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RESEARCH ARTICLE

“A COMPARATIVE STUDY OF LIGATION OF INTERSPHINCTERIC FISTULA TRACT AND FISTULECTOMY IN THE MANAGEMENT OF TRANS SPHINCTERIC FISTULA IN ANO”

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Abstract

Background: A fistulectomy involves complete excision of the fistulous tract, thereby eliminating the risk of missing secondary tracts and providing complete tissue for histopathological examination. By studying with comparing the LIFT with fistulectomy with its outcome being advantages and disadvantages in terms of hospital stay, postoperative bleeding, postoperative pain, recurrences, incontinence patient can be benefitted with early outcome with less complications associated, so this study being done to evaluate the standard procedure in terms of with less complication associated.

Objectives of the study: To compare the LIFT with fistulectomy in term of operative time, postoperative, bleeding, hospital stay, wound healing, postoperative pain, recurrence, incontinence

Methods: Patients satisfying inclusion criteria are enrolled within 24 hours of admission after informed consent. All the patients with Trans sphincteric fistula in ano will be evaluated with thorough clinical examination, radiological and laboratory investigations. Those who require surgery will be admitted and appropriate surgery will be performed and analyzed for in term of operative time, postoperative bleeding, hospital stay, postoperative pain, recurrence, incontinence.

Results: Majority of patients belonged to the age group of 30 -40 years. M:F is 4:1, Duration of hospital stay is significantly low in LIFT group with $P < 0.417$, Post-operative pain is less in LIFT group with $P < 0.002$, Post-operative wound healing time are less with LIFT group. Incontinence is less with LIFT group when compared to Fistulectomy with $P < 0.0452$, recurrence is noted in either group but more in LIFT group. Success rate in our study is 90% in LIFT group.

Interpretation and conclusion: LIFT is associated with less postoperative pain, shorter duration of hospital stay and a quicker recovery, shorter duration of surgery, earlier return to work as compared with fistulectomy. LIFT procedure is not associated with major post-operative complications. There is no incontinence in the follow up period of six months.

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Introduction:-

A fistula-in-ano, is a chronic abnormal communication, usually lined to some degree by granulation tissue, which runs outwards from the anorectal lumen the internal opening to an external opening on the skin of the perineum¹. Associated with the abscess re accumulation followed by intermittent spontaneous decompression. Trans-sphincteric fistulas comprise 20%-25% of all fistula cases. Surgery remains the only modality for the effective treatment of this condition.

The main objective of the operative intervention is to heal the fistula with minimal morbidity. There are a number of sphincter-sparing methods such as fibrin or cyanoacrylate glue injection, anal fistula plug, endorectal advancement flap, seton ligation of inter sphincteric Fistula tract , and finally, video-assisted anal fistula treatment Several sphincter-sparing methods carry their own risk of recurrence and some degree of incontinence. Most of these are complicated and difficult procedures, and require expertise, highly experienced surgeons, or high-technology equipment.

Rojanasakul A et al., developed the technique of LIFT as a method for treatment of fistula-in-ano through an intersphincteric approach². LIFT technique is the novel modified approach through the intersphincteric plane for the treatment of fistula-in-ano, known as LIFT procedure. LIFT procedure is based on the secure closure of the internal opening and removal of infected cryptoglandular tissue through the intersphincteric approach. This technique result in faster healing of Fistula-in-ano, and does not divide the anal sphincters and postoperative anal function remain intact.

Materials and Methods:-

The prospective comparative cohort study was carried out from Jan 2019 – June 2020 at ESIC-MC & PGIMS RAJAJINAGAR , India, after approval by the Institutional Ethics Committee All procedures performed in studies involving human participants were in accordance with the Ethical Standards of the Institutional and/or National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable Ethical Standards.

