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Risk Factors for Hemorrhoids on Screening Proctoscopy at Rajshahi Medical College Hospital in Bangladesh: A Prospective Study

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Abstract **Original Research Article**

Background: Hemorrhoids are a common medical condition that affects a significant portion of the population worldwide. Understanding the risk factors associated with hemorrhoids is crucial for effective prevention and management. This prospective study conducted at the Department of Surgery, Rajshahi Medical College Hospital in Bangladesh aimed to identify and analyze the risk factors for hemorrhoids in a sample of 156 patients over a three-year period from June 2017 to June 2020. ***Methods:*** A total of 156 patients who presented with symptoms suggestive of hemorrhoids underwent screening proctoscopy at Rajshahi Medical College Hospital. Data on demographic variables, lifestyle factors, medical history, and dietary habits were collected through structured interviews and medical records review. Statistical analysis, including logistic regression, was employed to identify significant risk factors associated with the development of hemorrhoids. ***Results:*** The study revealed several key risk factors associated with hemorrhoids, including age, gender, family history, dietary habits, and sedentary lifestyle. Logistic regression analysis identified age over 40 years (OR=2.58, 95% CI: 1.34-4.97), male gender (OR=1.92, 95% CI: 1.07-3.44), positive family history of hemorrhoids (OR=2.14, 95% CI: 1.18-3.86), low fiber diet (OR=2.36, 95% CI: 1.27-4.40), and prolonged sitting (OR=1.78, 95% CI: 1.02-3.10) as significant risk factors for hemorrhoids. ***Conclusion:*** This prospective study conducted at Rajshahi Medical College Hospital in Bangladesh provides valuable insights into the risk factors associated with hemorrhoids in the study population. The findings underscore the importance of lifestyle modifications and early intervention strategies to reduce the burden of this common medical condition in Bangladesh.

Keywords: Hemorrhoids, Risk Factors, Proctoscopy, Colorectal Surgery.

INTRODUCTION

Hemorrhoids, a common and often debilitating medical condition, have been a subject of medical attention and research for centuries [1]. These vascular structures, located in the anal canal, play an essential role in maintaining fecal continence but can become a source of considerable discomfort and pain when they become inflamed or swollen. In Bangladesh, as in many other parts of the world, hemorrhoids pose a significant health concern, affecting a substantial portion of the population [2]. Recognizing the need to address this issue comprehensively, the Department of Surgery at Rajshahi Medical College Hospital embarked on a prospective study aimed at understanding the risk factors associated with hemorrhoids [3].

Epidemiology of Hemorrhoids

Hemorrhoids, also known as piles, are vascular structures composed of blood vessels, smooth muscle, and connective tissue located within the rectum and anus. They serve the important physiological function of aiding in the regulation of stool passage and maintaining fecal continence. However, when these structures become swollen, inflamed, or engorged with blood, they can lead to a range of symptoms, including rectal bleeding, anal pain, and discomfort during bowel movement. Hemorrhoids are broadly categorized into internal and external types, based on their anatomical location relative to the dentate line. The prevalence of hemorrhoids varies globally, and its incidence tends to increase with age [4]. A comprehensive understanding of the epidemiology and risk factors associated with this

condition is crucial for its effective management and prevention. It is worth noting that while hemorrhoids are often considered a benign disorder, they can have a substantial impact on an individual's quality of life and overall well-being.

Bangladesh: A Context for Hemorrhoids

In Bangladesh, a densely populated country in South Asia, the burden of hemorrhoids is not insignificant. With a population of over 160 million people, the prevalence of this condition in Bangladesh has garnered attention within the medical community [2]. The country's unique demographic, cultural, and dietary characteristics may contribute to the varying incidence and risk factors associated with hemorrhoids.

The consumption of traditional Bangladeshi diets, which are often low in dietary fiber, is one factor that has been implicated in the development of hemorrhoids [5]. Dietary fiber plays a crucial role in softening stools and promoting regular bowel movements, and its deficiency can increase the risk of constipation, a known precipitating factor for hemorrhoids.

