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Original Article

Colonoscopic Evaluation of Per Rectal Bleeding in Children : Our Experience

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Abstract

Background: *Most patients with Per Rectal Bleeding (PRB) warrant endoscopic examination of the lower GI tract. This study was done to determine the demographic profile and find out the etiology of bleeding per rectum under colonoscipic evaluation.*

Meterials and methods : *In this study, we did a retrospective review of the clinical data of children between 0 and 18 years of age who presented with per rectalbleeding and underwent diagnostic and therapeutic colonoscopy in the Department of Pediatric Gastroenterology & Nutrition, Chattagram Maa-O-Shishu Hospital, Chattagram from July 2014 to July 2021.Patient demographics, clinical features and endoscopic and histopathological findings were recorded.*

Results: *Overall, we included 111 patients with mean age 9.6±5.1 years. There were 69 (62.2%) male, 42(37.80%) female and with a male to female ratio of 1.64:1.0 The highest incidence was the age group of 11 to 18 years, 46 (41.40%). The most common colonoscopy finding were juvenile colorectal polyp 46 (41.44%) which include rectal polyps 21 (18.9%), Sigmoid polyp 17 (15.3), recto sigmoid polyp 4 (3.6%), colonic polyp 4(3.6%), followed by internal hemorrhoids (20 cases, 18%) rectal ulcers (5 cases, 4.5%) colitis (4 cases, 3.60%) and findings suggestive of koach's infection (2 cases, 1.8 %). All polyps were removed by colonoscopic polypectomy (47 cases 42.30%), 64 cases (57.65%) were given conservative treatment.*

Conclusion : *We found that Juvenile colorectal polyps constitute the most common cause of per rectal bleeding in pediatric age group followed by hemorrhoids and colitis . Colonoscopy remains a useful and safe procedure in children for evaluation of lower GI bleeding and it's good for both diagnostic and therapeutic procedure.*

Key word: Colonoscopy; Colitis; PRB.

INTRODUCTION

Bleeding Per Rectum (BPR) is one of the most important presenting symptoms in children. It may occur in the form of fresh bright-red or maroon colored (Hematochezia), or black-colored stools (Melena).[1] Most of general practitioners do not have much appreciation regarding the etiologies and management modalities of bleeding per rectum in paediatric age group. This may explain the mismanagement of this problem. Lower gastrointestinal bleeding in infants and children is commonly The etiology of lower gastrointestinal bleeding in children is different from that in adults.[2,3,4] Often it is acute, associated with mucous diarrhea , and secondary to bacterial gastroenteritis. other causes of bleeding per rectum in children include Meckels's diverticulum, juvenile polyps, colitis and other mucosal lesions. The causes are usually simple and need little or no treatment.[4,5] Radionuclide studies are effective, non invasive methods of determining the presence of active bleeding particularly in bleeding Meckels's diverticulum.[6] However these are not useful for diagnosis of mucosal bleeding.

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Chronic cases of minor lower gastrointestinal bleeding produces significant anemia sometimes require blood transfusion . Accordingly, detection and localization of the etiology is an important part in the management of these children. A carefully taken history, proper and complete exam of the perianal region, digital per rectum exam and general stool exam can find out the most common causes of this problem.[7,8] Most patients with chronic lower GI bleeding warrant endoscopic examination of the lower GI tract for diagnosis and management. Colonoscopy by direct visualization of the mucosa, is a more effective diagnostic procedure. it is a very sensitive method for the detection of disease of the colon. and is being used in pediatric patients.[9,10,11] Colonoscopy is the investigation of choice in children with prolonged rectal bleeding.[12] This study was done to determine the demographic profile and find out the etiology of bleeding per rectum under colonoscipic evaluation.

MATERIALS AND METHODS

One hundred twenty patient were enrolled for colonoscopy 8 patient were excluded due to systemic disease, inadequate bowel preparation. Total 111 patients data were recorded.In this study, we did a retrospective review of children between 0 and 18 years of age who presented with per rectal bleeding and underwent diagnostic and therapeutic colonoscopy in the Department of Pediatric Gastroenterology & Nutrition, Chattogram Maa-O-Shishu Hospital, Chattogram. Most children were referred from the Department of Pediatrics while some children presented directly to our Outpatient Department. This study was conducted between July 2014 to July 2021. Informed consent was taken from all enrolled patients. All colonoscopies were performed by senior gastroenterologist after single dose of 2 liters preparation with polyethylene glycol. In case of inadequate bowel preparation, colonoscopy was rescheduled for next day after repeat preparation colonoscopy was done under sedation with pethidine (2mg/kg intravenously, Maximum 50mg) and diazepam (1mg/kg intravenously, Maximum 10mg). Monitoring was done with pulse oximeter during colonoscopy and the resuscitation kit was kept at bed side. Biopsies were taken under direct colonoscopic visualization and fixed in phosphate buffered formalin. All slides were reviewed by an experienced pathologist and results were recorded. Patient demographics, clinical features and endoscopic and histopathological findings were recorded. Patients were categorized as infant (0-1years) toddler (2–5 years), school going children (6– 10 years), and adolescents (11–18 years). Categorical variables were expressed as percentages while continuous variables were expressed as mean and standard deviation.

