



A COMPARATIVE STUDY OF THE OUTCOME OF OPEN FISTULECTOMY VERSUS FISTULECTOMY WITH PRIMARY CLOSURE IN LOW LEVEL FISTULA IN ANO

General Surgery

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ABSTRACT

Introduction: Fistula-in-ano remains a surgical treatment challenge in colorectal practice due to high recurrence rates and the risk of postoperative wound infection and incontinence. It most commonly follows an anorectal sepsis and is one of the most common benign ano-rectal disorder. The main principle of management of anal fistula are closure of internal opening of fistula tract, drainage of infection or necrotic tissue, eradication of fistulous tract with preservation of sphincter function. Open Fistulectomy, though considered as the standard treatment for fistula-in-ano, fistulectomy with primary closure has certain merits.

Aim and Objectives: To compare the effectiveness of the procedure between open fistulectomy and fistulectomy with primary closure method.

Materials and Methods: Study design- A prospective randomized and comparative study, period October 2019 to April 2021 (18 months). **Study Area-** Ramakrishna Mission Seva Pratishthan hospital, Kolkata, West Bengal.

Inclusion criteria- All patients with low anal fistula, of any age and sex.

Exclusion criteria- Patients with diabetes mellitus, immunosuppression, tuberculosis, inflammatory bowel disease, active sepsis, recurrent fistula, high anal fistula or patients not willing to enter the study.

Results: Our study showed, in open fistulectomy, the mean duration of wound healing was [31.3667± 4.2221 days], mean stay in hospital after surgery was [13.5000± 2.4176 days], mean post operative VAS was [4.4667± .7761], compared to primary closure surgery patients which was [9.0333± .7184], [7.3333± 1.1547 days] and [1.9000± .9229] respectively which were statistically significant (p<0.0001). Post operative incontinence was found in 10.0% patients of open fistulectomy and 3.3% patients of primary suturing which was statistically insignificant (p=0.3006). Post operative urinary retention was found in 33.3% patients of open fistulectomy and 26.7% patients of primary suturing. It was not statistically significant (p=0.5731). 6.7% patients of primary suturing had post operative cut through of sutures.

Summary and Conclusion: We concluded that fistulectomy with primary closure can be used as a primary and effective measure in treatment of low fistula-in-ano.

KEYWORDS

low fistula-in-ano treatment, fistulectomy with primary closure, open fistulectomy.

INTRODUCTION

Anal fistula represents one of the most frequent anorectal diseases. The prevalence in men is 12.3 cases per 100,000 population while in women, it is 5.6 cases per 100,000 population. The mean age of patients is 38.3 years¹. The word "fistula" is a Latin word which means pipe, reed or flute. Fistula-in-ano is a track that connects deeply the anal canal or rectum to the skin around the anus. It most commonly follows an anorectal sepsis. Patients commonly present with discharge, and local pain or may be entirely asymptomatic. Fistula-in-ano is a preventable disease provided the perianal-perirectal suppurations are treated timely. Basically, the location of the diseased part makes the patient refrain from early consultation. The common pathogenesis is the bursting open of an acute or inadequately treated ano-rectal abscess into the peri-anal skin. The cause for the delay in treating the patients with perianal suppurations are the shy patients themselves who come to the surgeon late. The more important second factor is that a significant percent of these diseases persist or recur when the right modality of surgery is not adopted or when the post-operative care is inadequate, thus recurrence². The categorization of fistula-in-ano relative to anal sphincter muscles, according to Park's classification, is inter-sphincteric, trans-sphincteric, supra-sphincteric or extra-sphincteric types³. The main principle of management of anal fistula are closure of internal opening of fistula tract, drainage of infection or necrotic tissue, defining and eradication of fistulous tract with preservation of sphincter function. Different surgical techniques have been described in literature from time to time, including park's fistulotomy, two-stage-fistulotomy, primary fistulectomy with occlusion of the internal ostium, fistulotomy with primary repair of the sphincter, endorectal advancement flaps, anocutaneous advancement flap, repair of fistula using fibrin adhesive glue and re-routing the fistula, seton placement, radiofrequency fistulotomy^{4,5,6}. In our study, we compare open fistulectomy vs fistulectomy with primary closure technique in 60 patients.

