ETIOLOGY OF LOWER GASTROINTESTINAL BLEEDING IN PAEDIATRIC PATIENTS, A COLONOSCOPIC SURGERY

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ABSTRACT

Objective: To determine the frequency of various etiologies of painless lower gastrointestinal bleeding (LGIB) in pediatric patients using colonoscopy.

Study Design: Cross sectional descriptive study.

Place and Duration of Study: This study was carried out at the department of Pediatrics, Military Hospital, Rawalpindi, from June 2010 to February 2012.

Patients and Methods: A total of 80 patients (2-18 years of age) presenting with painless lower gastrointestinal bleeding were subjected to fiber-optic colonoscopy and findings were recorded. Data was analyzed with the help of SPSS version 10. Descriptive statistics were used to determine the mean ± SD of numerical data, e.g., for age. Categorical data like gender and colonoscopic findings were analyzed by their frequencies and percentages.

Results: The study included 80 children out of which 53 were boys and 27 girls (male: female ratio was 1.96: 1). The majority of children, n=54 (67.5%) were between two and six years of age. The most common colonoscopic findings were polyps. In 47 (58.75%) patients, polyps were found in the colon and were resected. In 9 (11.25%) patients, gross appearance of colon was normal. Evidence of colitis was found in 17 (21.25%) patients. Patients with hemangiomas were 2 (2.5%). A total of 5 (6.25%) patients had non specific ulcerative lesions.

Conclusion: Polyps of the colorectal area are the most common cause of rectal bleeding in children in our set up. Thorough physical examination which includes a digital rectal examination and colonoscopy leads to rapid and accurate diagnosis and appropriate therapeutic measures.

Keywords: Colonoscopy, Lower Gastrointestinal Bleeding, Polyps.

INTRODUCTION

Lower gastrointestinal bleeding (LGIB) which manifests clinically as rectal bleeding means that the site of bleeding is distal to the ligament of Treitz and is usually suspected when patients present with passage of bright red blood or blood clots per rectum[1]. Its incidence in children in various Western reports is estimated to be about 20 in 100000 per year[2]. It is one of the common complaints with which children are referred to pediatric gastroenterologists and surgeons[3]. The diagnostic evaluation for painless LGIB includes a thorough history and physical examination followed by; colonoscopy, which is the procedure of choice for determining the etiology of lower gastrointestinal bleeding[4].

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Bleeding is usually self limited but it is important to address the issue on priority employing relevant diagonstic procedures[5]. Lower gastrointestinal bleeding remains a common cause of visits to the health care facilities but its exact epidemiology needs further elucidation[6]. Most of the causes leading to LGIB may not need any intervention but investigation is important so that life threatening conditions are not missed. Therefore determing the cause of bleeding is important for appropriate management of the affected children.

Polyps are among the most common gastrointestinal tumors in children and the most common cause of lower gastrointestinal bleeding during childhood in contrast to adults where the most frequent causes are non specific colitis and colorectal carcinoma[9]. A recent study done on Chinese children showed the incidence of colonic polyps to be 29%, Crohns disease (CD) 15%,

Ulcerative Colitis (UC) 1.5% and the remaining were miscellaneous causes[8].

We carried out this study to determine the various causes of lower gastrointestinal bleeding in pediatric patients in our set up as depicted by colonoscopy.

MATERIAL AND METHODS

This descriptive cross sectional study was carried out on patients presenting to OPD or admitted in wards at the Pediatrics department, Military Hospital, Rawalpindi, from June 2010 to Feb 2012. Eighty patients from 2 to 18 years of age and both genders presenting with lower gastrointestinal bleeding for more than four weeks were included in the study. Patients with history of haematemesis, malena, anal fissures or hemorrhoids established by per rectum exam / proctoscopy and acute infectious bloody diarrhea were excluded from the study. Informed written consent was taken from all the patients' parents participating in this study. Every child was assigned a serial number. Detailed history was taken and all the information entered in the patient's performa. All children were subjected to fiber-optic colonoscopy and findings were recorded. All the colonoscopic findings were entered in the performa. Data was analyzed using SPSS version 10. Descriptive statistics were used to calculate mean ± SD of numerical data, e.g., age. Categorical data like gender and colonoscopic findings were analyzed by their frequencies and percentages.

