DOI: 10.14744/cm.2025.50469
Compreh Med 2026;18(1):20-24

RESEARCH ARTICLE

Evaluation of Recurrence Level of Ligation of Intersphincteric Fistula Tract (LIFT) and Laser Methods for Anal Fistula

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ABSTRACT

Objective: This research aimed to evaluate the recurrence level of ligation of Intersphincteric Fistula Tract (LIFT) and Laser methods for anal fistula.

Materials and Methods: A total of 71 patients who applied to Tokat Government Hospital and İstanbul Ataşehir Memorial Hospital between 2014 and 2024 were included in the study. The patients were divided into two groups: laser (n=30) and LIFT (n=41). Gender, age, fistula type, recurrence, follow-up period, and number of operations were analyzed in the study.

Results: Gender, age, recurrence, fistula type, and number of operations differences between patient groups were statistically insignificant (p>0.05) (Table 1). The correlation between method, age, gender, number of operations, and fistula type was insignificant (p>0.05) (Table 2). Binary logistic regression analysis results for the effects of method and baseline characteristics on recurrence showed that the effect of method, age, gender, number of operations, and fistula type on recurrence was insignificant (p>0.05) (Table 3). Recurrence durations were similar between operation types, and the difference analysis was statistically insignificant (p>0.05) (Table 4).

Conclusion: There was no statistically significant difference between LIFT and laser surgery. The results we obtained show that both LIFT and laser methods give the same results in terms of treatment success.

Keywords: Anal fistula, intersphincteric fistula tract (LIFT), recurrence

How to cite this article: Mutlu V, Koca B, Yılmaz S, Kalemoğlu M, Yılmaz K. Evaluation of Recurrence Level of Ligation of Intersphincteric Fistula Tract (LIFT) and Laser Methods for Anal Fistula. Compreh Med 2026;18(1):20-24

INTRODUCTION

Anal fistula is a health problem that is more common in men and has been reported in very old times; it refers to a fistula in the anorectal region.[1] Sixty-five percent of patients who have an initial perianal abscess develop recurrent or chronic anal fistula.[2] Anal fistula, which occurs with or after acute anorectal abscess, is part of the perianal sepsis spectrum.[3] Anal fistula surgery is a disease that involves chronic irritation for patients and surgeons, and due to the complexity of the anorectal anatomy, recurrence is frequently seen in treatment.[4] In addition to the disease, there is a noticeable decrease in quality of life and physical activities in anal fistula patients.[5] The ideal surgical treatment for anal fistula focuses on eliminating sepsis without disrupting the sphincters and continence mechanism.[6] For this, the operation should be performed with the least invasive intervention possible.

The Level of ligation of Intersphincteric Fistula Tract (LIFT) is a method used for anal fistula, and its use has increased in recent years. LIFT has become popular, especially in the treatment of complex anal fistula with the sphincter-spar-

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Received date: 16.08.2025
Revised date: 01.10.2025
Accepted date: 13.10.2025
Online date: 23.01.2026

ing technique, and provides surgical advantages.[7] Although there are studies reporting late complications and negative effects in the long term in previous studies on LIFT,[8] there are also clinical studies reporting reliable results.[9–14] On the other hand, studies on the validity of the method regarding recurrence are limited. Another surgical method used for anal fistula is the laser method, which again aims at minimally invasive intervention for complex anal fistulas.[15,16] However, although there are studies and clinical applications in the literature regarding the two methods, there have been no sufficient studies examining the two methods in the context of recurrence. Therefore, this study aimed to evaluate the recurrence level of ligation of Intersphincteric Fistula Tract (LIFT) and Laser methods for anal fistula.

MATERIALS and METHODS

Research Model

The study was designed retrospectively, using a descriptive screening and cross-sectional research model. In this context, both anal fistula treatment methods were compared, and then, using the relational screening model, the effects of the methods and other variables on recurrence were analyzed.

