

## Original Article

## COLONOSCOPIC EVALUATION OF BLEEDING PER RECTUM IN CHILDREN

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**Objective:** To evaluate the role of colonoscopy in the diagnosis and management of bleeding per rectum in children.

**Material and Methods:** It was descriptive type of study conducted at Department of Pediatrics, Services Hospital, Lahore including 50 patients of either sex with age range of 5-15 years in whom colonoscopy was performed for bleeding PR. The patients with acute dysentery, melena and rectal prolapse were excluded from study.

Gut preparation was started forty-eight hours before procedure. The children were given clear liquids without any milk and fiber containing diet. Liquid paraffin was given orally as laxative and two doses of klean enema were given, 12 hours and 1 hour before procedure. Colonoscopy was performed under deep sedation (Midazolam 0.25-0.5mg/kg) using fiberoptic pediatric colonoscope in Medical Unit-1 of Services Hospital, Lahore. Polypectomy was done in patient with pedunculated polyps and colonic biopsy was taken where indicated. The samples were sent for histopathology in the Department of Pathology of the same hospital. After procedure all patients were kept under observation for 4-6 hours in pediatric ward.

**Results:** Colorectal polyps were the most common cause of bleeding per rectum (56%) followed by ulcerative colitis (12%), solitary rectal ulcer (8%), non-specific colitis (8%) and hemorrhoids in 2%. There was suspicion of malignancy in 2 children on colonoscopy. Biopsy was taken and it was confirmed as adenocarcinoma on histopathology in one child. Among patients with polyps (n=28), 22 (78.6%) have single polyp and 6 (21.4%) have more than one. Main site of polyps was rectum (20 patients) while it was sigmoid/rectosigmoid junction in 5 and descending colon in 2 children. Polypectomy was performed in 21 children while it was not possible in 7 due to sessile polyps in 6 and polyp size larger than snare in 1 child.

**Conclusion:** Colonoscopy is safe and very useful tool in the diagnosis and management of bleeding per rectum in pediatric patients and juvenile polyps are the commonest cause of bleeding per rectum in this age group.

**Keywords:** colonoscopy, bleeding per rectum, pediatrics.

### Introduction

Lower gastrointestinal bleeding (LGIB) is defined as bleeding with an origin distal to ligament of treitz. But the source of bleeding per rectum (PR) in most of the children is in the colon. About 0.3% children visiting pediatric emergency and 1% of pre-school and school children present with bleeding PR.<sup>1,2</sup>

The spectrum of disease is very different from that of adults. The causes of LGIB are numerous and depend on the age of the child. Colonic polyps followed by infectious colitis, anal fissure, solitary rectal ulcer, Inflammatory Bowel Disease (IBD) and Meckel diverticulum are common causes of bleeding per rectum in pediatric age group.

LGIB can present in four ways<sup>1</sup> Hematochezia i.e. passage of bright red blood per rectum, indicating an origin, most commonly in the colon.<sup>2</sup> Melena passage of black, tarry, foul smelling stools indicating the source of bleeding in upper gastrointestinal tract.<sup>3</sup> Occult GI bleeding with

symptoms related to pallor or iron deficiency anemia.<sup>4</sup> Altered brick colored blood, from distal small bowel.

Evaluation of patient with LGIB include history, physical examination, laboratory investigations and endoscopy. Laboratory investigations include HB%, TLC with differential, PT, APTT and acute phase reactants including ESR & CRP. LFTs are indicated if there is suspicion of chronic liver disease (CLD). Stool examination for blood, ova and parasites and culture is indicated in all patients with LGIB. Barium enema and USG is of little use to diagnose cause of bleeding. Colonoscopy/proctosigmoidoscopy should be performed in all patients with LGIB. Sigmoidoscopy is helpful if the cause is in the distal colon, while colonoscopy is indicated when proctosigmoidoscopy fails to find the cause of LGIB and when examination of terminal ileum is necessary or if polypectomy has to be performed. Colonoscopy offers the opportunity to provide direct access to biopsies, polypectomy and caoagulation of

bleeding lesions.

Radionuclide scanning with technetium(TC)99m pertechnetate (Meckle scan) and TC 99m pertechnetate red blood cell scan (bleeding scan) is indicated if colonoscopy is unremarkable.

### Materials & Methods

It was descriptive type of study conducted at Department of Pediatrics, Services Hospital, Lahore including 50 patients of either sex with age range of 5-15 years in whom colonoscopy was performed for bleeding PR. The patients with acute dysentery, melena and rectal prolapse were excluded from study.

Gut preparation was started forty-eight hours before procedure. The children were given clear liquids without any milk and fiber containing diet. Liquid paraffin was given orally as laxative and two doses of klean enema were given, 12 hours and 1 hour before procedure. Colonoscopy was performed under deep sedation (Medazolam 0.25-0.5 mg/kg) using fiberoptic pediatric colonoscope in Medical Unit-1 of Services Hospital, Lahore. Polypectomy was done in patient with pedunculated polyps and colonic biopsy was taken where indicated. The samples were sent for histopathology in the Department of Pathology of the same hospital. After procedure all patients were kept under observation for 4-6 hours in pediatric ward.

### Results

Out of 50 patients 28 (56%) were male and 22 (44%) female with male to female ratio of 1.3:1. Age range of children at the time of diagnosis was 4-15 years with mean age of 8.5 years. 11 (22%) patients were under 5 years, 27 (54%) between 5-10 years and 12 (24%) from 11-15 years. Children less than 4 years were not included due to non-availability of small size colonoscope. Colorectal polyps were the most common cause of bleeding per rectum (56%) followed by ulcerative colitis (12%), solitary rectal ulcer (8%), non-specific colitis (8%) and hemorrhoids in 2%. There was suspicion of malignancy in 2 children on colonoscopy. Biopsy was taken and in one child it was confirmed as adenocarcinoma on histopathology while the second patient did not return for follow-up. Colonoscopy was normal in 10% of the children (Table 1).

