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Case report

Postoperative intussusception after congenital diaphragmatic hernia repair: A report of 2 cases

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A postoperative intestinal intussusception is one of complications after abdominal surgery. However current evidence of intussusception after congenital diaphragmatic repair still received little attention. There are few publications mentioned about cause of intussusception. Previous literature reported possible cause from atony of the herniated bowel that could be a functional leading point of intussusception. In our institute, 2 patients developed postoperative intussusception after CDH repair. We reported case of a 12-day-old male newborn presented with history of respiratory distress in newborn. He was diagnosed as congenital diaphragmatic hernia with pulmonary hypertension. The chest X-ray showed the presence of bowel loop in the left hemithorax. After congenital diaphragmatic hernia repair, this patient develops intestinal obstruction symptoms. The explorative laparotomy emergency evidenced a jejuno-jejunal intussusception. And we reported case of a 7-month-old female with history of respiratory distress in newborn. She was scheduled for diaphragmatic hernia repair. The chest X-ray showed the presence of large soft tissue density at the posterior aspect of the left hemithorax. She early came to OPD due to many episodes of non-bilious vomiting and abdominal distension. There was suspected clinical of gastric volvulus. Explorative laparotomy emergency was carried out. Congenital diaphragmatic hernia repair with anterior gastropexy was performed. On the seventh postoperative day, this patient develops intestinal obstruction symptoms. The second explorative laparotomy emergency evidenced a jejunoileal intussusception. Our report concerned about cause of post congenital diaphragmatic hernia repair with intestinal obstruction. A postoperative intussusception in congenital diaphragmatic hernia repair should be concerned. However, further studies are needed to elucidate the causes of postoperative intussusception.

Keywords: Congenital diaphragmatic hernia, postoperative intussusception.

Postoperative intussusception is one of complications after abdominal surgery. However, current evidence of intussusception after congenital diaphragmatic hernia (CDH) repair still received little attention. It has been previously proposed that atony of the herniated small bowel could be a possible cause via acting as a functional leading point of intussusception.[1] In our institute, 2 patients developed postoperative intussusception after CDH repair.

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Case report

Case 1: A 12-day-old male newborn was born to healthy Thai primigravida via normal labor at 38 weeks of gestation. His birth weight was 3,150 grams. A fetal prenatal ultrasound was reported congenital diaphragmatic hernia at 30 weeks or more of gestation (LHR 1.66 O/E LHR 34.6). After birth he presented with history of respiratory distress in newborn. He was diagnosed as CDH with pulmonary hypertension. Chest X - ray showed the presence of bowel loop in the left hemithorax (Figure 1).

CDH repair was indicated after resolved pulmonary hypertension. Operative findings revealed left posterolateral CDH. Surgical procedures included transabdominal CDH primary repair without mesh or graft. After CDH repair, the patient was doing well. Until on the 12th postoperative day, the patient developed sudden small bowel obstruction.

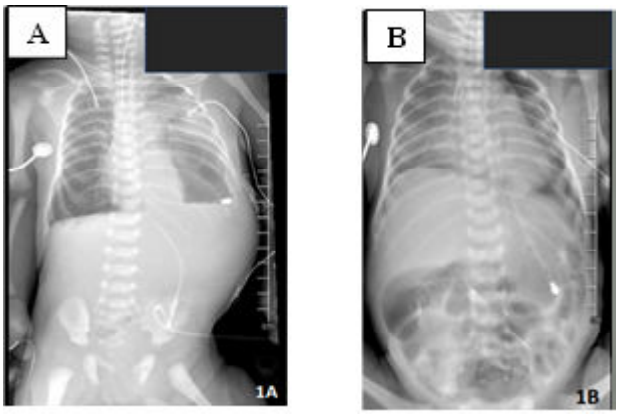

Figure 1. **(A)** Chest X-ray with the presence of bowel loop in the left hemithorax; **(B)** Plain abdomen X-ray with dilatation of small bowel loop.

Conservative treatment was tried without success in 3 days. Therefore, an emergency exploratory laparotomy was carried out. Operative findings demonstrated a jejuno-jejunal intussusception without any pathologic lead point. Manual reduction was done. After that post-operative course was uneventful. Follow-up at one month, the patient was active and well.

