

# COMPARISON OF MEAN HEALING TIME AND MEAN PAIN SCORES BETWEEN FISTULECTOMY AND FISTULOTOMY FOR THE TREATMENT OF LOW FISTULA IN ANO

Muhammad Kalim<sup>1</sup>, Fahd Khalid Umerzai<sup>2</sup>

<sup>1,2</sup> Department of Surgery,  
Lady Reading Hospital, Peshawar-Pakistan.

**Address for Correspondence:**  
**Dr. Muhammad Kalim**

Department of Surgery, Lady Reading Hospital, Peshawar-Pakistan.

E-mail: drmuhammadkalim@gmail.com

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## ABSTRACT

**Objective:** To compare mean healing time and mean pain scores between fistulectomy and fistulotomy for the treatment of low fistula in ano.

**Methodology:** This study was conducted at Department of General Surgery, Lady Reading Hospital Peshawar. It was a randomized controlled trial carried out from February 13, 2015 to August 13, 2015 in which a total of 304 patients (152 in each group) were observed. Randomization was done utilizing lottery method. Fistulectomy was performed in patients in group A while fistulotomy was done in patients in group B. Post operatively, all the patients were kept under observation for next 48 hours. Intensity of pain on VAS was determined after 24 complete hours of surgery. Once stable, all the patients were checked on 2<sup>nd</sup> post-operative day for VAS again with clear indication of follow up every week for the next 4 week. This was done to check the wound healing time. Follow up was done in OPD and the researcher followed the patients himself. All the above mentioned information was recorded in a pre-designed perform.

**Results:** This study shows that mean age in group A (fistulectomy) was  $38 \pm 2.03$  years whereas mean age in group B (Fistulotomy) was  $40 \pm 1.77$  years. In Group A, 80% patients were male and 20% patients were female. Whereas in Group B, 77% patients were male and 23% patients were female. Mean pain score in group A was  $4.05 \pm 1.78$  whereas mean pain score in group B was  $5.38 \pm 2.11$  (P value =0.0001). Mean healing time in group A was  $4 \pm 1.53$  weeks whereas mean healing score in group B was  $5 \pm 2.89$  weeks (P value =0.0002).

**Conclusion:** Fistulectomy technique was more effective as compare to fistulotomy in the treatment of low fistula in ano in terms of less post-operative pain and less healing time.

**Key Words:** Fistulectomy, Fistulotomy, Low fistula in ano, Healing time, Pain scores

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## INTRODUCTION

Fistula-in-ano (FIA) is said to occur when an epithelialized abnormal tract connects the two surfaces (usually the perianal skin and rectal mucosa). It accounts for up to 90% of cases<sup>1</sup>. It occurs most commonly in young to middle aged adults. Men are affected slightly more as compared to women (12.3 per 1,00,000 vs. 5.6 per 1,00,000 cases respectively)<sup>2</sup>. Anal fistulae are formed after anorectal abscess in 7-40% of cases and in majority of cases are of crypto-glandular origin<sup>3</sup>.

Low fistula in ano are simple fistulas involving a small portion of the sphincter complex (or none occasionally). It consists of superficial, low trans-sphincteric or low

inter-sphincteric fistulae. Moreover, the anal canal and skin are communicated via only one tract<sup>4</sup>.

Peri anal fistula may be associated with a number of disease processes like previous anorectal abscesses; tuberculosis; ulcerative colitis; crohn's disease; conditions producing pelvic abscess as acute appendicitis, sigmoid diverticulitis, salpingo-oophoritis and rectal, obstetrical or gynaecological operations<sup>5</sup>. The commonest symptom is a watery or purulent discharge or recurrent episodes of pain<sup>6</sup>.

Low fistulas-in-ano are managed based on the principles to achieve cure, to reduce the rate of recurrence and preservation of continence. Control of infection

is the mainstay of successful management of fistulas-in-ano. Other important considerations include closure of the internal opening taking care of continence and dealing with the source of pathology<sup>7</sup>.

