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Patterns of Presentation and Prevalence of Fissure-in-Ano in a Tertiary Care Hospital: A Descriptive Study

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ABSTRACT

Background: Fissure-in-ano is a prevalent anorectal condition that mainly impacts young adults and is often linked to constipation and eating habits. The objective of this study was to evaluate the demographic characteristics, clinical symptoms, and typical anatomical location of fissure-in-ano in patients attending a tertiary care facility.

Methods: A cross-sectional descriptive study was carried out between May 2025 and July 2025 in the Department of General Surgery at Nepal Police Hospital in Kathmandu. A total of 300 patients aged 18 years and older, who presented with anorectal issues, were recruited via convenient sampling method. Information regarding demographics, dietary practices, history of constipation, clinical symptoms, and the location of the fissure was gathered and analyzed utilizing SPSS version 21.0.

Results: The largest group of patients (65.33%) fell within the age range of 18 to 40 years, with a slightly higher incidence among males (54.67%) than females (45.33%). A significant majority of patients (86%) adhered to a mixed dietary regimen, and more than half (58%) reported a history of constipation. The most frequently observed symptoms were painful defecation (84%), followed by rectal bleeding (54.33%), and constipation (52%). The fissures were mainly found at the posterior midline (92%). The patterns of clinical presentation were consistent across both genders.

Conclusion: Fissure-in-ano typically affects younger adults and is closely associated with constipation and the location of fissures at the posterior midline. Early detection, modifications in lifestyle, and the regulation of bowel habits are essential for both prevention and management.

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INTRODUCTION

Fissure-in-ano is a prevalent anorectal condition characterized by a longitudinal laceration in the anoderm, typically located at the posterior midline of the anal canal.[1] It can be classified into acute and chronic forms, with chronic instances frequently presenting fibrosis and the development of a sentinel pile.[1,2] The underlying mechanisms involve factors such as internal sphincter hypertonicity, ischemia, and trauma caused by defecation.[3] The incidence worldwide varies and is influenced by factors such as lifestyle, diet, and socioeconomic conditions.[4] Despite its commonality, a delay in diagnosis can lead to complications, highlighting the importance of enhanced clinical awareness in tertiary care settings.[5] Symptoms include sharp pain during bowel movements, rectal bleeding, constipation, anal discomfort, and itching.[6] Risk factors consist of chronic constipation, diarrhea, postpartum status, and inflammatory bowel disease.[7] Initial management often involves conservative approaches—alterations in diet, sitz baths, and topical treatments—while refractory cases might need surgical procedures like lateral internal sphincterotomy.[8,9] This study investigates the manifestation and prevalence of fissure-in-ano in a tertiary care environment.[10]

METHODS

This descriptive, cross-sectional research was conducted at the General Surgery Department of Nepal Police Hospital located in Maharajgunj, Kathmandu, Nepal, from May 2025 to July 2025. The participant group consisted of patients visiting the outpatient department of General Surgery with a possible diagnosis of fissure-in-ano. The sample size was determined using the formula $n = (Z^2 \times p \times q) / e^2$, relying on a 95% confidence level, an estimated prevalence of fissure-in-ano in Nepal,[11] and a 5% margin for error. To accommodate potential dropouts or incomplete data, a 10% non-response rate was included, leading to a final targeted sample size of 300.

A non-probability, convenience sampling approach was utilized, where patients fitting the inclusion criteria were consecutively enrolled as they arrived during the study duration. While this method facilitated practical and timely data gathering, it introduces several possible biases. Selection bias may have occurred due to the hospital-based setting and the non-random nature of participant inclusion, which affects the ability to generalize the results to the broader population. There is also the potential for volunteer bias since informed consent was required for participation, possibly omitting individuals with more severe symptoms, lower literacy levels, or concerns about privacy. Additionally, information bias might result from self-reported symptoms or incomplete clinical histories, particularly in cases with overlapping anorectal conditions. Despite these drawbacks, measures were implemented to reduce bias by employing standardized diagnostic criteria through clinical examinations carried out by skilled clinicians.

