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Background: Thoracoamniotic shunting of fetal pleural effusions for Congenital Cystic Adenomatoid Malformation or Congenital Pulmonary Airway Malformation (CPAM) has become the treatment of choice in symptomatic fetal hydrothorax identified before 32 weeks of gestation(1). Persistent pleural effusion can lead to impaired lung development, pulmonary hypoplasia, and fatal caval compression. Infrequently, more than one shunt may be necessary to relieve the pleural effusion to allow lung expansion. Complications such as shunt displacement and/or migration can occur.

Case: We report a case of multiple thoracoamniotic shunt placements in a fetus first identified with CPAM involving the entire left chest with significant mediastinal shift and left lung mass in a 22 week ultrasound. An initial shunt was placed with subsequent migration into the left chest. Repeat shunts were placed at 24 weeks with hydrops resolution. At 34 and 4/7 weeks gestation an EXIT procedure was performed. CPAM resection and lobectomy of left lower lobe followed. The infant's hypoplastic left lung led to bilateral pneumothoraces and ECMO cannulation. At birth, initial radiologic imaging of the abdomen revealed coiled catheter tubing projecting over the left upper quadrant. It was identified as a residual thoracoamniotic shunt (Figure 1) incompletely visualized within the liver parenchyma. The patient was asymptomatic and was electively scheduled for laparoscopic removal of foreign body at 3 months of age. Anesthetic management involved general anesthesia with endotracheal intubation, standard ASA monitors and 2 peripheral IVs. The shunt was externalized and removed without disruption of the hepatic parenchyma. There was no bleeding from the liver or the falciform ligament.

Discussion: Anesthetic management of an intrahepatic foreign body is influenced by surgical approach, degree of intraparenchymal involvement, vascularity, liver pathology, and surgeon expectation. Invasive monitoring, fluid warming, and blood replacement may be required. The literature is robust regarding anesthetic management of liver transplantation, diseased liver states, and the removal of ingested or inhaled foreign bodies; there are minimal reports on the anesthetic considerations for intrahepatic foreign bodies. Fewer than 40 cases have been reported in English literature during the past 40 years with less than 10 in the pediatric population(2). This case highlights the rarity of a retained thoracoamniotic shunt and its migration into hepatic parenchyma. Having an anesthetic team with experience in vascular cases and liver surgery may prove beneficial given potential complications and damage to hepatic or biliary structures upon extraction of the foreign body(3).

References:

1. Wilson, RD et al. *Fetal Diagnosis & Therapy* 2005;19:413-20
2. Dominguez et al. *J. Pediatr Surg* 2009; 44:e17-20
3. Xu et al. *Pediatr Emerg Care* 2013;1013-5

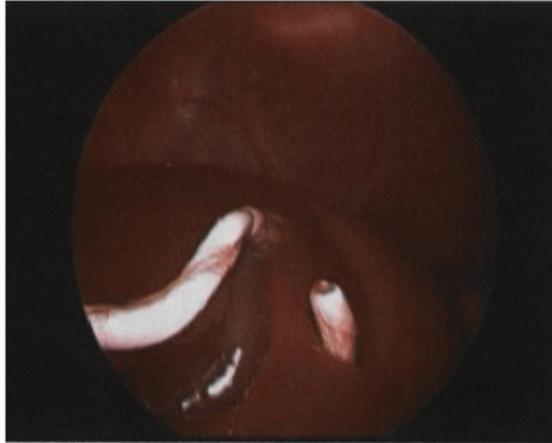


Figure 1. Laparoscopic camera image of retained thoracoamniotic shunt embedded in hepatic parenchymal tissue prior to removal.
