

OUTCOME OF PREGNANCY IN A CASE OF ISOLATED FETAL ASCITES WITH MATERNAL HYPOTHYROIDISM AND GESTATIONAL DIABETES - A CASE REPORT

¹*Dr. Manoj S. Patil, ²Dr. Shilpa Gaidhane, ³Dr. Abhay Gaidhane, ⁴Dr. Arpita Jaiswal, ⁵Dr. Sachin Damake, ⁶Dr. S. Z. Quazi

¹*Project Manager, Research and Development, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

²Associate Professor, Dept. of Medicine, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

³Head, Dept. of Community Medicine, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

⁴Associate Professor, Dept. of Obstetrics and Gynecology, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

⁵Associate Professor, Dept. of Pediatrics, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

⁶Professor, Dept. of Community Medicine, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

*Corresponding Author: Dr. Manoj S. Patil

Project Manager, Research and Development, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

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ABSTRACT

Pregnancies complicated with gestational diabetes and hypothyroidism usually has unpredictable outcomes and guarded prognosis of the foetal conditions. Even after diagnosing and starting treatments of the complicating conditions well in time, the outcomes of pregnancy are mostly poor. This is a case study of a nulliparous 30year old female who was found hypothyroid and diabetic during her second pregnancy and initiated appropriate treatments well on time. Even then, the foetus developed gross Ascites during 6th month of pregnancy; the pregnancy got abruptly terminated by abruptio placenta at the end of 29th week and the neonate succumbed to death after 10 days of struggle with respiratory support and combat with Klebsiella infection.

KEYWORDS: Foetal Ascites, Gestational Diabetes, Hypothyroidism, Outcome of pregnancy.

INTRODUCTION

Pregnancy is a period that places great physiological stress on both the mother and the fetus in the best of times. However, if pregnancy is compounded by endocrine disorders such as hypothyroidism, the potential for maternal and fetal adverse outcomes can be immense. Hypothyroidism is widely prevalent in pregnant women and the rate of detection, especially in a developing country like India, has not kept pace with the magnitude of the problem.^[1]

Endocrine disorders are important causes of perinatal morbidity and mortality. Nearly all are associated with changes in fluid and electrolyte homeostasis and hemodynamic alterations from dysfunction of the hypothalamic pituitary adrenal axis. Because nearly all tissues respond to endocrine hormones, endocrine diseases are associated with multisystem disease. Diabetes mellitus and thyroid disease are relatively common during pregnancy. Most other endocrine disorders are either very rare or are associated with impaired fertility and therefore occur only rarely in parturient. Unfortunately, very limited numbers of case reports are available for pregnant women with these diseases.

Diabetes mellitus is the most common co-morbidity in pregnancy. Diabetes during pregnancy is associated with higher maternal and fetal morbidity. A high prevalence of gestational diabetes mellitus (GDM) of the order of 18% has been reported from India.^[2] Acute complications are related to the effects of hypoglycemia, hyperglycemia, electrolyte disorders, difficult airways, autonomic dysfunction, obesity, and fetal-neonatal effects. Fetal effects of diabetes mellitus include macrosomia, leading to possible shoulder dystocia and birth injury. Congenital structural malformations are increased in the fetus. The risk of intrauterine demise and preterm birth are also increased.^[3]

Subclinical thyroid disease is actually more common in pregnancy than is diabetes. Up to 15% of pregnant women exhibit hyperthyroidism during their pregnancy with an additional 5% having hypothyroidism. Low maternal circulating thyroxine levels (hypothyroidism) are strongly associated with poor brain development and low IQ.^[3] Women with hypothyroidism have decreased fertility; even if they conceive, risk of abortion is increased, and risk of gestational hypertension, anemia, abruptio-placenta and postpartum hemorrhage is increased.^[4]

This is a case study of a 30 year old nulliparous female who was diagnosed as having hypothyroidism during second month of gestation and diabetes during third month of gestation; also gross fetal Ascites was found accidentally during routine USG check-up at 6 months.

CASE REPORT

A 30-year-old nulliparous reported to our medical institute for regular follow-up of pregnancy at 22nd weeks of gestation with a complaint of severe burning sensation in stomach and pain in upper abdomen. Routine USG showed the features of gross isolated foetal ascites. The patient has an B-Rh positive blood type and tests for hepatitis B and C, CMV, toxoplasmosis, and VDRL were all negative.

Health history of the patient and older investigation reports were reviewed. Initial ultrasound at 16 weeks of gestation showed normal features with no structural anomalies. The patient was diagnosed to be hypothyroid during second month of gestation and treated with Oral Thyroxine tablets (50mg). During third month of gestation, patient was found to be diabetic and was under treatment with Metformin 500 mg b.d. and mixed insulin injection (Novomix) 15 units and 10 units in the morning and evening respectively. In addition, patient was also receiving hormonal supplementation (Cap. Duphastan 200 mg b.d.). History also revealed that two episodes of bleeding per vagina occurred one month apart during third and fourth month of gestation. The follow-up USG and 4-D scan in 5th month showed no structural deformity in the growing foetus though weight of foetus was little below the average for gestational age.

Sudden onset of burning pain in upper abdomen forced the patient to seek advice of gastroenterologist and gynaecologist. During follow-up USG in 6th month, gross foetal Ascites was noted. The abdominal organs appeared to be clumped in pre-hepatic area with grossly

fluid filled abdominal cavity and appearance of pressure changes on the outline of developing lungs. The gynaecologist advised for termination of pregnancy. But looking towards the general health status of the patient and issues related to legal age of termination of pregnancy, the decision was left to mother who opted to carry on pregnancy till it gets naturally terminated. The patient also tried few homoeopathic medicines acting on foetal Ascites over this period of time. The case was kept under follow-up.

