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Original Article *Özgün Araştırma*

THE ROLE OF COLONOSCOPY IN PEDIATRIC DIAGNOSIS AND TREATMENT: A 6-YEAR SINGLE-CENTER EXPERIENCE

Pediatrik Hastalarda Kolonoskopinin Tanı ve Tedavideki Rolü; Tek Merkez 6 Yıllık Deneyim

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ABSTRACT

Objective: In pediatrics, colonoscopy is routinely used safely and effectively for the diagnosis and treatment of gastrointestinal system diseases. The most common colonoscopy indications in childhood are; lower gastrointestinal bleeding, chronic diarrhea and chronic abdominal pain. We aimed to contribute to the literature by retrospectively examining the characteristics of pediatric patients who underwent colonoscopy in our clinic.

Material and Methods: Pediatric patients who underwent colonoscopy by a single pediatric gastroenterologist during the 6-year period between August 2017 and August 2022 were included. The patients were divided into four different age groups and their characteristics were compared. Additionally, differences were investigated in colonoscopies performed in two different periods.

Results: In the study, 614 colonoscopies were performed in 551 patients. The average age of the patients was 12.3±4.7, 51.9% were female and 48.1% were male. 2.2% under two years of age; 8.3% between 2-6 years old; while the rate of patients aged 6-12 was 22.7%, the rate of patients over 12 years of age was 66.8%, 40.5% of the patients had one complaint, 30.7% had two complaints, 28.8% had three or more complaints. The most common complaint was chronic diarrhea in 31% (n=171), rectal bleeding in 16.7% (n=92), and bloody mucus stools in 13% (n=71). Main colonoscopy indications: suspicion of inflammatory bowel disease (n=406, 73.7%), colorectal polyp investigation (n=72, 13.1%), malignancy screening (n=35, 6.4%), lower gastrointestinal tract bleeding (n=35, 6.4%). The most common colonoscopy findings were inflammatory bowel disease with 32.3% (n=178), colorectal polyp with 4.2% (n=23), and solitary rectal ulcer with 3.3% (n=18). 49.7% of colonoscopies were normal and 4.2% were dirty. The ileum intubation success rate in colonoscopy was 92.4%. There were no complications.

Conclusion: In pediatric patients presenting with gastrointestinal system signs and symptoms, performing biopsy and colonoscopy more actively, safely and effectively will provide early accurate diagnosis and treatment of many diseases, especially inflammatory bowel disease.

Keywords: *Child, colonoscopy, polyp, inflammatory bowel disease*

ÖZ

Amaç: Pediatride kolonoskopi gastrointestinal sistem hastalıklarında tanı ve tedavi amacıyla rutin olarak güvenli ve etkin şekilde kullanılmaktadır. Çocukluk çağında en sık görülen kolonoskopi endikasyonları; alt gastrointestinal kanama, kronik ishal ve kronik karın ağrısıdır. Kliniğimizde kolonoskopi yapılan çocuk hastaların özelliklerini retrospektif olarak incelenerek literatüre katkı sağlamak amaçlandı.

Gereç ve Yöntemler: Ağustos 2017 ile Ağustos 2022 tarihleri arasındaki 6 yıllık dönemde tek pediatrik gastroenterolog tarafından kolonoskopi yapılan çocuk hastalar dahil edildi. Hastalar dört farklı yaş grubuna ayrılarak özellikleri karşılaştırıldı. Ayrıca iki farklı dönemde yapılan kolonoskopilerde farklılık araştırıldı.

Bulgular: Çalışmada 551 hastaya 614 kolonoskopi yapıldı. Hastaların yaş ortalaması 12.3±4.7'di, %51.9'u kadın, %48.1'i erkekti. İki yaşın altında %2.2; 2-6 yaş arası %8.3; 6-12 yaş arası %22.7 iken, 12 yaş üzeri hasta oranı %66.8'di. Hastaların %40.5'inin tek şikayeti, %30.7'sinin iki şikayeti, %28.8'inin üç ve daha fazla şikayeti vardı. En sık görülen şikâyet %31 (n=171) kronik ishal olurken, %16.7 rektal kanama (n=92), %13 kanlı mukuslu dışkılama (n=71) idi. Başlıca kolonoskopi endikasyonları; inflamatuvar bağırsak hastalığı şüphesi (n=406, %73.7), kolorektal polip araştırılması (n=72, %13.1), malignite taraması (n=35, %6.4), alt gastrointestinal sistem kanamasıdır (n=35, %6.4). En sık görülen kolonoskopi bulguları %32.3 (n=178) ile inflamatuvar bağırsak hastalığı, %4.2 (n=23) ile kolorektal polip, %3.3 (n=18) ile soliter rektal ülserdi. Kolonoskopilerin %49.7'si normal, %4.2'si kirliydi. Kolonoskopide ileum entübasyon başarı oranı %92.4 idi. Komplikasyon yaşanmadı.

