CASE REPORT ON THE OUTCOME OF A PREGNANT WOMAN WITH PONTINE GLIOMA

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ABSTRACT

Pontine glioma in pregnancy is a rare disease condition with a remarkably high incidence of maternal mortality. Most women present late in pregnancy because the early symptoms of this condition mimic symptoms of pregnancy-related illnesses. The index case presented late as she was initially managed at a primary health center for inability to walk. At the time the diagnosis, the tumour was already at an advanced stage and her clinical condition had deteriorated. She had an emergency caesarean section with the delivery of a live baby. However, she died before she could commence chemotherapy.

Keywords: *Pontine glioma, Pregnancy*

BACKGROUND

Pontine gliomas are tumours arising from the glial cells of the pons.[1] Pontine glioma in pregnancy is very rare and the incidence is unknown.[2] Some risk factors include a family history of brain tumours, older age, and radiation exposure.[3] The diagnosis is best made by histopathology of brain tissue biopsy, however due to difficulty in obtaining a tissue sample, most diagnoses are made by contrast-enhanced brain magnetic resonance imaging (MRI).[1] The clinical features are based on the location of tumour, size (mass effect) as well as histologic type of tumour and may include: headache, nausea and vomiting, confusion, delirium, memory loss, personality changes, difficulty in balance, visual and speech problems, lower cranial palsies, and rarely seizures.[1,3]

Reports on the management of pontine glioma in pregnancy are based on small cases series and expert opinions and there is no generally accepted management protocol.[1,4] However, close monitoring with contrast-enhanced brain MRI, and administration of steroids have been reported to be beneficial during pregnancy.[5,6] When feasible, surgical management can be done during the first trimester of pregnancy.[4] Radiotherapy can lead to fetal loss and chemotherapy increases the risk of congenital malformations, therefore both treatment options are better avoided in pregnancy.[1] The opinions on the mode of delivery are divided. Some studies have reported increased intracranial pressure during labour, therefore advocate for elective caesarean section.[5,7] Others argue that there is no benefit of caesarean section over vaginal delivery.[8] It is generally agreed that the timing of delivery for stable patients should be after fetal lung maturity.[1]

CASE REPORT

Mrs. A.H was a 25-year old primigravida with tertiary education at 34 weeks gestation, who was referred to the University of Port Harcourt Teaching Hospital from a Primary

Health Care Center following complaints of weakness of the right upper limb and inability to walk of 10 days duration. The pregnancy was registered for antenatal care at the referring center and was uneventful until presentation.

On examination, she had lower cranial nerve palsies (cranial nerve VII, IX, X, XI, XII) and there was reduced muscle tone in the right upper and lower limbs. The power in the right upper limb was 2/5 and power in both the left and right lower limbs were 3/5. She had exaggerated patellar reflex on both lower limbs. Her symphysio-fundal height was 34cm and compatible with her gestational age of 34 weeks. There was a singleton fetus in longitudinal lie and cephalic presentation, and the fetal head was five-fifth palpable per abdomen. The fetal heart rate was 146 beats per minute and was regular. Other physical examination findings were normal. An initial diagnosis of right hemiparesis with the left hemispheric cerebrovascular disease was made.

Her full blood count, clotting profile, serology for human immunodeficiency virus 1 and 2, serum electrolyte urea, creatinine and uric acid were all within the normal range. Contrast enhanced brain MRI was done after six days on admission and it showed a well-defined mixed-intensity posterior fossa mass with solid and cystic components, measuring 3x3x2 cm. A diagnosis of pontine glioma in pregnancy was entertained (Figure 1, 2, 3 and 4 below).

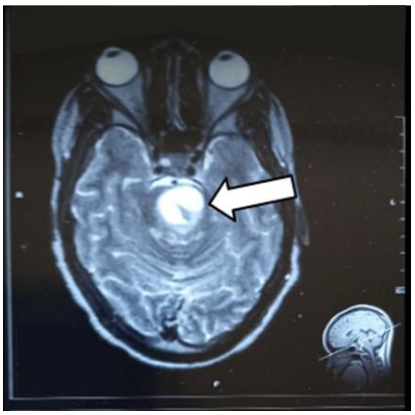

Figure 1: Transverse section of contrast-enhanced brain MRI (Arrow pointing to pontine lesion)

