ORIGINAL RESEARCH

Prevalence of Anal Fissure in Patients with Anorectal Disorders: A Cross-Sectional Study

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ABSTRACT

Background: Anal fissure is a common anorectal disorder characterized by a linear tear in the anoderm, typically located in the posterior midline of the anal canal. The study aimed to determine the prevalence of anal fissure among patients presenting with various anorectal disorders and to assess its demographic distribution, symptomatology, location, and chronicity in a single-centre setting.**Material and Methods:** This observational, cross-sectional study was conducted at a tertiary care hospital, enrolling 130 patients aged 18 years and older with anorectal complaints. Patients with a history of colorectal malignancies, previous anorectal surgeries, or inflammatory bowel disease were excluded. A structured questionnaire was used to collect demographic and clinical data. Digital rectal examination and anoscopy were performed for diagnosis, and anal fissures were classified based on chronicity and location. Data were analyzed using SPSS version 23.0, with categorical variables expressed as percentages and statistical significance determined using chi-square tests.**Results:** Out of 130 patients, 72 (55.00%) were diagnosed with anal fissure, with a statistically significant prevalence ($p = 0.0123$). The highest occurrence was observed in the 18-30 years age group, followed by the 46-60 years group. Male patients were more commonly affected (58.97%) compared to females (41.03%) ($p = 0.0289$). Pain (40.87%) and bleeding per rectum (30.43%) were the predominant symptoms. Posterior midline fissures were the most frequent (70.43%) ($p = 0.0198$), and acute fissures (60.87%) were more common than chronic fissures (39.13%) ($p = 0.0107$).**Conclusion:** The study highlights a high prevalence of anal fissure among patients with anorectal disorders, with a higher occurrence in younger adults and males. Pain and bleeding per rectum were the most frequently reported symptoms, with posterior midline fissures being the most common type. The predominance of acute fissures suggests that many patients seek early medical attention. Timely diagnosis and appropriate management are crucial in preventing chronicity.

Keywords: Anal fissure, Anorectal disorders, Prevalence, Chronicity, Digital rectal examination

INTRODUCTION

Anal fissure is a common anorectal disorder characterized by a linear tear in the anoderm, typically located in the posterior midline of the anal canal. It is often associated with severe pain during and after defecation, bleeding, and sphincter spasms, which significantly impact the quality of life. The prevalence of anal fissure among patients with anorectal disorders is an area of clinical importance, as it represents a substantial proportion of cases seen in colorectal and proctology clinics. This condition can be acute or chronic, with chronic cases posing greater therapeutic challenges due to fibrosis and hypertrophic changes in the surrounding tissues.[1,2]

Anorectal disorders encompass a broad spectrum of conditions affecting the anal canal and rectum, including hemorrhoids, anal abscesses, fistulas, rectal prolapse, and malignancies. Among these, anal fissure is one of the most frequently diagnosed conditions, particularly in young

adults and middle-aged individuals. Despite its high prevalence, anal fissure remains underreported due to the reluctance of patients to seek medical attention for perianal symptoms. This reluctance often leads to delayed diagnosis and progression to chronic fissures, which are more resistant to conservative treatments.[3]

The etiology of anal fissures is multifactorial, with the primary contributing factor being trauma to the anal canal due to hard stool passage, chronic constipation, or repeated episodes of diarrhea. Increased anal sphincter tone, particularly hypertonicity of the internal anal sphincter, plays a significant role in the pathophysiology of fissure formation. This results in decreased blood flow to the anoderm, impairing healing and perpetuating the cycle of pain and spasm. Certain risk factors such as poor dietary habits, sedentary lifestyle, inadequate hydration, and underlying gastrointestinal disorders contribute to the increased incidence of anal fissure. In some cases, secondary anal fissures may occur in association with conditions like inflammatory bowel disease, tuberculosis, sexually transmitted infections, and malignancies, necessitating a thorough evaluation to rule out systemic involvement.[4,5]

Epidemiological data suggest that anal fissure has a significant impact on both men and women, with varying prevalence rates across different populations. Although the posterior midline is the most common site, anterior fissures are more frequently observed in female patients, likely due to anatomical and physiological differences in the pelvic floor and perineal structures. The condition is also more commonly reported in individuals with occupations that involve prolonged sitting or excessive straining. The chronicity of anal fissure is often influenced by improper management in the initial stages, leading to persistent symptoms and complications such as the development of sentinel piles or hypertrophied anal papillae.[6]

