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Case Report

Prenatal diagnosis of fetal cholelithiasis: a rare case

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ABSTRACT

Fetal gallstones are a rare ultrasonography finding. Authors came across a similar case of fetal gallstones detected in routine third trimester scan. Patient had Rh negative blood group which might be the cause of fetal gallstone in this case however in most cases, the cause is undefined. Case was confirmed to have gallstones in postnatal scan which eventually resolved spontaneously within 1 month. The presence of gallstones in the fetus does not alter the fetal prognosis or obstetrical management since complete resolution is seen in most of the cases in late third trimester or neonatal period which may be due to either spontaneous passage of gallstones during early neonatal period or dilution of cholesterol crystals with postnatal hydration.

Keywords: Fetal cholelithiasis, Gall stones, Prenatal, Third trimester, Ultrasound

INTRODUCTION

Fetal gall stone is an uncommon rare ultrasonography finding with incidence around 1.5%.[1] Possible risk factors that could contribute to formation of fetal gall stones are haemolytic anaemia, cholestasis, and maternal drug abuse like narcotics or ceftriaxone.[2] Fetal gallstones are usually observed in third trimester and this maybe an incidental finding during growth scans.[3] It is visualized as an elliptical echogenic structure noted on right side of the intrahepatic umbilical vein below the right lobe of the liver. The prognosis of isolated fetal gallstones is excellent and does not alter obstetrical management.[4] Complete resolution is seen in most of the cases in late third trimester or neonatal period, but one should be familiar with the range of appearance of fetal gallstones in order to avoid confusing them with potentially more serious pathological conditions like liver calcification, calcified liver masses and meconium peritonitis. Authors came across similar case diagnosed with fetal cholelithiasis at 38+2 weeks.

CASE REPORT

Mrs. X, 37-year-old female, G4P1L1A2 registered at 8 weeks in present hospital. Her antenatal period was otherwise uneventful. There was evidence of Rh incompatibility as mother was Rh negative and Husband was Rh-positive. But there was no evidence of foetal anaemia on MCA PSV (1.0 MOM).

Rh titre done at 28 weeks of gestation was nil. Patient had no history of bleeding in the first or second trimester. No history of maternal drug abuse like narcotics was noted. There was no history of maternal gallstones, drug intake.

During her routine antenatal scan done at 38+2 weeks there was an incidental finding of foetal cholelithiasis, noted as a linear multiple echogenic focus with distal acoustic shadowing in the gall bladder of the foetus. No evidence of any intrahepatic or extra hepatic dilatation noted.

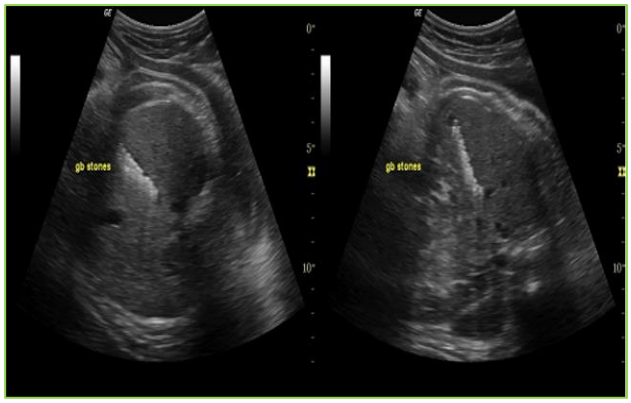

Figure 1: Antenatal USG showing foetal cholelithiasis.

Foetus had mild Grade I bilateral pyelectasis (4mm dilatation of PCS) which was noted to be constant since 2nd trimester malformation scan done at 18+3weeks. Rest no abnormality was noted. Foetal growth was corresponding to gestational age with normal liquor and normal Doppler flows. No evidence of any placental haemorrhage.

Patient was electively admitted at 38+3days of gestation for lower segment caesarean section in view of previous lower segment caesarean section and patient not willing for vaginal birth after caesarean. A healthy Female child of 3.510kg was delivered. No intraoperative complications encountered.

Baby was stable with Apgar score of 8/10 at 1 minute and 9/10 at 5 minute and was transferred to mother. Postnatally, baby was clinically asymptomatic with no evidence of jaundice, pale colored stools or elevated serum bilirubin level (1.9 g%).

Baby blood group was found to be A Rh positive. Anti-D injection was given within 24 hours. Ultrasonography of abdomen with KUB was repeated postnatally on day 5 suggestive of gall bladder sludge with no evidence of pyelectasis. Baby was discharged on day 6 of birth.

