

Short Term Outcomes of Fistulectomy with Primary Closure of Internal Opening for the Treatment of High Trans-sphincteric Fistula in Ano

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Abstract

Original Research Article

Background: Fistulectomy with primary closure of the internal opening has been used to treat high trans-sphincteric fistula in ano. This method entails complete removal of the fistula tract from external opening to internal opening and closing the internal opening from the inside of anal canal. This study aims to assess the outcomes of fistulectomy with closure of the internal opening for high trans sphincteric fistula. **Methods:** Observational study was carried out in the Department of Colorectal Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Total 36 patients with high trans sphincteric fistula were included in this study. After preoperative MRI of anorectum, fistulectomy with closure of the internal opening was done. **Results:** The mean age was found 39.4 years with range from 20 to 57 years. Among 36 patients, 83.3% patients had primary wound healing within 6 weeks and rest of the patients healed within 10 weeks. Clinical squeeze pressure was reduced in 11.1% patients. Thirty two patients were available for 1 year follow up. Recurrence occurred in 21.88% (n=32) patients within the study period. 91.7% patients had Park-Brown continence grade-A and 8.3% had grade-B. Wound infection did not impair postoperative continence ($p>0.05$). There was statistically significant difference between wound infection and suture line dehiscence with fistula recurrence ($P<0.05$). **Conclusion:** Since the recurrence and incontinence rate were low, clinical squeeze pressure did not significantly reduced along with quick healing rate, fistulectomy with closure of the internal opening is an effective treatment option for high trans-sphincteric fistula in ano.

Keywords: High trans-sphincteric fistula, Fistulectomy, Internal opening closure.

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INTRODUCTION

Fistula-in-ano is a common disease affecting thousands of patients annually [1]. It usually results from an anorectal abscess which bursts spontaneously or after inadequate surgery [2]. It is the chronic phase of anorectal infection and is characterized by chronic purulent drainage or cyclical pain associated with abscess reaccumulation followed by intermittent spontaneous decompression. The communicating tract is lined by unhealthy granulation tissue and acts as a channel for discharge of pus, mucous and stool particles [3].

According to anal sphincter involvement, fistula can be classified as subcutaneous/submucosal (2–3%), intersphincteric (24–45%), trans sphincteric (30–60%), and suprasphincteric (2–20%) [4,5]. When fistulas involving 30% or less of the external sphincter are considered low transsphincteric fistulas, whereas those involving more than 30% of the external sphincter are termed high transsphincteric fistulas. This is very important to choose sphincter-dividing vs. sphincter-sparing surgery to avoid postoperative fecal incontinence risk [6].

Fistula results in recurrent infection, perianal discharge which causes pain, irritation and itching in the

perianal region. Management of fistula requires thorough understanding of their etiology, the anatomy of the anal canal and the sphincter complex. There are three main goals in management of fistula-in-ano: (1) elimination of sepsis, (2) repair of fistula without recurrent disease, and (3) preservation of continence [6].

Fistulotomy, fistulectomy, seton and fibrin glue injection and fistula plug insertion, are currently being used depending on the type of fistula and the patient's continence [7]. More recently LASER fistula closure (FiLac) and Video-assisted anal fistula treatment (VAAFT) have been used for fistula treatment.

Fistulotomy is generally safe in simple fistulas with recurrence rate of 0–9% and incontinence rate between 0% and 37%. Overall, in appropriately selected patients, fistulotomy is safe and has low risk of recurrence and incontinence. For this reason, it is the only surgical option recommended for simple fistulas [6].

Fistulectomy has similar recurrence and incontinence rates as compared to fistulotomy for simple fistula, but it increases wound size and sphincter defect and increased time to healing [8]. Therefore, the ASCRS practice guidelines do not recommend fistulectomy over fistulotomy for simple fistula-in-ano [6].

Currently, the recommended surgical techniques, for complex fistula-in-ano, are endorectal advancement flap (ERAF), anocutaneous advancement flap, and direct excision and closure of internal opening, Ligation of intersphincteric fistula tract (LIFT), Video assisted anal fistula treatment (VAAFT) procedure, fistula laser closure (FiLaC) and anal fistula plug. ERAF has a healing rate of 55-98 percent with the minor and major incontinence of 31 and 12 percent respectively [9]. The anocutaneous advancement flap procedure has a healing rate of 78 percent. Deterioration of continence is 30 percent [10]. Direct closure of the internal opening has a 22.5 percent recurrence rate and 6 percent minor incontinence [11].

