hemoglobin, serum electrolytes, blood glucose and renal function tests. However, his initial electrocardiogram displayed on figure 1 : a wide-complex tachycardia, a ventricular rate of 190 beats/minute, with Right Bundle Branch Block (RBBB) morphology and Left Axis Deviation (LAD). Unsuccessful attempts were made to convert the patient to sinus rhythm with vagal maneuvers and Diltiazem infusion, it can showed on figure 2. The patient then felt dizziness and his blood pressure declined to 79/58 mmHg. Synchronized cardioversion performed

immediately with energy of 100 Joule, and the rhythm was convert to normal sinus rhythm (figure 3). Verapamil

80 mg twice daily was given, and he planned to radiofrequency ablation.

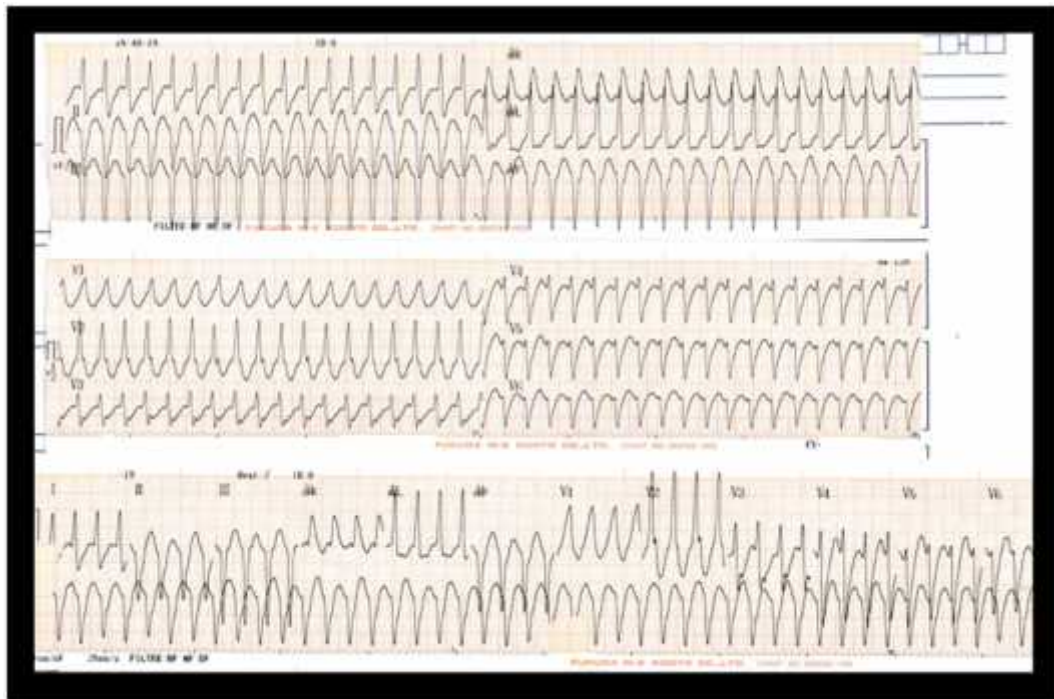


Figure 1. Electrocardiogram at admission showed narrow complex tachycardia Right Bundle Branch Block (RBBB) with Left Axis Deviation (LAD)

