Comparison of Complications Between Ligation of Intersphincteric Tract and Seton for Transphincteric Perianal Fistula

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Abstract

Objective: To assess healing time, recurrence rate and fecal incontinence of transphincteric fistula

Material and Methods: This study was conducted in Surgical Unit 2 services hospital Lahore between June 2022 and June 2024.Total 50 patients having transphincteric perianal fistula in age range from 18 to 65 years were included in study and patients with previous perianal disease or perianal surgery were excluded as diagnosed on history and examination. Patients were divided equivalently among two groups with Group A receiving the LIFT and Group B underwent the seton technique. Follow up was done for six months postoperatively.

Results: Healing rate of the LIFT group was 80% with no incontinence but recurrences were noted in about 20%. Seton group had a healing rate of 84% but a lower recurrence rate with an incidence of incontinence at 16%. These observations indicate that LIFT is more useful in maintaining continence while seton seems to offer slight benefit in reducing recurrences. This comparative study explains the merits and demerits of each procedure thereby helping in decisions for treating Transphincteric fistula tracts.

Conclusion: This study illustrates that no single technique is termed ideal, however LIFT and seton techniques have their own unique strengths. It is appropriate to resort to the LIFT for the transphincteric fistula if the intention is to preserve the continence in case of transphincteric fistula. LIFT technique should be applied taking into account the individual characteristics of the patient to strengthen healing response and reduce the risk of incontinence and recurrence.

Keywords: LIFT, Transphincteric perianal fistula, Seton, Incontinence, Recurrence

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Introduction

Peri-anal fistula also called fistula-in-ano is defined as a pathological epithelial tract or connection between the skin of the perianal region and the anal canal.[1] Such a fistula is usually formed in the presence of persistent inflammation in the region surrounding the anus from a ruptured abscess that does not heal and creates a recurrent cavity or sinus.[2] As this tract becomes a route for chronic infection, recurrent abscesses and drainage make the condition uncomfortable physically and debilitating socially for the patients in concern.[3] Despite their comparatively low prevalence, which is estimated at 1.69 cases per 10,000 of the population, anal fistulas remain a major public health problem, with a

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preponderance of men (ratio male: female – 1:8).[4] These statistics make it clear how much effective treatment with minimal chances of recurrence is required and how complicated are post-operative risks, including the risk of fecal incontinence.[5] They typically affect adults in the age group of 20-40, with the incidence declining in the later decades.[6] The condition is uncommon in children, some congenital reasons can lead to fistula formation.[7] Generally, an anal fistula is developed from an anal gland located in the anal canal that gets infected, obstructed and form an abscess which if not drained adequately, rupture, and fistula is formed to the surface of the skin.[8] Crohn's disease patients also develop fistulas in greater complexity with multiple tracts which are more difficult to treat with conventional surgical methods.[9]

Anal fistulas are classified according to their position with respect to the sphincter muscle complex into four types which are intersphincteric, transphincteric, suprasphincteric and extrasphincteric.[9,10] Treatment for anal fistulas may differ from each other for each type has different sphincter involvement, chances for recurrence and post-operative incontinence surgery related complications.[11]

Intersphincteric fistulas are the most common type, less likely to result in postoperative incontinence and is easier to treat as sphincters are less involved[12]. Transphincteric fistulas treatment is complicated because the internal and external anal sphincters are both involved, causing fecal incontinence. As surgical intervention is appropriate, it must be done with caution and planning to get the fistula closed and sphincter must not be jeopardized and techniques like seton and LIFT have been pioneered to resolve these problems.[13] Suprasphincteric Fistulas originate above the external anal sphincter, are more complex and rarer and complex surgeries are needed and put lots of strain on continence.[14]

Extrasphincteric fistulas originate from the rectum and do not involve the sphincter complex muscle at all which makes them the most complex and least common type, require particular surgical procedures and can include the advancement of flaps or seton, but results are less reliable.[15]

Considering the nature of Transphincteric fistulas that requires effective closure of the fistula with preservation of the sphincter, the purpose of this study is to evaluate the clinical outcome of LIFT and seton techniques. Truly both techniques are commonly used in practice, although the direct comparison of their potency in relation to the rates of healing, recurrence and rate of fecal incontinence has been done sparsely. Such study is justified as it is essential for determining the factors that will aid in clinical decision making and treatment for patients who suffer from transphincteric fistulas. It also focusses on healing time, recurrence and incontinence associated with each technique as well as the quality of life of patients.

