



## Feasibility, Safety and Outcomes of the LIFT Procedure in Fistula-in-Ano: A Prospective Clinical Evaluation

Walia DS<sup>1</sup>, Singla A<sup>2\*</sup>, Mishra A<sup>3</sup>, Singh S<sup>4</sup>, Singh M<sup>5</sup>, Uppal V<sup>6</sup>

DOI:10.56412/gmcp.2026.9.01.218

<sup>1</sup> Darshanjit Singh Walia, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

<sup>2\*</sup> Anand Singla, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

<sup>3</sup> Anita Mishra, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

<sup>4</sup> Simrandeep Singh, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

<sup>5</sup> Manmeet Singh, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

<sup>6</sup> Vanisha Uppal, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

**Background:** Fistula in ano is considered the most frequent proctological disease that may be associated with complicated pathological processes. Fistula in ano is still a difficult problem for surgeons because of its recurrent course and possible adverse events, such as extended healing period, increased area of the surgical wound impacting the quality of life and anal incontinence after traditional surgery methods including fistulotomy and fistulectomy. The Ligation of the Intersphincteric Fistula Tract (LIFT) is a new sphincter-preserving treatment with the objective of reducing the risks of surgery.

**Materials and Methods:** A prospective observational study was performed on 30 patients diagnosed with an anorectal fistula who underwent surgery at a tertiary medical center from 2023 to 2025. The main parameters under observation included the postoperative pain level, wound healing duration, complications, and relapse rate.

**Results:** In a sample of 30 patients, the mean age was  $37.97 \pm 14.07$  years; 90% of subjects were male. The transsphincteric fistulas constituted 60% of cases. Secondary extensions appeared in 56.7% of participants. Surgery was carried out for less than half an hour. The wound healed completely for 90% of subjects in three weeks and for 100% in four weeks. No case of anal incontinence was found. Relapse happened in 10% of subjects after three months.

**Conclusion:** LIFT showed good feasibility, fast wound healing, low levels of pain, and great potential to preserve continence. Despite the risk of relapse, LIFT appears to be a good sphincter-saving method of fistula in ano treatment.

**Keywords:** Fistula in ano, LIFT technique, healing time, anal incontinence

### Corresponding Author

Anand Singla, Department of General Surgery, Government Medical College and Rajindra Hospital, Patiala, Punjab, India.  
Email: [anand\\_singla84@yahoo.co.in](mailto:anand_singla84@yahoo.co.in)

### How to Cite this Article

Walia DS, Singla A, Mishra A, Singh S, Singh M, Uppal V, Feasibility, Safety and Outcomes of the LIFT Procedure in Fistula-in-Ano: A Prospective Clinical Evaluation. J.GMCP.Re.Me.Ed. 2026;9(1):19-26.  
Available From  
<https://jrme.gmcpatiala.edu.in/index.php/j/article/view/218/>

### To Browse



**Manuscript Received**  
2026-03-06

**Review Round 1**  
2026-03-28

**Review Round 2**  
2026-04-11

**Review Round 3**  
2026-05-16

**Accepted**  
2026-06-30

**Conflict of Interest**  
None

**Funding**  
Nil

**Ethical Approval**  
Declared

**Plagiarism X-checker**  
10.39

**Note**



© 2026 by Walia DS, Singla A, Mishra A, Singh S, Singh M, Uppal V and Published by Journal Club Government Medical College Patiala Punjab India. This is an Open Access article licensed under a Creative Commons Attribution 4.0 International License <https://creativecommons.org/licenses/by/4.0/> unported [CC BY 4.0].



## Introduction

Fistula-in-ano is one of the oldest forms of anorectal disease which arises due to a tract formed between anal canal and perianal skin(1). Patients usually complain of purulent drainage, perianal pain or abscess formation(2). This condition is mostly found in people between 20 to 60 years old, having mean age of 40 years for both genders. Moreover, there is a higher incidence rate amongst males. Cure of an anal fistula can only be achieved by excising the whole tract without any chances of recurrence(3).

