Fetal cholelithiasis: A Benign Rarity

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ABSTRACT:
A 28 years female, G3P2A0L2, presented to a routine antenatal checkup in OPD with the growth scan at 32 weeks gestation showing incidental findings of multiple echogenic structures in fetal gall bladder with normal hepatobiliary system. We report a case of fetal gall stone which was followed up 8 weeks post natal with no complications. It needs to be differentiated from the more sinister pathologies and requires accurate diagnosis.

KEY WORDS: Cholelithiasis, fetal gall stones, pregnancy

INTRODUCTION:
Fetal Gall stones are extremely rare but benign findings associated with a favorable prognosis. The frequency of diagnosis has increased over the last few years, probably due to both the improved accuracy and increasing use of ultrasound examination in clinical practice.[1-5]

We report a case of fetal cholelithiasis detected at 32 weeks gestation during a routine scan.

CASE REPORT:
The case under study was a 28 years old lady, G3P2A0L2, weighing 55 kg with regular antenatal follow up at NIMS Medical College, Jaipur, Rajasthan, India. The observations and investigations included a) no significant medical or surgical issues; b) normal routine antenatal investigations; c) Blood group A+ve with normal scan in 1st trimester; and d) normal intracranial, intrathoracic and intra abdominal anatomy at 22 weeks congenital anomaly scan in 2nd Trimester. Routine fetal surveillance at 32 weeks scan showed an incidental finding of multiple echogenic structures moving with gravity in a well visualized fetal gall bladder with normal hepatobiliary system. Follow up scan at 35 weeks showed satisfactory growth of fetus with echogenic material still persisting in fetal gall bladder with no evidence of any anomalies, ascitis or hydrops.

Patient was followed up with routine antepartum feto-maternal surveillance and had a spontaneous onset of labour at 38 weeks of gestation with uneventful intrapartum period. Patient delivered a healthy male infant weighing 3.08 kg with APGAR Score (8/9/9). Completely delivered placenta and membranes were grossly and histopathologically normal. Baby was shifted to the mother’s side. Baby did not have any evidence of external anomalies, hemolysis, sepsis and Jaundice. Exclusive breast feeding was initiated immediately.

Ultrasonography (USG) done on Day 3 for neonatal evaluation showed two echogenic structures in gall bladder 5 mm & 3 mm respectively with no post-acoustic shadowing along with the presence of biliary sludge. There was no associated hepato-biliary or other anomalies. Serial USG scan at 4 weeks of life showed persistence of echogenic material while there was resolution of echogenic material at 8 weeks post birth. The overall growth of the neonate was within normal limits.

DISCUSSION:
Fetal Gall stones are defined as mobile echogenic foci in the fetal gall bladder. These were
first described by Beretsky and Lankin in 1983. The exact incidence is not known and is rare.

Although cholelithiasis is uncommon in the first year of life, it is a well-established disorder, frequently associated with other pathological conditions [Table 1], and has an incidence of 1.5%.[2] The largest series of cases has been published by Brown et al which shows case records of 26 fetuses.[3] Anomalies of the gall bladder, including sludge and gall stones are extremely uncommon in fetal life, with an incidence of 0.42% as reported recently in a large cohort of 9235 pregnancies, with a slightly greater male predilection.[3,4]

The presence of placental hematoma or hemorrhage with subsequent breakdown of hemoglobin to bilirubin which crosses the placenta and increases fetal levels of indirect bilirubin[5] along with increased levels of estrogen predispose to increased cholesterol secretion and decrease the synthesis of bile acids, thus favoring gallstone formation.[3] Sludge is formed by precipitation of calcium, pigment and cholesterol. In some cases, maternal narcotic use, methadone particularly, should modify gastrointestinal activity with an increased transition time and the formation of solid echogenic material.[6,7] Hemolytic anemia and blood group incompatibilities predispose to development of echogenic material in the bile.[1,2,8,9] Kiserud suggested that chromosomal aberrations, cardiac malformations, gastrochisis, influence of prostaglandin and possibly prenatal leukemoid reaction may cause the presence of sludge in fetal gall bladder.[10]

Fetal Gall Bladder can be recognized after 14 weeks sonographically as an anechoic, oblong, tear drop like structure with a thin echogenic wall located at the inferior surface of the right lobe of the liver. It is
important to visualize umbilical vein prior to making identification and accurate assessment of fetal gall bladder. After 20 weeks of gestation, the fetal gall bladder can be visualized in 37.5% to 64.7% of the cases.[9]

Fetal gallstones are a distinct third trimester phenomenon due to abnormal production, composition and mode of transportation of bile in the biliary tract.[1,11,12] Echogenic material is not reported before 26 weeks of gestation. Biliary sludge can be present in different stages, hence variable sonographic appearances are noted. It usually presents as a single or multiple echogenic particles with or without regular flat borders, freely moving with gravity, with or without distal shadowing. Bile may be increased in density or normal.[13] Most neonates have spontaneous passage of gallstones with postnatal hydration. It can cause neonatal cholestasis, stones in common bile duct and peritonitis. Hence a follow up is required with clinical correlation and sonography. If symptomatic then, Ursodeoxycholic acid: 10-15 mg /kg / day can be used.[14]

CONCLUSION:

In our case, we found good prognosis with no associated anomalies. However, the recurrence rate is unknown and long term sequelae could not be determined. Attention has to be reserved for potential maternal and fetal risk factors. Fetal Gall stones are extremely rare but benign findings associated with a favorable prognosis. It needs to be differentiated from the sinister pathologies and requires accurate diagnosis.

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<th>Table 1:[2] Causes and differential diagnosis of fetal cholelithiasis.</th>
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