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A case of Intra-Partum Cervical Shock

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Cervical Shock is defined as maternal hypotension and bradycardia secondary to cervical stimulation. The pathophysiology likely involves the vagus nerve causing a parasympathetic nervous system response. It is often associated with early pregnancy loss and with cervical instrumentation. There have been no previous reported cases of cervical shock in the intra-partum period. Whilst cervical shock is a relatively uncommon phenomenon, it can contribute significantly to maternal morbidity and mortality, as persistent hypotension/bradycardia can result in end organ hypoperfusion and maternal collapse.

This case involves a 34 year old multiparous woman who presents at 39 weeks and 6 days gestation in early labour following an uncomplicated pregnancy. Her first two pregnancies resulted in uncomplicated spontaneous vaginal births at term. In early labour, she began reported increasing symptoms of lightheaded/dizziness associated with each contraction. She then had a witnessed 15 second complete syncopal event whilst in the recumbent position on the birthing bed. There was no prodrome or seizure like activity. A medical emergency call was made. Her blood pressure was 85/60 and her heart rate was 45. ECG shortly after demonstrated normal sinus rhythm with a normal PR interval and no evidence of heart block. She was placed supine, her legs were elevated and she was given an intravenous fluid bolus. She quickly regained a normal level of consciousness although had ongoing symptoms of light-headedness with each contraction. She progressed to have an epidural block and a spontaneous vaginal birth shortly after. Postnatally, a cardiology consult was conducted and a diagnosis of vasovagal syncope/cervical shock phenomenon was favoured and she is due for 6 week follow up with a transthoracic echocardiogram.

This case represents a Cervical Shock phenomenon based on the constellation of clinical signs and symptoms. The suspected pathophysiology is that the cervical stimulation from dilatation (and the resultant pain) caused a vasovagal syncope with a parasympathetic response and subsequent hypotension/bradycardia. The cardiotocography trace demonstrates a maternal heart rate pattern completely dropping off the trace (below 40) with each contraction. Interestingly, the woman's heartrate was up trending towards the end of the labour and following the epidural block. A proposed theory is that the epidural block effectively treated the painful stimulus and thus the resultant reflex syncope. Retrospectively, this woman had early epidural blocks in both her prior labours with no history of syncopal symptoms at those deliveries. Another proposed theory is that as the cervix progressed to fully dilated there was no longer enough cervix to "stimulate" and cause the response. This case also raises an interesting management discussion as to the threshold for cardiac monitoring in the context of a persistent bradycardia, and additionally, the potential role for atropine. It also highlights cervical shock as a potential cause of maternal intra-partum collapse that all clinicians should be aware of.

Recent publications

1. Giddey J, "A suspected case of the rare Hamman Syndrome", RANZCOG Royal Australia and New Zealand College of Obstetrics and Gynaecology Regional Annual Scientific Meeting April 2023.

Biography

Jack Giddey is a 29 year old Resident Doctor from Sydney, Australia with an interest in specialising in Obstetrics and Gynaecology. He is early in his research journey however has a deep interest in complex Obstetric care and high risk pregnancies. His previous e-Poster presentation involves a suspected case of the rare Hamman syndrome – otherwise known as Spontaneous Pneumomediastinum and subcutaneous emphysema.

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