Juvenile polyp and polyposis syndrome: Experience at a tertiary hospital of Bangladesh

***Md Benzamin[1], Maimuna Sayeed[1], Md Rukunuzzaman[1], Md Wahiduzzaman Mazumder[1], Fahmida Begum[1], Khan Lamia Nahid[1], Afsana Yasmin[1], Kaniz Fathema[1], Mukesh Khadga[1], A S M Bazlul Karim[1]**

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Abstract

Objectives: Evaluation of clinical spectrum, laboratory profile, histology and colonoscopic features of juvenile polyp and polyposis syndrome**.**

Method: This is a retrospective observational study and we reviewed medical records of 77 children who were diagnosed as juvenile polyp and polyposis syndrome**.**

Results: Mean age of study subjects was 5.6±2.4 years. The male to female ratio was 1.75: 1.0. Among a total of 77 patients, juvenile polyp was present in 71 (92%) and polyposis syndrome in 6 (8%). Peak age of presentation was from 2 to 5 years. Main presenting complaints were per rectal bleeding (100%), pallor (37.7%), prolapsed polyp (6.5%), abdominal pain (9.1%) and fever (2.6%). About 38% children had low haemoglobin and 25% had high erythrocyte sedimentation rate. Histopathologically, 98.8% had hamartomatous polyps and 1.2% had adenomatous polyps. In the juvenile polyp group**,** male-female ratio was 2.1:1 and mean age was 5.5±2.3 years. Mean duration of bleeding 6.4±3.4 months. Solitary polyp was found in 73.2% and multiple polyps in 26.8%. About 83.5% of polyps were in the recto-sigmoidal region. None of the patients had any serious post-colonoscopy and polypectomy complications.

Conclusions: In this study of 77 patients, 92% had juvenile polyp and 8% had polyposis syndrome. Commonest presenting complaint was per rectal bleeding (100%). Histopathologically, 98.8% had hamartomatous polyp. Solitary polyp was found in 73.2% and 83.5% of polyps were in the recto-sigmoidal region.

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Introduction

Polyp is defined as a tissue mass that projects from the wall of the bowel into the lumen of gastrointestinal tract[1]. Colorectal polyps affect 1.1% of 4-12 years children[2]. Juvenile polyps are the most common (90%) gastrointestinal polyps and usually cause painless per rectal bleeding in children[2-4]. About 90% juvenile polyps are located in the recto-sigmoid region but others are located more proximally so that total colonoscopy is necessary[5-7]. Children with juvenile polyps have no risk of malignant transformation but **c**hildren with familial adenomatous polyp and juvenile polyposis syndrome have the risk of development of adenocarcinoma[1,8].

Objectives

This study was conducted to evaluate the children with juvenile polyp and polyposis syndrome.

Method

This retrospective observational study was carried out in the Department of Paediatric Gastroenterology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. We reviewed the register book (indoor) of paediatric gastroenterology department from January 2017 to December 2018. Children diagnosed as having colonic polyp by colonoscopy, were included in the study. Pentax EC 3490 LK 3.8 paediatric colonoscope was used. Seven patients with incomplete data were excluded from the study. A total of 77 patients were analysed with clinical, laboratory and colonoscopy findings. Data were entered into Microsoft Excel and analysed by SPSS.

As most of the juvenile polyps were pedunculated, they were excised easily using a loop snare. Loop snare technique was used along with cauterization for sessile polyp in all cases in our study. Pre-sedative and pain killer were given. N**o** anaesthesia was given to any patient. Juvenile polyp was

[1]*Department of Paediatric Gastroenterology and Nutrition, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh*
**Correspondence:* drmd.benzamin@yahoo.com

https://orcid.org/0000-0002-8239-6441

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diagnosed by presence of 5 or less hamartomatous polyps in colon or rectum with absence of a family history[1]. Juvenile polyposis syndrome was diagnosed using JASS criteria[10]. The diagnosis was made when one of the following clinical criteria were present: a) More than five juvenile polyps of colon or rectum, b) Juvenile polyps in other parts of the gastrointestinal tract, and c) Any number of juvenile polyps and a positive family history[9,10]. Familial adenomatous polyposis (FAP) was clinically diagnosed on identifying more than 100 colorectal adenomatous polyps[11]. Diagnosis of Peutz-Jeghers syndrome was made in the presence of multiple hamartomatous gastrointestinal polyps and melanin pigmentation of skin and mucous membranes[12,13].

Ethical clearance for the study was obtained from the Institutional Review Board of the Department of Paediatric Gastroenterology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

Results

A total of 77 patients with colonic polyp were studied. Of them 49 (63.6%) were male and 28 (36.4%) were female. The male: female ratio was 1.75:1. The ages of the study group are shown in Figure 1.

