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PREVALENCE OF HEMORRHOIDS AND ASSOCIATED FACTORS AMONGST ADULTS PRESENTING IN CMH RAWALPINDI WITH PER RECTAL BLEEDING

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Abstract

Objective: *To determine prevalence of hemorrhoids and its precipitating factors in patients presenting with per rectal bleeding at CMH Rawalpindi.*

Study Design: *"Cross sectional study".*

Place and duration of study: *"CMH Rawalpindi" from November 2023 to February 2024.*

Patients and Methods: *We included 105 patients who presented with "per rectal (PR) bleeding". These patients were assessed for presence of "hemorrhoids". Patients in which hemorrhoids were diagnosed, detailed history was taken to determine the precipitating factors. Data was analyzed by SPSS 22.*

Results: *Mean age of patients was 31.33 ± 6.86 years. There were 71 (67.62%) male and 34 (32.38%) female patients. Mean BMI was 32.37 ± 2.95 kg/m2. Prevalence of "hemorrhoids" in patients who presented with "PR bleeding" at surgical department was 34 (32.38%). Most prevalent precipitating factors of hemorrhoids were lack of regular exercise 28 (82.35%) and habit of prolonged sitting on the toilet 28 (82.35%) followed by habit of straining while defecation 25 (73.53%), low fiber diet intake 23 (67.65%) and chronic constipation 21 (61.76%).*

Conclusion: *Prevalence of "hemorrhoids" in patients presenting with "PR bleeding" is 32.38% and its most prevalent precipitating factors were lack of regular exercise and habit of prolonged sitting on the toilet.*

INTRODUCTION

Hemorrhoids are "arteriovenous (AV) connections" inside the sub-mucosal layer of the anal canal. The intense red hue of per-rectal (PR) bleeding associated with hemorrhoids can be attributed to these AV connections. From anatomical standpoint, the primary role of these vascular cushions is to sustain anal continence. [1] There are two types of "hemorrhoidal plexus" including the "internal plexus" which is located in the superior portion of the anal canal, situated above the "dentate line" and the "external plexus" positioned at the "anal margin", both of

which play a crucial role in maintaining the structural integrity of the anal canal. Amongst these, "internal hemorrhoidal plexus" provides "left lateral", "right anterior" and "right posterior" anal cushions that are innervated by visceral nerves and are located just above the "dentate line". [2] Anatomically, hemorrhoids are composed of distinct types of tissues including smooth muscles, blood vessels and loose connective tissue. [3]

Hemorrhoids are graded into four degrees of severity. Degree I hemorrhoids are defined as "hemorrhoids that protrude into the lumen of the anal canal without undergoing prolapse". Degree II hemorrhoids are characterized by the "protrusion of swollen blood vessels outside the anal canal, which subsequently retract back into the anal canal without external intervention". Degree III hemorrhoids present as "hemorrhoids that protrude externally from the anal canal during the act of straining and necessitate manual reduction". Degree IV hemorrhoids are characterized by "inability of hemorrhoids to be reduced manually and persistent prolapse". [4, 5] In clinical setting, "PR bleeding" is the most common complaint with which patient presents. In fact, most common cause of "PR bleeding" is hemorrhoids. [6]

There are several factors that have the propensity to drive the development of hemorrhoids. Primary reason by which patient develops "hemorrhoidal disease" is exposure of veins in the anal canal to persistently increased pressure. These factors include habit of straining while using the toilet, increased weight of the body, pregnancy, having chronic cough, not taking adequate amount of fiber in regular diet, habit of sitting on the toilet for prolonged duration of time and having chronic constipation, to name a few. [7] When it comes to prevalence of "hemorrhoidal disease", there is a high degree of discrepancy in various populations of the world with reported prevalence of 18% in Egypt, 14.4% in Korea, 38.93% in Australia, 13.1% in Ethiopia and 4.4% at the global scale. [8]

This high degree of discrepancy in prevalence of "hemorrhoidal disease" across the globe, it is imperative to determine the burden of this condition in our local population presenting at hospital with the complaint of "PR bleeding". Therefore, this study is conducted with the aim of not only determining the prevalence of "hemorrhoids" in patients presenting with "PR bleeding" but also the prevalence of factors that precipitated the development of hemorrhoids.

METHODOLOGY

This cross sectional study was conducted at "CMH Rawalpindi" after taking approval from the institutional ethical review board of "CMH Rawalpindi" (IERB no: A/28/EC514/23 from November 2023 to February 2024. For the calculation of appropriate sample size, "WHO sample size calculator" was utilized using following formula [9]:

$$n = \frac{z^2_{1-\alpha/2} P(1-P)}{d^2}$$

For calculation, "confidence level of 95%", "absolute precision of 6%" and "anticipated prevalence of hemorrhoids of 11%" [10] were taken which gave a sample size of 105.

