

LIFT procedure: a simplified technique for fistula-in-ano

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Abstract The novel modified approach through the intersphincteric plane for the treatment of fistula-in-ano, known as LIFT (ligation of inter sphincteric fistula tract) procedure, is described in detail. LIFT procedure is based on secure closure of the internal opening and removal of infected cryptoglandular tissue through the intersphincteric approach. Essential steps of the procedure include, incision at the intersphincteric groove, identification of the intersphincteric tract, ligation of intersphincteric tract close to the internal opening and removal of intersphincteric tract, scraping out all granulation tissue in the rest of the fistulous tract, and suturing of the defect at the external sphincter muscle. Attention to detail is the key for a favorable outcome.

Keywords Fistula-in-ano · Fistulotomy · Surgical treatment

Introduction

The surgical treatment of fistula-in-ano frequently results in recurrence and incontinence. Reported recurrence and incontinence range from 0 to 32% and from 0 to 63%, respectively [1, 2]. These undesirable outcomes depend on many factors, but surgical technique is a major one. Current surgical techniques for fistula-in-ano are based on three main concepts. The first concept is cutting through

the whole tissue overlying the fistula tract, such as fistulotomy or placement of seton [3]. These traditional techniques are effective, but pose a considerable risk of incontinence. The second concept is removal of the infected cryptoglandular tissue in the intersphincteric plane. This concept is attractive, as the cryptoglandular tissue is believed to be associated with the etiology of fistula-in-ano. Sir Alan Parks [4] advocated a technique of removal of cryptoglandular tissue by laying open the internal sphincter below the internal opening. However, his technique never gained popularity. The third concept is closure of the internal opening. The use of intra-anal advancement flap exemplifies this concept [5–7]. This technique carries a lower risk of incontinence, but reported recurrence rate varies, as the technique is operator dependent. In 2006, we proposed a novel surgical technique for fistula-in-ano aimed at preserving the anal sphincters, named with the acronym LIFT (ligation of intersphincteric fistula tract) [8]. This technique is based on the concept of secure closure of the internal opening and concomitant removal of infected cryptoglandular tissue in the intersphincteric plane (Fig. 1). Our preliminary outcomes using the LIFT technique in 18 patients which include 13 low transphincteric and 5 posterior semi-horseshoe fistula have been satisfactory with 5.6% recurrence and negligible incontinence [8]. LIFT is simple to perform, but also not without some pitfalls, which can result in recurrence. During the last few years we have refined the LIFT technique, and would like to describe the steps herein (Fig. 1).

Surgical technique

At the beginning, we used LIFT technique for transphincteric fistula-in-ano, but finally LIFT has become our

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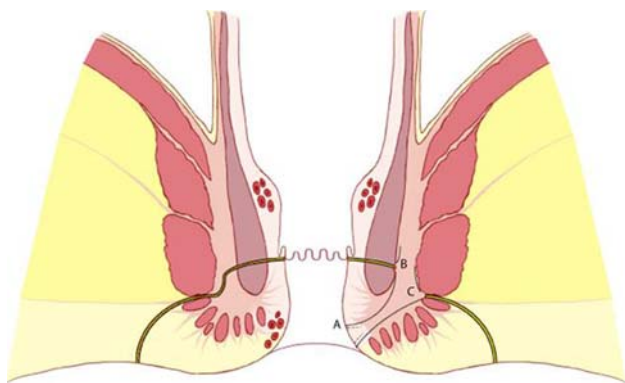


Fig. 1 Illustration showing the basic concept of the LIFT technique. **a** Approach via intersphincteric groove, **b** suture ligation of tract to close the internal opening, **c** suture ligation of defect in the external anal sphincter after removal of all infected granulation tissue

procedure of choice for most cases of fistula-in-ano. Some cases are not suitable for LIFT such as early fistulous abscess, in which intersphincteric tract is not well formed, as well as anal fistula with specific etiologies. Our patients receive preoperative bowel preparation with sodium phosphate enema. All patients are placed in prone position. The anoscope used is the Fansler's type, 28 mm in diameter with hinge-handle (Fig. 2) or without handle (Fig. 4).

Detail of technical steps of the LIFT procedure

Identifying the internal opening

A simple technique that greatly helps identification of the internal opening is injection of water through the external



Fig. 2 Identification of the internal opening by injection of water through the external opening



Fig. 3 Curvilinear incision of the LIFT procedure along the intersphincteric groove overlying the tract

opening (Fig. 2). If injection of water is not successful, then gentle probing the fistula tract with metallic probe is employed. In some cases passing the probe through the internal opening may not be possible and should not be forced, as presence of the probe close to the anus is enough for siting the incision.