RESULTS

Of the total 111 patients reviewed, 42(37.80%) were female and 69 (62.2%) were male, with a male to female ratio of 1.64:1.0 [Table I]. The mean age of the patients was 9.6±5.1 years.The highest incidence was between the ages of 11 to 18 years 46 (41.40%) [Table II]. The presenting symptoms were hematochezia (Passage of bright red blood per rectum) in 20 (18%), bloody diarrhea (Containing fresh and altered dark blood mixed with stool) in 5 (8.77%), and positive occult blood test in 2 patients (3.50%) [Table II]. The most common accompanying symptom was constipation in 24 (21.62%), abdominal pain in 22 (19.81%), fever in 5 (4.50%) and weight loss in 10 (9%) patients [Table III].

Of all polyps found, 46(41.44%) [Table III] the largest number of all, were located in rectum 21 (18.9%), 17 (15.3%) were in sigmoid colon, 4 (3.6%) in recto-sigmoid, 4(3.6%) in colonic polyp followed by internal hemorrhoids (20 cases, 18%), rectal ulcers (5 cases, 4.5%);findings suggestive of colitis (4 cases, 3.60%) and findings suggestive of koach's infection (2 cases, 1.8 %).

The most common histopathological finding [Table V] was juvenile colorectal polyps (40 cases, 36 %) followed by solitary rectal ulcer (5 cases, 4.5%), caseating granulomatous inflammation with positive staining for Acid Fast Bacilli (AFB) suggestive of tuberculosis (2 cases, 1.8%) and Polyposis coli (1 case, 0.9%). Patients with polyps had presented with painless, bright red rectal bleeding with normal stool frequency and consistency.

All polyps were removed by colonoscopic polypectomy [Figure 1] 47 cases (42.30%) and subjected to histopathological examination. Histological examination of polyps revealed juvenile type 45 (40.45%) [Table V] in most patients. Children with hemorrhoids and solitary rectal ulcer had a history of associated constipation and straining during defecation. These children were managed conservatively, Total 61 cases (55%) given conservative treatment .

Table I Sex distribution of study group

Sex	Number (%)	M:F ratio	Age Mean+/-SD
Male	69(62.2%)		9.68+/-5.15
Female	42(37.8%)	1.62: 1.00	
Total	111(100)		

Table II Age group breakup of the study patients

Age group (Years)	Number (%)	Number of Male (%)	Number of Female (%)
0-1	1(0.9)	1 (100%)	0 (0)
2-5	27 (24.3)	19 (70.37%)	8 (2.16)
6-10	37 (33.3)	21 (56.75)	16 (43.24)
11-18	46 (41.4)	27 (58.69)	19 (41.30)
Total	111 (100)	68 (61.26)	43 (38.73))

Table III Clinical feature of study group

Clinical Presentation	Number (%), n=111
Hematochezia	20(18%)
Bloody diarrhea	5(8.77%)
Constipation	24(21.62%)
Abdominal pain	22(19.8%)
Fever	5(4.50%)
Weight loss	10((9%)

Table IV Disease profile of colonoscopic finding

Colonoscopic Finding		Number (%)
	Normal	15 (13.5)
Colorectal Polyp		
46 (41.44%)	Rectal Polyp	21 (18.9)
	Sigmoid Polyp	17 (15.3)
	Rectosigmoid Polyp	4 (3.6)
	Colonic Polyp	4 (3.6)
Colitis		
15 (13.51%)	Proctitis	7 (6.3)
	Proctosigmoiditis	3 (2.7)
	Ileocolitis	2 (1.8)
	Infectious colitis	2 (1.8)
	Hemorrhagic colitis	1 (0.9)
I.H		
20 (18%)	Internal hemorrhoids	20 (18)
Others		
15 (13.51)	Polyposis coli	1 (0.9)
	Ulcerative growth	2 (1.8)
	Anal fissure	2 (1.8)
	Thread worm infestation	1 (0.9)
	Koach infection	2 (1.8)
	Rectal ulcer	5 (4.5%)
	Carcinoma colon	1 (0.9)
	Rectal prolapse	1 (0.9)
	Total	111 (100)