In recent years, there have been several studies evaluating the role of fistulotomy with primary sphincter reconstruction. These studies reveal high success rates (91–96%) and low incontinence rates (2–13%), with the post defecation soiling being the most common incontinence [12]. Risks of recurrent disease and incontinence were significantly increased in those with prior recurrent fistula, complex fistula, presence of secondary tracts, and prior seton drainage.

Objective

The objective of this study was to assess the outcomes of fistulectomy with primary closure of the

internal opening for the treatment of high trans sphincteric fistula in ano.

METHODOLOGY & MATERIALS

This observational study was conducted at Department of Colorectal Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh from June 2021 to May 2022. A total 36 patients with high trans sphincteric fistula were selected purposively and included in this study.

Inclusion criteria:

- All adult population with high trans-sphincteric fistula in ano.
- Diagnosed clinically and confirmed by MRI.
- Patients who are willing to participate in the study.

Exclusion Criteria:

- Simple fistula in ano.
- Extra-sphincteric and suprasphincteric fistula.
- Fistula of malignancy, Crohn's disease, TB and post traumatic fistula.
- Fistula with preoperative incontinence.

Data Collection: Data were collected by a pre-designed pro forma involving questionnaire, clinical finding, preoperative investigations and operative finding. Informed written consent was taken from all patients meeting the inclusion and exclusion criteria.

Ethical Consideration: There were minimum physical, psychological, social and legal risks during history taking, physical exam and investigations. Only research personnel were allowed to access the data. Ethical clearance was obtained from the IRB (Institutional Review Board) authority of BSMMU to undertake the present study. According to Helsinki Declaration for Medical Research involving Human subjects 1964, all patients were informed about the study design, the underlying hypothesis and the right for the participants to withdraw themselves from the project at any time, for any reason, what so ever which did not hamper the standard duty of care anyway. Written informed consent was obtained from each subject who voluntarily provided consent to participate in the study.

Statistical Analysis of Data: Statistical analyses were carried out by using the Statistical Package for Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, Illinois, USA). A descriptive analysis was performed for all data. The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Fisher exact test was used to analyze the categorical variables, shown with cross tabulation. P values <0.05 was considered as statistically significant.

RESULTS

Table 1: Distribution of the study patients by age (n=36)

Age (years)	Number of patients	Percentage (%)
≤30	3	8.3
31-40	18	50
41-50	12	33.3
>50	3	8.3
Mean ±SD	39.4±7.9	
Range (min-max)	20-57	

Table 1 shows that half (50.0%) of the patients belonged to age 31-40 years. The mean age was found 39.4±7.9 years with range from 20 to 57 years.

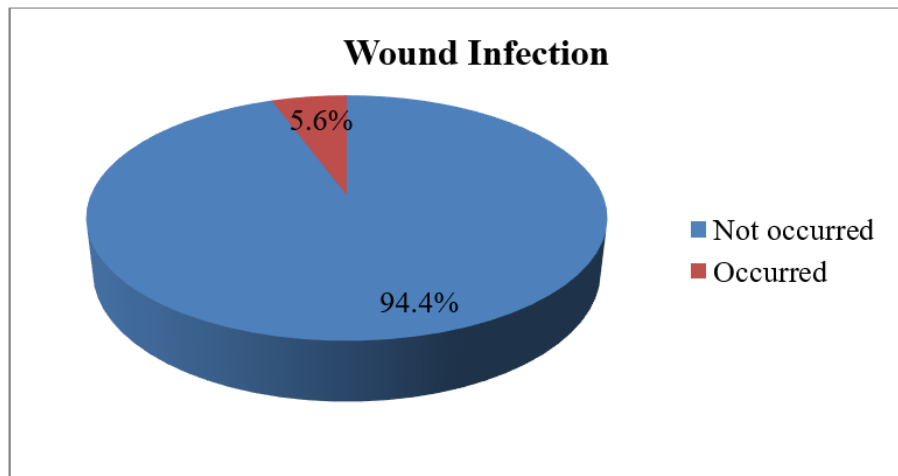


Figure 1: Wound infection of the study patients (n=36)

Figure 1 shows that 2(5.6%) patients were found wound infection.