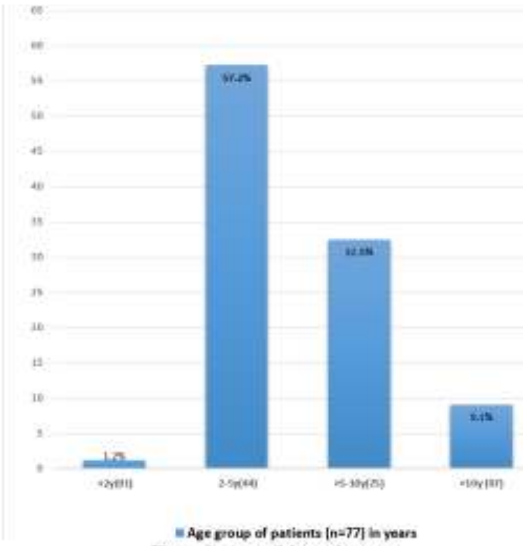

Figure 1: *Ages of the study group*

The mean age at diagnosis was 5.6±2.4 years with a range of 1.5 to 14 years. Whilst 71 (92%) had juvenile polyp, 6 (8%) had polyposis syndrome. Forty four (57%) children presented at ages between 2 to 5 years. The clinical and laboratory characteristics of patients with colorectal polyp are shown in Table 1.

The main presenting complaint was per rectal bleeding (100%). The mean duration of per rectal bleeding was 7.97±5 months with a range of 0.23-72 months. About 38% children had low haemoglobin and 25% children had high erythrocyte sedimentation rate (ESR). Histopathologically, 98.8% were hamartomatous polyps (Table 1). Demographic data and polyp distribution in the juvenile polyp group is shown in Table 2.

Table 1: ***Clinical and laboratory characteristics of patients (n=77)***

Characteristic	n (%)
Presenting symptoms	
Per rectal bleeding	77 (100)
Pallor	29 (37.7)
Prolapsed polyp	05 (06.5)
Abdominal pain	07 (09.1)
Fever	02 (02.6)
Extra intestinal features	01 (01.2)
Anaemia	
Mild	19 (24.7)
Moderate	09 (11.7)
Severe	01 (01.2)
Inflammatory markers	
High erythrocyte sedimentation	19 (24.7)
rate	15 (19.5)
Leucocytosis	09 (11.7)
Thrombocytosis	05 (06.5)
High C-reactive protein	
Histopathology	
Hamartomatous polyp	76 (98.8)
Adenomatous polyp	01 (01.2)

Table 2: ***Demographic data and polyp distribution in juvenile polyp group (n=71)***

Characteristic	n (%)
Gender	
Male	48 (67.7)
Female	23 (32.3)
Age distribution	
<2 years	01 (01.4)
2-5 years	40 (56.3)
>5-10years	25 (35.3)
>10 years	05 (07.0)
Number of polyps	
Solitary polyp	52 (73.2)
2 polyps	08 (11.3)
3 polyps	03 (04.2)
4 polyps	05 (07.1)
5 polyps	03 (04.2)
Location of polyp	
Rectum	27 (38.0)
Sigmoid colon	28 (39.5)
Descending colon	02 (02.8)
Transverse colon	03 (04.2)
Rectum + sigmoid colon	04 (05.7)
Rectum + transverse colon	03 (04.2)
Sigmoid colon + descending colon	02 (02.8)
Sigmoid colon + beyond transverse colon	01 (01.4)
More than 2 sites	01 (01.4)

In the juvenile polyp group**,** there were 67.7% males and the male-female ratio was 2.1:1. The mean age was 5.5±2.3 years, ranging from 1.5-14 years. The mean duration of bleeding was 6.4±3.4 months, ranging from 1-24 months. Solitary polyp was found in 73.2% children. About 84.5% polyps were found on a single anatomical site and 15.5% on 2 or more sites. About 83.5% polyp were in the recto-sigmoidal region. (Table 2)

Polyp distribution in juvenile polyposis syndrome group is shown in Table 3.

Table 3: ***Polyp distribution in polyposis syndrome group (n=6)***

Polyposis syndrome	No. of patients	No. of polyps (approx.)	Location of polyp in colon	Location of polyp in upper GIT
Generalized juvenile polyposis	01	50	Throughout the colon	Gastric polyp
Juvenile polyposis coli	03	6-10	Rectum ± sigmoid colon ± descending colon	Absent
Familial adenomatous polyposis	01	105	Throughout the colon	Absent
Peutz-Jeghers syndrome	01	06	Rectum + transverse colon	Absent

Polyposis syndrome was present in 8% of patients and included juvenile polyposis coli, generalized juvenile polyposis, familial adenomatous polyposis and Peutz Jeghers syndrome. Mean age was 7.0±4.0 years, ranging from 3.5-14 years. Mean duration of bleeding was 26±18.7 months, ranging from 8-72 months.

Post-colonoscopy and polypectomy complications were 5% and included mild abdominal pain and discomfort. None of the patients had any serious complications.