Table V Disease profile of Histopathological finding

Histopathological finding	
Etiology	**Number (%), n=111**
Juvenile polyp	45 (40.45%)
Rectal ulcer	5 (8.77)
TB caseating granulomatous	2 (1.8%)
Ca colon	1 (0.9%)

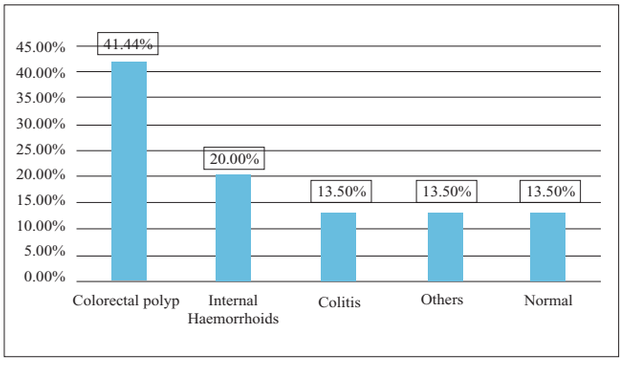

Figure 1 Common causes of per rectal bleeding

DISCUSSION

Colonoscopy has become a safe and effective diagnostic procedure that is widely used in children suffering from suspected colonic disorder.[12] Except for therapeutic polypectomy, colonoscopy is primarily a diagnostic procedure.Bleeding per rectum is one of the most common indications for colonoscopy in infant and children.[13]

This study evaluated the clinical records of 111 children to understand the clinical and etiological patterns of lower GI bleeding in children. Of the total 111 patients reviewed, 69 (62.2%) were male, 42 (37.80%) were female and with male to female ratio of 1.64:1.0 . The mean age of the patients was 9.6±5.1 years.The highest incidence was the age group of 11 to 18 years ,46 (41.40%) Study done by Bhadauria et al where the male to female ratio was 2.16:1, and the most common age group was 5–10 years.[14] In our study among children between the ages of 0 and 18 years, juvenile colorectal polyp was the most common cause of bleeding 46 (41.44 %) among them rectosigmoid polyp 42 (91.30%) is the commonest cause. Two studies conducted in Pakistan among children with lower GI bleeding have reported colorectal polyps is the most common cause of rectal bleeding in children.[15,16] Another study from Iran reported polyp of sigmoid colon as the most common colonoscopy finding among children complaining of bleeding per rectum but our study rectal polyps 21 (18.9%), is the common colonoscopy finding. In a retrospective review of children under 15 years of age with chronic lower GI bleeding, juvenile colorectal polyps constituted 75% of the cases, of which 88% were solitary and in rectosigmoid region.[1] In our study, all polyps were in the rectosigmoid region and solitary except 4 (8.6%)which was in colonic region. All polyps were removed successfully by colonoscopic snare polypectomy. In a study of colorectal polyp in children, 97% of polyps were localized in the rectum or sigmoid colon and 96.2% were histologically juvenile polyps.[18] The author suggested that outcome after endoscopic polypectomy is generally good. In an Indian study of 236 children with colorectal polyps, 93% of the polyps were juvenile and 85% were rectosigmoid in location.[19] However in comparison to our study where all polyps were solitary, in this study, solitary polyps were seen in 76%, multiple polyps in 16.5% and juvenile polyposis in 7% of the children. A significant number of cases of polyps were multiple and proximally located, which emphasizes the need for total colonoscopy in all cases. Colonoscopic polypectomy was done for all juvenile polyps because of their neoplastic potential and was effective even in juvenile polyposis.[19] Surveillance colonoscopy was required in juvenile polyposis only.[19] our study one juvenile polyposis coli seen which was advice for follow up colonoscopy. Other causes of chronic lower GI bleeding among children in our study included hemorrhoids 20 (18%) solitary rectal ulcer 5(4.5%) proctosigmoiditis 3(2.7%) Ileocolitis 2 (1.8%) infectious colitis 2 (1.8%) anal fissure 2 (1.8%) ulcerative growth 2 (1.8%) haemorrhagic colitis 1(0.9%) Tread worm infestation 1(0.9%), koach's infection 2(1.8%) carcinoma colon 1(0.9%) and rectal prolapse 1 (1.8%). In a study from Iran regarding the etiology of lower GI bleed in children, juvenile polyp and solitary rectal ulcer accounted for most of the pathologies that caused rectal bleeding in children and adolescents, respectively.[17]

CONCLUSION

We found that Juvenile colorectal polyps constitute the most common cause of per rectal bleeding in pediatric age group followed by hemorrhoids and colitis. Colonoscopy remains a useful and safe procedure in children for evaluation of lower GI bleeding and it's good for both diagnostic and therapeutic procedure.

DISCLOSURE

All the authors declared no competing interest.

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