

## Features and Presentations of Chronic Anal Fissure: A Study of 67 Cases

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<p><b>Abstract: Background:</b> Anal fissure, a longitudinal tear in the anoderm below the dentate line, is one of the most common benign anorectal conditions. The severe pain experienced during defecation, along with associated emotional stress, can significantly impact daily activities. As a result, it may considerably reduce an individual's quality of life. <b>Objective:</b> To assess the features and presentations of chronic anal fissure. <b>Methods:</b> This was a prospective cross-sectional study conducted in the Department of Surgery, Jamalpur Medical College, Jamalpur, Bangladesh during the period from January 2023 to December 2023. A total of 67 patients with chronic anal fissures were enrolled purposively. Data were analyzed using MS Office tools. <b>Results:</b> The ages of the respondents ranged from 23 to 60 years, with a mean of <math>39.14 \pm 8.77</math> years. Males comprised 52.0% and females 48.0%, with a male-to-female ratio of 1.08:1. Symptom duration varied from 1 to 13 years, averaging <math>5.92 \pm 3.88</math> years. Anal pain was universal while bleeding, constipation, and skin tags occurred in 89.6%, 74.6%, and 64.2%, respectively. Posterior midline fissures were most common (64.2%). <b>Conclusion:</b> Chronic anal fissure predominantly affects middle-aged individuals, with a slight male predominance. Patients commonly experience prolonged symptoms, with anal pain as a universal complaint. Bleeding, constipation, and skin tags are frequent. The posterior midline is the most affected site, emphasizing the need for early diagnosis and appropriate management to prevent complications.</p>	<p><b>Research Paper</b></p>
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## INTRODUCTION

An anal fissure is a longitudinal ulcer located in the lower portion of the anal canal [1]. The underlying mechanisms contributing to its development are complex and include factors such as reduced blood flow to the anoderm, infection, prolonged constipation, and increased tension in the internal anal sphincter muscle [2]. Chronic anal fissure is among the most prevalent benign anorectal disorders, leading to considerable morbidity, diminished quality of life, and financial burden [3]. While epidemiological data remain limited, a population-based study in the United States estimated that around 342,000 new cases of anal fissures are diagnosed annually [3]. The condition carries an estimated lifetime risk of 7.8% to 11% [4, 5]. Anatomically, approximately 90% of anal fissures occur

along the posterior midline, 8–25% along the anterior midline, and about 3% involve both anterior and posterior locations within the anal canal [4,6]. The pathophysiological mechanisms underlying chronic anal fissures are thought to involve mucosal injury and inflammation, which result in increased internal sphincter pressure and localized ischemia, ultimately hindering the healing process [7]. Posterior fissures are the most frequently observed due to inadequate tissue support in the posterior anal canal and reduced blood supply to the region. Anal fissures predominantly affect individuals in the younger age group. The primary symptoms include pain during defecation, rectal bleeding, and constipation. Treatment typically focuses on lowering sphincter pressure through physical or chemical approaches, promoting sphincter relaxation, ensuring the smooth passage of stool, and alleviating

pain [5]. Medical management options for chronic anal fissures include dietary modifications, increased fluid intake, warm sitz baths, laxatives, and local muscle relaxants such as calcium channel blockers (nifedipine and diltiazem). Additionally, topical application of isosorbide dinitrate or intra-sphincteric botulinum toxin injections may be used [6]. When conservative treatment proves ineffective, lateral internal sphincterotomy (LIS) is considered the gold standard surgical approach [7, 8]. Despite its effectiveness, LIS carries a risk of complications, with incontinence being the most concerning. Reported rates of incontinence range from 0-30% for flatus, 0-20% for liquid stool, and 0-5% for solid stool [9]. However, the risk can be minimized through tailored sphincterotomy techniques.

## METHODOLOGY

This prospective cross-sectional study was conducted in the Department of Surgery at Jamalpur Medical College, Jamalpur, Bangladesh, from January 2023 to December 2023. A total of 67 patients admitted to Jamalpur Medical College, Jamalpur, Bangladesh with chronic anal fissures were included in the study. The sample was selected using a purposive sampling technique. The inclusion criteria comprised patients with primary chronic anal fissures persisting for more than six weeks, characterized by indurated fissure edges, sentinel pile, hypertrophied anal papillae, and the presence of circular muscle fibers at the fissure base. Patients aged above 12 years of both sexes were eligible. Conversely, the exclusion criteria included recurrent anal fissures, chronic fissures in patients with a history of previous lateral sphincterotomy, secondary fissures, fissures complicated by fistula or anal stenosis, patients with prior anorectal surgery, malignancy, tuberculosis,

