The Journal of Teachers Association
ISSN 1019-8555 (Print) & ISSN 2408-8854 (Online)
Frequency: Bi-Annual
DOI: https://doi.org/10.62469/taj.v037i02.046

OPEN ACCESS
Website: www.tajrmc.com
Email: editor@tajrmc.com
Volume-37 | Issue-2 | Jul-Dec 2024

Partial Fistulotomy and Application of Modified Cutting Seton in the Treatment of Complex Perianal Fistula - Our Experience in Rajshahi Medical College Hospital

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Abstract: ***Background:*** Complex perianal fistula is very challenging to treat, often requires procedures like partial fistulotomy followed by the application of a 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 in respect to recurrence and incontinence, for treating complex perianal fistula in a tertiary hospital setting. ***Method:*** A longitudinal study was conducted involving (n=239) patients admitted to the Department of Surgery in Rajshahi Medical College Hospital over a 4-years period from May 2020 to April 2024. Purposive sampling was utilized, with patient data collected from histories, physical examinations, investigations, treatment sheets, and postoperative follow-up using semi-structured questionnaires. ***Results:*** The study comprised predominantly male patients (79.08%), with the majority falling within the 35-45 age group (54.39%). Notable findings included a significant proportion with a history of perianal abscess (24.69%), with many having sought treatment from non-medical sources (71.19%). Recurrence rates at 3, 6 and 12- months post-procedure was low (1.67%, 2.09% and 3.35% respectively), with minimal incidences of incontinence (7.11% at 3 months, 3.35% at 6 months and 1.26% at 12 months). ***Conclusion:*** The study reflects the outcomes of partial fistulotomy and application of modified cutting setons in the treatment of complex perianal fistula, demonstrating minimal side effects in the clinical context.

Keywords: Complex perianal fistula, Partial fistulotomy, Modified cutting seton, Clinical outcomes, Recurrence.

Original Research Article

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How to cite this article:
Alam Suman A, Sarkar MH, Abedin MS, Nahid TH, Sarkar A; Partial Fistulotomy and Application of Modified Cutting Seton in the Treatment of Complex Perianal Fistula - Our Experience in Rajshahi Medical College Hospital. Taj 2024;37 (2): 349-357.

Article history:
Received: August 13, 2024
Revised: October 23, 2024
Accepted: November 12, 2024
Published: December 01, 2024

Article at a glance:

Study Purpose: *To assess the clinical outcomes of employing a modified cutting seton following partial fistulotomy for treating complex perianal fistula in a tertiary hospital setting.*

Key findings: *Partial fistulotomy and application of modified cutting has very minimum complication in managing complex perianal fistula, demonstrating minimal side effects.*

Newer findings: *This study demonstrates the clinical outcomes of partial fistulotomy and application of modified cutting setons in respect of recurrence and incontinence in managing complex perianal fistula avoiding the need for more invasive surgery.*

Abbreviations: *RMCH: Rajshahi Medical College Hospital, SPSS: Statistical Package of Social Science, BMI: Body Mass Index, DM: Diabetes Mellitus.*

INTRODUCTION

Perianal fistula is recognized as one of the most prevalent perianal conditions, often presenting with symptoms like discharge, discomfort and occasional pain [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 arising from an infection of an anal gland in the intersphincteric region, primarily of idiopathic or cryptoglandular origin [2-3]. 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 significant number of muscle fibers [5].

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 clinical outcomes of partial fistulotomy combined with application of a modified cutting seton in managing complex perianal fistula 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 assess the clinical outcomes of partial fistulotomy and application of modified cutting seton in the treatment of complex perianal fistula.

Specific Objective

To find out incontinence rate after partial fistulotomy and application of modified cutting seton.

To find out the recurrence rate after partial fistulotomy and the modified cutting seton application.

