

# Outcome of Partial Fistulotomy and Application of Modified Cutting Seton Procedure in the Treatment of Complex Fistula in Ano in a Tertiary Level Hospital

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DOI: [10.36347/sasjs.2024.v10i07.021](https://doi.org/10.36347/sasjs.2024.v10i07.021)

| Received: 01.05.2024 | Accepted: 06.06.2024 | Published: 16.07.2024

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## Abstract

## Original Research Article

**Background:** Complex fistula in ano poses challenges in treatment, often requiring procedures like partial fistulotomy followed by application of a cutting seton to prevent fecal incontinence and recurrence. **Objective:** This study aimed to assess the clinical outcomes of employing a modified cutting seton following partial fistulotomy for treating complex fistula in ano in a tertiary hospital setting. **Method:** A longitudinal study was conducted involving (n=57) patients admitted to the Department of Surgery, Rajshahi Medical College Hospital, over a 12-month period from May 2022 to April 2023. Purposive sampling was utilized, with patient data collected from medical histories, physical examinations, investigations, treatment sheets, and postoperative follow-ups using semi-structured questionnaires. **Results:** The study comprised predominantly male patients (78.94%), with the majority falling within the 35-45 age group (54.38%). Notable findings included a significant proportion with a history of perianal abscess (24.56%), with many having sought treatment from non-medical sources (71.42%). Recurrence rates at 3- and 6-months post-procedure were low (1.75% and 7.02% respectively), with minimal incidences of incontinence (7.01% at 3 months, 3.5% at 6 months). **Conclusion:** The study underscores the efficacy of partial fistulotomy and application of modified cutting seton procedure in managing complex fistula in ano, demonstrating minimal side effects in the clinical context. Surgeons are encouraged to consider this approach for better patient outcomes.

**Keywords:** Complex fistula in ano, Partial fistulotomy, Modified cutting seton, Clinical outcomes, recurrence.

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## INTRODUCTION

Fistula in ano is recognized as one of the most prevalent perianal conditions, often presenting with symptoms like discharge, occasional pain and discomfort for affected individuals [1]. It is characterized by a granulation-lined tract extending from a deep main opening within the anal canal to a superficial secondary opening in the perianal skin, commonly stemming from an infection of an anal gland in the intersphincteric region, primarily of idiopathic or cryptoglandular origin [2]. An anal abscess typically arises as the long-term consequence of an initially acute perirectal process, wherein a rupture or surgical drainage of the abscess may lead to the emergence of an epithelialized track between

the abscess and the superficial perirectal skin [3]. Studies suggest that between 26% and 38% of individuals who experience an anal abscess subsequently develop an anal fistula. The median age of patients presenting for care typically falls around 40 years, with a two fold higher risk observed in males compared to females.

Classification of fistulae in ano, as proposed by Milligan and Morgan, delineates between anal and anorectal variants based on their anatomical relation to the anorectal ring, further subclassified into low and high types [4]. Low fistulae typically originate below the puborectalis, with the internal orifice beginning below the anorectal ring, while high fistulae originate above the puborectalis, often traversing through or above a

**Citation:** Towhidul Hasan Nahid, Md. Habibullah Sarkar, Md. Ariful Alam, Farhan Imtiaz, Md. Meshbahul Haque, Md. Romijul Karim, Md. Rokonzaman, Rubayat Bithy. Outcome of Partial Fistulotomy and Application of Modified Cutting Seton Procedure in the Treatment of Complex Fistula in Ano in a Tertiary Level Hospital. SAS J Surg, 2024 Jul 10(7): 836-843.

significant number of muscle fibers [5]. Diagnosis primarily relies on characteristic findings in the patient's medical history and physical examination, including perianal skin lesions, pain and purulent drainage, with perineal, digital rectal examination and proctoscopy aiding in preoperative assessment of anal sphincter anatomy and tone.