Though numerous surgical techniques are available, finding an ideal method which not only eliminates the tract but also preserves the sphincter integrity without causing further problems remains quite challenging. Traditional methods like fistulotomy or fistulectomy prove to be effective in uncomplicated cases but pose serious hazards of delayed wound healing and fecal incontinence. In fistulotomy, the opening of the perianal skin and anal mucosa is made with diathermy and the whole tract is exposed(4). Fistulectomy consists of excision of the fistula entirely. Due to increasing demand of sphincter preservation, less invasive techniques have come into limelight. The LIFT procedure was first described in the year 2007 where ligation of tract in intersphincteric region prevents damage to the anal sphincters(5). The resultant cavity heals primarily, leading to quick recovery(7). The surgery is patient friendly as it provides advantages in postoperative care, pain relief and comfort.

## Materials and Methods

### Study Design and Setting

A prospective study was carried out in the General Surgery Department of Rajindra Hospital, Patiala, from 2023 to 2025. Thirty consecutive patients diagnosed clinically and radiologically with fistula-in-ano were enrolled after providing informed consent. All the patients were subjected to thorough history taking and comprehensive clinical assessment (digital rectal examination and proctoscopy), radiological evaluation by MRI Fistulogram.

### Inclusion Criteria

- Patients with clinically confirmed perianal fistula.
- Patients previously operated for fistula in ano having new external opening.
- Fit for surgery under anaesthesia.

### Exclusion Criteria

- Anorectal Malignancy
- Patients with IBD
- Patients with history of having radiation therapy
- Patients having TB, Crohn's disease, actinomycosis
- Patients on cytotoxic drugs or immunosuppressive therapy
- Patients who did not give consent to participate in study

### Preoperative Evaluation

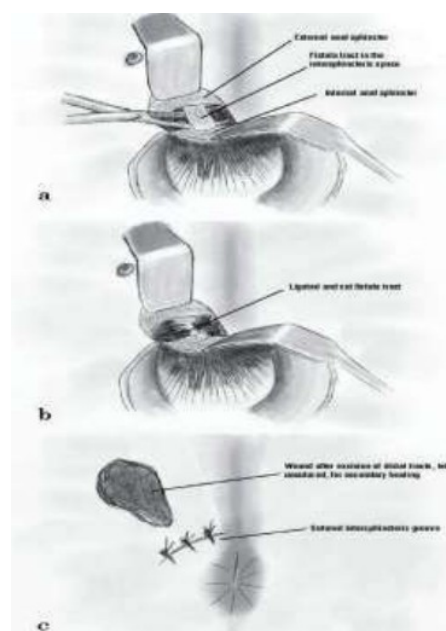
All Patients underwent:

- Digital rectal examination
- Proctoscopy
- MRI Fistulogram
- Baseline laboratory investigations

### Surgical Technique

The standard LIFT technique was performed in all cases:

1. Identification of the intersphincteric groove
2. Dissection to expose the fistula tract
3. Ligation of the fistula tract close to the internal opening with an absorbable suture, Polyglactin 2-0 Round Body
4. Division of tract and removal of infected tissue
5. Closure of the intersphincteric incision



**Figure 1: Steps of Ligation of Intersphincteric Fistula Tract Technique**



**Figure 2 Lift Technique**

### Outcome Measures

- Duration of surgery
- Pain scores (VAS) on Days 1, 2, 7, and 14
- Wound discharge and healing time
- Postoperative complications
- Recurrence within 3 months

## Results

### Demographic Profile

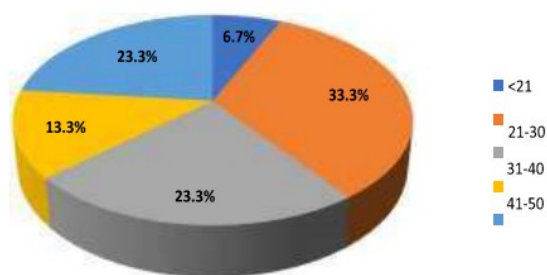
**Table 1: Age Distribution of Patients**

| Age (Years) | No. of Cases | Percentage (%) |
|-------------|--------------|----------------|
| <20         | 2            | 6.7%           |
| 21-30       | 10           | 33.3%          |
| 31-40       | 7            | 23.3%          |
| 41-50       | 4            | 13.3%          |
| 51-60       | 7            | 23.3%          |
| Total       | 30           | 100%           |

We observed the age wise distribution of patients involved in our study who presented to us with the chief complaint of perianal discharge. The majority of the patients (33.3%) were in the 21-30 age group, followed by 31-40 and 51-60 age groups (23.3% each).