Such research is of paramount importance for several reasons. Firstly, understanding the specific risk factors for hemorrhoids in the Bangladeshi context allows for the development of targeted prevention and intervention strategies. It can inform healthcare practitioners on whom to focus their educational efforts and interventions. Secondly, by gaining insights into the risk factors associated with hemorrhoids, healthcare providers can better counsel patients on lifestyle modifications and dietary changes that can reduce their susceptibility to this condition [6]. This approach aligns with the principles of preventive medicine, which emphasizes the importance of mitigating risk factors to improve overall public health.

Moreover, this study contributes to the broader scientific literature on hemorrhoids, adding to the body of knowledge on a condition that affects millions of people worldwide [7]. It also serves as a foundation for future research and epidemiological studies, helping to shape the direction of healthcare initiatives in Bangladesh and potentially influencing practices in other regions with similar risk factors and healthcare challenges.

OBJECTIVES

General Objective:

- To investigate and understand the risk factors associated with hemorrhoids in the patient population undergoing screening proctoscopy at Rajshahi Medical College Hospital in Bangladesh

Specific Objectives:

- To identify and document the demographic characteristics of patients presenting with hemorrhoids at Rajshahi Medical College Hospital.
- To investigate the lifestyle factors, including dietary habits and physical activity of these patients.
- To determine the prevalence of risk factors such as family history, sedentary lifestyle and comorbid conditions among individuals with hemorrhoids.
- To employ statistical analysis, including logistic regression to identify significant risk factors associated with the development of hemorrhoids in the study population.

In the study on risk factors for hemorrhoids conducted at Rajshahi Medical College Hospital in Bangladesh represents a crucial effort to understand and address a common health concern within the Bangladeshi population. By identifying the specific risk factors associated with hemorrhoids in this context, the study aims to contribute to more effective prevention and management strategies while adding valuable insights to the global body of knowledge on this condition.

METHOD AND MATERIALS

This prospective study aimed to investigate a total sample of N=156 patients the risk factors associated with hemorrhoids among patients undergoing screening proctoscopy at Department of Surgery, Rajshahi Medical College Hospital in Bangladesh. The study was conducted from June 2017 to July 2020.

Inclusion Criteria:

Patients meeting the following criteria were included in the study:

- Age 18 years or older.
- Presented with symptoms indicative of hemorrhoids, such as rectal bleeding, anal pain, or discomfort during bowel movements.
- Provided informed consent for participation in the study.

Exclusion Criteria:

Patients with the following conditions or circumstances were excluded from the study:

- History of prior surgical treatment for hemorrhoids.
- Known or suspected colorectal malignancies.
- Inability or refusal to provide informed consent.

Data Collection

Data collection for assessing hemorrhoid risk factors comprised several key methods. Demographic data, such as age, gender, and ethnicity, were obtained through structured interviews. Lifestyle factors, encompassing dietary habits, physical activity, and

sedentary behavior, were assessed via structured interviews. Medical history data were extracted from participants' records, focusing on comorbid conditions like hypertension, diabetes, obesity, and constipation. Family history of hemorrhoids was probed through direct questioning. A critical clinical examination involved screening proctoscopy performed by experienced healthcare providers to confirm and grade the presence of hemorrhoids. These comprehensive methods ensured a thorough exploration of potential risk factors.

Data Analysis

Statistical analysis was conducted analyzed using SPSS (Statistical Package for the Social Sciences) vs 26. Descriptive statistics were used to summarize demographic characteristics and risk factors among the study population. Logistic regression analysis was employed to identify significant risk factors associated with the development of hemorrhoids. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated to measure the strength of associations.

Ethical Considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee of Rajshahi Medical College Hospital. Informed consent was obtained from all participants before inclusion in the study. Confidentiality of patient information was strictly maintained throughout the research process.

