Prenatal sonographic diagnosis of meconium peritonitis from duodenal atresia

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DESCRIPTION

A primigravid woman aged 29 years presented for the first time to our antenatal clinic for routine check-up at 34 weeks of pregnancy. She denied any symptoms. Medical, surgical, social and family histories were reviewed and were unremarkable. Prior scans and prenatal workup from 7 to 15, and 24 weeks were reviewed and were normal. Physical examination revealed a fundal height consistent with 34 weeks of pregnancy. Abdominal ultrasound scan detected 25.3 mm bowel dilation consistent with duodenal atresia, and ascites (figures 1 and 2). The fetus was diagnosed to have grade II meconium peritonitis secondary to duodenal atresia. Biophysical profile was performed on admission was 3. The decision for emergency caesarean section was made.

The infant was delivered and had an APGAR score of 3. There were no apparent congenital anomalies. Cardiac abnormalities were ruled out by a 2D echocardiogram which was normal. An emergent laparotomy was performed and dilated necrotic bowel with a 0.5 cm perforation in the anterior aspect of the jejunum with spillage of bowel contents was observed. Resection of 5 cm of dilated and necrotic bowel, enterostomy placement and peritoneal drain placement was performed. The infant was transferred to the neonatal intensive care unit, extubated and weaned off haemodynamic support within 5 days postoperatively. Enteral feeds were started at 7 postoperative days. The remaining hospital course was uneventful, and the infant was discharged from the hospital at 20 days of life. The enterostomy was closed at the 6th postoperative week. The infant was followed at 3 months and was found to be normal and asymptomatic.

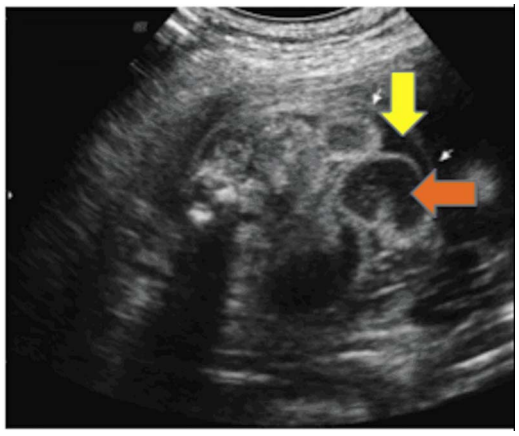

Figure 1 Double bubble sign signifying the bowel dilation of duodenal atresia (orange arrow). Ascites is also visible (yellow arrow).

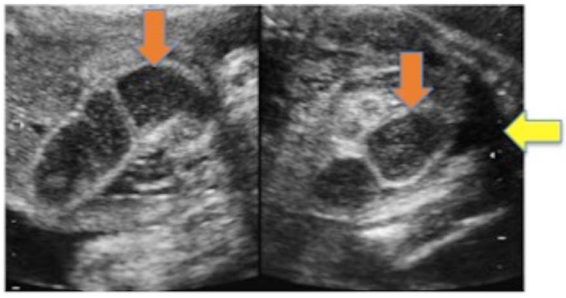

Figure 2 Bowel dilation (orange arrow) and ascites (yellow arrow) are present in this image. Hyperlucent intra-abdominal calcifications are also present around the bowel.

Meconium peritonitis is a sterile chemical inflammation of the peritoneum from intestinal perforation in utero. This occurs in 1:30 000 births with reported mortality of over 80%.[1] Risk factors for meconium peritonitis include viral infections, gastrointestinal malformation causing bowel or biliary atresia, haemochromatosis and rarely cystic fibrosis.[2] Zangheri *et al*[3] created a classification system based on third trimester sonographic findings, which were related to perinatal outcome:

Grade 0: intra-abdominal calcifications (IAC) alone
Grade I: IAC and one of the following: ascites, pseudocyst or bowel dilation
Grade II: IAC and two of the following ascites, pseudocyst or bowel dilation
Grade III: IAC+ascites+pseudocyst+bowel dilation

Saleh *et al*[2] (N=14) found that fetuses with a grade >1 had the highest probability for requiring urgent neonatal surgery. Management of meconium peritonitis is based on prenatal diagnosis. The parents should be given prenatal counselling for

Learning points

- Meconium peritonitis is a rare condition with heterogeneous aetiologies, including viral infections, gastrointestinal malformation causing bowel or biliary atresia, haemochromatosis and rarely cystic fibrosis.
- Prenatal ultrasound scan findings of meconium peritonitis are predictive of neonatal outcomes.
- Physicians should always maintain a high index of suspicion when presented with unusual ultrasound scan findings and counsel the parents on the importance of continued care to prevent neonatal morbidity and mortality from meconium peritonitis.

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understanding the importance of neonatal outcome. The patient should be transferred to a tertiary care centre with multidisciplinary care team, including an obstetrician, a neonatologist and a paediatric surgeon.[2 3]

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Patient consent Obtained.

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