

A Comparative Study of Fistulectomy versus Fistulotomy with Marsupialisation for the Treatment of Low Fistula-In-Ano.

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Received: June 2018

Accepted: July 2018

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ABSTRACT

Background: A fistula in ano is a pathway, lined by granulation tissue that joins deeply in the anal canal or rectum and superficially on the skin around the anus. A fistulectomy involves complete excision of the fistulous tract. Low anal fistulae have been mainly treated by fistulotomy with good results. However, Marsupialization of the fistulotomy wounds can reduce the healing time further. The purpose of this study was a randomized controlled trial that aimed to compare the fistulectomy to the fistulotomy with marsupialization in the management of simple anal fistula. **Methods:** This was an analytical type of study which was conducted at departments of surgery of TMMC & RC, Moradabad from September 2017 to September 2018. The patients included in the study were randomly divided into two groups. Group I included seventy patients (70) underwent for fistulectomy and group II consisted seventy patients (70) underwent for fistulotomy with marsupialisation. **Results:** The healing time was longer in group I (37.6 ± 11.9 day) in comparison to group II (29.8 ± 13.6 days) with a statistically significant p value (<0.05). The length hospital stay for both groups was 4.6 ± 1.4 days. Whereas, length hospital stay individually for group I and group II were 4.4 ± 1.1 days and 4.8 ± 1.7 days correspondingly with an insignificant p value (>0.05). There were significantly less postoperative pain as well as blood loss in group II patients of fistulotomy with marsupialisation in comparison of group I patients of fistulectomy. There was an insignificant difference in the extents of adverse effects of surgery on various aspects of group I and group II. **Conclusion:** Results of the present study suggested that there was a shorter duration of wound healing as well as less blood loss in patients of fistulotomy with marsupialisation in comparison of patients of fistulectomy. Therefore, fistulotomy with marsupialisation is recommended as a standard surgical procedure in the surgical treatment of low fistula-in-ano. However, studies on larger population and longer period of follow-up are warranted to establish fistulotomy with marsupialisation as standard surgical procedure for the treatment of low fistula-in-ano.

Keywords: Low fistula-in-ano, fistulectomy, fistulotomy, marsupialisation.

INTRODUCTION

A fistula in ano is a pathway, lined by granulation tissue that joins deeply in the anal canal or rectum and superficially on the skin around the anus. It generally is an outcome from an anorectal abscess which ruptures spontaneously or after inadequate surgery.^[1] Acute infection of the anal crypt leads to an anorectal abscess and an anal fistula represents the chronic form of this infection.^[2] Peri fistula may be associated with a number of disease processes.^[3] These can be below or above the anorectal ring. Low-level fistulae open into the anal canal below the anorectal ring; high-level fistulae open into the anal

canal at or above the anorectal ring. Two-thirds are posterior, one-third anterior. The commonest symptom is a watery or purulent discharge or recurrent episodes of pain.^[4]

Conventional surgical options for a simple anal fistula include a fistulotomy and a fistulectomy.^[5] A fistulectomy involves complete excision of the fistulous tract, thereby eliminating the risk of missing secondary tracts and providing complete tissue for histopathological examination. Fistulectomy (complete excision of the fistulous tract) is not indicated because the magnitude of tissue loss associated with the procedure increases the risk of compromise to sphincter function.^[6] A fistulotomy lays open the fistulous tract, thus leaving smaller unepithelized wounds, which hastens the wound healing. A simple fistula is treated by fistulotomy (opening the fistulous tract), curettage or

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cautery of the track and healing by the secondary intention. The mainstay of treatment is the eradication of sepsis with preservation of anorectal function.^[7] Low anal fistulae have been mainly treated by fistulotomy with good results.^[8] These can be laid open with minimal loss of sphincter muscle but as far as the high variety is concerned, it is safer to place a seton or stage the procedure.^[9] However, marsupialization of the fistulotomy wounds can reduce the healing time further.^[10] The purpose of this study was a randomized controlled trial that aimed to compare the fistulectomy to the fistulotomy with marsupialization in the management of simple anal fistula.

MATERIALS AND METHODS

This was an analytical type of study which was conducted at departments of surgery of TMMC & RC, Moradabad from September 2017 to September 2018. The present study was approved from the ethical committee of TMMC & RC, Moradabad. All patients with clinical diagnosis of low fistula-in-ano hospitalized for the surgery in the surgical wards were included in the study.