In clinical practice, the diagnosis of anal fissure is primarily based on history and physical examination, with anoscopy or proctoscopy being reserved for cases where additional pathology is suspected. The classical presentation includes severe anal pain, particularly during defecation, bright red rectal bleeding, and a visible tear in the anoderm. Chronic fissures may exhibit additional features such as indurated edges, fibrosis, and associated skin tags. Differentiating primary fissures from those associated with systemic diseases is crucial in guiding treatment strategies.[7]

Management of anal fissure varies depending on its severity and chronicity. Acute fissures often respond well to conservative measures such as dietary fiber supplementation, increased fluid intake, stool softeners, warm sitz baths, and topical agents like nitrates or calcium channel blockers, which aid in reducing sphincter spasm and promoting healing. Chronic fissures, however, may require additional interventions such as botulinum toxin injections, lateral internal sphincterotomy, or other surgical approaches to relieve sphincter hypertonicity and enhance healing. The choice of treatment depends on patient-specific factors, including the severity of symptoms, comorbidities, and the risk of recurrence.[7]

AIM AND OBJECTIVES

The study aimed to determine the prevalence of anal fissure among patients presenting with various anorectal disorders and to assess its demographic distribution, symptomatology, location, and chronicity in a single-centre setting.

MATERIALS AND METHODS

Study Design

This study was a single-center, observational, cross-sectional study.

Study Population

A total of **130 patients** who visited the outpatient department with anorectal complaints were enrolled in the study.

Study Place

The study was conducted in the Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, NCR Delhi, India, which specializes in managing colorectal and anorectal disorders.

Study Period

The study was conducted over a period of eight months, from February 2019 to September 2019.

Ethical Considerations

- **Approval**: Ethical approval was obtained from the Institutional Ethics Committee.
- **Guidelines Followed**: The study adhered to the Declaration of Helsinki principles.
- **Confidentiality**: All patient data were anonymized, and strict confidentiality was maintained.
- **Informed Consent**: Written informed consent was obtained from all participants before their inclusion in the study.

- **Voluntary Participation**: Participants had the right to withdraw at any stage without any negative consequences.

Inclusion Criteria

- Patients aged 18 years or older.
- Patients presenting with symptoms suggestive of anorectal disorders, including:
  - Pain
  - Bleeding per rectum
  - Itching
  - Constipation

Exclusion Criteria

- Patients with a history of colorectal malignancies.
- Patients who had undergone previous anorectal surgeries.
- Patients diagnosed with inflammatory bowel disease (IBD).
- Patients unwilling to participate in the study.

Methodology/Procedure

- A **structured questionnaire** was used to collect:
  - Demographic details (age, sex, medical history).
  - Clinical history and presenting symptoms of anorectal disorders.
- **Anorectal Examination**:
  - **Digital Rectal Examination (DRE)** – performed to assess sphincter tone, tenderness, and any palpable masses.
  - **Anoscopy** – conducted to visualize the anal canal and confirm findings.
- **Diagnosis of Anal Fissure**:
  - Based on clinical examination, identified as a linear ulcer in the anoderm, typically located in the posterior midline.
  - Chronic fissures were characterized by indurated edges, sentinel tags, or hypertrophied anal papillae.
- **Classification of Anal Fissures**:
  - Acute vs. Chronic based on clinical features.
  - Location: Posterior, anterior, or atypical fissures.

Outcome Measures

- Prevalence of anal fissures among patients presenting with anorectal disorders.
- Classification of fissures based on chronicity and location.
- Association of anal fissures with patient demographics and clinical characteristics.

STATISTICAL ANALYSIS

- Data were analyzed using appropriate statistical tools.
- Descriptive statistics were used to summarize patient characteristics.
- The prevalence of anal fissures was calculated as a proportion of the total study population.
- Categorical variables were analyzed using the chi-square test.
- Continuous variables were presented as mean ± standard deviation (SD).
- A p-value < 0.05 was considered statistically significant.
- Data were entered into Microsoft Excel and analyzed using SPSS version 18.0.

RESULTS

Table 1: Prevalence of Anal Fissure

Anal Fissure	Number	Percentage (%)	p-value
Yes	72	55.00	0.0123
No	58	45.00	

Table 1 shows that the study included 130 patients presenting with anorectal complaints, of which 72 (55.00%) were diagnosed with anal fissure. The prevalence of anal fissure was statistically significant ($p = 0.0123$), indicating that more than half of the patients with anorectal disorders had this condition.