Only a small percentage of patients were under 20 years (6.7%) or between 41-50 years (13.3%). The mean age with standard deviation of occurrence of fistula in ano of the patients included in our study was 37.97 years  $\pm$  14.07 years.

Mean age  $\pm$  SD = 37.97  $\pm$  14.07



**Figure 3: Age Distribution of Patients**

**Table 2: Gender Distribution**

| Gender | No. of Cases | Percentage (%) |
|--------|--------------|----------------|
| Female | 3            | 10.0%          |
| Male   | 27           | 90.0%          |
| Total  | 30           | 100%           |

On analysing gender distribution, out of 30 cases there were 27 (90%) male and 3 (10%) females. This suggests that fistula in ano is relatively more common in males with respect to females.

### Fistula Characteristics Type of Fistula

- Transsphincteric fistulas: 60%
- Extra-sphincteric fistulas: 40%

**Table 3: Presence of secondary extensions**

| Presence of Secondary Extensions | No. of Cases | Percentage (%) |
|----------------------------------|--------------|----------------|
| No                               | 13           | 43.3%          |
| Yes                              | 17           | 56.7%          |
| Total                            | 30           | 100%           |

Secondary extension or ramification is extension of primary opening. Nearly 56.7% of patients (17 cases) had secondary extensions, while 43.3%(13 cases) did not.

**Table 4: Number of external opening on clinical examination**

| No. of External Openings | No. of Cases | Percentage (%) |
|--------------------------|--------------|----------------|
| 1                        | 18           | 60.0%          |
| 2                        | 9            | 30.0%          |
| 3                        | 3            | 10.0%          |
| Total                    | 30           | 100%           |



**Figure 4: Number of External Openings**

## Operative Details

Table 5: Duration of Surgery

| Duration of Surgery (min) | No. of cases | Percentage |
|---------------------------|--------------|------------|
| < 30                      | 18           | 60.0%      |
| 30-60                     | 12           | 40.0%      |
| Total                     | 30           | 100.0%     |

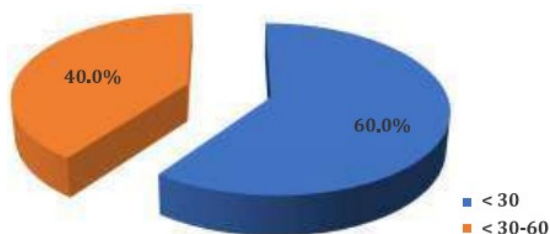


Figure: 5 Duration of Surgery

- Duration <30 minutes: 60%
- Duration 30-60 minutes: 40%

## Postoperative Pain Trends

Table 6: Post-operative Pain Comparison on the basis of Visual Analogue Score

|                        | Day 1        |             | Day 2        |             | Day 7        |             | Day 14       |             |
|------------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
| POST OPERATIVE PAIN    | No. of cases | Percent age | No. of cases | Percent age | No. of cases | Percent age | No. of cases | Percent age |
| NO                     | 0            | 0.0%        | 22           | 73.3%       | 29           | 96.7%       | 29           | 96.7%       |
| Mild VAS score 0-3     | 18           | 60.0%       | 24           | 80.0%       | 8            | 26.7%       | 1            | 3.3%        |
| Moderate VAS score 3-7 | 12           | 40.0%       | 6            | 20.0%       | 0            | 0.0%        | 0            | 0.0%        |
| Total                  | 30           | 100.0%      | 30           | 100.0%      | 30           | 100.0%      | 30           | 100.0%      |
| Chi square             | 99.608       |             |              |             |              |             |              |             |
| p value                | <0.001       |             |              |             |              |             |              |             |
| significance           | HS           |             |              |             |              |             |              |             |

- Day 1: 60% mild, 40% moderate
- Day 2: 73.3% pain-free
- Day 14: 96.7% pain-free

A significant portion of the patients (60%) 18 patients reported mild pain, with 40% 12 patients experienced moderate pain on day 1 of the surgery. No patients were pain-free on the first day of the surgery. By seventh day, most patients (73.3%) were pain-free and by day 14, 96.7% of the patients were completely free of pain, with just 3.3% of patients reporting mild pain. It was observed that, there is a significance decrease in post-operative pain with respect to days as the p value is  $p < 0.001$ .

