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CASE REPORT

A CASE REPORT-ANTENATAL DIAGNOSIS OF FETAL INTRACRANIAL HAEMORHAGE

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ABSTRACT: 26 years old para 1 with 26 weeks of pregnancy presented with intermittent fever. Her obstetric history included one spontaneous first trimester miscarriage and one previous Caesarean Section for meconium stained amniotic fluid. Her antenatal course was uneventful so far. On investigation she tested IgM dengue positive. Her WBC count, platelet count and coagulation profiles were within normal limits. Obstetric sonography was done which was suggestive of a single live intrauterine gestation corresponding with growth appropriate for gestational age with moderate polyhydramnios (AFI 25cms) with hyperechoic cerebral cisterns suggestive of intracranial haemorrhage. Fetal MRI was done which revealed generalized atrophy of the brain parenchyma with subdural haematoma over posterior cerebral convexities extending along tentorial leaflets. Patient went into preterm labour at 27 weeks and delivered male baby of 980gms which was an intrapartum fetal demise. Fetal intracranial hemorrhage occurs in 5 in 10,000 pregnancies. Hemorrhage may occur either within the cerebral ventricles (Intraventricular haemorrhage, IVH), subdural space or infratentorial fossa. IVH are common variety and are characteristic of immature brain. IVH are subdivided according to their severity into four grades: the first three grades are limited to the ventricles, while the fourth grade includes parenchymal involvement occurring in the most severe cases. Fetal stroke is caused by antenatal hemorrhagic, ischemic or thrombotic injury. Although there is no identifiable risk factor in 50% of cases of fetal stroke, the most common maternal conditions associated with it are alloimmune thrombocytopenia and trauma. Outcome is usually poor, for those fetuses affected with high grade IVH or subdural hemorrhages. USG helps in accurate diagnosis of fetal ICH and prenatal MRI also contributes to the accuracy of diagnosis.

KEYWORDS: Intracranial Haemorrhage.

INTRODUCTION: Fetal intracranial hemorrhage occurs in 5 in 10,000 pregnancies[1]. Hemorrhage may occur either within the cerebral ventricles (Intraventricular haemorrhage, IVH), subdural space or infratentorial fossa. IVH are common variety and are characteristic of immature brain. IVH are subdivided according to their severity into four grades: the first three grades are limited to the ventricles, while the fourth grade includes parenchymal involvement occurring in the most severe cases. Fetal stroke is caused by antenatal hemorrhagic, ischemic or thrombotic injury.

Although there is no identifiable risk factor in 50% of cases of fetal stroke, the most common maternal conditions associated with it are alloimmune thrombocytopenia and trauma. Outcome is usually poor, for those fetuses affected with high grade IVH or subdural hemorrhages. USG helps in accurate diagnosis of fetal ICH and prenatal MRI also contributes to the accuracy of diagnosis.

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Patient went into preterm labour at 27 weeks and delivered male baby of 980gms which was an intrapartum fetal demise.

Figure 1: Ultrasound image which demonstrates hyperechoic cerebral cisterns suggestive of hemorrhage.

Figure 2: Magnetic Resonance Imaging (T2 weighted image) which demonstrates subdural collection over posterior cerebral convexities extending along tentorial leaflets.