Patients with low fistula-in-ano having a single internal and a single external opening along with absence of a secondary tract were included in the study. Participants with history of recurrent fistula, chronic colitis, haemorrhoids and anal fissure were excluded from the study.

Patients enrolled for the study were interviewed to ascertain their clinical histories including presenting symptoms duration of symptoms, history of chronic illness, previous surgery and anorectal sepsis. Physical examination was done of each patient to assess anal continence, perineal inspection, palpation, digital rectal examination, and proctoscopic evaluation.

Detailed clinical examination was done of each patients to assess anorectal pathology, systemic disease and general health.

The patients included in the study were randomly divided into two groups. Group I included seventy patients (70) underwent for fistulectomy and group II consisted seventy patients (70) underwent for fistulotomy with marsupialisation.

Local and general anaesthesia was administrated in the patients of both groups. A moist gauze was placed in the anal canal and 2mL of methylene blue was injected via the external opening.

A key hole incision was made in the skin over the fistulous tract and encircled

the external opening in group I patients. The incision was deepened through the subcutaneous tissue, and the tract was removed from surrounding tissues. Towards the anal verge, fibres of the anal sphincters overlying the tract were divided.

In the group II patients the fistula tract was laid open over the probe placed in the tract. Further, the tract

was curetted and examined for secondary extensions after the fistula tract had been laid open. Edges of wound were sutured with the edge of fistula tract by using interrupted 3-0 chromic catgut sutures to marsupialize the operative wound from distal to proximal. The time duration of operation was calculated from the start of dye test to the beginning of dressing of the postoperative wound. Visual analogue scale (VAS) 11 was incorporated to assess the severity of postoperative pain in both groups.

Statistical analysis

Statistical analysis of the data was performed by using the SPSS version 17.0 (SPSS Inc., Chicago, IL, USA). The Mann-Whitney U test and Chi-square test were used to compare quantitative data and qualitative data respectively.

RESULTS

Total one hundred eighty six (186) patients were enrolled for the study. Among them forty six patients were excluded as they were not fulfilling the inclusion criteria of the study. Thus, 140 patients suffering from fistula in ano were selected for the study. There were 118 (84.28%) male and 22 (13.72%) female with a male to female ratio of 5.36: 1. Average age of the patients included in this study was 20 – 80 years and median age was 39 years. Seventy patients were included in both groups. [Figure 1]

Group I (fistulectomy group) included 58 males (82.85) and 12 females (17.15) (M: F = 4.83: 1) while Group II (fistulotomy with marsupialisation group) consisted of 60 males (85.71%) and 10 females (14.29%) (M: F= 5: 1). There was an insignificant difference in the gender between the two groups ($p>0.05$). The mean age in group I was 38.8 ± 15.6 , whereas, it was 39.4 ± 14.4 in group II. There was an insignificant difference between two groups with respect to age ($p>0.05$).

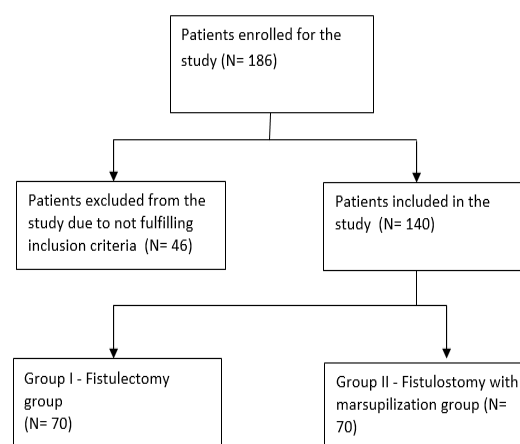


Figure 1: Flow chart for participants of both groups.

The mean radial distances of the external opening from the anal verge were 2.4 ± 1.2 cm and 2.1 ± 1.4 cm in groups I and group II, correspondingly with $p>0.05$). Both groups were comparable with respect to age, sex ratio, duration of symptoms, type of fistula and radial distance of the external opening from the anal verge [Table 1]. Subcutaneous fistula-

in-ano (78.57%) was the most prevalent disorder in patients of both groups. Further inter-sphincteric and trans-sphincteric fistula-in-ano were observed respectively in 12.14% and 9.2% patients of both groups. There was an insignificant difference between the two groups ($P>0.05$).

