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## Original Article

# Long-term results of ligation of intersphincteric fistula tract (LIFT) for management of anal fistula



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### ABSTRACT

**Background:** Ligation of intersphincteric fistula tract technique is a new sphincter saving method with good results in management of anal fistula, but few studies report long-term follow-up data.

**Material and methods:** This study investigated the use of ligation of intersphincteric fistula tract as a sphincter saving method based on long term results. This was a retrospective review of prospectively collected data. The study was conducted at two tertiary care university medical centers. 36 patients with complex fistula from January 2010 to January 2014 treated with classic ligation of intersphincteric fistula tract were retrospectively followed. Demographic data, previous repair attempts, the type of the fistula and score of fecal continence were collected. The procedure was performed by colorectal surgeons. Primary healing rate, failures and fecal incontinence score of patients were followed for 6–48 months.

**Results:** A total of 36 patients underwent ligation of intersphincteric fistula tract during 24 months. The mean age of the patients was 35 years and 50% had two previous attempts at surgery. A total of 25 patients (69/5%) had high transsphincteric fistula. The mean follow up was 27 months. Successful fistula closure was achieved in 63/8% of the patients (23 of 36). The mean time of recurrence was 4.5 weeks. Only one (2/77%) patient reported gas incontinence (score: 3) after the procedure.

**Conclusion:** The recurrence rate and fecal incontinence were measured. The ligation of intersphincteric fistula is a promising sphincter-preserving procedure that is simple and safe. Our study demonstrates favorable long-term results of ligation of intersphincteric fistula tract for management of complex anal fistulas.

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## Resultados em longo prazo da ligadura interesfincteriana do trato fistuloso (LIFT) para o tratamento de fistula anal

### R E S U M O

Palavras-chave:  
Trato fistuloso  
Intersfinctérico  
Fistula complexa

**Introdução:** A técnica LIFT (*Ligation of Intersphincteric Fistula Tract*; ligadura interesfincteriana do trato fistuloso) é um novo método de preservação esfínctérica com bons resultados no tratamento da fistula anal, mas são poucos os estudos que relatam dados de seguimento em longo prazo.

**Material e métodos:** Esse estudo investigou o uso de LIFT como método de preservação esfínctérica, com base em resultados em longo prazo. Essa foi uma revisão retrospectiva de dados prospectivamente coletados. O estudo foi realizado em dois centros médicos terciários universitários. Trinta e seis pacientes com fistula complexa tratados com LIFT clássica de janeiro de 2010 até janeiro de 2014 foram retrospectivamente seguidos. Foram coletados dados demográficos, tentativas precedentes de reparo, tipo de fistula, e escore de continência fecal. O procedimento foi realizado por cirurgias colorretais. Percentual de cicatrização primária, insucessos, e escore de incontinência fecal dos pacientes foram monitorados durante 6 a 48 meses.

**Resultados:** No total, 36 pacientes foram submetidos a LIFT em um período de 24 meses. A média de idade dos pacientes era de 35 anos e 50% já tinham sido previamente submetidos a duas tentativas de cirurgia. Vinte e cinco pacientes apresentavam fistula trans-esfínctérica alta. A média do seguimento foi de 27 meses. Foi obtido fechamento bem-sucedido da fistula em 63,8% dos pacientes (23 de 36). O tempo médio até a recorrência foi de 4,5 semanas. Apenas um (2,77%) paciente informou incontinência gasosa (escore = 3) após o procedimento.

**Conclusão:** O percentual de recorrência e a incontinência fecal foram mensurados. A ligadura de fistula intersfinctérica é um procedimento promissor de preservação esfínctérica, de simples execução e seguro. Nosso estudo demonstra resultados favoráveis com o uso de LIFT em longo prazo para o tratamento de fistulas anais complexas.

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## Introduction

Anal fistula caused by anorectal sepsis, is characterized by chronic purulent discharge or recurrent abscess.<sup>1</sup> These fistulas are often arisen from cryptoglandular abscess. Based on the location of anal fistulas relative to sphincter muscle, they characterized into two groups: simple and complex. Simple fistulas consist of intersphincteric and low transsphincteric fistulas which are managed by simple fistulotomy without any significant risk of incontinence.<sup>2</sup> Most of fistulas are simple and can be treated satisfactorily by laying open the primary tract.<sup>1,3,4</sup> At least, complex fistula has one of the following characteristics: high transsphincteric (the tract crosses more than 30% of the external sphincter), supersphincteric, extrasphincteric multiple fistula tract, anterior fistula in women, recurrent fistula, fistula in patients with preexisting incontinence, local irradiation, cancer, IBD.<sup>5-7</sup>

Our aim in surgical management is to effectively eradicate the septic foci and any epithelialised tracts and preserve the anal sphincter function.<sup>1</sup> Although complex fistula is not common, various treatment options other than fistulotomy are available for less sphincter damages: fibrin glue injection, endorectal advancement flap, use of seton and staged fistulotomy.<sup>4,6-9</sup> These methods may have some risks of morbidity, for example insertion of cutting seton has up to 67%

incontinence rate.<sup>10</sup> Endorectal advancement flap has up to 35% risk of incontinence.<sup>11</sup>

Fibrin glue injection despite no risk of incontinence does not have any significant success for treating the fistulas.<sup>12</sup> A new sphincter saving method involving the ligation of intersphincteric fistula tract (LIFT), has been recently described by Rojanasaskul from Thailand.<sup>12</sup> A success rate of 94% was reported in the treatment of 18 patients without any issue with incontinency.

