

A Prospective Study for Evaluation of Efficacy of Ligation of the Intersphincteric Fistula Tract (Lift) for Treatment of Patients with Fistula-In-Ano

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ABSTRACT

Objective: To assess the results of LIFT technique for treatment of the patients complaining from fistula in ano. **Material & Method:** A prospective study for 30 patients with fistula in ano treated by LIFT technique from August 2014 to January 2016. Postoperative assessment included presence of recurrence, fecal incontinence and surgical complications. **Result:** our study on fistula in ano enrolled 30 patients with strict inclusion and exclusion criteria. The patients had a range of age from 25 to 55 years, 6 of the patients had recurrent fistula in ano and 24 were newly diagnosed. Patients were treated by LIFT technique and followed up for 6 months. Successful healing was achieved in 28 patients (93.4%) with no recurrence, 2 patients (6.6%) had recurrence at the follow-up. No incontinence or bleeding was observed in any of the patients. **Conclusion:** Results of standardized lift technique are impressive. this technique is a novel sphincter-preserving method for treatment of fistula in ano as it is a simple, safe, cost-effective technique.

Keyword: Lift Technique - Fistula In Ano - fecal incontinence.

INTRODUCTION

Fistula in ano is an abnormal connection between the epithelialized surface of anal canal and usually the perianal skin⁽¹⁾. It primarily originates from the abscess formation with crypto-glandular infection⁽²⁾. Fistula in ano does not heal spontaneously due to fecal particles entering internal opening causing infection and formation of the intersphincteric tract, which is compressed between the internal & external sphincter causing a closed septic foci⁽¹⁾. Fistula in ano develop in approximately one-third to one-half of the patients undergoing an anorectal abscess drainage⁽³⁾. The classification of the fistula in ano has shown variabilities, but the simplest and the most widely used one is the Park's classification⁽⁴⁾. The four main classes of fistula in ano are:

- a. Intersphincteric: the fistula originates at the dentate line and tracks elongated between the internal and external sphincters.
- b. Transsphincteric: the fistula originates at the dentate line and transverses the internal and external sphincters, opening to the ischioanal fossa.
- c. Suprasphincteric: originates at the dentate line and tracks cephalad to the external sphincter,

before opening to the skin at the ischioanal fossa.

- d. Extrasphincteric: transverses the entire sphincter structure including puborectalis, opening proximally either at the dentate line (secondary to supralelevator abscess) or in the lower rectal wall (secondary to internal or external penetrating trauma) and distally into the ischioanal fossa or in the buttocks. this type of fistula is often secondary to trauma or Crohn's disease⁽⁵⁾.

The surgical treatment of fistula in ano has been a challenge for both surgeons and patients⁽⁶⁾. The optimal treatment of fistula in ano is one that provides healing, has a low recurrence rate and carries only minimal risk of incontinence⁽⁷⁾. Surgical techniques used are Lay-open of fistula-in-ano, cutting seton, seton stitch, fibrin glue injection, fistula plug, endorectal advancement flap, video assisted fistula in ano therapy (VAAFT), etc.⁽¹⁾.

Complications following fistula in ano surgery are recurrence, incontinence, anal stenosis etc.⁽¹⁾. Recurrence rate of lay open of fistulotomy is around 2-9%, with functional impairment of from 0-17%. Seton use has a recurrence rate of 0-8% with incontinence rates of 2-26%. Endorectal advancement flap has healing rate of 98% with minor & major incontinence of 31% & 12% respectively. Direct closure of internal opening

has a 22.5% recurrence rate & 6% minor incontinence⁽¹⁾. Healing rate of debridement with fibrin glue injection was from 14-60% & incontinence was not reported. Fistula plug has a failure rate of around 13%⁽¹⁾. In 2006 from Thailand, Rojanasakul *et al.*, performed a novel sphincter saving technique consisting of ligation of the intersphincteric tract (LIFT) and showed high rates of success in healing fistula tract up to 94% of the patients⁽⁸⁾. LIFT is simple to perform, but also not without some pitfalls⁽⁹⁾.

