

A comparative study of ligation of intersphincteric fistula tract versus conventional fistulectomy in management of low fistula in ano

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Abstract

Background: Fistula in ano is one of the common anorectal disorders which is defined as an abnormal track connecting the anal canal with perineum. The main objective of the treatment in fistula-in-ano is to minimize recurrence while maintaining anal continence. Present study was aimed to compare ligation of intersphincteric fistula tract versus conventional fistulectomy in management of low fistula in ano at a tertiary hospital.

Material and Methods: Present study was single-center, prospective, comparative study, conducted in patients of age >15 years, of either gender with low anal fistula identified by clinical examination and investigations.

Results: 60 patients were divided into two groups as group A underwent ligation of intersphincteric fistula tract (LIFT) procedure (n=30) and group B, underwent open fistulectomy (n=30). In present study among both groups majority patients were male & from 31-60 years age group. Mean duration of surgery was comparable & difference was not significant statistically (26.9 ± 9.4 minutes vs 30.7 ± 11.6 minutes). Duration of wound healing was less in LIFT group as compared to fistulectomy group & difference was statistically significant (12.6 ± 5.7 days vs 18.5 ± 8.7 days) (p value < 0.001). Post-operative pain scores were comparable among two groups on post-operative day 0 & 1. Less post-operative pain scores were noted among in LIFT group as compared to fistulectomy group on post-operative day 3 & 7, difference was statistically significant (p value < 0.05). Less complications were noted in LIFT group as compared to fistulectomy group; difference was not significant statistically.

Conclusion: Ligation of intersphincteric fistula tract (LIFT) procedure for the management low anal fistula is simple, safe and effective in management of low anal fistulas, produces less post-operative pain, faster wound healing and better fecal continence preservation compared to open fistulectomy.

Keywords: Ligation of intersphincteric fistula tract (LIFT), open fistulectomy, low anal fistula, post-operative pain

Introduction

Fistula in ano is one of the common anorectal disorders which is defined as an abnormal track connecting the anal canal with perineum ^[1]. A fistula in ano is a granulating track between the anorectum and perineum. Many fistulas are low lying, consisting of single straight track from skin to anal canal, traversing the lower fibers of internal anal sphincter.

Most of the fistulas (approximately 90%) are non-specific and are of cryptoglandular origin which occurs as a result of the infection of anal glands ^[2]. The rest of the cases are due to a specific etiology like tuberculosis, Crohn's disease, ulcerative colitis, pelvic infections, radiations, carcinomas, and traumas to the anorectal region ^[3].

The patients with fistula in ano presents with intermittent purulent or feculent discharge associated with pain. There is often a previous episode of acute anorectal sepsis. Though fistula is clinical diagnosis, MR fistulogram is considered as gold standard investigation.

The main objective of the treatment in fistula-in-ano is to minimize recurrence while maintaining anal continence. Treatment options that are available for the treatment of complex fistulas include setons (draining/cutting), fistulotomy or fistulectomy (primary/staged), advancement flap, fistula plug/glue and novel techniques, which include LIFT procedure, lasers, clips, video-assisted anal fistula treatment (VAAFT), and autologous adipose-derived stem cells ^[4, 5, 6, 7]. Present study was aimed to compare ligation of intersphincteric fistula tract versus conventional fistulectomy in management of low fistula in ano at a tertiary hospital.

Material and Methods

Present study was single-center, prospective, comparative study, conducted in department of general surgery, at Srinivas medical college & hospital, Mukka, Surathkal, Mangalore, India. Study duration was of 2 years (July 2019 to June 2021). Study was approved by institutional ethical committee.

Inclusion criteria

- Patients of age >15 years, of either gender with low anal fistula identified by clinical examination and investigations.

Exclusion criteria

- Pregnant women, Lactating mothers.
- Patients with complex high anal fistulas, associated inflammatory bowel disease, malignancy, critically ill identified by clinical examination and investigations.
- Patients with Crohn's disease/HIV/TB.

Study was explained to the patients and only those patients who gave informed consent alone were included in the study population. Patient related information such as name, age, inpatient number, gender, relevant history, physical status, investigations such as hemoglobin %, complete blood count TC, DC, blood sugar, urea, creatinine, electrolytes, serum proteins, Blood grouping and Rh typing, A thorough clinical examination, proctoscopy, sigmoidoscopy/colonoscopy and radiological evaluation by MR fistulography were done in every patient preoperatively for confirmation and standardization.

In surgical theatre by alternate patient randomized sampling technique, 60 patients were divided into two groups as group A underwent ligation of intersphincteric fistula tract (LIFT) procedure (n=30) and group B, underwent open fistulectomy (n=30). The patients then

underwent surgery according to the group allotted to them.

