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Original Article

Ligation of the Intersphincteric Fistula Tract (LIFT) Technique in the Treatment of Complex Perianal Fistula: Experience of First 50 Cases

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Abstract:

Perianal fistula is a common disease and surgery is the only treatment option. Many surgical techniques have been described. Ligation of intersphincteric fistula tract (LIFT) is a sphincter saving surgical technique in which fistula tract is ligated and excised through intersphincteric approach. The aim of study is to present our experience of first 50 LIFT procedures particularly healing rate, recurrence rate and complications from the procedure. This is a prospective observational study started from March 2018 on whom underwent LIFT procedure for primary complex perianal fistula of infective origin at Faridpur Central Hospital and Faridpur Medical College Hospital. In this study, 50 patients (42 male and 8 female) of average age of 39±7.6 years with complex fistula were included. The mean operative time was 34.7±5.67 minutes and most of the fistulas were transsphincteric variety (90%). Median wound healing time was 21.45±6.34 days for intersphincteric wound and 26.78±6.93 days for the external opening of the fistula. Mean follow up period was 10.5 months. Seven patients of our series developed recurrent fistula, making the overall success of 86%. None of the patient in our series developed incontinence. LIFT procedure has the advantage of preservation of anal sphincter, minimal tissue injury, shorter healing time, relatively easy to perform, and high success rate. It's a good choice for treatment of complex perianal fistula.

Key words: Perianal fistula, Complex fistula, LIFT.

Introduction:

Perianal fistula is defined as an abnormal communication between the anorectal mucosa and the perianal skin. It usually results from an anorectal abscess which bursts spontaneously or after inadequate abscess drainage. It causes recurrent perianal pain and purulent discharge with or without abscess formation. Perianal fistula is a common surgical problem. The disease has an incidence of 8.6 per 100000 population[1].

Sir Alan Parks' classified perianal fistula according to relation of fistulous tract with anal sphincter into: intersphincteric, transsphincteric, suprasphincteric and extrasphincteric[2]. Perianal fistulas were also classified into simple and complex. Simple fistulas are low transsphincteric or intersphincteric fistula that cross <30% of the external sphincter. Complex fistulas include high transsphincteric (>30% of external sphincter involvement), suprasphincteric or extrasphincteric fistulas. They may also be defined as horse shoe, recurrent and all anterior fistulas in woman and may also present with multiple tract or associated to Crohn's disease, radiation therapy or malignancy[3,4].

Surgical treatment is the only way to cure a perianal fistula. The aim of surgery in anal fistula is to eradicate infection and promote healing, whilst preserving anal sphincter complex and full continence[5]. Until now most of the fistulas were treated by fistulotomy or fistulectomy, which have both proven to be effective, however, even for simple fistulas, they may result in some degree of incontinence in approximately 12-39% of patient, need prolonged time for healing and associated with progressive scarring and anal deformity[6-8]. To avoid these complications, other options for surgical treatment of anal fistulas were developed including endorectal advancement flap,

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excision and closure of internal opening, injection of fibrin or cyanoacrylate glue, insertion of fistula plug, video assisted anal fistula treatment (VAAFT) and ligation of intersphincteric fistula tract (LIFT)[6,9]. LIFT procedure is sphincter preserving surgery introduced by Thai colorectal surgeon Arun Rojanasakul in 2007[10]. In this procedure the fistula tract is approached via the intersphincteric plane, intersphincteric fistula tract is ligated and excised and does not involve severing any sphincter. In the first report of this procedure the preliminary healing results were 94.4%[10]. However, since then several centers have reported success rate varying between 57% and 94%[11,12]. LIFT procedure is now being widely adopted among the surgeons for treatment of perianal fistula for its promising result.

We introduced LIFT procedure in our settings for treatment of complex perianal fistula from March 2018 and since then majority of our patients with complex perianal fistulas were treated by this method. Starting from March 2018 we have completed our 50 LIFT procedure on September 2019. The aim of study is to present our experience of first 50 LIFT procedures. In particular, the study aimed at assessment of healing rate, recurrence rate, complications and satisfaction from the procedure.

