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ORIGINAL ARTICLE

LIFT vs Fistulectomy: A Retrospective Cohort Study

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ABSTRACT

Background: Fistula-in-ano is defined as an epithelized abnormal tract connecting two surfaces; usually the rectal mucosa and perianal skin. The primary treatment for fistula is surgery for which many options are available. However, in this article, we will be discussing the comparison between LIFT and fistulectomy.
Aim: To compare a conventional invasive technique of fistulectomy with a newly introduced minimally invasive LIFT procedure in terms of operative time, hospital stay, postoperative complications, and follow-up.
Methods: A retrospective view of 135 patients was done who were operated on either by LIFT (n=59) (Group L) or fistulectomy (n=76) (Group F) over the period of three years and a comparison between two techniques was performed using Student's t-test or Mann-Whitney test for continuous variables and Fisher's exact test for categorical variables.
Results: Our operative time for LIFT was greater than the fistulectomy. Post-operative pain was analyzed using the VAS pain scale, where Group L experienced less post-operative pain. Group F patients' wounds took longer to heal as compared to Group L patients. Hence group L (LIFT) returned to work earlier. Post-operative complications such as wound discharge were reported more in Group F than in Group L. Same was observed in the case of post-operative infection rate.
Two cases of wound granulation were observed in the case of LIFT (Group L) at one-month follow-up and one case of incontinence to flatus in the Group F group was documented at three-month follow-up in the patient's record. Thirty-seven patients' complained of itching in Group F compared to 10 in Group L. Patients who had seton, complained of setons related problems.
Conclusion: LIFT was a promising and sphincter-saving technique that was simple and easy to learn with faster healing rates and better patient contentment.
Keywords: LIFT, fistulectomy, fistula-in-ano

INTRODUCTION

Fistula-in-ano is defined as an epithelized abnormal tract connecting two surfaces; usually the rectal mucosa and perianal skin[1]. Mostly, theorized it is an inflammatory condition of rudimentary anal glands[2]. Recent studies propose immunologic source as the causative factor[3]. Most of the fistulas are crypto glandular in origin[4].

The overall incidence of fistula in ano in population is 8.5-9 per 100000 live births. In 1976, Sir Alan Parks classified FIA depending on the relationship of the tract to the anal sphincter. Four types of tracks were described, inter-sphincteric (45%), trans-sphincteric (29%), supra-sphincteric (20%) and extra-sphincteric (5%)[5].

The historical background of perianal fistula dates back to the Hippocratic era when he used to treat fistulas using horsehair with lint setons which were then periodically tightened. An important mention is an infirmary that was opened by Fredrick Salmon in 1835 named "The Infirmary for the Relief of the Poor Afflicted with Fistula and Other Diseases of the Rectum" following the successful treatment of Charles Dickens. In 1854 this infirmary was renamed "St Mark's Hospital for Fistula and other diseases of the Rectum"[6].

The mainstay of treatment for most fistulas remains surgical. Many techniques are used for this purpose which include fistulotomy, fistulectomy, seton placements, advancement flaps, and quite a recent technique of ligation of the inter-sphincteric fistulous tract (LIFT). In the fistulectomy, a keyhole skin incision was made over the fistulous tract and encircled the external opening. The incision was deepened through the subcutaneous tissue, and the track was removed from surrounding tissues. Towards the anal verge, fibres of the anal sphincters overlying the tract were divided[7]. However, this is quite an invasive procedure and puts the patient at the risk of sphincter damage and faecal incontinence thus prolonging the healing phase[8]. On the contrary, the ligation of the intersphincteric fistula tract (LIFT) technique is a recently developed approach for the treatment of fistula-in-ano.

This procedure involves the secure closure of the internal and external opening and removal of infected crypto glandular tissue via an inter-sphincteric approach[9,10]. The procedure was first described by Rojanasakul in 2007[11,12]. LIFT is a sphincter-saving procedure with the successful results reported by Rojanasakul was around 94% but further studies at other centres reported lower success rates[13].