The surgical goals for anal fistula management encompass closure of the fistula tract, prevention of recurrence, and preservation of anal sphincter function [6]. Setons have been employed since ancient times in the treatment of anal fistulas, with cutting setons favored for high or complex fistulae to mitigate the risk of fecal incontinence and recurrence [7, 8]. The choice of seton type and method varies among surgeons, with a range of materials utilized including sutures, stainless-steel wires, catheters, silicone and rubber bands. Despite effective surgical options, patient reluctance to undergo surgery persists due to concerns about complications and potential loss of anal continence, emphasizing the need for treatment modalities ensuring optimal outcomes while preserving anal continence. This study aims to evaluate the efficacy of partial fistulotomy combined with application of a modified cutting seton in managing complex fistula in ano among patients admitted to the surgical ward at Rajshahi Medical College Hospital, providing critical insights into clinical outcomes and percentages to elucidate treatment effectiveness.

## OBJECTIVE

### General Objective

- To find out the clinical outcomes of partial fistulotomy and application of modified cutting seton procedure in the treatment of complex fistula in ano in a tertiary level hospital.

### Specific Objective

- To find out the clinical outcomes of partial fistulotomy and application of modified cutting seton procedure in the treatment of complex fistula in ano.
- To assess the effect of partial fistulotomy and application of modified cutting seton procedure in continence mechanism.
- To find out the recurrence rate after partial fistulotomy and application of modified cutting seton procedure.

## MATERIAL AND METHODS

### Study Design

The study employed a longitudinal descriptive design to assess the clinical outcomes of partial fistulotomy combined with a modified cutting seton procedure in managing complex fistula in ano. Data collection spanned a 12-month period from May 2022 to April 2023. A semi-structured questionnaire was used to collect patient information through medical histories,

physical examinations, investigations, treatment sheets, and postoperative follow-ups. Purposive sampling was employed to select 57 eligible patients admitted to the Department of Surgery, Rajshahi Medical College Hospital.

### Inclusion Criteria

- All the patients with complex fistula in ano.
- Willing to take part in the research.

### Exclusion Criteria

- Patients with co-morbidities like TB, Chron's diseases, malignancy.
- Not interested in participating in the research.

### Data Collection

Data collection involved administering a semi-structured questionnaire to eligible patients admitted to the Department of Surgery, Rajshahi Medical College Hospital. Patient information was gathered from medical histories, physical examinations, investigations, treatment sheets and postoperative follow-ups. The questionnaire was designed to capture relevant demographic and clinical data, including age, sex, occupation, history of smoking, history of diabetes mellitus, previous history of perianal abscess and its treatment, recurrence rates at 3- and 6-months post-procedure and incidences of incontinence.

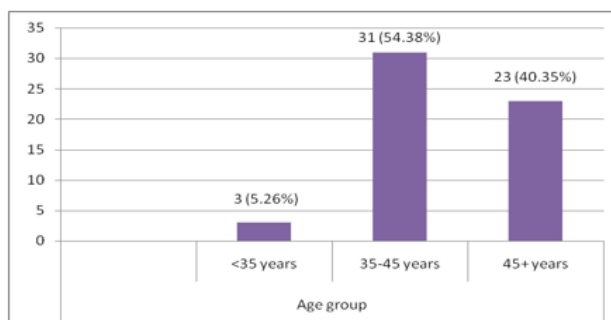
### Data Analysis

Upon data verification, entries were coded and inputted into SPSS (Version 26) for analysis. Descriptive statistics were computed to characterize key variables, including means and standard deviations. Statistical tests, at a significance level of  $p = 0.05$  or  $p = 0.01$ , were applied to ascertain significance. The analysis was aligned with the study's objectives, facilitating the interpretation of findings. SPSS (Version 26) aided in comprehensive data analysis, ensuring robustness and accuracy in concluding.