Materials and methods:

This is a prospective observational study on our first consecutive 50 patients who underwent LIFT procedure for complex perianal fistula arising from cryptogladular infections. We started LIFT procedure from March 2018 and completed 50 operations on September 2019. This study was carried out at Faridpur Central Hospital and Faridpur Medical College Hospital.

The diagnosis of fistula in ano was made by history and digital rectal examination (DRE). Continence was assessed by the patient's ability to hold solid stool, liquid stool and flatus and by the assessment of anal sphincter tone during DRE. No anal manometry was performed. We did not use endoanal ultrasound or MRI to characterize the fistula preoperatively. All patients were informed about the procedure, outcome and possible complications and written consent was taken.

Patients with age more than 18 years and newly diagnosed complex perianal fistulas of infective etiology were included. Patients with suparficial fistula, recurrent fistula, fistulas secondary to tumor in flammatory bowel disease, TB or trauma, active infection of fistula abscess cavity, preexisting incontinence and extrasphincteric fistula were excluded from the study.

The following informations were collected for each patient: demographics; the type of fistula; the extent of sphincter involvement, the location of external and internal opening; the presence of multiple tracts; tract collection; perianal or submucosal collection; the operation time; time to wound healing; postoperative complications including the clinical continence status and recurrence rate.

Operative techniques: Patients were prepared with evacuation enema 6-8 hours before the time of operation. All operations were performed under regional anaesthesia. Antibiotic prophylaxis with inj. Ciprofloxacin and inj. Metronidazole were given before operation. The position of patient was lithotomy where the external opening of fistula lies anteriorly and prone jackknife with the buttocks strapped apart where the external opening of fistula lies posteriorly. A detail of the LIFT procedure is identical to that original proposed in 2007 by Rojanasakul et al[10]. First, internal opening was identified by palpation or by injection of saline through the external opening. A curvilinear incision was made in the intersphincteric groove over the site of internal opening. The intersphincteric plane was dissected by scissor and diathermy meticulously until the fibrous fistulous tract was identified. Once identified, tract was then transfixed with 2/0 vicryl close to internal sphincter. Saline was gently injected through the external opening to confirm that the tract was no longer patent and it was then divided distal to the point of ligation. After traction, a segment of distal tract was excised. From the external opening the tract was opened, curetted and washed with 10% povidone iodine solution. Finally, intersphincteric incision wound was repaired with interrupted 2/0 vicryl suture.

Postoperative management and follow up: Postoperatively antibiotics were given for Gram negative organisms and anaerobs (Ciprofloxacin + Metronidazole) for 10 days. Analgesics were given according to patient's need. Patients were discharged with antibiotics, analgesics, stool softener and advice to take sitz bath. Patients were asked to come after 1 week of operation for stitch removal of intersphincteric wound. The subsequent follow up consultation was weekly after the first visit till complete wound healing. At each visit patients were interviewed for pain, discharge, wound healing and clinical continence status. On examination intersphincteric incision wound, site of previous external and internal opening of fistula and sphincter tone were assessed. After healing, the patients were asked to return if any recurrent pain, swelling or discharge occurs.

Clinical healing was defined as healing of intersphincteric and external opening wound, absence of fistula drainage and no evidence of abscess

formation at any time during follow up. Recurrence was defined as nonhealing wound 6 weeks after surgery or reappearance of an external opening with persistent discharge or reappearance of a fistula after the initial wound had healed.

Results:

We started LIFT procedure for complex perianal fistula from March 2018 and completed 50 operations in September 2019 at Faridpur Central Hospital and Faridpur Medical College Hospital. All the 50 patients had a primary complex perianal fistula of infective etiology. There were 42 (84%) male and 8 (16%) female and the mean age was 39±7.6 years (Range 24 to 61 years) (Table I). All the patients were continent based on clinical history of continence to solid stool, liquid stool and flatus and had adequate sphincteric tone.

