



ORIGINAL ARTICLE

Compare the surgical outcome of Fistulectomy and Mucoal advancement flap in perianal fistula.

Mudassar Jabeen¹, Shahbaz Ahmed², Nida Firdous³, Samia Rasool⁴

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ABSTRACT... Objective: To compare the fistulectomy with mucosal advancement flap in treatment of perianal fistula in terms of mean hospital stay, frequency of anal incontinence and wound healing time. **Study Design:** Randomized Control Trial. **Setting:** Surgical OPD, DHQ and Allied Hospital, Faisalabad. **Period:** 1st March 2019 to 28 February 2020. **Methods:** Conducted on 120 (60 in each group) patients with fistula in ano presenting. Sampling technique was Non probability consecutive sampling. All the Patient age ranges from 20-55 years of either gender having perianal fistula which are low lying fistulas and with single external opening are included in study. Patients having perianal abscess, pilonidal sinus, Inflammatory bowel disease (Crohn's disease, Ulcerative colitis) or with history of tuberculosis, HIV disease, Complex high lying fistulas with multiple external openings are excluded. **Results:** In our study, group A underwent fistulectomy while on group B we perform mucosal advancement flap. About 56.67%(n=34) in Group A and 50%(n=30) in Group B were between 20-40 years of age while 43.33%(n=26) in Group A and 50%(n=30) in Group B were between 41-55 years of age, mean+SD was calculated as 38.78+9.07 years and 40.12+8.89 years respectively. According to gender division 86.67%(n=52) in Group A and 78.33%(n=47) in Group B were male while 13.33%(n=8) in Group A and 21.67%(n=13) in Group B were females, mean hospital stay was calculated as 93.93+4.56 hours in Group A and 107.95+4.66 hours in Group B, p value was calculated as 0.0001 showing a significant difference between the two groups. Comparison of anal incontinence in both groups was done showing that 13.33% (n=8) in Group A and 23.33%(n=14) in Group B had anal incontinence, p value was calculated as 0.15. At one month postoperative follow-up only 4 patient (6.7%) in group A showed complete wound healing while in group B 28 patients out of 60(46.6%) showed complete wound healing, P value was calculated as 0.00167 showing a significant difference while there is no significant difference in incidence of early post-operative complications. **Conclusion:** We concluded that hospital stay was significantly decreased in cases with fistulectomy when compared with MAF while there was no significant difference regarding anal incontinence in both groups.

Key words: Anal Incontinence, Early Wound Healing, Fistulectomy, Hospital Stay, Mucosal Advancement Flap, Perianal Fistula.

INTRODUCTION

Fistula in Ano is one of the common conditions. Its occurrence is 5.6 out of 100,000 for female and 12.3 out of 100,000 for men. Predominantly this condition presents in the 3rd and 4th decade of life. A classification system is developed by Parks et al. in which fistula is divided into intersphincteric fistula, trans-sphincteric fistula, suprasphincteric fistula and extrasphincteric fistula. The treatment options, however, does not depends on the position of the fistulous tract but on the level of the internal opening in the anal canal.^{1,2}

In complex fistula, the goals of treatment are; to control sepsis, avoid incontinence and prevent recurrence. No treatment method for anorectal fistula is "Gold Standard".

Surgical procedures are divided into two main categories; sphinter preserving and non-sphinter preserving³. Sphinter preserving surgical options comprises of fistulectomy, fistulotomy, (MAF) advancement flaps, loose-seton placement, fibrin glue installation, VAAFT (video assisted technique) and ligation of intersphinteric fistula

1. MBBS, FCPS (General Surgery), Senior Registrar, Allied Hospital, Faisalabad.

2. MBBS, FCPS (General Surgery), Associate Professor, Allied Hospital, Faisalabad.

3. Ph.D, Food Science and Technology, Assistant Professor Food Science & Technology, MNS University of Agriculture, Multan.

