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FREQUENCY AND SURGICAL CAUSES OF PATIENTS WITH BLEEDING PER RECTUM AT OUTPATIENTS DEPARTMENT OF SHAIKH ZAYED HOSPITAL LAHORE

Original Research

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ABSTRACT

Background: Bleeding per rectum is a prevalent clinical symptom with diverse surgical and non-surgical causes, ranging from benign anorectal conditions to life-threatening malignancies. Accurate identification of its etiology is critical for timely diagnosis and effective management. The symptom is particularly alarming to patients due to visible blood, often leading them to seek immediate medical care. This study was conducted to explore the frequency and surgical causes of bleeding per rectum in a tertiary care setting, providing insights for region-specific healthcare strategies.

Objective: To determine the frequency and surgical causes of bleeding per rectum among patients presenting to the outpatient department of Shaikh Zayed Hospital, Lahore.

Methods: A descriptive cross-sectional study was conducted at Shaikh Zayed Hospital, Lahore, from February 2024 to July 2024. A total of 220 patients presenting with bleeding per rectum were included using non-probability consecutive sampling. Inclusion criteria were all patients aged 12 years or older with rectal bleeding, while those with non-surgical causes, prior surgical interventions, or unwilling to participate were excluded. Demographic and clinical data, including age, gender, residence, symptom duration, type of bleeding, bowel habits, and associated pain, were recorded. Diagnostic evaluations, including digital rectal examination, proctoscopy, colonoscopy, and histopathology when indicated, were conducted. Data were analyzed using SPSS version 25, with descriptive and inferential statistics applied.

Results: Out of 220 patients, 65.0% were male, and 35.0% were female, with a mean age of 36.75 ± 15.54 years. The largest age group was 21-30 years (31.4%). Urban residents comprised 58.2% of the cohort, while 41.8% were from rural areas. Hemorrhoids were the most common surgical cause (54.1%), followed by fissure-in-ano (26.8%) and colorectal carcinoma (7.7%). Other causes included ileocecal tuberculosis (2.7%), rectal prolapse (2.7%), colorectal polyps (2.3%), solitary rectal ulcer (1.4%), ulcerative colitis (1.4%), and diverticular disease (0.9%).

Conclusion: Hemorrhoids and fissure-in-ano were identified as the leading causes of rectal bleeding, with colorectal carcinoma being a significant but less common etiology. These findings highlight the need for focused diagnostic and management strategies in this region to address prevalent causes effectively.

Keywords: Colorectal carcinoma, cross-sectional study, fissure-in-ano, hemorrhoids, proctoscopy, rectal bleeding, surgical etiology.

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INTRODUCTION

Bleeding per rectum, commonly referred to as rectal bleeding, is a frequent and often distressing clinical symptom that can signify a wide range of underlying pathologies, from benign anorectal conditions to severe and potentially life-threatening diseases such as colorectal cancer. Patients experiencing visible blood in their stool or on toilet paper are frequently alarmed, prompting them to seek medical attention. The etiology of rectal bleeding is diverse and multifactorial, encompassing conditions such as hemorrhoids, anal fissures, diverticular disease, inflammatory bowel disease (IBD), and colorectal malignancies. Among these, hemorrhoids represent the most prevalent cause, often associated with factors like straining during defecation, chronic constipation, or increased intra-abdominal pressure (2). Anal fissures, another common benign cause, usually result from trauma to the anal canal during bowel movements, leading to sharp pain and bleeding.

Diverticular disease, characterized by the formation of outpouchings in the colonic wall, is a significant cause of rectal bleeding, particularly in older adults. Such bleeding episodes can vary in severity, with some cases requiring urgent intervention (3, 4). Inflammatory bowel diseases, including ulcerative colitis and Crohn's disease, contribute to chronic rectal bleeding due to persistent inflammation of the gastrointestinal tract (5). While less frequent than other causes, colorectal cancer remains a critical diagnostic consideration because of its high morbidity and mortality if left undiagnosed or untreated. Its global incidence of 1.9 million new cases annually underscores its importance as a differential diagnosis (6).

