

Research Article

Evaluation of Ligation of the Intersphincteric Fistula Tract (LIFT) Technique As A Sphincter Preserving Surgery For Perianal Fistula

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Abstract

Background: Perianal fistula is a disease of antiquity. Even with all that work and research, started 2500 years ago, or may be more, man didn't find "the" treatment for perianal fistulas. A lot of work is still required in a trial to reach that treatment. **Objective:** to evaluate Ligation of the intersphincteric fistula tract (LIFT) technique in the management of perianal fistula and follow up for possible complications as recurrence and anal incontinence. **Patients and Methods:** This is a prospective study conducted at Alazhar university hospital Assuit in the period from September 2017 to July 2018. This study was designed to be a randomized controlled study, involving 40 patients with perianal fistula, 90.3% of them were males. **Results:** LIFT procedure was done to all patients with average hospital stay of 1.03 days ($p=0.238$), and follow up period of 10.5 ($p=0.067$) months. The cure rate was 86.7% ($p=0.062$), and the recurrence occurred in 13.3% ($p=0.124$) No cases of incontinence were noticed ($p=0.038$). **Conclusion:** Ligation of the inter sphincteric fistula tract technique is a feasible, minimally invasive, cheap and relatively easy procedure, which is safe and effective in same time. Colorectal surgeons as well as general surgeons, if they are planning to perform fistula surgery, should master this technique, as it can be done in most centers or hospitals even if it's poorly equipped, with minimal requirements, and satisfactory results. LIFT technique may become the gold standard in treating "uneasy" fistulas especially if it's Trans sphincteric. More randomized controlled trials are required, to prove that assumption or to dispute it.

Keywords: Ligation of the intersphincteric fistula tract,

Introduction

A perianal fistula is a common condition. Defined as persistent infectious tract between the anal canal and the perianal skin. Most commonly due to acryptoglandular infection. It appears after drainage of perianal abscess. It has an incidence of 5.6 per 100.000 in women and 12.3 per 100.000 in men. The disease occurs predominantly in the third and fourth decade of life. It is believed that infection of the intersphincteric glands is the initiating event in fistula in ano, in a process known as the 'cryptoglandular hypothesis'⁽¹⁾.

The etiology of persisting perianal suppuration and fistula formation is the presence of anal glands or epithelial debris in the central and intersphincteric spaces. In the presence of infection, act as multiple sequestra which harbor and maintain the infective process. Infection starts in the central space and works

its way to the other anorectal spaces, leading to the different types of fistulae⁽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. 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 extra-sphincteric 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⁾

Aim of the Work

The aim of this study is to evaluate Ligation of the intersphincteric fistula tract (LIFT) technique in the management of perianal fistula and follow up for possible complications as recurrence and anal incontinence.

Patients and Methods

This is a prospective study conducted at Alazhar university hospital Assuit in the period from September 2017 to July 2018.

Patients: Forty patients (convenient sample) suffering of anal fistula participated this study.

Eligibility: Ages Eligible for Study: 16 years. Genders Eligible for Study: Both.

Inclusion Criteria: All patients included in this study: Were suffering from one of these types of perianal fistula: Low transsphincteric type. High transsphincteric type. Were elder than 16 years old and below 75 years. Were able to understand and accept proposed investigations and treatment. Signed a detailed informed consent document, as well as latest patient information leaflet. Were fit for suitable type of anesthesia.

Exclusion Criteria: These patients were not included in this study: Patients suffering from one of these types of perianal fistula: Subcutaneous type (for its simplicity). Extra-, intra- and Suprasphincteric fistulas. Horse-shoe type (for fear of missing tracts). Branched or complex by MRI. Patients with history suggestive of one of the following conditions (may suggest a complex fistula): Inflammatory bowel disease. Diverticulitis. Previous radiation therapy for prostate or rectal cancer. Tuberculosis. Steroid therapy. Human immune-deficiency virus (HIV) infection. Below the age of 16 years, or above 75 years. Patients with any degree of fecal incontinence. Not fit for anesthesia.

Approval from AL_Azhar Assuit University Hospitals ethics committee was obtained.

Methods

All patients subjected to: Full history taking. Personal history. History of present illness: history of perianal abscess, rectal trauma or pelvic abscess. Past history: chronic disease as diabetes, hypertension, bronchial asthma any immune disease or any medications.

Full clinical assessment:

General examination:-

Local examination:

- including digital examination to assess the integrity of the anal sphincter muscles.

By inspection: One or multiple openings next to anal orifice may present. The fistula is either temporary healed or active showing granulation tissue. Perianal skin shows indurations.