This study aims to compare a conventional invasive technique of fistulectomy with a newly introduced minimally invasive LIFT procedure in terms of operative time, hospital stay, postoperative complications, and follow-up.

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PATIENTS AND METHODS

After IRB permission, a retrospective review of one hundred and thirty-five patients who had fistula in ano and were operated on either by Ligation of Inter-sphincteric Fistulous Tract (LIFT) technique (*n=59*) or by traditional fistulectomy *(n=76)* during the period of three years (2017 – 2020).

Group L (LIFT) and Group F (fistulectomy) were made. Data were collected from patient files available in the department. Both male and female patient data were included. Only those patients' data, who had trans-sphincteric fistula in ano based on clinical examination and in some cases trans-anal ultrasound, were included in the review.

Patient demographic characteristics and clinical data were recorded, including age, gender, and external opening site of the fistula were recorded. The collected operative details were operative technique, operative time, any peri and postoperative complication and its management, postoperative VAS score, length of hospital stay, and faecal incontinence (early or delayed).
In the case of fistulectomy, after proper positioning of the patient, proctoscopy was done to locate the position of the internal opening. A surgical gauze was introduced into the rectum and H_2O_2 was injected through the external opening to again locate the internal opening. A probe was introduced through the external

opening gently and passed out of the internal opening and the entire fistulous tract was cored out and fistulectomy carried out.

In the LIFT procedure, the patient was put into a lithotomy position after anaesthesia, and a proctoscopy was done to identify the internal opening. H_2O_2 was injected through the external opening to locate the internal opening. A curvilinear incision was then made to enter the inter-sphincteric plane. The Inter-sphincteric portion of the fistulous tract was then dissected and identified by careful blunt dissection through the inter-sphincteric space. Then the tract was transfixed at two places, one near the internal sphincter and the other near the external sphincter. A small part of the fistulous tract was cut and removed in between. The outer component was cored out till the external sphincter.

Patients were observed post-operatively for pain which was assessed using VAS score, urinary retention, bleeding, infection, and early incontinence. Most were discharged on the second postoperative day. Initial follow-up was done at a one-week interval, and second and third follow-ups were done at one-month and three-month intervals. During follow-up, patients were assessed for recurrence and other issues.

As all the data was collected from patient records and since no patient contact was used therefore approval of the ethics committee was not required.

The data of both groups were compared and analyzed. Measurements were presented as mean and standard deviation (SD). Comparison between the two techniques was performed using Student's t-test or Mann-Whitney test for continuous variables and Fisher's exact test for categorical variables.

RESULTS

The 135 procedures for fistula in ano were divided into Group L (n=59) and Group F (n=76). Table 1 shows demographic data. Our operative time for Group L was greater than the fistulectomy (50.10 min vs 32.14). Post-operative pain was analyzed using the VAS pain scale, where Group L experienced less post-operative pain (mean score of 2.81). Group F patients wound took longer to heal (mean 5.13 weeks) as compared to Group L patients (mean 2.92 weeks). Hence, Group L returned to work earlier. Post-operative complications such as wound discharge was reported more in Group F than in Group L (*p=0.000*). The same was observed in the case of post-operative infection rate (*p=0.000).*

Two cases of wound granulation were observed in the case of Group L at one-month follow-up and one case of incontinence to flatus in Group F group was documented at three-month follow-up in the patient's record. Thirty-seven patients complained of itching in Group F compared to 10 in Group L. Patients who had seton, complained of seton-related problems.