Sonuç: Gastrointestinal sistem belirti ve semptomlarıyla başvuran pediatrik hastalarda, biyopsi ve kolonoskopinin daha aktif, güvenli ve etkili bir şekilde yapılmasıyla inflamatuvar bağırsak hastalığı başta olmak üzere birçok hastalığın erken doğru tanı ve tedavisini sağlayacaktır.

Anahtar Kelimeler: *Çocuk, kolonoskopi, polip, inflamatuvar bağırsak hastalığı*

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INTRODUCTION

Introduced in the late 1970s, lower gastrointestinal system endoscopy (ileocolonoscopy) allows direct evaluation of the large intestine and terminal ileum. Technological advancements in video endoscopes and an increasing number of experienced pediatric gastroenterologists have led to their safe and routine use in diagnosing and treating patients across all age groups (1). Colonoscopy offers advantages over alternative methods; it facilitates histological tissue sampling, visually examines the entire colon (including the distal ileum) and enables various therapeutic interventions such as polypectomies and stricture dilation. However, pediatric applications present unique challenges compared to adult procedures. These include complexities in managing parental expectations, the necessity of sedation, bowel preparation, instrument selection, the potential need for terminal ileal intubation, anatomical variations, and the requirement for biopsies of macroscopically normal mucosa. Consequently, pediatric colonoscopy is more demanding and carries a higher risk of complications. Indications for colonoscopy must be carefully considered. While procedural characteristics vary across regions and over time, rectal bleeding, chronic abdominal pain, and persistent diarrhea represent the most common indications for pediatric colonoscopy (2-4). Additionally, suspected inflammatory bowel disease, malignancies, foreign body removal, and the treatment of gastrointestinal bleeding also warrant colonoscopic evaluation (1). Contraindications for the procedure include suspected intestinal perforation, cardiovascular, respiratory, or neurological instability, and coagulopathy (1,5). Inadequate bowel preparation may necessitate the cancellation of a colonoscopy. Although advancements in anesthesia techniques, endoscope size, and flexibility have led to increased pediatric colonoscopies, published data on childhood procedures remain limited. Our study aims to contribute to the literature by retrospectively analyzing pediatric patients who underwent colonoscopy, providing further insights into this field.

MATERIALS AND METHODS

This study included patients who underwent colonoscopy performed by a single pediatric gastroenterologist between August 2017 and August 2022. Demographic data (including age and gender), presenting symptoms, comorbidities, colonoscopy indications, and both colonoscopic and histopathological findings were retrospectively analyzed using the hospital registry system and data archive. For analysis, patients were divided into two groups: “Infants and young children” (under six years of age) were designated as group 1, while those over six were classified as “children” in group-2. Ileal intubation success rates were assessed for both groups. Bowel preparation before colonoscopy was tailored to the patient’s age and body weight. All patients received conscious sedation administered by an anesthesiologist before the procedure. Sedation protocols involved combinations of intravenous propofol, midazolam, and ketamine hydrochloride, adjusted based on age and weight. Oxygen support was provided via nasal cannula during the procedure, with continuous peripheral oxygen saturation, blood pressure, and cardiac rhythm monitoring. A pediatric gastrointestinal endoscopy specialist performed all colonoscopies, with procedures initiated in the left lateral position. If colonoscope advancement proved difficult, the patient’s position was adjusted, and manual abdominal compression was applied as needed. Our hospital’s histopathology laboratory conducted histopathological examinations. Data analysis was conducted using the SPSS 26.0 statistical package. Descriptive statistics were employed, with frequencies expressed as percentages and distributions of variables presented as mean and standard deviation. The chi-square test was utilized to compare rates between categorical variables. Demographic characteristics and colonoscopic findings were analyzed across two chronological periods (2017-2019 and 2020-2022). The Pearson test was used for non-normally distributed continuous variables, while the Student-t test was applied to normally distributed data. A p-value of less than 0.05 was considered statistically significant. Ethics committee approval was obtained from Health Sciences University Adana City and Training and Research Hospital Medical Research Ethics Committee dated 02.06.2021 and numbered 82/1433.