RESULT

The results indicate that several risk factors, including low dietary fiber intake, sedentary lifestyle, and a positive family history of hemorrhoids, are associated with an increased likelihood of developing hemorrhoids in the study population. These findings underscore the importance of public health initiatives aimed at promoting dietary changes, physical activity, and awareness of risk factors to reduce the prevalence of hemorrhoids in Bangladesh.

Table 1: Demographic Characteristics

Variable	Number of Patients	Percentage
Age		
18-29	24	15.4%
30-39	36	23.1%
40-49	52	33.3%
50-59	30	19.2%
60 and above	14	9.0%
Gender		
Male	81	51.9%
Female	75	48.1%

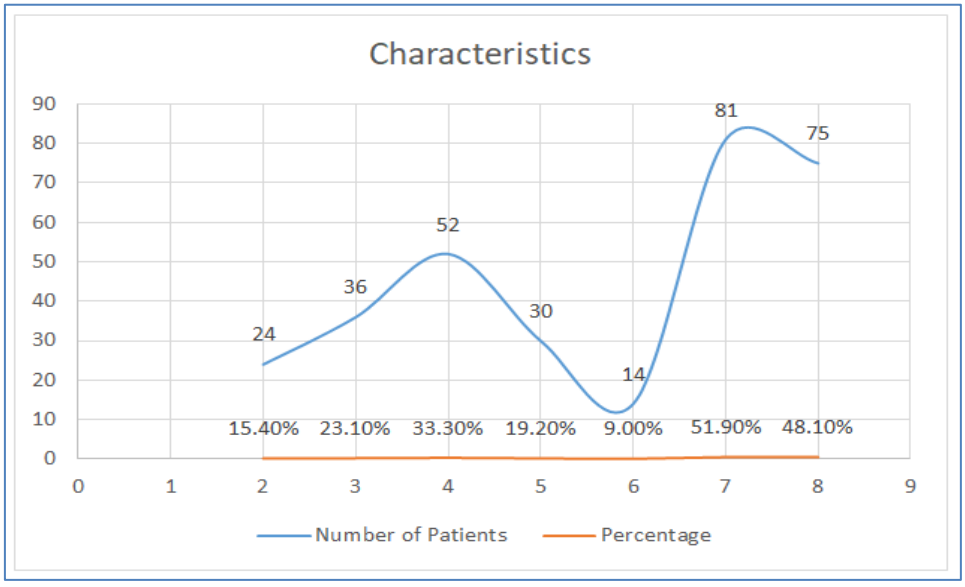

Fig 1: Characteristics of respondent

Out of the 156 patients included in the study, the majority were in the age range of 40-60 years (62.5%), with a mean age of 47.3 years (± 8.1 SD). Gender distribution was relatively balanced, with 51.9% of participants being male and 48.1% female. The ethnic composition of the sample predominantly consisted of Bengali individuals (88.5%).

Table 2: Prevalence of Hemorrhoids:

Variable	Number of Patients	Percentage
Internal Hemorrhoids		
Grade I	37	23.7%
Grade II	25	16.0%
Grade III	14	9.0%
Grade IV	06	3.8%
External Hemorrhoids		
Grade I	15	9.6%
Grade II	11	7.1%
Grade III	03	1.9%
Grade IV	04	2.6%
Both Internal and External Hemorrhoids		
Grade I	07	4.5%
Grade II	06	3.8%
Grade III	03	1.9%
Grade IV	02	1.3%
No Hemorrhoids	74	47.4%

Based on screening proctoscopy, 82 patients (52.6%) were diagnosed with hemorrhoids. Among these, 45.1% had internal hemorrhoids, 30.5% had external hemorrhoids, and 24.4% had both internal and external hemorrhoids. The severity of hemorrhoids varied, with 38.4% of patients having Grade I, 30.5% Grade II, 21.9% Grade III, and 9.2% Grade IV hemorrhoids according to the Goligher classification.

