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ORIGINAL ARTICLE

A Prospective Observational Study on Chronic Anal Fissure in a Tertiary Care Centre

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Abstract

Background: Chronic anal fissure is a common and painful anorectal condition that may become resistant to conventional medical treatment in a significant proportion of patients. Chronic resistant anal fissure poses a therapeutic challenge, and early diagnosis and timely escalation of therapy remain essential to improve patient outcomes. **Objectives:** To describe the clinical profile of chronic anal fissure in patients attending a tertiary care center and to analyze its association with age, sex, mode of disease onset, clinical symptoms, and outcomes over a six-month follow-up period. **Methods:** This prospective observational study was conducted on 30 patients with chronic anal fissure admitted to the Department of General Surgery, GMKMCH, Salem, between July 2022 and June 2024. Patients with typical chronic anal fissure were included, while pregnant women, patients with pacemakers, and those on anticoagulant therapy were excluded. Data on demographic characteristics, socioeconomic status, clinical presentation, duration of symptoms, and disease onset were collected using a structured proforma. **Results:** The proportion of chronic resistant anal fissure was 36.7%. Most patients were aged 40 years or above, with a slight male predominance. Pain was the predominant symptom, often associated with bleeding and itching. Chronic resistance was significantly associated with age ≥40 years ($p = 0.05$) and symptom duration of one year or more ($p = 0.05$). No significant association was found with sex, socioeconomic status, or mode of disease onset. At six months, only 30.0% of patients showed complete improvement, while the remainder had partial or no improvement. **Conclusion:** Chronic resistant anal fissure was observed in more than one-third of patients, particularly among older individuals and those with longer symptom duration. These findings underscore the need for early diagnosis and timely escalation of treatment in high-risk groups. Future studies with larger sample sizes and standardized outcome measures are warranted.

Keywords: Chronic anal fissure; Chronic resistant anal fissure; Anal pain; Conservative management; Lateral internal sphincterotomy; Treatment outcomes

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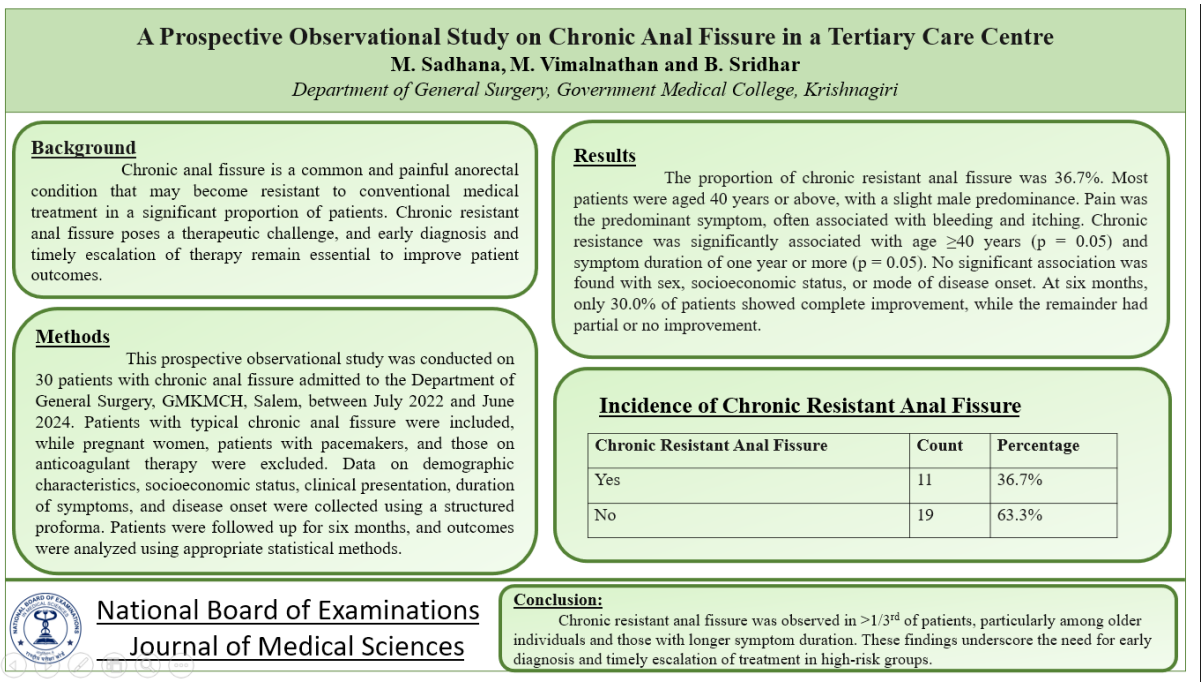
Graphical Abstract