RESULTS

A total of 614 colonoscopies were performed on 551 patients. The mean patient age was 12.3 years (SD±4.7), with no statistically significant difference between genders ($p>0.05$). Data of patients who underwent colonoscopy are given in Table 1.

Patients were further categorized by age groups. Group 1 (infants and young children) included 17 girls and 41 boys, while group 2 (children) comprised 269 females and 224 males. There was 10.3% in the infant and toddler group (under 6 years of age) and 89.5% in the child group (over 6 years of age). There was a significant difference in gender distribution between age groups ($p<0.001$). While males were more prevalent under age two, the trend reversed with increasing age, demonstrating a female predominance in older age groups. The time between symptom onset and colonoscopy application ranged from 1 to 120 months.

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Analysis of average application times revealed no significant difference between genders (p=0.176).

Chronic diarrhea was the most prevalent presenting complaint, affecting 31% of patients (n=171). In our study, among infants and young children, gastrointestinal (GI) bleeding (59.2%), chronic diarrhea (27.7%), and suspected IBD (14.7%) were the most frequent reasons, followed by screening for familial polyposis cancer (3.7%). Chronic diarrhea was most common in older children (35.4%). This was followed by gastrointestinal bleeding (33.8%), chronic abdominal pain (12.5%), suspicion of IBD based on extraintestinal findings (10%), iron deficiency anemia refractory to treatment (4%) and investigation for malignancy (2.7%). Of the patient population, 40.5% presented with a single complaint, 30.7% with two complaints, and 28.8% reported three or more complaints. Other less frequent indications for colonoscopy included graft-versus-host disease following bone marrow transplantation, iron deficiency anemia, a family history of colon cancer, chronic constipation, suspected inflammatory bowel disease (based on extraintestinal findings), and gastrointestinal involvement associated with collagen tissue diseases.

Analysis of colonoscopy indications revealed suspected inflammatory bowel disease (IBD) as the primary reason in 73.6% of cases (n=406). Other indications included lower gastrointestinal (GI) bleeding (17%, n=94), polyposis syndrome screening (6%, n=33), and investigation of eosinophilic gastrointestinal tract disease (EGID) (2%, n=11). Table 2 presents a breakdown of colonoscopy indications according to patient age groups.

Table 1: Data of patients who underwent colonoscopy

Age group	**<2 year**	**2-6 year**	**6-12 year**	**>12 year**	**p**
Gender - Male/Female, n	4/12	16/33	56/96	56/96	0.001
Fait cleaning effect, n (%)	0 (0)	4 (0.72)	4 (0.72)	15 (2.72)	0.018
Normaly colonoscopy, n (%)	5 (0.90)	14 (2.54)	64 (11.6)	181 (32.9)	
Depth (the 1st colonoscopy					
Terminal ileum, n (%)	7 (58.3)	40 (86.9)	49 (94.8)	349 (94.8)	<0.001
Cecum, n (%)	1 (8.3)	2 (4.3)	4 (3.2)	4 (1)	

Table 2: Indications for colonoscopy according to age groups of patients

	IBD* suspicion	**Polyp suspicion**	**Cancer history in the family**	**Lower GİS* bleeding**	**Rheumatological disease GİS* involvement**	**Family polyposis screening**	**Suspicious eosinophilic GİS* disease**	**TOTAL**
Age group	n	n	n	n	n	n	n	n
<2 year	5	3	3	0	0	0	1	12
2-6 year	26	13	5	0	0	2	0	46
6-12 year	72	33	10	20	3	2	7	125
>12 year	303	23	10	20	3	2	7	368

IBH: Inflammatory bowel disease, GIS: Gastrointestinal system

Patients under two years of age exhibited the worst bowel cleansing results (75% inadequate), with rates gradually increasing in older age groups (86%-91.9%-93.4%). This difference in bowel preparation quality between age groups was statistically significant (p=0.018). In colonoscopies with abnormal findings (52.2%), the most prevalent diagnoses were inflammatory bowel disease (IBD) at 32.3% (n=178) (Colonoscopic view of ulcerative colitis is shown in Figure 1 and colonoscopic view of crohn's disease is shown in Figure 2.), colorectal polyps at 4.2% (n=23, rectal polyp is shown in Figure 3), and solitary rectal ulcer syndrome (SRUS) at 3.3% (n=18, solitary rectal ulcer is shown in Figure 4). Microscopic colitis was detected in 1.8% (n=10) of cases.

