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"A study of 34 cases of high variety and complex fistula surgery with a new technique of submucosal ligation and excision of fistula tract (SLEFT)"

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Abstract: *High variety and complex fistula surgery is a difficult procedure but need special attention for the surgeons. We observed recurrence rates of surgical procedure of submucosal ligation with excision of the tract for complex and high variety fistula treatment. The aim of this study is to observe recurrence rate of this procedure and to develop a standard surgical technique for management of complex and high variety perianal fistula. We conducted a study at 250 bedded district sadarhospitals, Feni, Bangladesh including several private clinics in same territory from 1st January 2014 to 31st December 2017 for assessing recurrence rate of surgery of 34 patients with complex and high variety fistula. All operations were done in the selected hospitals. Datawere collected including patients' demographic details, fistula type determined by endorectal-ultrasonography and MR Fistulography, preoperative and postoperative continence status, previous operations, healing rates, recurrence rates, and types of failure examined by endorectalultrasonography, re-operation in recurrence or failure cases, and complications. The study involved 34 patients who were admitted with high-variety and complex type of fistula. We observed low recurrence rate of submucosal ligation and excision fistulous tract procedure then other conventional procedure.Perianal fistula with tuberculosis, malignancy, crohn"s disease, ulcerative colitis and fistula with abscess formation are not taken into this study. There was a considerable low recurrence rate and good healing in this procedure of submucosal ligation and excision of fistula tract(SLEFT). This procedure is a good option for maintaining continence in management of perianal fistula with high and complex tract*

Key words: *Anorectal fistula, fistula-in-ano, sub mucosal, ligation*

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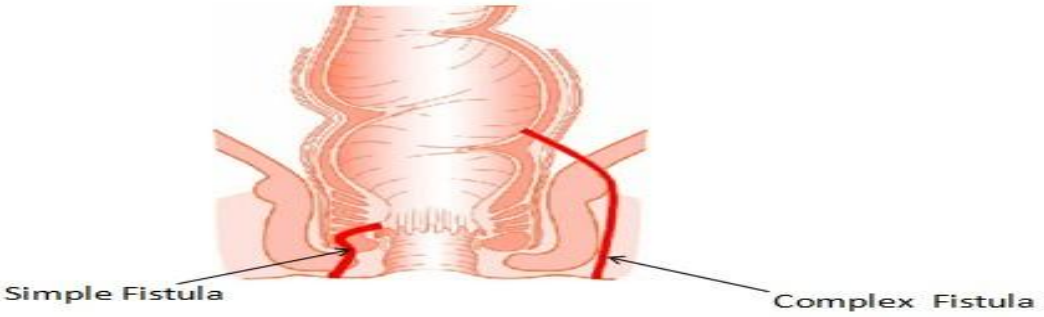
I. Introduction

A fistula is an abnormal connection between two hollow spaces (technically, wo epithelialized surfaces), such as blood vessels, intestines, or other hollow organs. Fistulas are usually caused by injury or surgery, but they can also result from an infection or inflammation. In general fistulas are two types: Simple and complex.



The ideal treatment for anorectal fistula should aim towards low recurrence, early recovery and minimal incontinence. The various techniques are described for management of high variety and complex perianal fistula like LIFT (Ligation of Inter-sphincteric Fistula Tract), LIFT PLUS (LIFT along with partial excision of fistula tract or application of plug), VAAFT (VideoAssisted Anal Fistula Treatment) and SLOFT (submucosal ligation of fistula tract). These are the techniques in vogue but have their disadvantages and limitations. We describe the technique of Submucosal Ligation and Excision of Fistula Tract (SLEFT) for anorectal complex and high variety fistula which we believe is an effective technique with the advantage of better outcome.

II. Method And Materials

In this study total 34 patients were selected with radiologically and imazing study confirmed diagnosis of complex and high variety fistula at 250 beded district Sadar Hospital, Feni, Bangladesh including several private clinics in a same territory from January 2014 and December 2017 , where we collected related preoperative and postoperative information's in structured data sheet describing clinical history details, findings of clinical examination with DRE and proctoscopy, fistula type determined by Endorectal ultrasonography and MR Fistulography, continence status, previous operations if any with type of surgery, healing rates, recurrence rates, types of failure, and complications. All cases with anorectal complex and high variety fistula were included irrespective of their age, sex, co-morbidities and recurrence. Cases with malignancy, tuberculosis, crohn`s disease, ulcerative colitis and fistula with abscess formation were excluded. After systematic history taking and general examination, a digital rectal examination (DRE) was performed to palpate the internal opening and the tract. The fistula was classified according to Park's classification. Standard oral bowel preparation was performed with a rectal enema. Preoperative single dose antibiotic prophylaxis consisting of intravenous ceftriaxone injection was given at induction. All cases were performed under spinal anaesthesia with the patient in lithotomy position. Counselling and consent were part of the study and procedures.

The technique of the surgery was straightforward. After identifying the internal opening with help of methylene blue or povidone iodine solution a metallic fistula probe was introduced through external opening to guide the tract. An elliptical incision was made around the external opening about 1.0 – 1.5cm away from the probe and the tract was dissected gently and carefully up to sub mucus level where the tract was ligated with 3/0 vicryl and excised 1.0 cm distally. Here no incision made over the mucosa internally and stayed intact mucosa. In some cases, reaching the submucosal level was difficult and technically demanding. After excising the tract, the wound washed with povidone iodine solution, hydrogen peroxide and normal saline and packed with povidone iodine-soaked ribbon pack.

