

Comparative Study Between Open Fistulectomy and Ligation of Intersphincteric Fistulas Tract (LIFT) Procedure for Uncomplicated Perianal Fistula

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ABSTRACT

Objective: To compare open fistulectomy and Ligation of Inter-sphincteric Fistulas Tract (LIFT) procedure for uncomplicated perianal fistula.

Study Design: Quasi-experimental study.

Place and Duration of Study: Department of General Surgery, Combined Military Hospital Rawalpindi, Pakistan from May 2022 to Feb 2023.

Methodology: A total of 70 patients (35 in open fistulectomy group, which was labelled Group-A, and 35 in LIFT group, which was labelled Group-B) fulfilling the inclusion criteria who had perianal fistula were included in the study. After taking consent, baseline characteristics were documented. Patients in both study groups were assessed for various operative and post-operative parameters including operative time, number of days of stay in hospital, post-operative pain (VAS) at post-operative day 1 and 7, anal incontinence and recurrence of perianal fistula at 6 months follow up.

Results: In our study, mean age was 35.58 ± 9.15 years. There were 60 (85.70%) male participants while remaining 10 (14.30%) participants were female. Mean duration of disease was 10.62 ± 2.58 months. Operative time was significantly lower in Group-A ($p < 0.001$). Median pain VAS was significantly lower in Group-B ($p < 0.001$). No statistical difference was present between groups in terms of length of stay at hospitals, presence of anal incontinence and recurrence.

Conclusion: Ligation of Inter-sphincteric Fistulas Tract (LIFT) procedure is a good and safe alternative for the management of perianal fistula as compared to traditionally opted open fistulectomy.

Keywords: Anal Incontinence, Ligation of Inter-sphincteric Fistulas Tract Operative Time, Perianal Fistula, Post-operative Pain.

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INTRODUCTION

A perianal fistula (fistula-in-ano) is an abnormal tract that is lined with epithelial cells that connects the anal canal to the perianal skin. An ano-rectal abscess is the most common cause of an anal fistula.¹ The patient may experience substantial discomfort and shame due to the condition, although it is not harmful. The prevalence of perianal fistula has been reported to be at 29.8%.² The condition is much more common in male patients than female ones, and around 5% of all the proctological examinations turn out to be perianal fistula.³

One of the most important risk factors that can increase the chances of developing perianal fistula is smoking.⁴ On the other hand, it has been hypothesized that use of antibiotics may decrease the chances of developing perianal fistula, especially in the cases of perianal abscess.^{5,6} The incidence of anorectal sepsis is

high, and persistent infection can advance in either a circumferential or an axial direction, leading to a variety of fistulas within the first year of presenting with an abscess.⁷

The Parks Classification and Perianal Disease Activity Index (PDAI) are often used to classify individuals who have a perianal fistula, and are gold standards determining the degree to which it is complicated and severe.^{8,9} Treatment of perianal fistula with an effective surgical procedure is required in order to avoid recurrence. However, due to the difficulties in locating the internal opening and the path of the fistula tract, effective surgery can be difficult at times. Traditionally, open fistulectomy has been opted by the surgeons as surgical choice for managing perianal fistula. However, another useful surgical technique for management of fistula-in-ano is Ligation of Intersphincteric Fistula (LIFT) procedure.¹⁰

We conducted this study to compare these two highly opted surgical procedures to determine the best possible choice for managing fistula-in-ano.

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METHODOLOGY

This Quasi-experimental study was conducted on the patients presenting at the outdoor Surgical Department of Combined Military Hospital Rawalpindi, Pakistan, starting from May 2022 to Feb 2023.

Inclusion criteria: Patients aged more than 18 years, of either gender, having perianal fistula of any type (based on Parks classification: intersphincteric, transsphincteric, suprasphincteric or extrasphincteric) scheduled to be operated on elective list were included.¹¹

Exclusion criteria: Patients with coagulation disorders, immunocompromised state, diabetes, steroid use due to any autoimmune or rheumatological condition, patients who were on chemotherapy for any malignancy, presence of background inflammatory bowel disease and/or tuberculosis of the gut were excluded.

Sample size was calculated using WHO calculator by assuming anticipated mean operative time in open fistulectomy group of 28.9 ± 5.27 minutes and anticipated mean operative time in Ligation of Intersphincteric Fistula (LIFT) of 32.07 ± 6.65 minutes.¹² Our calculation gave us a sample size of 70 (35 patients in each group).