By palpation: Internal opening or indurated track may be felt. Express pus on pressure may be present. Assessment of clinical continence using Clinical continence grading. PR examination to detect abscess, internal opening and fistulous tract.

Investigations: includes

For diagnosis:

Radiological:

Fistulogram: rarely done. With lipiodol: demonstrates the track & any side branches.

Proctoscopy: Internal opening may be seen.

Endoanal or Endorectal ultrasound: a test allows the doctor to evaluate in depth, using ultrasonography, the different constituents of the wall of the anal canal and the latter part of the rectum, as well as the surrounding area.

MRI for anal region and perineum: Imaging had a limited role in the preoperative assessment of perianal fistula magnetic resonance imaging has been shown to demonstrate accurately the anatomy of perianal region.

In addition to showing the anal sphincter mechanism,

MR imaging clearly shows the relationship of fistulas to the pelvic diaphragm (levator plate) and the ischioanal fossae.

The relationship has important implication for surgical management and outcome and has been classified into five MR imaging-based grades.

If the ischioanal and ischioanal fossae are unaffected, disease likely confined to the sphincter complex (simple intersphincteric fistulization, grade 1 or 2) and outcome following simple surgical management is favorable. Involvement of the ischioanal or ischioanal fossa by a fistulous track or abscess indicates complex disease related to Trans sphincteric or suprasphincteric disease (grade 3 or 4). Correspondingly more complex continence or may be acquired that may threaten continence or may require colostomy to allow

healing. If the track traverse the levator plate, a Translevator fistula (grade5) is present and a source of pelvic sepsis should be sought.

For preparation of the patient to surgery:

Complete blood count (CBC). Liver function tests: ALT/ AST / Bilirubin /Albumin. Kidney Function Tests: Urea/Creatine. Coagulation profile: Pc/Pt/INR. Hepatitis C, B. Random blood sugar. Culture and sensitivity.

Preparation of the patient preoperative:

Colonic preparation: Patient counseling. Improving nutritional status. Bowel preparation: Mechanical preparation: No residual diet for 3 days before surgery. Enemas and laxatives for 2 days before surgery. Chemical preparation: Intestinal antiseptics: Neomycin and Metronidazole for 2 days before operation. This will cover gram -ve, gram +ve & anaerobic organisms.

Peri-operative Antibiotics prophylaxis: Give before surgery and are continued postoperatively for 1 day. It is a combination of cephalosporin or an aminoglycoside with metronidazole or clindamycin according to culture and sensitivity.

Operative techniques: Regional or general anesthesia with muscle relaxation and endotracheal intubation are administered. The procedures were performed in lithotomy position. Identifying the external opening. Identifying internal opening, by digital examination and probing, hydrogen peroxide was used in some of the cases. Entering the inter-sphincteric plan at the site of fistulous tract via curvilinear incision.

The patient was discharged one day post-operative and were followed up at outpatient clinic one week, two weeks, one month ,three months, six months.

Early post-operative follow up involved assessment of the course and complication including early complication as bleeding, infection and urinary retention and late complication as pelvic sepsis, fecal incontinence, anal stenosis, chronic pelvic pain and recurrence.

Long term patient follow-up continued was at least 6 months to detect cases of recurrence and assessment of incontinence.

Recurrence was assessed by history, clinical examination and MRI if needed.

Digital examination was done to assess the integrity of the anal sphincter muscles. Assessment of Clinical Continence was done using Clinical continence grading: Category A: continent of solid and liquid stools and flatus (i.e. normal continence). Category B: continent of solid and usually liquid stools but not flatus (no fecal leakage). Category C: acceptable continence for solid stool but no control over liquid stool or flatus (intermittent fecal leakage). Category D: continued fecal leakage. Collected data was analyzed and statistically using SPSS Statistics version 1.4.3.

Analysis was conducted using Mean, Standard deviation, unpaired student T-test and Chi-square test. Assuming significance if $p < 0.05$.

Results

Table (1): Age distribution

Mean (Years)	Standard Deviation	Min	Max	T-test	P
		Years			
35.125	±5.65	27.0	47.0	1.185	0.246

Table (2): Sex distribution

Male	Female	Total
36 (90%)	4 (10%)	40 (100%)

Table (3): Duration of operative procedure

Mean (minutes)	Standard Deviation	Min	Max	P
		Minutes		
42.5	±5.59	35.0	50.0	0.246

Table (4): Post-operative pain scoring

Mean (degrees)	Standard Deviation	Min	Max	P
		Degrees		
2.75	0.829	2	4	0.326

Table (5): length of hospital stay.

