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CASO CLÍNICO

Large Undiagnosed Acoustic Neuroma in a Pregnant Woman Submitted to Epidural Analgesia: Case Report

Neurinoma do Acústico Gigante Não Diagnosticado numa Grávida Submetida a Analgesia Epidural: Caso Clínico

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ABSTRACT

Brain tumour incidence during pregnancy is low and type of tumours are similar to those seen in nonpregnant women. Pregnancy may aggravate the natural history of a brain tumour, unmask a previously undiagnosed lesion or remain assymtomatic due to its unspecific symptoms. We report a case of a pregnant woman with a large occult acoustic neuroma diagnosed after presenting neurological symptoms during epidural analgesia for labour. The tumour was causing shift of the peripheral structures and compression of the brainstem and 4th ventricle. In postpartum period, the tumour was removed without complications. Preanesthetic evaluation is essential to rule out contraindications to neuroaxial analgesia or potentially neurological life-threatening conditions.

RESUMO

A incidência de neoplasias cerebrais durante a gravidez é reduzida e o tipo de tumores são semelhantes aos observados em não grávidas. A gravidez pode agravar a história natural de um tumor cerebral ou até mesmo mascarar um tumor não diagnosticado devido aos sintomas inespecíficos. Apresentamos o caso de uma grávida com um neurinoma do acústico gigante oculto diagnosticado após início de sintomas neurológicos durante analgesia epidural no trabalho de parto. A neoplasia causava desvio das estruturas periféricas, compressão do tronco encefálico e do quarto ventrículo. No período pós-parto, a puérpera foi submetida a ressecção tumoral sem complicações. A avaliação pré-anestésica é essencial para excluir contra-indicações à analgesia do neuroeixo ou condições neurológicas com potencial risco de vida

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INTRODUCTION

Pregnancy may aggravate the natural history of a brain tumour and may even unmask a previously undiagnosed situation. Immunological tolerance and steroid mediated growth may lead to its exacerbation during pregnancy.[1] Since nausea, vomiting and headache are common complaints both in pregnancy and in brain tumours, the later ones though rare, may be underdiagnosed or even missed, until other neurological signs appear.[2]

Intracranial tumours during pregnancy impose a unique risk to both the foetus and mother which can persist for the mother in the postpartum period. Some authors have also pointed out that epidural anaesthesia may be dangerous in patients with space-occupying lesions not only because of the risks associated with accidental dural puncture, but also because epidural drug and fluid injection can increase intracranial pressure (ICP).[1,3]

CASE REPORT

A healthy, 40-year-old woman, primigravida at 40 weeks' gestation was admitted to the delivery room of a local obstetric hospital in spontaneous labour. For two years, she complained sporadically of right facial numbness and hearing loss. Her pregnancy was complicated by numerous

episodes of headaches, vomiting and worsening of facial numbness. Since these episodes where self-limited and somehow explained by the pregnancy, these complaints were devalued by the patient and not mentioned to the physicians. During anaesthetic evaluation, physical examination did not show any alterations.

For labour analgesia, an epidural catheter was inserted at the first attempt with an 18-gauge Tuohy needle at L3–L4 interspace, with "loss-of-resistance" technique using sodium chloride, performed in sitting position. After injection of 8ml of ropivacaine 0.2% through the catheter, she developed a transient episode of headache and speech disorder that reverted spontaneously. This episode was not considered clinically relevant due its fast resolution. Two hours later, a new bolus of 5ml of ropivacaine 0.2% was administered and immediately after, the patient presented slurred speech, right facial paresis and diplopia. As in the first episode, it reversed spontaneously. Due to these episodes, it was decided not to reuse the epidural catheter. Labour proceeded without other complications, and the baby was born with APGAR score of 9/10/10. Both mother and child were discharged from the hospital the day after the childbirth without any complaints.

In the postpartum period, the neurological symptoms reappeared and worsened, with associated unsteadiness, loss of balance and horizontal bilateral nystagmus. On the 21st day after childbirth she went to the emergency room, where a head computer tomography (CT) scan was performed and showed a huge mass in the posterior fossa, hardly delineated and compressing the 4th ventricle. She was then referred to Neurosurgery for the subsequent study of the lesion. A brain magnetic resonance imaging (MRI) confirmed the diagnosis and showed a large extra-axial lesion extending from the cerebellopontine angle to the end of the inner auditive canal, suggesting a schwannoma with dimensions 4x4,1x3,7 cm (Fig. 1). The tumour caused shift of the peripheral structures and compression of the brainstem and 4th ventricle.

The patient was submitted to resection of the tumour two days after the diagnosis (Fig. 2). Surgery was performed under total intravenous anaesthesia without complications and she was transferred to the Neurocritical Unit given the concern to neurologic symptoms. She was discharged 5 days later, with a discrete right facial paresis and no other neurological symptoms.