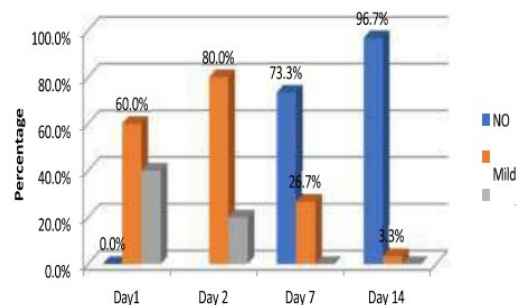


Figure 6: Post Operative Pain Comparison

Table 7: Post Operative Wound Discharge

|                     | Day 1        |             | Day 2        |             | Day 7        |             | Day 14       |             |
|---------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
| POST OPERATIVE PAIN | No. of cases | Percent age | No. of cases | Percent age | No. of cases | Percent age | No. of cases | Percent age |
| NO                  | 4            | 13.3%       | 10           | 33.3%       | 25           | 83.3%       | 30           | 100.0%      |
| Yes                 | 26           | 86.7%       | 20           | 66.7%       | 5            | 16.7%       | 0            | 0.0%        |
| Total               | 30           | 100.0%      | 30           | 100.0%      | 30           | 100.0%      | 30           | 100.0%      |
| Chi square          | 61.483       |             |              |             |              |             |              |             |
| p value             | <0.001       |             |              |             |              |             |              |             |
| significance        | HS           |             |              |             |              |             |              |             |

A significant portion of patients (86.7%) had wound discharge on post-operative day 1 of surgery. However there was decrease in wound discharge by second post-operative day, with 66.7% of patients having discharge from wound while 33.3% of patients had no discharge from wound site. Most patients (83.3%) were free of wound discharge by day 7. By Day 14, all patients were free from any wound discharge. It was observed that, there is significance difference in post-operative wound discharge with respect to days as p value is  $p < 0.001$ .

Table 8: Wound Healing

| COMPLETE HEALING OF WOUND | No. of cases | Percentage |
|---------------------------|--------------|------------|
| 3 WEEKS                   |              |            |
| NO                        | 3            | 10.0%      |
| YES                       | 27           | 90.0%      |
| BY 4 WEEKS                |              |            |
| YES                       | 30           | 100.0%     |

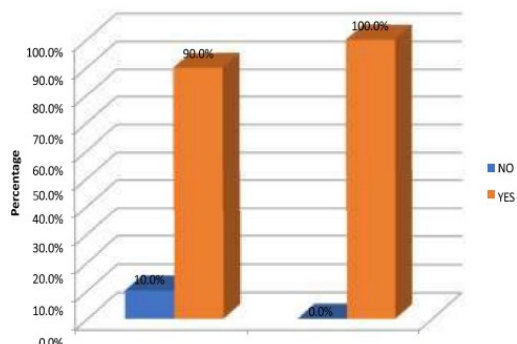


Figure 7: COMPLETE HEALING OF WOUND

- Healed by 3 weeks: 90%
- Healed by 4 weeks: 100%

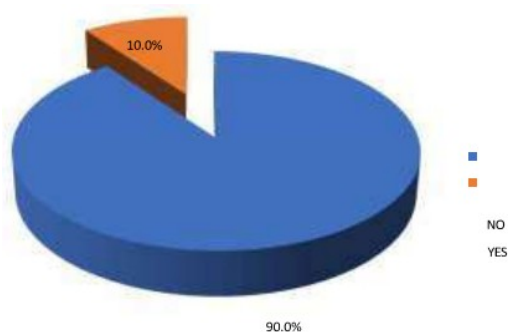
### Complications

- Urinary retention: 20%
- No cases of anal incontinence
- No anal stenosis

**Table 9: Recurrence at 3 months**

| Recurrence at 3 Months | No. of Cases | Percentage |
|------------------------|--------------|------------|
| NO                     | 27           | 90.0%      |
| YES                    | 3            | 10.0%      |
| Total                  | 30           | 100.0%     |

Recurrence refers to failure of complete wound healing with perianal discharge with persistent external opening by after initial closure of the wound or formation of a new external opening after 3 months of the surgery. 90% of patients did not experience a recurrence of symptoms within 3 months of surgery, indicating a high success rate for the procedure. However 10% of patients had relapse, which suggests that while the surgery was largely successful, a small proportion of patients may require further treatment.