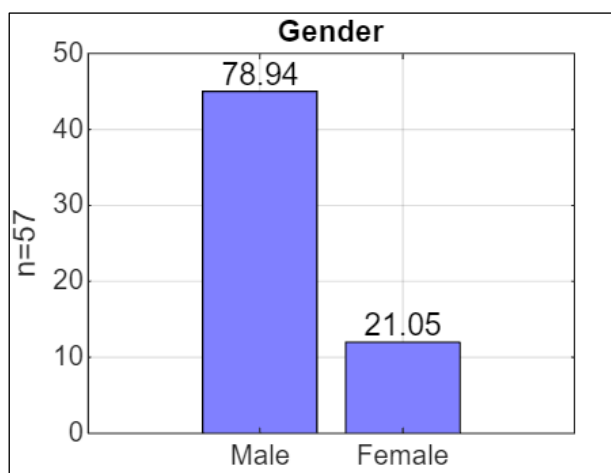
## RESULTS

**Table 1: Distribution of Characteristics (n=57)**

Age Group	Frequency (n)	Percentage (%)
35-45 years	31	54.38%
45+ years	23	40.35%
<35 years	3	5.26%
<b>Gender</b>		
Male	45	78.94%
Female	12	21.05%
<b>Occupation</b>		
Housewife	8	14.03%
Service	21	36.84%
Business	10	17.54%
Driver	9	15.78%
Day Labor	7	12.28%
Others	2	3.5%



**Figure 1: Demographic Characteristics According to Age**



**Figure 2: Demographic Characteristics According to Sex**



**Figure 3: Demographic Characteristics According to Socioeconomic Status**

Among the age groups, the majority (54.38%) fell within the 35-45 years bracket, with a significant proportion (40.35%) aged 45 years and above and a smaller segment (5.26%) below 35 years. Gender-wise, males constituted a larger percentage (78.94%) than females (21.05%). In terms of occupation, service

professionals represented the highest proportion (36.84%), followed by businessmen (17.54%), drivers (15.78%), housewives (14.03%), day laborers (12.28%), and others (3.5%). This comprehensive breakdown underscores the diverse representation within the study population across various demographic parameters.

**Table 2: Distribution of Respondents by BMI (n=57)**

BMI	Frequency (n)	Percentage (%)
< 18.5	10	17.54%
18.5-24.9	40	70.17%
25-29.9	2	3.5%
30.0+	5	8.78%
Mean $\pm$ SD	-	19.42 $\pm$ 1.77

The distribution of Body Mass Index (BMI) among the respondents provides insights into their weight status. The majority of participants (70.17%) fell within the healthy weight range, with BMI values ranging from 18.5 to 24.9. A smaller percentage of individuals (17.54%) had a BMI below 18.5, indicating

underweight, while a minority (8.78%) had a BMI of 30.0 or higher, signifying obesity. Only a negligible portion (3.5%) fell into the overweight category, with BMI values between 25 and 29.9. The mean BMI for the overall population was  $19.42 \pm 1.77$ , providing an average measure of the participants' weight distribution.

**Table 3: Distribution of Respondents by History of Smoking (n=57)**

History of Smoking	Frequency (n)	Percentage (%)
Yes	25	43.85%
No	32	56.14%

The distribution of respondents according to their smoking history shows, out of the total participants (n=57), 43.85% reported a history of smoking, while the majority, comprising 56.14% of the sample, reported no history of smoking. This breakdown provides insights into the prevalence of smoking among individuals with

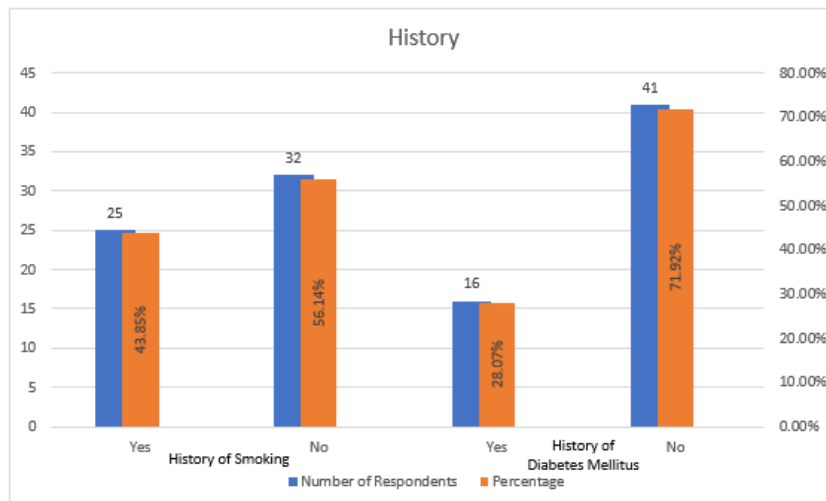
complex fistula in ano. Understanding such patterns can inform healthcare professionals about potential risk factors and aid in developing targeted interventions for smoking cessation, thereby improving overall health outcomes in this patient population.

