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Post-partum palpitations

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Abstract

Supraventricular tachycardias are the most commonly encountered arrhythmias during and shortly after pregnancy. This case report describes several ECG-based diagnostic considerations and briefly reviews the current standards of care.

Keywords

Pregnancy; paroxysmal supraventricular tachycardia.

Case report

A 31 year old woman presented complaining of palpitations. The episode had started acutely a few hours following delivery, which in itself had been uncomplicated. She remembered having experienced similar palpitations a few years earlier. However, this first episode had only lasted for a few minutes.

At presentation the patient was clearly uncomfortable, although haemodynamically stable. Her electrocardiograph (ECG) showed a narrow QRS tachycardia of approximately 150 bpm. On the ECG there was evidence of retrograde P waves buried in the ST segments with an RP interval exceeding 90 ms. This was suggestive of an orthodromic tachycardia with retrograde conduction over an accessory pathway. The QRS complex showed both a prolonged cycle length and electrical alternans (Figs. 1 and 2). Carotid sinus massage (CSM) was unsuccessful. Medical therapy was given with the administration of a 6 mg adenosine bolus. This resulted in conversion to sinus rhythm, which persisted (Figs. 3 and 4) There was no recurrence of the paroxysmal supraventricular tachycardia (PSVT) and the patient and her baby were discharged the next day in excellent health, having been scheduled for outpatient follow-up.

Discussion

Cardiac arrhythmias during pregnancy are relatively rare. Although the precise incidence remains unclear, complex arrhythmias, thus excluding sinus rhythm variations and benign PAC/PVCs, account for less than 0.04% of all pregnancy related admissions[1]. However, pregnancy can trigger cardiac arrhythmias not previously present in seemingly well individuals. The risk of arrhythmia is higher in the third trimester of pregnancy and during labour and delivery. Potential factors that cause a higher risk of arrhythmia during these periods include the direct cardiac

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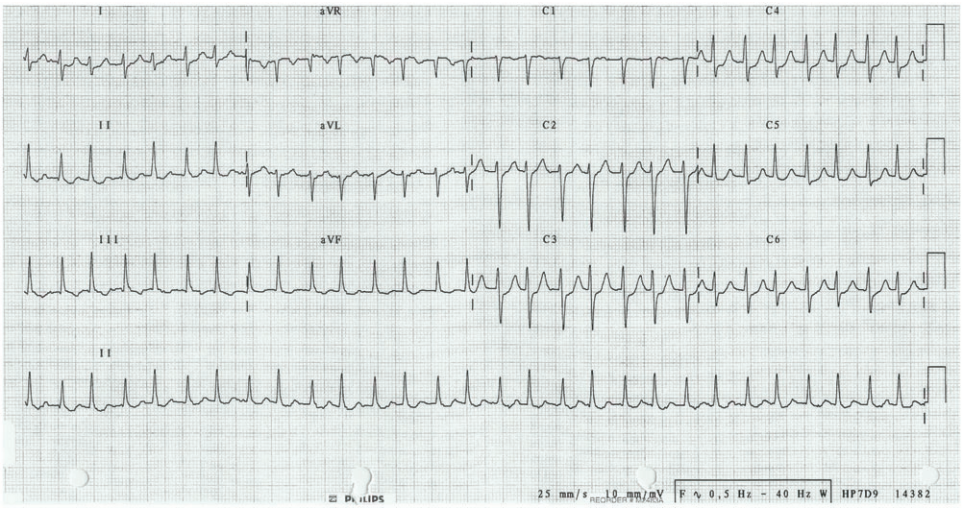


Fig. 1. Small complex tachycardia, showing electrical and cycle length alternans.

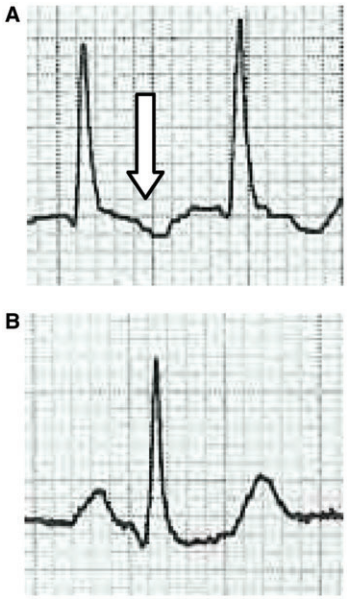


Fig. 2. Retrograde p wave in ST segment during tachycardia. (A) The ECG in lead II during narrow complex tachycardia; (B) lead II during sinus rhythm.