Material and Methods

This prospective study was conducted in surgical unit 2, SIMS/services hospital Lahore from June 2022 till June 2024. Patients with perianal fistula diagnosed on basis of history, clinical examination were included in study while those having previous perianal surgery or any disease were excluded. Sample size was calculated by using reference study with Margin of error= 5% with 95% confidence level by using WHO sample size formula. Sample technique was non-probability consecutive sampling.[16] Ethical approval for research was taken from Institutional Research Board of Services Hospital Lahore having reference No .IRB/2025/1517/SIMS Dated 20.01.2025 and abide by the code of conduct of institution.

All the surgeries were performed by same team of qualified surgeons with more than 10 years' experience after attaining higher qualification in the field with standard surgical protocols.

During the procedure the surgeon first incision approach of LIFT procedure goes across the intersphincteric space and enters the fistula tract without violating the integrity of the anal sphincter complex, identifies the fistula tract, mobilizes it from surrounding structures, and secures it at a higher level close to the internal orifice. The other end is then cut off after the ligation and by this means, chances of having new fistula in the space is minimal, therefore making it easier to prevent recurrence of the fistula. In this type of management, no additional surgery is required. The wound is mostly left open in order to facilitate drainage and healing, which further ensures

that abscesses and other complications do not develop. This technique in managing fistula closure has the net effect of allowing muscles to heal slowly.

In seton .whole of fistulous tract was excised and a seton of polypropylene no 1 suture was passed and tightened. Wound was left open for drainage and healing. As this was a cutting type of seton, it loosened in three weeks and it was tightened twice or thrice and then the patient was followed up monthly for six months to note complications. As the management was done in a staged manner so there was no immediate incontinence. In transphincteric fistulas, seton is more commonly used since it decreases the rate of recurrence and the healing process takes several weeks or months. The analysis of collected data was done through the SPSS version 22 on the outcomes reach on 50 patients with transphincteric fistulas, to assess the efficacy of two surgical procedures and the complications following the procedures. Fistula healing, recurrence and incontinence were assessed by taking history of patient regarding any symptoms of perianal discharge or perianal wound, performing digital rectal examination to asses defect in external anal sphincter and anal tone and doing proctoscopy on monthly basis up to a period of six months. Data collection was done on predesigned Performa focussing on healing rates, recurrence, and the rates of fecal incontinence.

The age of the patients was within 18 to 65 years of age and 38.14 years average age for the group. (Table 1). Patients were randomly divided into Group A (LIFT) and Group B (Seton) to seek for bias elimination and control for patient differences in fistula and general health conditions.

Table 1: *Age Distribution*

Age in years	Minimum	Maximum	Mean	Standard deviation
	18	65	38.15	10.74

The sample included 50 individuals, with an observed gender composition of 40 males and 10 females yielding a male female ratio of 4:1. Such a demographic distribution also agrees with what has been established in research because anal fistulas are more frequent amongst males.

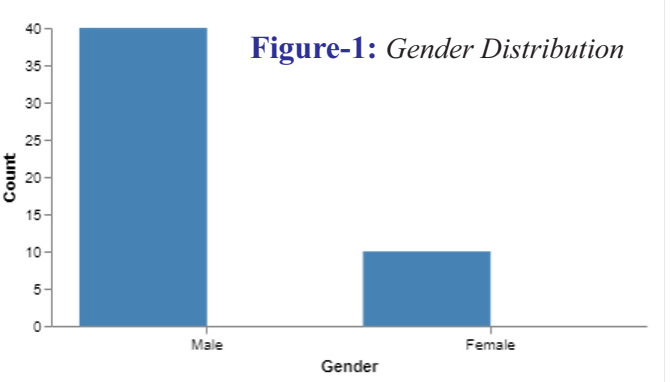


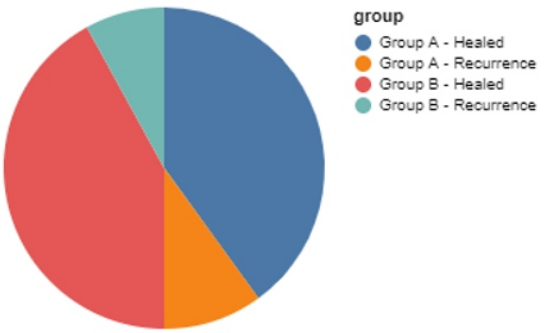
Figure-1: *Gender Distribution*

LIFT was performed on patients in Group A while seton was used on the patients of Group B. The outcome of each patient was assessed and recorded to ascertain the comparative efficacy of these techniques. The postoperative outcomes of healing, recurrence and incontinence were reviewed enabling drawing comprehensive comparisons on the merits and demerits of each method used.

Results

In group A, a complete healing rate of 80% (20 out of 25) was demonstrated at one month post-surgery. This high healing rate underlines the effectiveness of the LIFT procedure mostly in cases where sphincter saving is paramount. However, the other 20% of the patients 5 (out of 25) suffered recurrent disease within 6 months (figure 2). However, within this group, none of the patients complained about fecal incontinence at any time after the operation. It can be said that the LIFT absolutely spares the sphincter.