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Figure 1: Ulcerative colitis colonoscopic view

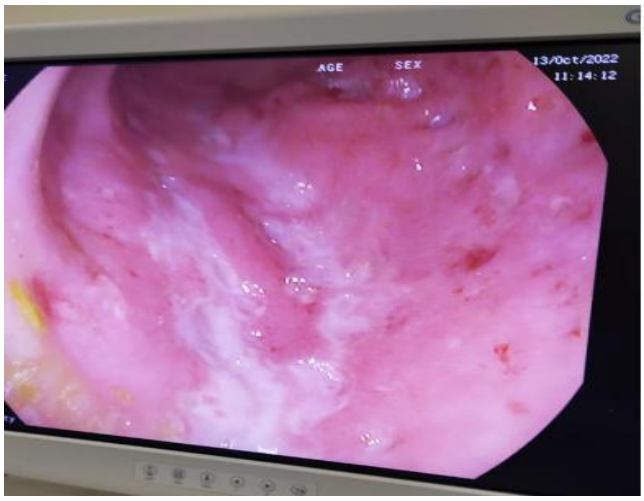

Figure 2: Colonoscopic view in Crohn's disease

Figure 3: Rectal solitary polyp

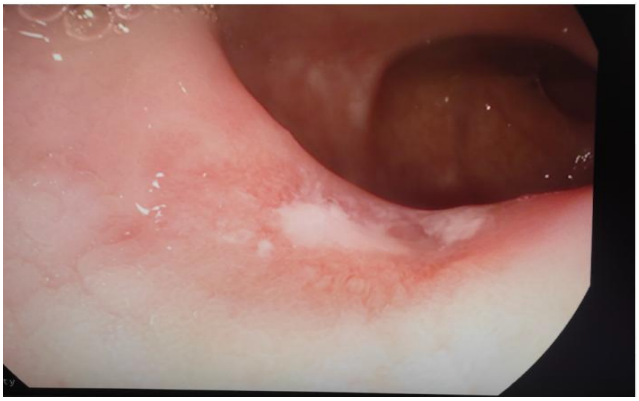

Figure 4: Solitary rectal ulcer

A detailed breakdown of colonoscopy diagnoses according to patient age groups can be found in Table 3.

Table 3: Colonoscopic and histopathological diagnoses of patients according to age groups

	<2 year n	2-6 year n	6-12 year n	>12 year n	TOTALn
IBD*					
UC/CH/NDC*	0/3/1	4/7/4	4/16/4	47/75/13	55/101/22
Microscopic colitis	0	1	2	7	10
SRUS*	0	1	8	9	18
Polyp	2	8	12	1	23
Infectious colitis	0	1	2	1	4
Eosinophilic colitis	0	1	2	1	4
FMF*	0	0	1	1	2
GVDH*	0	1	0	1	2
IPSID*	0	0	0	1	1

IBH: Inflammatory bowel disease, UC: Ulcerative colitis, CH: Crohn's disease/ NDC Unspecified colitis, SRU: Solitary rectal ulcer syndrome, FMF: Familial Mediterranean fever disease, GVDH: Graft versus host disease, IPSID: Immunoproliferative disease of the small intestine

Ileal intubation success rate; that of patients under six years of age was 81% (n=47), and that of patients over six years of age was 93.7% (n=462). This difference in intubation success rate was statistically significant (p=0.003), indicating that ileal intubation is more challenging in preschool children than older children. The success rate was even lower in children under two years old (58.3%, p<0.001). Overall, the colonoscope had a success rate of 92.2% for ileal intubation. Poor bowel preparation prevented successful ileal intubation in only two patients over age six. Most colonoscopies (90.9%) were diagnostic, with the remaining 9.4% performed for follow-up. Table 4 provides a comprehensive overview of other accompanying diseases observed in children who underwent colonoscopy.