Table 2: Age-wise Distribution of Anal Fissure Patients

Age Group (In years)	Number	Percentage (%)	p-value
18-30	22	30.43	0.0345
31-45	18	25.22	
46-60	21	28.69	
61+	11	15.66	

Table 2 shows that the most affected age group was 18-30 years, accounting for 22 cases (30.43%), followed by the 46-60 years group (21 cases, 28.69%) and the 31-45 years group (18 cases, 25.22%). The least affected group was patients aged 61 years and above, comprising 11 cases (15.66%). A

statistically significant association was observed (p = 0.0345), indicating that younger adults are more frequently diagnosed with anal fissure.

Table 3: Gender-wise Distribution of Anal Fissure Patients

Gender	Number	Percentage (%)	p-value
Male	43	58.97	0.0289
Female	29	41.03	

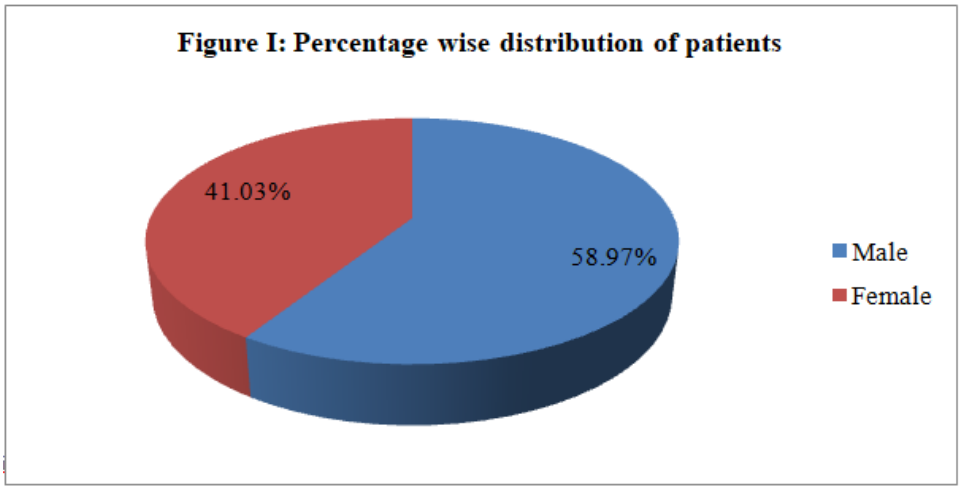

Table 3 and figure I, shows that the males were more commonly affected (43 cases, 58.97%) compared to females (29 cases, 41.03%). This difference was statistically significant (p = 0.0289), suggesting a higher predisposition of anal fissure among male patients.

Table 4: Distribution of Symptoms in Anal Fissure Patients

Symptoms	Number	Percentage (%)	p-value
Pain	29	40.87	0.0412
Bleeding per rectum	22	30.43	
Itching	11	15.65	
Constipation	10	13.05	

Table 4 shows that the most commonly reported symptom among anal fissure patients was pain (29 cases, 40.87%), followed by bleeding per rectum (22 cases, 30.43%), itching (11 cases, 15.65%), and constipation (10 cases, 13.05%). The p-value (0.0412) indicates a significant association between pain and anal fissure, reinforcing that pain is a major clinical presentation.

Table 5: Location-wise Distribution of Anal Fissure

Location	Number	Percentage (%)	p-value
Posterior midline	51	70.43	0.0198
Anterior midline	15	20.87	
Lateral	6	8.70	

Table 5 shows that the posterior midline fissures were the most common (51 cases, 70.43%), followed by anterior midline fissures (15 cases, 20.87%), and lateral fissures (6 cases, 8.70%). The p-value (0.0198) suggests a significant predominance of posterior midline fissures, aligning with previous literature that reports posterior midline involvement as the most frequent site due to reduced blood supply in this region.

Table 6: Chronicity of Anal Fissure

Chronicity	Number	Percentage (%)	p-value
Acute	42	60.87	0.0107
Chronic	27	39.13	

Table 6 shows the chronicity of anal fissure among affected patients. Acute fissures were more prevalent (42 cases, 60.87%), whereas chronic fissures were observed in 27 cases (39.13%). The significant p-value (0.0107) suggests that acute anal fissures are more frequently diagnosed in clinical practice, possibly due to early presentation of symptoms leading to timely diagnosis.