Patients having a documented diagnosis of a trans-sphincteric fistula tract determined to be of cryptoglandular origin, above 18 years of age and able to understand and provide informed consent were included in the study. Patients with a history or suspicion of Inflammatory Bowel Disease (Crohn's or Ulcerative colitis), any fistula-in-ano of specific aetiology like tuberculosis, actinomycosis, nocardiosis and those associated with malignancy or a history of connective tissue disease were excluded. Sixty four patients (52 males and 12 females) presenting with trans-sphincteric fistula were divided into two groups by Patients were divided in two groups of thirty two each using nonprobability purposive sampling, a computer generated number was given for randomization. Patients who received odd numbers were selected for LIFT and all the patients on even numbers were selected fistulectomy.

Detailed history (including demographic details, presenting complaints, duration of symptoms, history of previous episodes of anorectal sepsis and past surgeries, history of any co-morbidity) was noted. Clinical findings recorded were the site of external opening, location of internal opening, evidence of abscess and the presence of other anal canal conditions like haemorrhoids or fissure. Findings of preoperative imaging studies such as fistulogram (MRI) were observed.

Thirty two patients were treated by LIFT technique and thirty two by standard fistulectomy. The procedure was done under spinal anaesthesia in lithotomy position. The track was identified by probing with a fistula probe or by instilling dilute solution of methylene blue through the external opening.

All LIFT procedures were performed by the same surgeon. A curvilinear incision was taken at the intersphincteric groove over the fistula tract. The intersphincteric part of the tract was identified by careful blunt and sharp dissection. This intersphincteric part was then hooked using a small right-angled clamp. The tract was ligated close to the internal sphincter with polyglactin no. 2-0 and cut distal to ligature. The intersphincteric part of the tract was excised along with other intersphincteric tissue and sent for histopathological examination. The distal fistulous tract was then cored out or curetted from the external opening to the external sphincter. The external sphincter defect, if

any, was repaired. The intersphincteric incision, as well as the distal tract, was kept open to facilitate drainage and prevent infection. Wound was irrigated using antiseptics such as hydrogen peroxide and povidone iodine. Antiseptic pack was kept and dressing given.

Fistulectomy procedure was performed by same surgeon. Probe is passed through external opening up to the internal opening. Elliptical incision including fibrous track along with unhealthy granulation tissue and external opening excised. Wound was irrigated with antiseptics such as hydrogen peroxide and povidone iodine. Antiseptic pack was kept and dressing was given.

All patients received prophylactic perioperative antibacterial medications including a 'Ceftriaxone' and 'Metronidazole'. Severity of postoperative pain was assessed using Visual Analogue Scale on the evening of surgery before administering NON OPIOID analgesic. The duration of hospital stay was noted. Evaluation was done weekly till complete wound healing and time to complete wound healing was noted. After wound healing, patients were followed up monthly for recurrence and incontinence till 6 months postoperatively.

Complete wound healing was defined as full epithelialisation of the wound². Recurrence was defined as either non-healing of the wound after 12 weeks or a reappearance of symptoms at the same site.

Statistical Analysis

Descriptive statistical analysis has been carried out in the present study. Significance is assessed at 5 % level of significance, Student t test (two tailed, independent) has been used to find the significance of study parameters on continuous scale in parametric condition between two groups (Inter group analysis) and Mann Whitney U test (two tailed, dependent) has been used to find the significance of study parameters on continuous scale in non-parametric condition with in each group. Chisquare test has been used to find the significance of study parameters on categorical scale between two groups.

Results

Sixty four patients underwent surgery for trans sphincteric fistula-in-ano. There were 52 men and 12 women. Age ranged from 21 to 51 years (Median 36 years) majority between 30-40 years. All patients had single external opening. The diagnosis of trans-sphincteric fistula in all 64 patients was mainly clinical and imaging in the form of Magnetic Resonance (MR) fistulogram.

LIFT procedure and fistulectomy were performed on 32 patients each. The two groups were comparable in the demography and anatomy of the fistulae as shown in [Table/Fig-1]. Comparison of results of the two surgical procedures are shown in [Table/Fig-2].