**Figure 8: RECURRENCE AT 3 MONTHS**

### Discussion

Fistula-in-ano is a relatively frequent and sometimes complicated pathology of the anorectal system. It is a pathological channel connecting an internal opening at the level of the anal canal with an external opening through the perianal skin. It may manifest in painless symptoms to pus discharge to sepsis. The main treatment objective is the elimination of septic foci with a complete excision of the epithelialized tract without damage to the sphincter function of the anus. This study managed to track the progress of patients' recovery, thus offering useful information about the success of the LIFT procedure.

### AGE

In our study, the mean age of patients was 37.97 years, with most of them between 21 and 30 years old. This shows that younger people were more commonly affected in this group. Other studies like Shanwani et al, Sirikurnpi boon et al had relatively older patients with a mean of 41.5 years and  $40.78 \pm 11.84$  years respectively. These variations may be attributed to differences in study populations, comorbid conditions, lifestyle pattern, access to health care, bowel habits and regional variations. (1,8,9,10)

**Table 10: Age distribution in various studies**

| Study                         | Mean Age                                              |
|-------------------------------|-------------------------------------------------------|
| Present Study                 | Mean: 37.97 years                                     |
| Shanwani et al. (2010)        | Mean: 41.5 years                                      |
| Sirikurnpi boon et al. (2013) | Mean: $40.78 \pm 11.84$ years                         |
| Rojanasakul et al. (2007)     | Mean: 36 years                                        |
| Yansong Xu et al. (2017)      | Mean: 46 years                                        |
| Vinay G et al. (2017)         | $44.6 \pm 8.34$ (fistulotomy), $41.3 \pm 9.71$ (LIFT) |

### Type of Fistula

The four main types of fistula-in-ano are intersphincteric, transsphincteric, suprasphincteric, and extrasphincteric. Another common way to classify fistulas is as simple or complex. Simple fistulas usually have a single, low-lying tract and involve less than 30% of the external sphincter muscle. In contrast, complex fistulas involve more than 30% of the external sphincter, may have multiple tracts, are often recurrent, and are located higher in the anal region.

In the present study, most patients (60%) had transsphincteric fistulas, followed by extrasphincteric fistulas (40%). Additionally, 40% of patients had more than one external opening, and 56.7% showed secondary extensions or branching from the main tract. Sirikurnpi boon et al. (2013) focused mainly on more complex cases, especially high transsphincteric fistulas, which are harder to treat because they involve a deeper portion of the anal sphincter<sup>8</sup>. Their findings, along with those of the present study, showed that the LIFT procedure is effective in managing such complex cases. Similarly, Yansong Xu et al. studied complex and recurrent fistulas, where 31 out of 55 cases were transsphincteric, highlighting a large number of difficult cases that had not responded to previous surgeries<sup>(6)</sup>.

**Table 11: Type of fistula on the basis of MRI in different studies**

| Study                        | No. of Patients | Type of Fistulas                         | Success Rate    |
|------------------------------|-----------------|------------------------------------------|-----------------|
| Present Study                | 30              | 60% Transsphincteric (simple + complex)  | 27/30 ~ 90%     |
| Sirikurnpiboon et al. (2013) | 148             | Complex, high transsphincteric           | 114/148 ~77.02% |
| Yansong Xu et al. (2017)     | 55              | 31 transsphincteric (complex, recurrent) | 33/55 ~60%      |

**Mean Operative Time**

The present study found a shorter mean operative time (33.7 minutes) with respect to other studies. In other studies, the time varied depending on the procedure and the complexity of the cases. Vinay G et al. compared two procedures: fistulotomy and LIFT (1). Fistulotomy had a shorter average time of 19.6 minutes, while the LIFT procedure took longer, with an average time of 28.4 minutes. Salunke et al found that LIFT took less time (35.6 minutes) than traditional fistulectomy, which took 46.5 minutes.(3) The mean operative in our study was 33.7 minutes which is close to other studies.