The available treatment options for fistula in ano are fistulotomy and fistulectomy. Fistulotomy may be performed with or without draining. On the other hand, fistulectomy involves closure of internal opening with or without repair of sphincteric defect. In addition, other treatment approaches may be adapted which include endorectal muscular or mucosal advancement flap, fistulous tract filling with fibrin or cyanoacrylate glue, island flap anoplasty, anal fistula plug, ayurvedic seton, radiofrequency ablation, glue containing adipose-derived stem cells, ligation of intersphincteric fistula tract and video-assisted anal fistula treatment<sup>8</sup>.

Fistulectomy, as compared to fistulotomy, is technically more challenging. Extra damage can occur to the tissues surrounding the fistula tracts particularly if the walls of tract are ill-defined. More sphincteric defects were shown in the fistulectomy group in a randomized controlled study<sup>9</sup>. When the fistula tract has not been explored via probing only then the fistulectomy has a potential advantage over the fistulotomy<sup>8,9</sup>.

The present study was designed to compare the two standard procedures for fistula in ano i.e. fistulectomy and fistulotomy in terms of post-operative pain and healing time. A thorough review of literature suggested a variety of research articles focusing on these two treatment strategies for fistula in ano but yet controversies exist<sup>10,11</sup>. Even in our local population who present with fistula in ano, surgeons often opt about the treatment of their choice due to lack of local evidence in this regard. Aim of this study was to compare mean healing time and post-operative pain in fistulectomy and fistulotomy techniques which will provide us latest findings between to techniques of low fistula in ano and in light of these results obtained, future research and treatment protocols can be identified.

## METHODOLOGY

The study was performed to compare mean healing time and mean pain scores between fistulectomy and fistulotomy for the treatment of low fistula in ano at Department of General Surgery, Lady Reading Hospital Peshawar. It was a randomized controlled trial carried out from February 13, 2015 to August 13, 2015. In this study, 304 patients (152 in each group) were observed using open EPI sample size calculator and taking mean healing time  $4.85 \pm 1.39$  of fistulotomy group vs  $6.75 \pm 1.83$  fistulectomy group,<sup>10</sup> using power of test 80% and confidence interval at 95%.

Low fistula in ano were simple fistulas diagnosed by the presence of all of the following features;

A track connecting the anal canal to the skin around the anus. The external opening and tract was examined by digital rectal examination while the internal opening is identified by proctoscopy. Visualization of the fistula tract by injecting contrast through anteroposterior, lateral and oblique x-ray images. Purulent discharge around the anus and from within the anal canal evident by digital rectal examination and patient history. Presence of pain around the anus.

Healing time was determined in terms of number of weeks starting from first post-operative day. Healing was considered present if there was No area of unepithelized tissue seen at 28<sup>th</sup> day of follow up (4 weeks) and all the operative area in anal canal was covered with regular epithelium. This was confirmed on physical examination.

Pain is a feeling of subjective discomfort and it was determined using visual analogue scale (VAS), baseline VAS was measured on 1<sup>st</sup> post-operative day (24 hours after surgery). It was graded as follows: Grade 0: no pain (VAS 0), Grade 1: Mild pain (VAS 1-3), Grade 2: Moderate pain (VAS 4-7), Grade 3: Severe pain (VAS 8-10).

Effectiveness was determined in terms of complete epithelization of operative area at anal canal at 28<sup>th</sup> day (4 weeks) and improvement in visual analogue scale of at least one grade on 7<sup>th</sup> post-operative day.

Hypothesis of the study was that the mean pain score and mean healing time for fistulectomy is less than fistulotomy in the treatment of fistula in ano.

All the patients who presented with low fistula in ano between the ages of 30 to 60 years, irrespective of the gender were included; while patients having high anal fistula, patients who have recurrent fistula in ano, patients with systemic immuno-compromised states like diabetes mellitus, uremia and malignancy, patients who were using steroids (due to poor healing rate and resulting muscular atrophy) and anemic patients were excluded. (these patients were detected by past medical record, history and by clinical examination because they have greater tendency of poor healing.

