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Case report

Anaesthetic management for emergent upper limb trauma surgery in a 23-week pregnant woman: Role of ultrasound-guided infraclavicular brachial plexus block. Case report☆

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ABSTRACT

We describe the anaesthetic management of a 34-year-old woman at 23 weeks of gestation with a forearm tendon and vascular injury who required an emergent surgical repair. Brachial plexus nerve block avoids the potential risk of failed intubation and aspiration in addition to reducing the exposure of the foetus to potentially teratogenic drugs. Whenever feasible, a regional anaesthetic technique should be used. If general anaesthesia is mandatory, a rapid sequence induction is required. A multidisciplinary approach needs to be established early in the management of these patients. Anaesthetists must provide safe anaesthesia for both mother and child by maintaining adequate maternal oxygenation for avoiding foetal asphyxia.

Manejo anestésico para la cirugía urgente traumatológica en miembro superior en una gestante de 23 semanas: rol del bloqueo ecoguiado del plexo braquial mediante abordaje infraclavicular. Reporte de caso

Palabras clave:
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RESUMEN

Describimos el manejo anestésico de una mujer de 34 años en su 23 semana de gestación con una lesión vascular y tendinosa de antebrazo que requirió una reparación quirúrgica urgente. El bloqueo nervioso del plexo braquial evita el riesgo potencial de intubación fallida

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Plexo braquial
Bloqueo nervioso
Analgesia

y de broncoaspiración, además de reducir la exposición fetal a fármacos potencialmente teratógenos. Mientras sea posible una técnica anestésica regional, debería ser usada. Si es inevitable una anestesia general, se requiere una inducción de secuencia rápida. Un abordaje multidisciplinar debe ser establecido en el manejo de estas pacientes. Los anestesiólogos deben proporcionar una anestesia segura tanto para la madre como para el feto manteniendo una oxigenación materna adecuada para evitar la asfixia fetal.

Introduction

Anaesthetic techniques used in obstetric patients requiring emergent surgical interventions pose a challenge to the anaesthetist. In the second trimester, the teratogenic effects of certain drugs used in our daily practice[1,2] may compromise foetal development and lead to the occurrence of different types of malformations depending on gestational age. Locoregional procedures are the options of choice in these patients.[3]

Clinical case

We present the case of a 34-year-old pregnant woman at 23 weeks of gestation who was involved in an automobile accident and sustained blunt and penetrating trauma to the left forearm with subsidiary tendon and vascular injuries, requiring urgent intervention. She had no other remarkable personal history except for uncertainty regarding the fasting period. After the assessment by a multidisciplinary team consisting of orthopaedic surgeons, anaesthetists and a gynaecologist, it was decided to take the patient to emergent surgery using ultrasound-guided infraclavicular brachial plexus nerve block.

Since arrival to our centre, the patient remained haemodynamically stable. Airway exploration revealed a Mallampati II airway, normal cervical extension, and unrestricted mouth opening. The patient reported severe pain and functional impairment of the forearm, together with active bleeding at the wound site. Whole blood count showed normal results for red blood cells, leukocytes, platelets and coagulation tests. The gynaecological ultrasound showed a normally developing pregnancy for the reported gestational age.

In the operating room, considering the gestational age of more than 20 weeks, the patient was placed in left lateral decubitus in order to reduce aortocaval compression and improve venous return. Prophylactic amoxicillin was given 30 min before the start of the surgical intervention. After usual non-invasive monitoring of blood pressure, electrocardiogram and pulse oximetry, the patient received fentanyl 100 μg for anxiety control. Nasal prongs were used at a flow rate of 2 l/min. Given the gestational age, the obstetric team decided not to use intraoperative foetal heart rate (FHR) monitoring.

The patient was then placed in supine decubitus with the arm in adduction in order to use a coracoid approach technique. The axillary artery was localized under ultrasound guidance and the pectoralis major, pectoralis minor, lateral, posterior and medial brachial plexus fascicles were identified around the artery. With the probe in a vertical position, the in-plane approach was used to deliver 20 ml of 1.5% mepivacaine distributed between the three brachial plexus fascicles; the ultrasound showed an anechoic image of the local anaesthetic injection (Fig. 1).

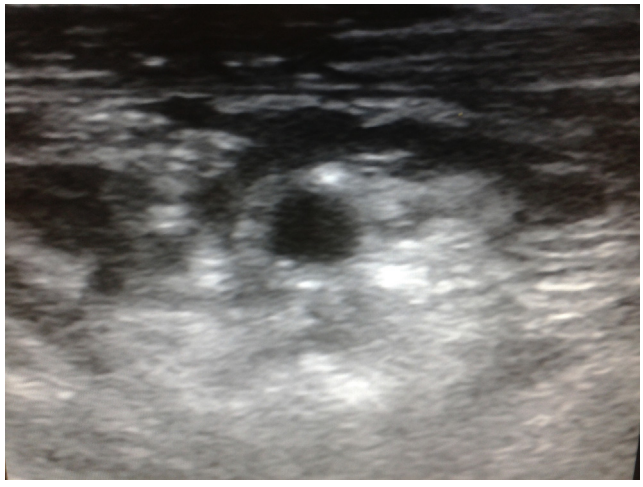

Fig. 1 – Ultrasound image of the brachial plexus at the infraclavicular level showing the distribution of the local anaesthetic to the lateral, posterior and medial fascicles. Source: Authors.

During the procedure consisting of tendon repair and vascular anastomosis (Fig. 2), the patient remained haemodynamically stable, with systolic blood pressures between 110 and 120 mmHg, heart rate of 80–90 beats per minute and peripheral oxygen saturation (SpO_2) of 99–100%. Analgesia and motor block were adequate throughout, with no need for adjuvant analgesia or sedation. After 140 min of the surgical intervention and completion of the procedure, the patient was transferred to the recovery room where she evolved favourably.

Discussion

Non-obstetrical surgery during pregnancy is relatively common, with an incidence of 0.15% of the pregnant patients.[4–6] The most frequent indications for surgery during pregnancy are acute abdominal infections (such as appendicitis or cholecystitis), trauma and tumours.[4,7] However, any type of emergent surgical procedure may be required during pregnancy.[4]