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Comparative Study between Open Fistulectomy and Ligation of Inter-Sphincteric Fistula Tract (LIFT) Procedure for Uncomplicated Perianal Fistula

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Abstract

Background:
The treatment of perianal fistulas, especially trans-sphincteric varieties, is extremely difficult and frequently requires surgery.

Methodology:
The study design was a randomised controlled trial. The study was conducted at Combined Military Hospital/Sheikh Khalifa Bin Zyed Al-Nahyan Hospital, Muzaffarabad, AJ&K, and Pakistan. This study lasted for nine months following CPSP's approval of the synopsis. The study included 160 patients, divided equally into two groups of 80 each. The data was analysed by the IBM SPSS version 27. Continuous variables (age, VAS scores, healing time) were presented as mean±standard deviation (SD) and compared using an independent t-test. For categorical variables chi-squared test was applied.

Results:
The LIFT technique led to significantly lower pain ratings compared to open fistulectomy at 24 hours (4.9 vs. 6.8, p-value <0.001), 1 week (3.6 vs. 5.2, p-value <0.001), 1 month (2.4 vs. 3.1, p < 0.001), and 3 months (0.9 vs. 1.2, p < 0.004). Subsequently, 6 months after, pain levels were almost similar (LIFT: 0.4 vs. Open Fistulectomy: 0.5, p=0.008). Patients undergoing procedure Open Fistulectomy had a longer mean healing time (29.5 days) compared to the LIFT technique (22.1 days, p-value <0.001). Furthermore, the LIFT technique group showed fewer recurrences (5.0%) compared to Open Fistulectomy (13.75%, p-value=0.048).

Conclusion:
The LIFT technique surpassed open fistulectomy in terms of early-to-mid-term pain relief, wound healing time and fistula recurrence rate.

Keywords: Fistula, Crohn's disease, Wound, Healing

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Introduction:

The position of anorectal fistulas about the internal and external sphincters defines them (1). The most frequent cause of anal fistula is an infection and occluded of anal glands, which are found in the intersphinteric plane, leading to a crypto glandular abscess (2) In as many as 40% of cases a perirectal abscess that is medically or spontaneously drained can still result in a fistula (3).

Patients' quality of life is greatly impacted by perianal fistulas, a frequent anorectal condition marked by aberrant tracts between the anal canal and perianal skin (4). They are divided into inter-sphincteric and supra-sphincteric forms, each of which presents different therapeutic difficulties, and are mainly brought on by cryptoglandular infections, Crohn's disease and or iatrogenic injuries. (5). Perianal fistulas are associated with significant morbidity, faecal incontinence as well as recurring infections; their estimated global incidence is 9 cases per 100,000 people. (6). The goal of surgical care has changed over time to create a balance between minimal complications and efficient healing. Because the entire tract is removed with a traditional open fistulectomy, there is a danger of sphincter injury. Sphincter-preserving methods, such as the LIFT treatment, on the other hand, support healing while preserving anal function. (7).

Although open fistulectomy and other traditional therapies for perianal fistulas show good healing results, they also raise concerns regarding anal sphincter injury and postoperative pain. As a result, sphincter-preserving techniques have been developed, like the LIFT operation, which attempts to heal while keeping the integrity of the sphincter and enhancing patient results and comfort. Comparative research is necessary to maximise available treatments. (8,9). Recurrence rates, mean healing times, and mean postoperative pain scores are important factors to consider when assessing perianal fistula therapies. Research indicates that sphincter-preserving techniques, such as LIFT, are more crucial for improved surgical results and patient care since they have reduced recurrence rates, comparable quality of life, and equivalent patient satisfaction to open fistulectomy. (10,11).

Ligation of the intershincteric fistula tract technique is a preferred and effective sphincter-preserving procedure for the condition of fistula-in-ano with a reduced risk of after surgery anal incontinence and a shorter healing period than open fistulectomy. (12)

With an emphasis on surgical effectiveness and patient welfare, this study compares fistulectomy with LIFT to treat simple perianal fistulas. To promote recovery and enhance patient satisfaction in clinical practice, it evaluates both short-term outcomes, such as wound healing and pain management, and long-term results, including recurrence rates and continence.