Patients were followed up for a of 6 months . 3 of 32 patients (10%) who had LIFT performed came back with a recurrence. Median time for recurrence was 10 weeks. The earliest recurrence was at 6 weeks. Of the 32 patients who underwent fistulectomy, 1 (4%) had a recurrence . the earliest recurrence was also at 6 weeks.

All recurrences were reported within four months of initial surgery.

One patient operated by LIFT had incontinence while six patients of fistulectomy had temporary incontinence for flatus and liquid stools for a short duration (<3 weeks) postoperatively. No patient in any group had permanent incontinence.

Table/Figure 1:- Baseline characteristics of the study subjects:

S.No	Parameter	LIFT group (n = 32)	Fistulectomy group (n = 32)	P value
1	Age (Year) [#]	36.28(7.24)	36.71(7.14)	0.404
2	Sex :			
	Male (%)	27(84.3%)	25(78.12%)	0.521
	Female (%)	5(15.6%)	7(21.8%)	

Table/Figure2:- Treatment difference between the LIFT and fistulectomy group:

SL.NO	Parameter	LIFT group (n = 32)	Fistulectomy group (n = 32)	P VALUE
1	Pain (Score)	3.875(2.44)	4.375(2.88)	0.228
2	Bleeding (No of pads soaked)	1(1,2)	1(1,2)	0.993
3	Infection:			
	No infection (%)	27(84.3%)	15(46.8%)	0.001*
	Serous discharge from the wound (%)	5(15.6%)	17(53.1%)	
4	Incontinence:			
	No incontinence (%)	31(96.8%)	26(81.1%)	0.0452*
	Incontinence for flatus (%)	01(3.1%)	6(18.7%)	
5	Post operative hospital stay	2.03(0.73)	2.65(0.89)	0.001*
6	Time to heal (Weeks)	5.68(0.95)	6.46(1.00)	0.001*
7	Recurrence	3(90%)	1(96%)	

Discussion:-

Total number of patients analysed for this study were 64, among which 32 patients had undergone LIFT . The other 32 patients had undergone Fistulectomy.

In our study, Fistula in ano is common in age group 30-40 years in our study with mean age of 36 years among the two study group.

In our study, Fistula in ano is more common in males, with a male to female ratio of 4: 1 in both study groups.

In our study, post operative pain 6 hours after surgery , was measured in VAS score. In group , who underwent LIFT procedure mean VAS score is 3.875. Similarly, in group , who underwent Fistulectomy the mean VAS score is 4.375.p value is 0.228 which is not significant .

In our study , post operative bleeding in both groups were similar with average one pad soaked in post op period with p value 0.993 which is not significant.

In our study, post operative wound infection rate is compared. In group who underwent LIFT , 5 patients got wound infection among the 32 patients. In Fistulectomy procedure, 17 patients acquired wound infection among the 32 patients, because of the increased time of procedure, large incision, more manipulation and bigger raw area exposure post operatively. On comparison and analysis of the two groups, wound infection rate in Fistulectomy is more when compared to LIFT procedure and p value is 0.01 which is less than 0.05. Hence the study is significant and shows that LIFT procedure produces lesser wound infection rate when compared to Fistulectomy in the treatment of fistula in ano.

In our study, on comparing post operative short term incontinence group who underwent LIFT procedure 1 out of 32 patients reported with incontinence. In group who underwent Fistulectomy, 6 out of 32 patients had the complication of incontinence. p value is 0.0452 which is less than 0.05. Hence the study is significant and shows that LIFT produces lesser incontinence when compared to Fistulectomy.