Fig. 1: Age distribution

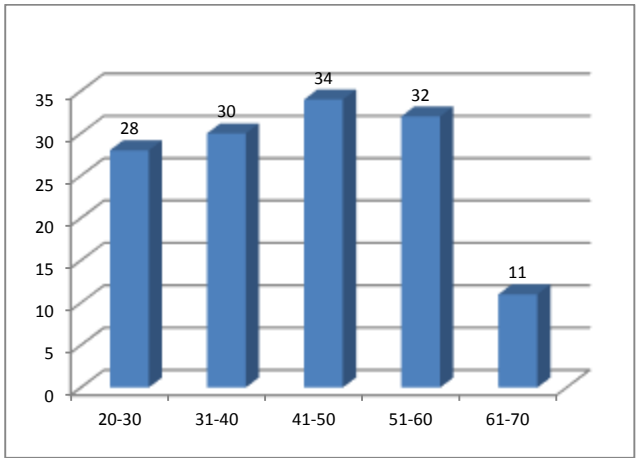

Table 1: Demographic parameters

Parameters	Group F (n=76)	Group L (n= 59)	Total
Age (years, mean ± SD (range)	40.98 ± 12.71	44.28 ± 12.64	135
Male Gender (%)	65.8%	66.1%	89
Female Gender (%)	34.2%	33.9%	46

Table 2: Fistula Location

Parameters	Group F (n=76)	Group L (n= 59)	Total
External opening site			
Left anterior (%)	14.5%	13.6%	14.1%
Left lateral (%)	17.1%	16.9%	17.0%
Left posterior (%)	13.2%	11.9%	12.6%
Posterior horseshoe (%)	9.2%	6.8%	8.1%
Right anterior (%)	15.8%	16.9%	16.3%
Right Lateral (%)	5.3%	6.8%	5.9%
Right Posterior (%)	25.0%	27.1%	25.9%

Table 3: Comparison between LIFT and Fistulectomy

	LIFT (Mean ± S.D)	Fistulectomy (Mean ± S.D)	*p value*
Operative time (in minutes)	50.10 ± 7.41	32.14 ± 6.04	.000
Length of hospital stay (in days)	1.51 ± 0.504	1.51 ± 0.503	*.957*
Post-operative pain	2.81 ± 1.121	5.64 ± 0.919	.000
Time to heal (in weeks)	2.92 ± 0.772	5.13 ± 0.772	.000
Wound discharge/itching	1.83 ±0.378	1.51 ±0.503	.000
Post-operative infection	1.93 ± 0.254	1.66 ± 0.478	.000
Wound granulation	1.98 ± 0.130	2.00 ± 0.00	.106
Post-operative bleeding	2.00 ± 0.00	2.00 ± 0.00	*.143*

DISCUSSION

The required results after surgery in patients with perianal fistula should be to get rid of the fistula, preserve the integrity of sphincter function, and prevent a recurrence. There are many surgical techniques used for this purpose starting from the primitive technique of fistulotomy and fistulectomy to the most recent technique of LIFT (ligation of inter-sphincteric fistulous tract) which was introduced in 2007 by Rojanasakul.

Our study was conducted over the period of three years and in a total of 135 patients with 89 males and 46 females between the ages of 20 to 70 years (44.28 for LIFT and 40.98 for fistulectomy). In our study, the maximum cases were reported within the age range of 41 to 50 years. A randomized control trial was conducted by Goudar in Karnataka India, with 60 patients with a mean age of 44.17 for LIFT and 41.1 years for fistulectomy[14], however, that study was conducted over the period of one year rather than three years, and no age range was specified.

Dr. A. G. Park personally treated 163 patients with a perianal fistula at St. Marks Hospital between 1959 and 1968 and then published an analysis report [15]. According to that report, the most common type of fistula in ano was inter-sphincteric (45%) followed by trans-sphincteric (30%) and supra-sphincteric (30%). However, most cases reported in our OPD were of trans-sphincteric fistula out of which the most common occurrence was of right posterior trans-sphincteric (25.9%) followed by right anterior (16.3%), left lateral (17%), left anterior (14.1%), left posterior (12.6%), posterior horseshoe (8.1%) and right lateral trans-sphincteric fistula (5.9%).

In regards to the operative time in our study, it was higher in LIFT with the mean of 50.10 minutes and lower in the case of fistulectomy with the mean of 32.14 minutes. Contrarily, the study conducted by SK Biswas[16] in which the mean operative time for LIFT was reported to be 34.7 minutes. Operative timing for LIFT in another study conducted by Vinay G. was reported to be 28.4 minutes[17].