4. MBBS, FCPS (General Surgery), Consultant Surgeon, Faisal Hospital, Faisalabad.

Correspondence Address:

Dr. Shahbaz Ahmed
Allied Hospital, Faisalabad.
shehbazahmed@gmail.com

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tract(LIFT), fistula plug(FP) and fistula tract laser closure(FiLac).^{2,4}

Several factors affect the choice of operation. These factors including etiology, anatomy of the fistula, prev. surgery, baseline anorectal function, location of internal opening, body habitus of patient and familiarity of the surgeon with the different techniques.³

Integral part of fistulectomy is dissection of the fistula tract from the adjoining tissues, followed by haemostasis. In fistulectomy the entire track and abutting tissue detached resulting in larger and wide wound which eventually leads to more risk of post-operative bleeding and pain with prolonged healing time⁵ but it provides complete tissue for histopathological examination.⁶

Transanal advancement flap repair (TAFR) for perianal fistula was 1st described by Etling⁷. The mucosal advancement flap (MAF), recently scrutinized as one of the most renowned option for perianal fistulas, which brings about a success rate of around 60%¹ and setting of long term closure rate of 75%.²The recurrence rate is about 20–50%, but minor continence disorders are still common, even though the anal sphincter is “in principle” saved by this approach. The procedure have need of great surgical exposure for an appropriately anatomize mucosal flap.^{7,8}

Rationale of our study was; Fistulectomy is a common procedure while MAF is not used in normal routine practice locally. However there is disagreement in literature in results of treatment options of perianal fistula (fistulectomy and MAF)

in terms of anal incontinence. So, this study is conducted to evaluate a better treatment option for perianal fistula in future with shorter hospital stay and low anal incontinence rate and wound healing in less time.

OBJECTIVE

The objective of the study was; To compare the fistulectomy with (MAF) mucosal advancement flap for treatment of perianal fistula in terms of mean hospital stay, frequency of early anal incontinence and wound healing time.

OPERATIONAL DEFINITION

Complete Wound Healing

Was diagnosed by complete epithelization on followup examination and proctoscopy.

Anal Incontinence

It is defined as the absence of voluntary control of anal sphincter by a patient postoperatively resulting from damage to sphincter after operation. It was assessed by using Vaizey scoring after 4 weeks of treatment.

Vaizey questionnaire

- No episode in last 4 weeks = Never
- 1 episode in last 4 weeks = Rarely
- >1 episode in last 4 weeks but <1 episode in last 1 week = sometime
- 1 or >1 episodes in last week but < one episode in one day = weekly
- 1 or >1 episodes in one day = Daily
- 0=minimum score=complete continence
- 24=maximum score=complete incontinence.
- >20 score was considered as incontinence

	Never	Rarely	Sometimes	Weekly	Daily
Incontinence for solid stool	0	1	2	3	4
Incontinence for liquid stool	0	1	2	3	4
Incontinence for gas	0	1	2	3	4
Alteration to lifestyle	0	1	2	3	4
			No		Yes
Need to wear a pad or plug		0		2	
Taking constipating medicines		0		2	
Lack of ability to defer defecation for 15 min		0		4	

METHODS

This Randomized control trial was conducted at Surgical Department Allied and D.H.Q Hospital Faisalabad from 1st March 2019 to 28 Feb 2020. Non probability consecutive sampling technique was used. The calculated Sample size = 120 (60 in each group).

Inclusion Criteria

All the Patient age ranges from 20-55 years of either gender having perianal fistula which are low lying fistulas and with single external opening are included in study.

Exclusion Criteria

Patients having perianal abscess, pilonidal sinus, Inflammatory bowel disease (Crohn's disease, Ulcerative colitis) or with history of tuberculosis, HIV disease, Complex high lying fistulas with multiple external openings are excluded.

Data Collection Procedure

Study was approved from hospital ethical review committee (478/2019). All patients admitted through OPD, who attained the inclusion criteria were registered and informed consent was taken from all the included cases. All the patients were randomly split into 2 groups by using computer generated random number, and labeled as group A (in which fistulectomy was performed) and group B (in which mucosal advancement flap was performed).

Detailed History of all the included patients of both groups was taken along with complete physical examination. Blood test was sent to the hospital laboratory and reported by Pathologist. Both the procedures were done under spinal anesthesia.

In the group A (Fistulectomy), the fistulous tract and core of surrounding tissue was excised leaving the wound open and allowing secondary healing. In the group B (Mucosal advancement flap) identification of internal opening was done and flap of mucosa and submucosa was lifted and sutured to cover the internal opening and curettage of fistulous tract was done. Both the procedures were performed by single surgical team.

Post operative management include pain control via I/V paracetamol and oral NSAID with sitz bath. Routine diet started on the day of surgery. I/V antibiotics given for one day.

On discharge 2nd generation oral cephalosporin with metronidazole given for 7 days along with high fibre diet and sitz bath and advised to come for followup at 1 month postoperatively.