- **Group A (ligation of intersphincteric fistula tract procedure):** In this method dilute methylene blue dye was injected into the external opening to delineate the tract and internal opening. The dissection was carried out in the intersphincteric plane and the fistula tract communication was identified and isolated. Once isolated, the intersphincteric tract was hooked using a small, right-angled clamp and the tract was ligated close to the internal sphincter and then divided distal to the point of ligation. Hydrogen peroxide was injected through the external opening to confirm the division of the correct tract. The external opening and the remnant fistulous tract were curetted to the level of the proximity of the external sphincter complex. Finally, the intersphincteric incision was loosely re-approximated with an absorbable suture. The curetted wound was left open and dressing done.
- **Group B (Open fistulectomy):** In this procedure the external opening was probed and the entire fistulous tract was excised completely up to its internal opening. The whole of the tissue was laid open or closed partially (large wounds were closed up to 3cms from anal verge) for healing.

Postoperative pain was assessed using visual analog scale (subjective method of evaluation of pain) and patients were asked to mark the amount of pain experienced by them on the scale graded as 0-No pain, 1-3 Mild pain, 4-7 Moderate pain, 8-10 severe pain.

At the time of discharge patients were prescribed appropriate analgesics and advised Sitz bath and high fibre diet. Post-operative complications such as bleeding, pain, wound healing, infection & incontinence (feces/flatus) were recorded in the prescribed format. Incontinence was assessed using Wexner incontinence score, which is a subjective method of evaluation of fecal incontinence.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Statistical analysis was done using descriptive statistics. Difference of proportions between qualitative variables were tested using chi-square test or Fisher exact test as applicable. P value < 0.5 was considered as statistically significant.

Results

In present study, 60 patients were divided into two groups as group A underwent ligation of intersphincteric fistula tract (LIFT) procedure (n=30) and group B, underwent open fistulectomy (n=30). In present study among both groups majority patients were male & from 31-60 years age group. Age & gender distribution among groups was comparable & difference was not significant statistically.

Table 1: Age & gender distribution

Characteristics	Group A (%)	Group B (%)	P value
Age (in years)			0.68
16-30	4 (13.33 %)	6 (20 %)	
31-45	11 (36.67 %)	12 (40 %)	
46-60	12 (40 %)	9 (30 %)	
>60	3 (10 %)	3 (10 %)	
Mean age	43.75 ± 14.16	41.5 ± 13.95	
Gender			0.61
Male	22 (73.33 %)	20 (66.67 %)	
Female	8 (26.67 %)	10 (33.33 %)	

Mean duration of surgery was comparable & difference was not significant statistically (26.9 ± 9.4 minutes vs 30.7 ± 11.6 minutes). Duration of wound healing was less in LIFT group as compared to fistulectomy group & difference was statistically significant (12.6 ± 5.7 days vs 18.5 ± 8.7 days) (p value < 0.001).

Table 2: Intraoperative and postoperative outcomes

Outcomes	Group A (mean \pm SD)	Group B (mean \pm SD)	P value
Mean duration of surgery (minutes)	26.9 ± 9.4	30.7 ± 11.6	0.052
Duration of wound healing (days)	12.6 ± 5.7	18.5 ± 8.7	< 0.001

Post-operative pain scores were comparable among two groups on post-operative day 0 & 1. Less post-operative pain scores were noted among in LIFT group as compared to fistulectomy group on post-operative day 3 & 7, difference was statistically significant (p value < 0.05).

Table 3: Post-operative pain scores (VAS)

Pain post-operative day (POD)	Group A (mean \pm SD)	Group B (mean \pm SD)	P value
0	6.32 ± 2.25	6.75 ± 1.93	0.66
1	5.03 ± 1.13	5.72 ± 1.22	0.04
3	3.32 ± 1.0	4.38 ± 0.62	0.001
7	1.89 ± 0.76	2.68 ± 0.74	0.001

Less complications were noted in LIFT group (2 cases of Anal incontinence at post op 1 week) while in fistulectomy group complication noted were (2 cases of Anal incontinence at post op 1 week, 1 case of Anal incontinence at post op 4 week, 2 cases of recurrence & absent primary healing in 1 case), difference was not significant statistically.

Table 4: Complications

Complications	Group A (%)	Group B (%)	P value
Anal incontinence			
At post op 1 week	2 (6.67 %)	2 (6.67 %)	-
At post op 4 week	0	1 (3.33 %)	0.063
Recurrence	0	2 (6.67 %)	0.051
Absent Primary healing	0	1 (3.33 %)	0.063

Discussion

Anal fistula is a communication between the anorectal canal and the perianal skin that is lined with granulation tissue. The fistula may harbor chronic infection, which may discharge continuously or intermittently through the opening on to the skin. Intermittent discharge is usually caused by cyclical accumulation of an abscess with associated discomfort and pain before some relief from discharge, which is followed by further accumulation^[8,9].

