

Original Research Article

Effectiveness of ligation of intersphincteric fistula tract (LIFT) in the management of fistulas in ano

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ABSTRACT

Background: Fistula in ano is an abnormal connection between the epithelized surface of anal canal and usually the perianal skin. It is a benign treatable lesion of rectum and anal canal. Crypto glandular infection accounts for about ninety percent of the cases. The estimated prevalence of an anal fistula is 12 to 28/1000000 of the population per year with male to female ratio 1.8:1. Ligation of intersphincteric fistula tract is a new sphincter saving method with good result in the management of anal fistula. The aim of study was to evaluate the effectiveness and functional outcomes of the ligation of intersphincteric fistula tract (LIFT).

Methods: This prospective study includes sixteen patients who were operated for fistulas in ano at Bundelkhand Medical College and Associated Hospital, Sagar from January 2015 to June 2017. Patients above the age of 20 years, proved cases of fistulas in ano without co-morbid conditions and no previous surgical intervention were included in the study. Patients presenting with fistulas from another source such as crohn's disease, tuberculosis, anal cancer and recurrent fistulas were excluded. A detailed history, clinical presentation, digital rectal examination, anal ultrasound and routine investigations were done in all cases.

Results: In the present study most of the patients were male and presents with perianal discharge. The diagnosis is made by clinical history, per rectal examination and anal ultrasonography. All the sixteen patients with fistula in ano underwent ligation of intersphincteric fistula tract (LIFT). The patients were followed for a period of three months. Most of the cases (87.5%) healed within 4-6 weeks. The recurrence of fistula occurs in four cases (25%). Recurrence is due to infection and technical error in the procedures. There were no deaths in the study.

Conclusions: The LIFT technique proved to be safe and effective in the treatment of fistula in ano.

Keywords: Fistula in ano, Fistula tract, Fistulotomy, Incontinence, LIFT technique

INTRODUCTION

Fistula means pipe or tube in Latin. It is a worldwide health problem that can affect any person anywhere. It is an abnormal connection between the epithelised surface of anal canal and usually the perianal skin. Fistula in ano has been a common surgical ailment reported since the time of Hippocrates, but little systematic evidence exists on its management.¹ Fistula in ano is a benign treatable

lesion of the rectum and the anal canal. Crypto glandular infection accounts for about ninety percent of the cases. Majority of the infection are acute, and a minority contributed by chronic low grade infection hence pointing to varying etiogenesis. The pathogenesis has been attributed to the bursting open of an acute or inadequate treated ano rectal abscess into the perianal skin. Infection developed in an anal gland lying within the sub mucosa of the anal canal is the direct cause of

most of the fistula in ano.² It can be associated with a number of conditions including tuberculosis, Crohn's disease and malignancies. The estimated prevalence of the anal fistula is 12 to 28/1000000 of the population per year with male to female ratio of 1.8:1.³ It is a distressing condition for patients and can be surgically challenging.⁴ There are various classifications of fistula in ano but the simplest and the most widely used one is the Park's classification. In 1976, Sir Alan Parks classified fistula in ano depending on the relationship of the tract to the anal sphincter muscle.⁵

In total five types of tracts were described: Intersphincteric, trans sphincteric, supra sphincteric, extra sphincteric and superficial fistula. The anal fistulas are also described as simple or complex fistulas by American Gastroenterological Association. The simple fistulas originate below the dentate line (low type) and involve small part of sphincter complex. Superficial low intersphincteric or low trans sphincteric fistulas are in this group. Conversely, Complex fistulas originate above the dentate line (high type) and involve significant part of sphincter mechanism. High trans sphincteric (the tract crosses more than 30% of external opening), supra sphincteric fistula with multiple tract, anterior fistula in women, recurrent fistula, fistula in patients with preexisting incontinence are involved in this group. The complex fistulas may be associated with local irradiation, cancer and inflammatory bowel disease.⁶ Most of the simple fistulas are managed by simple fistulotomy without any significant risk of incontinence.⁷