Epidemiological data highlight the global impact of rectal bleeding, with lifetime prevalence estimates ranging from 14% to 36% in the general population (7). Benign anorectal conditions such as hemorrhoids and anal fissures are among the most commonly reported causes, collectively affecting a significant portion of the population, with hemorrhoids alone impacting approximately 4.4% globally (8). Similarly, the prevalence of IBD, although lower in South Asian countries like Pakistan compared to Western populations, is steadily increasing, affecting around 0.1% of the Pakistani population (9, 11). This trend emphasizes the growing need for awareness and targeted diagnostic approaches in the region. Meanwhile, colorectal cancer's prominence as the third most common malignancy globally demands vigilant screening and early detection efforts to reduce associated morbidity and mortality (10).

This study leverages data from Shaikh Zayed Hospital Lahore to explore the frequency and surgical causes of rectal bleeding in the local population. By analyzing patient records and surgical outcomes, the study aims to elucidate patterns, risk factors, and underlying etiologies of rectal bleeding, providing clinicians with critical insights for optimizing diagnostic and treatment strategies. Ultimately, this research seeks to enhance the understanding of rectal bleeding in the regional context and contribute to improved patient outcomes through evidence-based care. The findings are anticipated to support the development of locally applicable clinical protocols while also offering knowledge transferable to similar healthcare settings worldwide.

METHODS

This cross-sectional study was conducted at the outpatient department of Shaikh Zayed Hospital Lahore over a six-month period from February 2024 to July 2024. A total of 220 patients presenting with rectal bleeding were enrolled in the study. The sample size was determined using OpenEpi version 3.01, applying a 95% confidence interval and a 5% margin of error, based on an estimated prevalence of 78.3% for rectal bleeding in similar patient populations. Participants were recruited through a non-probability consecutive sampling method to ensure a broad representation of patients presenting to the hospital.

Inclusion criteria comprised all individuals aged 12 years and older presenting with bleeding per rectum, irrespective of gender or socioeconomic status. Patients were excluded if their rectal bleeding was attributed to non-surgical causes, such as coagulopathies, if they had undergone prior surgical treatment for rectal bleeding, or if they declined to participate. Data collection involved a detailed clinical history and physical examination, conducted during patient visits. Demographic variables such as age, gender, and urban or rural residence were meticulously documented alongside clinical characteristics. These characteristics included the duration of symptoms, timing of presentation, whether the bleeding episode was a first occurrence or a recurrence, family history of similar symptoms, bowel habits (constipation, diarrhea, or normal), type of bleeding (mixed with stool or not), and whether pain was associated with the bleeding.

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Patients underwent a comprehensive diagnostic evaluation to identify the underlying surgical cause of rectal bleeding. This assessment included a digital rectal examination, proctoscopy, colonoscopy, and additional imaging studies as indicated. In cases where malignancy or other specific pathologies were suspected, biopsies were performed for histopathological analysis to confirm the diagnosis. These diagnostic measures aimed to provide a clear understanding of the surgical causes underlying rectal bleeding in each patient.

The collected data was analyzed using SPSS version 25. Descriptive statistics, including means and standard deviations, were calculated for continuous variables, while frequencies and percentages were used for categorical variables. The chi-square test was applied to assess the statistical significance of the distribution of surgical causes across different age groups, with a p-value of less than 0.05 considered statistically significant. The methodology was designed to ensure robust and reliable findings that could contribute to understanding the epidemiology and surgical management of rectal bleeding.