Fistula in ano is one of the common anorectal disorders which have a tendency to recur specially in complex cases usually due to missed or undetected sepsis at the time of examination or surgery. The main principles of management of anal fistula are closure of internal opening of fistula tract, drainage of infection or necrotic tissue and eradication of fistulous tract with preservation of sphincter function^[10].

Surgery is the treatment of choice for the eradication of the fistulous tract. The cardinal goals to be considered while treating fistula in ano are as follow: Sepsis should be controlled, entire

fistulous tract should be identified and excised, Sphincter tone should be preserved, so as the continence.

Goudar BV ^[11] compared the outcomes between ligation of intersphincteric fistula tract (LIFT) and conventional fistulectomy (CF) with 30 patients in each group. Mean age in LIFT was 44.17 years and in CF was 41.1 years. Successful primary healing was observed in 86.7% of LIFT and 100% of CF. Mean pain scores were lower in LIFT compared to CF when checked on Postoperative days 1, 3 and 7 significantly. Anal incontinence was seen in 10% of CF and none in LIFT and recurrence was seen at same site in LIFT in 6.66% of LIFT and none in CF both being not statistically significant. LIFT is a promising and sphincter saving technique which is simple and easy to learn with faster healing rates and better patient contentment but with risk of failure and recurrence. Modifications of LIFT have to be probed for minimizing the failures. Similar findings were noted in present study.

In a similar study, Arunraj P et al., ^[12] noted that patients who underwent LIFT at the end of 3rd postoperative week had a pain score of 0.43 when compared to patients (1.33) who underwent fistulectomy. LIFT patients had 100% continence preservation, whereas a 17.5% of moderate incontinence was documented in fistulectomy group. About 97.5% of patients under LIFT had complete wound healing by the 3rd postoperative week, as compared to fistulectomy patients, where 100% complete wound healing was noted at 6 weeks, postoperatively. It was found that LIFT was a promising procedure in reducing the postoperative pain significantly, with better wound healing rates. It was effective in maintaining good sphincter function, thereby providing better faecal continence following surgery, in low anal fistula. Similar findings were noted in present study.

In a similar study by Mishra GK et al., ^[13] mean duration of operation was significantly less and mean hospital stay, post-operative pain and analgesics need was significantly less in cases operated with LIFT. Mean time for complete healing was significantly less in cases operated with LIFT technique and the difference in complication rate was statistically non-significant. Recurrence was reported in 3 (12%) and 1 (4%) cases operated by LIFT and fistulotomy respectively. Ligation of Intersphincteric Fistula Tract (LIFT) procedure is effective and preferred sphincter saving technique for fistula-in-ano. Despite slightly more recurrence, LIFT procedure has certain advantages over standard fistulotomy like shorter operative time, less postoperative pain, shorter hospital stay and faster wound healing and early resumption of normal duties.

Ankur Jain ^[14] studied 80 cases of fistula in ano, 20 cases each were treated by fistulectomy, seton, fistulotomy and LIFT procedure by random selection method. Most common age of presentation is 31-40 years and more common in males than females (M: F= 2.3:1). Post operative complications include bleeding seen more in patients undergoing fistulectomy. Post operative course of LIFT procedure patients was complication free. Postoperative pain seen more in patients undergoing setons procedure. They concluded that LIFT procedure and Fistulotomy were acceptable procedures for simple, uncomplicated low lying and high lying fistula.

The best treatment criterion is to eradicate the infected lesion, ensure sufficient drainage, and promote the closure of the fistula, while minimizing damage to the anal sphincter (5). The integrity of the internal anal sphincter (IAS) and external anal sphincter (EAS) is the most important guarantee for keeping normal anal function of patients ^[15]. Fistulotomy or fistulectomy, which have both proven to be effective, however, even for simple fistulas, they may result in some degree of incontinence in approximately 12-39% of patient, need prolonged time for healing and associated with progressive scarring and anal deformity ^[16, 17, 18]. LIFT procedure is sphincter preserving surgery where fistula tract is approached via the intersphincteric plane, intersphincteric fistula tract is ligated and excised and does not involve severing any sphincter ^[19].

Conclusion

Ligation of intersphincteric fistula tract (LIFT) procedure for the management low anal fistula is simple, safe and effective in management of low anal fistulas, produces less post-operative pain, faster wound healing and better fecal continence preservation compared to open fistulectomy.

Conflict of interest: None to declare.

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