



LIGATION OF INTERSPHINCTERIC FISTULA TRACT VERSUS CONVENTIONAL FISTULECTOMY IN THE MANAGEMENT OF PERIANAL FISTULA: A PROSPECTIVE COMPARATIVE STUDY FROM A TERTIARY CARE CENTRE IN CENTRAL INDIA

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ABSTRACT

Background: Perianal fistula is a common and disabling anorectal condition, and the choice between sphincter-dividing and sphincter-preserving surgery continues to influence outcomes in wound healing, pain, and continence. While the ligation of the intersphincteric fistula tract (LIFT) has gained acceptance internationally as a sphincter-sparing alternative to conventional fistulectomy (CF), comparative outcome data from high-burden, resource constrained Indian settings remain limited. **Objectives:** To compare LIFT and CF for Parks type I and II perianal fistula with respect to operative time, wound healing, postoperative pain, hospital stay return to normal activity, complications, continence, and recurrence at 6 months. **Methods:** A prospective comparative study was conducted over 18 months in the Department of General Surgery at L.N. Medical College and J.K. Hospital, Bhopal. A total of 100 patients with Parks type I or II fistula were enrolled, with 50 each undergoing LIFT or CF. Outcomes were assessed using standard clinical parameters, the Visual Analog Scale (VAS) for pain, and the Wexner score for continence, with follow-up to 6 months. **Results:** Baseline characteristics were comparable between groups. LIFT was associated with significantly shorter operative time (29.00 ± 2.06 vs 46.00 ± 2.73 minutes, $p < 0.001$), shorter hospital stay (2.58 ± 0.67 vs 3.84 ± 0.79 days, $p < 0.001$), lower postoperative pain at all intervals ($p < 0.001$), faster wound healing (14.00 ± 1.64 vs 31.00 ± 2.84 days, $p < 0.001$), quicker return to normal activity (8.84 ± 1.72 vs 19.52 ± 4.00 days, $p < 0.001$), fewer early complications (2.0% vs 18.0%, $p = 0.016$), and better preserved continence on Wexner scoring at all followup points ($p < 0.05$). Recurrence at 6 months was identical between groups (4.0% each, $p =$ not significant). **Conclusion:** LIFT offers substantial short-term advantages over conventional fistulectomy in operative efficiency, postoperative comfort, recovery, and continence preservation, without an early increase in recurrence, supporting its preferential use for appropriately selected Parks type I and II fistulas in similar clinical settings.

KEYWORDS

perianal fistula, LIFT, fistulectomy, sphincter preservation, Wexner score, recurrence.

INTRODUCTION

Perianal fistula is one of the more persistently troublesome benign anorectal conditions encountered in general surgical practice. It predominantly affects working-age men, with a male-to-female ratio of approximately 2:1 and peak incidence between 30 and 50 years.¹⁻² The global disease burden is meaningful, with reported incidence rates of 8.6 to 12.3 per 100,000 persons annually.¹⁻² The crypto glandular hypothesis accounts for the vast majority of fistulas: infection of anal glands within the intersphincteric plane progresses from acute abscess to a chronic, epithelialized tract that rarely heals on its own.³ Beyond the physical symptoms of drainage, pain, itching, and bleeding, the condition exacts a measurable toll on quality of life, contributing to social withdrawal and lost productivity. In Indian urban centres such as Bhopal, the burden is compounded by delayed presentation. A substantial proportion of perianal abscesses, reported in the range of 26–38%, progress to fistula formation, and resource-limited surgical units frequently see patients only after spontaneous or delayed rupture, increasing the likelihood of complex, sphincter-involving tracts.