Among patients with polyps (n=28), 22 (78.6%) have single polyp and 6 (21.4%) have more than one. Main site of polyps was rectum (20 patients) while it was sigmoid/rectosigmoid junction in 5 and descending colon in 2 children. Polypectomy was

performed in 21 children while it was not possible in 7 due to sessile polyps in 6 and polyp size larger than snare in 1 child (Table 2).

**Table-1:** Etiology of Bleeding per rectum.

Cause	Number	Percentage
Colorectal Polyps	28	56%
Ulcerative colitis	06	1%
Solitary rectal ulcer	04	8%
Non-septic colitis	04	8%
Hemorrhoids	01	2%
Malignancy	02	4%
Normal colonoscopy	05	10%

**Table-2:** Characteristics of Polyps (n=28).

Number	Single	02	78.57%
	>One	06	21.42%
Site	Rectum	20	71.4%
	Sigmoid colon	02	17.85%
	Descending colon	01	7.14%
	Transverse colon	22	3.57%
Type	Pedunculated	06	78.6%
	Sessile	05	21.4%
Polypectomy		22	

### Discussion

The study included 50 patients with male to female ratio of 1.3:1. Mean age at diagnosis was 8.5 years with age range of 4-15 years. Children less than 4 years were not included due to non-availability of small size colonoscope. Colorectal polyps were the most common cause of bleeding per rectum (56%) followed by ulcerative colitis (12%), solitary rectal ulcer (8%), non-specific colitis (8%) and hemorrhoids in 2%. There was suspicion of malignancy in 2 children on colonoscopy. Biopsy was taken and in one child it was confirmed as adenocarcinoma on histopathology while the second patient did not return for follow-up. Colonoscopy was normal in 10% of the children. In a study from India the causes of lower gastrointestinal bleeding include juvenile polyps 47%, amoebic colitis 23.5%, solitary rectal ulcer 4.7% and polyposis syndrome 5.9%.<sup>3</sup> In another study from India juvenile polyps were diagnosed in 61% of children with bleeding PR.<sup>4</sup> In a similar study from Iran the common causes of lower

gastrointestinal bleeding in children were, polyps in 25.1% followed by non-specific colitis 26.4%, lymphoid nodular hyperplasia 15.2% and solitary rectal ulcer in 6.9% patients.<sup>5</sup>

We did not diagnose any child as infectious colitis because all of the patients with suspicion of infection on history & stool examination were adequately treated with antibiotics and Metronidazole before colonoscopy. The patients who responded to antibiotic treatment were not included in the study as colonoscopy was not performed in these children. In other studies infectious colitis was diagnosed as a cause of rectal bleeding in 26.2%<sup>6</sup> and infectious colitis followed by colorectal polyps were major causes of bleeding per rectum in Egyptian children.<sup>7</sup>

Regarding polyps, (n=28), 22 (78.6%) patients has single polyp and 6 (21.4%) children has 2 or >2 polyps and 27 (94.4%) polyps were on left side of colon. Out of these 20 in the rectum, 5 in the sigmoid or rectosigmoid junction and 2 in the descending colon. In one patient polyp was at hepatic flexure. Again the results are similar to other studies where solitary polyps were present in 76% children with bleeding PR and left colon was the main site for colorectal polyps.<sup>4</sup>

In 22 patients polyps were pedunculated and polypectomy was performed in 21 patients. On histopathology all were juvenile polyps. In one patient polyp was larger than the size of snare, so this patient was referred for surgical resection. 6 patients have sessile polyps and polypectomy could not be performed. These children were advised follow-up colonoscopy. On endoscopy there was suspicion of IBD in 10 patients. On histopathology 6 (12%) patients were diagnosed as U.C. while in 4 (8%) children histopathology showed non-specific colitis. Bleeding per rectum is not usual presentation of

inflammatory bowel disease (IBD) but it is part of clinical spectrum of IBD. Bleeding per rectum is more common in ulcerative colitis as compared to Crohn's disease because ulcerative colitis always involve the colon while Crohn's disease may involve any part of the intestine. Our study included children with bleeding per rectum, so all of our children with suspicion of IBD were diagnosed as ulcerative colitis. Furthermore ulcerative colitis is much more common as compared to Crohn's disease in our country. Our findings are consistent with another study from Pakistan where ulcerative colitis was diagnosed in 2.5% of the children with bleeding per rectum<sup>6</sup>.

Solitary rectal ulcer of benign nature on histopathology was diagnosed in 4(8%) children. In the study from Iran 6.9% children with bleeding per rectum were diagnosed as solitary rectal ulcer<sup>5</sup> which is comparable with our study. Hemorrhoids are rare cause of per rectal bleeding in children, often related to diet deficient in fiber and secondary to portal hypertension. We have only one adolescent with hemorrhoids but he has no evidence of portal hypertension. No pathology was diagnosed on colonoscopy, in 5 children and further investigations like Tc.99 Mackle scan and bleeding scan were advised in these patients to find out the cause proximal to colon.

### Conclusion

Colonoscopy is safe and very useful tool for evaluation of children with per rectal bleeding. Juvenile polyps are the commonest cause of rectal bleeding in pediatric population and most of these can be removed by polypectomy at the time of colonoscopy.

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9. AO Perisic UN. Colorectal Polyps, an important cause of rectal bleeding. *Arch Dis Child* 1987; 62 (2): 188-45 polyps of 71 pts 63% and 60% solitary rectal polyps.