

COLONOSCOPY IN CHILDREN WITH BLEEDING PER RECTUM

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ABSTRACT

There are few reports of colonoscopy in children. Twenty-six children with bleeding per rectum were examined colonoscopically to determine the aetiology of the bleeding. A total of 32 colonoscopies were performed. Except for 5 children who needed general anaesthesia, all the rest were performed with pethidine and diazepam sedation. The mean age of these 26 children was 63.5 months (SD 57.5 months, range 2 weeks to 180 months). Ten children had histologically confirmed colitis. Five had bleeding juvenile polyps and these were removed endoscopically. One had lymphoid hyperplasia and one had chronic solitary sigmoid ulcer. The rest were normal. It is concluded that colonoscopy can be performed safely in children and it is a good diagnostic and therapeutic procedure.

Keywords: Colonoscopy, Colitis

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INTRODUCTION

Bleeding per rectum is not an uncommon symptom in children. Often it is acute, associated with mucous diarrhoea, and is secondary to bacterial gastroenteritis. Other causes of bleeding per rectum in children include Meckel's diverticulum, juvenile polyps, colitis and other mucosal lesions. Radionuclide studies are effective, non-invasive methods of determining the presence of active bleeding, particularly in bleeding Meckel's diverticulum⁽¹⁻³⁾. However, these are not useful for the diagnosis of mucosal bleeding.

Colonoscopy, by direct visualisation of the mucosa, is a more effective diagnostic procedure. It is a very sensitive method for the detection of diseases of the colon⁽⁴⁻⁶⁾ and is being used in paediatric patients. There are few reports that evaluate the effectiveness of this diagnostic procedure in the paediatric literature^(5,6). The objective of this paper was to study the mucosal pathology in a group of patients presenting with bleeding per rectum.

MATERIALS AND METHODS

Twenty-six children referred to the authors with the presenting symptom of bleeding per rectum were

included. Excluded from this study were those children who were clinically diagnosed as having infective diarrhoea, intussusception, anal fissure and haemorrhoids. Of these 26 patients, 22 had barium enema performed before the referral or around the time of colonoscopy.

Besides a routine full blood count, all the patients had their stools examined for ova, cysts and cultured for pathogenic bacteria. These patients were then colonoscoped. The bowel preparation consisted of 2 consecutive days of colonic wash-out in the morning. On the first day, low residue diet was allowed, but clear fluid was only allowed during the second day. Liquid paraffin was given twice a day as a purgative. A third colonic wash-out would be done on the morning of colonoscopy. Recently, Go-lytely solution had been used for older children (> 5 years old) and 1.5 to 2L of the solution was prescribed on the evening before colonoscopy.

Colonoscopy was done under sedation with pethidine (2 mg/kg intravenously, maximum 50 mg) and diazepam (1 mg/kg intravenously, maximum 10 mg). The patients were placed on a left lateral position with right hip and knee flexed. The patient might be turned to a supine position during examination when necessary. The colonoscope used was Olympus PCF-10 the light source Olympus CLE-F10. Two assistants were needed, one for comforting the patient and the other one for helping in the insertion of the colonoscope.

Five patients who could not be sedated for adequate examination were examined under general anaesthesia.

RESULTS

There were 26 patients in this study and 6 patients had a repeat examination done. As a result, a total of 32 colonoscopies were performed in these 26 children.

There were 16 males and 10 females. Their mean age was 63.5 months (SD 57.5, range 2 weeks to 180 months). They were made up of 17 Chinese, 4 Indians, 2 Malays, 2 Caucasians and 1 Japanese. They were haemodynamically stable when the colonoscopy was

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performed and were not actively bleeding. Their mean haemoglobin level was 10.3g% ($\pm 1.2g\%$). The duration of bleeding ranged from one day to 36 months (mean duration 5.3 months, SD 7.7 months). The associated symptoms included chronic diarrhoea in 6 patients, abdominal pain in 2 patients and fever in 2 patients.

Table I shows the finding at colonoscopy. Ten patients had colitis and these were confirmed histologically. Five had juvenile polyps and these were removed endoscopically. One had multiple sessile polyps due to lymphoid hyperplasia and one (a haemophilic) had a chronic solitary sigmoid ulcer. Of the 10 colitis, one was due to ulcerative colitis, 2 were due to infection (*Salmonella* and *Clostridium difficile*), one was due to pseudomembranous colitis and 6 were non-specific colitis. These 6 patients with non-specific colitis agreed to a repeat examination 3 to 6 months later and no abnormal findings were noted in the repeat examination in 5 patients. The remaining patient with chronic non-specific colitis developed enterocutaneous fistula and passed away due to septicaemia and disseminated intravascular coagulation.