Inclusion criteria included all individuals aged 18 and above presenting with anorectal issues suggestive of fissure-in-ano. Exclusion criteria comprised individuals who opted not to participate, pregnant women, those with anorectal malignancies or inflammatory bowel disease, and patients who had previously undergone anorectal procedures. Patient confidentiality was rigorously upheld, and all data collected were anonymized and utilized solely for research purposes.

Before initiating the study, ethical approval was secured from the Institutional Review Committee of Nepal Police Hospital (Reference No. 43). All participants were provided with a clear explanation of the study's benefits and potential risks, and written informed consent was obtained, allowing patients the option to withdraw at any point during the study. A thorough clinical perianal examination was conducted for each participant, and further assessments such as digital rectal examinations, proctoscopy, sigmoidoscopy, and colonoscopy were performed as dictated by clinical necessity. The data gathered were entered into Microsoft Excel and analyzed using SPSS version 21.0

RESULTS

Patient demographics

Table 1: Patient demographics

Age group	Number (Percentage)
18-40	196 (65.33 %)
41-60	89 (29.67%)
>60	15 (5.0 %)
Gender Distribution	
Male	164 (54.67 %)
Female	136 (45.33 %)
Dietary Habit	
Vegetarian	42 (14.0 %)
Mixed diet	258 (86 %)
History of Constipation	
Yes	174 (58.0 %)
No	126 (42.0 %)

A significant portion of patients (65.33%) fell within the 18-40 age range, indicating that fissure-in-ano primarily affects younger adults. Males (54.67%) were slightly more commonly diagnosed than females (45.33%). The majority of patients (86%) adhered to a mixed diet, and over half (58%) reported a history of constipation, implying that constipation might be a noteworthy risk factor. **(Table:1)**

Clinical Presentation

Table 2: Clinical presentation pattern

Symptoms	Number (Percentage)
Painful defecation	252 (84.0%)
Per rectal bleeding	163 (54.33 %)
Constipation	156 (52.0%)
Itching	39 (13.0 %)
Discharge	12 (4.0%)

The most prevalent symptom reported was painful defecation (84%), followed by per rectal bleeding (54.33%) and constipation (52%). Less frequently reported symptoms included itching (13%) and discharge (4%). This highlights that painful defecation is the most significant issue faced by patients with fissure-in-ano. **(Table:2)**

Clinical Presentation and Gender Distribution

Table 3: Clinical presentation and Gender

distribution

Symptoms	Male Number (Percentage)	Female Number (Percentage)
Painful defecation	135 (82.32 %)	102 (75.0 %)
Per rectal bleeding	92 (56.10 %)	78 (57.35 %)
Constipation	84 (51.22 %)	60 (44.12 %)
Itching	19 (11.59%)	13 (9.56 %)
Discharge	7 (4.27 %)	4 (2.94 %)

Both male and female patients mainly exhibited painful defecation and per-rectal bleeding. Painful defecation was noted more often in males (82.32%) than in females (75%). Other symptoms, such as constipation, itching, and discharge, showed similar occurrences between genders, indicating no major gender differences in clinical manifestations. **(Table:3)**

Position of the Fissure-in-Ano

Table 4: Positional pattern

Position	Number (Percentage)
Posterior midline	276 (92.0 %)
Anterior midline	23 (7.67 %)
Others	1 (0.33 %)

The majority of fissures were found in the posterior midline (92%), with a small number in the anterior midline (7.67%) and very few in other regions (0.33%), reinforcing that the posterior midline is the most frequent location for fissure-in-ano. **(Table:4)** One case presented a fissure located outside the typical midline area. Subsequent evaluation via colonoscopy was conducted due to the unusual site, which ultimately revealed underlying ulcerative colitis. This case underscores the importance of considering secondary causes, such as inflammatory bowel disease, when fissures appear in atypical locations or exhibit unusual characteristics. It stresses the necessity for thorough clinical evaluation and appropriate diagnostic procedures in cases of non-midline fissures to prevent overlooking serious underlying conditions.