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Table 4: Comorbidities in children undergoing colonoscopy

Comorbidities	n	%
None	474	77
Gastroenterohepatological	71	12.9
Rheumatological	22	
FMF	11	2
Behcet's disease	5	0.9
Other	6	1.1
Allergic Diseases	12	2.2
Immunological Diseases Chronic granulomatous disease Selective Immunoglobulin A deficiency	9	1.6
Metabolic Diseases		
Niemann Pick	1	0.5
Glycogen Storage Disease Type 1b	1	0.4
Endocrine Diseases	2	0.4
Cardiological Diseases	3	0.5
Oncological Diseases	2	0.4

While there was no significant difference in gender distribution between the 2017-2019 (M/F ratio: 1) and 2020-2022 (M/F ratio: 1.1) periods (p=0.394), a statistically significant difference in patient ages (p=0.001) was observed. The average age of patients in the 2017-2019 group was 12.6±4.7 years and 11.6±4.7 years in the 2020-2022 group. The proportion of patients under the age of six decreased from 2.9% in the previous period to 1.44% in the next period. In contrast, the proportion of patients over the age of six increased from 88.9% to 91.3%. A statistically significant change was observed in colonoscopy indications. Consistent with the increasing mean age of patients, the prevalence of suspected inflammatory bowel disease (IBD) increased from 66.8% to 80.5% (p=0.007). However, the spectrum of observed diseases remained largely similar between the two periods (p = 0.345). While the rates of normal colonoscopy findings were comparable (46.3% vs. 51.3%), the detection of colorectal polyps was reduced and the rate of solitary rectal ulcers was unchanged. Importantly, due to meticulous procedures, careful risk assessment, and appropriate sedation/anesthesia, there were no serious complications during colonoscopies. The only complication observed was spontaneous, minor bleeding attributed to mucosal trauma. Colonoscopy findings by gender, age and year in 2017-2019 and 2020-2022 are shown in Table 5.

Table 5: Colonoscopy findings by gender, age, and year (2017-2019 vs. 2020-2022)

2017-2019 (n=274) 2020-2022 (n=277)	**<2 year n (%)**	**2-6 year n (%)**	**6-12 year n (%)**	**>12 year n (%)**	**p**
Gender					
Female 137/149	4/0	6/7	24/32	103/110	
Male 137/123	4/4	20/13	33/36	80/70	
Colonoscopy indication					
IBD suspicion	4/1	1411/7	25/47	140/163	
GIS bleeding	4/2	11/7	20/17	21/12	**<0.001**
Malignancy screening	0/0	1/1	10/1	15/7	
Rheumatological disease	0/0	0/0	2/0	2/1	
EGID	0/1	0/0	0/ 3	0/2	
Colonoscopy finding					
Normaly	2/3	7/7	31/33	84/97	
Dirty	0/0	2/2	1/3	7/8	
Ulcerative colitis	0/0	1/3	2/2	29/18	
Crohn's disease	2/1	4/3	6/10	33/42	
Indeterminate Colitis	1/0	2/2	2/2	7/6	
Polyp	0/0	6/2	8/4	0/1	
GIS bleeding	1/0	0 /0	1/3	0/0	**<0.001**
SRUS	0/0	1/0	2/6	6/3	
FAP	0/0	1/0	1/1	0/0	
CVHD	0/0	1/0	0/0	1/0	
Hemorrhoid	0/0	0/0	1/0	3/3	
FMF	0/0	0/0	1/0	1/0	
EGID	0/0	0/0	0/1	1/2	
IPSID	0/0	0/0	0/0	1/0	
Colonoscopy scope					
Terminal ileum intubation success rate	75/25	88.5/85	92.9/88.2	95/94.5	**= 0.011**
Colon cleansing					
Sufficient	7/2	23/17	52/62	173/171	**=0.79**
Insufficient	1/2	3/3	4/6	10/14	

IBD: Inflammatory bowel disease, SRUS: Solitary rectal ulcer syndrome, FMF: Familial Mediterranean fever disease, GIS: Gastrointestinal system, GVDH: Graft versus host disease, IPSID: Immunoproliferative disease of the small intestine, EGID: Eosinophilic gastrointestinal tract disease, FAP: Familial polyposis syndrome

