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Original Article

Clinical Profile of Bleeding per Rectum in Children between 1 and 12 years of Age- Prospective Study

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Abstract

Introduction: *Bleeding per rectum in children is not uncommon and has diverse etiology.*

Aim: *clinical profile, outcome of colonoscopy in south Indian children with rectal bleeding is not available.*

Materials and Methods: *A prospective two years study (2006-08), is conducted to analyze the clinical and etiological profile of rectal bleed in children between 1-12 years of age at Institute of Child Health & Hospital for Children, Chennai, a large tertiary care pediatric center in southern India. Demographic details, clinical profile and colonoscopic findings were entered in a prestructured proforma and were analyzed.*

Results: *The mean age of occurrence of bleeding per rectum is 5.4 + 1.9 years without statistical significance between urban and rural children with equal male female distribution. Solitary juvenile polyp is an important cause of rectal bleed in children. Colonoscopy is a safe procedure and has both diagnostic and therapeutic role in children with bleeding per rectum.*

Keywords: *Bleeding per rectum, Colonoscopy, Children.*

Introduction

Rectal Bleeding is an alarming symptom with heterogenous causes which warrants careful diagnostic work up. Early detection and location of lesion will aid in early treatment .Incidence of rectal bleeding is essentially unkown and the profile differs from that of adults .This study has been conducted to bring the clinical and etiological profile of children with rectal bleeding.

Moreover regional data should be available for better treatment of children. As there is no South Indian study to determine the common etiologies and characteristic of GI Bleeding, this study will be definitely useful to describe the profile.

Causes of Rectal Bleeding [23] in Infants are Polyps and Polyposis syndrome, Anal fissure, [1] Rectal Prolapse, Colitis, Bleeding disorder wheras in Older Children Polyps, Anal Fissure, Meckels Diverticulum, Vascular Malformation, Inflammatory Bowel Diseases1[1], Bleeding disorders

Materials & Methods

Materials and methods Hence a prospective study is conducted to analyze the clinical and etiological profile of rectal bleed in children Study: Two years(2006-08), study was done in children between 1-12 years of age at Institute of Child Health & Hospital for Children, Chennai, a large tertiary care pediatric center in southern India. Instituitional ethical clearance was obtained. Clinical data, outcome of colonoscopy were entered in a detailed pre-structured proforma. Investigations included complete hemogram and colonoscopy. Colonoscopy was performed using Olympus scope under IV sedation with oral & written parental consent after adequate bowel cleansing with oral polyethylene glycol. Polypectomy was done in children with polyps and subjected for histology. Biopsy were taken for mucosal diseases as and when required. Upper gastrointestinal scopy was done in case the colonoscopy was normal but with significant bleed..

Statistical analysis: The data was analyzed using SPSS WINDOW VERSION 11.0. Associations of rectal bleeding with various factors were analyzed using chi-square test.

Results

Demography: The mean age of occurrence is 5.4 $\pm$ 1.9 years with no sex predilection. There was no statistical significance between urban and rural children. Majority 73 children (85.88%) were less than 9 years of age. No statistically significant association was found between rectal bleeding with respect to age, sex, residence, type and duration of bleeding. However there was strong positive correlation between colonoscopic findings and rectal bleeding which was proved to be statistically significant (P value of less than .001).

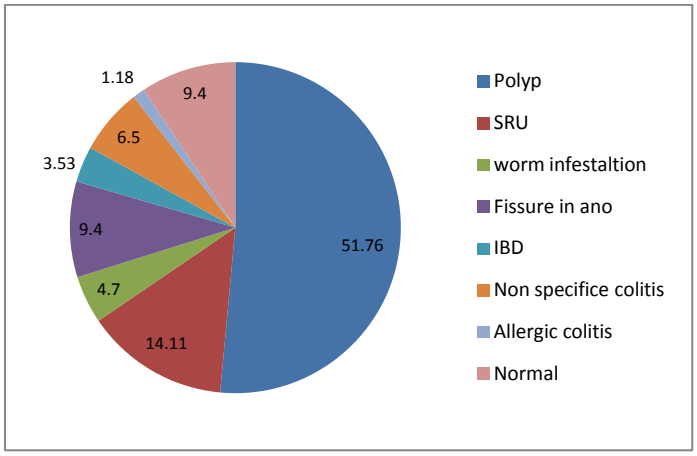
Table 1 showing demographic details of study population