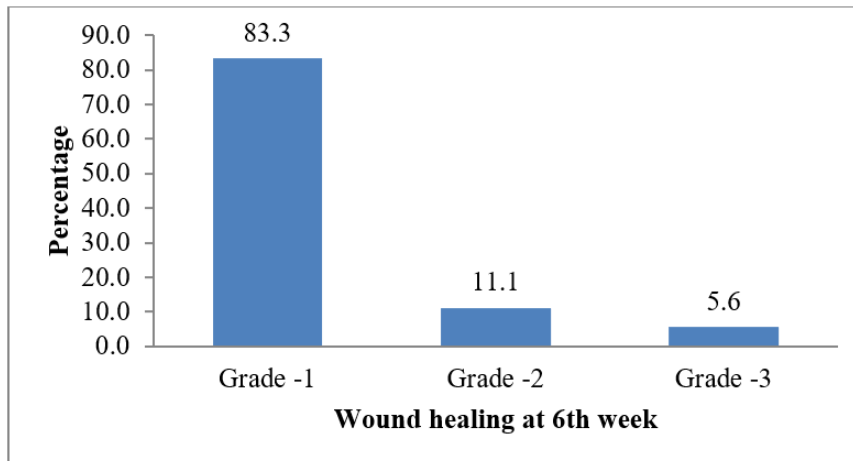


Figure 2: Rate of wound healing at 6th week of the study patients (n=36)

In rate of wound healing at 6th week, 30(83.3%) patients was found in grade 1 followed by 4(11.1%) in grade 2 and 2(5.6%) in grade 3.

Table 2: Clinical squeeze pressure of the study patients (n=36)

Clinical squeeze pressure	Number of patients	Percentage (%)
Normal	32	88.9
Reduced	4	11.1

Table 2 shows that 4(11.1%) patients were found reduced clinical squeeze pressure after operation.

Table 3: Postoperative continence status of the study patients (n=36)

Postoperative continence status	Number of patients	Percentage (%)
Grade-A	33	91.7
Grade-B	3	8.3

In postoperative continence status, 33(91.7%) patients was found grade A and 3(8.3%) grade B.

Table 4: Recurrence of the study patients (n=32)

Follow up schedule	Recurrence	Recurrence rate
Third month	None	0
6 th month	4	12.5
9 th month	2	6.25
12 th month	1	3.13
Total	7	21.88

Out of 36 patients, total 32 patients were available for 1 year follow up. Among them, recurrence occurred in 7(21.88%) cases. Recurrence occurred in 12.50 % cases between three months to six months

followed by 6.25 % between six to nine months and 3.13% recurrence occurred between nine to twelve months.

Table 6: Assosiation of wound infection and suture line dehiscence with recurrence (n=36)

Parameter		Recurrence				P value
		Yes (n=7)		No (n=29)		
		n	%	n	%	
Wound infection	Not occurred	5	71.4	29	100	0.033
	Occurred	2	28.6	0	0	
Suture line dehiscence	Not occurred	4	57.1	28	96.6	0.018
	Occurred	3	42.9	1	3.4	

Table 5 shows that 2(28.6%) patients was found wound infection in recurrence group and not found in without recurrence group. The difference was statistically significant ($p < 0.05$) between two groups. It also shows that 3(42.9%) patients was found suture line dehiscence in recurrence group and 1(3.4%) in without recurrence group. The difference was statistically significant ($p < 0.05$) between two groups.

DISCUSSION

Surgical treatment is the only curative option for fistula in ano. Many operations have been using to treat fistula. But no operation is considered gold standard. Every operation has its own advantages and disadvantages in terms of healing, recurrence, incontinence due to excessive damage to the sphincter complex, cost and patients satisfaction. After searching journals on internet, it is found that this is the first study in Bangladesh where total fistulectomy with closure of the internal opening was done to treat high trans-sphincteric fistula in ano.

