CASE REPORT

Hemiplegia in Pregnancy—Hemorrhagic Stroke: A Case Report

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Abstract

Introduction: Acute stroke during pregnancy is a rare event, but its incidence is rising nowadays, and it has worse maternal and fetal outcomes.

Material and methods: Here we report a case of 40-year-old female came with 9-month amenorrhea and left-sided upper and lower limb hemiparesis with severe preeclampsia. This was an upper motor neuron type lesion and was managed conservatively initially, and after stabilization her emergency lower segment cesarean section was done for obstetric indications under proper anesthetic guidance. She was managed with multidisciplinary approach and was discharged on the 8th postoperative day in a satisfactory condition.

Conclusion: Acute cerebrovascular accidents during pregnancy are managed by early diagnosis, proper intervention, and multidisciplinary team approach, which reduces maternal and fetal mortality and morbidity.

Keywords: Hemiplegia, Hemorrhagic stroke, Pregnancy.

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Introduction

Stroke is a neurological emergency that carries a risk of morbidity and mortality. A cerebral stroke is a neurological emergency and is a major cause of disability and mortality in women.[1,2] The term "stroke" is used to indicate damage to the brain caused by a vascular etiology. An ischemic stroke occurs when blood flow to the brain is impaired and tissue dies, as in atherosclerotic disease, embolism, thrombi, and hypotension. Hemorrhagic stroke occurs when a blood vessel ruptures and tissue is damaged by the resulting spread of blood into the brain parenchyma, as in hypertension, aneurysms, and arteriovenous malformations.

Weakness, numbness, vision and speech abnormalities can all occur. Additionally, changes in mental status can signal both ischemic and hemorrhagic infarctions. Approximately 8–12% of all pregnancies are affected by a hypertensive disorder. A 2005 analysis of the Nationwide Inpatient Sample database showed that preeclampsia was associated with a 4-fold increase in stroke during pregnancy.[3,4] As this is the rare event and very less number of cases reported globally, hence we are reporting this case of rare event in pregnancy.

Case Description

A 40-year-old female (G1P0LPA0) presented to the emergency department with 9-month amenorrhea and complaints of weakness involving left side of body with headache and vertigo. There was no history of head trauma, loss of consciousness, fever, neck rigidity, or vomiting. Patient has a history of antipsychotic drug intake since past 7 years. She was not a booked case at our hospital, but she had a regular follow-up from the district hospital Shahdabad, from where she was referred.

On examination her blood pressure was 160/110 mm Hg, pulse rate: 112/minute, respiration rate: 22/minute, random blood sugar: 102 mg/dL, urine albumin: 1+, with no impending feature of eclampsia, presence of pallor, and edema. In neurological examination, her Glasgow Coma Scale (GCS) was E4V5M6, memory intact, cranial nerve 7th upper motor neuron type facial palsy left side. In the motor examination, tone in the left limb was less than in the right limb, motor power was 0/5 in both the left upper and lower limbs, with normal power on the right side. Planter reflex was extensor on left side. Grading of deep tendon reflexes were:

	Ankle jerk	*Knee jerk*	*Biceps jerk*	*Triceps jerk*	*Brachioradialis jerk*
Right	2+	2+	2+	2+	2+
Left	3+	3+	3+	3+	3+

Deep tendon reflexes were brisker than average, slightly hyper-reflexic on the left side. The pupils were normal sensitive and reactive to light. As the patient was vitally stable, conservative treatment was done and the patient was transferred to the Obs & Gynae department for obstetric management. On doing obstetric examination, her per abdomen findings were: the fundal height