Patients were selected using non-probability consecutive sampling. Once we selected our study pool we documented all the baseline characteristics of our included participants including their age, gender and duration of their disease (in months). After that, patients were randomly divided into two equal groups by writing their medical registration number on a paper lottery and then picking up lottery paper one by one. In Group-A we included 35 patients who underwent open fistulectomy while in Group-B we included 35 patients who underwent LIFT procedure (Figure-1).

In open fistulectomy after properly positioning the patient, a proctoscopic examination was performed so that the location of the external and internal opening of fistula could be determined. Following this, a gauze piece was placed into the rectum and hydrogen peroxide solution was instilled into the external opening so that localization of internal opening can be achieved. After identification of the tract a probe was passed through this tract to core out the tract followed by fistulectomy. In LIFT procedure, after tract localization, an incision of

curvilinear pattern was made to enter inter-sphincteric plane where tract was dissected and transfixed between external and internal sphincter. A small part of this transfixed tract was cut in between while outer part of this tract was cored out at the external sphincter. After surgery patients were assessed for various operative and post-operative parameters. These parameters included operative time, number of days of stay in hospital, post-operative pain (by visual analog scale) at post-operative day 1 and 7, anal incontinence, based on Wexner Continence Scale (score 0 = no incontinence, score 1 or more = incontinence) and recurrence of perianal fistula at 6 months follow up.^{13,14}

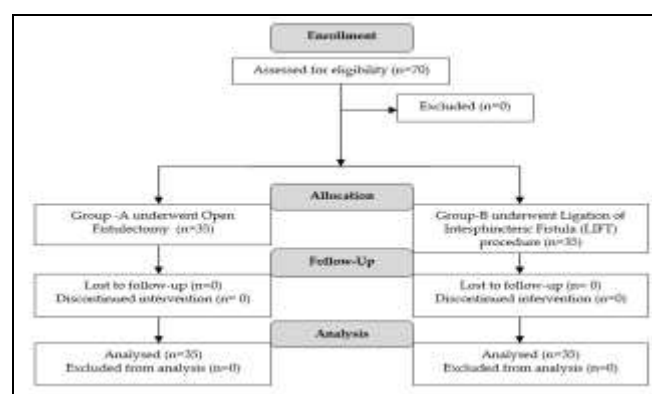


Figure: Patient Flow Diagram (n=70)

Data was analyzed using Statistical Package for Social Sciences (SPSS) version 22. Normality of data was checked by Shapiro-Wilk test.¹⁵ Quantitative data was represented using mean and standard deviation, and median and interquartile range (IQR). Qualitative data was represented by using percentage and frequency. Chi-square test (for qualitative variables) and independent samples t-test / Mann-Whitney U-test (for quantitative variables) were applied. A p -value ≤ 0.05 was taken as statistically significant.

RESULTS

In our study a total of 70 patients, which included 35 patients in open fistulectomy group (Group-A), and 35 in Ligation of Intersphincteric Fistula (LIFT) group (Group-B). We found out that the mean age of whole study pool was 35.58 ± 9.15 years. There were 60(85.70%) male participants while remaining 10(14.30%) participants were female. Mean duration of disease our study participants was 10.62 ± 2.58 months. These baseline characteristics are summarized in tabulated form below in Table-I.

Table-I: Baseline Characteristics of Study Participants (n = 70)

Characteristics	Values
Mean age in years (Mean $\pm$ SD)	35.58 $\pm$ 9.15
Gender	
Male	60(85.70%)
Female	10(14.30%)
Mean duration of disease in months (Mean $\pm$ SD)	10.62 $\pm$ 2.58

We compared these baseline characteristics between our study groups. The mean age in Group-A was 39.65 $\pm$ 8.30 years while in Group-B, the mean age was 31.51 $\pm$ 8.17 years, (p <0.001). We also found that there was no difference in terms of gender stratification between the groups (p =1.000). Mean duration of disease in patients belonging to Group-A was 10.66 $\pm$ 2.63 months, while in patients in Group-B it was 10.60 $\pm$ 2.56 months (p =0.927). This comparison of baseline characteristics between the two groups is exhibited in Table-II.