The surgical treatment of anal fistulas has been a challenge for both the surgeons and patients. There are variable surgical procedures for the management of anal fistula with variable risk of incontinence and recurrence which includes fistulotomy, seton placement, endorectal advancement flap, ano cutaneous advancement flap, excision and closure of the internal opening, insertion of fibrin or cyanoacrylate glue, insertion of fistula plug, video assisted anal fistula treatment and ligation of the inter sphincteric fistula tract (LIFT). Fistulotomy and Seton technique sever the internal sphincters and may damage the external anal sphincters. The recurrence rate of lay open fistulotomy was reported between 2-9% with functional impairment ranging from 0-17%.^{8,9} The use of a Seton had a recurrence rate between 0-8%. Minor and major incontinence was 34-64% and 2-26% respectively.^{10,11} The endorectal advancement flap has a healing rate of 55-98% with the minor or major incontinence of 31% and 12% respectively.^{12,13}

The ano cutaneous advancement flap procedure has a healing rate of 78% and deterioration of continence is 30%.¹⁴ The healing rate after debridement and fibrin glue injection ranged from 14-60%.¹⁵ Incontinence may not be affected and was not generally reported. Fistula plug for repair of fistula in ano had reported failure rate of 13%.¹⁶ Out of these techniques the ligation of inter sphincteric fistula tract (LIFT) is the most promising surgical

technique which is based on secure closure of the internal opening and removal of the infected cryptoglandular tissue through inter sphincteric approach. The procedure was developed by Thai colorectal surgeon Arun Rojanasakul, colorectal division, Department of Surgery, Chulalongkorn University in Bangkok, Thailand and showed a success rate of 94% in the treatment of fistula in ano without any incontinence.¹⁷ This procedure was a simple, safe and minimally invasive. It was also effective with high and rapid healing rate without any resultant incontinence. It is now being widely adopted because of early satisfactory results. The aim of study was to evaluate the efficiency of LIFT technique for fistula in ano in our setup.

METHODS

The prospective study was conducted between January 2015 and June 2017. It includes sixteen patients who were operated (Ligation of inter sphincteric fistula tract) for fistula in ano in Unit III, Department of Surgery, Bundelkhand Medical College and Associated Hospital, Sagar over a period of about two and a half years. The study was conducted on the basis of all the patients admitted in the ward as elective cases from outpatient department. Patients above the age of 20 years, proved cases of fistulas in ano without co-morbid conditions and no previous surgical intervention were included in the study. Patients presenting with fistulas from another source such as Crohn's disease, tuberculosis, anal cancer and recurrent fistulas were excluded.

The diagnosis of fistula in ano was made by the detailed medical history and digital rectal examination. Continence was assessed by patient's ability to hold the solid stool, liquid stool and flatus and by the assessment of anal sphincter tone during digital rectal examination. No anal manometry was performed. The routine investigations were done in all cases which include complete blood count, blood sugar, blood urea, HbsAg, HIV, X-ray chest and ECG. All patients had an anal ultrasound examination. It involves passage of 7 to 10 MHz transducer into the anal canal which is carried out with the patient in the left lateral position. Serial radial images were taken. Fistula tract were visualized as hypoechoic tube-like lesion. The following information was collected for each of the patients as demographics, type of fistula, location of the external and internal opening, position and length of the fistula, the presence of multiple tract, any secondary extension, tracts collections and perianal or sub mucosal collection. Post-operative complications, the clinical continence status and the time of wound healing were noted.

