ORIGINAL ARTICLE

COLONOSCOPY-BASED DIAGNOSTIC TRENDS IN COLORECTAL DISEASES: EVIDENCE FROM A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN

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Background: Colonoscopy is an essential diagnostic and therapeutic modality for evaluating a wide range of colorectal diseases, including polyps, inflammatory bowel disease (IBD), intestinal tuberculosis, haemorrhoids, and colorectal malignancies. This study aims to evaluate the spectrum of colonoscopic findings at a tertiary care hospital in Karachi and explore their association with patients' age and gender. **Methods:** It was a retrospective cross-sectional review conducted in the endoscopy suite of Medical Unit III, Ward 7, Jinnah Postgraduate Medical Centre, Karachi. The data of 527 patients who underwent colonoscopy from 1st Jan 2020 to 31st Dec 2022 was recorded. Collected data was analysed through SPSS-25, and data were tabulated as frequencies and percentages. **Results:** Out of a total of 527 patients of mean age of 37.09 years, 209 (39.7%) were female patients. Abdominal pain 168 (31.9%), followed by per rectal bleed 165 (31.3%) were the commonest presenting complaints, 83 (15.7%) patients had chronic diarrhoea. The most frequent finding of colonoscopy was internal haemorrhoids in 140 (26.6%) patients, followed by IBD 44 (8.4%). Intestinal tuberculosis (TB) was 25 (4.7%), colon cancer was 17 (3.2%), rectal cancer was 13 (2.5%), and anal cancer was 7 (1.3%). **Conclusion:** The most common colonoscopic finding was internal haemorrhoids, followed by IBD and intestinal tuberculosis. Malignancies including colon, rectal, and anal cancers were also identified, though less frequently. These findings emphasize the diverse spectrum of colorectal diseases in clinical practice.

Keywords: Colonoscopy, Colorectal cancer, Haemorrhoids, Inflammatory bowel disease

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INTRODUCTION

Colorectal diseases (CRD) encompass a wide range of medical conditions, spanning from benign anomalies to potentially life-threatening malignancies, representing a significant global health challenge. The morbidity and mortality rates associated with CRD vary by geographic region due to a combination of factors such as age, ethnicity, lifestyle, diet, genetics, and environmental exposures.[1]

Colonoscopy, a versatile and indispensable medical procedure, emerges as a cornerstone in both the diagnosis and treatment of CRD.[2] It facilitates the detection and management of premalignant colorectal polyps, ulcers, haemorrhoids, and other significant findings. A study conducted in Sukkur, Sindh, Pakistan reported haemorrhoids to be the most common finding.[3] Given its capacity to provide real-time insights into the colon's condition, it can accurately differentiate between conditions like ulcerative colitis and Crohn's disease in 85% to 89% of the patients, where early diagnosis is critical.[4]

Isolated ulcers might either be incidentally discovered during a screening colonoscopy or manifest with symptoms such as abdominal pain, haematochezia, chronic gastrointestinal bleeding, and in rare instances, perforation. Among the prevalent causes of isolated colonic ulcers lies the usage of nonsteroidal anti-inflammatory drugs (NSAIDs) and notably, these ulcers tend to appear in the cecum and right colon.[5] Colon ulcers are also often the first sign of Crohn's disease.[6,7]

Detection of polyps through colonoscopy is particularly significant. Colonic TB is known to present on colonoscopy, as ulcerative or nodular lesions, strictures, and, less frequently, as colon polyps.[8,9] Colonoscopy is essential for screening individuals at risk for colorectal cancer, starting at age 45, as the incidence of colorectal cancer increases with age, with 94% of new cases occurring in adults 45 or older.[2] High-risk individuals, such as those with inflammatory bowel disease, a family history of colorectal cancer before age 60, or hereditary syndromes, may require earlier screenings.[10] Colonoscopy carries a risk of serious complications, the most severe being intestinal perforation. This can cause gut contents to leak into the peritoneal cavity, leading to significant adverse outcomes, with mortality rates reported up to 5%.[11]

Local literature offered limited insight into the findings of colonoscopy. This study aims to address this gap by comprehensively evaluating the diverse findings of colonoscopy and its association with presenting symptoms in patients being referred to the endoscopy suite at our department.

