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Case Report

Twin pregnancy with rupture of cerebral arterio venous malformation with intracranial hemorrhage

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ABSTRACT

Cerebral AV malformation in pregnancy is a rare condition with a prevalence rate of approximately 0.01-0.5%. It generally presents symptoms at 20-40 years of age most commonly at around 30 years of age. It affects both men and women but more prevalent in women at this age group. We presented a case of primi gravida at 22 weeks of gestation with DCDA type of twin presenting in emergency department with intracranial hemorrhage secondary to rupture of AV malformation.

Keywords: Twins, AV malformation, Intracranial hemorrhage

INTRODUCTION

Brain arteriovenous malformations (AVM) are abnormal communication between parts of cranial arterial and venous system with the lack of a true nutritive and absorptive capillary bed. Most of AVM remain asymptomatic during pregnancy but some can rupture and cause intracranial hemorrhage and led to serious complications.[1] Hemorrhagic stroke is a serious complication during pregnancy and puerperium that has a substantial maternal mortality of 35% to 83%, contributing to more than 5% to 12% of all maternal deaths and fetal mortality was 14%. However, when a pregnant patient present with ruptured AVM, the risk of rebleed during the same pregnancy (27 to 30%) which is greater than the risk of rebleed in non-gravid women within one year of their initial bleed (6%).[2] We presented a case of primi gravida at 22 weeks with DCDA type of twins with intracranial hemorrhage secondary to AV malformation in temporal artery.

CASE REPORT

A 23-year-old primi gravida at 22 weeks of gestation with DCDA twin gestation presented to ER with c/o severe throbbing type of headache for 1 day associated with one episode of vomiting. No h/o loss of consciousness, loss of orientation. She had no medical or surgical comorbidities.

Her vitals were stable, GCS- E3 V2 M4 (9/15).

Systemic examination was normal and obstetric examination showed uterus corresponding to 24 weeks of gestation with good fetal heart rate of both the twins.

MRI brain with contrast performed which showed few flow voids in anterior aspect of left temporal lobe abutting the hemorrhagic foci with features of AV malformation. A large irregular T1 hyper/T2 iso intense focus with surrounding edema in left temporoparietal region measuring 7.8×3.9×2.6 cm with GRE blooming-intracerebral hemorrhage with mass effect and midline

shift secondary to rupture of AVM. MR angiogram showed no occlusion and MR venogram showed no thrombus.