MATERIAL AND METHODS

Study Design

The study employed a longitudinal descriptive design to assess the clinical outcomes of partial fistulotomy combined with application of a modified cutting seton in managing complex perianal fistula. Data collection spanned a 4-years period from May 2020 to April 2024. A semi-structured questionnaire was used to collect patient information through histories, physical examinations, investigations, treatment sheets, and postoperative follow-up. Post-operative follow-ups were conducted at 3,6 and 12- months post-operative period. Purposive sampling was employed to select 239 eligible patients admitted to the Surgery Department of RMCH.

Inclusion Criteria

All the patients with complex perianal fistula.
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 in Rajshahi Medical College Hospital. The questionnaire was designed to capture relevant demographic and clinical data, including age, sex, occupation, smoking history, diabetes status, previous perianal abscess history, 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. The analysis was aligned with

the study's objectives, facilitating the interpretation of findings. 'P' value was not calculated in respect to this study design.

RESULTS

Table 1: Distribution of Characteristics (n=239)

Variable	Frequency (n)	Percentage (%)
Age Group		
35-45 years	130	54.39%
45+ years	96	40.17%
<35 years	13	5.44%
Gender		
Male	189	79.08%
Female	50	20.92%
Occupation		
Housewife	34	14.23%
Service	88	36.82%
Business	42	17.57%
Driver	38	15.90%
Day Labor	29	12.13%
Others	8	3.35%

Among the age groups, the majority (54.39%) fell within the 35-45 years bracket, with a significant proportion (40.17%) aged 45+ years and above and a smaller segment (5.44%) below 35 years. Gender-wise, males constituted a larger percentage (79.08%) than females (20.92%). In terms of occupation, service professionals represented the highest proportion (36.82%), followed by businessmen (17.57%), drivers (15.90%), housewives (14.23%), day laborers (12.13%), and others (3.35%). This comprehensive breakdown underscores the diverse representation within the study population across various demographic parameters.

Table 2: Distribution of Respondents by BMI (n=239)

BMI	Frequency (n)	Percentage (%)
< 18.5	42	17.57%
18.5-24.9	168	70.29%
25-29.9	8	3.35%
30.0+	21	8.79%
Mean ± SD	-	19.42 ± 1.77

The distribution of Body Mass Index (BMI) among the respondents provides insights into their weight status. The majority of participants (70.29%) fell within the healthy weight range, with BMI values ranging from 18.5 to 24.9. A smaller percentage of individuals (17.57%) had a BMI below 18.5, indicating underweight, while a minority (8.79%) had a BMI of 30.0 or higher, signifying obesity. Only a negligible portion (3.35%) fell into the overweight category, with BMI values between 25 and 29.9. The mean BMI for the overall population was 19.42 ± 1.77.

Table 3: Distribution of Respondents by History of Diabetes Mellitus (DM) (n=239)

History of DM	Frequency (n)	Percentage (%)
Yes	67	28.03%
No	172	71.97%

Among the participants (n=239), 28.03% reported a history of Diabetes Mellitus (DM), while the majority (71.97%) did not have a history of DM. This breakdown sheds light on the prevalence of diabetes among individuals with complex perianal fistula. 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 perianal fistula, optimizing overall outcomes.

Table 4: Distribution of Respondents by Previous History of Perianal Abscess (n=239)

Previous History of Perianal Abscess	Frequency (n)	Percentage (%)
Yes	59	24.69%
No	180	75.31%

Among the respondents (n=239), 24.69% reported a previous history of Perianal Abscess, while the majority (75.31%) did not have a history of such abscesses. Understanding this distribution is crucial in assessing the potential risk factors associated with complex perianal fistula, as previous perianal abscesses could contribute to the development of this condition.

