



Original Article

Clinico-Pathological Characteristics of Colorectal Polyps in Adults in A Tertiary Care Hospital

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Abstract

Background: Colorectal polyps are mucosal abnormalities of the colon that can vary from harmless non-neoplastic growths to potentially cancerous adenomatous and serrated lesions. Their early identification and histopathological assessment are crucial for preventing colorectal cancer. Nonetheless, information regarding the clinico-pathological features of colorectal polyps in Bangladesh is still scarce. This study sought to assess the clinical, colonoscopic, and histopathological characteristics of colorectal polyps in adults.

Methods: An observational study based in a tertiary care hospital took place in Dhaka, from July to December 2025. Sixty-three adults with colorectal polyps detected via colonoscopy and confirmed histopathologically were included. Data regarding clinical, colonoscopic, and histopathological aspects were gathered and evaluated using SPSS version 26.0. Statistical significance was determined at $p < 0.05$. The ethical review committee approved the study, and consent was acquired from participants.

Results: In a study of 63 patients with colorectal polyps, the average age was 54.7 ± 11.8 years, and there was a male predominance of 65.1%. Rectal bleeding was the most frequent symptom (63.5%). The majority of polyps were found in the rectum and sigmoid colon (58.7%), showing a left-sided dominance (69.8%) and mostly as single lesions (73.0%). Adenomatous polyps were the most common histological type (65.1%), predominantly tubular adenoma (42.9%). Adenomatous histology showed a strong connection with age ≥ 50 years, left-sided location, and polyp size ≥ 10 mm.

Conclusion: Colorectal polyps were frequent in older men, with adenomatous lesions being the most common. Bigger, left-sided polyps demonstrated increased adenomatous risk, highlighting the importance of colonoscopy and histopathology in preventing CRC.

Keywords: Colorectal Polyps, Clinico-Pathological Characteristics, Colonoscopic Characteristics, Histopathological diagnosis

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Introduction

A colorectal polyp is a mucosal outgrowth above the typical colonic surface. Histologically, it is categorized into hyperplastic, inflammatory, and neoplastic varieties, with certain neoplastic lesions exhibiting malignant potential [1]. The majority of disease develop from noncancerous precursors, especially adenomatous polyps via the adenoma–carcinoma pathway. Nonetheless, around 15% of sporadic colorectal cancers arise via the serrated pathway, in which serrated polyps serve as precursor lesions [2].

The occurrence of colorectal polyps differs based on geographical location, patient traits, screening approaches, and diagnostic techniques. Adenomas are

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frequently found during screening colonoscopy, with greater occurrence in older individuals and men. Risk factors encompass older age, being male, a family history of colorectal cancer, obesity, metabolic syndrome, tobacco use, alcohol intake, lack of physical activity, and diets high in processed meats and low in fiber [3-5]. They are usually symptomless and discovered during colonoscopy. Bleeding, changes in bowel habits, abdominal discomfort, or anemia may present, but a conclusive diagnosis necessitates colonoscopic assessment and histopathological analysis [6,7].

Colonoscopy is the benchmark for identifying colorectal polyps, enabling visualization, biopsy, and excision of lesions. Histopathological analysis identifies polyp classification, dysplasia level, and cancer risk. Recognizing high-grade dysplasia is essential as it signifies significant premalignant alterations with an increased likelihood of progressing to carcinoma [8,9]. Polyp dimensions, shape, histological classification, and degree of dysplasia are significant indicators of cancer risk. Advanced adenomas and serrated lesions present an elevated risk of developing colorectal cancer, highlighting the importance of precise pathological diagnosis and suitable surveillance approaches [10,11].

Worldwide research indicates that colorectal polyps are more prevalent in older individuals and males, with adenomatous polyps being the most common histological type. Significant predictors of malignant potential included larger size, villous architecture, and dysplasia, underscoring the importance of colonoscopy and histopathological evaluation in evaluating risk [1,12]. Studies from Bangladesh indicated that colorectal cancer was more prevalent in middle-aged and older individuals, with a higher occurrence in males. Adenocarcinoma was the predominant histological type, typically affecting the colon and rectum, with gastrointestinal symptoms as the primary manifestations [13,14].

In Bangladesh, there is little data regarding the clinico-pathological features of colorectal polyps, as the majority of research emphasizes colorectal cancer instead of early lesions. This research seeks to assess the clinical characteristics, prevalence, and histopathological traits of colorectal polyps in adults to enhance early identification and colorectal cancer prevention approaches.