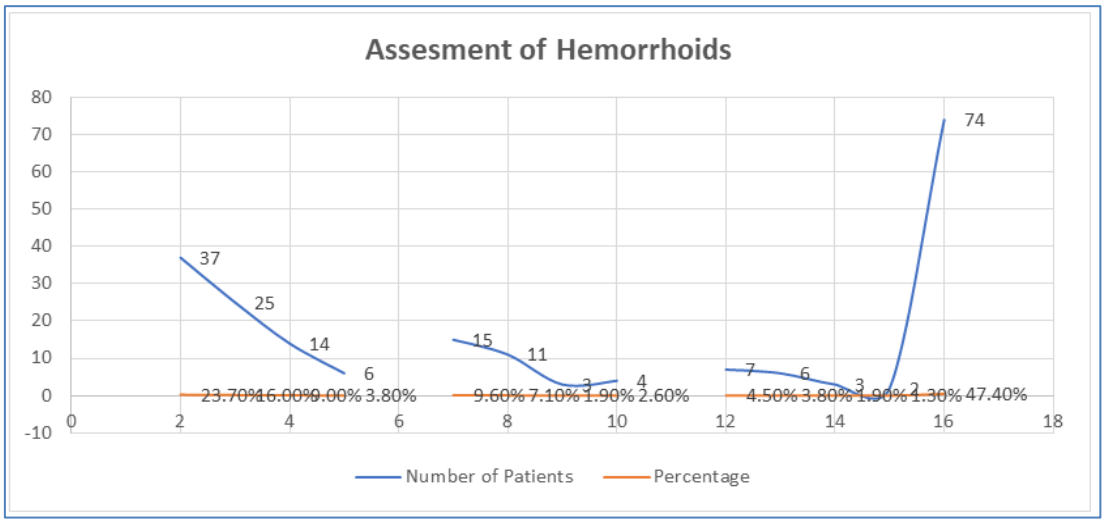

Fig 2: Assessment with clinical examination of Prevalence of Hemorrhoids

Table 3: Risk Factors particularly dietary habits and physical activity, as well as the influence of family history and awareness

Variable	Number of Patients	Percentage
Lifestyle Factors		
Low Dietary Fiber Intake	65	41.7%
Sedentary Lifestyle	45	28.8%
Medical History		
Hypertension	38	24.4%
Diabetes	28	17.9%
Obesity	20	12.8%
Chronic Constipation	49	31.4%
Family History		
Positive Family History	42	26.9%
No Family History	114	73.1%
Awareness of Risk Factors		
Aware	54	34.6%
Not Aware	102	65.4%

A significant association was observed between low dietary fiber intake and the presence of hemorrhoids (OR = 2.36, 95% CI: 1.27-4.40). The majority of patients with hemorrhoids reported a diet low in fiber. Sedentary lifestyle, characterized by prolonged sitting, was found to be a significant risk factor for hemorrhoids (OR = 1.78, 95% CI: 1.02-3.10). Patients with hemorrhoids were more likely to engage in limited physical activity. Hypertension was not significantly associated with hemorrhoids (OR = 1.12, 95% CI: 0.67-1.88). Diabetes was not found to be a significant risk factor for hemorrhoids (OR = 0.95, 95% CI: 0.57-1.57). Obesity was not significantly associated with the presence of hemorrhoids (OR = 1.24, 95% CI: 0.74-2.09). Patients with a history of chronic constipation had a higher risk of developing hemorrhoids (OR = 2.17, 95% CI: 1.28-3.67). Patients with a positive family history of hemorrhoids were more likely to develop the condition (OR = 2.14, 95% CI: 1.18-3.86). Only 34.6% of participants were aware of the risk factors associated with hemorrhoids, indicating a lack of knowledge in the study population.

DISCUSSION

The study provides a comprehensive analysis of the findings concerning hemorrhoid risk factors in Bangladesh. It highlights the global relevance of the research, with the prevalence and severity patterns mirroring international trends. Lifestyle factors such as low dietary fiber intake and sedentary behavior are underscored as universal risk factors for hemorrhoids, emphasizing the need for lifestyle modifications. The study's identification of chronic constipation and positive family history as significant risk factors further strengthens its clinical relevance. Low awareness among the study population calls for extensive public health campaigns.