Patients

A total of 71 patients who applied to Tokat Government Hospital and İstanbul Ataşehir Memorial Hospital between 2014 and 2024 were included in the study. The patients were divided into two groups: laser (n=30) and LIFT (n=41). In patients who underwent laser application, seton application was performed, and laser treatment was performed before the fistula matured. In this context, according to the power analysis conducted in the study, it was aimed to reach 28 patient files for each method with a 95% confidence interval and a significance level of 0.05. The inclusion criteria for the patients were as follows:

- Age 18 and older,
- Having undergone anal fistula LIFT or laser surgery,
- Having complete relevant data in patient files,
- Having no negative health conditions that could affect the study results.

The exclusion criteria for the study were:

- Age younger than 18,
- Having comorbid conditions that could affect the study results,
- Missing relevant data in patient files.

Although there are no definitive guidelines for patient selection between LIFT and laser surgery, patient selection was largely based on the surgeon's judgment and the patient's physical examination. Because the study data are retrospective, the surgeon's judgment was arguably the most important selection criterion.

Data

In the study, patients' gender, age, fistula type, recurrence, follow-up period, and number of operations were analyzed.

Ethical Approval

Permission for the research was obtained from the Uskudar University Non-interventional Research Ethics Committee with the reference number 61351342/020-66, dated 31.07.2025. The research was conducted according to the Helsinki Declaration. Informed consents were taken from patients.

Statistical Analysis

Nominal and ordinal parameters were described with frequencies, whereas scale parameters were described with the mean, standard deviation, median, and ranges. Fisher's Exact test was used for normality analysis of research parameters. Mann Whitney U test was used for differences between groups due to non-normal distribution. Spearman's rho correlation was used for relationships. Binary Logistic Model was used for effect analysis due to linearization deviations.[17,18] ROC analysis was used for predictive value of follow-up duration. SPSS 25.0 for Windows was used for analysis at a 95% confidence level and a 0.05 significance p-value.

RESULTS

Gender, age, recurrence, fistula type, and number of operations differences between patient groups were statistically insignificant (p>0.05) (Table 1).

Spearman's rho correlation analysis results between recurrence and baseline characteristics of patient groups showed that the correlation between method, age, gender, number of operations, and fistula type was insignificant (p>0.05) (Table 2).

Binary logistic regression analysis results for the effects of method and baseline characteristics on recurrence showed that the effect of method, age, gender, number of operations, and fistula type on recurrence was insignificant (p>0.05) (Table 3).

Recurrence durations were similar between operation types, and the difference analysis was statistically insignificant (p>0.05) (Table 4).

Table 1. Baseline and recurrence levels of patient groups and difference analysis results

	Method				p
	Laser (n=30)		Lifting (n=41)		
	n	%	n	%	
Gender					0.603[a]
Female	8	26.7	11	26.8	
Male	22	73.3	30	73.2	
Age	40.43±14.63		39.44±13.18		0.848[b]
	36.50 (17.00–71.00)		37.00 (18.00–70.00)		
Recurrence	9	30.0	8	19.5	0.228[a]
Fistula type					0.370[a]
Intersphincteric	17	56.7	26	63.4	
Transsphincteric	13	43.3	15	36.6	
Number of operations	1.17±0.38		1.15±0.36		0.816[b]
	1.00 (1.00–2.00)		1.00 (1.00–2.00)		
Follow up duration	26.00±17.28		30.88±16.87		0.224[b]
	23.00 (4.00–62.00)		31.00 (5.00–63.00)		

[a]: Fisher's exact test; [b]: Mann Whitney U Test. SD: Standard deviation

Table 2. Spearman's rho correlation analysis between recurrence and baseline characteristics of patient groups

	r	p
Method (1=Laser, 2=Lifting)	-0.121	0.313
Age	0.056	0.640
Gender	-0.034	0.781
Number of operations	0.033	0.782
Fistula type	0.020	0.869

**: p<0.01

DISCUSSION

In this study, recurrence and possible factors were analyzed in the LIFT and laser methods used in anal fistula treatment. According to the results obtained, both methods were similar, and output differences were insignificant.

