






Case presentation: Approach to intracranial mass in pregnancy and the importance of differential diagnosis with atypical preeclampsia

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ABSTRACT

During pregnancy, intracranial masses are rare; however, pre-existing asymptomatic masses may become symptomatic due to physiological changes in pregnancy. Patients' presenting complaints can mimic serious complications for both the mother and fetus, such as preeclampsia or HELLP syndrome, potentially prolonging the diagnostic and treatment process. In this case presentation, a 20-week pregnant patient presenting with headaches and nausea, initially diagnosed with atypical preeclampsia, later developed bilateral vision loss. Radiological examination revealed a mass in the posterior fossa, leading to surgical planning. The evaluation of intracranial masses encountered during pregnancy underscores the importance of considering the trimester, symptoms, and detailed laboratory investigations. Clinicians should bear in mind rare differential diagnoses when encountering atypical features alongside common pregnancy complications.

Keywords: HELLP syndrome, hypertension, intracranial mass, preeclampsia.

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INTRODUCTION

Although the incidence of intracranial masses during pregnancy is quite rare, it is a condition that requires close monitoring by both obstetricians and neurosurgeons. While the association between some tumors, such as chorangioma, meningioma, and pituitary adenoma, and pregnancy has been established, the prevalence of tumors other than these remains unchanged during pregnancy. The hormonal, immunological, and vascular changes occurring during pregnancy can lead to an increase in tumor size and the conversion of asymptomatic masses to symptomatic ones.^[1] Pregnant women presenting with symptoms such as headache, nausea, seizures, or focal neurological deficits can be confused with urgent complications of pregnancy, such as preeclampsia, HELLP syndrome, and eclampsia. Assessment of the patient should consider the trimester of pregnancy, laboratory tests, and the necessity of radiological imaging. In cases where patients do not exhibit the characteristics of common pregnancy complications, differential diagnoses should be considered. In this case, we present the diagnosis of an intracranial mass in a 20-week pregnant woman who presented to our clinic with a headache, following suspicion of atypical preeclampsia.

CASE REPORT

A 27-year-old, Gravida 1, Para 0 patient at 20+0 weeks of gestation presented to the obstetric emergency department with a one-week history of headache and nausea. Home blood pressure monitoring revealed readings between 130/80 mmHg and 140/90 mmHg. While in the emergency department, her blood pressure was around 140/80 mmHg, and she experienced projectile vomiting twice. Laboratory tests showed Hb: 10.3 g/dL, Plt: $198 \times 10^3/\text{mm}^3$, AST: 13 U/L, ALT: 14 U/L, creatinine: 0.46 mg/dL, urea: 11.8 mg/dL, uric acid: 3.1 mg/dL, and spot urine protein/creatinine ratio was <0.3 , raising suspicion of early-onset atypical preeclampsia. Magnesium sulfate therapy was initiated.

A detailed history revealed that the patient had been evaluated by neurology one week prior due to headaches and was recommended for magnetic resonance imaging (MRI) due to visual field limitation, but she did not schedule the MRI appointment. After admission, the patient developed blurred vision and peripheral vision loss, prompting an ophthalmology consultation. Bilateral papilledema was noted on fundoscopic examination, and the patient was referred to a neurology center for multidisciplinary evaluation. A 35×32 mm intracranial mass located at the 4th ventricle was observed on diffusion MRI (Fig 1, 2). An external ventricular drain was inserted for follow-up purposes.

During daily obstetric consultations, fetal measurements were consistent with 20 weeks of gestation, and fetal heart rate was recorded as positive. The decision for surgery was made the next day due to worsening symptoms, and excision of the intracranial tumor and duroplasty were performed. Intraoperative frozen section analysis revealed a low-grade glial tumor. Postoperatively, the patient was intubated and monitored in the intensive care unit, and fetal monitoring continued with daily obstetric consultations.

On the 8th postoperative day, the patient developed fever and purulent sputum, prompting antibiotic therapy following consultation with infectious disease specialists. On the 12th postoperative day, transabdominal ultrasound revealed a non-detectable fetal heart rate. Despite high-dose noradrenaline and terlipressin therapy for septic shock, the patient expired approximately 8 hours later.