**Table 4: Distribution of Respondents by History of Diabetes Mellitus (DM) (n=57)**

History of DM	Frequency (n)	Percentage (%)
Yes	16	28.07%
No	41	71.92%

Among the participants (n=57), 28.07% reported a history of Diabetes Mellitus (DM), while the majority (71.92%) did not have a history of DM. This breakdown sheds light on the prevalence of diabetes among individuals with complex fistula in ano.

Understanding such associations can guide healthcare providers in effectively managing comorbidities and tailoring treatment approaches to address the unique needs of patients with both DM and complex fistula in ano, optimizing overall care outcomes.



**Figure 4: History of Smoking and of Diabetes Mellitus**

Distribution of respondents based on their history of smoking and diabetes mellitus (DM) in a study involving 57 participants. Approximately 43.85% of participants had a history of smoking, while 56.14% did not. Regarding DM history, 28.07% of respondents

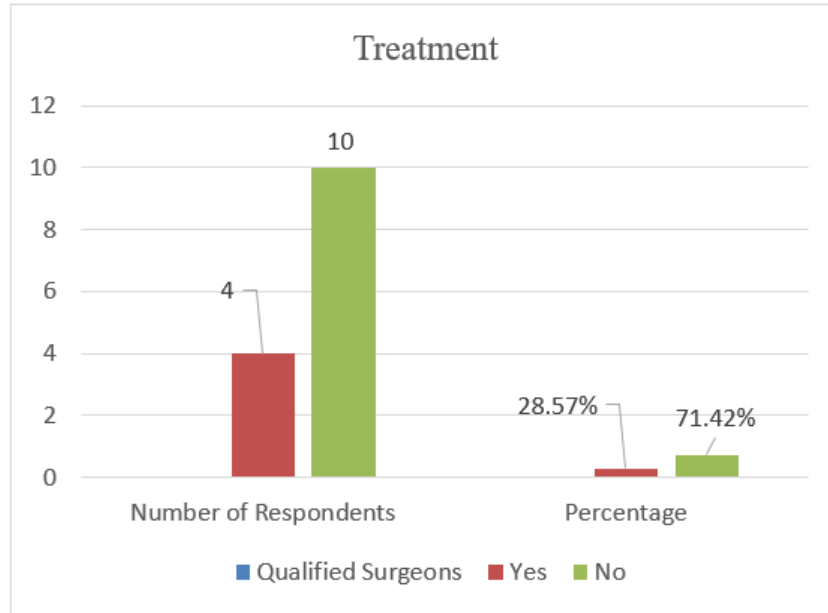
reported having a history of DM, whereas 71.92% did not. These findings shed light on the prevalence of smoking and DM within the study population, providing valuable insights into potential risk factors associated with complex fistula in ano.

**Table 5: Distribution of Respondents by Previous History of Perianal Abscess (n=57)**

Previous History of Perianal Abscess	Frequency (n)	Percentage (%)
Yes	14	24.56%
No	43	75.44%

Among the respondents (n=57), 24.56% reported a previous history of Perianal Abscess, while the majority (75.44%) did not have a history of such abscesses. Understanding this distribution is crucial in assessing the potential risk factors associated with complex fistula in ano, as previous perianal abscesses

could contribute to the development of this condition. Clinicians can use this information to tailor treatment plans and provide appropriate interventions to mitigate the risk of recurrence and complications in patients with a history of perianal abscesses.



**Figure 5: Treatment History of Previous Perianal Abscess (n=14)**

Among respondents (n=14) with a history of previous Perianal Abscess, 28.57% received treatment from qualified surgeons, while 71.42% did not. This distribution suggests a significant portion sought treatment from non-medical sources. Understanding

where patients seek treatment for perianal abscesses can inform healthcare providers about potential gaps in access to appropriate care and highlight the importance of patient education on seeking medical attention from qualified professionals for such conditions.