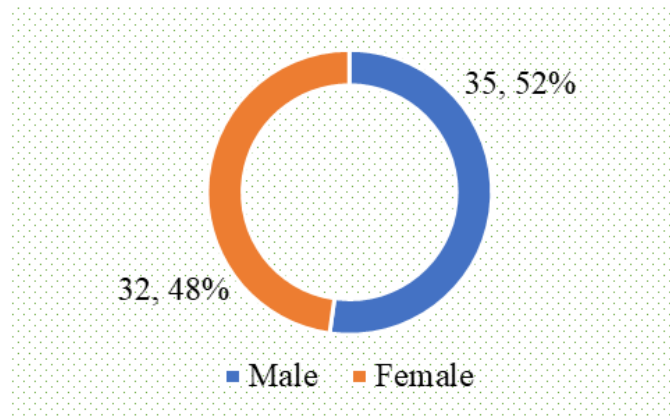
incontinence, and those under 12 years of age. The study received ethical approval from the respective hospital committee. Data were analyzed using MS Office tools.

## RESULT

In this study, the age distribution of respondents revealed that 40.3% were in the 31-40 years age group, 28.4% in the 41-50 years age group, 19.4% in the 21-30 years age group, and 11.9% in the 51-60 years age group. Out of the 67 respondents, 52.0% were male and 48.0% were female, yielding a male-to-female ratio of 1.08:1. The majority of patients (93%) were married, while 7% were unmarried. Regarding socio-economic status, most patients (70.1%) were from the middle class, 17.9% were from the lower class, and 11.9% were from the upper class. The duration of symptoms ranged from 1 to 13 years, with a mean of  $5.920 \pm 3.875$  years. For male respondents, the duration ranged from 2 to 13 years, with a mean of  $6.200 \pm 3.651$  years, while for female respondents, it ranged from 1 to 13 years, with a mean of  $5.583 \pm 4.221$  years. The duration of symptoms between males and females was comparable ( $p=0.560$ ), as analyzed using an unpaired t-test. Clinically, all patients presented with anal pain, 89.6% had bleeding, 74.6% experienced constipation, and 64.2% had a skin tag. The most common position of the anal fissure was the posterior midline, observed in 64.2% of patients, followed by the anterior midline in 25.4%, and both the anterior and posterior midline in 10.4% of patients. Regarding pain assessment using the visual analog scale, the mean pain score was 5.32 at baseline. It decreased sharply to 1.7 at 2 weeks and gradually reduced to 0.58 at 4 weeks and 0.04 at 6 weeks. The decrease in pain score was statistically significant ( $p<0.001$ ).

**Table 1: Age distribution of participants**

Age (Years)	n	%
21-30	13	19.4%
31-40	27	40.3%
41-50	19	28.4%
51-60	8	11.9%



**Figure 1: Gender distribution**

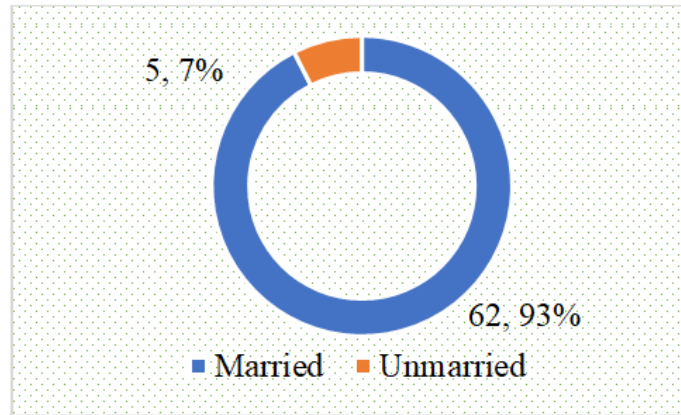


Figure 2: Distribution of marital status

Table 2: Socio-economic status

Class	n	%
Lower class	12	17.9%
Middle class	47	70.1%
Upper class	8	11.9%

Table 3: Duration of symptoms

Groups	Age in years		p-value
	Range	Mean $\pm$ SD	
Total	1-13	5.92 $\pm$ 3.875	0.56
Male	2-13	6.231 $\pm$ 3.651	
Female	1-13	5.583 $\pm$ 4.221	

Table 4: Clinical presentation of the patients

Clinical presentation	n	%
Anal pain	67	100%
Bleeding	60	89.6%
Skin tag	43	64.2%
Constipation	50	74.6%

