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Effect of Ligation of Intersphincteric Fistula Tract Versus Anal Fistulotomy in Patients with Anal Fistulas

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ABSTRACT

Background: Fistula-in-ano is one of the most common anal conditions, treatment of which remains challenging to date.

Aims and objectives: The present study aims to compare outcomes of the LIFT (Ligation of Inter sphincteric Fistula Tract) and Fistulotomy at a tertiary care centre.

- Operation time,
- Post-operative pain,
- Recurrence,
- Anal incontinence

Materials and methods: A prospective study was carried out among 124 subjects attending the Department of General Surgery, VIMS and RC, Bangalore over a period of 18 months. Patients of either sex diagnosed with anal fistula were included in the study. Patients with recurrent fistulas, following trauma, Crohn's disease, TB, actinomycosis and malignancy were excluded.

Results: Among 124 patients, 62 underwent the LIFT procedure while the other 62 patients underwent conventional fistulotomy. The average operating time for fistulotomy was significantly shorter at 21.15 minutes as compared to 32.35 minutes for LIFT ($P < 0.01$). The average healing time was 15.27 days for LIFT whereas it was 47.77 days for fistulotomy ($P < 0.01$). Pain on POD1 (Post-Operative Delirium) was 2.55 and 3.69 VAS (Visual Analog Scale) ($P < 0.01$) in LIFT and fistulectomy respectively. There was no significant decrease in postoperative continence in both group.

Conclusion: LIFT is an effective sphincter saving procedure for fistula-in-ano with shorter healing time, early healing and less postoperative pain with an improved quality of life.

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Keywords

Fistula-in-ano; LIFT; Ligation of intersphincteric fistulous tract; Fistulotomy

Introduction

A fistula-in-ano, characterized by an irregular connection between the anal canal and perianal skin, poses a significant health challenge. Typically composed of an external opening, an interior opening, and occasionally a complex tract, this condition is predominantly attributed to cryptoglandular lesions, accounting for 90% of cases [1]. Secondary causes, such as postoperative or traumatic lesions, contribute to 3%, while inflammatory bowel disease, anal fissures, and tuberculosis each account for 3% and less than 1%, respectively.

In nearly all cases of perianal-perirectal suppuration, a fistula in ano manifests, causing persistent and bothersome symptoms. Individuals, otherwise healthy, find themselves grappling with financial burdens due to stomatitis, pruritis, and rectal

suppuration. The condition's chronicity prompts withdrawal from social activities, eroding the patient's confidence [2-6].

Low-lying fistulae, characterized by a single straight tract from the skin to the anal canal, are common. Many can be effectively managed through conventional fistulotomy, boasting a high healing rate and no compromise to continence [7]. While fistulectomy eliminates the risk of creating false passages during probing, the advent of improved surgical techniques has ushered in uneventful post-operative periods and a notable decrease in recurrence rates.

The choice of treatment modality hinges on the type of fistula, as per the classification system. The surgical lay open technique, dating back to John Arderne, the father of proctology, remains in practice. Other modalities include fistulectomy, fistulotomy, excision and skin grafting, and seton placement. Adverse

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outcomes, such as anal incontinence and recurrence, are concerns with these procedures [6,8].

Sphincter-saving alternatives include draining seton, cutting seton, Ligation of Inter-Sphincteric Fistulous Tract (LIFT), rerouting of the fistulous tract, and two-stage fistulotomy. Each method carries its own set of considerations, necessitating a tailored approach based on the characteristics of the fistula. As advancements persist in surgical techniques, the landscape of fistula in ano management continues to evolve, offering hope for improved outcomes and enhanced patient quality of life [3].

Aims and objectives

To compare efficacy of ligation of inter sphincteric fistulous tract and fistulotomy in the management of fistula in ano in terms of operation time, postoperative pain, recurrence and anal incontinence.

Materials and Methods

This randomized controlled study, conducted at the department of general surgery, VIMS and RC, Bangalore, spanned 18 months from February 2021 to August 2022, with the aim of evaluating treatment outcomes in low anal transphincteric fistula patients. The cohort comprised 124 subjects of both sexes, carefully selected to exclude cases of recurrent fistulas associated with trauma, Crohn's disease, tuberculosis, actinomycosis, or malignancy.

After obtaining informed consent, the subjects were randomly assigned to two groups, each comprising 62 patients. In Group I, individuals underwent the inter sphincteric ligation of perianal fistula (Ligation of Inter sphincteric Fistula Tract) LIFT procedure, while Group II, patients underwent conventional fistulotomy. The vydehi ethical committee approved the conventional fistulotomy procedure.

This study design allows for a robust comparison of outcomes between the two treatment modalities. The focus on low anal transphincteric fistulas ensures a specific and targeted investigation into the efficacy and safety of the LIFT procedure compared to conventional fistulotomy. The results of this study hold the potential to contribute valuable insights to the medical community, guiding future treatment decisions for patients with this specific type of anal fistula.

Statistical analysis

Data management and statistical analysis were done in MS Excel and analysed using SPSS version 19. Categorical data were summarized as frequency and percentage. Comparisons between both groups were done using the Mann Whitney U test for numerical data, Categorical data was compared between the Chi-square test or Fisher's exact test when appropriate. All

P values were two-sided. P values less than 0.05 were considered significant.