Methodology

This study was based on a randomised controlled trial. This study was conducted at Combined Military Hospital/Sheikh Khalifa Bin Zyed Al-Nahyan Hospital, Muzaffarabad, AJ&K, and Pakistan. This study lasted for 9 months after the CPSP approved the synopsis. A comparative study was conducted on 160 patients (80 per group) aged 18-60 years who were presented with primary perianal fistulas detected by magnetic resonance imaging (MRI) and symptoms like discharge or pain. Patients with recurrent/complicated fistulas, previous history of anorectal surgery, or complicated diseases were excluded from the study. Following ethical permission, suitable patients were identified consecutively using electronic medical records. The written informed consent was acquired in the local language. The study participants were randomly assigned to either the LIFT technique or open fistulectomy using a computer-generated method

Preoperative data such as demographics, clinical or MRI results and intraoperative details such as procedure type, duration, and complications were documented. Postoperative results were evaluated after 24 hours, one week, one month, three months, and 6 months. Pain severity was assessed using the Visual Analogue Scale. Wound healing was recorded if symptoms returned within six months. Complications such as infection and incontinence were also observed.

IBM SPSS v27 was used to analyse the data. Continuous variables such as age, VAS scores, and healing time were presented as mean±standard deviation and compared through an independent t-test. Categorical variables like gender and recurrence were summarised as frequencies/percentages (%) and analysed with chi-square tests. Potential confounders such as age, gender, and symptom duration were stratified.

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Results

Table 1 shows the baseline demographic and clinical features of 160 patients divided into two groups: Open fistulectomy (n=80) and LIFT technique (n=80). Both groups, Open Fistulectomy and LIFT technique, had comparable features and no significant statistical differences. The mean age was 38.4±9.2 years for the Open fistulectomy group and 37.9±10.1 years for the LIFT group, with a p-value of 0.71. The gender distribution was equally comparable, with men accounting for 70 % of the Open fistulectomy group and 67.5% of the LIFT technique, with a p>0.001. The mean symptom duration before surgery was 10.8±3.4 weeks for Open Fistulectomy and 11.1±3.6 weeks for LIFT technique, with a p-value of 0.58, presenting similar chronicity.

Table 1: Baseline Demographics of Patients

Variable	Open Fistulectomy (N=80)	LIFT Procedure (N=80)	p-value
Age	38.4 ± 9.2	37.9 ± 10.1	0.71
Male (%)	56 (70%)	54 (67.5%)	0.72
Female (%)	24 (30%)	26 (32.5%)	
Duration of Symptoms (weeks, Mean ± SD)	10.8 ± 3.4	11.1 ± 3.6	0.58

Table 2 compares postoperative pain levels (VAS, mean± standard deviation (SD)) for Open Fistulectomy and LIFT technique. Compared to Open Fistulectomy, the LIFT operation resulted in significantly reduced pain ratings (24 hours: 4.9±1.3 vs. 6.8±1.2, with p-value <0.001; 1 week: 3.6±1.0 vs. 5.2±1.1, with p-value <0.001; 1 month: 2.4±0.7 vs. 3.1±0.8, with p-value <0,001; 3 months: 0.9±0.5 versus 1.2±0.6, p<0.004). After 6 months, the difference in pain levels (LIFT: 0.4±0.2 vs. Open Fistulectomy: 0.5±0.3) was not statistically significant p-value 0.08. These outcomes show that the LIFT technique provides improved early-to-mid-term pain management.

Table 2: Postoperative Pain (VAS Scores)

Time Point	Open Fistulectomy (Mean ± Standard Deviation)	LIFT Procedure (Mean ± Standard Deviation)	p-value
24 hours	6.8 ± 1.2	4.9 ± 1.3	<0.001
1 week	5.2 ± 1.1	3.6 ± 1.0	<0.001
1 month	3.1 ± 0.8	2.4 ± 0.7	<0.001
3 months	1.2 ± 0.6	0.9 ± 0.5	0.004
6 months	0.5 ± 0.3	0.4 ± 0.2	0.08

Table 3 compares the mean healing time (±SD) between Open Fistulectomy and the LIFT. Technique. Patients who undergone Open Fistulectomy had a significantly longer mean healing time (29.5±5.3 days) than those treated with the ligation of the inter-sphincteric fistula tract technique (22.1±4.7 days). The difference in healing time of approximately 7.4 days was statistically significant with a p<0.001. These results show that the LIFT technique resulted in a much shorter wound healing time than Open Fistulectomy.