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DISCUSSION

Colonoscopy has become a routine diagnostic tool for pediatric gastroenterologists over the past two decades, with its safe application across all age groups, including newborns. This is due to a growing skill and experience within the field. Despite this trend, published literature on childhood colonoscopies remains limited. No statistically significant difference was found between average ages across genders ($p>0.05$) in our study population. Patients were divided into two age groups: infants and young children (under 6 years) comprised 10.3% of the population, while children (over 6 years) accounted for 89.5%. Interestingly, gender distribution differed significantly across age groups ($p<0.001$). Consistent with previous studies, a male predominance was observed in the younger group (3,6-8). However, this trend reversed with age, demonstrating a female predominance in older patients. Our findings regarding mean age are similar to those reported by Karhan et al. but higher than those reported in earlier studies (3,6-9). Unlike some previous reports, our study did not reveal an overall gender difference, further aligning with the findings of Karhan et al. (9). Several studies have hypothesized that increasing female predominance with age may be attributed to factors such as males' reluctance to express rectal bleeding, bloody diarrhea, and concerns surrounding rectal examinations (3,6-8). Bowel preparation is a critical factor influencing colonoscopy success. This study identified 23 colonoscopies (6.89%) as having poor bowel cleansing. The rate of inadequate preparation was significantly higher in the infant and young child group (6.89%) compared to the children's group (3.6%) ($p=0.018$). This can likely be attributed to medication and dietary compliance challenges in younger children. Inadequate bowel cleansing also reduces ileal and cecal intubation success rates. Our study achieved an overall ileum intubation rate of 92.2%. Terminal ileum intubation rates were demonstrably lower in younger age groups, with the lowest success rate observed in patients under two years old. When comparing success rates across the two time periods, a significantly lower rate of terminal ileum intubation was noted, particularly in the patient group younger than two years old. The lower terminal ileum intubation rate observed in 2020-2022 was likely due to the unavailability of a pediatric colonoscopy scope. Other reasons for incomplete colonoscopy may include severe colitis, posing a higher risk, poor bowel preparation, and technical difficulties. Our ileal intubation rate (92.2%) exceeds those reported in previous studies from the United States (65.6%), Southern China (81.7%), Hong Kong (75.6%), Japan (62%), and Afghanistan (50%). This higher technical success rate in our study likely stems from the procedures performed by an experienced pediatric endoscopist, the high rate of adequate bowel preparation, and the availability of colonoscopy scopes tailored to the age and weight of patients. Importantly, our study is the only one encompassing all pediatric age groups and providing age-specific comparisons. Consistent with previous findings, positive diagnostic findings were detected in 52% of all colonoscopies. This aligns with prevalence rates reported in Asian studies (45.8%-77.1%) as well as studies conducted in the United States (62%) and Afghanistan (81.2%). Analysis of positive diagnostic findings across age groups revealed a decreasing trend with age: 58.4% in children under 2 years, 69.6% in those aged 2-6, 48.4% for the 6-12 age group, and 51% for those over 12 years. This likely reflects several factors. In younger children, anesthesia and colonoscopy carry higher risks, influencing the selection of more limited indications. Our findings regarding the most common indications for colonoscopy align with previous studies. Similar to research conducted in Southern China, Afghanistan, Japan, and Hong Kong (8,10-14), gastrointestinal (GI) bleeding, chronic diarrhea, chronic abdominal pain, and suspected inflammatory bowel disease (IBD) were the primary reasons for admission in our study population. The most frequent diagnoses in our study were IBD (178), colorectal polyps (23), solitary rectal ulcer syndrome (SRUS) (18), microscopic colitis (10), and hemorrhoids (7). Less common diagnoses included eosinophilic gastrointestinal disease (EGID), familial adenomatous polyposis (FAP), graft-versus-host disease (GVHD), familial Mediterranean fever (FMF) with GI involvement, and immunoproliferative small intestinal disease (IPSID). Variations in the prevalence of specific diagnoses across studies can likely be attributed to patient demographics (age and ethnicity) and variations in colonoscopy indications within different healthcare systems. For example, compared to our research, Nambu et al. reported a higher prevalence of EGID, IBD, and colorectal polyps in younger children, while Jan SA et al. reported a higher frequency of polyps, infective colitis, and hemorrhoids (6,7).

