Case Report : Obstetrics

Pregnancy with Gaucher's Disease – A Case Report

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Introduction

Gaucher's disease is a lysosomal storage disorder caused by deficiency of beta glucosidase resulting in accumulation of its substrate glucosylceramide, leading to visceral, hematologic and skeletal manifestations. Here, we are presenting a case of pregnancy in a case of Gaucher's disease that was carried till term and to stress on the importance of multidisciplinary management in such cases.[1,2,3,4]

Case Report

A 27 year old female presented to NRSMCH outdoor as a diagnosed case of Gaucher's disease not on any treatment at 16 weeks gestation. She had no complaints at that time. She gave no history of illness till 23 years of age. She gave history of being on irregular treatment for hypothyroidism. On examination, her vitals were stable. Per abdomen examination revealed hepatomegaly 5cm below right costal margin and huge splenomegaly extending below umbilicus and uterus was just palpable. She was planned for a multidisciplinary management. Haematology opinion was taken and investigations were carried out. Bone marrow aspiration showed increased histiocytes with eccentric nuclei and crumpled tissue paper appearance of cytoplasm resembling Gaucher's cell with the impression being a storage disorder. Fibro-scan showed onset of fibrosis. Ultrasound whole abdomen showed a spleen of size 20.5cm and liver of size 16.6cm. Serum reports showed elevated ferritin of 287ng/ml, elevated folate of >23.60ng/ml and decreased Vitamin D of 18.74ng/ml. Mutation analysis of her husband confirmed that he was not a carrier. Patient received regular enzyme replacement therapy with glucocerebrosidase enzyme (Cerezyme) 60 IU/kg IV once in 2 weeks (Each 400 U Cerezyme enzyme vial reconstituted in 10.2ml sterile water and total 2640U reconstituted Cerezyme diluted in 100ml 0.9% NS and given IV over 2.5 hours. She was also on regular Injection VitB and VitD3 supplementation. Routine follow up with complete blood count, liver and renal function test was done (Table 1).

Regular antenatal check up was given. She was on levothyroxine 75microgram and carbohydrate restricted diet due to abnormal Thyroid stimulating hormone levels and deranged Oral glucose tolerance test. Anomaly scan was normal. Throughout her antenatal period, patient had no complaints and no bleeding manifestations. At 34 weeks gestation, patient was advised growth scan, and she brought the reports at 37 weeks gestation which revealed features suggestive of Foetal growth restriction with Cerebroplacental ratio<1. Patient was admitted and upon admission patient Non stress test was done which was non-reassuring (showed 5 decelerations in 20 minutes) and so was taken up for emergency

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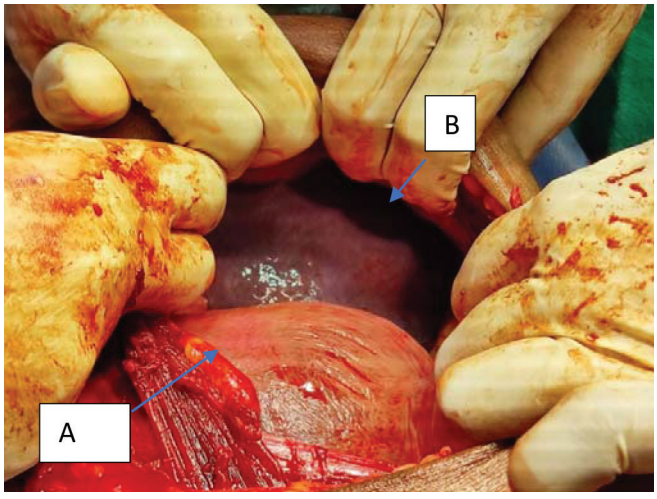

Figure 1: Intra operative findings; A – Uterus displaced downwards and to the right due to enlarged spleen; B – Spleen enlarged three times its normal size and seen just above uterus, displacing the bowel loops to the side

Lower segment caesarean section because of foetal distress. It was under general anaesthesia as her pre op platelet count was <80,000 (Table 1). Intra op findings revealed grossly enlarged spleen pushing uterus to the right with displaced bowel loops (Figure 1). A baby girl was delivered, weighing 2.010 kg.