RESULTS

A total of 80 children with age range of 2-18 years (mean 5.83 + 2.89 SD) with painless LGIB underwent colonoscopy to determine the causes of lower gastrointestinal tract bleeding. There were 53 (66.25%) boys and 27 (33.75%) girls with male : female ratio of 1.96 : 1. The majority of children n=54 (67.5%) were between 2 and 6 years of age.

Colonoscopic findings included polyps, colitis, non specific findings like aphthous, local or disseminated inflammation or linear ulcers, erythema, decreased or increased vascular markings and fissure, hemangiomas and some with no identifiable lesions (table).

Polyps constituted the most common finding. In 47 (58.75%) patients, there were polyps in the colon of various sizes; all were removed. Solitary polyps were identified in 46 (97.87%) patients while one patient had two polyps. Normal appearance of colon was found in 9 (11.25%) patients. Seventeen (21.25%) patients had evidence of colitis. Two (2.5%) patients had hemangiomas. Five (6.25%) patients had lesions like aphthous, local or disseminated inflammation or linear ulcers, erythema, decreased or increased vascular marking and fissure.

Table-: Causes of lower gastrointestinal bleeding, as found on colonoscopy.

S.no.	Colonoscopic findings	Number of patients	Percentage
1.	Polyp	47	58.75%
2.	Colitis	17	21.25%
3.	Normal mucosa	09	11.25%
4.	Non specific findings	05	6.25%
5.	Hemangiomas	02	2.5%
	Total	80	100%

Biopsies were also taken from all suspicious lesions and sent for histopathology.

DISCUSSION

Rectal bleeding is one the most serious symptoms with which children present to the OPD and creates panic in both parents and the patient. It requires history, physical examination, including a digital rectal examination and different investigations including a colonoscopy[11]. Colonoscopy has become a safe and effective diagnostic procedure[12,13]. It should be performed after adequate bowel preparation[14].

The causes of painless LGIB are different in children from adults[15]. Polyps are the most frequent causes of painless rectal bleeding[16]. In our study, 80 colonoscopies were performed for finding the cause of painless LGIB. We found

polyps in 58.75% of patients which is quite close to the findings of other studies from Pakistan like Wajeehuddin and Brohi found it to be in 56.25% patients[24]. However, it is quite high as compared to other studies like Motamed et al who found polyps in 34.7% of patients[23] while Clarke et al, reported polyps in only 10% of their subjects[3]; in a study on Hong Kong Chinese children, polyps were found in 28.04%[8]. The rate of polyps in our study was however less than the relative frequency of 75% reported by Mandhan[15]. However all these studies revealed that the most common cause of painless LGIB was colonic polyp which is consistent with our study.

Variations in the prevalence of polyps have been found in many research studies[17,18]. Western studies revealed a relative frequency of 4%–17% while in studies from Iran it was reported to be 34.7%[23]. Indian studies reported it as high as 61%[10]. It appears that this difference is due to the variation of prevalence in different regions of the world and can explain our study. These studies regarding the prevalence of polyp might be underestimation of the actual burden since even in expert hands, 10% or so of polyps can be missed at colonoscopy[19].

Approximately 11.25% of colonoscopies were normal which is within the range found in other studies; Motamed, et al found 15.8% of colonoscopies to be normal[23] and the study done by Clarke, et al[3] reported 30% normal results; another study conducted by Motamed, et al in Shiraz[20] revealed a prevalence rate of 23% of normal colonoscopy and Mandhans[15] reported a frequency of 10.6% normal colonoscopy. However, even the best centers of the world could find any abnormality in 10%–30% of patients with LGIB.

Inflammatory bowel disease is global in distribution[21]. In our study 21.25% cases showed evidence of colitis on colonoscopy. In a study by Saleem et al it was found to be 16%[4] while the study on Chinese children in Hong Kong found it to be 15.85%[8].

Vascular malformation such as hemangiomas and angiodysplasia in children are rare causes of painless LGIB. In our study only two patients (2.25%) had hemangiomas. Torre et al, during 23 years of follow-up, found that only six patients had vascular malformation[22]. In a study of Motamed et al[20] the prevalence of rectal varices was 1% which was in a patient with portal hypertension; however none of our patients had any evidence of rectal varices.

CONCLUSION

Polyps in the large gut constitute the most important causes of lower gastrointestinal tract bleeding in children followed by inflammatory causes (nonspecific colitis and inflammatory bowel disease). Colonoscopy remains a useful and safe procedure in children for evaluation of lower gastrointestinal bleeding both from the diagnostic and therapeutic points of view.