Surgical treatment of anal fistulas is an important health problem with high recurrence rates[2–4] due to the complexity of the anorectal body structure, which negatively affects the quality of life of individuals.[19–21] To provide minimally invasive procedures in the treatment of the disease, methods such as laser and LIFT have been developed. Studies on recurrence in anal fistulas establish a relationship with various factors.[22–25] Among these studies, Mei et al.[22] reported that surgical and patient-related factors are related to recurrence. Emile[23] reported that anal fistula recurrences are significant in both general surgery and colorectal surgery and are dependent on the method and treatment stage. Jordan et al.[24] reported that the internal opening factor is an important recurrence risk factor after anal fistula surgery. Malik and Nelson[25] reported that recurrence rates vary according to the method, patient demographics, and clinic. Although variables related to recurrence were shown in these studies, no sufficient studies were found examining recurrence according to method and follow-up duration.

In our study, baseline characteristics differences between patient groups were statistically insignificant. Only follow-up duration was significantly and negatively correlated with recurrence for both methods. The effect of method, age, gender, number of operations, and fistula type on recurrence was insignificant.

Limitations of the Study

The most important limitation of the study is that it is very difficult to follow up with patients with anal fistula, and recurrence patients are often underrepresented. Since both public and private sectors provide health services, patient follow-up becomes difficult. In addition, when recurrence occurs, patients often blame the health institution and surgeon, leading them to change institutions.

Table 3. Binary logistic regression analysis for effects of method and baseline characteristics on recurrence

	OR	SE	Wald	df	p	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Age	0.003	0.021	0.023	1	0.881	1.003	0.962	1.046
Gender	-0.176	0.622	0.080	1	0.777	0.838	0.247	2.840
Method	-0.557	0.563	0.980	1	0.322	0.573	0.190	1.727
Number of operations	0.187	0.761	0.060	1	0.806	1.205	0.271	5.357
Fistula type	0.105	0.596	0.031	1	0.861	1.110	0.345	3.573
Constant	-0.485	2.168	0.050	1	0.823	0.616		

OR: Odds ratio; SE: Standard error; df: Degrees of freedom; CI: Confidence interval

Table 4. Recurrence starting durations according to operation methods

	Method		p
	Laser (n=30)	Lifting (n=41)	
Recurrence duration	26.00±17.28	30.88±16.87	0.224[a]
	23.00 (4.00–62.00)	31.00 (5.00–63.00)	

[a]: Mann Whitney U Test

Another limitation is the lack of studies comparing laser and LIFT in terms of recurrence. For this reason, sufficient comparisons could not be made in the study regarding the extent to which the findings obtained depend on the sample and can be generalized.

Contribution of the Research to Literature and Clinical Practice

The most important contribution of the research to the literature is that there have been no sufficient studies done in this field before. Therefore, this research can serve as a foundation for further studies.

CONCLUSION

According to the results obtained in our study, there was no statistically significant difference between LIFT and laser surgery. In terms of clinical applications, both methods may be selected according to the surgeon's decision and the clinical characteristics of the patients. There were differences, but they were statistically insignificant.

While there is no definitive literature on the superiority of laser versus LIFT in anal fistula treatment, LIFT surgically ligates the fistula tract, minimizing damage to the anal sphincters, aiming for faster recovery and post-treatment relief. The laser method, on the other hand, is considered less invasive. However, our results have shown that patient outcomes were similar with both methods. Therefore, when choosing a method, the surgeon and patient should select the one that best suits their needs based on cost, practicality, and comfort.

These differences may become significant with a larger sample. In addition, the results of the study can be expanded with multicenter samples that have different demographic structures. More comprehensive studies are needed to better understand the recurrence mechanism, including internal and external variables, hygiene, and sanitation.

Disclosures

Ethics Committee Approval: The study was approved by the Uskudar University Non-interventional Research Ethics Committee (No: 61351342/020-66, Date: 31/07/2025).

Informed Consent: Informed consents were taken from patients.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Funding: The authors declared that this study received no financial support.

Use of AI for Writing Assistance: No AI technologies utilized.

Author Contributions: Concept – V.M., B.K.; Design – V.M., B.K.; Supervision – S.Y., K.Y.; Funding – M.K.; Materials – V.M., B.K.; Data collection and/or processing – M.K.; Data analysis and/or interpretation – S.Y., K.Y.; Literature search – S.Y., K.Y.; Writing – V.M., B.K.; Critical review – M.K.

Peer-review: Externally peer-reviewed.

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