

Presentation of Aneurysmal Subarachnoid Hemorrhage (Sah) In Pregnancy – An Interesting Case

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1. Abstract

Eclampsia is one of the severe complications of pregnancy, which demonstrates as seizures, hypertension and proteinuria. The differentiation between eclampsia and aneurysmal subarachnoid hemorrhage (SAH) might be difficult due to their associated symptoms in few pregnant patients. This report discusses the case of a 34 years old pregnant woman presenting with seizures, headache, and proteinuria at 23 weeks of gestation. After receiving treatment for eclampsia at first, persisting neurological symptoms required further investigations. A CT Scan of the brain followed by cerebral angiography showed, large subdural hematoma and left internal carotid artery aneurysm. Clipping of the aneurysm and evacuation of hematoma was done. Although complications like bradycardia and spontaneous seizures required complex therapy. Multidisciplinary team cooperation between obstetricians, neurologists, and neurosurgeons resulted in maternal stabilization and a gradual recovery.

2. Introduction

Eclampsia is commonly presented with seizures, hypertension, and proteinuria, is one of the severe complication related to pregnancy [1,2]. In case of pregnant women having seizures, especially after twenty weeks of gestation, the common diagnosis given is eclampsia, even though it is important to evaluate and rule out various risk factors including intracranial bleeding [3]. Eclampsia and subarachnoid aneurysm bleeding (SAH) can have similar

presentation. The co-existence of both the conditions during pregnancy, may lead a high-risk factor due to overlap in the symptoms [4]. Pregnancy related complications due to SAH are still rare, but are evident when complications during a pregnancy are the result of structural malformations such as an aneurysm. This type of bleeding during pregnancy and eclampsia, may pose a high chance of maternal mortality [5].

This requires a multidisciplinary team management including obstetrician and gynaecologist, neurophysician, neurosurgeon, and intensivist [6,7].

3. Case Report

This is a 34 years old lady, gravida 3, para 2, came to the gynaecology emergency department with severe headache and a history of seizure. The seizure occurred at home and lasted around fifteen minutes, and there was general stiffness of her body, frothing from the mouth, and lack of consciousness and responsiveness. There was no urinary or bowel incontinence. There was no past history of hypertension and seizures. In emergency the patient was alert, but had a persistent headache on arrival. Vital signs were within normal range, and the neurological examination showed no focal deficits. She was 23 weeks and 1 day into her uneventful pregnancy and had been receiving regular antenatal care. Urine test showed the presence of urinary protein (1+) and micro-albumin, while the blood tests showed a high microalbumin creatinine ratio of 457.4, and haemoglobin was 7.4 g per decilitre. The magnesium sulfate

was started and owing to the supposed eclampsia and for better outcome for the woman, an emergency hysterotomy was executed and the intraoperative findings were uneventful. A 0.5kg female neonate delivered. The neonate was having poor APGAR score factors at 1 min -1, 5 min -7, and at 10 min – 8 score. Therefore the neonate was intubated and admitted to NICU attributing to extreme prematurity. The neonate died 19 days later in NICU. The patient received magnesium sulphate for 24 hours and 2 units PRBCs after surgery. The blood pressure of the patient was within normal range and she did not require antihypertensive medications. Enoxaparin was started 8 hours postoperatively and she received IV antibiotics for 48 hours. The patient continued to have headache. A CT scan of the head was done on the second day, which showed early signs of hydrocephalus as well as a subtle hyper densities in bilateral sylvian fissures, suspicious for mild sub arachnoid hemorrhage. Prominence of the ventricular system in relation to patient's age (Figure 1). The patient was seen by neurosurgeon, and patient was started on, Keppra 500mg two time intravenously. The patient's condition deteriorated, developing bradycardia and subsequent uncontrolled seizures. CT angiography was done, which showed decreasing hyperdensity in sylvian fissures. No obvious aneurysm, stenosis or vascular malformation. The patient was transferred to neurosurgery department under care of neurosurgeon. The patient's GCS was 14/15, with headache, neck stiffness, and drowsiness. Patient was planned for surgery. An emergency burr hole and placement of external ventricular drain was done. The patient was shifted to ICU. After 3 hours of surgery, the patient developed tonic clonic seizures. The chamber of the drain was full with hemorrhagic CSF around 50 ml. The patients' pupils were fixed and dilated and she had bradycardia. Atropine was given, and she was intubated. At the time of intubation ICP checked manually it was around 30mmHg. A mannitol infusion was given. CT Scan of the brain was repeated, which showed a large acute subdural hematoma with fluid and CSF density denoting mixed hematoma and hygroma on the left side with midline shift, and diffuse brain edema (Figure 2). A cerebral angiography was done, which showed left ICA aneurysm (Figure 3). The patient was taken again for surgery. A craniotomy, hematoma evacuation, and aneurysm clipping was done. After surgery, patients examination revealed equal and reactive pupils with ICP of 5mm Hg. The CT brain after 2 days showed resolution of hematoma, , but persisting brain edema. The patient was extubated after 2 days, and external ventricular drain was removed on 12th post op day. The patient was shifted to ward from ICU on 18th post operative day. She improved gradually. She was managed by neurophysicians, neurosurgeons, psychologist and physiotherapist. The patient was walking independently, talking, though confused sometimes, and taking food. She had no headache or vomiting. She was discharged after 42 days of hospital admission. Follow up CT Scan of brain showed, no hematoma or infarct, brain edema decreased.