**Table 12: Mean Operative Time in various Studies**

| Study              | Operative Time                                           |
|--------------------|----------------------------------------------------------|
| Present Study      | 33.7 minutes                                             |
| Rojanasakul et al. | 40 minutes (range 30-80 minutes)                         |
| Yansong Xu et al.  | Median 44 minutes (23-88 minutes)                        |
| Vinay G et al.     | 19.6 minutes (fistulotomy) 28.4 minutes (LIFT procedure) |
| Salunke B et al.   | 35.6 minutes (LIFT) 46.5 minutes (fistulectomy)          |

**Anal Incontinence and Anal Stenosis**

One of the most dreaded complication of conventional surgeries for perianal fistulas is anal incontinence. Patients were assessed for anal incontinence after the surgery and in our study none of the patients had anal incontinence. Similar results were obtained in studies by Mustafa F et al, Sakda A et al(12, 13) The LIFT technique targets the fistula tract in intersphincteric place which lies in between the external and internal sphincters. The tract is isolated and ligated and hence no involvement of sphincters and hence incontinence is preserved. Anal stenosis was assessed in patients at 4,8 and 12 weeks and none of the patient developed anal stenosis.

**Recurrence**

In the present study, the recurrence rate after 3 months was 10%, with 3 patients experiencing recurrence following the LIFT technique. Similar

results were seen in studies by Vinay G et al, Hazem Nour et al and Olfat et al (1,12,13). So recurrence is a problem when LIFT technique is talked about with consistent results in different studies. The possible reasons are incomplete identification of the fistula tract or missing secondary tracts during the dissection. It is a technically demanding branch requiring precision when it comes to dissection in a confined space especially if fistulas are high anal. Other possible reasons are not slippage, breakdown of closed wound due to tearing of the weak portion of the fistula tract, patient in immunocompromised state etc. So although early recovery with faster wound healing is seen with LIFT technique but still recurrence is primarily a matter of concern.

**Table 13: Recurrence in different Studies**

| Study                    | Recurrence Rate |
|--------------------------|-----------------|
| Present Study            | 10%             |
| Vinay G et al            | 12%             |
| Hazem Nour et al. (2020) | 15.4%           |

The present study demonstrates that LIFT is a highly effective option for managing both simple and complex fistulas while preserving continence. The rapid healing timeline observed in this cohort aligns with published literature advocating LIFT as a minimally invasive, patient-friendly procedure.

The absence of anal incontinence underscores the relevance of a sphincter-sparing approach, especially in younger patients or those with high-lying tracts where fistulotomy may lead to functional compromise. Although recurrence occurred in 10% of cases, this rate is comparable to global outcomes reported for LIFT, where recurrence ranges between 8% and 30%.

Factors influencing recurrence may include complex fistula anatomy, missed secondary tracts, or persistent sepsis. Careful imaging and meticulous surgical technique remain crucial for optimizing results.

**Conclusion**

The LIFT procedure offers a safe, efficient, and sphincter-preserving solution for fistula-in-ano. With excellent healing rates,

minimal postoperative discomfort, and zero incidence of incontinence, LIFT stands as a viable first-line option in appropriately selected patients. Continued follow-up is, however, necessary to monitor recurrence and address complex fistula patterns.

### The present study had certain limitations:

- The sample size was relatively small with total of 30 patients included in the study.
- Only intersphincteric and transsphincteric fistula were included and other types of fistula in ano as per Park's classification like extra sphincteric and suprasphincteric were not included in the study.
- Follow up duration was limited to 3 months.
- Patient dietary habits and quantity of fluid and fibre intake compliance must have also influenced functional outcome.

### ETHICAL CONSIDERATIONS

The study was conducted in accordance with the ethical standards of the Declaration of Helsinki and was approved by Institutional Ethics Committee. Written informed consent was obtained from all participants prior to enrollment.

### CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

### SOURCE OF FUNDING

The Authors received no financial support for the research, authorship, or publication of this article.

### DECLARATIONS

Ethics Approval and Consent to Participate: Approved by Institutional Ethics Committee, Government Medical College and Rajindra Hospital, Patiala. All patients provided written informed consent.