Inclusion criteria: We included all adult patients aged more than 18 years, both male and female patients who presented at the surgical department with the complaint of "PR bleeding".

Exclusion criteria: Patients who did not consent for inclusion in study, those taking anti-platelets/anti-coagulant medications, those with history of anal intercourse and patients with dysentery were excluded from the study.

Patients were selected through "non-probability consecutive sampling" technique. An informed consent was signed by all the patients before their inclusion in the study. After inclusion, baseline characteristics of all the study participants including age (in years), gender and body mass index (BMI) were documented. After this a comprehensive "digital rectal examination (DRE)" was performed by consultant surgeon followed by proctoscopy to assess presence of "hemorrhoids". In case of their presence, degree of severity was determined and documented

based on "Goligher classification" given below in figure 1:

Grade	Degree of prolapse
I	No prolapse
II	Prolapse on defecation with spontaneous reduction
III	Prolapse on defecation requiring manual reduction
IV	Prolapse and irreducible

Figure 1: "Goligher classification" of hemorrhoids [11]

In order to determine the precipitating factor(s) that led to development of "hemorrhoids", a detailed history was taken from the patients regarding their bowel habits, toilet habits, smoking status, medical history, family history of hemorrhoids, dietary habits and exercise schedule.

"Data was analyzed by using Statistical Package for Social Sciences (SPSS) 22.00. Quantitative variables (age and BMI) were represented using mean ± standard deviation (SD). Categorical variables (gender, presence and degree of hemorrhoids and precipitating factors of hemorrhoids) were represented by using percentage and frequency. Chi square test was used as test of significance where needed and a p-value of ≤ 0.05 was considered statistically significant".

RESULTS

In this study, a total of 105 patients were included. Mean age of patients was 31.33 ± 6.86 years. There were 71 (67.62%) male patients and 34 (32.38%) were female patients. Mean BMI was 32.37 ± 2.95 kg/m2. Prevalence of hemorrhoids in patients who presented with "PR bleeding" at surgical department was 34 (32.38%). Amongst these patients who were found to have hemorrhoids (n = 34), 8 (23.53%) had grade I, 11 (32.36%) had grade II, 8 (23.53%) had grade III and 7 (20.59%) had grade IV hemorrhoids, (table I).

Table I: Prevalence of "Hemorrhoids" in patients presenting with "PR Bleeding" (n = 105)

	Yes	No
Hemorrhoids	34 (32.38%)	71 (67.62%)
Severity of hemorrhoids (n = 34)		
Grade I	8 (23.53%)	
Grade II	11 (32.36%)	
Grade III	8 (23.53%)	
Grade IV	7 (20.59%)	

Prevalence of factors that precipitated "hemorrhoidal disease" in study participants is demonstrated below in table II and figure 2:

Table II: Prevalence of precipitating factors of "Hemorrhoids" in patients presenting with "PR Bleeding" (n = 34)

Precipitating Factor	Present n (%)	Absent n (%)
Smoking	14 (41.18%)	20 (58.82%)
Lack of exercise	28 (82.35%)	6 (17.65%)
Family history of hemorrhoids	10 (29.41%)	24 (70.59%)
Low fiber diet	23 (67.65%)	11 (32.35%)
Habit of prolonged sitting on toilet	28 (82.35%)	6 (17.65%)
Habit of straining while defecation	25 (73.53%)	9 (26.47%)
Chronic constipation	21 (61.76%)	13 (38.24%)
Chronic cough	10 (29.41%)	24 (70.59%)