Table 1: Basic and operative characteristics among the two groups

Complications	Group I Fistulectomy N= 70	Group II - Fistulostomy withmarsupilization N= 70	p value
Age (years)	38.8 ±15.6	39.4± 14.4	p>0.05
Sex ratio (M/F)	4.83: 1	5: 1	p>0.05
Mean duration of symptoms (months)	7.8 ±4.2	8.1 ±3.8	p>0.05
Mean radial distances of the external opening from the anal verge (Cm)	2.4±1.2	2.1 ±1.4	p>0.05
Types of fistula (Subcutaneous/ Inter-sphincteric/ Trans- sphincteric)	56/8/6	54/9/7	p>0.05

It is evident from figure 2 that most of the patients suffering from fistula-in-ano belonged to two age groups 20-30 years and 31-40 years age group (67.85%). Rest patients (32.15%) belonged to other age groups up to 80 years. [Figure 2]

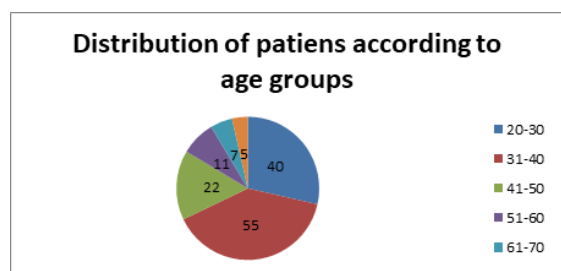


Figure 2: Distribution of patients according to age groups.

The operating time for group I was 29.6 ± 5.9 minutes, while for group II it was 30.1 ± 7.2 minutes. There was statistically an insignificant difference in operating time for both groups ($p>0.05$). The mean operation wound size was 2.2 ± 0.4 cm² in group I, while it was 1.8 ± 0.3 cm² in group II ($p>0.05$). There was significantly earlier cessation of oozing from postoperative wounds in group II (2.4 ± 1.4 weeks) compare to group I (4.5 ± 1.6 weeks) ($p<0.05$).The mean postoperative VAS score was statistically insignificant ($p>0.05$) at various follow-up times in group I compare to group II. [Table 2]

Table 2: The mean postoperative visual analogue scale (VAS) score among the two groups

Mean VAS score	24 hours	1 we ek	2 we ek	3 we ek	4 we ek	8 we ek	12 we ek
Group I Fistulectomy N= 70	4.3	2.1	1.2	0.8	0.2	0	0
Group II - Fistulostomy withmarsupilization N= 70	4.9	2.9	2.3	1.9	0.6	0.2	0
p value	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05

Table 3: Preoperative and operative characteristics among the two groups

Complications	Group I Fistulectomy N= 70	Group II - Fistulostomy withmarsupilization N= 70
Postoperative pain	18 (28.57%)	9 (12.85%)
Postoperative bleeding	5 (7.14%)	2 (2.85%)
Incontinence	0	0
Reoccurrence	0	0

The healing time was longer in group I (37.6 ± 11.9 day) in comparison to group II (29.8 ± 13.6 days) with a statistically significant p value (<0.05). The length hospital stay for both groups was 4.6 ± 1.4 days. Whereas, length hospital stay individually for group I and group II were 4.4 ± 1.1 days and 4.8 ± 1.7 days correspondingly with an insignificant p value (>0.05). [Table 2] There were significantly less postoperative pain as well as blood loss in group II patients of fistulotomy with marsupialisation in comparison of group I patients of fistulotomy. [Table 3]

[Table 4] shows that there was an insignificant difference in the extents of adverse effects of surgery on various aspects of group I and group II.

Table 4: Adverse effects on the lifestyles among both groups.

Adverse effects on life	Group I Fistulectomy N= 70	Group II - Fistulostomy withmarsupilization N= 70
Physical activity		
• Nil	59	54
• Little bit	11	16
• Greatly	0	0
Social activity		
• Nil	62	58
• Little bit	8	12
• Greatly	0	0
Sexual activity		
• Nil	64	55
• Little bit	6	13
• Greatly	0	2

DISCUSSION

Fistula-in-ano has been considered as one of the commonest surgical disorder since a long time. Nevertheless, management of the condition has been not well documented in the literature. Various surgical management strategies like fistulectomy, fistulotomy, complex sphincter-preserving procedures such as fibrin glue injection etc have been currently used depending on type of fistula and the patient's continence.^[12,13]

Fistulectomy and fistulotomy have been used conventionally for the treatment of low fistula – in-ano.^[14] Various recent studies suggested that decrease postoperative bleeding and faster wound recovery can be attained via marsupialisation after fistulotomy as it leaves less raw unepithelialised tissue.^[12,13,15,16]

