Case Report

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A child with colo-colonic intussusception due to a large colonic polyp: Case report and literature review

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ABSTRACT

Colo-colonic intussusception (CI) due to a colonic polyp is a rarely reported cause of intestinal obstruction in school-aged children. Hydrostatic reduction (HR) and endoscopic polypectomy are minimally invasive and technically feasible for treating CI. We report a case of CI and review the literature, focusing on the diagnosis and treatment.

Key words: Children, colo-colonic intussusception, colonic polyp, intestinal obstruction

INTRODUCTION

Intestinal intussusception is the most common abdominal emergency in early childhood.[1] At our institution, a paediatric surgical team performs hydrostatic reduction (HR) according to a standardised protocol with excellent results.[2,3] However, colo-colonic intussusception (CI) is an uncommon cause of intestinal obstruction in children and because it is sometimes not easily diagnosed,[4,5] treatment can be delayed, resulting in more radical surgical intervention, such as a bowel resection,[6] being required.

Here, we report a case of CI due to a large colonic polyp presenting with intestinal obstruction in a 10-year-old girl, reduced successfully using HR and treated safely with endoscopic surgery.

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CASE REPORT

A 10-year-old girl was referred with a diagnosis of acute intestinal obstruction following a history of abdominal pain and bloody stools for almost 24 h. A target sign was identified on computed tomography, suggestive of CI [Figure 1]. At the time of admission, her body temperature was 36.4°C, heart rate was 62 beats/min, respiratory rate was 25 breaths/min, and blood pressure was 112/66 mmHg. Her abdomen was slightly distended and a palpable mass was present in the left lower abdomen without signs of peritoneal irritation.

After a meniscus sign was observed, HR was attempted according to our standardised protocol[3] [Figure 2]. The CI was reduced successfully after two trials of HR. At the first trial, a water-soluble contrast agent (Gastrografin® diluted 1:5) was to be introduced gradually at a pressure of 60 cm H_2O and the position of the tip reduced from the lower sigmoid colon to the middle part of the descending colon. At the second trial, CI was successfully reduced with an enema pressure of 80 cm H_2O.



Figure 1: A target sign was identified on computed tomography, suggestive of colo-colonic intussusception

One week later, after malnutrition and intestinal oedema both improved, elective colonoscopy was performed. A large pedunculated polyp, measuring 3 cm in diameter, was identified in the transverse colon and hot snare polypectomy was performed successfully after the vascular supply was controlled using two hemoclips [Figure 3]. Three other small polyps in the descending and sigmoid colon were also removed successfully. Histopathology identified that all polyps were juvenile polyps [Figure 4]. Post-operative recovery was uneventful, and our case is well, 1 year after surgery.

DISCUSSION

Colo-colonic intussusception is an uncommon cause of intestinal obstruction in children. The most common type of intussusception is idiopathic ileocolic,[7-9] associated with a pathologic lead point (PLP) in only 5% of cases; although the incidence of PLP increases with age and number of episodes.[4,10] The most common PLP is Meckel's diverticulum, followed by small bowel polyps and intestinal duplication.[5,8] Intussusception not involving the ileocolic junction appears to have a higher incidence of PLP and requires surgical intervention such as a bowel resection.[7]

Treating intussusception associated with a PLP is essentially the same as treating idiopathic intussusception, involving a trial of careful reduction using a minimally invasive approach; but diagnosis can sometimes be delayed in PLP cases if only standard diagnostic procedures such as history of presentation, physical examination, and plain abdominal radiography are used. Review of literature suggests that intussusceptions caused by colonic polyps or other mass lesions can rarely be reduced by hydrostatic barium enema and these patients often require laparotomy.[11,12] Thus, HR is a useful initial treatment for CI due to a colonic polyp unless the patient has signs of peritonitis due to bowel perforation.

Once CI is reduced, colonoscopy is indicated in order to identify the PLP in the colon. In our case, elective colonoscopy was performed 1 week later with successful hot snare polypectomy of a large 3 cm pedunculated polyp arising in the transverse colon.