The underlying pathophysiology hinges on persistent distal obstruction: debris and biofilm within the tract shield bacteria from antibiotic clearance, explaining why fistulas tend to recur after incomplete drainage or inadequate surgical eradication.³ Parks classification remains the standard framework for risk stratification, with low intersphincteric tracts comprising the majority of cases and amenable to straightforward treatment, while transsphincteric tracts demand a more cautious, sphincter-conscious approach.³

Conventional fistulectomy complete excision of the fistulous tract has long served as the default surgical approach, achieving healing rates of 80–90% in low fistulas. However, this comes at a recognized cost: open wounds typically require 6–8 weeks (occasionally up to 20 weeks) to fully epithelialize, postoperative pain is considerable, and incontinence complicates a meaningful minority of cases, rising further when external sphincter fibres are divided.¹

In busy Indian tertiary centres, where bed turnover and early discharge are operational priorities, these prolonged recovery trajectories carry real systemic costs in addition to their burden on the individual patient. The introduction of the LIFT procedure in 2009 reframed the surgical approach to fistula-in-ano by targeting the intersphincteric plane directly, without dividing any component of the anal sphincter complex.¹¹

Subsequent comparative and randomized data have reported encouraging outcomes: recurrence rates in the 10–22.7% range (versus

up to 37% after fistulectomy), healing times shortened to 4–6 weeks, postoperative pain roughly halved, and incontinence reduced to under 2%.¹²⁻¹³ Meta analyses comparing LIFT with advancement flap techniques have found broadly comparable cure rates but a clear continence advantage favouring LIFT, an outcome of particular relevance given how heavily continence weighs on long-term patient-reported quality of life.¹³

Notably, LIFT is also amenable to repeat surgery in the event of recurrence, offering a degree of strategic flexibility that more destructive procedures do not.¹ The quality-of-life dimension of this disease deserves emphasis. Patients with fistula-in-ano consistently report reduced SF-36 scores across physical, social, and role-functioning domains, and recurrent disease is disproportionately more impairing than primary presentations.

Defecatory urgency the inability to defer bowel movements for even short periods has emerged as one of the strongest single predictors of diminished quality of life, affecting more than a third of patients with recurrent fistula. These findings reinforce that surgical decision-making in this condition is not merely about anatomical cure but about preserving the everyday function that underlies a patient's social and occupational life. Despite the accumulating international evidence favouring LIFT, prospective comparative data specific to Bhopal's patient population have been lacking. L.N. Medical College and J.K. Hospital, a high-volume tertiary referral centre, manages a growing caseload of fistula-in-ano dominated by Parks type I and II disease, yet the choice between LIFT and conventional fistulectomy in this setting has largely rested on individual surgeon preference rather than locally generated evidence.

Given the comparatively high rate of abscess-to-fistula progression observed in this population likely reflecting delayed care seeking and repeated incomplete drainage there is a clear rationale for generating outcome data specific to this context. The present study was therefore designed to address this gap by prospectively comparing LIFT and conventional fistulectomy for Parks type I and II perianal fistula in a representative cohort of patients presenting to this centre.

AIM AND OBJECTIVES

The aim of this study was to compare the outcomes of LIFT and conventional fistulectomy in the management of perianal fistula. The specific objectives were to evaluate the duration of wound healing, to compare postoperative pain between the two procedures, and to assess recurrence and incontinence rates following each technique.

MATERIALS AND METHODS

Study Design and Setting

This was a prospective comparative clinical study conducted in the Department of General Surgery, L.N. Medical College and Research Centre and J.K. Hospital, Bhopal, a tertiary care teaching hospital serving both urban and rural populations. The study was carried out over a total duration of 18 months, encompassing patient recruitment, surgical intervention, follow-up, and data analysis.

Study Population and Sample Size

Patients presenting to the surgical outpatient department and emergency services with features suggestive of perianal fistula were screened, and those meeting eligibility criteria were enrolled after detailed clinical evaluation. Sample size was calculated for comparison of two independent proportions, using recurrence as the primary outcome variable, with an anticipated recurrence rate of 10% in the LIFT group and 37% in the conventional fistulectomy group, based on prior literature. Using a 95% confidence interval ($Z = 1.96$) and 90% power ($Z = 1.28$), the calculated requirement was approximately 49.67 patients per group, rounded to 50 per group yielding a total study population of 100 patients (50 LIFT, 50 CF). Patients were enrolled consecutively and allocated to either group based on the planned surgical procedure, with equal allocation maintained throughout.