METHODOLOGY

This was a cross-sectional review of retrospective data used to assess the diagnostic patterns revealed through colonoscopy procedures performed on patients presenting with gastrointestinal symptoms. The study was conducted at the endoscopy suite of Medical Unit-III, Ward-7, Jinnah Postgraduate Medical Centre (JPMC), Karachi. The study protocol was reviewed and approved by Institutional Review Board (IRB) of JPMC (Reference No. F.2-81/2023-GENL/226/JPMC).

The study population comprised patients aged above 12 years who underwent colonoscopy at JPMC between January 1, 2020, and December 31, 2022. Patients were referred not only from multiple healthcare centres within Karachi but also from the remote areas of interior Sindh and other cities of Pakistan by physicians, surgeons and general practitioners, thereby ensuring a diverse representation of the population. The required sample size was calculated using OpenEpi software to be 385, with a 95% confidence interval and a 5% margin of error. The final study included 527 patients. All patients underwent standard bowel preparation with polyethylene glycol solution (Movcol)[12] as per institutional protocol.

Demographic details, presenting complaints, and colonoscopic findings were retrieved from hospital records. For a subset of patients undergoing biopsy during colonoscopy, histopathological examination reports of the obtained specimens were also collected and documented for diagnostic confirmation.

Data were compiled, coded, and analysed using SPSS-25. Descriptive statistics, including frequencies and percentages, were calculated for categorical variables such as gender, presenting complaints, and colonoscopic findings.

RESULTS

Table-1 shows the baseline characteristics of studied patients. There were 327 patients aged 37.09±16.2 years, 280 (53.1%) were aged 35-years or less and 209 (39.7%) of them were female patients.

Table-2 shows the frequency of presenting complaints of the patients, the commonest complaint was abdominal pain 168 (31.9%), followed by per rectal bleed 165 (31.3%). Eighty-three (15.7%) of the patients had complaint of chronic diarrhoea.

Table-3 reports the diagnosis of patients. Internal haemorrhoids were seen in 140 (26.6%) patients, inflammatory bowel diseases in 44 (8.4%), intestinal TB in 25 (4.7%), colon cancer in 17 (3.2%), rectal cancer in 13 (2.5%), and anal cancer in 7 (1.3%). Normal colonoscopic findings were found in 32.8% cases.

Table-1: Baseline characteristics of studied patients (n=527)

Parameters		n	%
Age Group	≤35 Years	280	53.1
	>35 Years	247	46.9
	Age (Mean±SD)	37.09±16.2	
Gender	Male	318	60.3
	Female	209	39.7

Table-2: Patients' presenting complaints

Presenting complaints	n	%
Abdominal pain/discomfort	168	31.9
Per rectal bleed	165	31.3
Chronic diarrhoea	83	15.7
Constipation	55	10.4
Mucous discharge in stool	20	3.8
Weight loss	18	3.4
Fever	18	3.4

Table-3: Diagnosis based on colonoscopic findings

Diagnosis	n	%
Normal mucosa	173	32.8
Internal Haemorrhoids	140	26.6
Inflammatory bowel disease	44	8.4
Polyps	30	5.7
Intestinal TB	25	4.7
Colitis	25	4.7
Colon cancer	17	3.2
Solitary rectal ulcer syndrome	14	2.7
Rectal cancer	13	2.5
Anal cancer	7	1.3

DISCUSSION

This cross-sectional review provides valuable insight into colonoscopy-based diagnostic trends in colorectal diseases at a tertiary care hospital in Karachi, reflecting both the local burden of disease and patterns seen among patients referred from other parts of Pakistan. In this context, colonoscopy emerges as a pivotal diagnostic and therapeutic tool for managing these conditions. Colonoscopy is considered the mainstay for screening and surveillance of colorectal cancer, making it an indispensable procedure in the management of colorectal diseases.[13] The observed trends emphasize the need to strengthen endoscopic services and public awareness programs across Pakistan to enhance accessibility and encourage timely evaluation of gastrointestinal symptoms.

In our data, the mean age of 37.09±6.2 years highlights a relatively young study population, with over half of the patients being 35 years old or younger. This demographic distribution suggests a cohort potentially predisposed to gastrointestinal issues at a younger age. Factors such as lifestyle, dietary habits, and genetic predispositions are crucial considerations in understanding the onset and progression of diseases in this group.[14]

Gender distribution revealed a predominance of male patients, indicating a gender disparity that may influence disease prevalence or presentation within the study cohort. This observation aligns with existing literature suggesting different manifestations of gastrointestinal disorders between genders, underscoring the need for gender-specific approaches in clinical management and research.[15]

Normal colonoscopic findings were seen in 32.8% patients, which is lower than the rate seen in a Turkish study[16] (40.6%) and 42.1% in a study conducted in UK[17]. On the other hand, the rate of normal colonoscopy in our study was higher compared to a local study from Sukkhur[3] 25.42%.

