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CASO CLÍNICO

Awake Xifopubic Laparotomy for Desmoid Tumor during Pregnancy: A Case Report

Laparotomia Xifopúbica Acordada durante a Gravidez para Excisão de Tumor Desmoide: Caso Clínico

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ABSTRACT

Non obstetric surgery during pregnancy is rare with maternal malignancy being one of the most common causes. Sporadic pregnancy related desmoid tumours are even more uncommon and optimal management of this tumour is complex. Complete surgical excision is the most commonly accepted treatment. Surgery during pregnancy is challenging as it demands taking into consideration requirements for both the mother and the foetus. The choice of anaesthetic plan must take into account surgical and patient specificities, and the effects of anaesthesia on the foetus. We report the perioperative management of a pregnant woman in the second trimester of pregnancy who underwent complete excision of a desmoid tumour under regional anaesthesia. Intraoperative change of the surgical plan posted an additional challenge.

RESUMO

A cirurgia não obstétrica durante a gravidez é rara, sendo uma das causas mais comuns a excisão de tumores maternos. Tumores desmóides esporádicos na gravidez, constituem uma causa ainda mais rara, sendo o tratamento ideal complexo. A excisão cirúrgica completa é atualmente o tratamento mais frequentemente preconizado. A cirurgia durante a gravidez é um desafio uma vez que ambos, mão e feto, têm de ser levados em consideração. A escolha de um plano anestésico requer ter em linha de conta, não só, as especificidades cirúrgicas e da grávida, bem como o impacto da técnica anestésica no feto. Este caso clínico relata o manuseio perioperatório de uma grávida no segundo trimestre de gravidez que foi submetida a excisão completa de um tumor desmóide sobre anestesia regional. A alteração intraoperatória do plano cirúrgico constituiu um desafio adicional.

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INTRODUCTION

About 2% of pregnant women require a non-obstetric surgery during pregnancy, with appendectomy and cholecystectomy being the most common procedures.[1]

Desmoid tumours (DT) are rare neoplastic tumours that arise from mesenchymal stem cells and locally invade adjacent tissue.2 Sporadic desmoid pregnancy related tumours are even more uncommon with very few case reports published.[2,3] DT in pregnant women are usually located in the abdominal wall and may present as a painless mass during any time in pregnancy. Optimal timing for surgical resection remains unclear.[2,4] Non-obstetric surgery during pregnancy posts additional concerns to both surgeons and anaesthesiologists.[1] The main goals are to maintain maternal safety and achieve the best possible foetal outcome. Elective surgery decision should be made by a multidisciplinary team.[5]

We report the perioperative management of a pregnant woman in the second trimester of pregnancy who underwent complete excision of a large DT. Regional anaesthesia was the chosen technique. To our knowledge this is the first case report in such circumstances.

CASE REPORT

A 24 –year-old pregnant woman with a gestational age of 15 weeks and 5 days attended the obstetric emergency department with progressive abdominal pain. She had a medical history of a spontaneous abortion and an acute appendicitis with appendectomy three years before, without complications. She had class 2 obesity (BMI 36 kg/m^2) and did not have any other comorbidities. On physical examination a voluminous mass was palpable on the middle quadrants of abdomen. Abdominal ultrasound showed foetus vitality and an image of a suggestive large uterine mass. Magnetic resonance (MR) was performed, and an

Figure 1. Magnetic resonance showing abdominal mass later confirmed as a desmoid tumour, and the foetus bellow

abdominal mass with 18.5 x 10.9 x 17.8 cm that appeared to be in continuity with the uterine fundus was confirmed. Uterine leiomyoma was assumed as the most probable diagnosis (Fig. 1). Surgical removal of the mass was proposed considering the size of the tumour, compression symptoms and the obstetric risks of carrying the pregnancy in such terms. Two weeks after the beginning of symptoms, an open laparotomy with infrapubic incision was scheduled, and regional anaesthesia with placement of an epidural catheter followed by lumbar subarachnoid block (SAB) was planned and accepted by the parturient. Expected surgical time was two hours. Intraoperative monitoring included SpO_2, 5-lead ECG, invasive blood pressure and urine output.

Epidural catheter was inserted via a 18 G Tuohy needle in L3-L4 space, using the technique of resistance loss with saline solution. Epidural space was 7 cm from the skin and catheter was kept 4 cm in the epidural space. SAB was performed with a 27 G needle, in the same intervertebral space. Clear cerebrospinal fluid was observed and 11 mg of 0.5% hyperbaric bupivacaine and 2 mcg of sufentanil were injected achieving a T4 sensory block level.