Methodology:

Study Design and Setting

This hospital-based observational study was conducted in a tertiary care hospital, Dhaka, Bangladesh, over a six-month period from July 2025 to December 2025. The study was designed to evaluate the clinical and

pathological characteristics of colorectal polyps in adult patients attending a tertiary care hospital.

Study Population

Adult patients aged 18 years or older who underwent colonoscopy during the study period and were diagnosed with one or more colorectal polyps were considered eligible for inclusion. A total of 63 consecutive patients with histopathologically confirmed colorectal polyps were enrolled using a consecutive sampling technique.

Sample size and sampling

A formal sample size or power calculation was not performed because this was an exploratory, hospital-based observational study conducted over a predefined six-month period. All eligible patients presenting during the study period who met the inclusion criteria were consecutively enrolled. A total of 63 patients with histopathologically confirmed colorectal polyps were included.

Eligibility Criteria

Inclusion Criteria

- Adult patients (≥ 18 years) with one or more colorectal polyps detected on colonoscopy.
- Histopathological confirmation of the excised or biopsied colorectal polyp.
- Patients who provided written informed consent.

Exclusion Criteria

- Patients with previously diagnosed colorectal carcinoma.
- Patients with hereditary polyposis syndromes, including familial adenomatous polyposis (FAP) and Peutz-Jeghers syndrome.
- Patients with inflammatory bowel disease-associated polyps.
- Inadequate biopsy specimens or incomplete histopathological reports.
- Patients with incomplete clinical records or those unwilling to participate.

Data Collection Procedure

Clinical and demographic information, including age, sex, residence, body mass index, presenting symptoms, comorbidities, and family history of colorectal cancer, were collected using a structured data collection form. Colonoscopic examination was performed by experienced gastroenterologists, and the number, anatomical location, morphology (sessile, pedunculated, or flat), and size of each polyp were documented according to standard colonoscopic reporting guidelines. All detected polyps were removed by polypectomy or sampled by biopsy during colonoscopy and submitted for histopathological examination. Tissue specimens were fixed in 10% neutral buffered formalin, routinely processed, embedded in paraffin, sectioned at 3–5 μm ,

and stained with hematoxylin and eosin (H&E). Histopathological diagnosis was established by consultant pathologists and categorized as tubular adenoma, tubulovillous adenoma, villous adenoma, hyperplastic polyp, inflammatory polyp, sessile serrated lesion, or juvenile polyp.

Unit of Analysis

The patient was considered the primary unit of analysis. For patients with multiple colorectal polyps, the histopathological diagnosis and colonoscopic characteristics were summarized at the patient level. For polyp-related variables, the largest polyp per patient was used for analysis to avoid multiple observations from the same patient and potential violation of independence assumptions. Thus, the final analysis included 63 independent patient-level observations.

Statistical Analysis

Data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0 (IBM Corp., Armonk, NY, USA). Continuous variables were expressed as mean $\pm$ standard deviation (SD), while categorical variables were summarized as frequencies and percentages. Associations between categorical variables were assessed using the Chi-square test or Fisher's exact test, as appropriate. Because of the limited sample size and exploratory nature of the study, analysis was restricted to unadjusted bivariate associations, and no multivariable regression model was performed. Therefore, the observed associations should be interpreted as unadjusted and may be influenced by potential confounding factors. A two-tailed p-value <0.05 was considered statistically significant.

Ethical Considerations

The study protocol was approved by the Institutional Review Board (IRB)/Ethical Review Committee of Bangladesh Medical University (BMU), Dhaka, Bangladesh. Written informed consent was obtained from all participants before enrollment. Patient confidentiality was maintained throughout the study, and all study procedures were conducted in accordance with the ethical principles of the Declaration of Helsinki.

Results:

A total of 63 adult patients with histopathologically confirmed colorectal polyps were included in the study. The mean age of the participants was 54.7 ± 11.8 years (range: 28–77 years).

Table 1 shows the highest proportion of patients (31.7%) belonged to the 50–59 years age group, followed by 40–49 years (23.8%) and 60–69 years (20.6%). Males constituted 65.1% of the study population, resulting in a male-to-female ratio of 1.9:1. More than half of the participants (57.1%) resided in urban areas. Hypertension

(36.5%) and diabetes mellitus (28.6%) were the most frequently reported comorbid conditions.