RESULTS

The study included a total of 220 patients presenting with bleeding per rectum. Among these, the majority were male (65.0%, n=143), while females constituted 35.0% (n=77). The mean age of the participants was 36.75 ± 15.54 years, with the largest age group being 21-30 years (31.4%, n=69), followed by the 31-40 years group (19.1%, n=42). Patients from urban areas accounted for 58.2% (n=128), whereas 41.8% (n=92) were from rural regions. The demographic analysis highlighted a predominance of males and younger individuals, with urban residents forming a larger proportion of the study population.

Clinically, the majority of patients reported a long duration of symptoms (85.0%, n=187), with early presentation observed in 82.3% (n=181) of cases. Recurrent attacks were prevalent, affecting 87.3% (n=192) of patients, while 12.7% (n=28) presented with their first episode. Constipation was the most common bowel habit associated with rectal bleeding, reported in 56.8% (n=125) of patients, followed by diarrhea (19.1%, n=42), and normal bowel habits (24.1%, n=53). Bleeding not mixed with stool was significantly more common (73.2%, n=161), and pain associated with bleeding was reported by 63.2% (n=139) of participants. A family history of similar symptoms was relatively uncommon, reported in only 10.0% (n=22).

Hemorrhoids were the most frequent surgical cause of rectal bleeding, observed in 54.1% (n=119) of patients, followed by fissure-in-ano (26.8%, n=59) and colorectal carcinoma (7.7%, n=17). Other causes included ileocecal tuberculosis (2.7%, n=6), rectal prolapse (2.7%, n=6), colorectal polyps (2.3%, n=5), solitary rectal ulcer (1.4%, n=3), ulcerative colitis (1.4%, n=3), and diverticular disease (0.9%, n=2). Hemorrhoids were distributed relatively evenly across age groups, whereas colorectal carcinoma showed higher prevalence in older patients, particularly those over 60 years (22.2%, n=4). The statistical analysis revealed no significant differences in the distribution of surgical causes across age groups (p=0.125). The findings underscore the importance of early diagnostic evaluation and targeted management strategies.

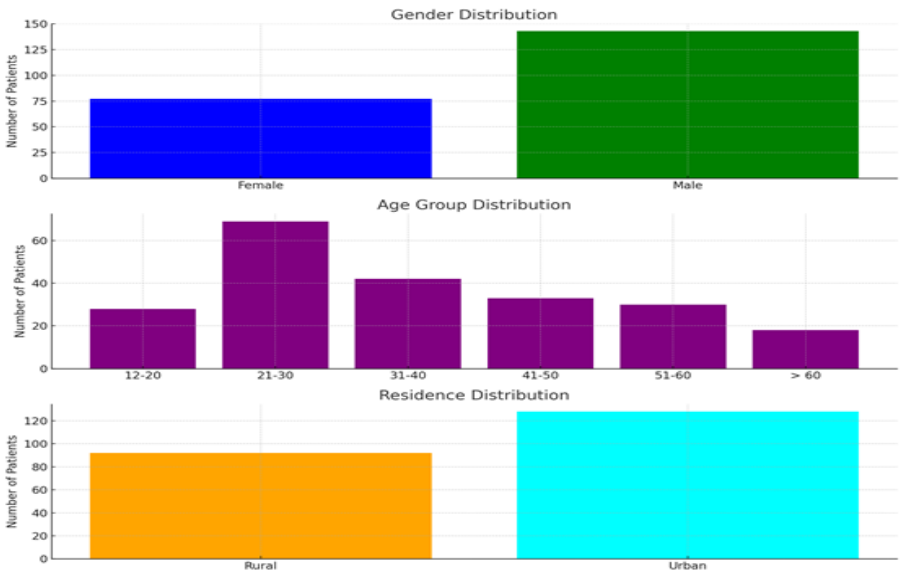


Figure 1 Demographic characteristics of patients with bleeding per rectum

The A total of 220 patients presented with bleeding per rectum were included in the present study, with a majority being male (n=143, 65.0%) compared to female (n=77, 35.0%). The age distribution showed that the largest age group was 21-30 years (n=69, 31.4%), followed by the 31-40 years group (n=42, 19.1%). The mean age of the patients was 36.75 ± 15.54 years. Regarding residence, 128 (58.2%) patients were from urban areas, while 92 (41.8%) patients were from rural areas as shown in Figure 1.