Fig. 3. Conversion to sinus rhythm after adenosine administration.

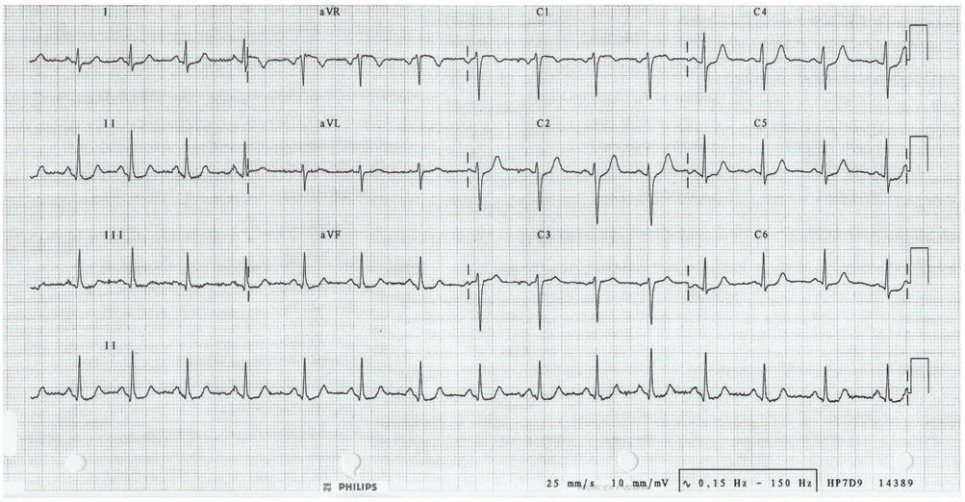


Fig. 4. ECG showing normal sinus rhythm.

electrophysiologic effects of hormones, changes in autonomic tone, haemodynamic perturbations, hypokalemia of pregnancy and underlying heart disease.

Atrioventricular (AV) nodal re-entrant tachycardia is the most common type of re-entrant supraventricular tachycardia and is the mechanism in 60% of patients who present with PSVT. In patients with AV nodal re-entry, the AV node is functionally divided into two pathways. These dual pathways form the re-entrant circuit. Because the re-entrant circuit in AV nodal re-entry always involves the AV node, this arrhythmia responds well both to autonomic manoeuvres and drugs that affect the AV node[2].

The observed cycle length alternans is occasionally seen during PSVT due to oscillations in antegrade atrioventricular nodal refractoriness. Although rare, cycle length alternans has also been observed in atypical AV node re-entry tachycardia due to oscillations in ventriculo-atrial conduction[3]. There are currently no data available to determine whether there are specific pregnancy or delivery related factors that can cause cycle length alternans during PSVT.

The electrical alternans is occasionally observed during narrow QRS tachycardias. It is a rate-related phenomenon that depends on an abrupt increase to a critical rate and is independent of the tachycardia mechanism[4,5].

Most episodes of PSVT terminate spontaneously. However if the tachycardia persists and vagal manoeuvres fail, intravenous adenosine can be used to terminate the arrhythmia. If possible, drug therapy should be avoided during the first trimester of pregnancy. Once drug treatment fails or is not indicated because of the haemodynamic instability of the patient, direct current cardioversion should be applied[6–8]. In addition, transcatheter ablation is considered to be an excellent therapy in refractory patients. However the accompanying imaging radiation limits it use in pregnancy[1].

Teaching point

Although palpitations during and just after pregnancy are common, complex arrhythmias are relatively rare. When an arrhythmia is suspected an ECG should be done to identify those patients with true arrhythmias. PSVTs are the most common complex arrhythmias encountered during this period. This report highlights the importance of swift ECG-based diagnostics and describes the standard treatment.

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