A rare case of fetal hyperechogenic bowel and perforations in an early onset severely intrauterine growth restricted fetus with abnormal flow studies

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Background:
Intrauterine growth restriction (IUGR) is a common fetal condition that can be caused by various conditions. Echogenic bowel is independently and significantly associated with IUGR and FDIU[1]. Intrauterine bowel perforations have been reported to be caused by intestinal atresia and gastrochisis[2]. However, intrauterine bowel perforation in a gastrointestinal anatomically normal fetus is uncommon and case reports were scarce in the literature.

Case:
At initial referral for early onset IUGR and echogenic bowels at 25+0 weeks, fetus had a sonographically normal anatomy, high UAPI, low MCAPI, normal MCAPSV, and forward flow in ductus venosus. Amniocentesis and TORCH screen were negative. At 27+0 weeks, bowel loops were first found to be dilated to rectum, maximum at 10mm. At 27+4 weeks, doppler studies persisted as abnormal with new deepening a waves in ductus venosus, and corticosteroids was administered. At 28+2 weeks, the scan features suggested a bowel perforation with small ascites. Two days later, doppler studies continued to deteriorate and the decision for delivery was made at 28+4 weeks.

A 900g male fetus was delivered by Classical Caesarean section with APGARS 8[1] and 9[5]. On Day 2 of life, abdomen Xray revealed a perforation at distal ileum proximal to caecum, hence was surgically repaired with a loop ileostomy. On day 5 of life, the proximal jejunum has also perforated requiring a second surgical repair. Cystic fibrosis screen was negative, and rectal biopsy was collected and pending at time of writing.

The placental histopathology showed an infarcted placenta with ischemic changes, and a hypercoiled (6 coils) umbilical cord. Microbiology culture was negative.

Discussion:
Intrauterine bowel perforations is uncommon. This case did not present typically in necrotizing enterocolitis as the infant was breastfeeding well and has been haemodynamically stable since birth. Spontaneous intestinal perforation typically presents after birth at a mean age of 7 days with a bluish discoloration of the abdomen[3], which is absent in this case. It was hypothesized that the redistribution of blood flow to vital organs in severe IUGR has caused a significant reduction in blood supply to the bowels that has eventually led to the perforations in utero. Bowel perforation in preterm fetus can be a life-threatening condition associated with a high mortality[4]. Regardless of the aetiology, intrauterine bowel perforation is life threatening, and should always be considered as a possible complication in IUGR fetuses.

References:
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