Mean (days)	Standard Deviation	Min	Max	P
		Days		
2.5	0.5	2	3	0.245

Table (6): Duration of intolerability of work

Mean (days)	Standard Deviation	Min	Max	P
		Days		
17	5	12	22	0.238

Table (7): Follow up periods

Mean (days)	Standard Deviation	Min	Max	P
		Days		
32.5	7.5	25	40	0.067

Discussion

The goal of surgical management for perianal fistula is to effectively eradicate current and recurrent septic foci, associated epithelialized tracts and preserve continence. No single technique achieves these aims for all types of

anal fistulas. It is often necessary to balance the degree of sphincter division and continence disturbance. An ideal procedure for treating a fistula-in-ano should be minimally invasive with minimal failure rates and morbidity.

The study of Mushaya and his coworkers compared LIFT procedure to advancement flap for complex anorectal fistulas requiring initial seton drainage. Our study is a prospective study of LIFT procedure for the treatment of the perianal fistula.

This study was performed on 40 patients with perianal fistula. Many studies performed on the LIFT technique were performed with figures near to this figure; like that of Ellis⁽⁹⁾ who also recruited the same number of patients, and that of O'Malley et al.,⁽¹⁰⁾ who recruited 38 patients for each of their studies.

The fistula in ano is more prevalent in males, as it was mentioned earlier, men are prone to develop fistula at least two times more the females. In our study the percentage of males in the recruited patients was 90.3%. This percentage is near to that reported by some researchers. Kołodziejczak et al.,⁽¹¹⁾ reported that 82.8% of the patients in their study were males, O'Malley et al.,⁽¹⁰⁾ reported that 90% were males. Other researchers reported different percentages, like Bleier and coworkers⁽¹²⁾, who

reported that out of the 39 participant in their study 51.3% were males. This discrepancy in percentages may occur as all of these studies, including ours, used a relatively small sample size.

We followed-up patient participated in our study for a period ranged from 6 months with mean of Murugesan et al.,⁽¹³⁾ found that the follow-up range in the studies collected for their meta-analysis was 0–67 months, but they didn't calculate the mean for the follow-up periods. On reviewing their data, a single study only had this lengthy follow up period of 67 months, it was for O'Malley et al.,⁽¹⁰⁾ and was a retrospective study, and this may explain the cause of lengthy follow-up period. Most of the prospective studies choose a follow-up period less than 12 months, for fear of attrition, especially when the condition is completely cured.

In our study the cure rate after performing LIFT technique for the perianal fistula was 86.7%. In this context, by cure we mean no recurrence or incontinence. Some studies used the same term others preferred to use 'healing' instead of cure. Rojanasakul et al.,⁽¹⁴⁾ and Ellis⁽⁹⁾, each reported that the cure rate for the patients treated by the LIFT technique in their studies was 94%. Kołodziejczak et al.,⁽¹¹⁾ reported cure rate of 86%, which is very near to our results. Bleier and coworkers⁽¹²⁾ reported cure rate of 57%. This low cure rate in the last study may be due to the inclusion of some "difficult-to-treat" cases, as 10 cases, (represented 25% of the cases) of their study were as follow (7 horse-shoe fistulas, 1 suprashincteric fistula and 2 recto vaginal fistulas).

In their meta-analysis Murugesan et al.,⁽¹³⁾ reported that, on analysis the data of 683 patients, in 22 studies, the healing (cure) rate after the LIFT technique was ranging from 40% to 94.4%.

In our patient series, recurrence after performing the LIFT technique occurred in 13.3% of the patients. In their study Shanwani et al.,⁽¹⁵⁾ reported recurrence in 17.7% of the cases treated with LIFT procedure. While Kołodziejczak et al.,⁽¹¹⁾ reported only 6.4% recurrence.

Kołodziejczak et al.,⁽¹¹⁾ reported 28% recurrence rate after LIFT technique, all those cases were having intersphincteric fistulas. This emphasizes the fact that although the LIFT is safe procedure, it's not suitable for all types of fistulas.

There were no cases of incontinence after performing the LIFT technique in all our patients. This was also reported by Rojanasakul et al.,⁽¹⁴⁾ Shanwani et al.,⁽¹⁵⁾, all of them reported no cases of incontinence in their case series.

This indicates the safety of the procedure on the sphincters.

Conclusion

Ligation of the inter sphincteric fistula tract technique is a feasible, minimally invasive, cheap and relatively easy procedure, which is safe and effective in same time. Colorectal surgeons as well as general surgeons, if they are planning to perform fistula surgery, should master this technique, as it can be done in most centers or hospitals even if it's poorly equipped, with minimal requirements, and satisfactory results. LIFT technique may become the gold standard in treating "uneasy" fistulas especially if it's Trans sphincteric. More randomized controlled trials are required, to prove that assumption or to dispute it.

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