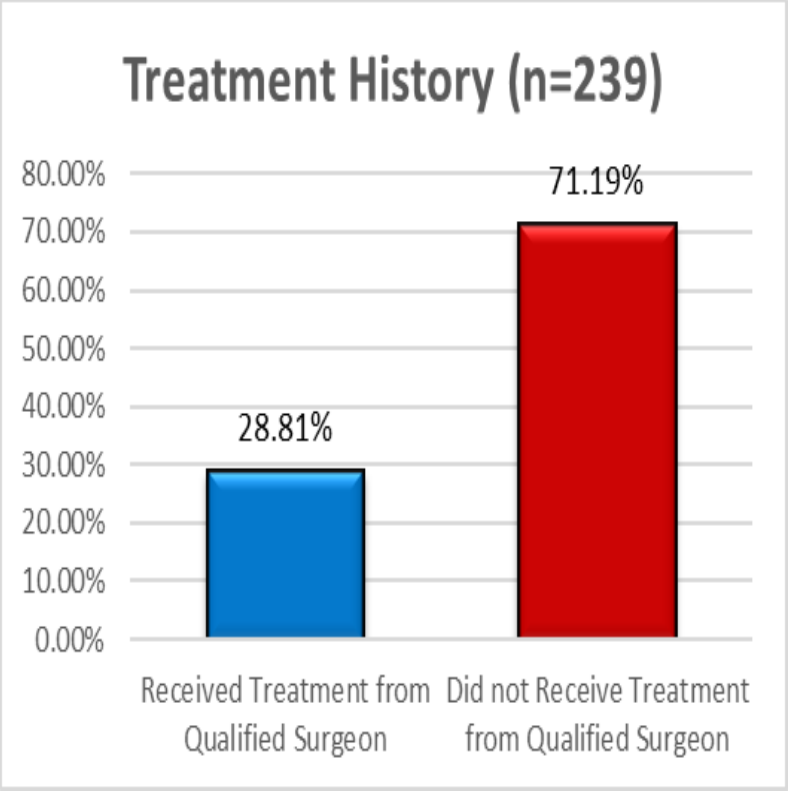

Figure 1: Distribution of Respondents by Treatment History of Previous Perianal Abscess (n=59)

Among respondents (n=59) with a history of previous Perianal Abscess, 28.81% received treatment from qualified surgeons, while 71.19% 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 5: Distribution of Respondents by Recurrence at 3, 6 and 12 Months After Procedure (n=239)

Recurrence at 3 Months After Procedure	Frequency (n)	Percentage (%)
Yes	4	1.67%
No	235	98.33%
Recurrence at 6 Months After Procedure		
Yes	05	2.09%
No	234	97.91%
Recurrence at 12 Months After Procedure		
Yes	08	3.35%
No	231	96.65%

At 3 months post-procedure (n=239), only 4 respondents (1.67%) experienced recurrence, while the majority (98.33%) showed no signs of recurrence. At 6 months post-procedure (n=239), 05 respondents (2.09%) experienced recurrence, while the majority (97.91%) showed no signs of recurrence. This indicates a slightly higher recurrence rate than the 3-months. At 12 months post-procedure (n=239), 08 respondents (3.35%) experienced recurrence, while the majority (96.65%) showed no signs of recurrence. This indicates a slightly higher recurrence rate than the 6-monthspoint, but still demonstrates overall effectiveness in managing complex perianal fistula. 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.

Table 6: Distribution of Respondents by incontinence (flatus or liquid stool) at 3, 6 and 12 Months After Procedure (n=239)

Incontinence at 3 Months After Procedure	Frequency (n)	Percentage (%)
Yes	17	7.11%
No	222	92.89%
Incontinence at 6 Months After Procedure		
Yes	08	3.35%
No	231	96.65%
Incontinence at 12 Months After Procedure		
Yes	03	1.26%
No	236	98.74%

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 7.11% had a history. Regarding incontinence (flatus or liquid stool) at 6 months after the procedure among the respondents, it was found that3.35% had a history of incontinence (flatus or liquid stool) at 6 months after the procedure, and 96.65% did not have that type of history. Regarding incontinence (flatus or liquid stool) at 12-months after the procedure among the respondents, it was found that1.26% had a history of incontinence (flatus or liquid stool) at 6 months after the procedure, and 98.74% did not have that type of history. This distribution demonstrates overall effectiveness of partial fistulotomy and application of modified cutting seton on post-operative flatus or loose stool incontinence. These results suggest favorable outcomes and highlight the effectiveness of the

treatment approach in managing complex perianal fistula.