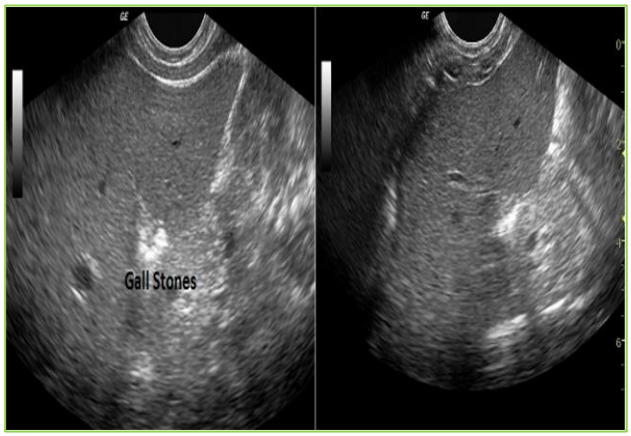

Figure 2: Postnatal USG on day 2 of life confirming presence of fetal cholelithiasis.

Follow-up ultrasound was performed at 1 month of life, revealing a normal sized gall bladder with no evidence of gall stones, biliary tract anomalies or obstructions.

DISCUSSION

Fetal gallstones are very rare with incidence of around 1.5% and is typically an incidental finding during a third-trimester ultrasound scan.[1] 1st time prenatal diagnosis of gall stones was done by Beretsky and Lankin in 1983. In 1928, Potter was the first one to diagnose cholelithiasis in autopsy of neonate. Brown et al has reported the largest series of fetal gallstones in 26 patients.[5] Complete resolution of fetal gallstones was observed in most of the cases in literature. Klingensmith et al also reported a similar case of antenatally detected multiple gall stones in fetus at 24 weeks which resolved completely at 6 weeks of age.[6]

Possible factors that could contribute to formation of fetal gall stones are haemolytic anemia, cholestasis, and maternal drug abuse like narcotics or ceftriaxone. Rodríguez Rangel DA et al concluded that ceftriaxone has a probable role in causing pseudolithiasis in children.[2] Ceftriaxone is known to enhance the precipitation of insoluble calcium salts, which is a predisposing factor for cholelithiasis. During pregnancy, the transplacental passage of ceftriaxone could produce the same effect on the fetal gallbladder, inducing gallstone formation. Maternal narcotic use could reduce gastrointestinal activity, increasing gallbladder emptying time and resulting in augmented lithogenicity.[7] Conditions associated with raised maternal estrogen levels (e.g., twin pregnancy) could predispose the patient to fetal gall stones as a result of increased cholesterol secretion and the reduction of biliary acids synthesis which increases lithogenicity. A maternal history of gallstones suggests a possible genetic predisposition to cholelithiasis. Although these predisposing risk factors have been proposed to cause fetal gallstones, none have been conclusively proven.[8]

Fetal gallstones are usually observed in third trimester although gall bladder in fetus can be visualized from second trimester.[3] It is visualized on Ultrasonography as an elliptical echogenic structure noted on right side of the intrahepatic umbilical vein below the right lobe of the liver.

Fetal gall stones may have different presentations under USG. Echogenicity, homogeneity, and degrees of acoustic shadowing may vary greatly from one case to another. This wide range of possibilities may make the diagnosis difficult. Mc Namra et al mentioned that if any echogenic foci is noted in gall bladder of fetus which has an acoustic shadowing one must remember that this could be fetal gall stones, but at the same time do not miss to rule out other probably more serious pathological conditions like liver calcifications, calcified liver masses and meconium peritonitis.[9] These may be related to a

high degree of morbidity and mortality.[9,10,12] In special situations, such as when the gallbladder is contracted, differentiation between them may prove to be very difficult.[10]

Calcifications in the fetal liver are a relatively more common finding. The site, size and distribution of the lesions are major factors in determining further management. Punctate echogenic lesions on the liver surface usually represent peritoneal calcifications most commonly seen in meconium peritonitis. Liver calcifications can be single or multiple, which can be seen in TORCH infections. Calcified liver masses can be malignant lesions like hepatoblastoma or metastatic neuroblastoma.[11]

In meconium peritonitis scattered calcification are seen throughout the peritoneum. The calcification may be seen lining the liver but sometimes only a focal calcification with shadowing can also be seen.[11]

The prognosis of isolated fetal gallstones is excellent and does not alter obstetrical management.[4] Troyano-Luque J et al mentioned in his case report that many gallstones resolve spontaneously in-utero, soon after birth or within 6 months and persistence of gall stones after 1 year results in cholelithiasis in childhood and beyond.[12] Two hypotheses have been proposed for the disappearance of fetal gallstones-(a) spontaneous passage of gallstones during early neonatal period; or (b) dilution of cholesterol crystals with postnatal hydration. Rarely they may persist even after 6 months of age and may require treatment with Ursodeoxycholic acid. Dose for the same is 5-7 mg/kg body weight per day.

Rarely, it might result in persistent cholelithiasis which might require surgical management in the form of laparoscopic or open cholecystectomy depending on vitals of baby and skills of surgeon.

CONCLUSION

The prognosis of isolated fetal gallstones is excellent and does not alters obstetrical management. Complete resolution is seen in most of the cases in late third trimester or neonatal period, but one should be familiar with the range of appearance of fetal gallstones in order to avoid confusing them with potentially more serious pathological conditions like liver calcification, calcified liver masses and meconium peritonitis.

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