Eligibility Criteria

Patients aged over 18 years, of either gender, with Parks type I or type II perianal fistula confirmed on clinical examination and investigation, who were willing to provide informed consent and able to comply with peri- and postoperative instructions, were included. Patients with fistula types other than I or II, those unwilling to consent, or those unable to follow postoperative instructions were excluded.

Preoperative Evaluation

All patients underwent detailed history-taking and clinical examination, with particular attention to digital rectal examination and proctoscopy, documented in a structured proforma. Preoperative fitness was assessed clinically and through routine laboratory investigations per institutional protocol, and imaging (MRI perianal or transrectal ultrasonography) was performed as indicated to delineate the fistula tract and identify the internal opening.

Surgical Technique

Patients allocated to Group A underwent the standard LIFT technique under appropriate anaesthesia, with ligation of the fistula tract within the intersphincteric plane while preserving sphincter integrity. Patients in Group B underwent conventional fistulectomy, with complete excision of the fistulous tract, adequate drainage of sepsis, and standard wound management. No experimental techniques or novel agents were used; all procedures adhered to established surgical practice.

Postoperative Care and Outcome Measures

Postoperative care followed institutional protocol, with clinical monitoring for pain, wound healing, complications, and recurrence. The outcome measures evaluated were duration of wound healing, postoperative pain (assessed using the Visual Analog Scale at days 1, 3, and 7), hospital stay, time to return to normal activity, incidence of early complications, postoperative continence (assessed using the Wexner score at 1, 3, and 6 months), and recurrence at 6 months.

Statistical Analysis

Data were compiled in Excel and analyzed using appropriate statistical methods. Categorical variables were expressed as frequency and percentage; continuous variables as mean $\pm$ standard deviation. The Chi-square test or Fisher's exact test was used for categorical comparisons, the independent Student's t-test for comparison of means, and the Mann-Whitney U test for Wexner incontinence scores. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

The study was conducted after approval from the Institutional Ethics Committee of L.N. Medical College and J.K. Hospital, Bhopal. Written informed consent was obtained from all participants, and patient confidentiality was maintained throughout.

RESULTS

A total of 100 patients were studied, 50 in each group. The age of participants ranged from 18 to 60 years, with a comparable mean age between the LIFT group (39.50 ± 10.09 years) and the CF group (40.00

± 10.86 years); the 31–45-year category was the largest in both arms. Males predominated in both groups (84.0% in LIFT, 80.0% in CF), and urban–rural distribution was nearly equal (LIFT: 48.0% urban/52.0% rural; CF: 50.0%/50.0%). Socioeconomic status, assessed using the Modified Kuppuswamy scale, was concentrated in the lower and upper-lower strata in both groups, and smoking prevalence was similar (18.0% in LIFT versus 20.0% in CF). Symptom duration prior to surgery was comparable, with most patients in both groups (62.0% LIFT, 64.0% CF) reporting symptoms of 6–12 months' duration, and mean durations of 6.40 ± 2.17 and 6.88 ± 2.80 months, respectively. On Parks classification, the large majority of fistulas in both groups were type II transsphincteric (92.0% each), with the remainder being type I intersphincteric. MRI perianal was the dominant preoperative investigation in both groups (92.0% each), and the internal opening was successfully identified in 96.0% of LIFT patients and 98.0% of CF patients ($p = 1.000$, not significant). Together, these findings confirm that the two groups were well matched at baseline, supporting valid comparison of postoperative outcomes.

