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Original Research Article

Ligation of the intersphincteric fistula tract technique in the treatment of anal fistula

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ABSTRACT

Background: Management of anal fistula is a challenging issue in surgical practice. No single technique is appropriate for treatment of all types of fistulas. The aim of this study was to evaluate the efficacy and safety of a new sphincter-sparing technique: ligation of the intersphincteric fistula tract (LIFT) for management of anal fistula.
Methods: Over a period of 18 months from January 2015 to June 2016 twenty-one patients (12 males and 9 females) with transsphincteric anal fistula were treated with the LIFT procedure. Patients were followed up for at least six months postoperatively for fistula recurrence, rate of wound healing and effect on fecal continence.
Results: Fistula healing rate was (90.5%); recurrence rate was 9.5% in the form of down staging to intersphincteric fistulas. Mean time of healing of intersphincteric wound was 32±7.4 days (ranged from 17 to 58 days). Mean time of healing of the external opening wound was 27±5.8 days (ranged from 19 to 56 days). No postoperative changes in fecal continence.
Conclusions: LIFT operation is a safe and effective management of transsphincteric anal fistula, this technique has high healing rate with no effect on fecal continence.

Keywords: Anal fistula, Fistula, LIFT, Perianal infection

INTRODUCTION

Anal fistula is a common problem associated with significant inconvenience and morbidity to the patients. It is defined as a communication between the ano-rectal mucosa and the perianal skin that is lined with granulation tissue.[1] It usually results from an anorectal abscess which bursts spontaneously or after inadequate surgery, acute infection of the anal crypt leads to anal abscess and fistula represents the chronic form of this infection.[2]

Parks classified anal fistula according to the relation of the tract with anal sphincters into: intersphincteric, transsphincteric, suprasphincteric, and extrasphincteric.[3] Anal fistulas were classified also into simple and complex, treatment of complex fistulas usually associated with a high risk of incontinence or recurrence, a fistula is termed complex when the tract crosses more than 30 % of the external anal sphincter (this include high-transsphincteric, suprasphincteric, and extrasphincteric types in Parks classification) also fistula is considered complex if it is recurrent or has multiple tracts, anterior fistulas in females and fistulas in patients has pre-existing incontinence or local disease as Crohn's disease, TB or local irradiation.[4,5]

Treatment of anal fistula depends on the amount of anal sphincter involvement and sphincter preservation to maintain continence. Traditionally anal 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 patients, need prolonged time

for wound healing and associated with postoperative scaring and anal deformity.[6-8] To avoid these complications other options for treatment of anal fistula were developed, including seton placement, anal fistula plug, fibrin glue injection, Radiofrequency ablasion, endorectal advancement flap (ERAF) and ligation of the intersphincteric fistula tract (LIFT).[9-14] The aim of this study was to evaluate the efficacy and safety of ligation of the intersphincteric fistula tract as a surgical management of anal fistula.

METHODS

This prospective observational study was conducted from January 2015 to June 2016 on 21 patients with trans-sphincteric perianal fistulas all were treated with ligation of the intersphincteric fistula tract operation, at Al-Hussein University Hospital and AL-Shorouk General Hospital, Cairo, Egypt.

The study protocol was approved by the local ethics committee, all patients were counseled regarding the procedure, outcome and possible complications and written consent was taken.

Inclusion criteria

Patients with trans-sphincteric perianal fistula.

Exclusion criteria

- Patients with fistulas secondary to tumor, inflammatory bowel disease, TB or trauma.
- Patients with horseshoe fistulas or multiple tracts.
- Patients with active infection of the fistula or with uncontrolled DM.
- Patients with Preexisting incontinence.
- Patients with bleeding tendencies or on anticoagulant therapy.

All patients were subjected to:

Preoperative evaluation

- Full history taking and clinical examination: For detection of type of fistula, location of external and internal openings, extent of sphincter involvement, presence of sepsis and exclusion of other anorectal diseases or continence problems.
- Investigations: MRI was done for patients with recurrent fistula, and in primary fistulas that suspected to be complex after clinical assessment, other preoperative investigations were done according to patients' condition.