AIM OF WORK:

The aim of this study is to evaluate effectiveness of LIFT technique in treatment of fistula in ano with redefined inclusion and exclusion criteria.

PATIENTS AND METHODS

Patient:

Thirty patients were included in our study. they underwent LIFT procedure for treatment of fistula in ano at our unit in general surgery department in Zagazig university hospital from August 2014 to January 2016.

Inclusion criteria:

1. Maturation of tract.
2. Intersphincteric fistula.
3. low transsphincteric fistulas.
4. High transsphincteric fistulas.
5. Pre-existing continent patients.

Exclusion criteria:

1. Active perineal sepsis.
2. Active inflammatory bowel disease.
3. Malignancy or granulomatous diseases.
4. Patients with high grade haemorrhoids and patients with impaired anal continence.

Method of the study:

**To prove the presence of fistula in ano in included patients in the study.

- Complete history taking and general examination was performed.
- A digital rectal examination (DRE) was performed to assess the function of the anal sphincter and to palpate the internal opening and the tract of fistula in ano and also to diagnose if there were other anal pathologies.
- Informed consent was taken from all patients included in the study.

Investigations:

- ✓ General investigations as complete blood picture, liver function tests, kidney function tests, and coagulation profile were done.
- ✓ Ultrasound and other imaging techniques are not performed routinely to patients but are done selectively in six patients with recurrent fistulas.

Operative steps:

- Standard oral bowel preparation was performed with rectal enema.
- preoperatively Patients are administered only a single dose of antibiotic as cefoperazone or ciprofloxacin plus metronidazole.
- All cases were performed under either general or spinal anesthesia with the patient in lithotomy position.
- Firstly the external opening of the fistula in ano was identified then we place anoscope after anal dilatation.
- Identification of internal opening by injection of hydrogen peroxide (H₂O₂) through the external opening then gentle probing of the fistulous tract by metallic probe for identification of intersphincteric tract (Figure 1).
- Circumanal incision about 2cm is made in the intersphincteric groove by diathermy knife at the site of fistula tract and deepen the incision on the same plan by using two long narrow blade retractor.
- Meticulous dissection through the intersphincteric plane to find the intersphincteric fistulous tract. The small right angle clamp was used to isolate and encircle the tract (Figure 2).
- Then we removed the probe and the tract was ligated close to the medial side of external anal sphincter and lateral side of internal anal sphincter with 2-0 vicryl (Figure 3). Then we divided the tract between these two sutures. To confirm the closure of the tract we injected H₂O₂ from the internal and external openings. The tract of fistula in ano was curetted then surgical field was washed by saline and H₂O₂.
- Closure of intersphincteric wound with vicryl 3-0, the external orifice was left open for drainage (Figure 4).

Follow up:

All of the patients were discharged the day after the operation. All patients were required self wound cleansing with sitz bath 2-3 times a day and after each bowel movement. Oral ciprofloxacin and metronidazole are prescribed for 2 weeks. Also the patients were advised to take analgesic if they feel pain. Patients were followed up in the outpatient clinic at the first week, first, second, third and six month after the surgery. The need of the patients to anti-inflammatory analgesic drugs for control of postoperative pain and need for sponge for wound discharge were assessed. Time to return the work after the operation was noted. also assessment of wound healing and fecal continence were performed at follow up according to **Rojanasakul**⁽¹⁾ assessment of wound healing and clinical anal continence as follow:

Assessment of wound healing (1)

Grade 1: Complete epithilization of wound.

Grade 2: Healing wound with granulation.

Grade 3: Granulation with purulent discharge.

Grade 4: Non healing, not healed at 10 wks.

Assessment of clinical continence (1)

Category A: Continent of solid & liquid stools & flatus (i.e. normal continence)

Category B: Continent of solid & usually liquid stools but not flatus (no fecal leakage) Category

C: Acceptable continence for solid stool but no control over liquid stool or flatus.

Category D: Continued fecal leakage.



Fig. 1: Shows probing of fistulous tract.



Fig. 2: Encircling of intersphincteric fistula tract by small right angle.



Fig. 3: Ligation of intersphincteric fistula tract by vicryl 2-0.



Fig. 4: Closure of wound by vicryl 3-0, external opening left open for drainage.