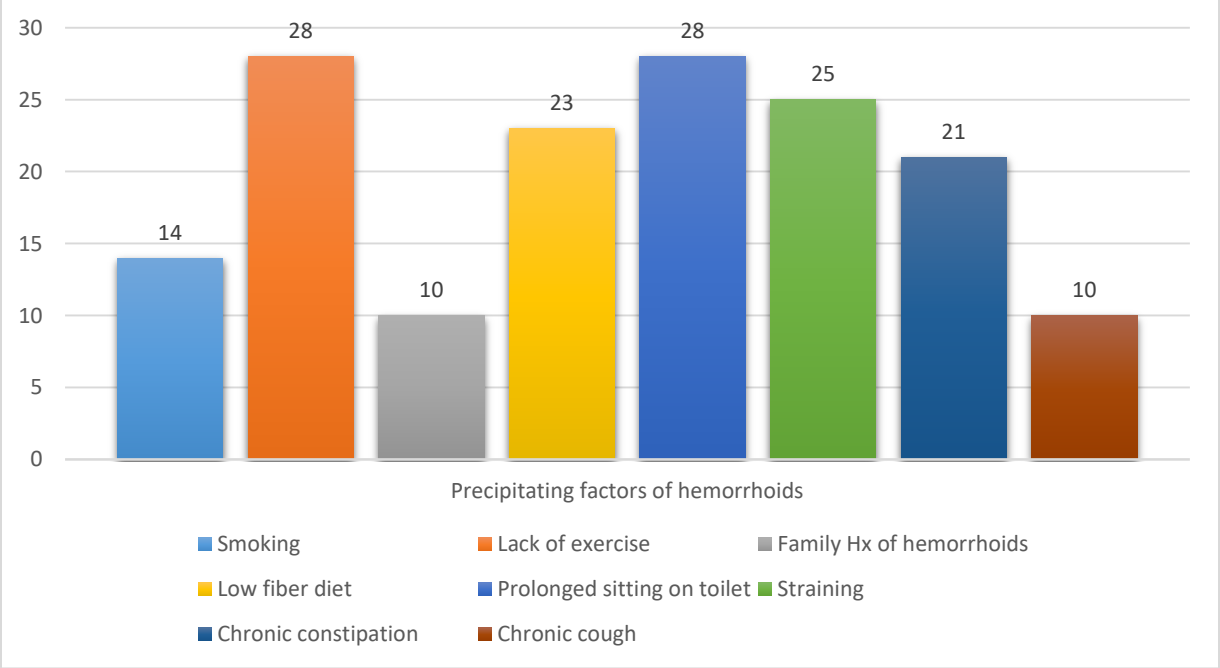

Figure 2: Prevalence of precipitating factors of "Hemorrhoids" in patients presenting with "PR Bleeding" (n = 34)

DISCUSSION

Due to the fact that even complete closure of the anal sphincter does not enable a complete closure of the anal canal, "hemorrhoids" serve as physiological cushions that aid in the preservation of fecal continence. [12] The true prevalence of hemorrhoidal disease is difficult to ascertain because many sufferers choose to ignore their manifestations rather than seeking treatment. This cross sectional study was thus conducted, focusing on the actual burden of this condition in local population. In this study, it was observed that most patients who presented with the complaint of "PR bleeding" and were found to have hemorrhoids, were males. This was congruent with the finding of the study conducted by Malviya *et al.* [13] who reported prevalence of hemorrhoids in male patients was 69% as compared to 31% in female patients. Opposite to what was observed in this study, Lee

et al. [14] observed that prevalence of "hemorrhoidal disease" was much higher in female patients as compared to their male counterparts. One of the important risk factor that contributes to the development of "hemorrhoidal disease" is high body weight and BMI. [15] So was the case in this study in which, based on average BMI value, most patients had BMI in obesity range. In this study, grade II hemorrhoids occurred most commonly and least common were of grade IV. Similar finding was observed by Irfan *et al.* [16] regarding severity of "hemorrhoidal disease".

In terms of prevalence of "hemorrhoids" in patients who presented with the complaint of "PR bleeding", it was found that 32.38% patients had "hemorrhoidal disease". This prevalence was congruent with what was reported in a study conducted in Australian population where the reported prevalence of "hemorrhoids" was 38.93%. [17] In comparison to this, Sheikh *et al.* [10] reported this prevalence to be much lower at 11%. Kibret *et al.* [8], reported prevalence of "hemorrhoids" was also lesser than the current study and was reported at 13%. In addition, prevalence of "hemorrhoids" reported in a study conducted by Hong *et al.* [18] was 16.6% which was also much lower that what has been observed in the current study.

In present study, most common precipitating factor of "hemorrhoidal disease" was lack of regular exercise and habit of prolonged sitting on the toilet. This was followed by habit of straining while defecation, low fiber diet intake and having constipation. In a study conducted by Ravindranath *et al.* [19] reported that in their study, most common factor that precipitated development of "hemorrhoids" was having long-standing constipation and straining. Similarly, in another study conducted by Oberi *et al.* [20] most common factors that led patients to develop "hemorrhoidal disease" were lack of regular exercise, prolonged sitting and poor dietary habits. This study provides a detailed insight not only regarding the burden of this condition in our local population but also regarding its various precipitating factors. Based on these findings, a comprehensive guidance plan can be devised for the general population that can help them to avoid development of completely avoidable "hemorrhoidal disease".

CONCLUSION

Prevalence of "hemorrhoids" in patients presenting with "PR bleeding" is 32.38% and its most prevalent precipitating factors were lack of regular exercise and habit of prolonged sitting on the toilet.

CONFLICT OF INTEREST

"We declare that there was no conflict of interest".

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AUTHORS CONTRIBUTIONS

Topic selection and Data collection: Dr Syed Mukarram Hussain
Article writing: Dr Ahmed Bilal Joyia
Statistical analysis: Dr Usaid Munir Joyia
Proof reading: Dr Naveen Sheikh

KEY WORDS

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