Incision

A 1.5–2.0-cm curvilinear incision is made at the intersphincteric groove overlying the fistula tract (Fig. 3).

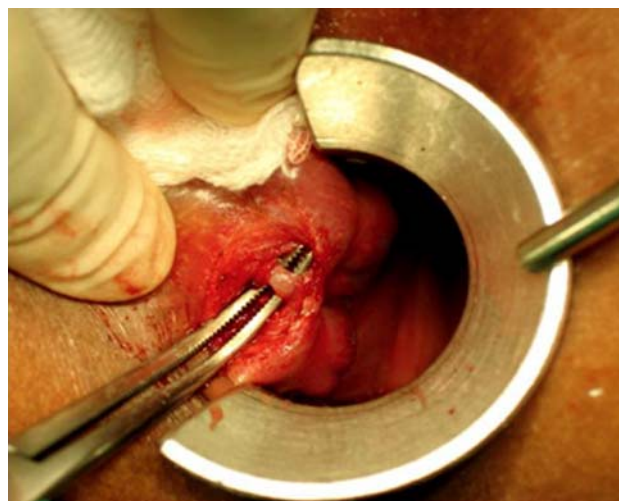


Fig. 4 Intersphincteric fistulous tract hooked up with a Mixer forceps

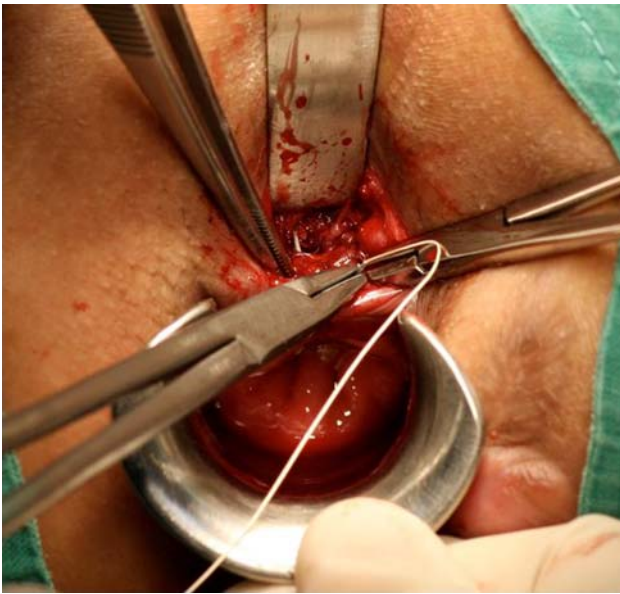


Fig. 5 Sutured ligation of intersphincteric tract to close the internal opening in the internal anal sphincter

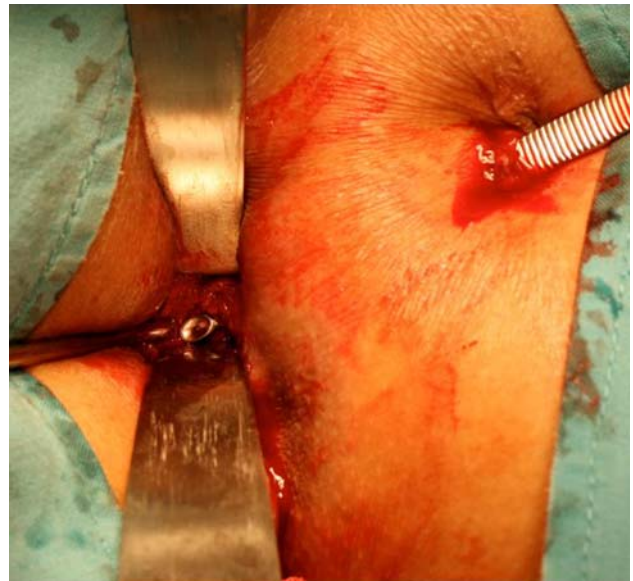


Fig. 7 Curetting the fistulous tract



Fig. 6 Confirming the removal of correct fistulous tract by probing

Dissection of the intersphincteric gland

Diathermy blade and fine tip dissecting tonsil forceps are used to dissect into the intersphincteric plane. The dissection is kept close to the external sphincter to avoid cutting through the internal sphincter and breaching the anal mucosa. The internal anal sphincter and external anal sphincter are retracted with specially designed narrow blade retractors (Figs. 6, 7, 8).