All patients were admitted a day before surgery, involved patients underwent surgery for the first time and were informed about the technique to be used. After the adequate fasting period, the enema was administered for bowel preparation. The procedure was performed under spinal anaesthesia in the lithotomy position. Povidone

iodine was used for the surgical field cleaning. This technique includes the following components:

- Most of the fistula tracts can be identified by palpating an internal opening by rectal examination or by injection of saline through the external opening.
- Inter sphincteric plane was entered via curvilinear diathermy incision corresponding to the site of the internal opening at inter sphincteric groove which had the characteristics of a cord like structure identified by palpation. Dissect around the tract using a narrow and small angle clamp.
- Confirm the tract either by injecting saline or passing a probe through the external opening. Secure suture ligation or trans fixing of inter sphincteric fistula tract at both sides using 3-0 absorbable suture near to the internal opening (closer to internal sphincter) and another suture at the external sphincter defect.
- Remove the fistula tract by excising in between the ligation.
- Make sure that tract is sutured well by injecting saline and as well as by inserting a probe at both openings (internal and external opening).
- Curette well the fistula tract from external opening.
- Closure of inter sphincteric wound with absorbable 3-0 simple interrupted single layer. The fistula tract was sent for histopathological examination.

All the patients were put on intravenous broad-spectrum antibiotics and analgesics continued till admitted. The patients were discharged the day after the operation with analgesics, laxatives and oral ofloxacin and ornidazole for one week. Before being discharged the patients were shown how to clean their wound and were advised to take sitz bath 2-3 times a day for 15 minutes each time and restrict physical and sexual activities. After hospital discharge the patients were seen one week after the initial procedure. At the first visit they were prescribed oral cefodoxime for 5 days.

The second consultation was 3 weeks after the first visit and the follow up was at three weeks thereafter until complete wound healing had occurred (follow-up up to 3 months). At each visit the patients were interviewed for clinical continence status. The intersphincteric incision wound was examined, the site of the previous internal and external opening was palpated and sphincteric tone was assessed. After healing the patient was asked to return to the work. The time to return to the work after surgery was noted. All patients with documented healed fistula were enquired of possible recurrence.

RESULTS

A total of 16 patients who presented with fistula in ano and underwent ligation of inter sphincteric fistula tract (LIFT) were studied. The patients consisted of 14 males (87.5%) and 02 females (12.5%). The frequency of fistula in ano is much greater in males as compared to females.

Table 1: Distribution of patients as per sex.

Sex	No. of cases	Percentage
Male	14	87.5
Female	02	12.5

The ages of the patients ranged from 21 to 56 years. The younger patient in this study was 21-year-old and the oldest was 56 years old with fistula in ano.

Table 2: Age distribution of the patients.

Age (years)	No. of cases	Percentage
20-30	04	25
31-40	06	37.5
41-50	05	31.25
≥51	01	6.25

The peak incidence was in the third and fourth decade of life.

Table 3: Socio-economic status.

Socio economic status	No. of cases	Percentage
Low	12	75
Upper	06	37.5

In the study 75% of the patients were belonging to lower socio-economic status and 37.5% of the patients were from higher socio-economic status. This disparity is due to the fact that majority of the patients that attend this hospital are from lower socio-economic status.

Table 4: Mode of presentation.

Mode of presentation	No. of cases	Percentage
Perianal discharge	13	81.25
Perianal irritation	10	62.5
Pain	12	75
Swelling	03	18.75
Past history of perianal abscess	14	87.5

In this study, the discharging wound was presenting complaint in 81.25% of the patients. Past history of perianal abscess obtained from 87.5% of the cases and 75% of patients had pain around the anal region.

From these facts we note that the discharging wound and past history of perianal abscess are the most common mode of presentation.

Table 5: Number of external openings.

Number of external openings	No. of cases	Percentage
01	14	87.5
02	03	18.75
More than 02	01	6.25

The time from the period of onset of complains with perianal fistula to diagnose ranged from 03 to 24 months with mean of 11 months. In this study of 16 cases, 87.5% of them had only one external opening while 18.75% patients had two openings and another 6.25% had more than two openings. Hence fistula in ano with a single external opening is the commonest occurrence.

Table 6: Situation of external openings.

Situation of external openings	No. of cases	Percentage
Anterior	03	18.75
Posterior	13	81.25

In this study, 81.25% of the patients had posterior opening and 18.75% of the patients had anterior opening. So posterior external opening was more common.