Introduction

Chronic anal fissure is a common and difficult condition in colorectal practice, affecting about 1 in 350 adults and causing significant discomfort due to persistent pain, bleeding, and difficulty during defecation [1]. Acute anal fissures usually heal within 6 weeks with conservative treatment. However, nearly 40% progress to chronic anal fissure, defined as symptoms lasting more than 8 weeks, and the presence of features such as sentinel pile or exposed internal sphincter fibers, making management more challenging [2].

The underlying pathophysiology involves a continuous cycle of internal anal sphincter hypertonia, reduced blood flow to the anoderm, and delayed healing. This cycle perpetuates pain and prevents fissure resolution, thereby highlighting the importance of therapeutic strategies aimed at reducing sphincter spasm and improving local perfusion [3].

Treatment options for chronic anal fissure range from conservative measures to surgical intervention. Medical management with topical agents such as glyceryl trinitrate (GTN) and calcium channel blockers achieves healing in approximately 40–60% of patients, though their use is often limited by side effects and high recurrence rates [4,5]. Lateral internal sphincterotomy remains the most effective surgical treatment, with healing rates above 90%, but carries a risk of fecal incontinence in a subset of patients [6].

Resistant anal fissure refers to fissures that fail to heal despite appropriate medical treatment for 8–12 weeks [7]. This subgroup poses a clinical dilemma, as patients often have to choose between ongoing symptoms and surgical intervention with potential complications.

A subset of patients with chronic anal fissure fails to respond adequately to both medical and surgical management, constituting a clinically challenging group often referred to as chronic resistant anal

fissure. This subgroup is poorly characterized in the literature, particularly in tertiary care settings in resource-limited environments [8]. Factors such as older age, prolonged symptom duration, comorbidities affecting wound healing, and delayed health-seeking behavior may contribute to treatment resistance [9].

Early identification of patients at risk of developing treatment resistance is crucial for optimizing therapeutic strategies and preventing prolonged morbidity. Understanding the demographic and clinical factors associated with chronic resistance may help clinicians tailor treatment plans and determine the appropriate timing for escalation of therapy [10,11,12].

Aim & Objectives

To describe the clinical profile of chronic anal fissure in patients attending a tertiary care center and to analyze its association with age, sex, mode of disease onset, clinical symptoms, and outcomes over a six-month follow-up period.

Study Methodology

This prospective observational study was conducted on 30 patients with a clinical diagnosis of chronic anal fissure admitted to the general surgical and trauma wards of the Department of General Surgery, GMKMCH, Salem, between July 2022 and June 2024. All patients admitted with chronic typical anal fissure were included, while pregnant women, patients with pacemakers, and those receiving low molecular weight heparin or warfarin therapy were excluded.

After obtaining written informed consent, eligible patients were enrolled in the study. Data were collected using a structured proforma, which included demographic details, socio-economic status, and a detailed clinical history focusing on presenting complaints and duration of symptoms. Past medical history such as diabetes mellitus, systemic hypertension, tuberculosis, asthma, epilepsy, jaundice, and previous surgeries, along with personal habits including smoking, alcohol consumption, and drug addiction, were recorded. A thorough general examination, vital assessment, systemic examination, per rectal examination, and oral cavity examination were performed.

Routine laboratory investigations and relevant imaging were carried out as part of the evaluation. Patients who did not respond to conservative management were referred for further surgical evaluation, and details of subsequent treatment decisions were documented. Patients were followed up during hospital stay and at regular intervals thereafter. All collected data were systematically compiled and analyzed using appropriate statistical software.

Results

A total of 30 patients were included in the study. The age of patients ranged from 20 to 69 years, with the highest proportion belonging to the 60–69 year age group (26.7%), followed by 50–59 years (23.3%). Younger age groups were less represented, with 13.3% in the 20–29 year group. Males constituted 56.7% of the study population, while females accounted for 43.3%. Most patients belonged to the middle socioeconomic status (56.7%), followed by high (23.3%) and low socioeconomic groups (20.0%).

