

Spontaneous Foetal Intracranial Haemorrhage: Scrutinising the Inscrutable

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ABSTRACT

The incidence of major Intracranial Haemorrhage (ICH) is not the common finding in a post-mortem of stillborn. Subdural haemorrhage is mainly associated with obstetric trauma. Minor subarachnoid haemorrhage is observed in cases of intrapartum asphyxia and prematurity. It is very uncommon to find ICH in a foetus who has died before onset of labour. ICH is rare in low risk patient with no history of trauma, hypertensive disorder of pregnancy, coagulation disorder and drug abuse. Here, authors presents a case of 30-year-old female patient who had uneventful pregnancy till term when she had sudden intrauterine foetal demise without any precipitating cause. Autopsy of the foetus revealed spontaneous ICH, which included subdural and subarachnoid haemorrhage along with scalp haematoma.

Keywords: Abruptio placentae, Intrauterine demise, Subdural haematoma

CASE REPORT

A 30-year-old female, gravida three and previous two abortions (without any significant cause) got registered in Tertiary Care Hospital at six weeks five days. Each time cardiac activity was documented on Ultrasonography (USG). She was investigated for recurrent pregnancy loss. She was advised for anti-phospholipid antibody testing, oral glucose tolerance test, thyroid profile, which were within normal limit. In this pregnancy, she had regular antenatal visits as per hospital protocol. Patient had uneventful antenatal period till 32 weeks when she reported to emergency ward with the complaint of decreased foetal movement over last 48 hours. Modified biophysical profile was done, which was normal. At 34 weeks of gestation, she had two episodes of epistaxis for which she was investigated, there was no evidence of coagulopathy. Ear Nose Throat (ENT) reference was done and advised treatment in the form of nasal lubricant. At 38 weeks 5 days, she again came to emergency ward with complaint of decreased foetal movement for last 2 days. On general examination, her vitals were within normal limit with moderate anaemia and no pedal oedema. Patient was non-compliant to iron supplements. On investigations, her Haemoglobin (Hb) was 6.6 gm%. Patient was investigated and found to have severe iron deficiency anaemia; other causes of anaemia were ruled out [Table/Fig-1].

Parameters	Values
Haemoglobin	6.6 gm%
White blood cells	8640/ μ L
Red blood cells	4.47×10^6 / μ L
Platelets count	253×10^3 / μ L
Lupus anticoagulant	Negative
Anti-cardiolipin antibody	Negative
Anti-nuclear antibody	Negative

[Table/Fig-1]: Biochemical parameters.

On abdominal examination, foetal heart sound could not be heard. Urgent USG Obstetrics was done for foetal cardiac activity documentation. USG obstetrics revealed intrauterine foetal demise. She was investigated and found to have severe anaemia due to concealed abortion with no other biochemical abnormality. Two units packed red blood cell was transfused. She delivered a dead baby boy vaginally weighing 2790 grams after induction of labour.

Skull bones were collapsed. Foetal skin had blisters and meconium staining, suggestive of old intrauterine death of foetus. There was no gross congenital anomaly in foetus. Placenta was normal looking, weighing 500 grams with 600 cc of retroplacental clots. Hence, the diagnosis of non-toxic abruptio of pregnancy was made. Foetus was sent for infantogram, autopsy and karyotyping. The infantogram and karyotyping came out to be normal. The autopsy report of foetus revealed subdural and sub arachnoid space haematoma with no other abnormality.

DISCUSSION

Spontaneous ICH in foetus is a rare condition. The incidence of ICH is 0.46/1000 in a Tertiary Care Centre [1]. Spontaneous ICH in foetus does not occur commonly in low risk patients. It involves a combination of vascular anatomic immaturity and complex haemodynamic factors. The role of inflammatory factors and genetic factors in ICH is under investigation [2].

There are four types of ICH: Subarachnoid, Intracerebral, Intraventricular, and Subdural haemorrhage. The subarachnoid, intraventricular haemorrhage is seen in foetus with prematurity. The subdural haemorrhage is mainly seen in term foetus which occurs due to trauma leading to the tearing of venous sinuses in subdural space [3].

In most of the cases, cause of ICH in utero at term is unexplained [Table/Fig-2] [1].

S. No.	Causes
1.	Idiopathic
2.	Alteration in maternal or foetal blood pressure
3.	Placental abnormality
4.	Maternal- Trauma, Coagulopathy, Drug abuse, Infections, Seizure disorder
5.	Foetal- Thrombocytopenia, Vascular malformation, Foetal intervention,

[Table/Fig-2]: Causes of Foetal Intracranial Haemorrhage (ICH).

The ICH especially subdural haemorrhage occurs in poorly bridging veins crossing across the subdural space. It happens when there is trauma to maternal abdomen and injuries due to instrumental vaginal delivery. The obstetric trauma is very common cause of the subdural haemorrhage or any other ICH, which can manifest in intrauterine or postnatal life [3]. But, in this patient, there was no history of any trauma to abdomen or instrumental delivery.

ICH in foetus occurs most commonly in third trimester, majority arises from germinal matrix haemorrhage due to tearing of vessels. ICH is mainly associated with history of anticoagulant intake, illicit drug intake, autoimmune disorder, haematological disorder or severe maternal illness. In our patient, there is no such history of any illness, coagulopathy or drug abuse [1].

Mostly, ICH can be detected between 26 to 33 weeks of gestation by ultrasonography. In this case, patient underwent modified biophysical profile at the gestation of 32 weeks in view of decreased foetal movement which came out to be normal. Ultrasonography has an important role in diagnosing ICH in a foetus associated with high risks pregnancy like foetal growth restriction or placental abruption.

According to Cohen MC et al., there are changes in cerebral microvascular junctions with increase in intracranial and intravascular pressure leading to rupturing of the fragile premature capillary bed or capillary-venous junction of the germinal matrix resulting in ICH [4]. The foetal thrombocytopenia is most important laboratory finding in term neonates presenting with ICH [3], but in present case, the coagulation status of the foetus could not be obtained as it was old intrauterine dead foetus. In our patient, she had nontoxic abortion leading to antepartum asphyxia. The antepartum asphyxia is the major cause of antenatal ischemic stroke and ICH. She had major ICH (subdural and sub arachnoid haemorrhage)

resulting in intrauterine death of foetus. In our patient, there was no predisposing factors identified leading to sudden Intrauterine Death (IUD) with ICH in foetus. Despite detailed pathological examination of the foetus, the exact cause remained unexplained.

CONCLUSION(S)

Intracranial Haemorrhage (ICH) leading to intrauterine death of foetus is not common in antenatal period. In most of the cases, aetiology of intrauterine subdural haemorrhage is not known. The non-toxaemic abruption can lead to major blood loss resulting in acute foetal asphyxia, foetal ICH and sudden IUD.

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