Table 1.	**SEX**		
	M	F	Total[%]
1 – 3	17	11	28[32.94]
>3-6	11	18	29[34.12]
>6-9	8	8	16[18.82]
>9-12	7	5	12[14.11]
Rural	18	23	41[48.23]
Urban	25	19	44[51.77]

Clinical features

Painless bleeding was common, seen in 55 children (65%) and 61 (72%) had more than one episode. Mean duration of bleed was 7.9 ± 8.1 months and 77 (90.5%) children had duration of bleeding less than 1 year. Other associated features included non specific abdominal pain in 29 %, fever 21%) constipation (16%), had mass descending per rectum (8%), loose stools (8%), and abdominal distension in 7% of the study population.

Colonoscopic findings: showed polyp in 44 children [51.76] solitary rectal ulcer in 12(14.11%), trichuriasis in 4 (4.71%), fissure in ano in 8(9.4%). Three children had inflammatory bowel disease (ulcerative colitis) [3.53%], non specific colitis in 5(6.5%) 1 (1.18%) had allergic colitis. One child with normal colonoscopy had duodenal ulcer on upper endoscopy with no stigmata of active bleed.



Characteristics of colonic polyps

Polyp was observed in children of 3-5 years (65.9%) with male: female ratio was 1.5:1. Majority of the polyps were solitary, pedunculated located in the rectosigmoid region, size ranging from 0.5 to 2 cms. Polypectomy using snare and cautery was done in children with polyp and juvenile polyps is the common histological findings observed in our study. There were no procedure related complications during the study period.

Table 4. Characteristics of polyps in our study

	Profile of Polyp	No. of Children
Location	Recto sigmoid Descending colon Diffuse	32 7 5
Size	0.5 - 1 Cm 1 - 2 Cm	16 28
Number	Single Multiple	39 5
Type	Pedunculated Sessile	36 8
Histopathology	Juvenile Polyp Adenoma Hamartoma	41 1 2

Treatment

Two children were diagnosed to have Peutz Jeghers syndrome and they were advised regular follow up. Those children with solitary rectal ulcer, were treated with laxatives, oral sulfasalazine along with dietary modification and one with recurrent bleed, was referred for surgery.

However there was strong positive correlation between colonoscopic findings and rectal bleeding which was proved to be statistically significant (P value of less than .001).

Discussion

Rectal bleeding is an alarming symptom in children and causes great anxiety among parents often requiring referral to pediatric gastroenterology clinic. The common causes of low grade intermittent bleed are polyps, fissure in ano, SRU, and less commonly inflammatory bowel disease. Meckels diverticulum, intussusception, allergic colitis. Rarely vascular disorders can be the cause of bleeding per rectum in young infants.(ref)

Of the total 85 children during 2 years study, majority belonged to 1-12 years age group. Rectal bleeding as the sole clinical manifestation was seen in 62.1% of study population as compared to Motamed et al one year study in 164 children at children's medical centre hospital, Tehran University,[5]. and whereas Arrola, observed that 80% of the subjects had rectal bleeding as an isolated clinical manifestation.[6]

There was no gender difference in our study similar to a de Aparatwe Digestivo, Cordoda, Spain, [8]whereas the male: female ratio was 1:6 according to Motamed, et al.[5]

The incidence of rectal bleeding was the same in urban vs. rural children in most of the studies.(ref). Majority of the study subjects were less than 9 years which was similar to Mandhan P, et al at Liaquat Medical College Hospital, Pakistan[9]. The mean age was 5.4 ± 1.9 years in our study, comparable to Balkan et al and Khurana et al ref (10) with the with the mean age of 7.2 years and 6 years respectively. Mean duration of rectal bleeding in our study is 7.9 months ± 8.1 similar to 9 months as per Balkan et al, who evaluated 100 children during 1989-1996.[10]

