

Late onset small bowel obstruction post Gastroschisis

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Abstract

Presentation

A 28-year-old male presented with a five-day history of gradually worsening abdominal pain associated with vomiting, constipation and abdominal distention, on a background of Gastroschisis as a newborn.

Diagnosis

CT abdomen pelvis demonstrated complex small bowel obstruction with two transition points in the proximal jejunum and ileum, with suspected intestinal malrotation.

Treatment

An emergency midline laparotomy was performed with extensive adhesiolysis, small bowel resection, and formation of a loop jejunostomy. Long-term at home total parenteral nutrition was initiated whilst awaiting stoma reversal. The loop jejunostomy was successfully reversed three months post-operatively.

Discussion

Gastroschisis predisposes to bowel obstruction with the majority happening within one year after repair. Improved survival rates have led to a need for longitudinal data on long-term prognosis and complications. This case report details a late presentation of complex small bowel obstruction post gastroschisis, its complications and management.

Introduction

Gastroschisis is a congenital malformation characterized by visceral herniation usually through a right sided abdominal wall defect to an intact umbilical cord and not covered by a membrane¹. Outcomes have greatly improved for newborns with Gastroschisis over the past decades with survival rates shown to be above 90%². Bowel obstruction is estimated to occur in approximately 25% of patients with ~85% of cases occurring within the first year³. Follow-up in most studies is limited to childhood years.

Abdominal surgical intervention is a well-known risk factor for small bowel obstruction as it predisposes to the formation of adhesions. There are generally two treatment options for Gastroschisis: primary or delayed closure. Primary involves the surgical repair of the defect soon after birth by reduction of bowel loops and closure of the defect with or without the use of a mesh. Delayed typically involves the use of a pre-formed silo and gradual reduction of bowel loops⁴.

The case of a late-onset severe small bowel obstruction 28-years post Gastroschisis is herein described.

Case Report

A 28-year-old male presented to the emergency department with a five-day history of gradually worsening abdominal pain associated with vomiting, absolute constipation and abdominal distention, on a background of Gastroschisis as a newborn. He underwent an uncomplicated open repair of his abdominal wall defect without mesh as a neonate. The patient had presented with a similar episode of central abdominal pain four years previously which was managed conservatively and responded well.

On examination, the patient was alert and vitally stable. His abdomen was distended with diffuse tenderness and hyper-resonance. There was no evidence of ventral or inguinal herniae. Lactate was elevated at 3.1 mmol/L, reducing to 1.8 mmol/L after wide bore nasogastric (NG) tube insertion and intravenous fluid resuscitation.

Contrast-enhanced CT abdomen-pelvis demonstrated small bowel obstruction with a transition point at the distal jejunum/proximal ileum, along with unusual interdigitation of the adjacent small bowel loops in the central mid abdomen, and evidence of developmental partial intestinal malrotation as seen in figures 1 and 2.



Figure 1: Coronal CT slice: showing distended small bowel loops.



Figure 2: Axial CT slice: showing distended small bowel loops with air-fluid level.

The patient was transferred to theatre for an exploratory laparotomy. Intra-operative findings revealed extensive midline and pelvic adhesions, with co-existing small bowel malrotation. A 20-30cm segment of severely adherent mid-jejunum with multiple interloop fistulae was identified as the point of obstruction. Substantial adhesiolysis was performed to restore normal anatomy. A proximal jejunal double-barrel stoma was fashioned in the right upper quadrant, ~45cm from the duodenojejunal flexure.

The patient was managed in the intensive care unit, with multidisciplinary input from dietetics, physiotherapy and microbiology.

NG tube output dropped to <50mls by day 2 and was spigotted on day 3. On day 6 post-operatively the patient became acutely unwell reporting increased epigastric pain. CT-abdomen-pelvis identified an organizing gas/fluid collection up to 7.5cm in the right flank along with a smaller collection inferior to the laparotomy site. Central line cultures returned positive, and the patient was switched to IV Vancomycin and Tazocin. Ultrasound guided aspiration of the fluid collections was performed. The central line was removed and a peripherally inserted central catheter (PICC) placed.

Despite aggressive fluid restriction, electrolyte replacement and commencement of Loperamide up to 16mg QDS, the patient's stoma output remained above 2L/day. The patient was discharged on home TPN 56 days after having presented to the emergency department. Over the next 5 weeks they returned to the hospital weekly to receive an IV potassium infusion due to ongoing hypokalemia of 2-5-3.0 mmol/L related to TPN.

Three months post-operatively, the patient was electively admitted to undergo reversal of his jejunostomy. This was an uncomplicated procedure, and the patient recovered well. He was discharged after two weeks then followed up in the outpatient clinic six-weeks later and continues to improve.

Discussion

This report showcases the severe complications that can arise from Gastroschisis in relatively young patients who are predisposed to bowel obstruction. This case was technically challenging due to the unusual intra-abdominal anatomy associated with the intestinal malrotation and severe adhesions resulting from Gastroschisis. It highlights the need for increased clinical suspicion and awareness of the severity of obstructions that can arise in patients with a background of Gastroschisis.

The prevalence of Gastroschisis is increasing globally⁵. A large retrospective analysis of 24 countries between 1980-2017 found Gastroschisis prevalence increased in 61% of countries, for reasons largely unknown, however an association with younger maternal age was observed in most cases⁶. Overall, it was found that Gastroschisis occurred in 1 in 3,268 live

births. Due to the improving prognosis at birth for Gastroschisis patients it is likely there will be an increase in the number of patients with Gastroschisis living till older ages and presenting with sequelae of the condition such as the patient in this case report. There is a paucity in the literature on outcomes post Gastroschisis after childhood due to an estimated ~85% of bowel obstructions occurring within the first year of life³. There is however a definite need for longer term follow up studies to quantify the incidence and specific presentations of sequela such as bowel obstruction in long-term survivors of Gastroschisis.

Declarations of Conflicts of Interest:

None declared.

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