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A Case of Giant Cystic Meconium Peritonitis - Treatable Cause of Non - Immune Fetal Hydrops

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Abstract: ***Meconium peritonitis is defined as an aseptic localised or generalised chemical peritonitis which results from perforation of the gut in utero with reported incidence of 1 in 35, 000 live births[1]. It is one of the rare and treatable cause of non - immune fetal hydrops. A 28 - year G2A1 at 30 weeks 3days of gestation with non - immune fetal hydrops due to fetal meconium peritonitis. She was managed by multidisciplinary team of Obstetrician, Neonatologist and paediatric surgeon. She had spontaneous labour at 34 weeks 4 day and had a preterm delivery of female baby of birth weight 3.3 kg. Immediate intubation was done in view of respiratory distress. Exploratory laparotomy done on day 3, Intra operative findings consisted of a giant meconium cyst of 10x10 cm containing approximately 200 ml of thick there was also terminal ileal perforation which was brought out as loop stoma. Postoperatively baby was extubated. Postoperative recovery was uneventful and discharged at term equivalent postmenstrual age. Prenatal diagnosis is crucial as it helps in timing the delivery and planning for postnatal management hence improving the neonatal outcome in fetal meconium peritonitis causing non - immune hydrops.***

Keywords: Non - immune hydrops (NIHF), Fetal ascites and meconium Peritonitis

1. Introduction

The Prevalence of non - immune hydrops (NIHF) is 3 out of 10, 000 births[1]. It is associated with a high perinatal mortality rate of 50–98% and even after extensive investigations, the cause of non - immune hydrops remains unknown in 15–25% of them[1]. Some of the etiologies FOR NIHF can be treated with good outcome and one of them meconium peritonitis. It is defined as an aseptic localised or generalised chemical peritonitis which results from perforation of the gut in utero with reported incidence of 1 in 35, 000 live births[1]. It is rare case which causes antenatal fetal hydrops. Although, no definitive reason is found in half of the cases, possible causes include bowel perforation as a result of obstruction such as intestinal atresia, meconium plugs, volvulus, internal hernia, mesenteric ischemia, Hirschsprung's disease, torsion of a fallopian tube cyst, and cystic fibrosis[2]. Meconium is clearly a strong pro - inflammatory mediator which results in production of fluid (ascites), fibrosis, calcification, and sometimes cyst formation due to inflammatory reaction. It can be classified into 3 types as follows: generalised, cystic, and fibro adhesive types. Surgery is imperative when signs and symptoms of intestinal obstruction are present. With better of neonatal care facilities, we have better outcome of meconium peritonitis. Favourable results have been seen when the condition was detected in utero rather than a neonatal diagnosis.

2. Case Report

A 28 - year lady G2A1 was referred to TRIHMS at 30 weeks 3days of gestation with Ultrasound report suggestive of isolated fetal ascites. Repeat scan in our institute was done which showed pericardial and pleural effusion, Hence was diagnosed with Fetal hydrops. Couple had Rh compatible blood group, ruling out the possibility of immune fetal hydrops due to Rh incompatibility. First trimester aneuploidy screen was indicative of low risk. Second trimester targeted imaging for fetal anomalies were normal. Indirect coombs test was negative. No history suggestive of congenital anomalies in family. TORCH infection screening was done which was Negative. Doppler for middle cerebral artery peak systolic velocity was done, which was <1.5 multiples of median hence to rules out the probability of severe fetal anemia. Fetal echocardiogram was done, which showed structurally normal heart with mild pericardial effusion. Injection Betamethasone was given for lung maturity of the fetus, repeat ultrasound was done after 3 days which showed moderate fetal ascites, with echogenic bowel loops floating within it, also some area of calcification in the bowel loops were seen, there was also associated polyhydramnios. Hence, Meconium Peritonitis was the probable diagnosis. Multidisciplinary team consisting of Obstetrician, Neonatologist and pediatric surgeons was formed, fetal prognosis and further management was discussed. She was planned for conservative management with an aim to prolong the pregnancy till 37 weeks. But she went into spontaneous labour at 34 weeks 4 and delivered a preterm female baby of birth weight 3.3 kg. Immediate intubation was done in view of respiratory distress and shifted to neonatal unit. the baby had ascites and there was no external congenital anomalies noted on head to toe neonatal examination. Placental examination revealed no abnormality and was 530 grams on weighing. Placental tissue was sent for histopathological examination. Umbilical cord blood sent for chromosomal analysis which was reported normal.

Ultrasound of the neonate was done which showed a giant cyst consisting of echogenic material, compressing the inferior vena cava with moderate ascites. X - ray abdomen revealed intra - abdominal calcification in some area. Exploratory laparotomy was performed on day three of life. Intra operative findings consisted of a giant meconium cyst of 10x10 cm containing approximately 200 ml of thick meconium, which was drained out, there was also terminal ileal perforation which was brought out as loop stoma. Postoperatively baby was extubated on post - operative day3 and was maintaining saturation with oxygen by nasal prongs. On postoperative day 6 Ileostomy started - functioning. Low volume enteral Feeds were initiated with gradual advancement by seven days of life. Postoperative recovery was uneventful and discharged at term equivalent

postmenstrual age with nasogastric tube feeding. Ileostomy closure was planned at fifth month follow up.