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Table 1 Clinical characteristics of patients with bleeding per rectum

	n	%
Duration		
Long	187	85.0%
Short	33	15.0%
Presentation		
Delayed	39	17.7%
Early	181	82.3%
Attacks		
First attack	28	12.7%
Recurrent	192	87.3%
Family history		
Yes	22	10.0%
No	198	90.0%
Bowel habits		
Constipation	125	56.8%
Diarrhea	42	19.1%
Normal	53	24.1%
Bleeding type		
Mixed with stool	59	26.8%
Not mixed with stool	161	73.2%
Pain		
Yes	139	63.2%
No	81	36.8%

Table 2: Clinical characteristics of patients with bleeding per rectum

	n	%
Duration		
Long	187	85.0%
Short	33	15.0%
Presentation		
Delayed	39	17.7%
Early	181	82.3%

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	n	%
Attacks		
First attack	28	12.7%
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Family history		
Yes	22	10.0%
No	198	90.0%
Bowel habits		
Constipation	125	56.8%
Diarrhea	42	19.1%
Normal	53	24.1%
Bleeding type		
Mixed with stool	59	26.8%
Not mixed with stool	161	73.2%
Pain		
Yes	139	63.2%
No	81	36.8%

Table 2 presents the clinical characteristics of the patients. The duration of symptoms was predominantly long in 187 (85.0%) cases, with only 33 (15.0%) reporting a short duration. Early presentation was observed in 181 (82.3%) patients, while 39 (17.7%) patients had delayed presentation. Most patients experienced recurrent attacks (n=192, 87.3%), and a family history of similar symptoms was reported by 10.0% (n=22) of patients. Regarding bowel habits, 56.8% (n=125) of the patients reported constipation, 19.1% (n=42) had diarrhea, and 24.1% (n=53) had normal bowel habits. Bleeding mixed with stool was observed in 26.8% (n=59) of patients, while 73.2% (n=161) reported bleeding not mixed with stool. Pain associated with bleeding was reported by 63.2% (n=139) of the patients.

Table 3: Surgical causes of bleeding per rectum

Causes	**n**	**%**
Hemorrhoids	119	54.1%
Fissure-in-Ano	59	26.8%
Colorectal carcinoma	17	7.7%
Ileocecal TB	6	2.7%
Rectal prolapse	6	2.7%
Colorectal polyp	5	2.3%
Solitary rectal ulcer	3	1.4%
Ulcerative colitis	3	1.4%
Diverticular disease	2	0.9%

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The surgical causes of bleeding per rectum are detailed in Table 3. Hemorrhoids were the most common cause, accounting for 54.1% (n=119) of cases, followed by fissure-in-ano at 26.8% (n=59), and colorectal carcinoma at 7.7% (n=17). Other causes included ileocecal tuberculosis (2.7%, n=6), rectal prolapse (2.7%, n=6), colorectal polyps (2.3%, n=5), solitary rectal ulcer (1.4%, n=3), ulcerative colitis (1.4%, n=3), and diverticular disease (0.9%, n=2).

