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Arrhythmia from hell. Idiopathic left fascicular ventricular tachycardia in a young woman

Arytmia z piekła rodem. Idiopatyczny pęczkowy częstoskurcz komorowy u młodej kobiety

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Abstract

Idiopathic left fascicular ventricular tachycardia (ILFVT) is characterized by right bundle branch block morphology and left axis deviation. We report a case of ILFVT in a young 27-year-old female patient presenting with a narrow complex tachycardia resistant to vagal manoeuvers, adenosine, lidocaine, and electrical cardioversion.

Key words: idiopathic left fascicular ventricular tachycardia, verapamil, ventricular tachycardia

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Introduction

Idiopathic left fascicular ventricular tachycardia (ILFVT) is characterized by right bundle branch block (RBBB) morphology and left axis deviation.

Verapamil-sensitive ILFVT is a Purkinje-related arrhythmia mainly occurring in patients with structurally normal hearts [1, 2]. The underlying mechanism is assumed to be reentry in most cases [1, 3]. The most common type, called "Belhassen VT" [4, 5], exits near the left posterior fascicle and exhibits a morphology of RBBB and left axis deviation.

The underlying mechanism is believed to be a reentry tachycardia involving the Purkinje fibers of the fascicles — typically the left posterior fascicle of the left bundle branch and features of an automatic tachycardia. In 1981, Belhassen et al. [4] demonstrated that intravenous (i.v.) administration of verapamil significantly decreased the recurrence rate of IFLVT in afflicted patients. Vagal manoeuvers, adenosine, and lidocaine are ineffective in suppressing fascicular tachycardia [6]. We report a case of ILFVT in a young 27-year-old female patient presenting with a narrow complex tachycardia.

Case report

A 27-year-old female patient presented to the emergency department with sudden onset of palpitations of 2 hours duration. She has no history of chest pain, shortness of breath, or syncopal attack. There was no significant past medical, family, and she was not on any regular medication. She denied any use of alcohol or illicit drug.

Physical examination revealed blood pressure (BP) of 110/70 mm Hg and a heart rate of 218 beats/min. The cardiac examination did not reveal anything abnormal. Electrocardiogram (ECG) revealed a narrow complex tachycardia (QRS 110 ms), iRBBB, and left axis deviation (Figure 1A). Laboratory tests revealed normal hemoglobin, liver function tests, renal function tests, serum electrolytes,

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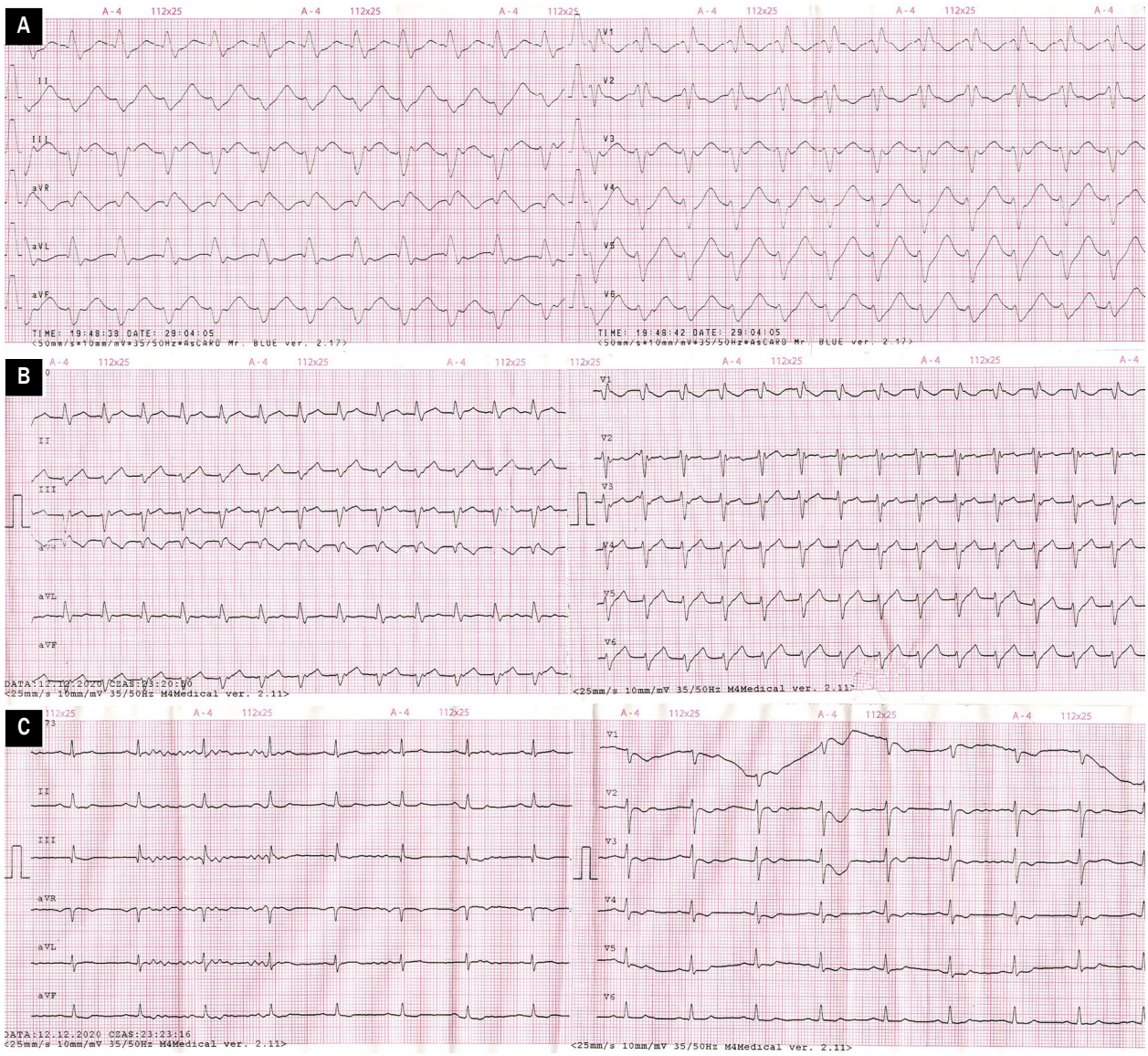