Researchers suggest that postoperative deformity cannot be prevented via marsupialisation. Marsupialisation facilitates faster healing of wound; though it is not an essential process. Therefore, implication of marsupialisation depends on the preference of surgeon.^[12] Various factors like postoperative pain and bleeding, time period of hospitalization, wound healing time, return to routine activity etc determined the satisfaction level of patients after surgery for fistula –in-ano.^[15,16]

Several studies have compared the efficacy of fistulectomy in comparison of fistulotomy with marsupialisation in the treatment of low fistula-in-ano.^[13,15,16]

Results of the current study shown that there was an insignificant difference between time of operation of group I (fistulectomy group) and group II (fistulotomy with marsupialisation group). These results are in agreement with the previous studies of Pescatori et al¹³ and Jain et al¹⁶ as they recorded no significant difference between time periods of operation for both groups.

This insignificant difference of operation time for both groups may be due to fistulectomy is a time taking process as it requires dissection of the fistula tract from the surrounding tissues and coagulation of bleeding to control homeostasis. On the other hand, fistula tract is laid open in fistulotomy with marsupialisation. However, more time requires for the suturing of edges of the laid-open fistula tract to the skin incision.

Size of operation wound was slightly smaller in group I (fistulectomy group) compared to group II (fistulotomy with marsupialisation group). However, difference of size was insignificant for both groups. These findings are consistent with the earlier studies Pescatori et al,^[13] Bhatti et al and Jain et al,^[15,16] as they observed a non-significant difference in size of wounds in both groups.

On the other hand, slightly difference in size of wound may be explained as removal of complete track and adjacent tissues in fistulectomy leads to

larger wound size in comparison of excision of lesser amount of tissue in fistulotomy causes smaller wound.

Further, findings of the current study revealed that the mean postoperative VAS score was statistically insignificant at various follow-up times in group I compared to group II.

These findings are consistent with the findings of the previous studies of Pescatori et al and Jain et al,^[13,16] as they recorded no significant difference between the two groups in the mean postoperative VAS score at various follow-up times.

Results of the present study showed that group II patients of fistulotomy with marsupialisation had significantly less blood loss in comparison of group I patients of fistulotomy. These findings are in agreement with the earlier studies Jain et al and Pescatori et al,^[13,16] as they recorded significantly lesser blood loss in fistulotomy with marsupialisation patients compared to fistulectomy patients.

Furthermore, results showed that mean healing time was statistically significantly shorter in group II patients of fistulotomy with marsupialisation compared to group I patients of fistulotomy. Which are very similar to the findings of the previous clinical trials of Pescatori et al and Jain et al,^[13,16] as they recorded similar faster healing in patients of fistulotomy with marsupialisation compared to group I patients of fistulotomy. This shorter span of wound healing in patients of fistulotomy with marsupialisation seems to be due to smaller wound size in these patients compared to patients of fistulotomy. Although, difference of wound size was not statistically significant for both groups. In addition, floor of the wound is formed in fistulotomy with marsupialisation as fistula tract is epithelised to varying extent.

Current study further showed that there was statistically an insignificant difference preoperative and operative characteristic among the two groups. These findings are consistent with the findings of the earlier studies of Jain et al and Lindsey et al.^[16,17]

Findings of the current study showed that no patients of either group had anal incontinence during the follow-up periods. These findings are in agreement of previous studies of Jain et al and Lindsey et al.^[16,17]

Present study recorded no difference in the adverse effects on the lifestyles among both groups.

CONCLUSION

Results of the present study suggested that there was a shorter duration of wound healing as well as less blood loss in patients of fistulotomy with marsupialisation in comparison of patients of fistulectomy. Therefore, fistulotomy with marsupialisation is recommended as a standard surgical procedure in the surgical treatment of low

fistula-in-ano. However, studies on larger population and longer period of follow-up are warranted to establish fistulotomy with marsupialisation as standard surgical procedure for the treatment of low fistula-in-ano.

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How to cite this article: Kumar R, Mutha N, Singh H. A Comparative Study of Fistulectomy Versus Fistulotomy with Marsupialisation for the Treatment of Low Fistula-In-Ano. *Ann. Int. Med. Den. Res.* 2018; 4(5): SG01-SG05.

Source of Support: Nil; **Conflict of Interest:** None declared