3. Discussion

NIHF accounts for almost 90% cases of fetal hydrops as immune hydrops has reduced drastically due to universal use of monoprophylaxis for Rh incompatible pregnancy[3]. Meconium peritonitis has been reported as one of the treatable etiologies of NIHF. With advances in fetal imaging meconium peritonitis are being diagnosed prenatally hence having better prognosis and outcome. Most common ultrasound finding is isolated fetal ascites, other presentations include dilated bowel loops, calcification, echogenic bowel and polyhydramnios. Spillage of meconium constituents secondary to in utero bowel perforation has been shown to activate immune cells including macrophages which lead to intense inflammatory reaction there is formation of a dense, adherent membrane that practically seals off the intestine at the site of perforation. However, if the sealing is incomplete, a thick - walled cystic space is formed, and meconium will continuously keep collecting in this cystic pocket. Etiologies which can cause of small bowel ischemia or associated mechanical obstruction such as intestinal atresia, intussusception, congenital bands, volvulus, and meconium plug syndrome may result in the genesis of meconium peritonitis[3].

Image 1: showing at birth and post - operative day 6 of surgery

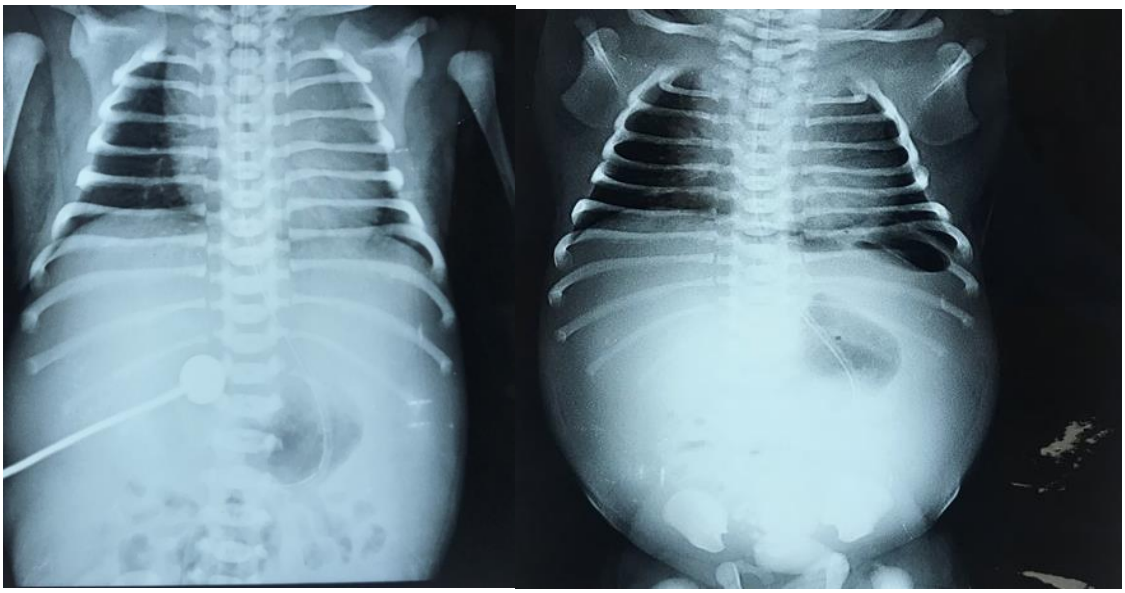

Image 2: X - Ray whole Abdomen showing few calcific changes

4. Conclusion

Fetal Ultrasound finding of ascites with intraperitoneal calcification, and echogenic bowel should raise a high suspicion of Meconium peritonitis. Early diagnosis during prenatal period in case of fetal meconium peritonitis is crucial as it helps in timing the delivery. Timing of delivery should rely on composite decision of gynaecologists, neonatologists, and neonatal paediatric surgeons. Delivery should be planned in tertiary care center with neonatal care facilities and paediatric surgeons with expertise in surgical intervention which can lead to improve neonatal outcomes.

References

[1] Steurer MA, Peyvandi S, Baer RJ, MacKenzie T, Li BC, Norton ME, et al. Epidemiology of live born infants with nonimmune hydrops fetalis - insights from a population - based dataset. *J Pediatr.*2017; 187: 182–188. e3. [PubMed] [Google Scholar]

[2] Wang CN, Chang SD, Chao AS, Wang TH, Tseng LH, Chang YL. Meconium peritonitis *in utero* - The value of prenatal diagnosis in determining neonatal outcome Taiwan J Obstet Gynecol.2008; 47: 391–6

[3] Tsai MH, Chu SM, Lien R, Huan HR, Luo CC. Clinical manifestations in infants with symptomatic meconium peritonitis. *Pediatr Neonatol.*2009; 50: 59–64. [PubMed] [Google Scholar]