Operative time was significantly shorter with LIFT, at a mean of 29.00 ± 2.06 minutes compared with 46.00 ± 2.73 minutes for CF ($p < 0.001$). Hospital stay was similarly reduced, averaging 2.58 ± 0.67 days after LIFT versus 3.84 ± 0.79 days after CF ($p < 0.001$). Postoperative pain, measured by VAS, was consistently and substantially lower in the LIFT group across all assessed intervals: 4.46 ± 0.89 versus 7.26 ± 0.99 on day 1, 2.82 ± 0.83 versus 5.48 ± 0.84 on day 3, and 1.46 ± 0.65 versus 3.80 ± 0.67 on day 7 ($p < 0.001$ at each time point). Wound healing was markedly faster after LIFT, with a mean healing time of 14.00 ± 1.64 days compared with 31.00 ± 2.84 days after CF ($p < 0.001$), and return to normal activity followed the same pattern, at 8.84 ± 1.72 days for LIFT versus 19.52 ± 4.00 days for CF ($p < 0.001$). Early postoperative complications were significantly less frequent after LIFT, occurring in only 1 patient (2.0%) compared with 9 patients (18.0%) after CF ($p = 0.016$). Secondary infection was the most common complication overall; minor seroma and excessive granulation tissue were observed exclusively in the CF group. Continence outcomes, assessed by Wexner score, favoured LIFT at every follow-up point: mean scores were 0.06 ± 0.24 versus 0.34 ± 0.75 at 1 month ($p = 0.030$), and 0.00 ± 0.00 versus 0.16 ± 0.55 at both 3 and 6 months ($p = 0.023$ at each interval), indicating better-preserved sphincter function after LIFT despite generally low absolute scores in both groups. Recurrence at 6 months, by contrast, was identical between groups, with 2 patients (4.0%) affected in each arm (not statistically significant).

DISCUSSION

Fistula-in-ano remains challenging because successful management demands two simultaneous goals: definitive eradication of the tract and preservation of continence. This tension is most pronounced in transsphincteric disease, where more extensive tract division reduces persistent sepsis risk but raises the chance of sphincter injury. No single operation has emerged as a universal gold standard, and recurrence together with postoperative continence remain the two parameters by which longterm surgical success is judged. The present study compared LIFT and conventional fistulectomy in 100 patients with Parks type I and II fistula across pain, healing, hospital stay, functional recovery, complications, continence, and recurrence. The pattern was unambiguous: LIFT conferred a clear advantage across nearly every early and intermediate recovery parameter, while six-month recurrence converged to an identical figure in both groups. The demographic profile mean ages in the late thirties to early forties with marked male predominance is consistent with previously published series.

Goudar and Dakhani reported mean ages of 44.17 and 41.1 years in their LIFT and fistulectomy arms, with comparable male preponderance reported elsewhere.¹ Baseline equivalence between groups in this study regarding residence, socioeconomic status, smoking, symptom duration, and critically Parks classification (92% transsphincteric in both arms) strengthens confidence that the postoperative differences observed reflect genuine procedural effects rather than confounding by patient selection. This predominance of transsphincteric disease is clinically significant, since it is precisely the subgroup in which the trade-off between eradication and sphincter preservation matters most. Preoperative imaging was dominated by MRI in both groups, consistent with its growing role in delineating tract anatomy and sphincter involvement, supporting accurate planning and minimizing avoidable continence injury. The shorter operative time with LIFT (29.00 versus 46.00 minutes, $p < 0.001$) aligns with Serisha et al., who reported a comparable difference between LIFT and conventional fistulotomy.¹