Statistical Analysis

Categorical variables were expressed as a number (percentage). All data were analyzed using SPSS 22.0 for windows (SPSS Inc., Chicago, IL, USA).

RESULTS

A total of thirty consecutive patients with fistula in ano were included in our study between August 2014 to January 2016. Twenty five patient (83.4%) were men and five (16.6%) were women. Eleven patient (36.7%) with age range between 25-35 years, ten patients (33.3%) between 36-45 years and nine patients (30%) between 46-55 years (**table 1**).

Table 1: Demographic data of the patients.

Demographic data	All studied patients (N=30)	
	Number	%
<u>Sex</u>		
Male	25	83.4%
Female	5	16.6%
<u>Age</u>		
25-35 years	11	36.7%
36-45 years	10	33.3%
>46 years	9	30%

According to the park's classification and intraoperative data twenty five patients were diagnosed with transsphincteric fistula and five with intersphincteric fistula. Fifteen patients had anterior located fistula and fifteen patients had posterior fistula. In six patient there were history of recurrent fistula in ano but twenty four patients had newly formed fistula in ano (**table 2**).

Table 2: Clinical characteristic of the patients.

	Number	%
Types of fistula		
Transsphincteric	25	83.4%
Intersphincteric	5	16.6%
Localization of fistula		
Anterior	15	50%
Posterior	15	50%
History of previous surgery		
Recurrent fistulas	6	20%
Newly diagnosed	24	80%

All of the patients were discharged to home one day after surgery. According to patients need to anti-inflammatory analgesics, at the first week follow up fifteen patients did not need drugs, nine of the patients needed to take once a day and six patients more than twice a day. After one month twenty four patients were free of pain but six patients still need analgesic once daily due to pain. Also at first month follow up seven patients reported no need of sponge for wound discharge, fifteen of patients needed sponge once a day, remaining eight patients needed sponge more than once a day. After one month nineteen patients did not sponge, seven patients needed sponge once a day and four patients needed sponge more than one a day (**table 3**).

Table 3 : postoperative follow up.

Need to anti-inflammatory analgesics		
No need	15	50%
One a day	9	30%
Twice or more per day	6	20%
Need to analgesic after a month		
Free of pain	24	80%
Once a day due to pain	6	20%
Need to sponge for wound at first month		
No need	7	23.3%
Once a day	15	50%
More than one a day	8	26.7%
Need to sponge after a month		
No need	19	63.3%
Once a day	7	23.3%
More than one a day	4	13.4%

On long term follow up the time to return to work ranged from 7- 40 days after surgery. And time to use sponge for wound discharge was ranged from 10 to 90 days postoperatively (**table 4**).

Table 4 : long term follow up.

	Range
Time to return to work	(7 – 40) days
Time to use sponge for wound discharge	(10 – 90) days

At the end of the follow up twenty eight patients showed complete healing with no recurrence but recurrence occurred in two patient, one of them had persistent symptoms after first week with discharge from the incision and had enduration and swelling at site of external opening so under local anesthesia incision was done at site of the swelling, this patient showed improvement after that and he told us that he became better so he refused another interference. The other patient with transsphincteric fistula was reevaluated because of persistent discharge from wound and needed reoperation after fistulotomy. No fecal, gas incontinence or bleeding was observed in any of the patients at the follow up (table 5).

Table 5 : postoperative complication.

Recurrence		
No recurrence	28	93.4%
Recurrence	2	6.6%
Incontinence		
	0	
Bleeding		
	0	

DISCUSSION

The ideal treatment for fistula in ano should aim towards low recurrence, early recovery and minimal incontinence⁽¹⁰⁾. The various techniques described for management of fistula in ano are fistulotomy, fistulectomy, seton, plug, anorectal advancement flap (ARAF), ligation of intersphincteric fistula tract (LIFT) and video-assisted fistula treatment (VAAFT)⁽¹¹⁾. LIFT and VAAFT are the techniques in vogue following the concept of ligation and division of fistula tract under vision but have certain limitations⁽¹²⁾. LIFT had advantages of lesser recurrence and minimum morbidity in terms of wound complications, continence and allowing patients to return to his daily activities as early as possible⁽¹⁰⁾. VAAFT has better visualization, is less invasive, obliterates whole of the tract, has lesser chances of recurrence and has better cosmeses but involves limitation of availability and is cost-ineffective⁽¹²⁾.