Figure 1A. Fascicular ventricular tachycardia on admission; **B.** Fascicular ventricular tachycardia following electrical cardioversion; **C.** Sinus rhythm after arrhythmia termination

and thyroid-stimulating hormone. Transthoracic echocardiography showed no structural abnormalities, normal valve function, and left ventricle ejection fraction of 55%. Initial treatment with vagal manoeuvers and i.v. adenosine up to 18 mg failed to terminate the arrhythmia. After a subsequent time, the patient developed hypotension, dizziness, and nausea.

Electrical cardioversion with increased biphasic energy levels 75–120–200 J was attempted but failed to terminate the arrhythmia. Intravenous boluses of 150 mg of amiodarone and 2 g of magnesium sulfate were administered before the next cardioversion attempt with monophasic energy 360 J but also failed (Figure 1B). An additional i.v. dose of 100 mg of lidocaine was administered, and arrhythmia self-terminated after a few minutes. After 20 minutes, arrhythmia recurred with a heart rate of 130/min. Moreover, the patient remained clinically stable. Intravenous extra doses of 100 mg of lidocaine and 150 mg of amiodarone were administered once again but without success. A diagnosis of fascicular tachycardia was suspected based on ECG findings of narrow complex tachycardia, iRBBB, and left axis deviation, failure in initial and subsequent treatment. An additional oral dose of 160 mg of verapamil was given, which resulted in permanent arrhythmia termination (Figure 1C). The patient was started on verapamil 120 mg daily and discharged from the cardiac department after 48 hours with no arrhythmia recurrence during follow-up.

Discussion and conclusion

If adenosine is not effective in reverting presumed SVT, this diagnosis of IFLVT should be considered.

Malignant arrhythmias usually occur in the presence of significant structural heart disease and carry a significant risk of sudden cardiac death.

ILFVT most frequently presents as paroxysmal episodes of palpitations and dizziness. Although most episodes occur at rest, exercise, emotional stress, and catecholamine infusion can trigger them. Studies showed that IFLVT behaves electrophysiologically as a reentrant tachycardia [7].

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Conflict of interest

The authors declare that there is no conflict of interest.

Streszczenie

Idiopatyczny lewokomorowy częstoskurcz komorowy pęczkowy (ILFVT) charakteryzuje obecność zespołów QRS o morfologii bloku prawej odnogi pęczka Hisa oraz lewogramu. W artykule przytoczono opis przypadku 27-letniej kobiety z ILFVT, która zgłosiła się z częstoskurczem z wąskimi zespołami QRS opornym na zabiegi zwiększające napięcie nerwu błędnego, adenozynę, lidokainę czy kardiowersję elektryczną.

Słowa kluczowe: idiopatyczny lewokomorowy częstoskurcz komorowy pęczkowy, werapamil, częstoskurcz komorowy

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