Figure-2: *Distribution of Healing Rate*



In group B the healing rate was 84% (21 out of 25 patients) over a period of 6 months. The recurrence rate however was 16% that is (4 out of 25 patients) in this group. One some occasions, there was no occurrence of recurrent disease within this group.

However, it is lower than was found within the Group A. The four, representing 16%, developed incontinence out of the all patients still reported. Even among this high number patients in Group B, the incidence of incontinence stood out less as expected, and points to the dysplasia in muscle functions placed in the group where more than half of the sphincter muscle is damaged.

Both groups recorded recurrence rates, offsets however were in favour of LIFT group which had a 20% rate while the seton group had 16%(Table 2) In absence of incontinence in the LIFT group, it holds promise in patients with high transphincteric fistulas where sphincter preservation is of utmost importance.

On the other hand group B participants with higher sphincter further explaining the incontinence rate of 16% was particularly striking. Seton group participants exhibited significant correlation in analysis between incontinence and the degree of sphincter involvement. Involvement over 50% of sphincter was noted that in continuous cut through more than 50% of the sphincter which raised the risk of incontinence considerably. This implies that use of seton while effective in achieving healing may not be ideal in management where maximum sphincter preservation is necessary.

Table 2: *Comparison of Recurrence Rate*

Group	Recurrence Rate (%)	Total Patients	Patients with Recurrence
LIFT Group	20%	25	10
SETON Group	16%	25	8

In general, LIFT has been successful in maintaining continence during the procedure for patients suffering from transphincteric fistulas who required a sphincter preserving approach. The seton, however effective in fistulas, had a greater risk towards incontinence due to muscle cutting. A seton remains an option for patients with lower fistulas and little involvement of the sphincter although it comes with a slightly better healing rate and lower risk of recurrence.

Discussion

The results of this study tallies with documented evidence, strengthening the LIFT restrains for patients who have high Transphincteric fistulas and sphincter reconstruction is of great concern. No functional incontinence was recorded which stresses the LIFT approach as an acceptable sphincter-sparing approach. This trend is in tandem with other researches that also have positive healing outcomes with little interference to the functional features of the sphincter.[17] On the other hand, while the healing rate is good with the seton technique, the risk of incontinence is higher, particularly in the sizeable sphincter muscle. This means that the seton technique, although useful for some types of fistulae, is not ideal for those with large sphincter involvement. The gradual cutting mechanism associated with the seton technique may be advantageous in cases of low lying fistulas, but in high or complex Transphincteric cases may confer unnecessary risk of incontinence commercially available belt.[18]

When viewed in a clinical perspective, the revised LIFT technique provides a useful solution to patients with transphincteric fistulae, while the need to prevent incontinence cannot be emphasized enough. For transphincteric fistulae, seton remain useful as the risk of incontinence is not as significant as the risk of recurrence. Such parameters should be given serious consideration by the surgeons because in high-risk patients LIFT may improve the sphincter function but the quality of life may be impaired.[16,17]
The results of a study agreed that there was a equalling rate of recurrence after the ligation of Intersphincteric fistula tract procedure,[18] on the other hand, another study concluded that the LIFT technique is likely to be a feasible, reproducible, and successful surgical alternative and provides an reliable closing rate and with no continence, and is indicated for complex fistulas.[19]

The ligation of Intersphincteric fistula tract was found to be a superior technique in the treatment of patients with high simple anal fistula.[20] So our study appears to be useful, it should be noted that there are limitations. The sample size which is 50 is quite small, and might be adequate for a pilot study but is more likely to give clinician feedback rather than different patient interaction variation to the same set of treatments. More extensive multi centre studies may give the picture in focus well and make the findings more applicable.[21] In addition, the follow up period , which was restricted to six months, may insufficient time interval for assessing recurrence in the general population especially in this case, the diabetic population, who due to their condition may have a prolonged complication time lag.

Conclusion

The present study illustrates that no single technique can be termed ideal however, LIFT and seton techniques have their own unique strengths. It is appropriate to resort to the LIFT for the transphincteric fistula if the intention is to preserve the continence in case of a high type fistula Surgical treatment of LIFT should be applied taking into account the individual characteristics of the patient to strengthen healing response and reduce the risk of complications and recurrence.

Conflict of Interest *None*

Funding Source *None*

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Authors Contribution

YR: Conceptualization of Project

MZM: Data Collection

TN: Literature Search

NNA: Statistical Analysis

MA: Drafting, Revision

RH: Writing of Manuscript