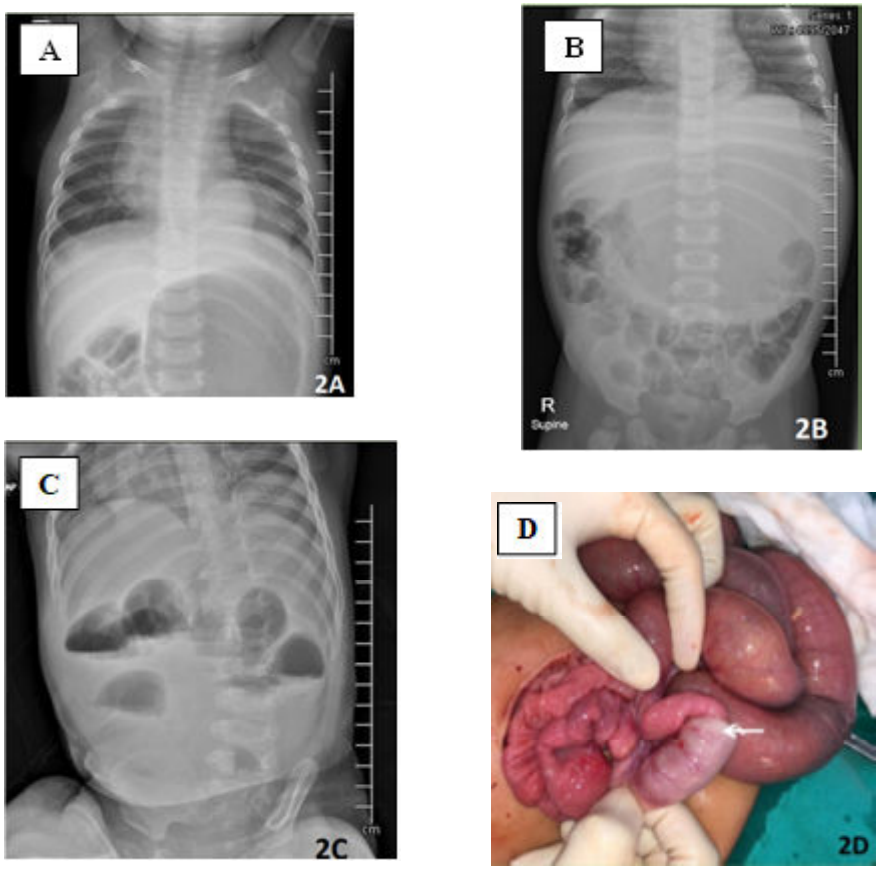

Figure 2. **(A)** Chest X-ray with the presence of soft tissue density at the posterior aspect of the left Hemithorax; **(B)** Plain abdomen X-ray with marked dilatation of stomach; **(C)** Plain abdomen X-ray with gut obstruction; and **(D)** Jejunoileal intussusception (arrow).

Case 2: A 7-month-old female was born at others hospital with history of a term labor at 38 weeks of gestation. Her birth weight was 3,350 grams. After birth she was presented with clinical of dyspnea and abnormal homogeneous patchy infiltration at left lower lung on Chest X-ray. She was diagnosed as respiratory distress from postnatal adaptation and suspected left congenital lung cyst. She was appointment for chest Computer Tomography but loss of follow up due to COVID-19 situation. This visit, she came to our institution and presented with several episodes of non-bilious vomiting and abdominal distension. She was treated as Acute Gastroenteritis (AGE) with dehydration at out-patient department but worse clinical of abdominal distension. Chest X-ray showed the presence of large soft tissue density at the posterior aspect of the left hemithorax. The plain abdomen showed marked dilatation of stomach (Figure 2). This prompted her provisional diagnosis as acute gastric volvulus with possible left CDH. Decompression of stomach by inserted nasogastric tube was done. And then emergency exploratory laparotomy was carried out.

Operative findings revealed resolved gastric volvulus and left posterolateral CDH. The contents in left hemithorax consist of small bowel and stomach. Surgical procedures included CDH repair with anterior gastropexy. On the seventh postoperative day, the patient developed sudden onset of small bowel obstruction without improvement. The second emergency laparotomy showed a jejunoileal intussusception with absence of leading point. Manual reduction was done. Post-operative course was uneventful. Follow-up at 3 months after surgery, the patient was very well.

Discussion

Postoperative intussusception is a rare clinical entity that has been described after long intra-abdominal procedure. Abdominal ultrasound is a useful diagnostic tool. Most postoperative intussusceptions are ileo-ileal intussusception and respond to operative reduction without resection

Post-CDH repair intussusception, it has been previously proposed that atony of the herniated small bowel could be a possible cause via acting as a functional leading point of intussusception. [1] Others report suggested that postoperative internal adhesions and abnormal peristalsis during the phase of its reactivation could be a possible mechanism.[2]

While another study revealed that adhesive small bowel obstruction occurs as a life-threatening event after surgical reconstruction of diaphragm, immaturity of immune system in the neonatal period and pulmonary hypertension inherent to CDH may support information of abdominal adhesions in neonates with CDH. [3]

Yokota K, *et al.* reported that neonates who underwent subcostal laparotomy for the CDH repair required re-operation for internal adhesion significantly more often than patients who underwent other laparotomies.[4]

In this study, we found 2 cases of jejuno-jejunal and jejuno-ileal intussusceptions following CDH repair. Both cases successfully underwent operative reduction without resection.

Conclusion

Post-operative intussusception should be one of the differential diagnoses in acute onset of small bowel obstruction following CDH repair. Abdominal ultrasound might be a helpful tool in the diagnosis and management. Further studies are needed to elucidate the causes of intussusception.

Conflict of interest statement

Each of the authors has completed an ICMJE disclosure form. None of the authors declare any potential or actual relationship, activity, or interest related to the content of this article.

Data sharing statement

The present review is based on the reference cited. Further details, opinions, and interpretation are available from the corresponding authors on reasonable request.

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