

## Paediatric Postoperative Intussusception

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### ABSTRACT

Intussusception is one of the common causes of acute abdomen in early childhood, particularly in children younger than two years of age. The majority of cases in children are idiopathic. Pathologic lead points can be identified in only 25 percent of cases. Here, we present a case of 15 months female child with ileoileal postoperative intussusception with an anastomotic margin as a lead point, following resection anastomosis done for patent vitello intestinal duct. Role of high clinical suspicion, investigations and judgement are highlighted in managing the case.

**Keywords:** Anastomosis; ileoileal; postoperative intussusception; patent vitello-intestinal duct.

### INTRODUCTION

Intussusception is a common cause of intestinal obstruction, afflicting one in 2000 infants and children.<sup>1</sup> In the pediatric population, ileocolic intussusception is the most common type.<sup>2</sup> The natural history of intussusception starts with a lead point, mostly neoplastic, which acts as a focal area of traction that draws the proximal bowel within the peristalsing distal bowel.

Detection of a postoperative intussusception (POI) in childhood is challenging. Early onset of symptoms following the primary operation, mostly are confused with adynamic ileus.<sup>3</sup> POI in the newborn is especially rare, and the causes are often unknown except for an appendiceal stump and anastomotic suture line.<sup>4</sup>

### CASE REPORT

A 15 months female child initially presented with mass protruding from the umbilicus region since her birth, which progressively increased in size and was associated with discharge from the umbilicus. After thorough clinical evaluation and investigations with preoperative diagnosis of patent vitello-intestinal duct (PVID), she underwent exploratory laparotomy and wedge resection of the patent duct on June 24, 2018. Her initial post-operative days were uneventful. She was started on liquid to soft diet. however, on fourth postoperative day, she developed progressive abdominal distension and vomiting. Thorough clinical evaluation and investigations were done, patient was kept nil per

oral (NPO), nasogastric (NG) tube was inserted which drained bilious fluids. Her x-ray abdomen pelvis showed features of complete bowel obstruction with dilated ileal loops with multiple air-fluid levels which were increasing on the subsequent days x-rays (Figure 1). On sixth postoperative day ultrasonography (USG) abdomen and pelvis showed dilated bowel loops with gaseous abdomen.

Due to progressive abdominal distension, multiple air fluid levels in x-ray and persistent bilious drainage via NG tube; emergency laparotomy was planned under general anaesthesia (GA) on July 9, 2018.

Intra-operative findings noted were 12 cm x 3 cm of mass formed by ileo-ileal intussusception with anastomosis suture line as a lead point of intussusception, bowel proximal to intussusception were grossly dilated and distal were collapsed (Figure 2 A, B).



Figure 1: X-ray abdomen and pelvis showing multiple air fluid levels and dilated bowel loops with white out distal loops

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Figure 2 A, B. Intraoperative pictures showing anastomotic margins as a lead point.

Her post-operative days were uneventful; feeding was initiated on third postoperative day and patient was discharged on seventh post-operative day with normal oral intake and bowel and bladder habits.

## DISCUSSION

Intussusception is defined as the invagination (telescoping) of one segment of bowel into an immediately adjacent segment. The intussusceptum refers to the proximal segment that invaginates into the distal segment, or the intussusciptens (recipient segment). Intussusception accounts for  $3\pm 10\%$  of cases of postoperative intestinal obstruction during childhood.<sup>5</sup> Despite adhesions, which occur mainly within two years after laparotomy, POI occurs in 90% of all cases within less than 14 days, in 64% as early as the first 7 days after the primary operation.<sup>6,7</sup>

The etiology of POI is unclear and studies done previously has pointed out various possible mechanisms behind it. There are some evidences suggesting that the transient intestinal motility disorders stemming from the edema and perfusion disturbances, which commonly take place after surgical manipulations of the bowel being the likely etiology.<sup>7</sup> Mechanical trauma due to extensive bowel handling, which cause serosal damage and long-term compression of the intestine have also been implicated.<sup>7</sup> Similarly, few have further pointed out to extensive drying of the bowel at the time of operation as a culprit. Although the mentioned factors may play some role in POI, they cannot explain the occurrence of POI after procedures performed at a distance from the abdomen like in cases of head and neck operations and intrathecal chemotherapy used in cancer patients. Hence, anesthesia and analgesia protocols have been anecdotally proposed as potential causes.<sup>8</sup>

Irrespective of peritoneal or abdominal breach, POI can occur after various interventions. However, there is distinct difference in the pathophysiology of the

complications caused by abdominal and nonabdominal procedures, depending upon whether bowel is manipulated or not. POI has been seen in cases where bowel is not disturbed at all.

POI has been identified after retroperitoneal operations like nephroblastoma and head and neck surgery. Neurotoxic effects of chemotherapy (vincristine) and radiation therapy may be the trigger mechanism in case of intrathecal chemotherapy. However, the role of neuro-endocrinologic factors are unknown yet. The surgical procedures for Hirschsprung's disease, neuroblastoma, and Gastroesophageal reflux diseases (GER) are associated with a higher incidence of postoperative intussusception.<sup>9</sup>

## CONCLUSIONS

Detection of POI in early childhood is challenging, Hence, high degree of suspicion and a careful clinical judgement is required in the children having features of intestinal obstructions in postoperative days.

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