Table-II: Comparison of Baseline Characteristics between Groups (n = 70)

Characteristic	Group-A (n = 35) n (%)		Group-B (n = 35) n (%)		p-value
Age in years (Mean $\pm$ SD)	39.65 $\pm$ 8.30		31.51 $\pm$ 8.17		<0.001
Gender	Male	Female	Male	Female	1.000
	30(85.71%)	5(14.29%)	30(85.71%)	5(14.29%)	
Mean duration of disease in months (Mean $\pm$ SD)	10.66 $\pm$ 2.63		10.60 $\pm$ 2.56		0.927

When comparing operative and post-operative parameters, we found that mean operative time in Group-A was 27.05 $\pm$ 5.16 minutes while in Group-B mean operative time was 33.28 $\pm$ 5.74 minutes, (p <0.001). Mean number of days of stay in hospital in Group-A was 4.08 $\pm$ 1.44 days, while in Group-B it was 4.17 $\pm$ 1.44 days, (p =0.805). Median post-operative value for visual analogue scale (VAS) in Group-A on day 1 was 8.00 (6.00-9.00) while in LIFT' group it was 7.00 (6.00-9.00), (p =0.024). On day 7 after the operation, median VAS in Group-A was 3.00 (2.00-4.00) while in Group-B it was 2.00 (1.00-3.00), (p <0.001). In Group-A, 3(8.57%) patients developed anal incontinence while none of the patients developed anal incontinence in Group-B, (p =0.077). In Group-A none of the patients developed recurrence at six months follow up and only 1(2.85%) had recurrence in Group-B, (p =0.314). All this data is summarized in Table-III.

DISCUSSION

We conducted this study with the objective of comparing the operative and post-operative outcomes of open fistulectomy versus Ligation of Inter-

sphincteric Fistulas Tract (LIFT) procedure for management of uncomplicated perianal fistula. In our study we found that majority of patients had male gender. This is congruent with the fact that male have much higher propensity to develop perianal fistula.¹⁶

Table-III: Comparison of Post-Operative Parameters (n=70)

Parameter	Group-A (n=35) n(%)	Group-B (n=35) n(%)	p-value
Mean operative time in minutes (Mean $\pm$ SD)	27.05 $\pm$ 5.16	33.28 $\pm$ 5.74	<0.001
Mean duration of hospital stay in days (Mean $\pm$ SD)	4.08 $\pm$ 1.44	4.17 $\pm$ 1.44	0.805
Median Post-op VAS (Day 1) Median (IQR)	8.00 (6.00-9.00)	7.00 (6.00-9.00)	0.024
Median Post-op VAS (Day 7) Median (IQR)	3.00 (2.00-4.00)	2.00 (1.00-3.00)	<0.001
Presence of anal incontinence	3 (8.57%)	0 (0.00%)	0.077
Recurrence	0 (0.00%)	1 (2.85%)	0.314

In our study, we found that in terms of baseline characteristics, age was the only factor which was statistically different between the two groups while gender and duration of disease did not exhibit any statistically significant difference. We also found that there was a statistically significant difference between the two study groups in terms of operative time. This finding was also observed in multiple studies that exhibited that mean operative time was lower in open fistulectomy group.^{11,17} In terms of length of stay in hospital there was no statistically significant difference between our study groups. This finding was also observed in a study conducted by Malik *et al.* who reported that mean length of hospital stay was similar in patients belonging to both the groups.¹⁸

We also observed that in terms of post-operative pain (which was assessed using visual analogue scale at day 1 and 7 after the surgery) mean post-operative pain VAS was significantly lower in association with LIFT procedure as compared to open fistulectomy. This finding was consistent with multiple studies conducted by Al Sebai *et al.*, Malik *et al.* and Goudar *et al.* all of which reported a significantly lower post-operative mean pain VAS in LIFT group.¹⁷⁻¹⁹ However, this was not the case in a study conducted by Nour *et al.*¹¹ where this difference was insignificant statistically.

Theoretically speaking, there should be no occurrence of anal incontinence after a patient undergoes LIFT procedure. Similar finding was observed in our study. This was in line with various

previous studies, but contrasts with studies conducted by Sun *et al.* and Wallin *et al.*, who reported incontinence even in the cases of LIFT.^{11,19-21} Finally, recurrence was only observed in patients who had LIFT procedure.

Based on these findings, it can be recommended that although there are some benefits to traditional procedure for management of fistula, newer and sphincter sparing LIFT procedure is a good and safe alternative for the management of perianal fistula. Despite this we recommend to conduct further studies in this regard.

LIMITATIONS OF STUDY

The limitation of our study was that it included the patients from a single institution, follow up time was limited and the sample size was relatively small.

CONCLUSION

In conclusion, Ligation of Intersphincteric Fistula (LIFT) procedure is a good and safe alternative for the management of perianal fistula as compared to traditionally opted open fistulectomy.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

MDY & KM: Data acquisition, data analysis, critical review, approval of the final version to be published.

MS & WU: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

MI & UN: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Procedure for Uncomplicated Perianal Fistula

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