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Original Research Article

Comparative analysis of ligation of intersphincteric fistula tract and fistulectomy for complex fistula-in-ano: a prospective observational study

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ABSTRACT

Background: Fistula-in-ano is a debilitating condition that poses significant treatment challenges, particularly in complex cases. Ligation of intersphincteric fistula tract (LIFT) and fistulectomy are two common procedures used for management, with differing outcomes in recurrence, pain, and morbidity. This study aimed to compare these two methods in a resource-limited setting.

Methods: This prospective observational study was conducted at Shri Sathya Sai Medical College and Research Institute from July 2023 to July 2024 – six months of study and six months of follow up period. Sixty patients diagnosed with complex fistula-in-ano were randomly assigned to either the LIFT or fistulectomy group. Postoperative outcomes, including recurrence rates, pain (using the visual analogue scale), bleeding, and incontinence (Browning and Park's scale), were recorded and analyzed using statistical package for the social sciences (SPSS) version 22.0 software.

Results: The recurrence rate was significantly lower in the LIFT group (10%) compared to the fistulectomy group (37%, p=0.0069). LIFT patients experienced less postoperative pain (mean VAS score: 3.5±1.2) compared to fistulectomy (mean VAS score: 5.2±1.5, p=0.0082). Bleeding rates and incontinence showed no significant differences between the groups.

Conclusions: LIFT is a superior technique for managing complex fistula-in-ano due to lower recurrence rates and reduced postoperative pain. This sphincter-preserving method is particularly advantageous in resource-limited settings.

Keywords: Fistula-in-ano, LIFT, Fistulectomy, Postoperative pain, Recurrence, Resource-limited settings

INTRODUCTION

Fistula-in-ano is an abnormal tract lined by granulation tissue, connecting an external perineal opening to an internal opening within the anorectal canal. Complex fistulas, which may cross over 30% of the sphincter complex, are recurrent or involve multiple tracts, posing substantial treatment challenges.[1-3]

Ligation of intersphincteric fistula tract (LIFT), introduced by Rojanasakul in 2007, offers a sphincter-preserving technique by ligating the tract in the intersphincteric plane, which aims to reduce incontinence risk and eradicate sepsis.[1,2] On the other hand, fistulectomy involves excision of the entire tract and is often associated with a higher risk of sphincter damage but remains viable in resource-limited settings where advanced treatments may be unavailable.[4] Recent research indicates that LIFT may reduce morbidity in complex fistulas; however, direct comparisons with fistulectomy are limited in resource-constrained contexts.[5]

This study compares LIFT and fistulectomy concerning recurrence, pain, and bleeding in managing complex fistula-in-ano to provide insights into the optimal treatment approach in a resource-limited setting.

METHODS

Study design and population

This prospective observational study conducted at Shri Sathya Sai Medical College and Research Institute, Chengalpattu from July 2023 to July 2024 included 60 patients diagnosed with complex fistula-in-ano, defined by involvement of >30% of the sphincter complex, recurrence, or multiple tracts.[6] The study spanned six months, with an additional six-month follow-up period.

Inclusion and exclusion criteria

Inclusion criteria consisted of patients aged 18-60 diagnosed with complex fistula-in-ano. Patients with anorectal malignancies, fistulas associated with inflammatory bowel disease, active tuberculosis, immunocompromised status, intravenous steroid therapy, or uncontrolled diabetes mellitus were excluded.

Procedure

Patients were randomly assigned into two groups (LIFT or fistulectomy), matched for demographics and comorbidities. Clinical evaluations included digital rectal examination, proctoscopy, and magnetic resonance imaging (MRI) fistulograms. Outcomes measured included postoperative pain (assessed via a visual analogue scale), bleeding, and incontinence (assessed by Browning and Park's incontinence scale) over a six-month follow-up period.[7,8] Analysis was done by using statistical package for the social sciences (SPSS) version 22.0 software.

RESULTS

Recurrence

Recurrence, defined as incomplete wound healing or the formation of new external openings, was significantly lower in the LIFT group (p value=0.0069), consistent with studies indicating lower recurrence rates for sphincter-preserving procedures in complex fistulas.[9-11]

Postoperative pain

Pain levels were assessed at 24 and 48 hours postoperatively and on day 7 using a visual analogue scale. LIFT patients reported significantly less postoperative pain than fistulectomy patients (p value=0.0082), aligning with previous studies that highlight reduced pain due to minimal sphincter involvement in LIFT.[12,13]

Bleeding

Postoperative bleeding was monitored on days 1 and 7. The LIFT group exhibited lower bleeding rates, though the difference was not statistically significant (p value=0.5918), similar to findings in recent comparative studies.

Incontinence

Incontinence to gas, liquid, and solid stool was evaluated using Browning and Park's scale on postoperative days 1 and 7, and monthly for six months. Rates of incontinence did not show significant differences between the two groups, supporting the low risk of incontinence for both procedures.

Table 1: Patient demographics and clinical characteristics.

Characteristics	LIFT group (n=30)	Fistulectomy group (n=30)	P value
Mean age (years)	42.5±8.2	41.9±9.1	0.78
Gender (male %)	60	63	0.85
Comorbidities (%)	33	30	0.89
Previous surgical interventions (%)	27	30	0.82

Table 2: Comparison of clinical outcomes between LIFT and fistulectomy groups.

Outcome	LIFT group	Fistulectomy group	P value
Recurrence rate	10% (3 patients)	37% (11 patients)	0.0069
Postoperative pain (VAS score)	3.5±1.2	5.2±1.5	0.0082
Bleeding	Mild (83%)	Mild to moderate (80%)	0.5918
Incontinence	3% (1 patient)	3% (1 patient)	1.00

DISCUSSION

The findings of this study highlight the benefits of the LIFT procedure over fistulectomy in managing complex fistula-in-ano. The significantly lower recurrence rates observed in the LIFT group align with prior studies that emphasize the effectiveness of sphincter-preserving techniques in reducing morbidity. For instance, Bhatti et al demonstrated comparable recurrence rates in their meta-analysis, further supporting the durability of the LIFT technique.[9] The reduced pain scores reported by patients undergoing LIFT are likely attributed to minimal sphincter disruption, a result consistent with observations by Ooi et al in a similar cohort.[12]

In contrast, while fistulectomy remains a viable option in resource-limited settings, its association with higher recurrence rates and postoperative pain underscores its limitations. Previous studies, such as those by Han et al, have reported comparable findings, indicating the necessity for careful patient selection and enhanced postoperative care.[4]

Despite these promising outcomes, the lack of significant differences in bleeding and incontinence rates between the two groups suggests that both techniques maintain acceptable safety profiles. However, advanced modalities like stem cell therapy or video-assisted anal fistula treatment (VAAFT) may offer additional benefits and warrant further investigation in future studies.

Limitations

The study's single-centre design and limited sample size may restrict the generalizability of its findings. Additionally, the short follow-up period of six months might not capture long-term recurrence or complications. Future multicentre studies with extended follow-up durations are necessary to validate these results.

CONCLUSION

This study establishes LIFT as a superior alternative to fistulectomy for managing complex fistula-in-ano, particularly in resource-constrained settings. The significant reductions in recurrence rates and postoperative pain observed with LIFT reinforce its role as a sphincter-preserving, patient-friendly technique. These findings advance current knowledge and emphasize the need for broader adoption of LIFT in similar clinical settings. Future studies should explore long-term outcomes and the integration of advanced therapies to further enhance patient care.

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