Table I
Results of Colonoscopic Examination

Colonoscopic Findings	No. of Patients	Ba Enema	
		No. Done	No. Abnormal
Colitis:			
infective	2	0	0
ulcerative	1	1	1
pseudomembranous	1	0	0
non-specific	6	6	1
Solitary polyps	5	5	1
Lymphoid hyperplasia	1	0	0
Solitary ulcer	1	0	0
Normal findings	9	9	0
Total	26	21	3

There were two deaths, one patient with chronic non-specific colitis died of septicaemia with disseminated intravascular coagulation 9 months after diagnosis. The other death was due to cyanotic congenital heart disease, an unrelated cause.

Of the 21 barium enema done (Table I), only 3 were abnormal. They were one each for ulcerative colitis, non-specific colitis and sigmoid polyp. In one of the patients with non-specific colitis, the barium enema showed multiple ulcers at the caecum. The mucosal biopsy showed chronic inflammatory changes. No crypt abscess or granuloma were seen. This was the patient who subsequently developed enterocutaneous fistula. Only one polyp was detected by barium enema. This was not surprising because 4 polyps which were not detected were small (<1 cm in diameter).

DISCUSSION

Colonoscopy has become a safe and effective diagnostic procedure⁽⁷⁻⁸⁾ that is widely used in children suffering from suspected colonic disorders. Except for therapeutic

polypectomy, colonoscopy is primarily a diagnostic procedure.

Bleeding per rectum is one of the most common indications for colonoscopy in infants and children⁽⁹⁾. It should be performed following cessation of acute severe haemorrhage or after appropriate bowel preparation⁽¹⁰⁾. Poor bowel preparation in the presence of blood clot within the lumen may severely limit visualisation and make the procedure technically difficult and hazardous⁽⁹⁾. However, in the case of pseudomembranous colitis, bowel preparation should be minimal as it is best visualised without bowel preparation. The causes of bleeding per rectum in children are different from those in the adult population⁽¹¹⁾.

There are few reported series of colonoscopy in children⁽¹²⁻¹⁵⁾. Williams et al reported a series of 123 fiberoptic colonoscopies on 115 children⁽¹²⁾. The main indications were inflammatory bowel diseases, bleeding per rectum, polyposis, polyps on barium enema and pain. Out of the 26 children who had the examination done for bleeding per rectum, 5 were due to polyp, 3 due to haemangioma, one due to ulcerative colitis and one due to indeterminate inflammatory bowel disease. The remaining 16 were normal. In another series of colonoscopy in children, Hassal et al had 52 patients examined for bleeding per rectum. Normal colonoscopy was found in 7 patients only⁽¹³⁾. The main findings were polyps, inflammatory bowel disease, vascular malformations, nodular lymphoid hyperplasia, non-specific colitis, Meckel's diverticulum, Henoch-Schonlein disease and leiomyoma. Holgersen et al reported 10 children with bleeding per rectum and colonoscopies were abnormal in 7 (5 polyps and 2 inflammatory bowel disease)⁽¹⁴⁾. In the series reported by Harb-Gama, the commonest cause for bleeding per rectum was polyps. Normal colonoscopy was seen in 9 cases out of 48⁽¹⁵⁾.

In the present series, 26 patients were examined. Colitis was found in 10 and 6 were due to non-specific colitis. Chronic inflammatory diseases were rare and only one Chinese boy was diagnosed to have ulcerative colitis (Table I) This is different from that in the other series⁽¹²⁻¹⁴⁾.

Five children with bleeding solitary polyps were seen. They were located at the sigmoid region except for one at the hepatic flexure. They were removed endoscopically and no complications were encountered. Because of the good prognosis⁽¹⁶⁾, no repeat examination was done after polypectomy.

Barium enema and colonoscopy are complementary tests. In this study, Barium enema had failed to diagnose 4 out of 5 cases of colonic polyps and 5 out of 6 cases of non-specific colitis. This showed the importance of performing colonoscopy in children with bleeding per rectum as it is a more sensitive and accurate diagnostic tool.

In summary, colonoscopy is useful and can be safely performed in infants and children. It is more useful than barium enema as a diagnostic tool for mucosal pathology. Except for polypectomy, the therapeutic use of colonoscopy in children is limited.

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