Table 3: Wound Healing Time

Procedure	Mean Healing Time (Days ± SD)	p-value
Open Fistulectomy	29.5 ± 5.3	
LIFT Procedure	22.1 ± 4.7	<0.001

Table 4 compares the fistula recurrence rates after Open Fistulectomy and the LIFT technique. The LIFT group had significantly fewer recurrences (4 patients, 5.0%) than the Open Fistulectomy group (11 patients, 13.75%), and the difference was statistically significant with a p-value of 0.048. As a result, the rate of effective healing without recurrence was much greater with LIFT (86.25%). These results show a significant benefit for the LIFT technique in reducing fistula recurrence.

Table 4: Fistula Recurrence Rate

Outcome	Open Fistulectomy	LIFT Procedure	p-value
Recurrence (n/%)	11 (13.75%)	4 (5.0%)	0.048
No Recurrence (n/%)	69 (86.25%)	76 (95.0%)	

Table 5 shows a stratified study of recurrence rates for Open Fistulectomy vs. the LIFT technique by gender. In males, recurrence occurred in 14.3% of Open Fistulectomy patients vs. 5.6% of LIFT patients, with a p-value of 0.11. Females had recurrence rates of 12.5% after Open Fistulectomy and 3.8% with LIFT (p-value=0.29). While recurrence rates for LIFT were quantitatively reduced in both genders, the differences didn't achieve statistical significance at the usual level (p-value less than 0.05), probably due to subgroup sample size.

Table 5: Stratified Analysis by Gender (Recurrence Rate)

Gender	Open Fistulectomy (Recurrence %)	LIFT (Recurrence %)	p-value
Male	8/56 (14.3%)	3/54 (5.6%)	0.11
Female	3/24 (12.5%)	1/26 (3.8%)	0.29

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Discussion

Comparing fistulectomy with LIFT tract surgeries was the study's main objective. Different criteria were used to evaluate the results of various procedures. 75% of the 40 40 patients in the study were males, while the remaining female patients underwent surgery in a 3:1 male-to-female ratio (13). While one study was able to maintain a nearly 50:50 ratio, the other two studies showed a preponderance of male patients (14,15). In our study, the gender distribution was equally comparable, with men accounting for 70 % of the Open fistulectomy group and 67.5% of the LIFT technique, with a p-value of 0.72.

During the early and mid-recovery phases, the LIFT technique provides more effective pain management than open fistulectomy. The patient who had undergone the LIFT procedure reported much less pain in the months postoperative. By 6 months, the pain levels for both procedures the LIFT and Open Fistulectomy, had become comparable.

In our study, patients who had open fistulectomy had a significantly longer mean healing time (29.5±5.3 days) than those treated with the LIFT technique (22.1±4.7 days). According to a study, group A's mean pain score was 4.77 ±0.858, while group B's pain score was 3.07±1.01 with a p-value <0.001. (16).

Researchers have tried to improve the results of fistulectomy surgery to improve wound healing. A study conducted by Alvandipour and his team found that topical sucralfate oil helped patients having anal fistulectomy heal their wounds and experience less postoperative discomfort in a randomized placebo-controlled study (17). . In one of the studies, every patient (100%, n=40) had intermittent discharge. Swelling was the second most frequent symptom, with 52% (13). The external opening's distance from the anal opening was measure during examination under anesthesia. In the LIFT group, the external opening of the fistula tract was detected within the 2-3 centimetres of the anal opening in 70 percent cases and within 1-2 centimetres in 45 percent in fistulectomy group. 65% of individuals with trans-sphincteric fistulas received fistulectomy during the surgery. However, 80% of individuals in the LIFT group experienced an intersphincteric fistula (18). In our study, it was discovered that the LIFT technique had a much lower recurrence rate than Open Fistulectomy. It also shows a higher rate of effective healing without recurrence. Overall, the results demonstrate LIFT's technique efficacy in reducing fistula recurrences.

The LIFT method had a much reduced recurrence rate than open fistulectomy. It also shows a greater rate of successful healing without recurrence. Overall, our study findings demonstrate LIFT's superiority in minimising fistula recurrences. Similarly in another study it was found that the LIFT technique of treating anal fistulas has a lower recurrence rate than the open fistulectomy.(19)

When it came to managing perianal fistulas, open fistulectomy had a far lower recurrence rate than the LIFT(20).

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Conclusion

The LIFT tract technique surpassed open fistulectomy in terms of early-to-mid-term pain relief, wound healing time, and fistula recurrence rate. The baseline features of the two groups were ligation of the intersphincteric fistula tract (LIFT) and open fistulectomy, were similar, enabling an equal comparison. These outcomes suggest the LIFT technique as a more successful and patient-friendly treatment option for simple perianal fistulas.

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