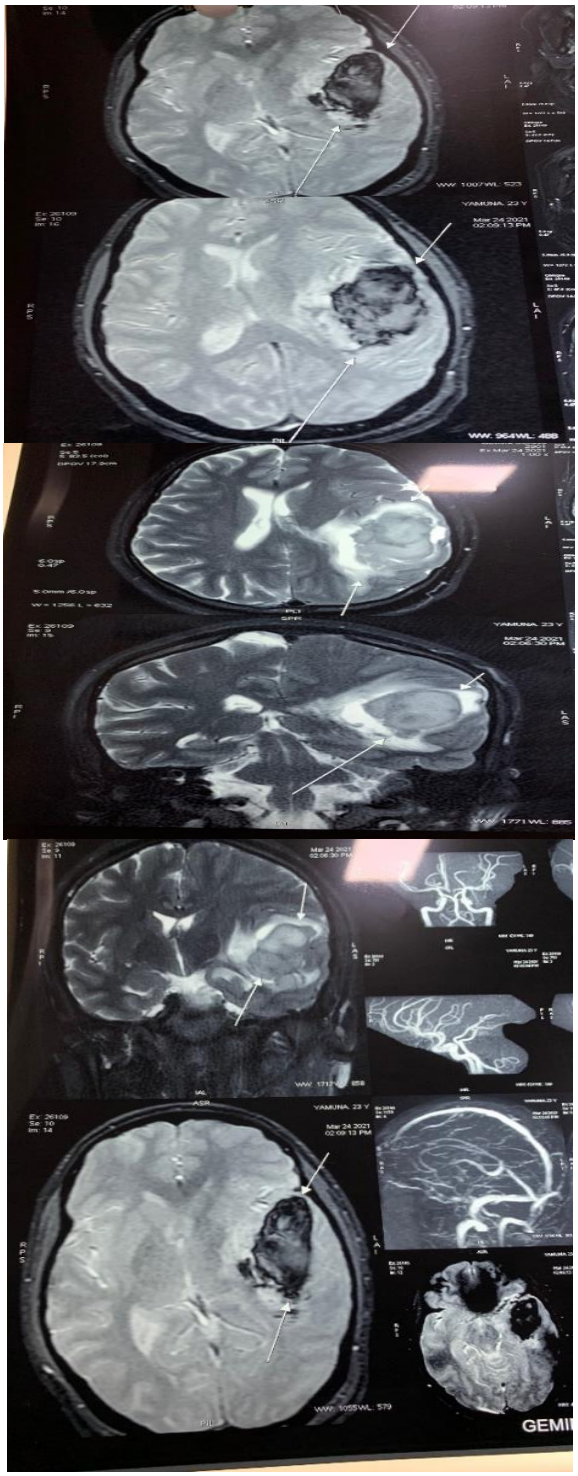

Figure 1: MRI image.

Surgery

After explaining the condition to the family and explaining about the risk patient was taken up for craniotomy with evacuation of intracranial haemorrhage and excision of left temporal AV malformation.

Intraoperative findings showed left temporal lobe with cluster of vessels in the anterior region and intracranial hemorrhage was removed. AV malformation identified and the feeding large artery laterally and vein into sylvian system. The feeding artery and vein was clipped, cut and removed and sent for histopathology.

Patient was shifted to neurology ICU for ICU care. Neurological condition improved postoperatively and she was started on antiepileptics. GCS improved to 15/15. Fetal heart rates were monitored post craniotomy and was normal. The histopathology report confirmed that it was AV malformation and her GCS improved was discharged on day 5 with oral antiepileptics.

She was monitored post surgically for both maternal and fetal wellbeing. Her neurological condition remained stable throughout her antenatal period. At 34 weeks the twins developed discordancy of 18% with normal Doppler. The babies were monitored twice weekly with Doppler and AFI. A multidisciplinary approach with neurologist, obstetrician and neonatologist was held and decided to terminate the pregnancy at term. At 37 weeks she was posted for LSCS in view of obstetric indication leading twin non cephalic and delivered a girl baby of 1.6 kg and baby boy of 1.3 kg. Babies were admitted in NICU for low birth weight care. She was discharged on postoperative day 3 and being followed up in neurology OPD.

DISCUSSION

The prevalence of cerebral AVM is estimated at 0.01-0.50% of population. The natural history of AVMs is poorly understood and even less understood in pregnant patients, because the frequency is rare and changes in the maternal body are complicated during pregnancy.[3] There were no definite guidelines for the treatment of AVM in pregnancy and management of cerebrovascular accident in pregnancy. The frequency of rebleeding during the same pregnancy can be as high as 27% which was 4 times higher than non-pregnant patient.[4-8] Maternal management of ruptured AVM should be mainly neurosurgical indication rather than obstetric indication. If the foetus is mature enough then simultaneous caesarean section can be performed. Surgery for AVM is mainly determined using Spitzer-Martin grading scale.[9] A potential complication is intraoperative bleeding which can result in uteroplacental insufficiency leading to fetal hypoxia. Preoperative embolization is possible for high-risk cases where intraoperative bleeding is suspected like deep AV malformations, but the treatment per se carries the risk of ischemic and haemorrhagic complication. The radiation risk to the foetus has to be considered as there is not enough studies to describe the harmful effects on foetus ruptured AV malformation which requires immediate surgical intervention, in case of unruptured AV malformation conservation treatment is performed.

CONCLUSION

Brain AV malformation in pregnancy is uncommon, yet challenging to treat. The treatment strategy depends on whether the AV malformation is ruptured or unruptured. In this case report, we have achieved a good maternal and fetal outcome. Surgical intervention for ruptured AV malformation helps us to prevent rebleeding. This kind of patients has to be managed by team of doctors which includes neurosurgeon, obstetrician, anaesthesiologist, neonatologist. Caesarean section is performed mainly for obstetric indication or if patient is in deteriorating condition. For better maternal and fetal prognosis, guidelines for female pregnant patients with cerebral AV malformation has to be established.

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