Table I: Demographic characteristics of patients (n=50)

Variables	Numberand percentage
Gender	
Male	42 (84%)
Female	8 (16%)
Age	
Mean±SD	39±7.6
Range	24 to 61 years

Table II: Characteristic of fistulae included in the study population (n=50).

Classification and characteristics	Number and percentage
Park's classification	
Trans-sphincteric	45 (90%)
Intersphincteric	4 (8%)
Suprasphincteric	1 (2%)
Classification based on the course of the fistula	18 (36%)
Anterior straight	25 (50%)
Posterior straight	4 (8%)
Curved	2 (4%)
Semi-horseshoe	1 (2%)
Horseshoe	
Classification based on the tract	
Single tract	46 (92%)
Multiple tract	4 (8%)

Details of the characteristics of the fistulae are shown in table II. Most of the fistulas in our series were transsphincteric (90%) followed by intersphincteric (8%) and suprasphincteric (1%) variety. Classification based on the course of fistula shows, 18(36%) are anterior straight, 25(50%) are posterior straight, 4(8%) are curved, 2(4%) are semi horse-shoe shaped and 1(2%) is horse-shoe shaped. Most of the fistulas has single tract (96%), multiple tract present only in 8% of cases.

Table III: Operative time and postoperative wound healing

Variables	Mean±SD	Range
Operative time	34.7±5.67 min	25 to 60 min
Intersphincteric wound healing	21.45±6.34 days	14 to 40 days
External opening wound healing	26.78±6.93 days	19 to 45 days

Table III shows operative time and postoperative wound healing. The mean operative time was 34.7±5.67 min (Range 25 to 60 min). The time needed for healing of the intersphincteric wound ranged from 14 to 40 days with the mean of 21.45±6.34 days. The external opening of the fistula takes a little longer time to heal, ranges from 19 to 45 days and the mean was 26.78±6.93 days.

All patients were discharged on the first or second postoperative day. There was no major postoperative complication in any of the patient. At follow up none of the patient in our series developed incontinence. Mean follow up was 10.5 months (Range 3 to 21 months). Three patient developed wound sepsis, disruption of intersphincteric wound and ultimately non healing wound at follow up and four reported back with a recurrent fistula. Thus, 7 (14%) patients developed a recurrent fistula, making the overall success of 86%.

Discussion:

Perianal abscess and fistulas represent two stages of the same disease. Acute infection of anal crypt leads to perianal abscess and fistula represents the chronic form of this infection. Perianal abscess and fistulas are two of the oldest human surgical entities[1]. Perianal fistula causes cyclical pain and purulent discharge and surgery is the only way to cure this condition.

Surgery of perianal fistula is a challenging issue. The aim of surgical management is to achieve fistula healing, prevent recurrences and maintain

continence[13]. Operation for treatment of perianal fistula can be divided into sphincter saving and sphincter sacrificing techniques. In sphincter sacrificing technique sphincter division was carried out with or without immediate repair, these techniques have a high healing rate but associated with a high rate of postoperative incontinence; sphincter saving methods have varied fistula healing rates but very little or no postoperative incontinence[8,14]. The impairment of continence has a worse effect on quality of life and is more distressing for patients than presence of fistula itself. So sphincter saving techniques should be more popular. Examples of sphincter savings methods includes endorectal advancement flap, excision and closure of internal opening, injection of fibrin or cyanoacrylate glue, insertion of fistula plug, video assisted anal fistula treatment (VAAFT) and ligation of intersphincteric fistula tract (LIFT)[6,9].

It has long been recognized that, there is no single technique appropriate for management of all types of perianal fistula and therefore, treatment should be directed by type of fistula and the surgeon's experience. Fistulotomy or fistulectomy is the procedure of choice in simple fistula where the fistula tract is located in the lower third of sphincter. We did not use LIFT procedure in simple fistula. Parthasarathi et al[9] and Sirikurnpiboon et al[14] also excluded patients with simple low fistulas in their series. In complex fistula, surgical treatment has higher recurrence rate and higher chance of incontinence. In these patients LIFT seems a promising option because there is negligible trauma to the sphincter and the present study only included patients with complex fistula. The fistulas for which LIFT has been done in most of the series are also complex fistula[4,5,8-14].