Operative management

Patients were prepared with evacuation enema the night before and on the morning of the operation. The anal region was shaved the morning of the operation. Antibiotic prophylaxis with 1gm cefotaxime IV. Spinal anesthesia for all patients.

Operative technique

- In lithotomy position, the rectum and anal canal were examined to identify the internal opening.
- The fistulous tract was gently probed with a small, blunt-tipped, flexible metal probe which left in place till identification of the fistula. (Figure: 1-a)
- Curved incision was made at the intersphincteric groove over the site of the tract.
- Deepening the wound using scissors, blunt dissection and Diathermy till the white fibrous fistulous tract was identified with the metal probe inside. After isolation of the intersphincteric tract the metal probe was removed.
- Ligation of the fistulous tract close to the internal and external sphincters with excision of the part between the two ligatures. (Figure: 1-b)
- From the external opening the tract was curetted and washed with betadine and partial fistulotomy or fistulectomy of the tract leaving the part within the external sphincter was done.
- Closure of the intersphincteric wound with interrupted sutures.

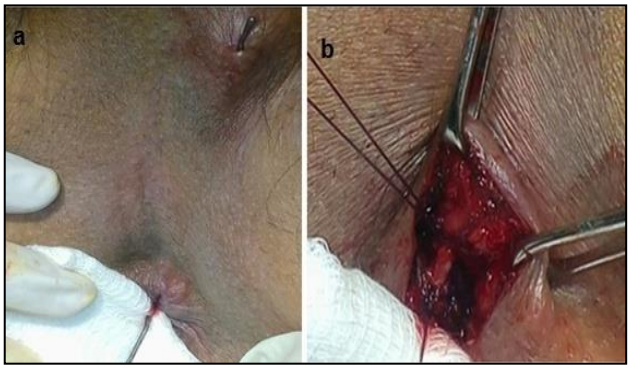

Figure 1: (a) Probing of the fistula; (b) Identification and ligation of the tract.

Post-operative management and follow up

All patients were observed in the surgical ward. Antibiotics were given for Gram negative organisms and anaerobes (as ciprofloxacin tab. and metronidazole tab.) Analgesics were given according to patient need. Patients were allowed to go home when fully comfortable on oral analgesics, fully mobile and tolerating normal diet. Postoperatively gentle cleaning of the anal region with warm water after each bowel movement was advised. After discharge, patients were followed up weekly till complete wound healing, then at the end of the third and the sixth months. In the follow up visits the patients were asked about bleeding or discharge, continence or defecation problems and the degree of wound healing, wound infection or fistula recurrence was noted.

RESULTS

Demographic and preoperative data

Among the 21 patients included in this study 12 (57.2%) were males and 9 (42.8%) were females. The age of patients ranges from 23 to 56 years with mean age was (36.8±8.3) years. Eight patients (38%) had high fistula traverses through the upper two thirds of the external anal sphincter by MRI. Four patients (19%) had previous fistulectomy (Table 1).

Table 1: Preoperative data.

Variable		No. and percentage
Gender	Male	12 (57.2%)
	Female	9 (42.8%)
Fistula type	Low	13 (62%)
	High	8 (38%)
Previous fistula surgery	Primary	17 (81%)
	Recurrent	4 (19%)
Age	Mean±SD	36.8±8.3 years
	Range	23 to 56 years

Operative time and wound healing

The operative time ranged from 23 to 52 minutes; the mean operative time was (33.2±5.6 min). The time needed for healing of the external opening wound ranged from 19 to 56 days with the mean of 27±5.8 days, the wound at the intersphincteric groove takes longer time to heal, range from 17 to 58 days and the mean was 32±7.4 days (Table 2).

Table 2: Operative time and wound healing.

