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Case Report

Rupture of Cerebral Aneurysm in Pregnancy: A Case Presentation and Review

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Abstract

We report a case of a 30-year-old primigravida with massive intracranial hemorrhage, managed surgically with multidisciplinary care, leading to successful continuation of pregnancy. We contextualize clinical decision-making with evidence on diagnostic imaging safety, hemodynamic control, and neurosurgical considerations, and highlight implications for fetal monitoring and maternal outcome.

Keywords: *Cerebral Aneurysm; Pregnancy; Fetal Monitoring*

Abbreviations

MDT: Multidisciplinary Team; ivf: *Invitro* Fertilization; CT: Computed Tomography; MRA: Magnetic Resonance Angiograph; ICH: Intracranial Hemorrhage

Introduction

Neurological emergencies in pregnancy present unique diagnostic and therapeutic challenges. Maternal stabilization must be prioritized without compromising fetal safety. Hemorrhagic stroke, including intracerebral and subarachnoid hemorrhage, contributes to pregnancy-related mortality, with increased risk in the peripartum and postpartum periods. While most cases occur in late pregnancy, second-trimester intracranial hemorrhage demands urgent maternal stabilization and imaging, as fetal viability is remote and maternal outcome guides management [8]. The most common cause during pregnancy and puerperium is rupture of an intracranial aneurysm, occurring five times more frequently than in non-pregnant women, though overall incidence remains rare [1,2].

Case Presentation

A 30-year-old primigravida at 17 weeks (IVF pregnancy, 3 years infertility for male factor) presented unresponsive to the emergency department. History from her husband revealed 3 days of headache. She had no chronic illness. Examination showed absent response to command or pain, transient jerky movements in both hands, grade 0 power on the right side with absent reflexes. Vitals were stable; urine albumin was negative.

She was resuscitated, with multidisciplinary involvement. Stroke protocol was initiated as CT revealed a left frontal hematoma 6×6 cm and another hemorrhagic focus 9×7 mm. MRA confirmed a large left fronto-parietal hematoma due to ruptured cerebral aneurysm. Emergency craniotomy and evacuation were performed.

Postoperatively, she developed fever with blood culture positive for *Streptococcus gallolyticus*. Echocardiography showed severe mitral regurgitation with vegetations, suspicious for leaflet perforation. She was treated for infective endocarditis and planned for cardiac surgery after delivery. Obstetric ultrasound confirmed a viable 17-week pregnancy with normal fetal anatomy.

The patient developed right-sided hemiplegia with aphasia and underwent rehabilitation, improving to grade 3 power. Follow-up ultrasound later showed intrauterine growth restriction with oligohydramnios but normal umbilical artery Doppler. A multidisciplinary team planned caesarean delivery at 37 weeks. At 36 weeks, she presented with reduced fetal movement and underwent emergency caesarean, delivering a male infant (2 kg, normal Apgar, cord pH).

Surgery was complicated by atonic postpartum hemorrhage with 1-liter blood loss. Patient left home in stable condition with outpatient follow up.

Discussion

Timely managed pregnant patients with intracranial haemorrhage give good outcome for both mother and baby [1].

The median age of diagnosing women with cerebral aneurysm is the age of 30 [3]. The rates of intracranial aneurysms is 31% in second trimester compare with 55% in late gestation while 8% occur in postpartum period. Physiological changes happen in pregnancy may increase risk of aneurysm development and rupture during pregnancy [5].

Clinical presentation could vary from severe headache to loss of consciousness and convulsion. A differential diagnosis of sever preeclampsia should be kept in mind.

Involvement of neurology and neurosurgery is crucial and brain imaging is indicated. If woman in early pregnancy the treatment is same as outside the pregnancy. In late pregnancy emergency cesarean section should be performed before ICH treatment [6]. In early pregnancy cases when the aneurysm is corrected surgically, pregnancy can progress until term [7]. A Cesarean section may be indicated in many cases depending in women condition.

ICH due to rupture cerebral aneurysm need to be distinguished non aneurysmal subarachnoid haemorrhage like venous sinus thrombosis and coagulation disorder and other obstetric cause.

Differential diagnosis of ICH should include also amniotic fluid embolism.

The management of rupture cerebral aneurysm should include obstetrician, neurosurgeon and intensive care unit, physiotherapy and occupational therapy according to woman neurological affection.

The women support and effect of diagnosis for her and her family and if any neurological and psychosocial problem should be tackled effectively and appropriately.

A support should be provided throughout the women journey.

Conclusion

Severe preeclampsia and eclampsia need to be ruled out in a women presenting with ICH due to rupture cerebral aneurysm the mother experience and the impact in the woman quality of life psychologically and socially should be addressed appropriately.

Conflict of Interest

I have no conflict of interest to disclose.

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