LIFT procedure is sphincter preserving surgery introduced by Rojanasakul et al in 2007[10]. In this procedure the fistula tract is approached via the intersphincteric plane, fistula tract is ligated close to internal sphincter (Preventing continuous infection from entry of fecal particles into the tract) and intersphincteric portion of fistula tract is excised (which represent the infected anal gland residual, so eliminating intersphincteric septic focus). The advantage of the LIFT procedure may include the preservation of anal sphincter, minimal tissue injury, shorter healing time, and its being a procedure that is relatively easy to perform. Additionally, even if the fistula is not healed successfully, the LIFT procedure may convert a difficult to treat transsphincteric fistula into an easier to manage intersphincteric fistula which is easy to manage by simple fistulotomy[16].

There is no strong evidence regarding the optimal way to perform LIFT. Parthasarathi R et al[9] used prone operative position in their series but most of author used lithotomy position for LIFT operation[4,5,18,19]. In our series, we used lithotomy position where the external opening of fistula lies anteriorly and prone jackknife with the buttocks strapped apart where the external opening of fistula lies posteriorly. Use of LIFT retractor and anoscope further facilitates the procedure. Endoanal ultrasound or MRI is used in most of series to delineate sphincter anatomy preoperatively[4,5,8-14]. We did not use endoanal ultrasound or MRI to characterize fistula preoperatively. We had to rely exclusively on preoperative and intraoperative DRE findings because of financial constraints. Several authors have combined LIFT with additional techniques such as the LIFT plug or LIFT plus. Han JG et al achieved an excellent success rate of 95% for LIFT plug technique where biosynthetic graft is used to reinforce LIFT[18]. Sirikurnpiboon S et al performed a comparative study of between LIFT and LIFT plus where partial coring out of fistula tract was done showing no statistically significant difference in healing rates[14].

In this study 50 patients (42 male and 8 female) of average 39±7.6 years were treated by LIFT. The mean operative time was 34.7±5.67 min and most of the fistulas were transsphincteric variety (90%). Median wound healing time was 21.45±6.34 days for intersphincteric wound and 26.78±6.93 days for the external opening of the fistula. All patients were discharged on the first or second postoperative day. Mean follow up period was 10.5 months. There was no major postoperative complication in any of the patient and none of the patient in our series developed incontinence. Seven patients of our series developed a recurrent fistula, making the overall success of 86%. Of 7 recurrent cases, 3 has disrupted intersphincteric wound with persistent nonhealing wound, thus this recurrence is the down staging of transsphincteric fistula to intersphincteric fistula and 4 has recurrence after healing of wound. In the literature, the results with LIFT are promising with reported success rate of 57-94%[8-16]. Vergara-Fernandez O et al[13] reviewed 18 papers that included 592 patients of LIFT procedure. The median age was 42.8 years. The most common type of fistula was transsphincteric variety (73.3% of cases). The mean healing time was 5.5 weeks with average follow up period of 42.3 weeks. No incontinence developed secondary to LIFT procedure. The overall success rate was 74.6% which is much lower than our study.

In our study, we include only primary fistula of cryptogladular origin and exclude all recurrent fistula because we are new to this procedure. In many series they also included recurrent fistulas[9,14,21-23]. Some authors conclude that recurrent fistula seems to be risk factor for the recurrence of fistula after LIFT procedure[21-23] while other states no difference in outcome when LIFT applied in primary versus recurrent fistula[9,14].

Conclusion:

Many surgical procedures have been described for treatment of perianal fistula. The correct choice of surgical procedure among the possible surgical procedures remains the most important point for proper treatment and to reduce the risk of recurrence and incontinence. In our experience, the LIFT procedure is relatively easy to perform, has a high healing rate and appears to be safe with low morbidity and no impact on continence and a good choice for treatment of complex perianal fistula.

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