Fig. 8 Closure of external sphincter defect

Identifying the intersphincteric tract

The intersphincteric tract is carefully dissected out and hooked with a Mixer forceps (Fig. 4). In some cases the fibrous tissue in the intersphincteric plane may look similar to fistulous tract and can be mistakenly identified as the tract.

Secure ligation of the intersphincteric tract

Secure ligation of the intersphincteric tract abutting the internal opening is the key to success (Fig. 5). To achieve

this objective, 3-0 polyglactin is used to suture at the point where the intersphincteric tract passes into the internal anal sphincter, before tying around the fistulous tract with surgical knot. The tract next to the suture site is divided, and the rest of intersphincteric tract is excised and submitted for pathological examination.

Confirming the removal of correct fistulous tract

After excision of the intersphincteric tract, saline injection or probing through the external opening is again performed to confirm that the correct fistula tract has been removed (Fig. 6).

Curettage of the fistulous tract

Infected granulation tissues in the rest of the fistulous tracts and cavity are thoroughly removed with curettes (Fig. 7).

Closure of external sphincter defect

The open defect at the external anal sphincter is sutured with 3-0 polyglactin through the intersphincteric wound (Fig. 8).

Wound closure

The incision wound is closed loosely with a few interrupted stitches of 3-0 polyglactin.

Postoperative management

Postoperative care requires self wound cleansing with tap water twice a day and after each bowel movement. Oral ciprofloxacin and metronidazole are prescribed for 2 weeks.

Discussion

Another intersphincteric approach for treatment of complex fistula-in-ano has been previously described by Matos et al. [9]. However, there are two major differences between LIFT and the therefore described technique. First, LIFT is aimed at ligating the intersphincteric tract close to the internal opening. In contrast, the other technique utilized excision of the intersphincteric tract and over sewing

the internal anal sphincter defect. We believe that ligation of the fistulous tract is more secure than over sewing, and this step is the explanation for our favorable outcome. Second, the removal of infected granulation tissue in the fistulous tract and cavity by curettage is more practical and less time-consuming than total excision of the fistulous tract and primary repair. Prospective data on sphincter function after LIFT is still needed. Other future areas of investigations include the use of different antibiotic prophylaxis and the use of LIFT for Crohn's fistula-in-ano and acute anorectal abscess.

Conclusion

Technical steps of the LIFT procedure are described. The technique is promising and has potential to be a valid option for the treatment of fistula-in-ano. Attention to details of the technique is the key for success.

References

1. Garcia-Aguilar J, Belmonte C, Wang WD, Goldberg SM, Madoff RD (1996) Anal fistula surgery: factor associated with recurrence and incontinence. *Dis Colon Rectum* 39:723–729
2. Garcia-Aguilar J, Darey CS, Le CT, Lowry AC, Rothenberger DA (2000) Patient satisfaction after surgical treatment for fistula-in-ano. *Dis Colon Rectum* 43:1206–1212
3. Gordon PH (1999) Anorectal abscess and Fistula-in-ano. In: Gordon PH, Nivatvongs S (eds) *Principles and practice of surgery for the colon, rectum, and anus*, 3rd edn. Informa Healthcare, New York, pp 167–233
4. Parks AG (1961) Pathogenesis and treatment of fistula-in-ano. *Br Med J* 1:463–469
5. Aguilar PS, Plasencia G, Hardy TG Jr, Hartmann RF, Stewart WR (1985) Mucosal Advancement in the treatment of anal fistula. *Dis Colon Rectum* 28:496–498
6. Kodner U, Mazor A, Shemesh EI, Fry RD, Fleshman JW, Birnbaum EH (1993) Endorectal advancement flap repair of rectovaginal and the complicated anorectal fistulas. *Surgery* 114:682–690
7. Schouten WR, Zimmerman DD, Briel JW (1999) Transanal advancement flap repair of transphincteric fistulas. *Dis Colon Rectum* 42:1323–1419
8. Rojanasakul A, Pattana-arun J, Sahakitrungruang C, Tantiphlachiva K (2007) Total anal sphincter saving technique for fistula-in-ano: the ligation of intersphincteric fistula tract. *J Med Asso Thai* 90:581–586
9. Matos D, Lunniss PJ, Phillips RKS (1993) Total sphincter conservation in high fistula in ano: results of a new approach. *Br J Surg* 80:802