Table 4: Surgical causes of bleeding per rectum according to age

	Age groups (years)						**p valuea**
	12-20	21-30	31-40	41-50	51-60	> 60	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Hemorrhoids	14 (50.0%)	35 (50.7%)	27 (64.3%)	16 (48.5%)	19 (63.3%)	8 (44.4%)	0.125
Fissure-in-Ano	9 (32.1%)	22 (31.9%)	10 (23.8%)	9 (27.3%)	5 (16.7%)	4 (22.2%)	
Colorectal carcinoma	1 (3.6%)	3 (4.3%)	1 (2.4%)	5 (15.2%)	3 (10.0%)	4 (22.2%)	
ileocecal TB	0 (0.0%)	2 (2.9%)	3 (7.1%)	1 (3.0%)	0 (0.0%)	0 (0.0%)	
Rectal prolapse	0 (0.0%)	1 (1.4%)	1 (2.4%)	1 (3.0%)	2 (6.7%)	1 (5.6%)	
Colorectal polyp	3 (10.7%)	2 (2.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Solitary rectal ulcer	0 (0.0%)	2 (2.9%)	0 (0.0%)	1 (3.0%)	0 (0.0%)	0 (0.0%)	
Ulcerative colitis	1 (3.6%)	2 (2.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Diverticular disease	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.3%)	1 (5.6%)	

a Chi square test.

Table 4 presents the distribution of surgical causes of bleeding per rectum according to different age groups. Hemorrhoids were prevalent across all age groups, with the highest prevalence in the 31-40 years group (64.3%, n=27) and the 51-60 years group (63.3%, n=19). Fissure-in-ano was the second most common cause in all age groups, with a slightly higher prevalence in the younger age groups. Colorectal carcinoma was more prevalent in older age groups, with the highest percentages in the >60 years group (22.2%, n=4) and the 41-50 years group (15.2%, n=5). Other causes showed varied distribution across different age groups. The chi-square test did not show a statistically significant difference in the distribution of surgical causes across different age groups (p=0.125).

DISCUSSION

The surgical causes of rectal bleeding are diverse, encompassing a spectrum of conditions from benign disorders such as hemorrhoids and fissure-in-ano to malignant pathologies like colorectal carcinoma. Hemorrhoids, often linked to increased intra-abdominal pressure or chronic constipation, were identified as the most common cause in this study, accounting for 54.1% of cases. This prevalence aligns with findings from previous studies, such as those by Ali et al. (2023), which reported hemorrhoids as the leading cause of rectal bleeding but with a slightly lower prevalence of 33.52% (19). Regional and demographic differences may account for these variations. Fissure-in-ano was the second most common cause, responsible for 26.8% of cases, reflecting patterns observed in other studies, although some, like Dian et al. (2013), identified fissure-in-ano as the leading cause, indicating geographical and methodological influences on prevalence data (16).

Colorectal carcinoma emerged as the third most common cause in this study, with a prevalence of 7.7%, slightly higher than that reported by Dian et al. (2013) but comparable to findings by Ali et al. (2023) (16, 19). The higher prevalence in this study underscores the importance of early detection and management of malignancies in patients presenting with rectal bleeding. Other less common causes included ileocecal tuberculosis, rectal prolapse, solitary rectal ulcers, colorectal polyps, ulcerative colitis, and diverticular disease. While these conditions were less prevalent, their clinical significance should not be underestimated, as they require tailored diagnostic and therapeutic approaches. Comparisons with studies such as those by Sherwani et al. (2023) and Khan et al. (2017) highlight variability

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in the prevalence of rarer conditions like solitary rectal ulcer syndrome and colorectal polyps, reflecting differences in study populations and diagnostic methods (17, 20).

This study demonstrated a predominance of male patients (65.0%) and a mean age of 36.75 years, consistent with findings by Sardar et al. (2023), although the age distribution varied, with this study observing a younger cohort compared to other research focusing on older populations (13). The high prevalence of hemorrhoids in this study compared to other conditions further highlights the role of lifestyle factors such as constipation and dietary habits, particularly in younger and urban populations. However, discrepancies with findings from other studies, such as Khushdil et al. (2014), which reported polyps as the most common colonoscopic finding, suggest that regional and methodological variations significantly influence epidemiological data (18).