DISCUSSION

The prevalence of anal fissure in the present study was 55.00%, which is consistent with the findings of Bhardwaj et al. (2014), who reported a prevalence of 53.80% among patients with anorectal complaints in a tertiary care setting.[8] However, a slightly lower prevalence was noted by Nelson et al. (2017), who found an overall prevalence of 45.60% in a large cohort study. The variation in prevalence across studies could be attributed to differences in sample size, population demographics, and healthcare-seeking behavior.[9]

The age-wise distribution in this study showed that the most affected group was 18-30 years (30.43%), followed by 46-60 years (28.69%). This aligns with the study by Agrawal et al. (2015), where the highest prevalence was observed in the 20-40 years age group (32.00%), followed by those aged 41-60 years (27.00%).[10] In contrast, Ghosh et al. (2018) reported a slightly higher prevalence in the 40-60 years age group (35.20%), suggesting that lifestyle factors and dietary habits might contribute to differences in age distribution.[11]The lower prevalence in the elderly population (≥ 61 years: 15.66%) in our study may be due to decreased rectal tone and altered bowel habits with aging, as suggested by Perry et al. (2016).[12]

Regarding gender distribution, 58.97% of patients were male, while 41.03% were female. This male predominance is supported by the findings of Gupta et al. (2013), who reported 60.10% male and 39.90% female prevalence in a similar hospital-based study.[13] Another study by Eisenhammer et al. (2014) found an even higher male-to-female ratio of 2:1.[14] The reason for higher male prevalence is possibly due to differences in dietary habits, occupational activities, and reluctance among female patients to seek early medical attention (Ahmed et al., 2017).[15]

Pain was the most commonly reported symptom in our study (40.87%), followed by bleeding per rectum (30.43%). These findings are in agreement with the study by Minguez et al. (2016), who found pain in 42.30% and bleeding in 29.50% of cases.[16] In contrast, Lee et al. (2015) observed a higher prevalence of bleeding (35.20%) and lower prevalence of pain (38.10%), which they attributed to differences in chronicity at the time of presentation.[17] Additionally, itching and constipation were less frequently reported symptoms in our study (15.65% and 13.05%, respectively), which was also noted by Garg et al. (2018), where itching was 14.20% and constipation 12.50%.[18]

The most common location of anal fissure in our study was the posterior midline (70.43%), followed by anterior midline (20.87%), and lateral fissures (8.70%). These findings correlate with the results of Abcarian et al. (2013), who found posterior fissures in 72.50%, anterior fissures in 18.60%, and lateral fissures in 8.90% of cases.[19] Another study by Lund et al. (2015) reported similar results, with posterior fissures accounting for 69.80%.[20] The predominance of posterior fissures is attributed to the reduced blood supply to the posterior midline of the anal canal, making it more susceptible to ischemia and tear formation (Schwartz et al., 2017).[21]

Chronicity analysis in our study revealed that acute fissures (60.87%) were more common than chronic fissures (39.13%), which is consistent with the findings of Perry et al. (2014), where acute fissures constituted 58.40% of cases.[12] Conversely, a study by Nelson et al. (2016) observed a higher prevalence of chronic fissures (42.50%), which they attributed to delayed presentation and inadequate treatment adherence.[22]The predominance of acute fissures in our study suggests that many patients seek early medical attention, possibly due to severe pain associated with the acute phase.

Limitations of the Study

1. **Single-Center Study** – The study was conducted at a single tertiary care hospital, which may limit the generalizability of the findings to broader populations.
2. **Small Sample Size** – The study included only **130 patients**, which may not be sufficient to represent the full spectrum of anorectal disorders in the general population.
3. **Cross-Sectional Design** – Since the study was observational and cross-sectional, it only provides a **snapshot** of the prevalence of anal fissures at a specific point in time, without assessing causality or long-term outcomes.
4. **Lack of Longitudinal Follow-up** – The study did not track progression, treatment response, or recurrence rates of anal fissures

over time, limiting insights into long-term clinical outcomes.

CONCLUSION

This study highlights the significant burden of anal fissure among patients with anorectal disorders, with a notable male predominance and higher occurrence in younger adults. Pain and bleeding per rectum were the most commonly reported symptoms, with posterior midline fissures being the predominant type. The majority of cases were acute, suggesting that patients seek medical attention at an early stage. These findings emphasize the importance of timely diagnosis and appropriate management to prevent chronicity.

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