Table 7: Level of fistula.

Level of fistula	No. of cases	Percentage
Lower level fistula	15	93.75
Higher level fistula	03	12.5

In this study, 93.75% of the patients had lower level fistula and another 12.5% of the patients had higher level fistula (internal opening situated above the ano rectal ring).

Table 8: Post-operative complications and their frequency.

Complications	No. of cases	Percentage
Bleeding	NIL	NIL
Haematoma	NIL	NIL
Anal incontinence	NIL	NIL
Recurrence	04	25%
Mortality	NIL	NIL

In this study, complete healing occurred in 14 cases (87.5%) and recurrence occurred in 04 cases (25%). The recurrence of anal fistula is mainly due to infection and technical error. Infection was one of the reasons for non-healing of internal opening because it caused the breakdown of the closure wound on the internal sphincter. So, in cases with persistent anal abscess or infected incisional wounds, infection would be a factor for treatment failure. In this study the patients were followed for a period of 3 months. Eleven fistulas healed within 4 weeks whereas one fistula took around 6 weeks to heal.

DISCUSSION

The surgical treatment of fistula in ano should aim at the complete elimination of the fistula while maintaining the sphincter muscle function as much as possible.¹⁸ The criteria determining success or failure of surgery are incidence of recurrence or incontinence.¹⁹ In present

study 16 patients were treated for fistula in ano. The commonest age group of presentation was third and fourth decade of life, Khalid et al observed a high incidence in third and fourth decades which is comparable to present study.²⁰

Most of the patients in our study that is 14 patients (87.5%) were male Buchanan G et al (in their study 17 patients were male and 03 were females having fistula in ano), which is similar to Saif et al (in their study 41 males and 04 females had fistula in ano) and these results show that male approximately 9-10 folds at high risk of developing fistula in ano as compared to females.^{21,22} This proves that males have more intra muscular glands than females and they are more ramifying and cystic.

Most common symptom was perianal discharge (81.25%) followed by perianal irritation (62.5%). Pain and swelling were other presentations in some patients. The mean duration of symptoms before surgery was 11 months, Khalid et al and Takayuki et al reported that mean duration of symptoms before surgery was 18 months and 11 months respectively which is nearly comparable to mean duration of symptoms in present study.²³ In present study majority of the cases the fistulas were found posteriorly (81.25%). In another study of 199 cases, in majority of the patients, external opening of fistulas was found posteriorly.²⁴ In this study our experience showed that LIFT technique can be preferred treatment option for fistula in ano with preventing the recurrence and preserving the incontinence.

The surgical treatment of anal fistula aims to eradicate septic focus and fistula tract while preserving anal sphincter function, preventing recurrence, providing comfort and allowing patient to return to normal daily activities as early as they can. In present study, all patients underwent ligation of intersphincteric fistula tract (LIFT) procedure for fistula in ano and achieved 87.5% cure rate with only 04 (25%) cases of recurrence. No anal incontinence was noted in our study. Huda et al achieved 100% success rate in fistula closure after the procedure and no patient had loss of continence.²⁵ Sileri et al, in a prospective study of 18 patients achieved a cure rate of 83% with only 03 recurrences.²⁶ There were also no cases of incontinence in their study. Makhlof et al, in a study of 30 patients who underwent LIFT showed complete cure rate of 90% with recurrence in 03 patients.²⁷ There were also no cases of anal incontinence in their study.

The results of our study are compatible with the results of reports presented by the above-mentioned authors. Although generally the results obtained in this study demonstrates that LIFT is a very safe and effective technique. Considering that one of the main expected advantages of the technique is low or zero possibility of an impaired sphincter function (since there is no section of the sphincter), this result was quite surprising. The limitation of this study was its small sample size and short follow up period.

CONCLUSION

The ligation of the intersphincteric fistula tract technique for fistula in ano appears to be effective, safe and easy to perform with encouraging early outcomes.

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