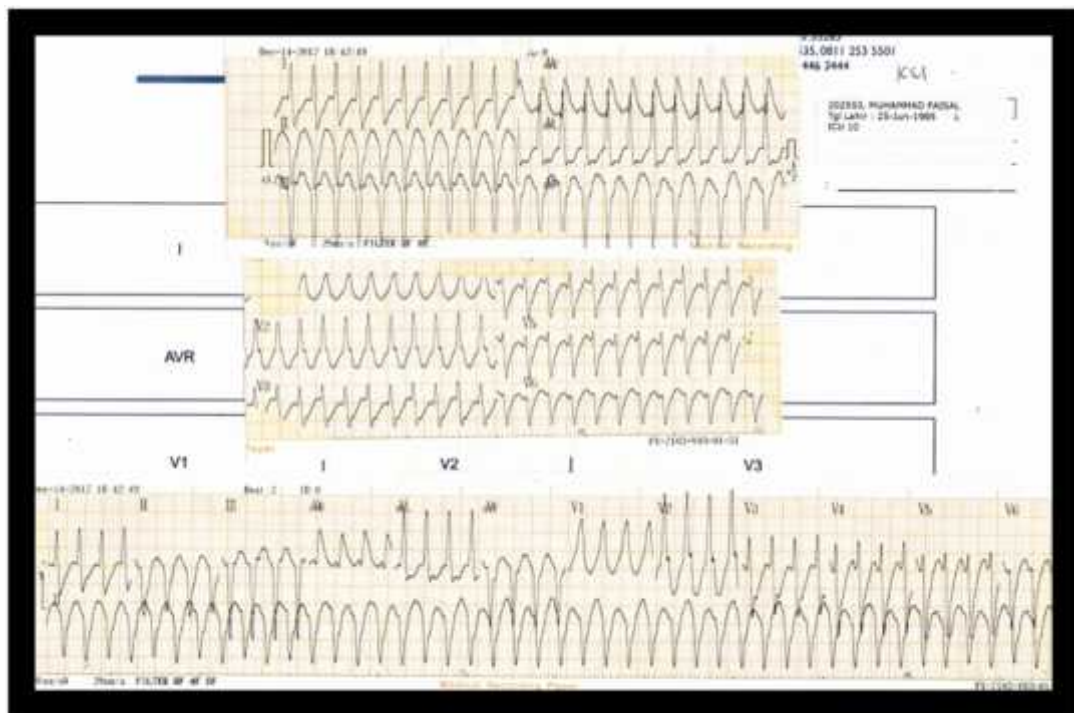


Figure 2. Electrocardiogram at admission showed narrow complex tachycardia after intravenous Diltiazem

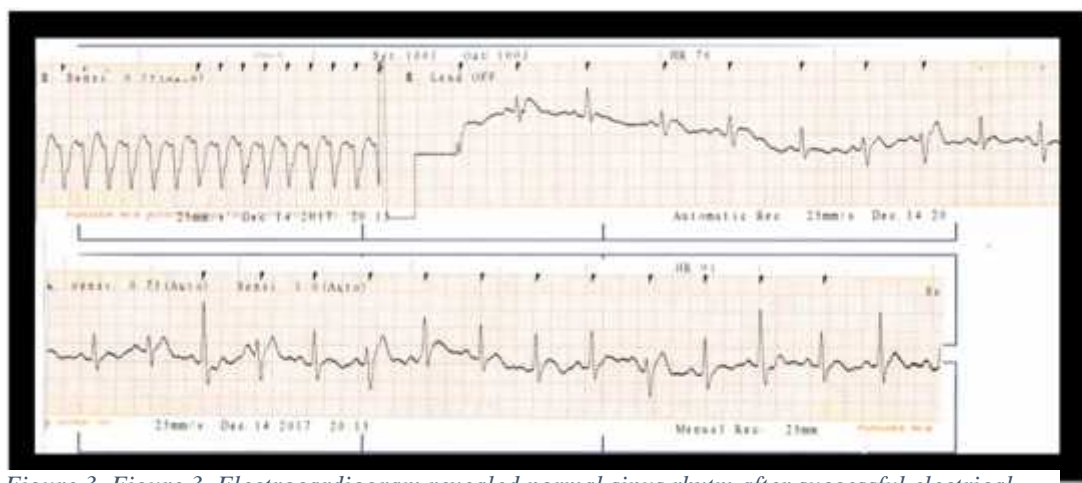


Figure 3. *Figure 3. Electrocardiogram revealed normal sinus rhythm after successful electrical cardioversion with energy of 100 joule*

## DISCUSSION

ILVT typically presents in male young adults with the most frequent clinical presentation is paroxysmal episodes of palpitations, dizziness and, less frequently, syncope.<sup>3,7,8</sup> The electrocardiographical pattern varies depending on the site of origin of the tachycardia. Posterior fascicular ventricular tachycardia (P-ILVT) accounts for the 90-95% of cases, P-ILVT is electrocardiographically characterized by RBBB morphology and LAD.<sup>4,8</sup> Our patient came with palpitations, and the ECG showed VT with RBBB type and LAD, so we diagnosed as P-ILVT. As in other cases of wide QRS tachycardia, we should evaluate the hemodynamic status of the patient. In stable patients, first line treatment is calcium channel blockers, this has been attributed to the fact that ILVT depends on the slow entry of calcium in partially depolarized Purkinje fibers.<sup>3,8</sup> Electrical cardioversion is emergent in case of tachycardia intolerance.<sup>8</sup> Our patient came with stable haemodynamic, so he got Diltiazem IV. But his blood pressure then declined, so we performed electrical cardioversion. His rhythm converted to sinus, and we

gave verapamil twice daily. Verapamil may be helpful in patients with mild symptoms.<sup>4,5,8</sup> When symptoms are severe and pharmacologic treatment is not effective or is poorly tolerated, catheter ablation is recommended. Ablation success rates as reported in various series vary between 85 and 95%, and are generally higher in those patients with P-ILVT.<sup>3,8</sup>

## CONCLUSION

Awareness have to be roused among emergency physicians that patient will often present with VT making it difficult to diagnose and manage. ILVT typically presents in male young adults and sensitive with calcium channel blocker therapy. Electrical cardioversion should be done if the patient has unstable haemodynamic.

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