

Gastroschisis: To cut or not to cut?

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Abstract

PURPOSE: To present a rare case of gastroschisis with bowel adherent to the placenta that resulted in the loss of the majority of the infant's large bowel. The goal is to provide insight into possible limitations of antenatal imaging in predicting outcome and prognosis as well as to further guide counseling and set expectations for patients.

CASE REPORT: A 29 yo G2P1001 was transferred to our MFM service after being diagnosed with fetal gastroschisis. Routine antenatal surveillance was performed including antenatal testing and growth ultrasounds. The fetus was noted to have no additional complications due to gastroschisis and was normally grown. The patient had a low risk NIPT and elevated MSAFP. Delivery was planned for 37 weeks per routine obstetric protocol.

Patient presented to the labor and delivery unit at 35w2d with painful contractions and evident preterm labor. She received a single dose of betamethasone prior to delivery. The MFM and neonatology team were present for imminent delivery. The fetal head was delivered without complication. The fetus's body delivered except for a thin loop of bowel that failed to deliver and remained attached to both the infant with the remainder of the bowel remaining in utero. Loops of small bowel were also seen to be exteriorized from the gastroschisis defect. The thin loop of bowel that remained in utero was attempted to be delivered with manual extraction and maternal expulsive efforts that were both unsuccessful. Placental delivery was also attempted without success. At this time, pediatric surgery was called to the bedside, and due to oxygen desaturation and concerns for poor perfusion, the infant was intubated and given a normal saline bolus. Upon arrival of pediatric surgery, the bowel was clamped and resected. The neonate was taken immediately to the NICU and then to the operating room for exploratory laparotomy.

The placenta was unable to be manually extracted in the delivery room and the patient was taken to the operating room for dilation and curettage. The patient was given IV Nitroglycerin and Terbutaline for uterine relaxation. The first manual extraction delivered the fetus's large bowel and portions of the small bowel with placental delivery upon secondary uterine sweep. Upon delivery of the fetal bowel, it was noted that about 100 cm of bowel had been attached to the posterior segment of the placenta.

The infant underwent an exploratory laparotomy which demonstrated a matted bowel, 20cm segment of ischemic intestine with only the seromuscular and mucosal layers. The serosal layer was thought to be adherent to the placenta. The nonviable bowel was resected. Due to the degree of inflammation, the two ends of the bowel were tied and placed into the abdominal cavity. The umbilical stalk was used to temporarily close the abdominal defect.

Postoperatively, the infant advanced from conventional ventilation to high frequency oscillation secondary to fluid shifts and generalized inflammation. He received one dose of surfactant and was successfully extubated to unassisted room air on postoperative day 4. Further surgical intervention was delayed until 6 weeks of age due to significant matting and inflammation of the bowel. The patient remained on total parenteral nutrition with adequate growth. Given the patient's prematurity and initial metabolic and respiratory acidosis, a cranial ultrasound was performed which revealed a grade 2 intraventricular

hemorrhage. Periventricular white matter injury was seen in subsequent ultrasounds. Developmentally, the patient was active and maintained neurologic progression in the newborn period.

DISCUSSION: Gastroschisis is seen in 1 in 1,800 newborns every year. In general, infants with gastroschisis are delivered vaginally, with a cesarean section reserved for obstetric indications.

Complications associated with gastroschisis are often seen in relation to inflammation and feeding issues in the postnatal course. We share an exceedingly rare case of an infant with adherent bowel and subsequent short gut after surgical bowel transection during delivery. This case emphasizes a rare complication of gastroschisis, not visualized on antenatal imaging, which should be counseled to families. While we do not know if this complication could have been prevented with cesarean delivery, this case presents a rare complication with an otherwise uncomplicated gastroschisis pregnancy.