Post op, patient was followed up in High dependency unit and she had no episodes of postpartum haemorrhage and her vitals were stable. As per anaesthesia advice, she received 1 whole blood, 1 Packed red cell, 2 Fresh frozen plasma and 2 platelets and patient's ECHO was done which was normal. As per haematology advice enzyme replacement therapy was stopped as she was lactating and they advised her for outdoor follow up 4 weeks after discharge. Both mother and baby were discharged in stable condition.

Discussion

Gaucher's disease is inherited as autosomal recessive. Type 1, usually presents with less severe symptoms, at more advanced age and is particularly amenable to enzyme replacement therapy. It's incidence is 1 in 50,000 – 1,00,000 worldwide.[1] In these patients reproductive age is commonly reached and childbearing is desired. These patients need appropriate prenatal diagnosis, counselling and careful obstetrical surveillance. Few data on the frequency of Gaucher disease during reproductive age and pregnancy can be found in literature[1] making our case unique.

Anaemia and thrombocytopenia may worsen during pregnancy, and excessive bleeding may complicate pregnancy, delivery and postpartum. Hepatosplenomegaly may interfere with normal foetal growth. Both these were seen in our patient and she also showed late onset FGR. Increased calcium demand in pregnancy increases the risk of bone crisis, osteopenia, osteonecrosis and fracture. There is also increased risk of infection and spontaneous abortion. The effects that pregnancy might have on the course of the disease is still unsolved.[2,4]

The diagnosis is performed by either determining the enzyme activity in peripheral blood leukocytes or through DNA based analysis.[3] Mutation sequencing in this patient showed Exon 9,c.1184>T variant and beta glucosidase assay was 0.67nmol/hr/ml. Enzyme replacement therapy is recommended during pregnancy to mitigate risks, especially bleeding. But it is yet to be shown whether its use has any adverse effect on fetal development. Cerezyme during pregnancy has demonstrated the ability to reduce the risk of miscarriage and this was used in our patient.

Table 1: Lab findings showing how the patient was monitored throughout pregnancy, worsening thrombocytopenia and persisting anemia, requiring blood replacement in the post operative period

Date	Hb (g/dl)	PCV (%)	Platelet (cells/ cumm)	TLC (cells/ cumm)	Urea (mg/dl)	Creatinine (mg/dl)	T.Bil/ Direct Bil (mg/dl)	SGPT (U/L)	SGOT (U/L)
16/12/20					18	0.7	1.4/0.7	14	20
14/1/21	8.1	25.2	48000	3300					
17/2/21	8.2	26.3	60000	2970					
22/4/21	9.3	31.1	90000	2600	15	0.7		32	28
1/6/21 (pre-op)	9.2	29.4	39000	4200	15	0.7	1.0/0.3	12	21
(at discharge)	10.3	31.5	60000	5600	16	0.5	1.2/0.6	16	17

The first antenatal appointment should include comprehensive examination of patient and multidisciplinary approach. In our patient too, this was followed. In addition to haematology opinion, surgeon's opinion was also taken who did not advice for any active surgical intervention from their side, an endocrinology opinion for her thyroid concerns and a general medicine opinion. Genetic counselling is recommended. Monitoring is adapted to the needs of individual patient based on disease status. Ferritin concentrations are often elevated as part of the sustained acute inflammatory response and does not indicate iron overload which was seen in this patient.[1]

During Caesarean section, it is advised to do a transverse Cohen incision or a Pfannensteil curved incision. Exploration of peritoneal cavity to be avoided as palpation of enlarged organs may precipitate bleeding. General anaesthesia is usually avoided due to risk of aspiration in the mother and neurological and respiratory depression in new-born but may be used if clotting parameter are altered in the mother or if she has severe spinal deformities.[1]

Conclusion

In our case there was no significant complication that occurred during pregnancy and delivery. Although thrombocytopenia was seen in antenatal period, patient showed no bleeding manifestations and required transfusion only in the postpartum period. If the disease is controlled, with proper therapy and monitoring, mothers are likely to have uncomplicated pregnancies and deliveries.

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