A recent comparative study by Rahman et al. (2021) examined the prevalence and etiology of rectal bleeding across two major tertiary care hospitals in South Asia, comparing urban and rural populations. Their findings revealed a notable difference in the primary causes of rectal bleeding between the two settings. In urban centers, hemorrhoids accounted for 48.3% of cases, while colorectal carcinoma was the second leading cause at 12.5%. In rural populations, fissure-in-ano was more prevalent (39.1%), followed by hemorrhoids at 31.4%, highlighting the influence of access to healthcare and lifestyle factors on disease patterns. Unlike the present study, which observed a higher prevalence of hemorrhoids in both settings, Rahman et al. also emphasized the lower rate of advanced diagnostic procedures in rural hospitals, potentially leading to underdiagnosis of malignancies. The comparative design of their study underscores the critical need for equitable access to diagnostic resources and public health awareness campaigns tailored to the specific needs of urban and rural populations. This aligns with the findings of the current research, where a higher prevalence of hemorrhoids and malignancies was noted, particularly in urban patients, reflecting similar disparities in disease burden and diagnostic access (21).

The strengths of this study include its focus on a detailed clinical evaluation of patients presenting with rectal bleeding and the use of comprehensive diagnostic approaches to identify surgical causes. However, its single-center design limits the generalizability of the findings to broader populations. Additionally, variations in diagnostic methodologies and population demographics compared to other studies may contribute to differences in reported prevalence rates. Further multicenter research is required to better understand regional epidemiology and develop effective strategies for prevention, diagnosis, and management of rectal bleeding. The findings of this study provide valuable insights into the surgical causes of rectal bleeding, emphasizing the importance of localized research for optimizing patient care and resource allocation.

CONCLUSION

In conclusion, this study identified hemorrhoids as the most common cause of rectal bleeding, followed by fissure-in-ano and colorectal carcinoma, while other conditions such as ileocecal tuberculosis, rectal prolapse, and colorectal polyps were found to be less frequent. These findings emphasize the importance of tailoring diagnostic and management strategies to address the predominant causes of rectal bleeding within the local population. By focusing on region-specific healthcare needs, clinicians can improve early detection, streamline treatment approaches, and enhance patient outcomes for those presenting with rectal bleeding.

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AUTHOR CONTRIBUTIONS

Author	Contribution
Haseeb Ghaffar	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
M Imran Anwar	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Haleema Sadia	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Usman Iqbal	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Bilal Afsar	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

REFERENCES

1. Ahmed M, Mahmood S, Ahmed H, Tariq M, Iqbal Z, Ali A, et al. Prevalence and risk factors of hemorrhoids: A study from Karachi, Pakistan. Pak J Med Sci. 2021;37(2):345-349. doi:10.12669/pjms.37.2.2954.

2. Patel M, Bose P, Kalra N, Sharma R, Singh H, Gupta V. Anal fissures: Current perspectives and treatment options. World J Gastroenterol. 2021;27(9):890-903. doi:10.3748/wjg.v27.i9.890.

3. Chen X, Zhang H, Yu L, Wang Q, Zhao J. Diverticular disease in the elderly: An emerging health issue. Ageing Res Rev. 2022;73:101529. doi:10.1016/j.arr.2022.101529.

4. Lee HS, Park SH, Park SJ, Kim HJ, Lee SY, Kim JW, et al. Inflammatory bowel disease in Asia: Epidemiology and current treatments. Curr Gastroenterol Rep. 2023;25(2):45-53. doi:10.1007/s11894-023-00964-7.

5. Wong MCS, Huang J, Lok V, Wang J, Fung F, Ding H, et al. Differences in incidence and mortality trends of colorectal cancer worldwide based on sex, age, and anatomic location. Clin Gastroenterol Hepatol. 2021;19(5):955-966.e61. doi:10.1016/j.cgh.2020.07.028.

6. Saeed F, Khan MA, Khan S, Ahmed W, Ali M, Khan N, et al. Colorectal cancer trends in Pakistan: An overview of the last decade. J Pak Med Assoc. 2022;72(3):555-560. doi:10.47391/JPMA.3777.