65% of our subjects had painless rectal bleeding compared to 70% as per Motamed et al.[5] Symptom association was more in the present study (38%) in comparison to Motamed et al., study [5] wherein he has given a value of 22%

Colonoscopy Findings

90.5% of our children had findings in colonoscopy when compared to 75.25% in Mandhan et al

study, 81% by Bhargava et al and 62% by Khurana et al.[7,9,11] Even in the very best of centers, colonoscopy is likely to be negative in 10-30% of subjects. Some of the causes of negative colonoscopy are hidden position of the lesion between intestinal folds, incomplete colonoscopy, inadequate bowel preparation and presence of polyp in non examined segment, auto amputation of polyps. According to Motamed et al, polyps topped the list of source of bleeding which accounted for 34.7%. Mandhan et al studies revealed 75% of cases were due to polyp, whereas Bhargava et al showed 62.8% of children had polyps and as per Khurana et al. it was 50%[7,9,11] . Similar results were observed in our study with polyp being the most common cause of rectal bleeding in children (51.7%)

The prevalence of polyp as per Western literature was 4 to17% in comparison to our own study. The most common site of polyp was recto sigmoid region which is seen in 72.7% of patients with polyp which is similar to other studies. [5, 7,9,11] According to Bhargava et al solitary polyp was more common (75%) in their children, in comparison to that of our study (88.6 %.)[11]

The most common age range for polyp was 3-5 years as per the author Shiraz which is also similar to our study, whereas it was 4-6 years as per Mandhan et al.[9]

Complications during colonoscopy which needed resuscitation was encountered by Mandhan et al whereas no other studies including ours had complications during or after the procedure.[9]

Comparison of Positive Colonoscopy with Various Studies

	Mandhan et al 1998-2002	Balkan et al 1989-1996	Mohamed et al 2006-2007	Bhagera et al 1980-91	Our study at ICH
Polyps	75%	53.3%	34.7%	62.8%	51.76%
Nonspecific proctocolitis	18%	26.67%	22.5%	11.62%	3.53%
SRU	3.5%	6.6%	9%	27.9%	14.11%
IBD	--	3.3	-	6.9%	3.53%
Worms	-	3.1%	-	-	4.71%
Foreign Body	0.5%	-	-	-	1.18%
Vascular	-	1.6%	0.9%	4.6%	--
LNH Lymphonodular hyperplasia	3%	-	22.5%	2.1%	

Summary

The incidence of polyp in children is almost equal in rural and urban population without any sex predilection. The mean age of occurrence of bleeding per rectum is 5.4 ± 1.9 years. 62% of our study population had isolated rectal bleeding. 65% of them had painless rectal bleeding which correlates well with other studies. Colonoscopy revealed polyps as the main cause of rectal bleed, similar to many other studies from other Asian nations. The majorities of polyps were situated in the recto sigmoid region, were solitary in nature and juvenile polyp is the most common type. As such adenomas do exist, they are relatively uncommon than seen in western countries. In our study worm infestation as a source of rectal bleeding accounted for 4.71% which was rarely found as a cause in other studies.[10] Vascular causes like hemorrhoids, AV malformation were found as source of bleeding in studies from North India whereas we have not come across such causes.[5,10,11] However colonoscopy may be negative in case of suspected vascular lesions. Further diagnostic modalities like radio nuclide scintigraphy, double contrast barium studies and angiography may be warranted.

Lymphnodular hyperplasia had a significant association as per Motamed et al which shows the influence of diet pattern at that area.[5] Association of IBD with rectal bleeding is very minimal when compared to adult population.[11,12] Our study also concluded that colonoscopy is as an important modality to identify the cause, as well as to treat

in cases of polyps with virtually no procedure related complications during the study period.

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Conflict of interest-none

Participants

KT - collected clinical data, analysis of results, collection of references.
SB- collected clinical data, analysis of results, preparing the manuscript.
ND- Supervision of work by RT
BR- Supervision, final approval of work

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