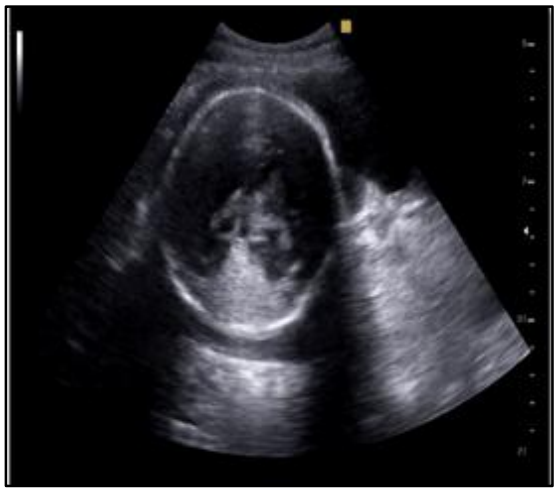

Fig.1

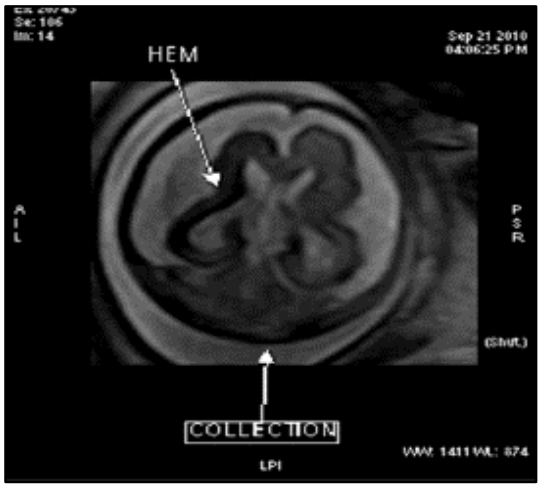

Fig. 2

DISCUSSION: Sonographic diagnosis of fetal intracranial hemorrhage was first reported in 1982 in a patient with recurrent episodes of pancreatitis. The patient had a fetal demise at 29 weeks of pregnancy. The earliest diagnosis of fetal stroke has been done as early as 20 weeks of pregnancy.[1]

True incidence of fetal stroke remains unknown mainly because of deficiencies in diagnosis. However it is approximately 5 in 10,000 pregnancies.[1]

Hemorrhages may occur either within the cerebral ventricles which is the most common site in premature fetuses or subdural space or infratentorial fossa. Fetal stroke is caused by antenatal hemorrhagic, ischemic or thrombotic injury. Various maternal and fetal risk factors are suspected in causing fetal stroke but in about 50% of cases of fetal stroke no identifiable cause is found.[2]

Amongst the maternal risk factors, the most common risk factors associated with fetal stroke are alloimmune thrombocytopenia and trauma[2] .Other maternal conditions are coagulation disorders, seizure disorders, viral or bacterial infection, febrile illness, amniocentesis, medications like warfarin, drug abuse (Cocaine),cholestasis, pancreatitis. Fetal risk factors are Factor X deficiency, Factor V deficiency, Twin-twin transfusion syndrome, demise of a co-twin and fetomaternal hemorrhage.

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Antenatal diagnosis of fetal ICH is done by ultrasonography. Prenatal MRI contributes to the accuracy of diagnosis.

Sonographic findings of fetal intracerebral hemorrhage are variable. In general, the condition is considered to be difficult to identify and to differentiate it from other intracranial lesions. A recent hemorrhage appears as a brightly echogenic collection without posterior shadowing. During following days, blood clots become visible as a complex echogenic texture with external echogenic lining and an internal sonolucent core. Intraventricular blood clots are usually associated with distension of the ventricles, which initially demonstrate a typical echogenic lining.

Interventricular hemorrhage can lead to obstruction of the cerebrospinal fluid circulation, usually at the level of the aqueduct of Sylvius resulting in ventriculomegaly. Involvement of the cortex can be predicted by demonstration or extension of the echogenic collection to the paraventricular parenchyma in the early stages, or by formation of porencephalic cysts, usually about two weeks after the hemorrhagic event. A bright area around the cerebellum may prompt the diagnosis of an infratentorial hemorrhage.

IVH were categorized from the method of Vries et al as follows:

Grade-1: Limited to subependymal matrix.

Grade-2: Clear spillover to ventricles, but filling <50% of lateral ventricles without ventriculomegaly.

Grade-3: Spill over to ventricles with flooding of 50% or more of one or both lateral ventricles and Ventriculomegaly.

Grade-4: Grade 1, 2 or 3 with hemorrhage in a large part of periventricular parenchyma.

Outcome of fetal ICH is unpredictable. There is limited data on neurodevelopmental prognosis when fetal stroke is antenatally diagnosed. Outcome ranges from absorption and complete resolution of hemorrhage without any residual deficit to varying degrees of brain damage. Postnatal seizure disorder, mental retardation, psychomotor delays, cerebral palsy and in extreme cases fetal or neonatal death may result from fetal intracranial haemorrhage.[2] Outcome is usually poor for fetuses affected by high grade IVH (Grade 3 and 4) or subdural hemorrhage.[3] The outcome of grade 1 and 2 IVH or infratentorial hemorrhage is less clear.

The management of such antenatally diagnosed fetal ICH is problematic. There is no increased risk of recurrence in subsequent pregnancy unless alloimmune thrombocytopenia is the cause which carries greater than >75% recurrence risk.

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