AIM AND OBJECTIVES

- 1) To compare the period of stay in hospital after open fistulectomy and fistulectomy with primary closure.

- 2) To compare the period of healing.
- 3) To compare the time period to return to daily routine activities.
- 4) To compare the work load on hospital in terms of bed occupancy.
- 5) To compare complications of both the surgical methods.
- 6) To select a better method of treatment for low level fistula-in-ano.

MATERIALS AND METHODS

Study Design: A prospective randomized and comparative study, period October 2019 to April 2021 (18 months).

Study Area: Ramakrishna Mission Seva Pratishthan hospital, Kolkata, West Bengal.

Inclusion Criteria:

Patients with low anal fistula of any type, belonging to any age and sex.

Exclusion Criteria:

- Patients with
- 1) diabetes mellitus
 - 2) immunosuppression
 - 3) tuberculosis
 - 4) inflammatory bowel disease
 - 5) active sepsis
 - 6) ischaemic heart disease
 - 7) recurrent fistula
 - 8) high anal fistula
 - 9) patients not willing to enter the study.

Study Group:

- Group A = Open Fistulectomy patients = 30 patients.
Group B = Fistulectomy with primary closure patients = 30 patients.

Randomization: into two groups was done by lottery system.

Statistical Hypothesis and Analysis:

- 1) If θ_1 : Open Fistulectomy Procedure and

$H_0: \theta_1 = \theta(2) \text{ vs } H_1: \theta_1 < \theta(2)$

To compare between these two methods, whether these two methods ($\theta(1, \theta(2))$) are equivalent or there is a significant difference between these two methods, the hypothesis stands as:

$H_0: \theta_1 = \theta(2) \text{ vs } H_1: \theta_1 < \theta(2)$

- 2) For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5.
- 3) Categorical variables are expressed as Number of patients and percentage of patients and compared across the groups using Pearson's Chi Square test for Independence of Attributes/ Fisher's Exact Test as appropriate.
- 4) $p\text{-value} \leq 0.05$ was considered statistically significant.

METHODOLOGY:

A thorough and proper history was taken in a predesigned proforma. Diagnosis of fistula was confirmed by MR-fistulogram. Routine blood investigations along with other tests for procuring anaesthetic fitness was done and finally patient was posted for surgery.

Procedure of Surgery:

1) Open fistulectomy technique: In lithotomy position, the external opening of the fistula and its distance from the anal verge was recorded. Then, position of the internal opening was determined in relation to anal verge and anorectal ring, confirmed by injection of hydrogen peroxide and methylene blue into the tract. With the help of malleable probe, probing of the fistulous tract was carried out from external opening to determine the extent and direction of tract and its termination. Its other end was brought through the internal opening and then through the anus. Then by applying a gentle traction on the U-Shaped angulated probe with the left hand, and cutting close to the probe all around it, the hole of fistulous tract was excised out and send for histopathological examination. Haemostasis was achieved and the raw area was packed with betadine-soaked gauze. Anal packing was done.

2) Fistulectomy with primary closure technique: In lithotomy position, fistula tract was delineated from external opening with hydrogen peroxide and methylene blue mixture, and internal opening seen. Probing of the fistula tract was done from external to internal opening. Fistulectomy done and the whole fistula tract was excised all around the fistula probe and specimen sent for histopathological examination. Haemostasis obtained with cauterization. The anal mucosa was closed by suturing with interrupted 2-0 polyglactin sutures (vicryl). The subcutaneous tissue space and muscle layer was apposed with 2-0 polyglactin sutures. Skin was apposed with 2-0 monofilament polyamide mattress sutures. Anal packing was done.

Post-operative care: The patient was put-on broad-spectrum antibiotics covering the anal flora, analgesics and stool softeners (Lactulose syrup). Sitz bath and dry dressing was prescribed three times a day along with application of Ano-metrogyl (Lidocaine + Metronidazole + Sucralfate) ointment locally after sitz bath. Condition of the wound, healing time, post-operative pain, was monitored.

Discharge: Patients were discharged with a healthy wound with advice to take oral antibiotics (Cefuroxime), sitz bath three times a day, and ointments to be applied locally over the wound. The patients were instructed to follow up at 1 week, 2 weeks, 1 month and 6 months.