Juvenile polyps usually occur in the first decade of life. The usual presenting symptom is painless bleeding. Although a solitary lesion is often benign, malignant transformation can occur in juvenile polyposis syndrome when the number of juvenile polyps is >5.[13] Thorough endoscopic examination of the entire colon is important for distinguishing juvenile polyposis syndrome from a solitary polyp.



Figure 2: Hydrostatic reduction (HR) was attempted after a meniscus sign was observed. Colo-colonic intussusception was reduced successfully. After two trials of HR performed according to our standardised protocol

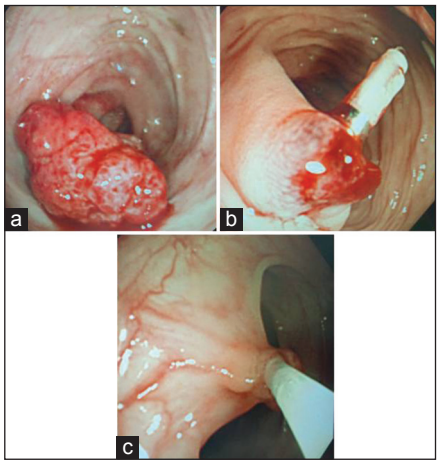


Figure 3: (a) A large pedunculated polyp, measuring 3 cm in diameter in the transverse colon. (b) The vascular supply of the big polyp controlled with two hemoclips. (c) Successful hot snare polypectomy

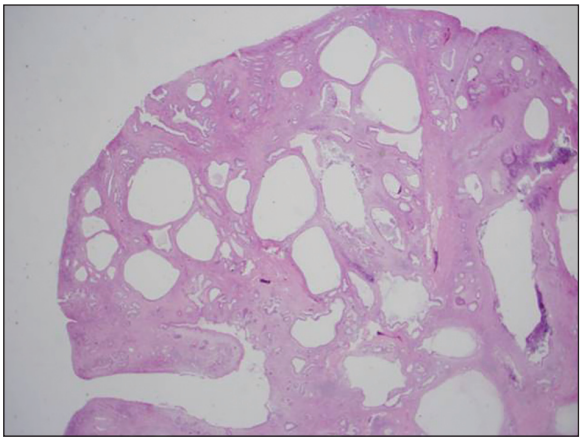


Figure 4: Low-power view of a specimen from the polypoid lesion with multiple dilated glands typical of hamartomatous change (H and E, ×12.5)

Table 1: Colo-colonic intussusception secondary to a colonic polyp in children over 7 years old

Case	Author	Year	Age (years)	Sex	Location	Reduction	Polypectomy
1	Ippolito and Touloukian[14]	1978	11	Female	LTc	HR	Transabdominal
2	Gryboski and Barwick[15]	1987	10	Female	LTc	Hutchinson	Transabdominal
3	Baldisserotto *et al*.[16]	2002	9	Male	Dc	Spontaneous	Endoscopic
4	Baldisserotto *et al*.[16]	2002	7	Female	LTc	Spontaneous	Endoscopic
5	Suksamanapun *et al*.[17]	2010	10	Male	LTc	Hutchinson	Endoscopic
6	Our case	2012	10	Female	LTc	HR	Endoscopic

LTc: left transverse colon; Dc: descending colon; HR: hydrostatic reduction

To the best of our knowledge, there are only five reports involving six cases of CI secondary to a colonic polyp in a child over 7 years old in the literature [Table 1]. Mean age at diagnosis was 9.5 years (range: 7-11 years). Male to female ratio was 2:4. The location of the polyp was left transverse colon in five cases, and descending colon in one case. In cases 2 and 5, CI was reduced using Hutchinson's technique, and in cases 3 and 4, reduction occurred spontaneously during sonography. In case 1 and our case, CI was reduced using HR. In four cases (including our case), endoscopic polypectomy was performed successfully. In cases 1 and 2, transabdominal colotomy and polypectomy were performed. All cases except for ours require the laparotomy for reduction of intussusception or polypectomy.

CONCLUSION

Colo-colonic intussusception in a school-aged patient is rare and usually associated with a PLP. The primary goal of treatment is reduction after careful assessment to identify a PLP. HR and endoscopic polypectomy are minimally invasive and technically feasible for the surgical treatment of CI due to a colonic polyp.

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