**Table 6: Distribution of Respondents by Recurrence at 3 Months After Procedure (n=57)**

Recurrence at 3 Months After Procedure	Frequency (n)	Percentage (%)
Yes	1	1.75%
No	56	98.24%

At 3 months post-procedure (n=57), only 1 respondent (1.75%) experienced recurrence, while the majority (98.24%) showed no signs of recurrence. This low recurrence rate underscores the effectiveness of the treatment method employed. Such outcomes are

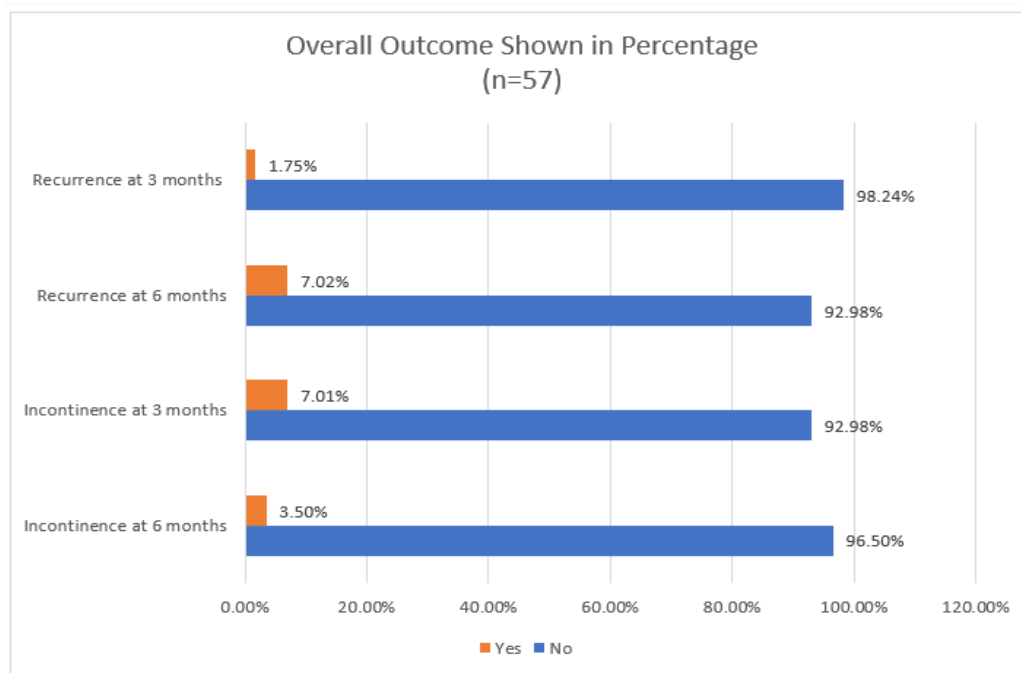
promising for patients undergoing the procedure, indicating its potential to provide long-term relief from the condition. This distribution suggests a favorable prognosis for most patients who underwent the treatment for complex fistula in ano.

**Table 7: Distribution of Respondents by Recurrence at 6 Months After Procedure (n=57)**

Recurrence at 6 Months After Procedure	Frequency (n)	Percentage (%)
Yes	4	7.02%
No	53	92.98%

At 6 months post-procedure (n=57), 4 respondents (7.02%) experienced recurrence, while the majority (92.98%) showed no signs of recurrence. This indicates a slightly higher recurrence rate than the 3-month mark but still demonstrates overall effectiveness in managing complex fistula in ano. While recurrence

remains a concern, most patients continue to experience relief from the condition. This distribution underscores the importance of continued monitoring and possibly additional interventions for those at risk of recurrence to optimize long-term outcomes.



**Figure 6: Overall Outcome of the Study (n=57)**

The overall outcome of the study conducted on 57 patients with complex fistula in ano is demonstrated by percentage of different outcomes at 3- and 6-months post-procedure. The majority of patients experienced no recurrence or incontinence at both time points, with 98.24% and 92.98% having no recurrence at 3 and 6 months, respectively. In terms of incontinence, 92.98% and 96.5% had no issues at 3 and 6 months, respectively. These results suggest favorable outcomes and highlight the effectiveness of the treatment approach in managing complex fistula in ano.

