

P-wave alternans predicting imminent atrial flutter

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A 69-year-old woman was admitted to hospital complaining of “fast palpitations” of recent onset. She was an otherwise healthy person, with mild arterial hypertension without any medication. Her admission electrocardiogram depicted sinus rhythm with some monomorphic ventricular ectopic beats apparently arising from the septal part of the right ventricular outflow tract (Fig. 1A). Hematological and biochemical laboratory blood tests including electrolytes and thyroid function, were normal. The transthoracic echocardiogram was normal, apart from slight hypertrophy of the interventricular septum of 1.15 cm. The patient was placed on

electrocardiogram monitoring when our attention was drawn to the sudden appearance of P-wave alternans. There was no atrial bigemini (Fig. 1B, C). While we were speculating on the cause of this phenomenon, the patient developed a counterclockwise atrial flutter with fast ventricular response (Fig. 1D), leading to a fall in her systolic blood pressure to 80 mm Hg. Sinus rhythm was restored after synchronized direct current electrical cardioversion. During the following days repeated episodes of atrial flutter were recorded, always preceded by P-wave alternans. The patient was referred for electrophysiological study with ablation of the cavo-

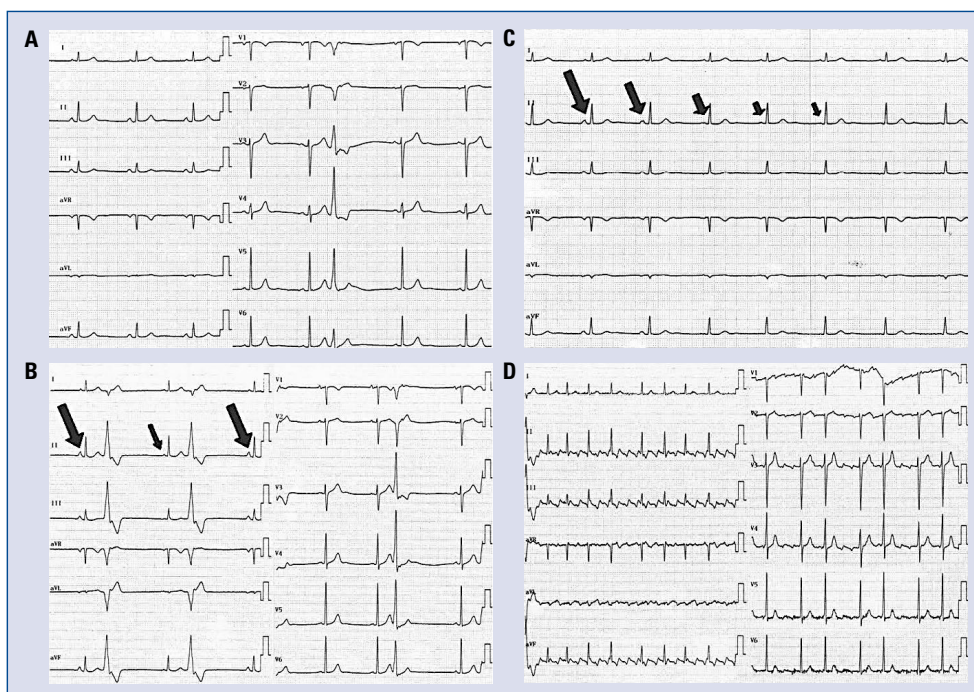


Figure 1. 12-lead electrocardiogram in a patient with “fast palpitations”; **A.** Admission electrocardiogram depicting sinus rhythm with some ectopic ventricular beats; **B.** P-wave alternans, consisting of alternating morphology and amplitude of P waves, more evident in the inferior leads (arrows); **C.** Progressive alteration of the shape and amplitude of P-waves, especially in inferior leads (lead II, arrows); **D.** A burst of atrial flutter, emerging soon after the appearance of P-wave alternans.

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tricuspid isthmus dependent atrial flutter. P-wave alternans is a rare phenomenon. In the few references encountered in the medical literature, it was considered as a predictor of atrial fibrillation. The suggested mechanism is reported as atrial fibrosis

with fragmented and heterogeneous atrial conduction. According to available literature and common knowledge, the case described here is the first to correlate P-wave alternans with an imminent atrial flutter.

Conflict of interest: None declared