In our study, we observed that half (50%) of the patients belonged to age 31-40 years. The mean age was found 39.4(SD±7.9) years with range from 20 to 57 years. Rojanasakul *et al.*, (2007) reported the mean age was 36 years with range from 26 to 72 years [13]. But

Tobisch *et al.*, (2012) reported the mean age was 48.7 (range, 21–81) years, Johnson *et al.*, (2006) also found the mean age was 45.4±2.4 years and Sileri *et al.*, (2011) observed the mean age was 47 years (range 16-76 years) [14,15].

In this study we observed that 30(83.3%) patients achieved complete healing within 6 weeks (grade-1) followed by 4(11.1%) had healing wound with some granulation tissue (grade-2) and 2(5.6%) had purulent discharge (grade-3). None of the patients had nonhealing wound and none required reoperation. In our study, those wounds which did not heal within 6 weeks and took a little more time, healed within 8-10 weeks.

In this study we observed that out of 36 patients, total 32 patients were available for 1 year follow up. Four patients were missed. Among 32 patients, recurrence occurred in 7(21.88%) cases. Recurrence occurred in 12.50 % cases between three months to six months followed by 6.25 % between six to nine months and 3.13% recurrence occurred between nine to twelve months.

Surgical treatment of anal fistula should aim at the complete elimination of the fistula while maintaining sphincter muscle function as much as possible.

Aggressive fistulotomy can lead to post-operative fecal incontinence, while on the other hand, inappropriate conservative treatment could result in fistula recurrence [16]. Fistulotomy undoubtedly achieves elimination of the fistula, but the anal canal is deformed and incontinence may occur after surgery. On the other hand, non-sphincter dividing surgery, such as by the flap advancement technique, preserves the sphincter mechanism but there is a risk of recurrence after suture line dehiscence. The reported incidence of postoperative incontinence after non sphincter splitting surgery for trans-sphincteric fistula ranges from 8% to 42% [17]. Our result (8.3% incontinence) agree with this range and also with the study conducted by Maqbool *et al.*, (2022) where they found incontinence of 8.1% after fistulectomy [18]. The wide range of the differences after each procedure may result from the definition of anal incontinence, exclusion criteria, history of the previous surgery, types of operative procedures and length of follow-up period [17].

This study observed that 33 patients had postoperative continence grade-A. Of them, 2(100.0%) patients had postoperative continence of grade A in wound infection and 31(91.2%) in without wound infection group. The continence was not related to position of internal and external opening and age of the patients. The difference was not statistically significant ($p>0.05$) between two groups.

Current study observed that 29(93.5%) patients had postoperative continence grade A in male and 4(80.0%) in female. The difference was not statistically significant ($p>0.05$) between two groups.

In this present study we observed that there was statistically significant association between wound infection and recurrence of fistula. Those 7 patients who had recurrence, 2(28.6%) patients had wound infection and 5(71.4%) patients did not have wound infection ($P<0.05$).

This study observed that suture line dehiscence was significantly associated with recurrence of fistula. Among the 7 recurrence patients, 3(42.9%) had suture line dehiscence ($P<0.05$). In this study we did not focus on the cause of recurrence. But, suture line dehiscence, presence of septic foci, infection may be attributed to the causes of recurrence.

As no sphincter was divided like fistulotomy, the results of our postoperative continence evaluation were little bit astonishing; Out of 36 patients, 33(91.7%) had Park- Brown continence score A and 3(8.3%) had score B. None had continence score C or D. Postoperative continence status was not affected by wound infection because 2(5.6%) patients had wound infection but they had continence score A. There were no statistically significant difference in postoperative continence status between men and women ($p>0.05$).

This may be due to majority of the study population are male (86.1%). The lack of preoperative anal manometry, short duration of study and less number of study population make it difficult to determine the true occurrence of incontinence and recurrence. Further study is required for these issues.

CONCLUSION

Since, the recurrence and incontinence rate were low, clinical squeeze pressure did not significantly reduced along with quick healing rate, fistulectomy with closure of the internal opening is an effective treatment option for high trans-sphincteric fistula in ano.

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Ethical approval: The study was approved by the Institutional Ethics Committee.

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