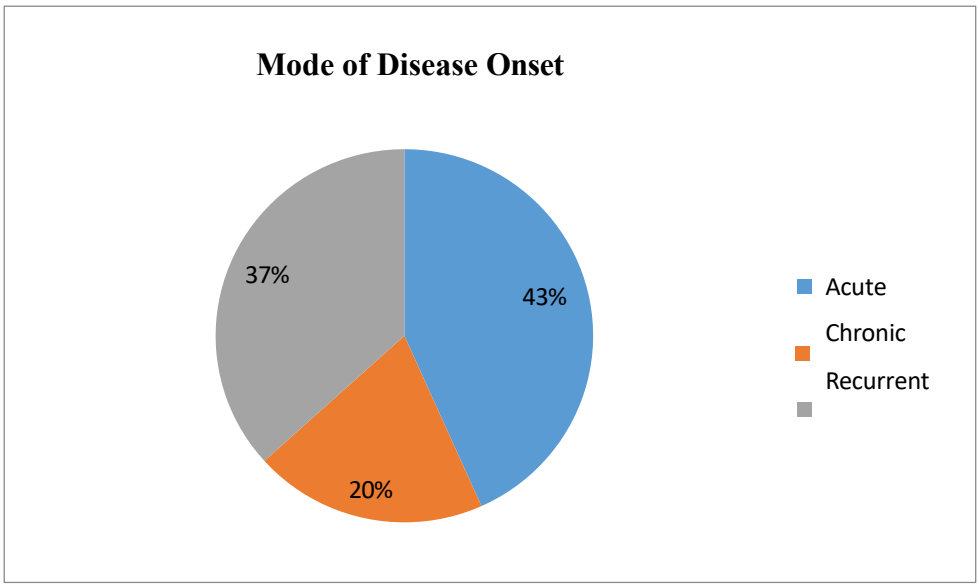


Figure 1. Mode of disease onset.

Table 1. Incidence of Chronic Resistant Anal Fissure [n=30]

Chronic Resistant Anal Fissure	Count	Percentage
Yes	11	36.7%
No	19	63.3%

Table 2. Association of Patient Characteristics with Chronic Resistant Anal Fissure[n=30]

Factor	Category	Number of Patients (n)	Chronic Resistant Anal Fissure (Yes)	Chronic Resistant Anal Fissure (No)	p-value
Age	< 40 years	12	3	9	**<0.05***
	≥ 40 years	18	7	11	
Sex	Male	15	5	10	0.20
	Female	15	5	10	

Socioeconomic Status	Low	7	2	5	0.45
	Middle	15	6	9	
	High	8	2	6	
Mode of Disease Onset	Acute	16	5	11	0.30
	Chronic/ Recurrent	14	5	9	
Duration of Symptoms	< 1 year	12	3	9	**<0.05***
	≥ 1 year	18	7	11	

* Indicates statistical significance

Regarding disease characteristics, 43.3% of patients presented with acute onset of symptoms, 36.7% had recurrent symptoms, and 20.0% had a chronic onset (Figure 1). The most common clinical symptom patterns included combinations of pain, bleeding, itching, soreness, and swelling, with pain being a predominant complaint across all patients. Sharp pain associated with itching and soreness was the most frequently reported complaint (36.7%), followed by severe pain with occasional bleeding (26.7%). The duration of symptoms varied widely, with 33.3% of patients reporting symptoms for 7–12 months and another 33.3% for 19–24 months, indicating prolonged symptom duration in a substantial proportion of cases.

At six months of follow-up, improvement without recurrence was observed in 30.0% of patients, while 33.3% had partial improvement with persistent symptoms, and 36.7% showed no improvement. Chronic resistant anal fissure was identified in 36.7% of patients (Table 1) indicating that more than one-third of cases were difficult to treat. Chronic resistant cases were distributed across all age groups, sexes, socioeconomic statuses, symptom patterns, and modes of disease onset without a clear predominance in any single category.