Table 1. Sociodemographic Characteristics and Clinical Profile of the Patients (N = 63)

Variable	Frequency (n)	Percentage (%)
Age group (years)		
18–39	10	15.9
40–49	15	23.8
50–59	20	31.7
60–69	13	20.6
≥ 70	5	7.9
Mean $\pm$ SD	54.7 ± 11.8	–
Range	28–77	–
Sex		
Male	41	65.1
Female	22	34.9
Residence		
Urban	36	57.1
Rural	27	42.9
BMI (kg/m ²)		
Normal	22	34.9
Overweight	27	42.9
Obese	14	22.2
Comorbidities *		
Hypertension	23	36.5
Diabetes mellitus	18	28.6
Current/former smoker	20	31.7
Family history of colorectal cancer	6	9.5

*Multiple responses were allowed; therefore, percentages do not total 100%.

Figure 1 shows that rectal bleeding was the most common presenting symptom, reported by 40 (63.5%) patients, followed by altered bowel habit (52.4%), abdominal pain (46.0%), constipation (39.7%), weight loss (22.2%), and mucus per rectum (17.5%). Multiple responses were allowed; therefore, percentages do not total 100%.

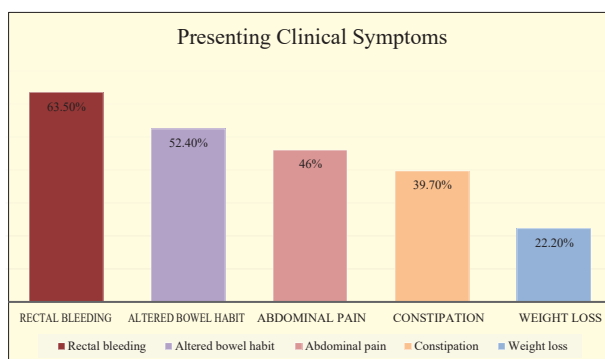


Figure legend: Multiple responses were permitted; therefore, the percentages do not total 100%. The figure should be embedded in the manuscript immediately after the corresponding Results paragraph.

Figure 1: Distribution of Presenting Clinical Symptoms Among Patients with Colorectal Polyps (N = 63)

Table 2 shows the rectum was the most common site of polyp occurrence (31.7%), followed by the sigmoid colon (27.0%). Overall, 69.8% of polyps were located in the left colon. Most patients (73.0%) had a single polyp. Sessile morphology was observed in 52.4% of cases, and the mean size of the largest polyp was 13.2 ± 6.1 mm.

Table 2. Colonoscopic Characteristics of Colorectal Polyps (N = 63)

Variable	Frequency (n)	Percentage (%)
Location		
Rectum	20	31.7
Sigmoid colon	17	27.0
Descending colon	7	11.1
Transverse colon	8	12.7
Ascending colon	8	12.7
Cecum	3	4.8
Side of colon		
Left-sided	44	69.8
Right-sided	19	30.2
Number of polyps		
Single	46	73.0
Multiple	17	27.0
Morphology		
Sessile	33	52.4
Pedunculated	27	42.9
Flat	3	4.7
Largest polyp size		
<10 mm	24	38.1
10–19 mm	27	42.9
≥20 mm	12	19.0
Mean ± SD	13.2 ± 6.1 mm	—

Table 3 shows adenomatous polyps constituted the majority of lesions (41, 65.1%). Among these, tubular adenoma was the most common histopathological subtype (27, 42.9%), followed by tubulovillous adenoma (10, 15.9%) and villous adenoma (4, 6.3%). Among the non-neoplastic lesions, hyperplastic polyps accounted for 11 (17.5%) cases, followed by inflammatory polyps (6, 9.5%), sessile serrated lesions (3, 4.8%), and juvenile polyps (2, 3.2%).

Table 3. Histopathological Characteristics of Colorectal Polyps (N = 63)

Histopathological diagnosis	Frequency (n)	Percentage (%)
Tubular adenoma	27	42.9
Tubulovillous adenoma	10	15.9
Villous adenoma	4	6.3
Hyperplastic polyp	11	17.5
Inflammatory polyp	6	9.5
Sessile serrated lesion	3	4.8
Juvenile polyp	2	3.2
Total	63	100.0

Table 4 presents adenomatous polyps were significantly more common among patients aged 50 years and above than among younger patients (75.8% vs. 45.8%, $p = 0.016$). Although adenomatous lesions were more frequently identified in male patients than in females, the association between sex and histopathological category was not statistically significant ($p = 0.382$).

