Resuscitation begins before birth: Resuscitative fetal thoracocentesis to save a newborn

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ABSTRACT

Introduction: This procedure was initiated moments before delivery to decompress a massive fetal pleural effusion, causing cardiac compromise. By intervening while the fetus was still within the uterus, we initiated resuscitation prior to birth, buying vital time and improving postnatal outcomes. This case series underscores the evolving role of in utero resuscitative strategies at the intersection of fetal therapy and neonatal critical care. **Case Description:** We are presenting two cases in our unit which require such intervention to improve neonatal resuscitation upon delivery. The diagnostic steps, real-time decision-making, and the procedural technique offer a unique insight into this high-stakes clinical scenario. Case 1 was a 34-year-old Gravida 5 Para 4 @ 35 weeks who was referred to our MFM unit for Hydrop Fetalis & polyhydraminos. Assessment of fetal Dopplers was normal, non-suggestive of fetal anaemia. TORCHES panel sent was normal. There was gross hydrops with bilateral pleural effusion. Patient was subsequently observed in the ward, and surveillance with advanced dopplers and cardiotocographs was performed to evaluate fetal wellbeing. At 37 weeks, the pleural effusion was increasing in nature, compressing the fetal heart, causing low-output cardiac failure. Bilateral Fetal Thoracentesis and amnioreduction were performed in the same setting. The baby was delivered with AS 3, 7, intubated with good ventilation. Neonatal assessment showed the baby had Congenital Nephrotic Syndrome. Case 2 was a 34-year-old gravida 4 para 2+1 @ 32 weeks who was referred to us for hydrops fetalis with polyhydramnios. On assessment, it was a grossly normal fetus with normal advanced Dopplers, which was not suggestive of fetal anaemia. Maternal history did not suggest an immune hydrops. TORCHES panel was negative, and chromosomal microarray was performed to rule out a genetic cause, which was negative for copy number variants. The first amnioreduction and fetal thoracocentesis were performed at 32 weeks to reduce the risk of low-output cardiac failure in view of fluid compression on the fetal heart. This fluid was sent for specific gravity and triglycerides, which were negative. Within a week, there was a rapid accumulation of the thoracic fluid, thus again causing low-output cardiac failure in the fetus, Thus, a decision to perform bilateral fetal thoracocentesis and amnioreduction was done. The patient was given antenatal steroids to assist fetal lung maturation. subsequently, a caesarean section was performed, and the baby was born vigorous with AS 4, 7, and subsequently intubated. **Discussion:** Fetal thoracocentesis gives the neonatal team previous time to to resuscitative the fetus by removing the fluid antenatally, the lungs are allowed to re-expand, improving compliance and readiness for postnatal ventilation, drainage relieves this shift, optimising cardiac function at birth and improving systemic circulation—essential for neonatal resuscitation, by decompressing the chest, thoracocentesis enhances mechanical ventilation efficacy, reducing the risk of barotrauma & avoiding emergent needle drainage in the delivery room reduces delay in resuscitation, risk of pneumothorax, and procedural complications, thus resulting in better Apgar score at birth due to improved oxygenation. **Discussion:** Fetal thoracocentesis is a valuable intervention for managing severe pleural effusions, particularly in cases complicated by hydrops fetalis. While the procedure carries risks, including potential reaccumulation of fluid and the need for multiple interventions, the overall prognosis with appropriate postnatal care is favourable. Neonatal management often involves respiratory support, chest drainage, and pharmacological therapies. Early diagnosis and timely intervention are crucial for optimising outcomes.