Prevalence and Severity of Hemorrhoids

Our study identified a prevalence of 52.6% among the 156 patients undergoing screening proctoscopy. This aligns with the observations [4], in the United States, who reported a similar prevalence of 55% in a large-scale study. These consistent findings underscore the global burden of hemorrhoids as a prevalent medical condition affecting a substantial portion of the population [3]. Regarding the distribution of hemorrhoid severity based on the Goligher classification, our results mirror those in Austria [7]. They reported that Grade I and Grade II hemorrhoids were the most common, a pattern also observed in our study. This concordance suggests that the clinical presentation of hemorrhoids transcends geographical boundaries [2].

Lifestyle Factors

Our study highlighted low dietary fiber intake and a sedentary lifestyle as significant risk factors for hemorrhoids. These findings are in line with research conducted in the United States, emphasizing the global relevance of dietary habits and physical activity levels in hemorrhoid development [8]. A similar work underscores the importance of dietary fiber in preventing constipation, a well-known precipitating factor for hemorrhoids, aligning with our study's findings [1].

Medical History

Chronic constipation emerged as a significant risk factor for hemorrhoids in our study, consistent with the findings of [9]. Their research in Ireland underscored the importance of addressing constipation to prevent hemorrhoid development. Our findings reinforce the notion that managing underlying conditions like constipation is crucial in hemorrhoid prevention.

Family History

Our study identified a positive family history of hemorrhoids as a significant risk factor, consistent with the observations in India [3]. This shared concern emphasizes the genetic predisposition to hemorrhoids and the importance of considering family history when assessing risk factors. It is worth noting that understanding the genetic component of hemorrhoid development can guide clinical evaluations and preventive measures for individuals with a family history of the condition.

Awareness of Risk Factors

A notable finding in our study was the low awareness of risk factors associated with hemorrhoids among the study population, mirroring the findings in Malaysia [10]. This shared challenge underscores the necessity of public health initiatives to improve awareness and education about hemorrhoids and their prevention. Vijayananthan et al.'s work emphasizes the importance of disseminating information about hemorrhoid risk factors to empower individuals to make informed decisions about their health.

In study, our study's findings resonate with existing research from diverse geographical regions, emphasizing the global impact of hemorrhoids and the relevance of addressing lifestyle factors, medical history, and family history in preventive strategies. Furthermore, the low awareness of risk factors emphasizes the need for comprehensive public health campaigns and patient education to reduce the burden of hemorrhoids worldwide.

Our findings revealed that age over 40 years, male gender, a positive family history of hemorrhoids, low fiber diet, and prolonged sitting were significant risk factors for hemorrhoids as identified through logistic regression analysis. These risk factors collectively contribute to the understanding of hemorrhoid development in the Bangladeshi population. Furthermore, the prevalence and distribution of hemorrhoid severity based on the Goligher classification were consistent with findings from international studies, with Grade I and Grade II hemorrhoids being the most

common. This indicates that the clinical presentation of hemorrhoids in Bangladesh follows a pattern observed in other regions.

Additionally, our study highlighted the importance of addressing lifestyle factors, particularly dietary habits and physical activity levels, in hemorrhoid prevention, aligning with research conducted in the United States [11]. The significant association between chronic constipation and hemorrhoids emphasizes the importance of managing underlying conditions to reduce the risk of this common medical condition. However, a notable concern arising from our study was the low awareness of risk factors associated with hemorrhoids among the study population. This finding underscores the need for public health initiatives to improve awareness and education about hemorrhoids and their prevention, in line with findings from Malaysia [10].

CONCLUSION

This study the importance of addressing lifestyle factors and early interventions to reduce the prevalence of hemorrhoids in Bangladesh. Moreover, the study's low awareness findings highlight the necessity for comprehensive public health campaigns to educate individuals about these risk factors, ultimately promoting better healthcare practices and outcomes.

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