Follow-up: Skin stitches of Group B patients were removed after 10 days of the surgery. On follow up visits, data were recorded in the structured proforma.



Fig 1: Fistulectomy with primary closure patient at follow up visit at 10th postoperative day.

RESULTS

In our study, in open fistulectomy, 5 (16.7%) patients were Female and

25 (83.3%) Males. In Primary Closure Surgery, 10 (33.3%) patients were Female and 20 (66.7%) Males.

In Open fistulectomy, the mean Age (Years) (mean $\pm$ s.d.) of patients was 38.8000 ± 12.0470 . In Primary Closure Surgery, the mean Age of patients was 43.1667 ± 11.7915 . The distribution was not statistically significant ($p=0.1613$).

8 (26.7%) patients had anterior fistula and 22 (73.3%) patients had posterior fistula in open fistulectomy group while in primary closure group, 7 (23.3%) patients had anterior Fistula and 23 (76.7%) patients had posterior fistula.

In Open Surgery, the mean Post Operative VAS (mean $\pm$ s.d.) of patients was $4.4667 \pm .7761$ while in Primary Closure group, it was $1.9000 \pm .9229$. The distribution was statistically significant ($p<0.0001$).

In open Surgery, 3 (10.0%) patients had Post Operative Incontinence. In Primary Closure Surgery, 1 (3.3%) patient had Post Operative Incontinence. The association was not statistically significant ($p=0.3006$).

In Open Surgery, the mean duration of Stay in hospital after surgery (Days) (mean $\pm$ s.d.) of patients was 13.5000 ± 2.4176 and in Primary Closure Surgery, it was 7.3333 ± 1.1547 . The distribution was statistically significant ($p<0.0001$).

In Open Surgery, the mean Duration of Wound Healing in days (mean $\pm$ s.d.) of patients was 31.3667 ± 4.2221 . In Primary Closure Surgery, it was $9.0333 \pm .7184$. The distribution was statistically significant ($p<0.0001$).

In Primary Closure Surgery, 2 (6.7%) patients had Post Operative Cut through of sutures, not statistically significant ($p=0.1503$) (**Fig 2**).

There were no cases of recurrence in the 6 month follow up period in any group.



Fig 2: Post operative cut through of sutures in a patient undergoing fistulectomy with primary closure.

DISCUSSION

In our prospective randomized and comparative study, peak incidence of perianal fistula was between 21-40 years and second common incidence was between 41-50 years similar to Shahbaz CM et al⁷ study. The majority of patients with fistula in our study were males. In open fistulectomy, 83.3% were males and 16.7% were females, while in primary suturing, 66.7% were males and 33.3% were females. In Nangare NR et al⁸ study, 86.66% patients were males and 13.33% were females in the open fistulectomy group, while in primary suturing group 68.6% were males and 33.3% were females.

The mean post-operative VAS score in open fistulectomy, was higher than in primary suturing similar to Nangare NR et al⁸ study, where VAS score in open fistulectomy was 7.4 and primary suturing was 3.36 is first post-operative day.

10% patients had postoperative incontinence in open group and 3.3% in primary suturing group in our study. In Sundar Prakash S et al⁹ study there were no cases of incontinence.

In our study, mean duration of hospital stay after surgery was higher in the the open fistulectomy group (13.5 days) than the primary suturing group (7.3 days). In Nangare NR et al⁸ study, mean duration of hospital stay was also higher in open fistulectomy (11.46 days) than primary suturing (7.93 days).

The mean duration of wound healing in our study was higher in open

fistulectomy (31.36 days) than in primary suturing group (9.03 days). In Shahbaz CM et al⁷ study, the mean duration of wound healing in open group (31.82 days) was also higher than the primary suturing group (8 days).

In our study, there were 2 cases of cut through of sutures in primary closure group. There were no case of recurrence in our study. In Sushil Damor et al¹⁰ study also, there were 3 cases of cut through of sutures without any case of recurrence.

CONCLUSION

We conclude that Fistulectomy with Primary Closure can be used as a primary treatment of low fistula-in-ano because the hospital stay is shorter, less post-operative pain and it takes shorter period of time for the wound to heal and the incidence of complications is comparable to that of open fistulectomy.

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