Treatments of fistula in ano by sphincter-preserving techniques like fistula plug and advancement flap have comparable results regarding recurrence and healing rates, but these

procedures are, however, technically demanding and operator-dependent⁽¹³⁾.

Mushaya et al.,⁽¹⁴⁾ conducted a randomized trial where patients underwent either LIFT or anorectal advancement flap repair (ARAF). Patients in the LIFT group experienced less pain, higher patient satisfaction and took shorter time to resume normal activities. In addition, the LIFT procedure took shorter time. The authors found no difference in recurrence rate or incontinence scores. Limitations include a 2:1 intervention versus control basis (25 in the LIFT group and 14 in the ARAF group).

In our study on 30 patients with fistula in ano we did LIFT technique for treatment of them. then we divided the fistulous tract between two sutures. The tract of fistula in ano was curetted. In **2009 Rojanasakul**⁽¹⁾ in his study believed that ligation of the fistulous tract is more secure than over sewing, which make his results is more favorable, also he found that removal of infected granulation tissue in the fistulous tract and cavity by curettage is more practical and more time saving than total excision of the fistulous tract and primary repair. **Sirikurnpiboon et al.**⁽¹⁵⁾ compared 21 patients undergoing LIFT with 20 patients where LIFT was combined with partial core-out fistulectomy from the external opening to the external sphincter. They found no differences in results between the two groups.

In our study post-operative complications occurred in form of recurrence in 2 patients (6.6%) with no bleeding or affection on fecal or gas continence of patients. The metaanalysis by **Hong et al.**, over 24 articles showed that during 10 month of follow-up, mean success rate was 76.4%, no incontinence was observed, intraoperative and postoperative complication rates were 0 and 5.5 respectively⁽¹⁶⁾.

In **2014 Samira and Sharaf**⁽¹⁷⁾ said that a successful outcome of LIFT should include complete healing and absence of discharge from the external opening and intersphincteric wound and resolution of symptoms.

In our study healing rate with complete success occurred 28 patients (93.3%). In **2007 Rojanasakul et al.**,⁽⁹⁾ reported healing rate was 94%. **Shanawani et al.**,⁽¹⁸⁾ and **ArmenAboulian et al.**,⁽¹⁹⁾ reported primary healing rate of 82% and 68% respectively. **Tanweerul and Mhaske**⁽²⁰⁾ in there prospective observational study on 32 patients with fistula in ano treated by LIFT

technique the success rate was around 100% with redefined criteria so they told that effectivity of the LIFT technique can be improved by strict adherence to redefined criteria on patient with fistula in ano.

The LIFT procedure is based on a sound principle of ligating a tract, and the best results are probably obtained in the absence of infection, operation done on a mature tract and without multiple secondary tracts⁽²¹⁾.

LIFT procedure is a safe and economical technique for treatment of fistula in ano with minimal tissue injury and low recurrence rates as well as easy to perform⁽²²⁾.

In our study we experienced high success rates compatible with the published studies. Low recurrence risk and undamaged sphincter mechanism will support the choice of the surgery modality for treatment of fistula in ano. The major limitations of our study were relatively small numbers of patients and the shorter follow up time. But with the help of our study, we consider to choose LIFT for patients with fistula in ano as a simple, cost-effective and safe treatment option. As the other sphincter-preserving procedures exist, further randomized controlled trials are needed to evaluate the effectiveness of LIFT compared to others.

CONCLUSION

The LIFT procedure is a sphincter saving technique that can be used for managing the fistula in ano. It is simple, inexpensive, quick and has a success rate at least as good or better than all current sphincter-preserving methods. The LIFT allows using other types of approaches (including another LIFT) in patients with recurrence. In conclusion LIFT seems to be candidate for being the gold standard surgery option for managing fistula in ano if redefined inclusion & exclusion criteria are strictly adhered to.

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