Results

A comprehensive study was conducted at department of general surgery, Vydehi Institute of Medical Sciences and Research Centre, Bangalore, involving 124 patients with low anal transphincteric fistula in ano. The gender distribution revealed 14 (11%) female and 110 male patients, with a predominant age range of 21 to 30 years in both groups (29% in LIFT and 32% in Fistulotomy). The LIFT group, consisting of 62 patients, demonstrated 13% cases of complex fistula, while the fistulotomy group, with 62 patients as well, exhibited 8% complex fistula, a statistically insignificant difference. The mean duration of the LIFT procedure was notably longer at 32.35 ± 7.243 minutes compared to fistulotomy at 21.15 ± 4.648 minutes. Postoperative pain, assessed by visual analogue score on day 1, was significantly lower in the LIFT group (2.55) compared to the fistulotomy group (3.69).

Importantly, none of the patients in the LIFT group experienced anal incontinence, in contrast to one occurrence in the fistulotomy group. Wound healing time for LIFT was expedited at 23.27 ± 1.909 days (approximately 3 weeks) compared to fistulotomy at 47.77 ± 2.398 days (7 weeks). Over a 6-month follow-up, recurrence rates were similar in both groups, affecting 4% of patients, with no statistical significance observed.

Discussion

Fistula-in-ano poses a significant challenge for both surgeons and patients, demanding careful consideration in treatment approaches. No universal technique suits all cases, emphasizing the pivotal role of the surgeon's expertise and judgment in determining the most suitable course of action. A study involving 124 patients delved into this complexity, revealing intriguing insights.

The mean age in the LIFT group stood at 38.89 ± 12.579 , ranging from 18 to 64, while the fistulotomy group had a mean age of 39.40 ± 13.700 , with a range of 17 to 66. These findings align with studies by Alapach et al. and Vinay et al. Male predominance was evident in both groups, constituting 90.3% in the LIFT group and 87% in the fistulotomy group, consistent with prior research by Alapach et al. and Vinay et al. [4,5].

Operative time emerged as a distinguishing factor, with the LIFT procedure requiring significantly more time (32.35 ± 7.243) compared to fistulotomy (21.15 ± 4.648) ($p < 0.01$). This parallels findings from studies conducted by Vinay et al. and Alapach et al. [4,5].

Noteworthy is the considerable disparity in healing times, with the LIFT procedure boasting a significantly shorter duration of 3 weeks in contrast to the conventional fistulotomy's protracted 7-week average. Existing literature reports a median healing time ranging from 2 to 24 weeks, with an average of 8.15 weeks. Such disparities emphasize the efficiency of the LIFT procedure in expediting recovery.

The postoperative experience further favored the LIFT group, showcasing a mean pain level of 2.55 ± 0.67 on day one, as opposed to 3.69 ± 0.869 in the fistulotomy group statistically significant differences reflecting reduced postoperative discomfort with the LIFT technique. These findings echo those of Vinay et al. [4]. A critical aspect of patient outcomes is anal incontinence, a complication reported in one patient subjected to fistulotomy by Vinay et al. Strikingly, none in the LIFT group exhibited such complications, corroborating similar findings in the present study.

In conclusion, this investigation sheds light on the nuanced considerations in treating fistula in ano, emphasizing the need for tailored approaches. The LIFT procedure demonstrates advantages in terms of healing time, postoperative pain, and complications, reaffirming its relevance in the surgical armamentarium for this challenging condition (Tables 1-3).

Table 1. Duration of procedure in minutes.

	Mean	Std. dev	Minimum	Maximum	P value
LIFT	32.35	7.243	18	56	<0.01
Fistulotomy	21.15	4.648	13	31	
Total	26.75	8.27	13	56	

Table 2. Pain on POD 1 (Post-Operative Delirium) according to VAS (Visual Analog Scale) score.

	Mean	Std. dev	Minimum	Maximum	P value
LIFT	2.55	0.67	2	4	<0.01
Fistulotomy	3.69	0.861	3	6	
Total	3.12	0.959	2	6	

Table 3. Mean duration of healing in both the groups.

	Mean	Std. dev	Minimum	Maximum	P value
LIFT	23.27	1.909	19	29	0.001 (S)
Fistulotomy	47.77	2.398	44	56	
Total	35.52	12.488	19	56	

Conclusion

General surgeons perform surgeries for fistula in ano day in and day out as elective procedures. Fistula in

ano is more common nowadays because of improper hygiene. 3 major basic aims of fistula in ano surgeries are given below.

Ø Control of sepsis

Ø Closure of fistula

Ø Maintenance of continence

Nowadays, operations for fistula-in-ano are classified as sphincter sacrificing and sphincter sparing surgeries. Sphincter sacrificing surgeries includes fistulotomy and fistulectomy. Sphincter-sparing surgeries include Anal fistula plug, Anal advancement flap, Seton usage and LIFT (Ligation of Intersphincteric Fistula Tract).

In our hospital set up fistula-in-ano is mostly treated with fistulectomy and seton placement which is standard procedures. Postoperatively many patients had delayed healing time and increased hospital stay due to large wounds and some patients developed postoperative anal incontinence due to sphincter injury which affects patients' day-to-day activities.

The present study compared the utility and effectiveness of two standard procedures LIFT (Ligation of Intersphincteric Fistula Tract) and fistulotomy in terms of duration of the procedure, Postoperative pain, wound healing time, and short-term anal incontinence.

This study proves that the LIFT procedure gives better outcomes when compared to fistulectomy in the treatment of perianal fistula. LIFT is a more time consuming procedure than fistulotomy, whereas pain on postoperative day 1, wound healing time, and rate of incidence of fecal incontinence are less in LIFT than in fistulotomy.

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