Inflammatory bowel disease is a gastrointestinal disease whose chronic and recurrent follow-up and treatment challenges the patient and the physician. The frequency of IBD, especially Crohn's disease, has been increasing in recent years as a result of western-style eating habits and lifestyle changes in childhood. In addition to gastrointestinal symptoms, various extraintestinal symptoms can also be seen in children. A total of 178 IBD patients were identified in our study: 55 with ulcerative colitis (UC) (predominantly female, female/male ratio 35:20), 101 with CD (male predominance, female/male ratio 41:60), and 22 with unspecified colitis (female/male ratio 7:15). Notably, the prevalence of CD in our study population was more than

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twice that of UC; This is consistent with recent data suggesting that pediatric CD has an increasing trend relative to UC, as reported in previous studies (14-20). The mean age at diagnosis of UC was 14±3 years and 13.6±4 years for CD, supporting previous findings that CD begins earlier than UC. We compared IBD detection rates between the 2017-2019 and 2020-2022 periods to investigate a potential regional increase. While a higher frequency of CD was observed, the total number of IBD patients remained stable. We hypothesize that this stability may be attributed to the prolonged suspension of endoscopic procedures caused by the COVID-19 pandemic 2019. Our endoscopy unit served as an intensive care unit for approximately one year, mirroring trends worldwide where only urgent procedures were performed. In children diagnosed with IBD, the most frequent gastrointestinal complaints were, in descending order, chronic diarrhea (n=162), bloody diarrhea (n=70), and chronic abdominal pain (n=48). Diagnosing IBD in infants and young children poses a particular challenge for pediatric gastroenterologists. Early-onset IBD, especially in children under six who are unresponsive to treatment, warrants investigation for potential monogenic causes. Our study findings highlight this trend, with Crohn's disease (CD) diagnosed in 71.4% of patients within the six-year-old group and 100% of those under two.

Colorectal polyps are mucosal or submucosal growths, either neoplastic or proliferative, which project into the intestinal lumen. These lesions tend to present with painless rectal bleeding and are most common between the ages of 2-6 years (21,22). Polyps can be single or multiple, pedunculated, or sessile, most often located in the colorectal region. While predominantly benign, it is essential to know their potential for malignant transformation (22). Our study detected colorectal polyps in 23 patients (4 female, 19 male), representing a 4.1% detection rate. The average age was 6.5±3.2 years, and all patients presented with rectal bleeding.

Rates in the current literature; it is 29.1% in Hong Kong, 61% in the United States, and 42.9% in Southern China (8,11,23). Considering the neoplastic potential of such polyps, pancolonoscopy is essential for thorough evaluation in children (24-26).

Solitary rectal ulcer syndrome (SRUS) is a chronic, benign, yet challenging condition rarely encountered in pediatric patients. Its etiology is tnot clearly. Ulcers can be of different shapes, sizes and numbers. Diagnosis of SRUS relies on a combination of clinical symptoms, colonoscopic findings, and histological evaluation. Currently, there is no definitive treatment protocol. The true prevalence of SRUS remains unclear. Our study found a solitary rectal ulcer syndrome (SRUS) prevalence of 3.3% (n=18). A male predominance (66.6% male, 33.3% female) was observed, consistent with trends reported in other pediatric studies. In our cohort, aligning with existing literature, patients were distributed between the 6-12 age group (47.1%) and those exceeding 12 years (52.9%), with an average age of 12.6±4 years (27-30). Significantly, SRUS was detected in 6 patients with rectal polyps and 12 patients with IBD. Therefore, clinicians need to consider SRUS in children presenting with rectal bleeding, chronic diarrhea, abdominal pain, or rectal mucus discharge.

The current study identified eosinophilic gastrointestinal diseases (EGID) in 11 patients (3 female, 1 male) with a history of allergic diseases, representing a 0.7% detection rate. These patients presented with abdominal pain, chronic diarrhea, and growth retardation. The average age of our EGID cohort was 13.2±3.9 years. Our study highlights that EGID, despite predominantly affecting infants and young children, should be considered in older children presenting with characteristic gastrointestinal symptoms.

Colonoscopy proves as an invaluable diagnostic and treatment planning tool in pediatric patients presenting with lower gastrointestinal complaints. As experienced pediatric gastroenterologists are well-versed in age-related anatomical and physiological variations, they are best equipped to perform these procedures. However, it is crucial to consider that the complication rate in children (1.1%) exceeds that of adults (0.3%). Therefore, careful patient evaluation, comprehensive history, precise indication selection, meticulous bowel preparation, and appropriate sedation/anesthesia choices are paramount for optimal outcomes. To optimize colonoscopy in children, an experienced pediatric gastroenterologist must perform the procedure that prioritizes terminal ileum intubation. While colonoscopy is an increasingly valuable tool in pediatric medicine, the existing literature on indications and outcomes remains limited. There is a critical need for large-scale, prospective, multicenter studies conducted within the global medical community to address this gap.

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