Postoperatively all patients underwent 24 hours of nil by mouth with intravenous fluids and parenteral medications followed by scheduled sitz bath after pack removal. Regular use of stool softener and low residue diet was advised routinely for a considerable period. Discharge from hospital were after 48 – 72 hours with checking continence effect. A follow up schedule of after 2 weeks, 3 months and 6 months advised during discharge.

III. Results

A total of 34 cases were included in this study with only 3 female candidates. Age distribution was 16 -66 years having 22 primary fistula and12 recurrent fistulas. Anatomical variations were demonstrable as intersphincteric , transsphincteric , supralevetor, bilateral communicating, multiple external openings.Nine (9) patients were diabetic and became well glycemic controlled before operation and one of them were hypothyroid. Mean healing duration were 2 -3 weeks with 2 patient developed recurrences (5.88%) after 1- 3 months. There was no case of incontinence (0.0%) or sepsis (0.0%). Fistula tract was traced and delineated in all the cases. The majority of patients (62%) had high transphincteric fistula-in-ano and 62% had internal opening above dentate line. Complete healing was achieved in 11.2 ± 5.7 weeks. All the patients were followed up for a minimum

period of one year (or till healing if the period exceeded one year), and none of the patients reported incontinence. Recurrence was found in 4 (11.76%) patientsin one (1) year. Although recurrence was found more in high transsphincteric fistulae, fistulae having internal opening above dentate line and external opening anterior to transverse midline, these were statistically insignificant factors.

Table 1 Background characteristics of the patients

Characteristics	**Value**
Age	39.1 ±12.4
Sex	
Male	31(91.17%)
Female	3(8.82%)
Type of fistula	
Low transsphincteric	10(29.41%)
High transsphincteric	21(61.76%)
Suprasphincteric	3 (8.82%)
Internal opening	
At dentate line	13 (38.23%)
Above dentate line	21(61.76%)
External opening from anal verge (Goodsall's rule)	
Within 2.5 cms	10 (29.41%)
Beyond 2.5 cms	24 (70.58%)
External opening according to goodsall's rule	
Anterior	18(52.94%)
Posterior	16(47.05%)
Outcomes	
Perfect continence	34 (100%)
Recurrence (1 year)	04 (11.76%)

Table 2: Risk factors for recurrence

Characteristic	**No recurrence(n=2)**	**Recurrence(n=32)**	**P value***
DM	0	3 (8.82%)	0.71
Previous surgery	1 (25%)	13(38.23%)	0.4
Type of fistula			
High	1 (50%)	18 (52.94%)	0.4
Suprasphincteric	1 (50%)	2 (5.88%)	
Type of fistula			
Primary	1 (50%)	21 (61.76%)	
Recurrent	1 (50%)	11 (32.35%)	0.29.9
Internal opening			
Below dentate line	0	23	
Above dentate line	4	52.76	0.2
External opening			
Anterior	3	41	0.26
Posterior	1	34	

*chi-square test/ fisher exact test

IV. Discussion

The ideal surgical management of perianal fistula is to cure the disease without any risk of fecal incontinence[1]. Different techniques described for management of complex and high variety anorectal fistula are fistulectomy, application of drainage seton, ligation of inter-sphincteric fistula tract (LIFT),various LIFT PLUS, video-assisted anal fistula treatment (VAAFT) and submucosal ligation of fistula tract (SLOFT) [1]. LIFT and LIFT PLUS techniques applied for inersphincteric and transphincteric fistula had advantages of high success rate and preservation of continence but it is technically more demanding especially in high and ascending tracts, having higher chances of intersphincteric abscess formation, internal sphincter damage and leaving an external scar [1, 2, 3]. VAAFT a newer and less invasive technique with better visualization, obliterating whole of the tract, showed low recurrence rate and better cosmetic outcome but involves limitation of availability and is cost-ineffective[3]. In SLOFT technique, it avoids going through the intersphincteric planes but some limitations hinder its wide acceptance. It needs a mature tract for ligation and is not applicable for acute anorectal fistula or associated inflammation. Moreover, the integrity of the mucosa is lost and chance of ischemic necrosis and sloughing out of the mucosa along with development of abscess or malignancy in retained unhealthy distal segment of the untreated tract is not without consideration. For these reasons LIFT, LIFT PLUS, SLOFT, VAAFT stays as good procedures for anorectal fistula in the hands of experts and equipped, but they are technically more demanding and have not stood in the test of clinical trials[5]. In this study we exercised a newer technique of SLEFT (Submucosal Ligation and Excision of Fistula Tract) for surgical treatment of complex and high variety anorectal fistula where the whole tract is dissected from external fistula opening up to the submucosa level, then ligated as much proximal as possible to mucosa and to excise the dissected distal segment of the tract. Here the integrity of the mucosa is maintained and the unhealthy tract is removed to avoid the potential risk of abscess formation or later development of malignancy. None of the patients developed incontinence postoperatively. Wound scar is a concern but mean healing rate is good with minimum recurrence rate.

V. Limitations

However, observing low recurrence of sub mucosal ligation with excision of tract but showing minimal complications and discomforts and involving technical difficulties in dissecting the branched and very long fistula tract.

VI. Conclusion

Developing newer techniques in surgical practice is always celebrating but have to be stood in the test of clinical trials. Though SLEFT is an easy, safe and cost-effective technique for complex and high variety perianal fistula it needs further study in larger scale.

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