Length of hospital stay was noted. Anal incontinence and wound healing after 4 weeks of treatment was assessed as per operational definition and documented.

Data Analysis Procedure

SPSS 17 was used to entered and analyzed the collected data. Descriptive statistics were calculated for all the variables. Mean and standard deviation was calculated for quantitative variables like age, Vaizey score of incontinence and hospital stay. Frequency and percentages were calculated for all qualitative variables like gender and anal incontinence and complete wound healing at end of 4th week. Independent sample t-test was used to compare the hospital stay between both groups. Chi-square test was used to compare anal incontinence and wound healing between both groups. P-value less than 0.05 was taken as significant.

RESULTS

A total of 120 cases (60 in one group) adhere to the criteria for inclusion were entered to compare the fistulectomy with mucosal advancement flap in treatment of perianal fistula in terms of mean hospital stay, frequency of anal incontinence and complete wound healing.

Patients were distributed according to age showing that 34 patients(56.67%) in Group A and 30 patients(50%) in Group B were between 20-40 years of age while 26 patients(43.33%) in Group A and 30 patients(50%) in Group B were between 41-55 years of age, mean+sd was calculated as 38.78+9.07 years and 40.12+8.89 years respectively. (Table-I)

According to gender distribution 52 patients (86.67%) in Group A and 47 patients (78.33%) in Group B were male while 8 patients(13.33%) in Group A and 13 patients (21.67%) in Group B were females.(Table-II) In both group male female ratio was M:F=2.2:1.

Mean hospital stay was calculated as 93.93+4.56 hours in Group A and 107.95+4.66 hours in Group B, p value was calculated as 0.0001 showing a significant difference between the two groups. (Table-III) which means that hospital stay is prolonged in MAF group.

Comparison of anal incontinence in both groups was done showing that 13.33%(n=8) in Group A and 23.33%(n=14) in Group B had anal incontinence, p value was calculated as 0.15. (Table-IV)

Mean Vaizey score of incontinence was calculated as 15.72+3.60 in Group A and 16.42+4.13 in Group B, p value was calculated as 0.32 showing insignificant difference between the two groups. (Table-V). Which means that incontinence rate is equal in both groups.

At on month followup 4 patients (6.7%) in Group A shows complete wound healing while in Group B 28 patients (46.6%)have complete wound healing. p value was calculated as 0.00167 showing a significant difference between the two groups(Table-VI). which means complete wound healing occurs mostly in MAF group.

Age (in years)	Group A (n=60)		Group B (n=60)	
	No. of pts.	%	No. of pts.	%
20-40	34	56.67	30	50
41-55	26	43.33	30	50
Total	60	100	60	100
Mean+SD	38.78+9.07		40.12+8.89	

Table-I. Age Distribution (n=120)
Mean age in both group was 39 years.

Gender	Group A (n=60)		Group B (n=60)	
	No. of pts.	%	No. of pts.	%
Male	52	86.67	47	78.33
Female	8	13.33	13	21.67
Total	60	100	60	100

Table-II. Gender distribution (n=120)
Male to female ratio in both group was M:F=2.2:1

Hospital Stay (Hours)	Group A (n=60)		Group B (n=60)	
	Mean	SD	Mean	SD
	93.93	4.56	107.95	4.66

Table-III. Mean hospital stay (n=120)
P value=0.0001

Anal In-Continence	Group A (n=60)		Group B (n=60)	
	No. of pts.	%	No. of pts.	%
Yes	8	13.33	14	23.33
No	52	86.67	46	76.67
Total	60	100	60	100

Table-IV. Comparison of anal incontinence in both groups (n=120)
P value=0.15

Vaizey Score	Group A (n=60)		Group B (n=60)	
	Mean	SD	Mean	SD
	15.72	3.60	16.42	4.13

Table-V. Mean vaizey score of incontinence (n=120)
P value=0.32

Complete Wound Healing	Group A (n=60)		Group B (n=60)	
	No. of pts.	%	No. of pts.	%
Yes	4	6.7	28	46.6
No	56	93.3	32	53.3
Total	60	100	60	100

Table-VI. Comparison of complete wound healing in both groups (n=120)
P value=0.00167

DISCUSSION

Fistula in ano is an abnormal communication between two epithelial surfaces which opens deeply in the anal canal or rectum superficially on the perianal skin. It is a preventable disease if perianal and perirectal infections are timely and correctly treated, otherwise it causes a unbearable agony to the patient.^{9,13}