DISCUSSION

Fissure-in-ano mainly affects younger adults, with a slight predominance in males and distribution by age and gender may be influenced by lifestyle-related factors such as diet, bowel habits, and levels of physical activity.[4,10] The findings are in line with prior research indicating that the condition is most prevalent in the younger population and factors such as dietary habits, lifestyle choices, and bowel movement patterns are cornerstone to its development.[12,13]

The high incidence of constipation among affected individuals emphasizes its critical role in the development of fissure-in-ano. Furthermore, the frequent presence of painful bowel movements as the primary symptom, along with rectal bleeding and constipation, corresponds with the typical clinical presentation of the condition and underscores the necessity for thorough symptom evaluation in diagnosing it. The common occurrence of fissures at the posterior midline supports the notion of anatomical susceptibility, likely attributable to decreased blood circulation and heightened mechanical strain in that area. These insights are important for facilitating early detection and non-surgical management approaches, especially in primary and tertiary care environments, where swift intervention can avert chronic conditions and enhance patient outcomes.

The high number of patients with mixed diets reflects general dietary habits and underscores the significance of fiber consumption. More than half of the individuals had a history of constipation, reinforcing that constipation is a recognized risk factor for fissure-in-ano since it results in straining and subsequent trauma to the anoderm during bowel movements.[14] Painful defecation, identified as the most prevalent symptom in this study, is widely recognized as the hallmark of fissure-in-ano and is often accompanied by rectal bleeding and constipation, as supported by numerous clinical studies.[1,3,7]

This study emphasizes the critical need for early lifestyle changes targeting young adults, as this group seems to be especially susceptible to fissure-in-ano, a conclusion mirrored by Bouchard et al., who found a similar age-related prevalence in their cohort study.[15] The strong association with constipation highlights the necessity of encouraging dietary fiber consumption, sufficient hydration, and healthy bowel practices—guidance also validated by Loder et al., who noted that over 70% of fissure-in-ano cases were linked to chronic constipation.[16] As documented earlier, early intervention on these adjustable risk factors could considerably lower the incidence and severity of the disease.[7,10] The prevalence of posterior midline fissures corresponds with the vascular vulnerability hypothesis, which suggests this area has reduced blood flow, making it more prone to injury and slower healing.[17] Clinically, acknowledging painful defecation as the most consistent symptom aids in earlier diagnosis and treatment, as emphasized by prior research.[18] The consistency of symptom distribution across genders, in line with findings from Nelson et al., indicates that universal prevention approaches focused on bowel regulation and symptom recognition may be more effective than strategies tailored to specific genders.[19] Additionally, recognizing these demographic and clinical trends allows healthcare professionals to improve patient education and formulate public health policies that more effectively address anorectal disorders.[13]

This study has few limitations. As a cross-sectional analysis conducted at a single tertiary care facility, the results may not be applicable to broader populations or other healthcare environments. Furthermore, depending on patient-reported symptoms and histories opens up the possibility of recall bias, which could compromise the accuracy of data regarding dietary practices, bowel irregularities, and the duration of symptoms. The research also does not indicate whether it considered other crucial confounding variables such as occupation, levels of physical activity, or underlying health issues like diabetes and immunosuppression, all of which could greatly impact the occurrence or severity of fissure-in-ano. These limitations highlight the necessity for larger, multicentric, and longitudinal research that can more effectively control for confounding factors and offer more thorough and comprehensive understanding of the epidemiology and risk elements associated with fissure-in-ano.

CONCLUSION

Fissure-in-ano primarily affects young adults and is strongly associated with constipation and painful defecation, with most fissures located at the posterior midline. Early lifestyle modification, bowel habit regulation, and timely diagnosis are essential for effective prevention and management. Further large-scale studies are recommended to validate these findings.

Conflict of interest: None

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