Postoperatively, the pain was assessed using the VAS pain scale where a score of 0 was awarded to no pain at all, and a score of 10 was for the worst pain experienced by the patient. In

the fistulectomy group, about nine patients experienced pain on the scale of four, twenty-three patients around five, thirty patients around six, and fourteen patients had pain of seven on the VAS pain scale of 0 to 10 (mean 5.64 ± 0.919). On the other hand, in the LIFT group, four patients had very mild post-operative pain of one on a scale of 0 to 10, twenty-five patients had pain around two, fourteen patients had a pain scale of three, ten and six patients had the pain of four and five respectively (mean 2.81±1.721). All things considered, in our study, postoperative pain incidence in the case of LIFT (2.81) is far less than in the case of fistulectomy (5.64). A study conducted by Xin Dong showed similar results of less pain experienced by the LIFT group than fistulectomy ($p<0.05$)[18]. However, in that study postoperative pain was assessed on the 1st, 3rd, and 5th post-operative days while we assess the patients on the night of surgery when the effect of spinal anaesthesia may persist. Another study in 2018 by Arunraj et al observed that mean pain scores were significantly low in LIFT at the 3rd postoperative week compared to fistulectomy (0.43 compared to 1.33)[19].

Most patients were discharged on the 1st or 2nd postoperative day in both groups but significant difference in the healing time of both groups. The mean healing time for LIFT was observed to be 2.92±0.772 weeks whereas, in the case of fistulectomy, the mean healing time reported was 5.13±0.779 weeks. In the case of LIFT, almost 73.3% of patients were returned to their routine chores early while this percentage was 10% in the case of fistulectomy. Similar results were observed in a study conducted by Goudar in 2020 where meaning healing time for LIFT was 2.9 weeks[20].

In our study, postoperatively, 10 patients of the LIFT group and 37 patients of the fistulectomy group reported serous discharge from the wound and itching on the second follow-up at the one-month interval ($p<0.05$). The postoperative infection rate is four per 59 patients in the case of LIFT and 26 per 76 patients in the case of fistulectomy ($p<0.05$). They were managed conservatively with antibiotics. There were two cases of wound granulation at one month in the case of LIFT and none of that was reported for fistulectomy. No postoperative bleeding was observed in both groups. In a study conducted by Olfat I. Al Sebai et al. in Egypt had a post-operative infection rate of 13.3% in patients treated with LIFT[21]. On the other hand, in the study done by Elkaffas22, there were two cases (13.3%) of postoperative bleeding after the LIFT procedure. No case of wound granulation was reported in both of these studies.

In our study, most patients had the follow-up over the period of three months during which not a single case of recurrence was reported in either group. However, in a study conducted by Goudar, late recurrence was seen in two completely healed patients at the same sites as the original site in LIFT at follow-up of 10 and 12 weeks[20]. SK Biswas reported seven patients who developed recurrent fistula after LIFT[16]. Faecal incontinence was categorized according to Park's classification. In the third month, one patient in the LIFT group reported incontinence to flatus only, while he remained continent to solid and liquid stools. The study conducted by Olfat et al also reported no case of faecal incontinence[21]. Goudar also reported no case of faecal incontinence after the LIFT procedure[20].

There are still certain limitations to our study. Firstly, this was a single-centre study and we did not have any specific pre-operative investigation of the patient e.g. EUS or MRI. Very few patients had these investigations done. We include only primary fistula of crypto-glandular origin and exclude all recurrent fistula because we were new to this procedure. Other authors who also worked with recurrent fistulas reported this to be a risk factor in case of recurrence in fistulectomy.

CONCLUSION

Fistula in ano was a complex condition with high chances of recurrence and faecal incontinence that may develop following the surgical treatment of this condition. There are many surgical techniques available for its treatment and the choice of procedure solely depends upon clinical grounds and the surgeon's expertise. In our experience, LIFT was a relatively new technique, that is easy to perform, has fewer post-operative complications, and almost no case of incontinence or recurrence was reported during our study. Moreover, has a short healing time and patients return to their normal routine soon as compared to fistulectomy. It is certainly a good choice of treatment for patients with fistula in ano.

Conflict of interest: Nil

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