At the end of 29th week (1st week of 8th month of pregnancy), the patient reported complaint of severe pain in lower abdomen with fever; and leakage of fluid per vagina within 3-4 hours of onset of pain and fever. The patient was admitted to hospital early morning next day where she delivered a baby with ambiguous external genitalia (due to poor development as an effect of gross Ascites). The birth weight of neonate was 1100 gm and had respiratory distress. The neonate was immediately shifted to NICU and kept on respiratory support with lung surfactant and i.v. antibiotic Vancomycin. Though Ascites was significantly reduced over this period, mild to moderate Ascites was present. Neonate passed urine and faeces. Blood investigations revealed increased WBC counts indicating severe septicaemia. Blood culture and sensitivity reports revealed Klebsiella Pneumoniae which was sensitive to Imipenem. The oral intake of neonate was tested with 5% dextrose solution which showed difficulty in passing beyond stomach. Detailed USG by experts revealed undescended testes in lower abdominal area.

The neonate succumbed to death on 10th day of delivery with direct/primary cause of death reported as disseminated intravascular coagulation and septicaemia as secondary cause.



Fig 1: USG showing Normal Foetal Development at 5th month of Pregnancy.



Fig-2: USG showing Gross Foetal Ascites during 6th month of pregnancy.



Fig-3: Photograph of Neonate with external appearance of Ascites.

DISCUSSION

Isolated ascites is defined as abnormal fluid collection in the abdominal cavity without fluid accumulation in any other serosal cavities or subcutaneous tissue. The true prevalence and exact etiology of isolated fetal ascites is not known, though a number of maternal, fetal and placental problems which are known to cause fetal ascites can be identified in 70-90% of cases by extensive

prenatal and postnatal evaluation.^[5] The disease is associated with high mortality (30-95%). The maternal causes commonly include blood group and Rh incompatibilities and viral infections (TORCH, adenovirus, parvovirus, syphilis) in mother.^[7] Multiple mechanisms have been explained for occurrence of ascites, such as abnormal lymphatic drainage; obstruction to venous return, cardiac failure; decreased plasma oncotic pressure, as in fetal anemia; hepatic insufficiency (storage diseases) or congenital nephrosis; increased capillary permeability; urinary tract obstruction and meconium peritonitis.^[9]

The diagnostic approach includes investigations of the fetus and also of the mother; such as ultrasound for diagnosis of structural abnormalities, fetal echocardiography to rule out congenital heart disease and arrhythmias, complete blood count, serology, polymerase chain reactions, TORCH titers, other viral markers, VDRL testing for intrauterine infections, followed by more invasive techniques for chromosomal abnormalities and inborn errors of metabolism (DNA/enzyme analysis) by amniocentesis, cordocentesis, placental biopsy, chorionic villous biopsy, fetal paracentesis, and fetoscopy.^[5,6]

Despite of improved diagnostic methods, the overall prognosis for most fetuses with isolated fetal ascites is guarded and antenatal treatment possible only in a few cases. Antenatal intervention is done if pulmonary hypoplasia is evident, and when uterine dystocia is expected which includes fetal abdominal paracentesis,

thoraco-amniotic and peritoneo-amniotic shunting. Postnatal treatment includes medical and surgical therapies: Parenteral nutrition, diet restriction, low fat diet, somatostatin analogues for chylous ascites, paracentesis, peritoneo-venous shunting, corrective surgeries for cardiac, urinary, pulmonary, and gastrointestinal conditions.^[6,10,11]

An extensive study by Michin GA in 1980's included 1414 cases and provided many insights, which are used for the current management.^[5] In a retrospective cohort study by Nose S. et-al, patients with primary isolated fetal ascites from were categorized into favorable (>30 weeks) and unfavorable groups (<30 weeks); seven patients had resolution with medical treatment in first group whereas five in second group required surgical intervention. Prognosis depended on gestational age at diagnosis and severity of fetal abdominal distension. He also reported that gestational age is inversely correlated with the severity of the ascites at diagnosis and early diagnosis carries a major risk factor for prognosis with 86% surviving the disease if onset was beyond 30 weeks of gestation.^[6] In a case series reported by Bishry of 12 patients with isolated fetal ascites, 10 survived after delivery; out of whom nine had no other anomalies detected on antenatal or postnatal ultrasound and only one had ileal atresia, which was surgically corrected.^[8] In another report by Favre *et al.*, ascites before 24 weeks of gestation indicated poor prognosis with mortality of 77% and excellent survival was reported for urinary and chylous ascites.^[12] According to Zelop C, in a series of 18 cases with isolated fetal Ascites, 14 resolved in the antenatal period itself.^[10] Seeds *et al.* were among the first to treat fetal ascites by antenatal shunt procedures.^[11] Overall prognosis is good in those with late onset isolated fetal ascites, mild to moderate degree ascites and those causes which are amenable to surgical treatment.^[5]

According to Kurbet et-al, in India, extensive antenatal and postnatal evaluation for the detection of the cause and appropriate treatment have shown good results, even in rarest cases.^[13]

CONCLUSION

Isolated fetal ascites is a complicated condition and prognosis depends on case to case situation. Isolated fetal ascites with late gestational onset and negative infection screen carries an excellent prognosis with spontaneous resolution in most of the cases. However cases complicated with maternal diabetes, hypothyroidism and effects of related treatment regimens like Insulin therapy etc. need to be given special attention. Alternate therapies need to be explored for treating such cases in low and middle income countries.

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