Table 5: Distribution of patients on the position of the fissure

Position	n	%
Anterior	17	25.4%
Posterior	43	64.2%
Both	7	10.4%

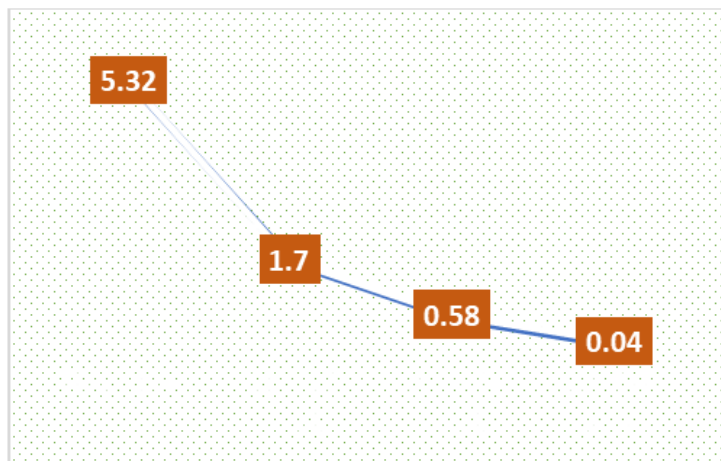


Figure 3: Score at different follow-ups of treatment

## DISCUSSION

This study found that the age distribution of the respondents was as follows: 40.3% were in the 31–40-year age group, 28.4% were in the 41–50-year age group, 19.4% were in the 21–30-year age group, and 11.9% were in the 51–60-year age group. In contrast, another study [10] revealed that the highest incidence of anal fissures occurred in the younger age group of 18-30 years, with 22 patients falling within this range, while 17 cases were in the 41–50-year age group. Regarding gender distribution, this study included 67 respondents, of which 52.0% were male and 48.0% were female, with a male-to-female ratio of 1.08:1. In a separate study [11] of 417 patients, 54.7% were female, and 45.3% were male. In this study, the duration of symptoms among respondents ranged from 1 to 13 years, with a mean of  $5.920 \pm 3.875$  years. For male respondents, the duration ranged from 2 to 13 years, with a mean of  $6.200 \pm 3.651$  years, while for female respondents, the duration ranged from 1 to 13 years, with a mean of  $5.583 \pm 4.221$  years. The duration of symptoms between male and female respondents was almost identical ( $p=0.560$ ). The data were analyzed using an unpaired t-test. Regarding the clinical presentation of patients with anal fissures, it was found that all patients (100%) experienced anal pain, 89.6% had bleeding, 74.0% suffered from constipation, and 64.2% had skin tags. In a study by Vishruth K. Raj *et al.*, [12], the most prevalent symptom in cases of acute anal fissure was pain during defecation, observed in 93% of the cases. In contrast, the most common symptom in chronic anal fissure cases was the presence of a mass at the anus, found in 76% of cases. Similarly, in a study conducted by Varadarajan MS *et al.*, [13], pain during defecation was the most common presenting symptom, reported in 86% of cases, followed by bleeding per rectum in 62%. Regarding the position of anal fissures, the posterior midline was the most common, found in 64.2% of patients, followed by the anterior midline in 25.4%, and both the anterior and posterior midline in 10.4% of patients. In a study by Sajith Babu *et al.*, [14], posterior anal fissures were reported in 90% of cases, while anterior anal fissures were observed in 10% of cases. In the current study, the pain scores, determined by the visual analog scale, were evaluated at different intervals. The mean pain score was 5.32 at baseline, which decreased significantly to 1.7 at 2 weeks and gradually decreased further to 0.58 at 4 weeks and 0.04 at 6 weeks. The decrease in pain score was statistically significant ( $p<0.001$ ). Regarding fissure healing at different follow-up points, complete healing occurred in 76.1% of patients at 2 weeks, 86.0% at 4 weeks, and 89.6% at 6 weeks. In contrast, a study by Pandit RK *et al.*, [15] found that 97.7% of fissures healed within 1 month. In the present study, at the end of the 6-week follow-up period, a satisfactory outcome was observed in 89.6% of patients, while 10.4% had unsatisfactory outcomes.

## Limitation of the study:

This study had several limitations. It was conducted in a tertiary hospital, which may not fully represent the broader situation in the country. The small sample size restricts the generalizability of the findings, and the short follow-up period of only six weeks may not provide insight into long-term outcomes or recurrence rates.

## CONCLUSION & RECOMMENDATION

Chronic anal fissure primarily affects middle-aged individuals, with a slight male predominance and prolonged symptom duration. Anal pain is universal while bleeding, constipation, and skin tags are frequent. The posterior midline is the most affected site. Early diagnosis and appropriate management are crucial to prevent complications and improve patient outcomes. Increased awareness among healthcare providers and patients is recommended to ensure timely intervention. Future research should focus on optimizing treatment strategies and exploring minimally invasive approaches for better long-term management.

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