Ethical approval from hospital ethical research board (ERB) was obtained. All patients presenting with fistula in ano and diagnosed according to operational definition were included in the study through OPD. The purpose and benefits of the study was explained to patients and they were assured about the risks and benefits involved and that the study was done purely for research and data publication. An informed written consent was taken from those patients who agreed to inclusion in this research. Detailed and relevant history was taken from all enrolled patients which was followed by focused and directed physical examination. Necessary investigations were sent as per pre-operative protocol. Ran-

**Table 1: Status of pain (n=304)**

Pain (VAS Score)	Fistulectomy	Fistulotomy	P value
Mild Pain (VAS 1-3)	76(50%)	46(30%)	0.0001
Moderate Pain (VAS 4-7)	46(30%)	46(30%)	
Severe Pain (VAS 8-10)	30(20%)	60(40%)	
Total	152(100%)	152(100%)	
Mean and SD	4.05±1.78	5.38 ± 2.11	

**Table 2: Status of wound healing (n=304)**

Wound Healing	Fistulectomy	Fistulotomy	P value
≤4 weeks	129(85%)	106(70%)	0.0002
>4 weeks	23(15%)	46(30%)	
Total	152(100%)	152(100%)	
Mean and SD	4 ± 1.53	5 ± 2.89	

domization was done utilizing lottery method. Enrolled patients were placed into 02 groups. Fistulectomy was performed in patients in group A while fistulotomy was done in patients in group B.

These procedures were done under general anesthesia and by single experience general surgeon fellow of CPSP. Post operatively, all the patients were kept under observation for next 48 hours. Intensity of pain on VAS was determined after 24 complete hours of surgery. Once stable, all the patients were checked on 2<sup>nd</sup> post-operative day for VAS again with clear indication of follow up every week for the next 4 week. This was done to check the wound healing time. Follow up was done in OPD and the researcher followed the patients himself. All the above mentioned information was recorded in a pre-designed performa. To control confounders and minimize the bias, exclusion criteria was strictly followed. The data was analyzed in SPSS version 16.0. Percentages and frequencies were computed for categorical variables like gender. Mean ± standard deviation were calculated for numeric variables like age, post-operative pain and wound healing time in weeks. Student t test was applied to compare the mean pain scores and mean healing time between both groups. Age and gender stratification of healing time and pain was done to see the effect modifier. P value of ≤ 0.05 was considered significant. The data was presented in the form of tables.

## RESULTS

The current study showed that in group A (fistulectomy) mean age was 38 ± 2.03 years. Whereas in group B (Fistulotomy) mean age was 40 ± 1.77 years. In group A, 122(80%) patients were male and 30(20%) patients were female. Whereas in group B, 117(77%) patients were male and 35(23%) patients were female. As shown in table 1, 76(50%) patients had mild pain in group A, the

mean pain score being 4.05 ± 1.78. Whereas in group B, 46(30%) patients had mild pain and mean pain score was 5.38 ± 2.11.

In group A, 129(85%) patients had wound healing in ≤ 4 weeks while in group B, 106(70%) patients had wound healing in ≤ 4 weeks (table 2).

## DISCUSSION

Our study showed that mean age in fistulectomy technique was 38 ± 2.03 years while mean age in fistulotomy technique was 40 ± 1.77 years. Mean pain score in fistulectomy technique was 4.05 ± 1.78 while mean pain score in fistulotomy technique was 5.38 ± 2.11. P value = 0.0001 showed that the pain was insignificant between two techniques. Mean healing time in fistulectomy technique was 4 ± 1.53 weeks while mean healing time in fistulotomy technique was 5 ± 2.89 weeks (P value = 0.0002, showing the healing time was insignificant between two techniques).

In a study conducted by Jain et al<sup>10</sup> the mean healing time after fistulotomy and fistulectomy was found to be 4.85 ± 1.39 weeks vs. 6.75 ± 1.83 weeks respectively. In the same study, the mean pain scores on first postoperative day were 4.05 ± 1.47 vs. 4.50 ± 1.32 respectively for fistulectomy and fistulotomy.

In another study conducted by Abu-Salem<sup>11</sup>, out of 272 patients, 146 underwent fistulectomy, and 126 underwent fistulotomy. The recurrence rate was 8 out of 146 (6%) in the 1st group while was 13 out of 126 (10%) in the 2nd group. Fistulectomy group had less postoperative pain and shorter hospital stay. There was no incontinence in either group. The time needed for healing was shorter after fistulectomy, with or without primary closure, than after fistulotomy. It was also shown that 26% of patients in fistulotomy group and 17% of pa-

tients in fistulectomy group complaint about post-operative pain on day 1. In the same study, the time needed for healing in fistulectomy group was 3 weeks and in the fistulotomy group, it was 4 weeks<sup>11</sup>.