## DISCUSSION

This longitudinal descriptive study was done to determine the clinical results of partial fistulotomy and modified cutting seton procedure in the treatment of complex fistula in ano at a tertiary level hospital [9]. The sample size for the 12-month study period was calculated to be 57 and chosen deliberately. A semi-structured questionnaire was used to collect data from respondents via face-to-face interviews. Every effort was made to collect accurate information. For open-ended questions, respondents were questioned in a manner that allowed them to freely and objectively express their opinions.

It was found in Figure no 1. that 54.38% of the respondents were in the age group of 35-45 years, 40.35% were in 45+ years, and 5.26% were in <35 years. The mean age of the respondents was 35.12±7.04. The mean age of the patients was 39.5 years (range, 23-56 years) in another study [10,11]. Regarding the respondents' sex, It was found that 78.94% were male and 21.05% were female. In another study, eight patients (80.1%) were males and 74 (19.9%) females. It was found that 70.17% of the respondents had 18.5-24.9

BMI, 17.54% had < 18.5 BMI, 8.78% had 30.0+ BMI, and 3.5% had 25-29.9 BMI. The mean BMI was 19.42±1.77.

Regarding occupation, it was revealed that 36.84% were in service, 17.54% were businessmen, 15.78% were drivers, 14.03% were housewives, 12.28% were day laborers, and 3.5% were in other professions. Regarding smoking history, it was revealed that 56.14% were smokers and 43.85% were non-smokers. Regarding the history of diabetes, 71.92% of the respondents did not have diabetes, and 28.07% had a history of DM. In another study, 7.5% were diabetic patients [12].

Regarding the previous history of perianal abscess among the respondents, it was found that 75.44% had no previous history, and 24.56% had a history. In another study, about 30% of Ano-fistula patients had a previous perianal abscess history [13]. Regarding the treatment history of the 14 respondents having a history of previous perianal abscesses, it was found that 28.57% had received treatment from qualified surgeons, and 71.42% had received treatment from quack/ local physicians/ homeopathic practitioners.

Regarding recurrence at 3 months after the procedure among the respondents, it was found that 98.24% did not have a history of recurrence at 3 months after the procedure, and 1.75% had a history. Regarding recurrence at 6 months after the procedure among the respondents, it was found that 92.98% did not have a history of recurrence at 6 months after the procedure, and 7.02% had a history.

Regarding incontinence (flatus or liquid stool) at 3 months after the procedure among the respondents,



it was found that 92.98% did not have a history of incontinence (flatus or liquid stool) at 3 months after the procedure, and 7.01% had a history.

Regarding incontinence (flatus or liquid stool) at 6 months after the procedure among the respondents, it was found that 3.5% had a history of incontinence (flatus or liquid stool) at 6 months after the procedure, and 96.5% did not have that type of history. In another study, none of the patients developed major fecal incontinence. 2 of the 10 patients complained of incontinence of flatus [14-17]. One (2%) patient subsequently developed fecal incontinence, and four (9%) developed a recurrent or persistent fistula in the same location. In another study, 3 patients experienced problems controlling liquid stool less than once a week and 9 less than once a month. Multiple setons after partial fistulotomy is an effective treatment for high anal fistulae with a low incidence of incontinence and recurrence and adequate patient satisfaction [18,19].

## CONCLUSION

Selecting the best option for the treatment of fistula in ano remains a surgical challenge. Partial fistulotomy and application of modified cutting seton in treating a patient with a complex fistula in ano is more effective as it simultaneously drains the abscess, cuts the fistulous tract, and causes fibrosis. Furthermore, it is simple and safe, avoids repeated surgical procedures and the patient's compliance is good, while the risks of incontinence and recurrence are not remarkable. So, this procedure was deemed more effective for the patients with complex fistula in ano in tertiary level hospitals.

### Recommendation

- Follow-up should be conducted for a long time to determine this procedure's long-term outcome.
- This study should be performed on a large scale with a large study population.

### Acknowledgment

I express deep gratitude to Allah for guidance and strength. Special thanks to Professor Dr. Md. Habibullah Sarkar and Associate Professor Dr. Md. Ariful Alam Suman for their mentorship and support. My appreciation extends to colleagues and staff at Rajshahi Medical College Hospital. I acknowledge my parents and wife, Dr. Rubayat Bithy, for their understanding. Lastly, I thank the patients for their cooperation.

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