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Brain Meningioma Mimicking Eclampsia: A Report of Two Cases

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Seizures occurring during pregnancy and postpartum may lead to the suspicion of eclampsia. However, it is essential to conduct paraclinical examinations (brain CT scan and brain MRI) to rule out cerebral expansive processes. In this main article, we report two cases of patients admitted for eclampsia, in whom a diagnosis of meningioma was made. Based on the observations, we discuss the different entities of this pathology with data from the literature.

Keywords: Convulsion; pregnancy; meningiomas; imaging.

1. INTRODUCTION

"The diagnosis of a brain tumor during pregnancy is rare and poses a challenge for healthcare practitioners. Headaches and epileptic seizures, which are common during pregnancy, are often mistakenly attributed to eclampsia, leading to delays and diagnostic errors. Several cases of

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brain tumors diagnosed during pregnancy have been reported" [1]. "However, many epidemiological, pathogenic, and therapeutic questions remain unanswered. The role of pregnancy in the development of brain tumors and the interaction of brain tumors with pregnancy are areas of concern for the medical community" [2].

The management of these tumors must consider both the pregnant woman and the fetus, both in terms of diagnosis and treatment. We report our experience with two clinical cases followed by a literature review.

2. CASE PRESENTATION

2.1 Patients et Observations

2.1.1 Clinical case 1

A 37-year-old female patient, gravida 0, para 0, with a history of poorly controlled chronic hypertension, was admitted to the maternity ward due to prepartum eclampsia at 24 weeks of amenorrhea. The symptoms started a month before her admission, characterized by intractable vomiting and behavioral disturbances. There were no reports of motor deficits, blurred vision, or fever. The patient underwent a cesarean section for maternal rescue, resulting in the birth of a non-viable healthy female newborn weighing 600g. During exploration, a retroplacental hematoma was found, detaching the entire placenta [3,4,5].

This symptomatology prompted a postpartum cranioencephalic CT scan, which revealed a well-defined extra-axial frontal right lesion with regular contours and a broad meningeal base, showing intense and heterogeneous enhancement after contrast injection. "This lesion caused mass effect on neighboring structures with mild perilesional edema and subfalcine herniation, suggestive of a meningioma" [6,7].

2.1.2 Clinical case 2

This is a 41-year-old patient, Gravida: 6, Parity: 5, with no known medical history, admitted for a generalized seizure during the 28th week of pregnancy.

Upon admission, the examination revealed the following:

- The patient was obtunded with a Glasgow Coma Scale score of 11/15.
- There were no sensory or motor deficits or signs of meningeal syndrome.
- Blood pressure (BP) was 130/80 mm Hg, and a urinalysis showed proteinuria.

Fig. 1. Cerebral meningioma

An emergency cesarean section was performed due to eclampsia, resulting in the delivery of a newborn weighing 850 grams, with an Apgar score of 5/10 at the first minute. The cesarean section was conducted under general anesthesia, and the patient was then transferred to the Intensive Care Unit, intubated, ventilated, and sedated.

An MRI of the brain (image 2), performed 48 hours after admission to the ICU, revealed a right frontal lesion suggestive of a meningioma.

The patient was extubated, and due to clinical improvement, she was referred to the neurosurgery department

3. DISCUSSION

“Pregnancy is a physiological state in which its association with any pathology confers specific characteristics in the management of patients. The incidence of brain tumors during pregnancy is lower than expected in non-pregnant women of childbearing age” [7]. Therefore, it appears that pregnancy plays no role in the genesis of primary brain tumors. However, there is a risk of tumor volume increase and malignant transformation during pregnancy.

Nevertheless, the observed symptomatic aggravation during pregnancy followed by regression after childbirth in certain pregnant women with intracranial tumors, particularly meningiomas, suggests that the pregnant state promotes the clinical expression of brain tumors. Gliomas appear to be the most commonly diagnosed primary brain tumors in pregnant women. “The harmful effect of the tumor on the fetus is not direct but occurs through its consequences, such as intracranial hypertension and epileptic seizures, which can jeopardize the maternal and fetal prognosis and may necessitate pregnancy termination in some cases” [7].

The general principle of treatment is based on symptomatic and oncological approaches. Corticosteroid therapy with methyl prednisolone and anti-epileptic treatment has been used throughout pregnancy, allowing successful completion of the pregnancy. “While corticosteroid therapy has the advantage of promoting fetal lung maturation in addition to its anti-edematous effect, anti-epileptic drugs are associated with a higher risk of fetal malformation. Some anti-epileptic medications may have a lower or zero teratogenic risk” [7].

“The treatment of the tumor generally follows the same principles as those proposed outside of pregnancy, prioritizing the mother's life. The tendency is to defer surgery to the postpartum period whenever possible or at least until it is possible to deliver a viable fetus. Advances in neurosurgery and anesthesia make it possible to perform neurosurgical interventions during pregnancy with minimal adverse effects on the procedure and the fetus” [7]. Elective cesarean delivery under general anesthesia is recommended to avoid any risk of worsening intracranial hypertension, which could be fatal.

4. CONCLUSION

Pregnancy constitutes a worsening factor for brain tumors. However, the brain tumor does not have a direct harmful impact on the course of pregnancy or the quality of the conception product. The clinical presentation remains typical, although pregnancy may delay the diagnosis of a brain tumor, and some symptoms may be mistakenly attributed to the pregnant state. Nevertheless, the diagnostic approach should not be altered. The management is multidisciplinary, involving anesthesiologists, obstetricians, neurosurgeons, and pediatricians.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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