

Paediatric Gangrenous Caecal Volvulus

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Summary

Caecal volvulus though common in adults is rare in children. A 10-year-old boy presented with abdominal pain, distension, vomiting and obstipation of acute onset. An exploratory laparotomy revealed a gangrenous caecal volvulus due to an elongated and mobile right colon. This was treated by a right hemicolectomy and an ileo-

transverse anastomosis. He recovered uneventfully. Caecal volvulus should be considered in cases of intestinal obstruction even in the pediatric age group.

Keywords: Childhood, Caecal Volvulus, intestinal obstruction, laparotomy

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Introduction

Caecal volvulus is an axial twist of the caecum, ascending colon and terminal ileum around a mesenteric pedicle as originally described by Rokitsansky in 1837 (1). Although involvement of colonic caecum in adults represents 20 – 40% of large bowel volvulus, it is so rare in children that its true incidence is unknown (1-4). We report a case of caecal volvulus in a pediatric patient.

Case Report

A ten year old boy presented with a one day history of abdominal pain and distension. The pain was generalized and exacerbated by movement. He gave a history of vomiting that was neither blood stained nor bilious. He was obstipated since the onset of the pain. There was no relevant past medical or surgical history.

He was ill-looking, in obvious pain, mildly dehydrated but had no pallor or lymphadenopathy. His pulse was 96 beats per minute, respiratory rate of 28 breaths per minute, blood pressure of 120/80 mmHg and temperature of 36.7°C.

The abdomen was uniformly distended, tender and rigid. Bowel sounds were present albeit diminished. Rectal examination revealed an empty rectum. The rest of his systemic examination was normal. He was investigated for acute intestinal obstruction. Pre-operative workup included an erect abdominal radiograph that revealed four air-fluid levels with associated distended loops of both small and large bowel. An emergency laparotomy revealed a gangrenous caecal volvulus that was lying in the left iliac fossa (Figures 1 and

2). We performed a right hemicolectomy and an end-to-end ileo-transverse anastomosis. Post operatively, recovery was uneventful and the patient was discharged home after five days.

Figure 1: Gangrenous caecal volvulus

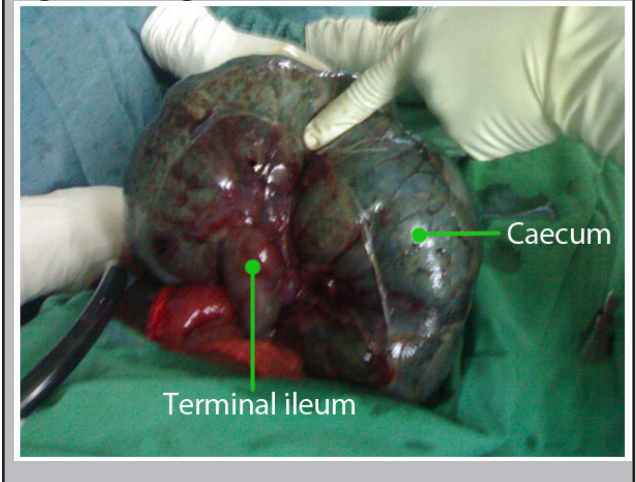
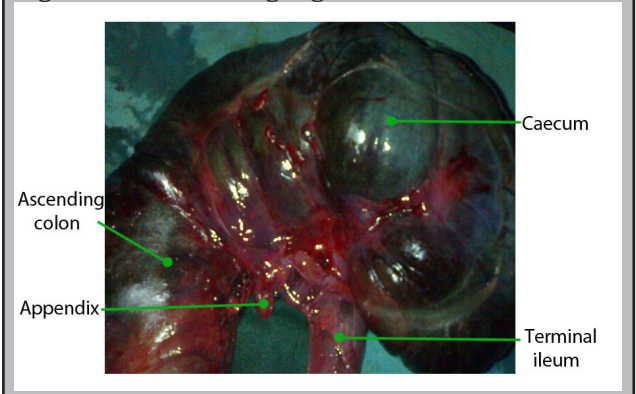


Figure 2: Distended gangrenous caecum



Discussion

The predominant location of large bowel volvulus in children, as with adults, is the sigmoid colon. Volvulus of the colonic caecum accounts for 20-40% of large bowel volvulus in adults. It is rare in children and its incidence in the pediatric group is unknown (1-4). Among the predisposing factors are: congenital hyper mobility of the caecum (due to complete mal rotation), a common ileo-caecal mesentery or imperfect fixation, adhesions (either congenital or from recent operation), pregnancy, prolonged constipation, and high fiber intake. In children it has been associated with neurological impairment, use of psychotropic drugs, intraperitoneal adhesions and Meckel's diverticulum (1,2,4). In the case presented, the patient was noted to have hyper mobility of the caecum. In 90% of the cases of caecal volvulus, there is torsion or hyper flexion of an enlarged, poorly fixed and hyper mobile caecum or axial twisting of the caecum, terminal ileum and ascending colon. In the remaining 10% there is anterior in folding of the ascending colon (caecal bascule) (3).

Volvulus results in a closed loop obstruction with torsion of the mesentery and resulting vascular embarrassment. Gangrene results from a rise in tension on bowel wall or arterial insufficiency (4). The incidence of caecal volvulus peaks in the 30-40 year age group with males being more affected than females and presents with non-specific symptoms of abdominal pain, nausea, vomiting, constipation and abdominal distension present in a third of patients (4, 6, 8).

Plain radiographs and barium studies would confirm the diagnosis in some cases, but operation should not be delayed waiting for a barium enema to be done so as to prevent progression to necrosis, which increases the morbidity and mortality rates about several folds (6, 7). A plain radiograph of the abdomen would show an unusually distended caecum pulled towards the epigastric or left hypochondrial regions, a single air-fluid level in the right lower quadrant and absence of gas in the colon (3). A barium enema typically shows a comma shaped caecum retaining haustral folds pulled towards the centre (9). Our patient, however, presented with an acute abdomen with features of peritonitis hence a barium enema would have further delayed an emergent surgery with minimal additional information. Where available, CT scan is replacing the barium enema as the primary imaging modality in a non-peritonitic patient. The scan typically shows what is described as the "whirl sign"; spiraled loops of collapsed caecum and engorged mesenteric vessels (10).

If diagnosis is made before exploration, and in absence of complications (gangrene, peritonitis), colonoscopic reduction or laparoscopic caecopexy can be attempted (12). Many times though diagnosis is made at laparotomy and either caecopexy or right hemicolectomy is the treatment of choice (4). Where there is gangrene, as with our case, a right hemicolectomy is the procedure of choice. When there is no gangrene, surgical management is somewhat controversial with either resection or simple detorsion being advocated (6-8). Simple detorsion and caecopexy carry a recurrence rate of 13% and a mortality rate of 13% (12-14). Where there is fecal contamination after perforation, then a terminal ileostomy and a colonic mucus fistula is a safe procedure with excision of the affected segment.

Conclusion

Caecal volvulus is a rarity in pediatric age group. As with our case, a high index of suspicion is essential as patients would present with features of intestinal obstruction given that there are no specific signs or symptoms that would point towards caecal volvulus. In the presence of gangrene, a right hemicolectomy is the procedure of choice.

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