

Intussusception Following Blunt Abdominal Trauma in a Child

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Abstract: Intussusception after abdominal trauma is exceedingly uncommon and is rarely reported in the literature. This makes our case of special interest. Intussusception following blunt trauma may be difficult to diagnose. Here we report a patient that presented with central abdominal pain, vomiting and constipation. Abdominal computed tomography scan showed focal telescoping of the small bowel loops at the lower quadrant.

Keywords: Intussusceptions, blunt abdominal trauma

INTRODUCTION

Intussusception is defined as telescoping of one segment of the gastrointestinal tract into an adjacent one. It is a leading cause of intestinal obstruction in children and ranks second only to appendicitis in acute surgical abdominal conditions [1,2] and is idiopathic in 95% of cases[2]. Several cases of intussusception following blunt abdominal trauma in adults have been reported in literature [3-5], but very few were reported in childhood. Herein, we report a case of intussusception following blunt abdominal trauma in a seven-year-old child.

CASE REPORT

A seven-year-old child presented with three days history of a fall from wall of two meter height, complaining of central abdominal pain, which become gradually worse, vomiting of undigested food and constipation. The patient was ill looking, not pale or febrile. Pulse rate of 94/minute, blood pressure 90/70 mmHg, respiratory rate of 30. Facial and upper abdominal bruises were noted. Local clinical examination of the abdomen revealed slight distention with generalized tenderness and guarding. Examination of the other systems was unremarkable. A diagnosis of acute abdomen was made and his preoperative works up, showed the following laboratory findings: haemoglobin 6.5 gram/dl, total leucocyte count $16,400/\text{mm}^3$, random blood sugar 91mg/dl. His renal profile revealed; blood urea 20 mg/dl, serum sodium 128meq/l, serum potassium 3.6 meq/l and serum calcium 9.1 mg/dl. Serum amylase 146 U/L (Reference value <80), Urinary amylase 1804 U/L (Reference value 16-491 U/L). Computed tomography (CT) scan of his abdomen showed focal telescoping of the small bowel loops at the lower quadrant. Normal abdominal organs, free lesser sac and no intraperitoneal

haemorrhage were seen. No para-aortic lymphadenopathy or pleural effusion could be detected. Impression: CT features of intussusceptions (Fig. 1).



Fig. 1: Abdominal CT scan showing ‘target’ appearance of jejuno-jejunal intussusception, “arrow”

The patient was kept on nothing by mouth, intravenous rehydration and antibiotic. After resuscitation laparotomy was done through midline incision. When reviewing the abdominal organs, there is minimal haemoperotenum, contusion of the mesentery at duodeno-jejunal flexure and saponification of the omentum. There is jejuno-jejunal intussusception of 3 cm length, which was managed by manual reduction. After milking the bowel was found to be viable and there was no evidence of other pathologies. The patient runs smooth post-operative course and discharge from the hospital on the fourth post operative day (Fig. 2).



Figure 2: Postoperative photo before discharge with evidence of facial trauma

DISCUSSION

Several theories have been proposed for the mechanism of intussusception; however, an absolute mechanism is unknown. It is known that bowel stimulation causes an area of constriction above the stimulus and an area of relaxation below the stimulus. Alteration of this normal pattern may lead to an invagination. Abnormal peristalsis due to spasms of segmental bowel is likely the main cause. Adrenergic stimulation of sympathetic nerve fibers leads to spasm of the sphincters and spasm of the surrounding bowel loops [6,7]. In turn normal bowel becomes trapped in an adjacent segment of relaxed bowel. As this occurs, the mesentery becomes trapped between these two segments of bowel, resulting in stretching, increased intra-abdominal pressure, vascular compromise, and eventual ischemic necrosis [7]. It is generally believed that masses in the bowel or lumen act as an irritant and provoke abnormal peristaltic movement, which may lead to the telescoping of one bowel segment over the adjacent segment[8]. It is difficult to ascertain, intussusception caused by blunt trauma is thought to be caused by abnormal peristalsis or localized spasm, a sudden deceleration injury, bowel wall edema, and/or bowel wall hematomas. The sustained edema and/or hematoma after blunt abdominal trauma serves as a lead point similar to the pathologic lead points usually described [3,9].

Children with intussusceptions are found to have colicky abdominal pain, vomiting, constipation, sausage shaped abdominal mass with empty right lower abdomen named as the Dance sign and pass red currant jelly like stool due to bowel ischemia and mucosal ulceration [10],and less frequently melena, weight loss, fever and constipation [2, 11]. Physical examination may demonstrate diffuse or localized abdominal tenderness, but is often unremarkable [12].

Laboratory studies may show mild anemia and occult blood in the stool [2].

The CT scan remains the modality of choice for the diagnosis of intussusception [5]. Intussusception can be confidently diagnosed on CT because of its virtually pathognomonic appearance [2], it may show a 'target lesion' with proximal loops of dilated bowel [5]. It appears as a complex soft tissue mass, consisting of the outer intussusciens and the central intussusceptum. There is often an eccentric area of fat density within the mass representing the intussuscepted mesenteric fat, and the mesenteric vessels are often visible within it [2].

Sonography can make the diagnosis of an intussusception when the characteristic sign of a target like lesion or bull's eye lesion is shown, similar to the CT findings [8]. However, the use of ultrasound is unreliable in the setting of obstructive symptoms in which air in the bowel can lead to difficulties in image interpretation[7]. Plain radiographs usually demonstrate a nonspecific bowel obstruction [13].

The type of intervention depends on the patient's medical history and intraoperative findings [11]. Many surgeons believe that all causes of intussusception warrant an immediate laparotomy[5, 13]. Resection is not always required. When there is no other associated abdominal pathology identified during laparotomy, it is believed that manual reduction without resection is adequate [3,13]. Others proposed resection without attempting manual reduction whenever possible [6].

CONCLUSION

Intussusceptions that occur after blunt trauma are usually incidental findings. It should be considered when a child presented with blunt abdominal trauma and subtle onset of intestinal obstruction. CT scan is of diagnostic value. We propose that post-traumatic intussusception be treated on a case-by-case basis.

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