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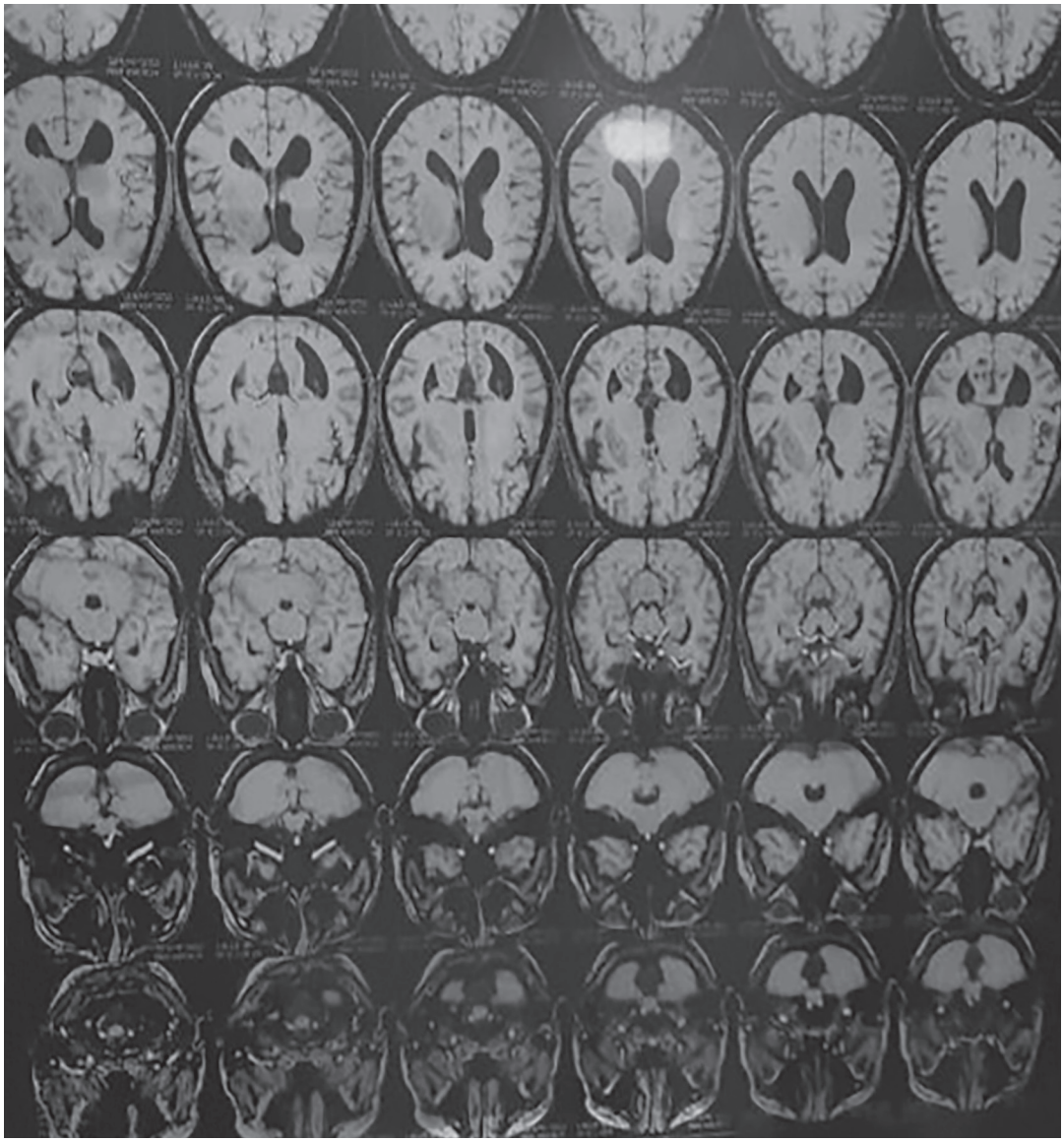

Fig.1: MRI brain image

was 36 weeks with longitudinal lie, cephalic presentation with no uterine contractions, and fetal heart rate of 150 bpm. On per vaginal examination the os was 2 cm dilated, 20–30% effaced, membranes present with vertex at 3 station, and the pelvis was found to be adequate.

Her routine investigations, like complete blood count, liver function test, and kidney function test were found to be normal. Her lipid profile was deranged with serum cholesterol: 230.6 mg/dL, serum triglycerides: 236 mg/dL, high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol were 65.9 and 117 mg/dL. The ECG and 2D ECHO findings were unremarkable. An urgent neurological consultation was taken, and a non-contrast computed tomography (NCCT) brain and magnetic resonance imaging (MRI) were planned to be done. Non-contrast computed tomography brain suggests an ill-defined hypodense area in the right corona radiate and right ganglio-capsular region.

An MRI brain with angiography and venography suggests an acute infarct involving the right corona radiate, gangliocapsular region, and insular region. There is loss of flow void in the right middle cerebral artery. There are a few small T2/FLAIR hyperintense foci in the periventricular and deep white matter of the bilateral frontal and parietal lobe S/O changes of chronic small vessel disease as shown in Figure 1.

Her MRI brain angiographic findings were normal. Meanwhile, her ultrasound (USG) for fetal well-being (FWB) with color Doppler was done S/O single, live, intrauterine pregnancy of gestational age 36 week 5 days with cephalic presentation, oligohydramnios, asymmetrical intrauterine growth restriction (IUGR), and pathological middle cerebral artery (MCA) findings.