REFERENCES

1. Zia N, Hussain T, Salamat A, Mirza S, Hassan F, Waqar A. Diagnostic evaluation of patients presenting with bleeding per rectum by colonoscopy. J Ayub Med Coll Abbottabad 2008; 20; 73-6.
2. Iacono G, Ravelli A, Di Prima L, Scalici C, Bolognini S, Chiappa S et al. Colonic lymphoid nodular hyperplasia in children: relationship to food hypersensitivity. Clin Gastroenterol Hepatol 2007; 5:361-6.
3. Clarke G, Robb A, Sugarman I, Macallion WA. Investigating painless rectal bleeding is there scope for improvement? J Pediatr Surg 2005; 40: 1920-2.
4. Saleem S, Akram M, Hussain R. Lower GIT bleeding. Professional 2005; 12:170-5.
5. Raju GS, Gerson L, Das A. American Gastroenterological Association Institute medical position statement on obscure gastrointestinal bleeding. Gastroenterolgy 2007; 133;1694.
6. Dupont C, Badoual J, Le Luyer B, Le Bourgeois C, Barbet JP, Voyer M. Rectosigmoidoscopic findings during isolated rectal bleeding in the neonate. JPediatr Gastroenterol Nutr 1987; 6:25-64.
7. Khurana AK, Saraya A, Jain N, Chandra M, Kulshrestha R. Profile of lower gastrointestinal bleeding in children from a tropical country. Trop Gastroenterol 1998; 19:70-1.
8. Tam YH, Lee KH, Chan KW, Sihoe JDY, Cheung ST, Mou JWC. Colonoscopy in Hong Kong Chinese Children. World J Gastroenterol 2010; 16: 1119-122.
9. Nikpour S, Ali Asgari A. Colonoscopic evaluation of minimal rectal bleeding in average-risk patients for colorectal cancer. World J Gastroenterol 2008; 14: 6536-540.
10. Poddar U, Thapa BR, Vaiphei K, Singh K. Colonic polyps: experience of 236 Indian children. Am J Gastroenterol 1998; 93:619.
11. Arvola T, Ruuska T, Keranen J, Hyoty H, Salminen S, Isolauri E. Rectal bleeding in infancy: clinical, allergological, and microbiological examination. Pediatrics 2006; 117: 760-8.
12. Hunt R H. Towards safer colonoscopy. Gut 1984; 24:371-75.
13. Mavre FA, Tan KG, Williams CB. Towards safer colonoscopy: a report on the complications of 5000 diagnostic and therapeutic colonoscopies. Gut 1983; 24:376-83.
14. Rossi T. Endoscopic examination of the colon during infancy and childhood. Pediatr Clin North Am 1988; 35:331-56.

15. Mandhan P. Sigmoidoscopy in children with chronic lower gastrointestinal bleeding. J paediatr Child health 2004; 40:365-68.
16. Thomson M. Ileocolonoscopy and enteroscopy. In: Walker WA, Goulet O, Klienman RE, editors. Pediatrics Gastro intestinal Disease. 4th ed. Hamilton: BC Decker's; 2004. P. 1703-24.
17. Cynamon HA, Milov DE, Andres JM. Diagnosis and management of colonic polyps in children. J Pediatr 1989; 114: 593-6.
18. Latt TT, Nicholl R, Domizio P. Rectal bleeding and polyps. Arch Dis Child 1993; 69:144-7.
19. Mestre JM. The changing pattern of juvenile polyps. AM J Gastroenterol 1986; 81: 312-4.
20. Motamed F. Review for etiologies of lower gastrointestinal bleeding in children above 1 month old referred to Namazi Hospital of Shiraz from Mehr 80 to Mehr 81 [dissertation]. Shiraz: Shiraz University of Medical School; 2003.
21. Theander G, Tragardh B. Lymphoid hyperplasia of the colon in childhood. Acta Radio Diagn 1976; 17:631-40.
22. Torre ML, Gomez V, Tiscarreno MM, Mayans JR. Angiodysplasia of the colon in children. J Pediatr Surg 1995; 30:72-5.
23. Farzaneh Motamed. Colonoscopic findings in children with lower gastrointestinal bleeding Govaresh 2008; 13 (1):54-7.
24. Wajeehuddin, Brohi AR. Per rectal bleeding in children, a clinical experience. Surg Pak 2008; 13(2):47-50.

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