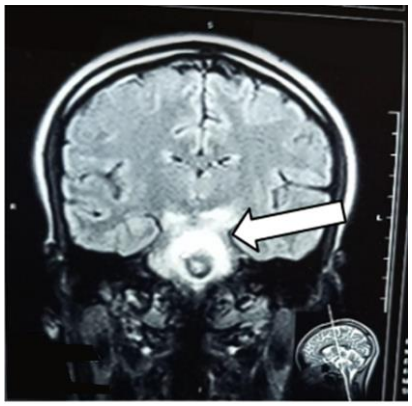

Figure 2: Coronal section of contrast-enhanced brain MRI (Arrow pointing to pontine lesion)

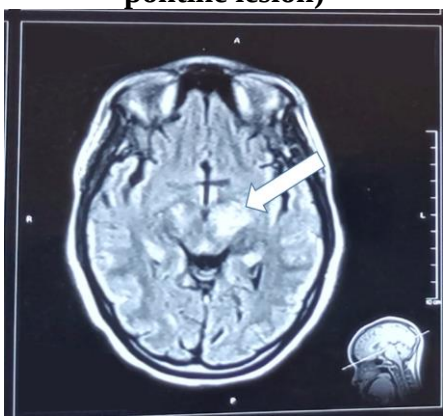

Figure 3: Transverse section of brain MRI

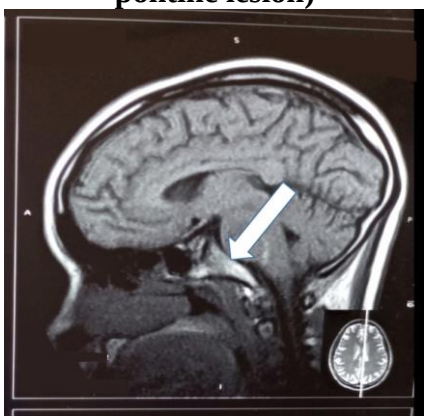

Figure 4: Sagittal section of brain MRI

She was admitted and managed by the obstetrician, neurosurgeons, neurologist, oncologist and physiotherapist. There was a need to deliver the baby urgently in other to enable surgical resection of tumour and chemoradiation.

She received dexamethasone and subsequently had an emergency caesarean section. She was delivered of a live female baby who weighed 2.3 kg with APGAR scores of 6 and 8 at the first and fifth minutes, respectively. In the postoperative period, she became unconscious with persistent high-grade fever and elevated blood pressure. She was admitted into the intensive care unit and she received intravenous antibiotics,

antipyretics, intranasal oxygen and was nursed as an unconscious patient. Her condition deteriorated rapidly, and she died after spending a total of ten days on admission. Grief management was instituted, and her husband was counseled for autopsy, however he declined.

DISCUSSION

Glioma in pregnancy is a rare condition with few publications. Therefore, the management of this condition is not evidence-based, rather depends on expert opinions from a few case reviews with opposing views.[1] Ronning et al in 2016 reported that pregnancy had no impact on the survival of women with low-grade glioma in pregnancy.[8] Meanwhile, Peeters et al in their study, reported clinical deterioration and tumour progression in women with glioma who get pregnant.[4]

The diagnosis of glioma in pregnancy is usually missed in the early stages of the tumour. This is because early symptoms of this condition (nausea, vomiting, headache, hypertension, and seizures) are similar to symptoms seen in pregnancy-related illnesses such as hyperemesis gravidarium, pre-eclampsia and eclampsia.[1,3] These women may be managed for another condition until they present with advanced symptoms of space-occupying lesions.

The index case attended antenatal care at a primary health care facility and was relatively well until she developed right hemiparesis. She presented to our facility four days after referral and a contrast-enhanced brain MRI which was needed to make the diagnosis in the index case was done after six days on admission due to financial constraints. Since there is no generally accepted management protocol, the management of the index patient was individualized. Due to the rapid clinical deterioration, there was a need to deliver the baby as soon as possible. She was given parenteral dexamethasone for 24 hours for

fetal lung maturity and she subsequently had an emergency caesarean section. An autopsy would have been beneficial in this case, however, consent was not given by her spouse.

CONCLUSION

Pontine glioma in pregnancy is a rare clinical condition and there is no recommended protocol for its management. However, the life of the mother usually takes priority, and surgical resection and chemo radiation is the treatment of choice.

RECOMMENDATIONS

High index of suspicion, early neuroimaging, prompt tumour resection, and early chemoradiation may increase survival.

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