Fistula in ano treatment aimed to cure, to reduce recurrence and to preserve continence. The treatment of fistula in ano is divergent because no single approach is globally effectual to achieve

aim. However surgery is main stay for treatment of fistula in ano.^{2,3}

Conventional surgical procedures comprise of fistulotomy, fistulectomy, advancement flap, seton placement, or fibrin glue fixation. Other options such as biomaterial plugging and marsupialization were also invented to improve the results.⁷ Recently, ligation of the intersphincteric fistulous tract (LIFT) and video assisted anal fistula treatment (VAAFT) have been introduced. These are minimally invasive and sphincter saving techniques for complex fistula treatment.^{2,7,11}

Currently, closure of the internal opening is the standard procedure in high perianal fistulas. For this purpose technique like mucosal advancement flap have been developed.¹¹ In it fistulous tract is identified and internal opening excised. Defect is closed with advancement flap. The flap contain rectal mucosa, submucosa and part of the internal sphincter. The flap has an apex and base. The base of the flap is twice as thick as apex and placed beyond closed mucosal defect.^{2,3,12}

We planned this study with the view that fistulectomy is a common procedure while mucosal advancement flap is not used in normal routine practice locally. However there is controversy in literature in results of treatment options of perianal fistula (fistulectomy and MAF) in terms of anal incontinence and early wound healing. So, this study is conducted to evaluate a better treatment option for perianal fistula in future with shorter hospital stay and low anal incontinence rate and high healing rate.

In a study conducted by M. Oner et al. for ERF/MAF median age operation is 41 year which coincide with our study which shows 38-40 years. Baseline continence disturbance was 5%, in our study it is about 23%.³

In a study conducted by Ramachandra M.L et al commonest age of presentation is 31-40 years and more common in males than in females (M:F=2.3:1).it is same as in our study (M:F=2.2:1).¹²

In a study conducted by Khafagy et al. observed hospital stay in fistulectomy group was 96.35 ± 9.5 and incontinence rate was 10% while in mucosal advancement flap hospital stay was 105.8 ± 13.23 and incontinence rate was 0%.¹⁰ our findings in our study also coincide with regards to mean hospital stay while in contrast with regards to incontinence.

However Kronborg et al observed incontinence rate with fistulectomy in 17.64% patients.⁵ Leng et al in his meta analysis observed incontinence rate with MAF in 13.4% patients and Christoforidis et al noted incontinence rate with MAF in 39.1% patients.¹

A review by D. David et al mention a study by Schouter et al reported a significant high rate of impaired incontinence of 35% after RAF and also mention a series of Agerilar et al with impairment of continence about in 10% cases.⁷

In a study conducted by Chaveli Diaz C. et al for MAF recurrence developed in 31 (23.8%) cases, 28 (90.3%) usually within the first year, while the mean time to recurrence was 4.9 months and success rate was 76.2%.¹³

In a prospective randomized study by Wael Khafagy et al¹⁰ treatment of anal fistulas evaluated by partial rectal wall advancement flap or mucosal advancement flap, and recorded that hospital stay was remarkably more in group 2 (96.35 ± 9.5 vs. 105.8 ± 13.23) ($P = 0.014$). One patients (5%) manifest disruption in group I and 6 patients (30%) in group II in immediate postoperative. Two patients (10%) in group I developed incontinence for flatus and no patients in the group II develop such complication. They concluded that partial thickness advancement flap is superior than mucosal advancement flap.¹⁰

The findings of our study be in favour of the hypothesis that "there is a difference between fistulectomy and mucosal advancement flap in treatment of perianal fistula in terms of hospital stay" but we did not find a significant difference regarding frequency of anal incontinence on the other hand there is significant difference in early

wound healing rate in both group". In our study, we found more patients of incontinence in MAF but it was not statistically significant. However, some other trials should be done to validate our findings.

CONCLUSION

We concluded that hospital stay was significantly decreased in cases with fistulectomy when compared with MAF while there was no significant difference regarding anal incontinence in both groups, however, MAF is superior to fistulectomy in term of early wound healing with no significant difference in postoperative complications. But some other trials should be done in our local population to validate our findings.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

SOURCE OF FUNDING




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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Mudassar Jabeen	Study design, Manuscript writing, Data analysis & interpretation, Discussion.	
2	Shahbaz Ahmed	Proof reading, review & editing.	
3	Nida Firdous	Data analysis, Review & editing.	
4	Samia Rasool	Data collection.	