Table 4. Association Between Patient Characteristics and Adenomatous Polyps (N = 63)

Variable	Adenomatous polyps (n = 41), n(%)	Non-adenomatous polyps (n = 22), n(%)	p-value
Age group			
<50 years (n=24)	11 (45.8)	13 (54.2)	
≥50 years (n=39)	30 (76.9)	9 (23.1)	0.016
Sex			
Male (n = 41)	29 (70.7)	12 (29.3)	
Female (n=22)	12 (54.5)	10 (45.5)	0.382

Chi-square test. Bold values indicate statistical significance ($p < 0.05$).

Table 5 shows the relationship between colonoscopic findings and histopathological diagnosis. Adenomatous polyps were more frequently observed in the left colon than in the right colon (72.7% vs. 47.4%, $p = 0.048$). Similarly, polyps measuring ≥ 10 mm showed a significantly higher proportion of adenomatous histology compared with those measuring < 10 mm (76.9% vs. 41.7%, $p = 0.009$).

Table 5. Association of Colonoscopic Characteristics with Adenomatous Histology (N = 63)

Variable	Adenomatous (n = 41), n(%)	Non-adenomatous (n = 22), n(%)	p-value
Location			
Left-sided (n = 44)	32 (72.7)	12 (27.3)	0.048
Right-sided (n = 19)	9 (47.4)	10 (52.6)	
Largest polyp size			
< 10 mm (n = 24)	10 (41.7)	14 (58.3)	0.009
≥ 10 mm (n = 39)	30 (76.9)	9 (23.1)	

Chi-square test. Bold values indicate statistical significance ($p < 0.05$).

Discussion:

In this research, colorectal polyps appeared more commonly in middle-aged and older individuals, with an average age of 54.7 ± 11.8 years and a predominance of males. Comparable studies from Bangladesh indicated similar demographic trends, demonstrating a greater prevalence among older age groups and males. Urban living, excess weight, high blood pressure, diabetes, and tobacco use were frequent observations, indicating the impact of lifestyle and metabolic risk factors on the formation of colorectal polyps. These findings highlight the significance of early identification and monitoring for individuals at high risk [15,16].

In our study, rectal bleeding was the predominant symptom at presentation, succeeded by changes in bowel habits, abdominal discomfort, and constipation. Comparable results have been noted in earlier research,

where bleeding was the primary symptom in patients with symptomatic colorectal polyps. These findings highlight the significance of colonoscopic assessment in individuals with gastrointestinal symptoms for prompt identification and diagnosis [17].

In this study, colorectal polyps were mainly found in the rectum and sigmoid colon, with 69.8% of cases being left-sided lesions. Comparable studies indicated a rectosigmoid dominance, with the majority of patients exhibiting solitary and sessile polyps. These results emphasize the significance of colonoscopic identification and histopathological analysis for accurate categorization and evaluation of cancer risk [18].

In this current study, adenomatous polyps were the most common histological type, with tubular adenoma as the leading subtype. Comparable results were noted in earlier research, where adenomas constituted the primary category. Histopathological analysis is crucial for precise categorization and evaluation of cancerous potential [19].

In this research, adenomatous polyps were notably more prevalent in patients aged ≥ 50 years in contrast to younger patients. Comparable research indicated a rise in adenomatous lesions with older age. Despite males having a greater incidence of adenomas, sex did not have a significant correlation with histological type [17].

In this study, adenomatous polyps were notably more prevalent in left-sided lesions and in polyps that were ≥ 10 mm when compared to those measuring less. Comparable results have been noted in earlier research, demonstrating a link between the site of polyps, greater size, and a higher probability of adenomatous histology. These results highlight the necessity of thorough colonoscopic evaluation of large and left-sided polyps because of their greater neoplastic risk [20].

Overall, Colorectal polyps were mainly found in older men, with adenomatous polyps being the most frequently occurring type, and larger lesions on the left side displaying greater neoplastic potential, highlighting the significance of colonoscopic detection and histopathological assessment.

Conclusion:

In our study, colorectal polyps were more commonly observed among middle-aged and older adults and males, with rectal bleeding being the most frequent presenting symptom. Adenomatous polyps, particularly tubular adenomas, were the predominant histopathological category. Adenomatous histology showed significant unadjusted associations with age ≥ 50 years, left-sided location, and polyp size ≥ 10 mm. These findings highlight the importance of colonoscopic and histopathological evaluation of colorectal polyps, while

larger multicenter studies with multivariable analysis are needed to confirm these associations and account for potential confounding.

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