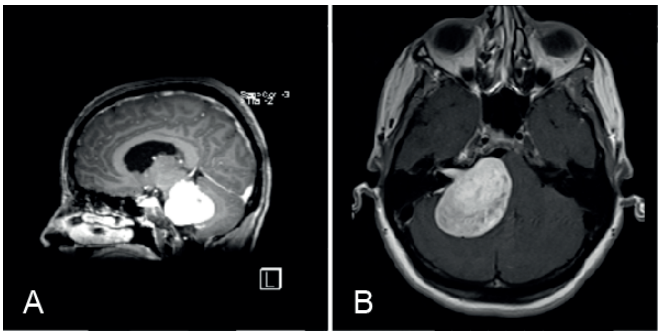

Figure 1. Brain magnetic resonance sagittal T2 scan (A) and axial T1 scan (B) with gadolinium showing large acoustic neuroma

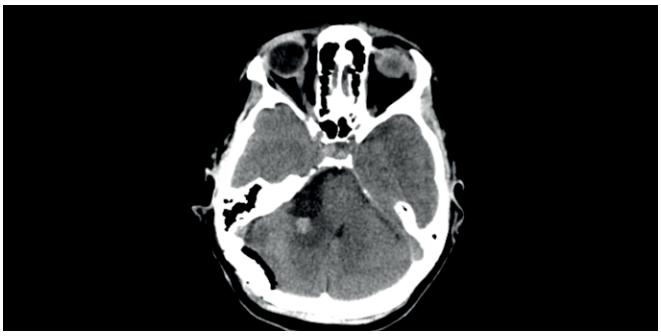

Figure 2. Postoperative head computer tomography

DISCUSSION

Brain neoplasm incidence during pregnancy is low and the type of tumours are similar to those seen in nonpregnant women, namely gliomas and meningiomas. They usually present with nonspecific symptoms such as headache, nausea, vomiting or focal neurological deficits as visual changes, hemiparesis or even seizures, caused by increased ICP. These symptoms may be misinterpreted and attributed to pregnancy, therefore any pregnant woman with prolonged, more severe, worsening, non-remitting symptoms or new neurologic deficit should be submitted to a full evaluation by a qualified neurologist and consider intracranial imaging.[2]

In our clinical case, symptoms worsened during pregnancy, but were not valued by the patient or physician, probably due to their intermittence and short duration.

This case refers to an acoustic neurinoma with progressive hearing loss that, according to some authors may be affected by hormonal changes in pregnancy, such as in meningeomas.[2,4] Its localization at the cerebellopontine angle could also have caused complaints of compression of other cranial nerves, such as facial hemiparesis or hypoesthesia. Parturients with intracranial lesions are generally assumed to have increased ICP and high risk of herniation, commonly cited as a contraindication to neuroaxial anaesthesia.3 Evaluation of risks and benefits of these techniques should be included and balanced in a multidisciplinary peripartum plan. Leffert *et al*[3] proposes a decision tree which can help this evaluation. If this lesion had been diagnosed before or during pregnancy, a multidisciplinary team would have been necessary to decide the treatment, allocating on a case-by-case basis. This decision depends on the site, size, type, neurological signs and symptoms, pregnancy trimester and patient´s wishes.[1,4]

During labour, this patient was submitted to epidural analgesia without knowledge of the intracranial mass. After local anaesthetic epidural injections through the catheter, she developed transient new-onset neurological signs which

exacerbated in the postpartum period with cerebellar signs. This event suggests that the epidural bolus could have increased baseline epidural or intrathecal pressure. Drug injection increased volume inside the lumbar epidural space which compressed the dural sac, causing a decreased compliance of the subarachnoid space and displacement of the cerebrospinal fluid (CSF) upward.[3] These changes may have been the cause for the neurological signs during anaesthetic injections. Cranial nerve palsy associated with regional analgesia may also be caused by CSF leakage with ICP decrease, but the majority of the cases has spontaneous resolution within one week.[5] In this case, the epidural technique report did not mention complications.

New-onset neurological signs during epidural injection could be also attributable to local anaesthetic systemic toxicity. During pregnancy, sensitivity to local anaesthetics (LA) is enhanced due to reduced plasma concentrations of α-1 acid glycoprotein, increased cardiac output and epidural venous engorgement: Therefore, reduced doses of central neuroaxial LA are recommended.[6] In our case, clinical signs were solved after stopping LA, making toxicity less probable.

We describe the first case with survival of a pregnant woman with an unknown cerebral tumour submitted to epidural analgesia and diagnosed in postpartum period. There is one single published case in literature of a similar patient with an occult brain neoplasm submitted to epidural analgesia for labour, who died after an inadvertent lumbar puncture followed by transtentorial brain herniation.[7] The patient described in our report could have had the same outcome if an accidental lumbar puncture had occurred, due to the tumour size and poor compliance of posterior fossa.

Our case reminds professionals about patient safety, pregnancy may worsen natural history of brain tumour or unmask an undiagnosed one, then a careful past medical history and physical examination during pregnancy appointments and pre-anaesthetic visit are essential. Anaesthesiologist should prompt referral to a neurologist when there is a suspicion of potentially life-threating conditions or peripheral nerve lesion.

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