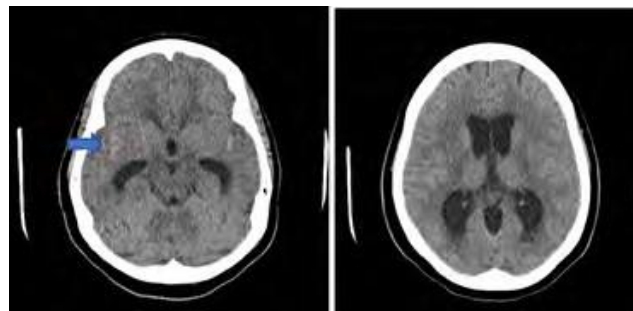


Figure 1: CT imaging showed: Subtle hyper densities in bilateral sylvian fissures are suspicious for mild sub arachnoid hemorrhage.

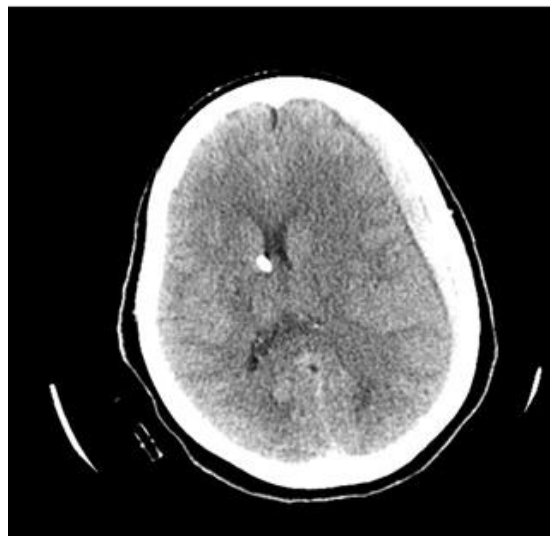


Figure 2: CT brain showed a large acute subdural hematoma.

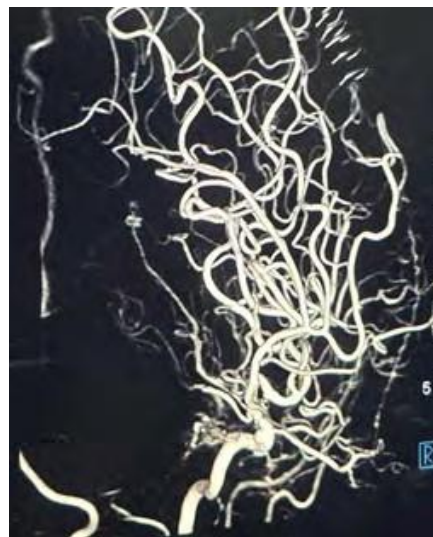


Figure 3: Angiography showing left ICA aneurysm.

4. Discussion

This case highlights the exceptional complexity and rarity of encountering eclampsia and aneurysmal subarachnoid hemorrhage (SAH) simultaneously during pregnancy. Initially presenting with features resembling classic eclampsia, including seizures, proteinuria, and severe headache in the context of a 23-week pregnancy.

The patient's persistent neurological symptoms prompted further investigations including a CT Scan of the brain, and cerebral angiography, revealing an intracranial aneurysm. This case explains the need for vigilance with atypical presentations and collaboration across different specialties to optimize care for the mother and baby.[5] Aneurysmal SAH in pregnancy is a rare condition, with an incidence of 6 to 10 per 100,000 pregnancies. It is fraught with serious risks, including maternal mortality of 35% and fetal mortality between 17% to 35%. The diagnosis of SAH can be difficult, because symptoms such as seizures and severe headaches are common in eclampsia. A high index of suspicion is key to reduce risks and improve the outcome. This patient's journey underscores the delicate balance required to manage competing priorities, such as stabilizing eclampsia like symptoms to protect the mother while addressing the underlying aneurysmal pathology. An immediate caesarean delivery was performed to reduce maternal risks, yet the extreme prematurity of the baby tragically led to neonatal loss, despite management in intensive care. The patient underwent neurosurgical procedures including the placement of an external ventricular drain and clipping of the aneurysm, and evacuation of hematoma. This requires a delicate balance in managing intracranial pressure and fluid balance after the surgery [8]. Aneurysmal SAH during pregnancy is exceptionally rare, making it crucial to recognize red flag symptoms like persistent headaches and neurological deficits that don't respond to typical eclampsia treatments. Studies emphasize the importance of early imaging in such cases to identify underlying aneurysms. Although CT angiography is not typically used during pregnancy because of concerns about radiation, It helps in accurately identifying the aneurysm and guides the surgical team in making the right decisions for life-saving treatment. This was discussed in a study by I Kapoor et al [9]. The patient's eventual neurological recovery, although incomplete, underscores the resilience of coordinated multidisciplinary care. Obstetricians, neurologists, neurosurgeons, and critical care teams collaborated to manage the overlapping and life threatening aspects of this case. Their efforts emphasize the need for integrated care models in managing dual maternal and neurological emergencies [10]. Reports of cases highlight the improved neurological and general results of early neurosurgical intervention in pregnant individuals with aneurysmal SAH. However, certain research studies have shown that delayed detection frequently leads to greater risks of maternal and neonatal mortality [11]. Aneurysmal subarachnoid hemorrhage (SAH) is considered an infrequent condition but missed or delayed diagnosis can have serious, sometimes dire consequences . It has become apparent that there is need for more research and particularly standardized protocol in the course of catchment of these cases [12].

5. Conclusion

We should have a high index of suspicion for subarachnoid haemorrhage in pregnant patients presenting with eclampsia and neurological symptoms. A multidisciplinary team approach with good imaging and early intervention improves the outcome.

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