The study by Jain et al<sup>10</sup> showed that for fistulotomy a higher mean VAS score was found postoperatively. However, between the groups, no difference in the pain score was observed on repeated follow-ups ( $P > 0.05$ ).

Relief of pain (defined as VAS score  $< 1$ ) occurred at 03 weeks in both groups. Similar findings were shown by Jain et al<sup>10</sup>; the mean pain score being  $3.4 \pm 1.6$  and  $3.5 \pm 1.5$ , respectively. However, the difference was statistically not significant between the two groups ( $P > 0.05$ ).

In a study conducted by Tasci et al<sup>12</sup> the mean healing time after fistulotomy and fistulectomy was found to be  $4 \pm 2.11$  weeks vs.  $5 \pm 2.78$  weeks respectively. In the same study, the mean pain scores on first postoperative day were  $4 \pm 1.22$  vs.  $5 \pm 1.91$  respectively for fistulectomy and fistulotomy.

## CONCLUSION

Fistulectomy technique was more effective as compare to fistulotomy in the treatment of low fistula in ano in term of less post-operative pain and less healing time.

## REFERENCES

1. Poon CM, Ng DC, Ho-Yin MC, Li RS, Leong HT. Recurrence pattern of fistula-in-ano in a Chinese Population. *J Gastrointest Liver Dis* 2008; 17:53-7.
2. Van Koperen PJ, Bemelman WA, Bossuyt PM, Gerhards MF, Eijssbouts QA, van Tets WF et al. The anal fistula plug versus the mucosal advancement flap for the treatment of anorectal fistula (PLUG trial). *Br Med Cent Surg* 2008; 8:11.
3. Sileri P, Cadeddu F, D'Ugo S, Franceschilli L, Del Vecchio Blanco G, De Luca E et al. Surgery for fistula-in-ano in a specialist colorectal unit: a critical appraisal. *Br Med Cent Gastroenterol* 2011; 11:120.
4. Bleier JI, Moloo H. Current management of cryptoglandular fistula-in-ano. *World J Gastroenterol* 2011; 17:3286-91.
5. Mahajan MK, Gupta V, Anand SR. Evaluation of fistulectomy and primary skin grafting in low fistula in Ano. *JK Science* 2007; 9:68-71.
6. Bharti Y, Fatima S, Shaikh GS, Shaikh S. Fistulotomy versus fistulectomy in the treatment of low fistula in ano. *Rawal Med J* 2011; 36:284-6.
7. Shawk S, Wexner SD. Idiopathic fistula-in-ano. *World J Gastroenterol* 2011; 17:3277-85.
8. Fucini C, Giani I. Why do we have to review our experience in managing cases with idiopathic fistula-in-ano regularly? *World J Gastroenterol* 2011; 17:3297-9.
9. Kim SD. Comparison of a fistulectomy and a fistulotomy with marsupialization in the management of a simple anal fistula: a randomized, controlled pilot trial. *J Korean Soc Coloproctol* 2012; 28:67-8.
10. Jain BK, Vaibhaw K, Garg PK, Gupta S, Mohanty D. Comparison of a fistulectomy and a fistulotomy with marsupialization in the management of a simple anal fistula: a randomized, controlled pilot trial. *J Korean Soc Coloproctol* 2012; 28:78-82.
11. Abu-Salem OT. Fistulectomy and fistulotomy for low anal fistula. *Rawal Med J* 2012; 37:409-11.
12. Tasci I. The fistulectome: a new device for treatment of complex anal fistulas by "core-out" fistulectomy. *Dis Colon Rectum* 2003; 46:1566-71.

## CONTRIBUTORS

MK conceived the idea, planned the study, and drafted the manuscript. FKU helped acquisition of data, drafted the manuscript and did statistical analysis. All authors contributed significantly to the submitted manuscript.