In view of severe preeclamsia and abnormal fetal Doppler with right-sided cerebrovascular accident (CVA) infarct and left hemiplegia, decision of emergency cesarean section was taken. After proper anesthetic checkup, her emergency lower segment cesarean section was done under spinal anesthesia, and she delivered a female baby weighing 2.5 kg with an apgar of 7/9 with an immediate cry. Her immediate postoperative period

was uneventful and she was managed conservatively with inj mannitol, syp glycerol, tab ecospirin, tab atorvastatin as advised by physician. Thromboembolic deterrent were applied. Chest and limb physiotherapy was done. Patient was discharged after 1 week with slightly motor improvement (2/5) in both limbs of left side in satisfactory condition.

Discussion

A cerebral stroke is a neurological emergency and is a major cause of disability and mortality in women. However, symptoms of stroke depend on the part of the brain affected by the insult. In age of 18–45 years, the incidence of stroke is less; however, in pregnancy and in postpartum period, the incidence risk is increased due to various factors that alter hemodynamics during pregnancy.

In pregnancy, there is hemodilution, increase in circulatory demands, hypervolumia, and increased venous stasis which predisposes to circulatory overload.

In late pregnancy, however, there is a loss of distensibility due to a reduction in collagen and elastin content in the systemic arterial walls, which persists for months after delivery.[5] However, it is postulated that these somewhat vulnerable vessel walls could be subjected to greater hemodynamic stress, making them susceptible to rupture and resultant hemorrhagic stroke.[6,7] Gestation is a hypercoagulable state, with a 4- to 10-fold increased risk of thrombosis during pregnancy and puerperium. The increased hypercoagulability is in part due to elevations of procoagulant factors VII, IX, X, XII, XIII, fibrinogen, and von Willebrand factor.

Preeclampsia is associated with a 2- to 4-fold increase in future incident of heart failure and a 2-fold increased risk in coronary heart disease, stroke, and cardiovascular death.[8,9]

In pregnancy, it is a rule of thumb that most new-onset seizures after 20 weeks of gestation and up to 2 weeks postnatally are caused by eclampsia unless proved otherwise.

Importantly, note that focal neurological deficits are not typical of eclampsia. Imaging is necessary if there are focal neurological symptoms, signs, or visual symptoms persist despite optimization of blood pressure control. In PRES, the presentation can be similar to that of a stroke, but the signs and symptoms of neurological deficit may not be unilateral. The commonest areas of the brain which are involved in stroke are parieto-occipital, temporal, basal ganglia, and thalamocapsular region.[10,11]

Magnetic resonance imaging is the preferred imaging in pregnancy because it does not expose pregnant women to radiation. However, NCCT head is the most appropriate tool for initial rapid diagnosis of neurological condition. A lead ECG should also be done to rule out cardiac ischemia. Sometimes, severe hypoglycemia and hyperglycemia may present with focal neurological deficit which mimic stroke and must be ruled out by checking blood sugar levels. Lipid profile was done to rule out ischemic stroke and atherosclerosis. Besides these, full blood count, liver function test, urea, and electrolytes should be checked to rule out HELLP syndrome and thrombocytopenia. Sometimes, transesophageal echocardiogram (TOE) to be done to rule out aortic arch atheroma and other sources of emboli in young patients without cardiovascular disease.

Immediate treatment of stroke is to stabilize the patient and maintain hemostasis, correction of coagulopathy, correction of hypo- or hyperglycemia, blood pressure control, and thromboembolic prophylaxis. Timely diagnosis and proper intervention by multidisciplinary approach improve the maternal and fetal outcome.

Postpartum care includes the continuation of anticoagulation (aspirin 150 mg) for up to 6 weeks postpartum, pneumatic compression stocking in postoperative period, intravenous thromboprophylaxis may also be given in cases where there is a history of definitive thrombi formation. Long-term contraception is advised for these patients, with the exception of combined oral contraceptives, which increases the risk of thrombosis.

A proper workup by multidisciplinary approach leads to successful management of such peculiar special cases. However, the initial priority of management is stabilization of patient, strict hemodynamic monitoring, and neuroprotection.

Conclusion

Acute cerebrovascular accidents are the leading cause of mortality and morbidity in pregnant females. Early diagnosis, proper intervention, and multidisciplinary team approach will help to reduce maternal morbidity while also improving neonatal outcomes. Intense rehabilitation with physiotherapy, occupational therapy, and speech and language therapy improves the maternal condition effectively.

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