Discussion

Gastrointestinal polyps are not uncommon in children and adolescents[14]. Before colonoscopy, most juvenile polyps were thought to be solitary and located in the recto-sigmoid region, but polyps are frequently (50%) multiple and around 60% of them are located in the proximal colon[15,16]. Now, colonoscopy is available in our centre and pancolonoscopy was done in all patients to diagnose polyp.

Colonic polyps commonly present with recurrent episodes of painless per rectal bleeding. Less frequently, they present with abdominal pain, prolapsed polyp, abdominal pain or diarrhoea[1]. In our study, 77 patients had colonic polyp. Mean age of study subjects was 5.6±2.4 years. Among them there were 63.6% males. About 57% children presented between 2 to 5 years of age. Common presenting complaints were per rectal bleeding (100%) pallor (38%), prolapsed polyp (6.5%), abdominal pain (9%) and fever (2.6%). Histopathologically, 98.8% were hamartomatous polyps and 1.2% were adenomatous polyps. Our findings matched those of Lee HJ, *et al* and Andrade DO *et al.* Lee HJ, *et al* studied 76 children with colonic polyp and found juvenile polyps in 76.3% and polyposis syndrome in 22.4% children. Mean age was 8.5 years and 60% were male. Presenting complaints were per rectal bleeding (86.6%), prolapsed polyp (5.3%), abdominal pain (2.6%), diarrhoea (10.5%) and constipation (1.3%). Histopathologically, 84.2% were hamartomatous polyps and 15.8% were adenomatous polyps[17]. Andrade DO *et al* studied 74 children with colonic polyp and found the mean age was 6.6 years and that 61% were male. Juvenile polyps were identified in 65% patients whilst 35% were diagnosed with polyposis syndromes[18].

In our study, 37.7% had anaemia. Cynamon HA *et al* and Holgersen LO had similar findings[19,20]. Juvenile polyps are the commonest colonic polyps, most cases occurring before 10 years of age, peaking around 2-5 years and predominantly affecting males[1,3]. Lee BG *et al* found the mean age of the patients with juvenile polyps was 6.5±3.7 (range 1.3-14.5 years) years and male to female ratio was 2.1:1[21]. In our study, we found the mean age in juvenile polyps group was 5.5±2.3 years, ranging from 1.5-14 years, 67.7% were males and the male-female ratio 2.1:1. In our study, mean duration of bleeding before diagnosis was 6.4±3.4 months, ranging from 1-24 months. Lee BG *et al* found a longer time interval between per rectal bleeding and colonoscopic diagnosis; it was 8.9±20.4 months, ranging from 0.1-48 months[21].

Juvenile polyps most commonly occur as solitary lesions in the rectum or sigmoid colon[22]. The present study found solitary polyps in 73.2% children, followed by 2 polyps in 11.3% children and 3 to 5 polyps in 15.5% children. Lee BG *et al* found 75.9% children had a solitary polyp and 24.1% had multiple polyps[21]. Lee HJ *et al* found 96.5% children had a solitary polyp and 3.5% had multiple polyps[17]. Several studies showed that 67%-94.4% polyps are found in the recto-sigmoid region[23-25]. In our study, about 84.5% polyps were found in a single anatomical site and 15.5% in 2 or more sites. About 83.5% polyps were in the recto-sigmoidal region. Lee BG *et al* found 84.9% of polyps were in the recto-sigmoid colon whilst

15.1% were found in more proximal locations. Roma-Giannikou ES *et al* found 74.6% polyps in the recto-sigmoid region.

In our study, 6 (8%) had juvenile polyposis which included juvenile polyposis syndrome (4), familial adenomatous polyposis (1) and Peutz Jeghers syndrome (1). Lee HJ *et al* found, polyposis syndrome in 22.4% children. Among them 14.5% had familial adenomatous polyposis, 5.3% had Peutz-Jeghers syndrome, and 2.6% had juvenile polyposis syndrome[17].

Possible complications of polypectomy include haemorrhage, intestinal perforation and post-polypectomy syndrome. Majority of complications are seen with electrocautery. Mild gastrointestinal symptoms such as abdominal pain, bloating, diarrhoea, and nausea are reported to occur after colonoscopy with polypectomy in around 33% of patients but these resolve in 24–48 hours. More severe complications include splenic haematoma or rupture, acute appendicitis, diverticulitis, incarcerated hernias, intramural haematoma, bacteraemia, and colonic explosion[21,27]. In our study, post colonoscopy and polypectomy complications were 5% which included mild abdominal pain and discomfort. None of the patients had any serious complication. No case of complications occurred due to sedative and painkiller. Lee BG *et al* found, haematochezia in 10.8% patients, no other complications occurred[21].

Limitations of the study were that it was a single centre study and the small sample.

Conclusions

In this study of 77 patients, 92% had juvenile polyp and 8% had polyposis syndrome. The commonest presenting complaint was per rectal bleeding (100%). Histopathologically, 98.8% had hamartomatous polyp and 1.2% adenomatous polyp. Solitary polyp was found in 73.2% and 83.5% of polyps were in the recto-sigmoidal region.

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