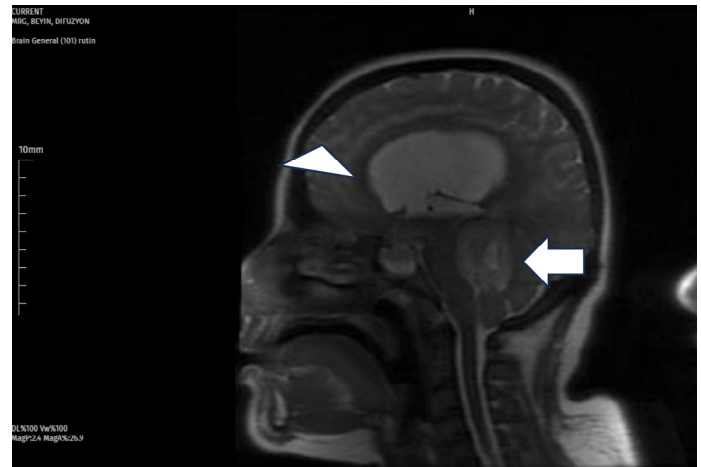


Figure 1: Coronal plane of brain magnetic resonance imaging. Lateral ventricles show dilation (arrowhead). The mass compresses the cerebellum, brainstem, and ventricles (arrow).

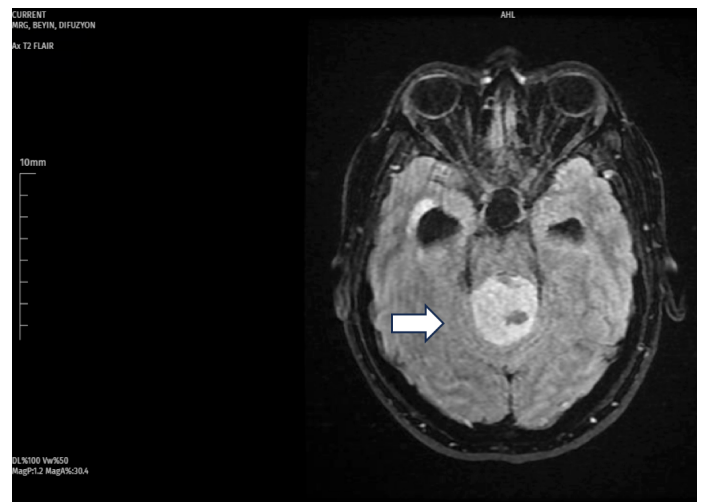


Figure 2: Axial plane of brain magnetic resonance imaging. Intracranial mass located at the 4th ventricle (arrow).

DISCUSSION

During pregnancy, intracranial masses are quite rare. The progression of the tumor can vary depending on hormonal and immunological changes during this period. After diagnosing an intracranial mass during pregnancy, there is still no consensus on treatment.^[2–4]

Increased intracranial pressure can lead to symptoms such as headache, vomiting, visual field defects, and seizures.^[5,6] Since these symptoms can also be observed in the acute complications of pregnancy, such as preeclampsia and eclampsia, intracranial masses should be considered in the differential diagnosis.

Vomiting is a common symptom, especially in the first trimester of pregnancy, and severe cases are diagnosed as hyperemesis gravidarum.^[7] In cases of new-onset vomiting in the second or third trimester, differential diagnoses other than hyperemesis gravidarum should be considered.^[8]

Headaches during pregnancy can have many causes. The nature of the headache, accompanying projectile vomiting, and focal neurological

deficits require prompt diagnosis.^[9] In this case, the one-week history of persistent headaches accompanied by projectile vomiting and visual field defects suggested a complication unrelated to pregnancy.

Hypertension is crucial, particularly in the second and third trimesters. It is one of the diagnostic criteria for preeclampsia, which can lead to life-threatening complications and end-organ damage in severe cases. Elevated levels of AST, ALT, creatinine, and focal neurological symptoms indicate this condition.^[10] In this case, the patient's normal blood pressure readings and lack of abnormalities in laboratory tests, along with the presence of isolated visual field defects, directed the diagnosis away from preeclampsia.

CONCLUSION

Although intracranial masses are rare in pregnancy, they can develop or pre-existing masses can become symptomatic. While symptoms such as headache, vomiting, and focal neurological findings in these patients may initially be considered as preeclampsia/eclampsia, differential diagnoses should be explored if the disease presents with atypical features. The experience of the clinician and laboratory investigations play an important role in diagnosis, providing an opportunity for rapid treatment.

Statement

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