## References

1. Vinay G, Balasubrahmanya KS. Comparative study on efficacy of fistulotomy and lift procedure in management of fistula-in-ano. *Int Surg J* 2017; (1)4:3406-2. [Article] [DOI:10.18203/2349-2902.isj20174505] [PubMed] [Google Scholar]

2. Abcarian H, editor. *Anal fistula: principles and management*. 1st ed. New York: Springer; 2014. [Article] [DOI:10.1007/978-1-4614-9014-2] [PubMed] [Google Scholar]

3. Salunke BL, Lamture YR. Ligation of intersphincteric fistula tract (LIFT) versus conventional fistulectomy in management of low fistula in ano: a comparative study from a tertiary hospital. *Eur J Mol Clin Med* 2022;9(2):2169-74. [Article] [DOI:10.7759/cureus.99295] [PubMed] [Google Scholar]

4. Vander Mijnsbrugge G, Felt-Bersma R, Ho D, Molenaar C. Perianal fistulas and the lift procedure: results, predictive factors for success, and long-term results with subsequent treatment. *Techniques in Coloproctology*. 2019, 23(7): 639-647. [Article] [DOI:10.1007/s10151-019-02023-9] [PubMed] [Google Scholar]

5. Hansen M, Kjær M, Andersen J. Efficacy of Plug Treatment for Complex Anorectal Fistulae: Long-term Danish Results. *Annals of Coloproctology*. 2019, 35(3): 123-128. [Article] [DOI:10.3393/ac.2018.07.14] [PubMed] [Google Scholar]

6. Xu Y, Tang W. Ligation of Intersphincteric Fistula Tract Is Suitable for Recurrent Anal Fistulas from Follow-Up of 16 Months. *BioMed Research International*. 2017, 2017: 1-4. [Article] [DOI:10.1155/2017/3152424] [PubMed] [Google Scholar]

7. Garg P. Comparison between recent sphincter-sparing procedures for complex anal fistulas-ligation of intersphincteric tract vs transanal opening of intersphincteric space. *World Journal of Gastrointestinal Surgery*. 2022, 14(5): 374-382. [Article] [DOI:10.4240/wjgs.v14.i5.374] [PubMed] [Google Scholar]

8. Sirikurnpiboon S. Ligation of intersphincteric fistula tract and its modification: Results from treatment of complex fistula. *World Journal of Gastrointestinal Surgery*. 2013, 5(4): 123. [Article] [DOI:10.4240/wjgs.v5.i4.123] [PubMed] [Google Scholar]

9. Rojanasakul A, Pattanaarun J, Sahakitrungruang C, Tantiphlachiva K. Total anal sphincter saving technique for fistula-in-ano; the ligation of intersphincteric fistula tract. *J Med Assoc Thai* 2007;90(1):581-6. 2007. [Crossref] [PubMed] [Google Scholar]

10. Shanwani A, Nor A, Amri N. Ligation of the Intersphincteric Fistula Tract (LIFT): A Sphincter-Saving Technique for Fistula-in-Ano. *Diseases of the Colon & Rectum*. 2010, 53(1): 39-42. [Article] [DOI:10.1007/dcr.0b013e3181c160c4] [PubMed] [Google Scholar]

11. Kang W, Yang H, Chang H, Ko Y, Yoo B, Lim C, Hwang J, Lee Y, Shin H, Son H. High ligation of the anal fistula tract by lateral approach: A prospective cohort study on a modification of the ligation of the intersphincteric fistula tract (LIFT) technique. *International Journal of Surgery*. 2018, 60: 9-14. [Article] [DOI:10.1016/j.ijssu.2018.08.008] [PubMed] [Google Scholar]

12. Celayir M. Complex Anal Fistula: Long-Term Results of Modified Ligation of Intersphincteric Fistula Tract=LIFT. *SiSli Etfal Hastanesi Tip Bulteni / The Medical Bulletin of Sisli Hospital*. 2020. [Article] [DOI:10.14744/semb.2020.89106] [PubMed] [Google Scholar]

13. Alapach S, Khaimook A. Comparison between Ligation of Intersphincteric Fistula Tract (LIFT) Technique and Conventional Fistulotomy in the Treatment of Fistula-in-Ano at Hat Yai Regional Hospital. *Thai J Surg*. 2018;35(1):20-3. [Article] [DOI:10.60110/medforum.370112] [PubMed] [Google Scholar]

Disclaimer / Publisher's Note The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of Journals and/or the editor(s). Journals and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.