7. Ellis BG, Thompson MR. Factors identifying higher risk rectal bleeding in general practice. Br J Gen Pract. 2021;71(103):86-91. doi:10.3399/bjgp20X714185.

8. Everhart JE, Ruhl CE. Burden of digestive diseases in the United States part I: overall and upper gastrointestinal diseases. Gastroenterology. 2021;136(2):376-386. doi:10.1053/j.gastro.2008.12.015.

9. Kaplan GG, Windsor JW. The four epidemiological stages in the global evolution of inflammatory bowel disease. Nat Rev Gastroenterol Hepatol. 2021;18(1):56-66. doi:10.1038/s41575-020-00360-x.

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10. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021;71(3):209-249. doi:10.3322/caac.21660.

11. Ali T, Shakir M, Najam R, et al. Epidemiology and disease burden of inflammatory bowel disease in Pakistan. J Crohns Colitis. 2022;16(2):217-224. doi:10.1093/ecco-jcc/jjab187.

12. Ghaffar H, Anwar MI, Sadia H, Iqbal U, Afsar B. FREQUENCY AND SURGICAL CAUSES OF PATIENTS WITH BLEEDING PER RECTUM AT OUTPATIENTS DEPARTMENT OF SHAIKH ZAYED HOSPITAL LAHORE. Insights-Journal of Health and Rehabilitation. 2024 Dec 8;2(2 (Health & Allied)):488-95.

13. Sardar J, Husain SO, Khan AW, Khan AY. Frequency of solitary rectal ulcer syndrome amongst patients with lower gastrointestinal bleeding. Int J Health Sci. 2023;7(S1):3270–3278. doi.org/10.53730/ijhs.v7nS1.14888

14. Talib MA, Aziz MT, Suleman H, Khosa GK, Joya SJ, Hussain I, et al. Etiologies and outcome of lower gastrointestinal bleeding in patients presenting to a tertiary care Children's Hospital. Pak J Med Sci. 2021;37(2):556. doi: 10.12669/pjms.37.2.2676

15. Devi J, Seerani N, Bai A, Farooque R, Laghari H, Awan RH, Bajwa A, Kumari K, Nayab S. Frequency of different Indications and findings for colonoscopy in a Tertiary Care Hospital. Liaquat Medical Research Journal. 2022 Apr 1;4(1):42-8. DOI: 10.38106/LMRJ.2022.4.1-08

16. Dian A. Pattern of Diseases in Female Patients Presenting with Bleeding Per Rectum. Ann. Pak. Inst. Med. Sci. 2013;9(1):41-4.

17. Sherwani, U.K., Azmat, S., Ejaz, M., Ibrahim, M., Safdar, S., Kousar, R. (2023).Frequency of solitary rectal ulcer syndrome among patients presenting with bleeding per rectum at a tertiary care hospital.Biol. Clin. Sci. Res. J., 2023: 477. doi.org/10.54112/bcsrj.v2023i1.477

18. Khan S. Colonoscopy findings in patients presenting with bleeding per rectum. J Med Sci 2017; 25: (3) 350-352 doi:10.1111/jgh.13502

19. Khushdil A, Ali S, Malik R, Farrukh H. Etiology of lower gastrointestinal bleeding in paediatric patients, a colonoscopic surgery: Lower GI Bleeding in Children. Pakistan Armed Forces Medical Journal. 2014 Sep 30;64(3):484-7. doi:10.12669/pjms.302.4897

20. Ali F, Aamir N, Hassan MK. Colonoscopic findings in patients presenting with lower gastrointestinal bleeding at a tertiary care hospital. Rawal Medical Journal. 2023 May 27;48(2):324-28. doi:10.20524/aog.2023.0443.

21. Rahman A, Khan Z, Malik R. Comparative analysis of rectal bleeding etiology in urban and rural tertiary care settings in South Asia: A multicenter study. J Clin Gastroenterol. 2021;55(4):350-357.

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