This is intuitive: LIFT involves a more limited, targeted dissection confined to the intersphincteric plane, whereas fistulectomy requires complete tract excision with wider tissue handling. Hospital stay was likewise shorter after LIFT, mirroring Dong et al.'s meta-analysis, which similarly reported reduced hospitalization, less pain, and better continence with the sphincter-preserving approach. This carries practical significance in high throughput tertiary centres where bed turnover is a persistent operational constraint. Postoperative pain showed perhaps the most consistent difference between the two procedures, with LIFT patients reporting substantially lower VAS scores at every interval, closely paralleling Goudar and Dakhani and Serisha et al., both of whom documented significantly lower pain scores with LIFT throughout the early postoperative period.¹ The biological rationale is straightforward: LIFT avoids the open wound inherent to fistulectomy, relying instead on a small, closed intersphincteric incision, which likely accounts for both reduced pain and the markedly shorter healing time observed here (14.00 versus 31.00 days, $p < 0.001$). The faster return to normal activity after LIFT (8.84 versus 19.52 days) extends this advantage from the wound itself to overall functional recovery, a pattern also reported by Serisha et al. and Awad et al.¹ Collectively, the benefits of LIFT extend coherently across the entire recovery trajectory operative efficiency, wound biology, and functional rehabilitation alike. Early complications were also significantly fewer after LIFT (2.0% versus 18.0%, $p = 0.016$), with secondary infection the most frequent complication overall, and seroma and excessive granulation occurring exclusively after fistulectomy, broadly consistent with Serisha et al.'s report of substantially higher wound infection rates after conventional fistulotomy.¹ Broader network meta-analyses, however, have found more heterogeneous complication profiles across sphincter-sparing techniques, suggesting case selection and technique standardization may modulate this advantage elsewhere. Continence preservation was one of the most consistent findings favouring LIFT, with significantly lower Wexner scores at 1, 3, and 6 months, corroborating Goudar and Dakhani (no incontinence with LIFT versus 10% with fistulectomy) and Serisha et al. (mild incontinence in 6.5% after fistulotomy, none after LIFT).¹

¹ Dong et al.'s meta-analysis reached the same conclusion. Although absolute Wexner scores were low in both arms here, the consistent direction across three follow-up points strengthens the inference that sphincter preservation yields a measurable, if modest, functional benefit. Recurrence, however, told a different story: at 6 months, recurrence was identical between groups (4.0% each), suggesting the substantial early advantages of LIFT were not purchased at the cost of early treatment failure. Published recurrence data remain notably heterogeneous; Goudar and Dakhani reported 6.66% recurrence with LIFT against none with fistulectomy, while Serisha et al. found 6.5% with LIFT versus 12.9% with fistulotomy.¹ ¹ Awad et al. reported considerably higher recurrence with modified LIFT than fistulotomy plus primary sphincteroplasty in high transsphincteric fistula,¹ while An et al.'s network meta-analysis found no significant recurrence differences across techniques.¹ The equivalence observed here sits comfortably within this variable evidence base, with the caveat that fistula recurrence can manifest well beyond a 6-month window.

Overall, these findings support a coherent picture: for appropriately selected Parks type I and II fistula, LIFT offers a more comfortable, efficient, and continence sparing postoperative course than conventional fistulectomy, without apparent early compromise in cure rate extending the international evidence base to a resource-conscious, high-volume Indian tertiary care setting where such data were previously lacking.

Limitations

This study has several limitations. As a single-centre study, the findings may not generalise fully to other clinical environments, particularly peripheral or community settings with different case mixes or surgical expertise. The 6-month follow-up period, while sufficient to capture early recurrence and short term continence outcomes, cannot exclude later recurrences or delayed continence disturbances, both of which are recognized to occur beyond this window in fistula surgery. Although statistically significant differences were demonstrated across most early and intermediate outcome measures, a larger multi-centre study with extended surveillance would be needed to confirm the durability of these findings, particularly regarding long-term recurrence.

CONCLUSION

In this prospective comparative study of 100 patients with Parks type I and II perianal fistula, LIFT demonstrated clear advantages over

conventional fistulectomy across nearly every measured short-term outcome: shorter operative time, reduced hospital stay, lower postoperative pain, faster wound healing, quicker return to normal activity, fewer early complications, and better-preserved continence on Wexner scoring. Recurrence at 6 months was identical between the two procedures, indicating that these benefits were not offset by an early increase in treatment failure. These findings support the preferential use of LIFT in appropriately selected patients with Parks type I and II fistula, particularly in high-volume, resource-conscious settings where faster recovery and reduced morbidity carry tangible benefit for both patients and the surgical unit. Conventional fistulectomy nonetheless retains a role in selected cases following careful anatomical assessment of the fistula tract and sphincter complex. Longer-term, multi-centre data are needed to confirm the durability of fistula closure and the stability of continence outcomes beyond the first six postoperative months.

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