In our study, in post operative follow up period, post operative healing time is measured in weeks. In group , who underwent LIFT procedure mean post operative healing time is 5.68 weeks. Similarly, in group , who underwent Fistulectomy the mean post operative healing time for procedure is 6.46 weeks. On summing up both the groups, the average post operative healing time is less for LIFT procedure than Fistulectomy because of the smaller incision and smaller raw area in case of LIFT. Hence post operative hospital stay is also less for patients who have undergone LIFT procedure when compared to Fistulectomy.

In our study , in short term follow up of 6 months 3 patients had recurrence in LIFT group with success rate of 90% and 1 patient had recurrence in Fistulectomy group with success rate of 96%.

Comparison with other studies [Table/fig –3]

Rojanasakul et al.,² from Thailand in 2009 developed the LIFT techniquesaving the anal sphincter with the success rate of 94.4%. The advantage of LIFT technique are anal sphincter saving, minimal tissue injury hence a shorter healing time and small scar.

Shanwani et al.,³ from Malaysia studied LIFT procedure with the success rate of 82% and considered it as a safe and easy procedure to perform with good outcomes.

Alapach et al.,⁴ in Thai Journal of Surgery have done a “**Comparative Study on LIFT and Conventional Fistulotomy in the Treatment of Fistula in ano at Hai Yai hospital**” concluded that LIFT is successful with shorter healing time and lower incidence of post operative anal incontinence.

Pallavi V Ayyar et al.,⁵ “ **Does Treatment of Fistula-in-Ano by Ligation of Intersphincteric Fistula Tract Offer any Advantage over Standard Fistulectomy or Fistulotomy?**” prospective comparative study was carried out at Lokmanya Tilak Municipal Medical College, Mumbai, Maharashtra, India.concluded that ,LIFT offers the benefit of a shorter operative time, decreased postoperative pain, shorter hospital stay and faster wound healing with very low incidence of incontinence compared to fistulectomy or fistulotomy with a recurrence rate not significantly different from it.

Hassan E. A. Younes et al.,⁶ **Ligation of the intersphincteric fistula tract technique in the treatment of anal fistula**, prospective observational study was conducted from January 2015 to June 2016 on 21 patients with trans-sphincteric perianal fistulas at Al-Hussein University Hospital and AL-Shorouk General Hospital, Cairo, Egypt. concluded that LIFT operation is a safe and effective management of trans sphincteric anal fistula, this technique has high healing rate with no effect on fecal continence.

Hong.K.D., Kalsarkar.S. et al.,⁷in 2014 Techcoloproctol had done a Metanalysis and Systematic review on “**LIFT to Treat Anal fistulas**” and showed that LIFT appears to be an effective and safe treatment for Trans sphincteric and Complex anal fistulas.

Table/Figure03:- Difference between the different studies on LIFT procedure.

	Our study	Alpach s et al.,⁴⁹	Pallavi v ayyar et al.,⁵⁰	Hassan e. a. Younes et al.,⁵¹	Shanwani et al.,⁴⁸	Rojana sakukl a et al.,⁴⁷
Pain	4.3±1.53	-	4.41±1.53			
Post operative hospital stay	2.03	2	1.64±0.79		2.5	
Healing time in weeks	5.68	2 (2to7)	5.64±1.91	19 to 58	7	4
Incontinence	1	1	0	0	0	0
Recurrence	5	10(n=48)	5	2(n=21)	8(n=45)	1(n=18)
Success rate	84.3	79%	84%	90%	82.20%	94.40%

Conclusion:-

Though there is no statistical significant VAS score difference between two groups. But wound soiling is less, and early wound healing in LIFT group gives sense of early well being in patients.

Wound infection was found to be higher in fistulectomy group.

Incontinence to flatus was found to be higher in Fistulectomy group

Time for wound healing was significantly shorter among the LIFT group compared with Fistulectomy group.

LIFT procedure is technically more challenging to perform than Fistulectomy. But when performed under experienced hands will help in better management of condition.

Hence it is concluded that it is wise to choose LIFT procedure over Fistulectomy in trans sphincteric fistula in ano surgery.

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