Analysis of associations showed that age and duration of symptoms were significantly related to the incidence of chronic resistant anal fissure (Table 2). Patients younger than 40 years had a lower incidence of resistance (25.0%) compared to those aged 40 years and above (38.9%), with a p value of 0.05. Similarly, patients with symptom duration of less than one year had a lower incidence of chronic resistance (25.0%) compared to those with symptoms lasting one year or more (38.9%), also with a p value of 0.05. No statistically significant association was found with sex ($p = 0.20$), socioeconomic status ($p = 0.45$), or mode of disease onset ($p = 0.30$). Overall, the findings suggest that older age and longer duration of symptoms are important factors associated with chronic resistant anal fissure, while other demographic and clinical variables did not show a significant influence.

Discussion

In this prospective observational study of 30 patients, a higher proportion of cases was observed in older age groups. This pattern differs from population-based studies, where anal fissures are more commonly reported in younger and middle-aged adults [1]. Most patients belonged to the middle socioeconomic status, which may reflect healthcare access and health-seeking behavior influencing hospital-based attendance [13].

The clinical presentation was typical, with pain and bleeding being the most common symptoms. Pain-predominant symptoms are the main reason for seeking medical care [14]. Prolonged symptom duration is clinically important, as it is associated with poor response to therapy [7]. These findings are consistent with recent evidence showing variable healing rates and need for second-line therapy [7,15].

Chronic resistant anal fissure was identified in 36.7% of patients. Age ≥40 years and symptom duration ≥1 year were significantly associated with resistance. Other factors like sex and socioeconomic status were not significant, suggesting that time-related factors play a larger role [16]. These findings are clinically relevant, especially when considering surgical management. While lateral internal sphincterotomy is effective, it carries risks, highlighting the need for early identification of high-risk patients [17,18].

Improving patient awareness and reducing diagnostic delays may help prevent chronic resistance [19]. However, due to small sample size and hospital-based design, findings require validation in larger studies [20].

Conclusion

This study describes the demographic profile, clinical features, and outcomes of patients with chronic resistant anal fissure. Most patients were older adults, with a slight male predominance, and predominantly belonged to the middle socioeconomic group. Pain, bleeding, itching, and swelling were the common presenting symptoms, often persisting for more than one year, underscoring the chronic and debilitating nature of the disease.

Treatment outcomes showed that many patients failed to achieve complete symptom relief with conventional therapy, particularly those with longer symptom duration and older age, indicating poorer prognosis in these groups. Sex and socioeconomic status were not significantly associated with treatment resistance.

Overall, the findings highlight the need for early diagnosis and individualized management. Prompt escalation of treatment in patients with longer symptom duration and older age may improve outcomes and reduce the burden of chronic resistant disease. Future multicenter studies with larger sample sizes, standardized outcome measures, and longer follow-up are needed to validate these findings and establish evidence-based management protocols for this challenging patient group.

Limitations

Relatively small sample size may limit the generalizability of the results. As a single-center study, the findings may not be representative of broader populations or different healthcare settings. Observational design precludes establishing causal relationships between variables. Additionally, potential confounding factors were not fully controlled for, which may

have influenced the observed associations. Future multicenter studies with larger sample sizes and robust analytical designs are warranted to validate these findings.

Statements and Declarations

Author Contributions

MS has contributed to the conceptualization and definition of the intellectual content of the manuscript, design of the study and Manuscript preparation. MV contributed to the literature search, manuscript editing, and manuscript review. BS contributed towards data acquisition Statistical analysis, Manuscript review and editing. MS acted as the corresponding author of the manuscript.

Data availability statement

The datasets generated and analysed in this study are available from the corresponding author on reasonable request. They are not publicly shared because they contain sensitive information that could indirectly identify participants.

Ethical approval

This study has been approved by the Institution Ethics Committee Ref. No. 6103/ME-G/2023 held on 13/05/2022 at Government Mohan Kumaramangalam Medical College & Hospital, Salem

Informed Consent

Written informed consent was obtained from all participants after explaining the study procedures, potential risks and benefits. Consent covered both participation and publication of anonymised findings, with assurance of confidentiality and data privacy.

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Use of AI: Authors declare the use of Claude (Claude.ai) to assist with manuscript preparation and improving overall language clarity. After using this tool, the authors reviewed and edited the content and took full responsibility for the contents of this article.

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