DISCUSSION

This longitudinal descriptive study was done to determine the clinical results of partial fistulotomy and application of a modified cutting seton in the treatment of complex perianal fistula at a tertiary hospital. The sample size for the 4-years study period was calculated to be 239 and chosen deliberately. It was found in Figure no 1. that 54.39% of the respondents were in the age group of 35-45 years, 40.17% were in 45+years, and 5.44% 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 [9]. Regarding the respondents' sex, it was found that 78.94% were male and 21.05% were female. In another study [10], eight patients (80.1%) were males and 74 (19.9%) females. It was found that 70.29% of the respondents had 18.5-24.9 BMI, 17.57% had < 18.5 BMI, 8.79% had 30.0+ BMI, and 3.35% had 25-29.9 BMI. The mean BMI was 19.42±1.77.

Regarding occupation, it was revealed that 36.82% were in service, 17.57% were businessmen, 15.98% were drivers,14.23% were housewives, 12.13% were day laborers, and 3.35% were in other professions.

Regarding the history of diabetes, 71.97% of the respondents did not have diabetes, and 28.03% had a history of DM. In another study, 7.5% were diabetic patients [11]. Regarding the previous history of perianal abscess among the respondents, it was found that 180 (75.31%) patients had no previous history, and 59 (24.69%) had a history. In another study, about 30% of perianal fistula patients had a previous history of perianal abscess [12]. Regarding the treatment history of those 59 respondents having a history of previous perianal abscess, it was found that 28.81% had received treatment from qualified surgeons, and 71.19% had received treatment from quack/ local physicians/ homeopathic practitioners.

Regarding recurrence at 3 months after the procedure among the respondents, it was found that 98.33% did not have a history of recurrence at 3 months after the procedure, and 1.67% had a history. Regarding recurrence at 6 months after the procedure among the respondents, it was found that 97.91% did not have a history of recurrence at 6 months after the procedure, and 2.09% had a history. Regarding recurrence at 12 months post-procedure, 96.65% did not have a history of recurrence at 12 months after the procedure and 3.35% had a history. Regarding incontinence (flatus or liquid stool) at 3 months after the procedure among the respondents, it was found that 92.89% did not have a history of incontinence (flatus or liquid stool) at 3 months after the procedure, and 7.11% had a history. Regarding incontinence (flatus or liquid stool) at 6 months after the procedure among the respondents, it was found that3.35% had a history of incontinence (flatus or liquid stool) at 6 months after the procedure, and 96.65% did not have that type of history. Regarding incontinence (flatus or liquid stool) at 12-months after the procedure among the respondents, it was found that 1.26% had a history of incontinence (flatus or liquid stool) at 6 months after the procedure, and 98.74% 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 due to flatus [13-16]. 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 [17-18].

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

Selecting the best option for the treatment of perianal fistula remains a surgical challenge. Partial fistulotomy and application of modified cutting seton in treating a patient with a complex perianal fistula seems to be 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.

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.

Author Contributions

In the study, Dr. Md. Ariful Alam likely led the conception, design, data analysis, drafting, and final approval. Professor Dr. Md. Habibullah Sarkar probably contributed to conception, data interpretation, critical revision, and final approval. Professor Dr. Mohd. Sultanul Abedin likely participated in data acquisition, analysis, critical revision, and final approval. Dr. Towhidul Hasan Nahid probably contributed to data analysis, interpretation, critical revision, and final approval. Dr. Asim Sarkar likely assisted with data acquisition, drafting, and final approval.

Funding: No funding sources

Conflict Of Interest: None declared

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The Journal of Teachers Association
Abbreviated Key Title: TAJ
Official Journal of Teachers Association Rajshahi Medical College