Oxygenation was given throughout the surgery by nasal cannula. Approximately 30 minutes after the beginning of surgery, gynaecologists realized that the mass was even larger than it appeared in the MR and that it extended beyond the uterus to the root of the mesentery. At this point, collaboration from the general surgery team was requested as conversion to exploratory laparotomy and a xifopubic incision was needed. An immediate decision had to be made between keeping regional anaesthesia or converting it to general anaesthesia. After discussion with the surgical team and the parturient of the risks and benefits of one technique over the other, the final decision was to proceed with regional anaesthesia. Patient was extremely collaborant throughout the procedure. Main concerns were avoiding foetal exposure to anaesthetic drugs, major blood loss and hemodynamic instability that could compromise placental perfusion. Boluses of 8 mL 0.375% ropivacaine were administered using the epidural catheter to achieve and maintain a T3-T4 sensory block through the procedure. First bolus was administrated 1hour and 30 minutes after SAB. A total dose of 60 mg of ropivacaine was necessary. Patient remained hemodynamically stable during the entire surgery. Phenylephrine was administered to maintain mean arterial pressure above 65-70 mmHg when needed as a bolus of 50 to 100 mcg. A total dose of 350 mcg was used. Besides antibiotic prophylaxis with cefazolin no other drugs were used. Complete surgical excision of a 20 x 12 x 17 cm size tumour with xifpubic incision was performed. Intraoperative iatrogenic laceration of the right ureter occurred, and correction via double J stent took place with urology team collaboration.

Surgery took a total of 4 hours, and the patient remained calm and comfortable throughout. No intravenous sedation was necessary. Posterior pathologic anatomy of the mass revealed the final diagnosis, a desmoid type fibromatosis tumour. Fetal vitality assessment was performed at the end of surgery and the foetus showed no signs of distress. Postoperative period was uneventful, and she was discharged home 6 days after surgery. At 40 weeks and 2 days of gestation, a healthy baby girl was born, via vaginal delivery, with an Apgar score of 7/9/10 at 1, 5 and 10 minutes respectively after birth. Two years after surgery, there are no signs of tumour relapse.

DISCUSSION

Non obstetric surgery during pregnancy is rare, with an incidence between 0.75% and 2%.[1,6] Among the most common causes maternal malignancy is a well-established one.[6]

Rapidly growing DT in pregnancy is even more rare.[2] Optimal management of this tumour is complex and poorly defined as there are no guidelines of specific therapeutic approaches and literature is based on reported clinical cases.[3,4] The most commonly accepted treatment is complete surgical excision although treatment should be individualized depending on tumour's growth potential and the risk for both the mother and the foetus as giant DT may complicate pregnancy outcomes.[3] In our case surgical excision with open laparotomy was decided due to associated symptoms, tumour's size and rapid growth. Surgery during pregnancy is challenging as it demands taking into consideration requirements for both the mother and the foetus.[5-7] It should involve a multidisciplinary team to ensure such standard of care and can be safely performed with favourable outcomes.[5,6] Second trimester is the preferred one for elective surgery, as it is associated with less risk of miscarriage and preterm contractions.[7] Major embryonic development is complete by this time and the uterus is smaller, which favours surgical abdominal exposure. The choice of anaesthetic plan must take into account surgical and patient specificities, and effects of anaesthesia

on the foetus.[8] Any anaesthetic agent given during pregnancy could potentially negatively affect the development of the foetus.[6,7] Also, physiologic derangements such as hypoxemia, hypercarbia, stress and hypotension may be teratogenic by itself. There is no clear evidence of beneficial effect on the outcome of pregnancy after regional compared with general anaesthesia.[7] Some studies suggest an association of general anaesthesia during pregnancy with low birth weight.[9,10] Exposure to general anaesthesia during gestation period has been associated with behavioural problems during childhood.[11] Further studies on neuropsychological development of children with prenatal exposure to anaesthetic drugs are needed. Recent updates still suggest the use of regional anaesthesia techniques whenever possible, as it can diminish the overall risks to the mother and foetus by allowing minimal drug exposure while maintaining haemodynamic stability.[5-7] In the reported case, foetal exposure to anaesthetic drugs was a concern and the main reason why regional technique was maintained after the change in the surgical plan. The cognitive status of the mother and the non-technical skills of the medical team were also a major factor in that decision as it allowed to maintain effective teamwork even during the stress of changing the initial surgical plan. Maternal hypotension is the greatest risk of regional anaesthesia during pregnancy as it is the most important determinant of uteroplacental perfusion. Thus, maternal blood pressure was closely monitored and kept within the target values. Recent research suggests that alpha agonists like phenylephrine can be a more effective approach to maternal hypotension.[7] Irrespective of the anaesthetic technique chosen, minimal changes in maternal physiology must be pursued.[5] Safe awake laparotomy was previously described, mostly during general and urologic surgeries and in high-risk patients for general anaesthesia.[12,13] Regional techniques related complications included total spinal anaesthesia, hypotension, shivering and vomiting.[13]
None of this occurred in the case described.

CONCLUSION

Decision regarding anaesthetic technique in pregnancy is always a challenge as it demands extra care for both the mother and the foetus. In this case, a not expected change in the surgical plan with conversion of an infraumbilical to a xifopubic incision, was an even bigger one. Trying to keep haemodynamic stability and avoid physiological changes are the main goals when facing a pregnant woman for non-obstetric surgery. Evidence has shown that general anaesthesia was associated with preterm and low birth weight, but there is a lack of evidence on the impact that anaesthetic drugs used during prenatal period have on cognitive development during childhood. To our knowledge, there are no other reports of awake laparotomy during pregnancy. We report a case in which regional techniques allowed a pregnant woman to be comfortable and safe during a laparotomy. Our aim is to emphasize the safety and potential benefits of such strategy.

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