Variable	Mean±SD	Range
Operative time	33.2±5.6 min	23 to 52 min
Intersphincteric wound healing	32±7.4 days	17 to 58 days
External opening wound healing	27±5.8 days	19 to 56 days

Postoperative follow up and complications

All patients were discharged on the first or second postoperative day, none required readmission, five patients (23.8%) had acute postoperative urine retention required urethral catheterization and no significant bleeding or deep wound infection was noted. Complete fistula healing was observed in nineteen patients (success rate 90.5%), two patients (9.5%) developed recurrent fistula through the intersphincteric wound (down staging) and they required second operation with fistulotomy after 3 months from the first operation and healed after that. Delayed wound healing more than six weeks occurred in five cases four of them of the intersphincteric wound and one patient only had delayed healing of the external opening wound. During the follow up period no patients complained of fecal continence changes, at the end of the sixth postoperative months no cases of fistula recurrence, anal stenosis or chronic anal fissure was detected (Table 3).

Table 3: Postoperative complications.

Variable	No.	Percentage
Urine retention	5	23.8 %
Bleeding	0	0 %
Deep wound infection	0	0 %
Recurrence	2	9.5 %
Delayed healing intersphincteric wound	4	19 %
Delayed healing external opening wound	1	4.7 %
Fecal incontinence	0	0 %

DISCUSSION

Management of anal fistula is a challenging issue in surgical practice, there is no technique appropriate for management of all types of anal fistula, and therefore, treatment should be directed by the surgeon's experience. The aim of surgical management is to achieve fistula healing, prevent recurrences and maintain continence.[15] One should keep in mind the relation between the extent of sphincter division and functional impairment.

Operations used in the treatment of anal fistula can be divided into sphincter-saving and sphincter-sacrificing techniques, In sphincter-sacrificing procedures sphincter division was carried out with or without immediate repair, these techniques have a high fistula healing rate but associated with a high rate of post-operative incontinence, the sphincter-sparing methods have varied fistula healing rates but very little or no post-operative incontinence.[16] The impairment of continence has a worse effect on quality of life and is more distressing for patients than the presence of the fistula itself, so the sphincter saving techniques are more popular. Examples of sphincter saving methods include fibrin glue injection, anal fistula plug, endorectal advancement flap (ERAF) and ligation of intersphincteric fistula tract (LIFT).

The LIFT operation was first introduced by Rojanasakul et al, aimed at total sphincter preservation; the technique disconnects the internal opening from the fistulous tract (preventing continuous infection from entry of fecal particles into the tract) and excise the intersphincteric part of the fistula which represents the infected anal gland residual (eliminating the intersphincteric septic focus), without division of any part of the anal sphincter complex.[14]

Three types of failure following LIFT procedure were described: (1) Partial failure or down staging from transsphincteric fistula to the simpler intersphincteric type may be due to unsecured ligation close to the

internal opening with development of the new tract through the intersphincteric wound, (2) Localized failure or development of a blind sinus at the external opening due to presence of septic focus within fistula tract remnants. (3) Total failure or recurrence of the transsphincteric fistula may be due to incorrect identification or ligation the fistula tract.[17]

In this study we perform dissection and isolation of the intersphincteric tract with the metal probe in situ for accurate identification of the tract, also partial fistulotomy or fistulectomy of the tract from the external opening was done together with curettage of the part within the external sphincter to avoid localized failure or appearance of blind sinus at the external opening.

In this study the failure rate was 9.5% (two patients out of 21 patients in the form of down staging to the more simple intersphincteric fistulas) there was no cases with continence problems. Mean time of healing of intersphincteric wound was 32±7.4 days (range from 17 to 58 days). Mean time of healing of the external opening wound was 27±5.8 days (range from 19 to 56 days). These results were close to the results conducted by Mushaya et al. They found that the success rates following LIFT operation was 92%, when comparing the LIFT and ERAF operations in their study.[18]

The results in this study were better than the results of Sileri et al, as regarding the recurrence rate, 17% of their patients (3 out of 18) developed recurrence of the fistula and require further treatment, no postoperative worsening of continence were observed in their patients.[19]

Present results were comparable to the results conducted by Rojanasakul et al. In their study Fistula-in-ano healed primarily in 94.4% (seventeen patients out of eighteen). They had one non-healing case (5.6%). The mean healing time was four weeks. None of the patients had disturbances in clinical anal continence.[14]

CONCLUSION

LIFT procedure is an effective and safe management of transsphincteric anal fistula, this technique has high healing rate with no resultant effect on fecal continence. The successful outcome is associated with significant improvement in patients' quality of life.

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