Per rectal bleed was the most reported symptom, affecting 31.3% patients. Most of these patients were referrals by surgeons and physicians from other departments and institutes for colonoscopy after their evaluation and initial examination. The admitted patients in our ward with the same complaint were also thoroughly evaluated before the procedure. Per rectal bleeding is a symptom that can be indicative of various underlying conditions such as haemorrhoids, anal fissures, inflammatory bowel disease, or colorectal malignancies. Studies have shown that colorectal cancer can be associated with rectal bleeding and is the first symptom for left-sided tumours in young-onset colorectal cancer emphasizing the need for prompt evaluation when this symptom is present.[18] Internal haemorrhoids were the most frequent finding in our patients which was similar to the study conducted by Mohammad S *et al*[3] and Ali F *et al*[19]. This number also included the incidental finding of haemorrhoids while performing colonoscopy for complaints other than per rectal bleed.

The solitary rectal ulcer syndrome (SRUS) was reported in only 2.7% patients which was much lower than 6.8% stated in a study from Multan[20] and 6.6% in a study from Peshawar[21]. On the other hand, Kutluana U *et al*[22] reported SRUS to be just 0.6%.

Chronic diarrhoea, reported in 15.7% of patients is a result of gastrointestinal motility disturbances or chronic inflammatory conditions such as Crohn's disease or ulcerative colitis.[23] Abdominal pain or discomfort, reported in 31.9% of patients, is a multifactorial symptom that can stem from different causes including functional gastrointestinal disorders, infections, or structural abnormalities, necessitating a thorough clinical evaluation and diagnostic workup.[23]

The diagnosis of intestinal tuberculosis in 4.7% of patients emphasizes the need to consider infectious causes in cases of chronic diarrhoea, especially in endemic areas or high-risk populations. Intestinal TB closely mimics Crohn's disease, can affect any part of the gastrointestinal tract, indicating the need to evaluate patients with symptoms such as abdominal pain, anaemia, and diarrhoea thoroughly. Distinguishing between intestinal tuberculosis and other conditions like Crohn's disease can be challenging. However, histopathological features such as confluent granulomas, a high number of granulomas per biopsy site, and the presence of caseous necrosis can aid in differentiation.

The IBD was found in approximately 8.4% of our patients unlike Italian study[24] which mentioned overall frequency of IBD to be 0.32%. On the contrary Ali F *et al*[19] reported the combined frequency of IBD to be 14.46%. Considering the increasing trend of IBD in our local studies, we should take measures to assess its risk factors and provide early management of IBD.

The frequency of colorectal malignancies in our study was 5.7% which is much lower than that reported (11.9%) by a study from Oman[25]. National cancer institute in United States stated the rate of new cases of colorectal cancer was 37.1 per 100,000 men and women per year.[26] In our study, just the frequency of neoplastic growth in the caecum was around (0.6%) out of total cases of malignancy, indicating that screening colonoscopy is extremely crucial to detect such cases as early as possible in order to reduce mortality resulting from colorectal carcinomas. The presence of haemorrhagic erosions in the sigmoid colon (0.9%) highlights its vulnerability to inflammatory conditions such as diverticulitis or ischemic colitis, necessitating tailored diagnostic approaches.

The limitations of this study include its single-centre, retrospective design, which may limit the generalizability of the findings. In addition, the study did not include follow-up data after diagnosis, thereby restricting assessment of disease progression or treatment outcomes. As the majority of patients in our data were relatively young, the results may not accurately represent the pathological spectrum seen in older populations, where colorectal diseases are typically more prevalent.

CONCLUSION

Internal haemorrhoids emerged as the most frequent finding, followed by inflammatory bowel disease and intestinal tuberculosis, while colorectal malignancies were also identified, though less commonly. The records showed higher number of male patients undergoing colonoscopy compared to female patients indicating possible gender related differences in the presentation of colorectal diseases.

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ZA: Concept, data analysis and interpretation, critical review
SN: Data interpretation, analysis, article review, formatting
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