

# Development of Fast Atrial Fibrillation in an Awake Parturient Undergoing Elective Caesarean Section

## Abstract

A 25 year-old, fit and well, G2P1 woman presented for elective caesarean section under spinal anaesthesia for breech presentation. Following a straight forward spinal anaesthetic and initial progression of surgery, the patient developed atrial fibrillation with a fast ventricular response shortly after delivery and bolus of 5 units of oxytocin. Attempts to restore sinus rhythm with pharmacological methods were unsuccessful and ultimately the patient required electrical cardioversion. An RSI was performed as the patient was still within the first 48 hours post-delivery. Upon laryngoscopy, the patient reverted to sinus rhythm without the need for DC cardioversion. After a short stay in the hospital, the patient was discharged with outpatient ECHO and follow-up awaited. Blood, including thyroid function tests, were unremarkable pre-, intra- and post-operatively. This case report highlights the rarity of development of AF whilst also covering the management of this arrhythmia in the context of the awake parturient.

**Keywords:** Atrial fibrillation, caesarean section, cardioversion, supraventricular tachycardia

## Introduction

Atrial fibrillation is an arrhythmia characterised by the irregular beating of the atria of the heart. It shares links with many cardiovascular diseases but can also occur in otherwise healthy hearts. Thankfully, new-onset atrial fibrillation is rare during pregnancy and even rarer around the time of caesarean section. One study determined the incidence of AF in the setting of caesarean sections to be 0.04%.<sup>[1]</sup> Of the 7 people out of over 17,000 who developed AF in this study, all 7 developed the arrhythmia post-operatively.

AF is one of several disorders that falls under the umbrella term supraventricular tachycardia (SVT). Pregnancy predisposes patients to developing SVT through the physiological and hormonal changes that occur intrapartum.<sup>[2]</sup>

## Case

An otherwise healthy 25-year-old patient presented for elective caesarean section for breech presentation. She was G2P1 with one previous normal vaginal delivery. Her second pregnancy had been complicated by

an admission to hospital for several days with Influenza A at 27 weeks gestation but had otherwise passed without incident. ECG at the time of admission with flu showed the patient to have a sinus tachycardia.

Monitoring of the patient was consistent with AAGBI guidelines and anaesthesia was established via the spinal technique using 2.6 mls of 0.5% heavy bupivacaine and 15 mcg of fentanyl. Heart rate in the initial period varied between 70 and 80 beats per minute with sinus rhythm displayed on our monitor. Block height to cold at 10 minutes was at the level of T4. Surgery was commenced without issue and a healthy baby was delivered shortly after. Five units of oxytocin was given intravenously, as a bolus, immediately after delivery of the baby. Over the next 1-2 minutes, the patient developed a tachycardia with the heart rate plateauing between 180-200 bpm [Figure 1]. Whilst maternal heart rate can rise upon the birth of their child, the rapidity of the rate and its prolonged nature alerted us to the fact that the patient had developed a tachyarrhythmia.

Initial management followed the ABC algorithm. The patient remained conscious and reported no shortness of breath, chest pain, cough or palpitations. Because there

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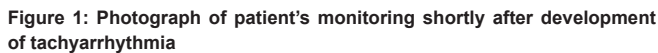
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Due to the fact the patient had only just had her baby delivered, we needed to treat her as an aspiration risk. Modified RSI was performed with Alfentanil, propofol and rocuronium. During the act of intubation, the patient cardioverted to sinus rhythm. After a short duration to ensure sinus rhythm would be maintained, the patient was woken up and extubated following reversal with suggamadex. She was transferred back to the labour suite for close monitoring overnight and was discharged the next day. Echocardiogram showed no functional valvular abnormality. Blood profile from the incident revealed no electrolyte disturbance and thyroid function tests were normal. Haemoglobin dropped from 112 g/L pre-procedure to 101 g/L post-procedure.

Whilst development of SVT in pregnancy is not uncommon,<sup>[3]</sup> there is a dearth of literature of *de-novo* atrial fibrillation occurring during caesarean section in an



Whilst there is plenty of literature related to development of SVT in pregnancy,<sup>[2,7,10]</sup> this case report highlights the diagnosis and management of fast atrial fibrillation during an elective caesarean section.

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

## References

1. Kalava A, Pribish AM. Postoperative atrial fibrillation after cesarean delivery. *Rom J Anaesth Intensive Care* 2018;25:111-6.
2. Robins K, Lyons G. Supraventricular tachycardia in pregnancy. *Br J Anaesth* 2004;92:140-3.
3. Orejarena LA, Vidaillet H Jr, DeStefano F. Paroxysmal supraventricular tachycardia in the general population. *J Am Coll Cardiol* 1998;31:150-7.
4. Thomas JS, Koh SH, Cooper GM. Haemodynamic effects of oxytocin given as i.v. bolus or infusion on women undergoing Caesarean section. *Br J Anaesth* 2007;98:116-9.
5. Heesen M, Carvalho B, Carvalho JCA. International consensus statement on the use of uterotonic agents during caesarean section. *Anaesthesia* 2019;74:1305-19.
6. Hagley MT, Cole PL. Adenosine use in pregnant women with supraventricular tachycardia. *Ann Pharmacother* 1994;28:1241-2.
7. Kron J, Conti JB. Arrhythmias in the pregnant patient: Current concepts in evaluation and management. *J Interv Card Electrophysiol* 2007;19:95-107.
8. Georgiopoulos G, Tsiachris D, Kordalis A. Pharmacotherapeutic strategies for atrial fibrillation in pregnancy. *Expert Opin Pharmacother* 2019;20:1625-36.
9. Gałczyński K, Marciniak B, Kudlicki J, Kimber-Trojnar Z, Leszczyńska-Gorzelak B, Oleszczuk J. Kardiowersja elektryczna w leczeniu zaburzeń rytmu serca podczas ciąży--opis przypadku i przegląd literatury [Electrical cardioversion in the treatment of cardiac arrhythmias during pregnancy--case report and review of literature]. *Ginekol Pol* 2013;84:882-7.
10. Baig M. Arrhythmia-centred treatment review of tachy-arrhythmia during pregnancy. *Eur Society Cardiol: E-J Cardiol Pract* 2014;12.