Another case of LIFT procedure was reported by Jashova I.S. Bleiver at the meeting of the American Society of Colon and Rectum Surgeons, on May 2009. The successful fistula closure was achieved in 57% of the patients without any decrease in continence.<sup>13</sup> In another study, Shanvani from Malaysia reported 82.2% success rate in LIFT procedure.<sup>14</sup> The present study was a prospective observational study designed to assess results obtained in our Colorectal Department. We assessed the healing rate and also removed the pitfall of the previous studies by using Jorge–Wexner incontinence score for quantifying the incontinence rate of the procedure (LIFT).

## Material and methods

Patients with fistula in ano arisen from cryptoglandular infections are included in our study and underwent surgery from

January 2010 to January 2014. All patients were informed about the procedure before the surgery. The study proposal was reviewed and approved by research center of Shahid Beheshti University.

### Assessments

Patients with fistula in ano arisen from cryptoglandular infections are included in our study and underwent surgery from January 2010 to January 2014. All patients were informed about the procedure before the surgery. The study proposal was reviewed and approved by research center of Shahid Beheshti University.

### Operative technique

All patients were admitted a day before the surgery. Limited chemical bowel prep attempted with bisacodyl tablet in the afternoon before the surgery.

After regional anesthesia, the patient was placed in lithotomy position. Internal orifice was identified by gently probing the fistula tract, once both opening was delineated, a fansler anoscope was inserted. Via skin incision made by using a scalpel, an intersphincteric groove at the site of the tract was entered. Care was taken not to injure the sphincter.

The intersphincteric tract was identified and isolated using a small right-angled clamp. Both sides of the tract in intersphincteric space was ligated with a 3/0 vicryl. Following that, the tract was divided between the points of ligation. The internal opening was sutured using 3/0 vicryl. Subsequently, the external opening and the remnant of the tract was cored out up to the proximity of external sphincter. Finally, the intersphincteric incision was approximated with interrupted 3/0 vicryl. The cored out wound was left opened for dressing.

### Postoperative management

All patients were prescribed on anti-inflammatory analgesic, a stool softener, and oral ciprofloxacin and metronidazole for a week. Patients were instructed to perform washing the wound with warm water 3 times a day. All patients were examined at weeks<sup>1,2,4,8,15</sup> and one year after the surgery and finally were followed by phone thereafter. The following parameters were noted at the visits: healing time, recurrence, and score of incontinence.

## Results

35 patients met the study criteria and treated with LIFT technique. Twenty (81%) were men. The mean age 35-yrs (range: 22–50). The mean previous surgeries were two times (range 0–9).

Types of fistulas were as following: 25 (71%) high-transsphincteric, 5 (14/5%) suprasphincteric, 1 (2/8%) horseshoe suprasphincteric, and 4 (11/4%) anterior fistula. Score of fecal incontinence prior to LIFT was zero in all the patients. In one patient gas incontinence (score=3) was created after the surgery. Median follow up period was 15 months (6–24 months). Successful closure rate of the fistula tract was 66%

**Table 1 – Demographic data.**

Number of patients	36
Male/female	21/15
Mean age/years	35
Mean previous surgery	2 (0–9)

**Table 2 – Type of fistula.**

High transsphincteric	25
Suprasphincteric	6
Horseshoe	1
Anterior in female	4

of the patients (23 of 35). The mean time of recurrence was 4.5 weeks in 12 patients.

In [Table 1](#) you can see demographic data and [Table 2](#) shows types of fistula.

## Discussion

Results of the studies shows that LIFT, is a safe and effective treatment for management of complex perianal fistulas. The success rate of 66% is a noticeable result compared to other treatment options. There are some unfavorable results of other sphincter saving options for treating complex fistulas. Mucosal advancement flap has recurrence rate up to 63%.<sup>15,16</sup> Fibrin glue injection is a low risk technique but its results have been disappointing with success rate as low as 16%.<sup>17,18</sup> Similarly the results of anal plug success rate are between 29% and 87%.<sup>19,20</sup> Two strengths of this study are: firstly it represents the first experience of Iranian surgeons for LIFT procedure and secondly in this study despite the three previous studies in Thailand, Malaysia and Canada. We have objectively measured the score of fecal incontinence before and after the procedure by Jorge–Wexner scoring system. So we could evaluate the effect of LIFT on sphincter function more carefully.

Two of five recurrences in our study were intersphincteric fistulas which were managed by simple fistulotomy. It may replace a difficult method to treat high transsphincteric fistula to an easier one to manage intersphincteric fistula nonetheless.

In our study LIFT procedure is a difficult method for treatment of suprasphincteric fistulas, multiple fistulas, and fistulas with extensions, but we could use LIFT with high success rate for other complex fistulas.

## Conclusion

This study was done for less patients by our colorectal team with a different result. But overall, both of them show new technique for fistula in ano surgery has early results comparable to other sphincter sparing procedures. This is a safe and easy to perform procedure. To have a quorum as a popular fistula in ano procedure, randomized control trials is necessary.

## Conflicts of interest

The authors declare no conflicts of interest.

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