

# Efficacy of Partial Suturing of Wound after Fistulectomy for Fistula-In-Ano

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## ABSTRACT

**Introduction:** In surgery for fistula – in-Ano, complete excision of the fistulous tract is the predominant concern of the operating surgeon, as incomplete excision constitutes one of the primary causes of recurrence. The other concerns are delayed wound healing and prolonged duration required for return to normal activity. Fistula surgery has long been associated with healing times extending to several months. Suturing of fistula wounds has not been practised since it is an infected wound, and there are concerns about recurrence. Present study was carried out to find out if partial suturing of the wound is beneficial in decreasing healing time.

**Material and Methods:** Fifty patients who had undergone fistula surgery were studied. 27 patients underwent fistulectomy alone (Group A), whereas 23 patients underwent fistulectomy with partial closure of the wound and suturing of the divided sphincter (Group B). The outcome was measured in terms of time taken for wound healing, pain on defaecation, need for analgesics and return to work.

**Results:** Postoperative wounds in group B healed earlier (mean 82.1days) in comparison to group A wounds(mean 118.7 days). Patients in group B returned earlier to work (mean 3 ± 1.2 weeks) as compared to group A (mean 6 ± 1.8 weeks).

**Conclusion:** In comparison to fistulectomy alone, a fistulectomy with partial suturing results in faster healing and earlier return to work without any increased risk of recurrence.

**Keywords:** Fistulectomy, fistulectomy with primary sphincteroplasty, Low Anal fistula, suturing of fistula

## INTRODUCTION

In the surgical management of fistula-in-ano, the two standard procedures used are - a fistulotomy and a fistulectomy.<sup>1-2</sup> Fistulotomy involves laying open of fistulous tract wherein the fistulous tunnel is laid open, which allows the fistula to heal from below upwards.<sup>3</sup> Fistulectomy, on the other hand aims at complete removal of the fistulous tract which is supposed to eliminate the risk of missing secondary tracts.<sup>2</sup> Traditionally, the resulting wounds, being contaminated, are left open to granulate, from the base up. Both these conventional methods are associated with prolonged healing times and have concerns regarding continence.<sup>4</sup> These drawbacks have led to the advent of several alternative surgical interventions for this common disorder.<sup>5-6</sup> These include Marsupialization of the tract, Ligation of intersphincteric fistula tract (LIFT), Fibrin glue, Anal fistula plug derived from porcine small intestinal submucosa, Fistula laser closure, Video-assisted anal fistula treatment, Adipose-derived stem cells etc. Perhaps this plethora of alternative treatments is indicative that none of the available treatments has been found to be completely satisfactory, as brought out in a review of available treatment methods by Malik and Nelson.<sup>7</sup> Moreover, the efficacy of all these methods needs evaluation

before being adopted universally. At present, marsupialization of the tract and LIFT are the two commonly used alternative techniques. One thing may be said to be common among all the above mentioned treatment modalities. They seek to address the problem of having a large surgical wound and prolonged healing time associated with conventional surgical treatment.

Repair of the cut anal sphincter along with partial wound closure of the operative wound is an alternative which would result in the wound edges being brought together, leaving a shallow, smaller wound, reducing healing time. Our aim in this study was to evaluate the efficacy of partial suturing of the fistulectomy wound, in decreasing healing time, without development of recurrence and wound sepsis.

## MATERIAL AND METHODS

50 patients with a clinical diagnosis of a low anal fistula were included in the study which was conducted at The BYL Nair Charitable hospital and Topiwala National Medical College in Mumbai from 12 August 2012 to 2nd February 2016. A low anal fistula is defined as one that has the internal opening below the anorectal ring. 27 consecutive patients who underwent fistulectomy alone (labelled Group A), and 23 consecutive patients who underwent fistulectomy with partial closure of the wound and suturing of the divided sphincter (labelled Group B) were included in the study. Data regarding the clinical history, duration of symptoms; and previous surgery, was collected. The findings of inspection, PR examination and proctoscopy were noted.

### Inclusion criteria

The presence of low Anal Fistulas including: trans-sphincteric, inter sphincteric and subcutaneous fistula.

### Exclusion criteria

- 1) Recurrent fistula.
- 2) patients with associated conditions such as anal fissure, hemorrhoids.
- 3) Presence of multiple secondary branching tracts or multiple external openings.
- 4) Patients with suspected high anal fistula.

Since this was an observational study involving retrospective analysis of prospective data, no separate consent of patients or permission of institutional ethics committee was obtained.

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Confidentiality of all patients was maintained.

The patients were operated upon under regional anaesthesia. Under anaesthesia, an anorectal examination was performed. Gradually a two-finger and then a three-finger dilatation of the anal sphincter was done. This was to facilitate the introduction of a Sim's speculum without causing local trauma and bleeding which obscures vision. After insertion of the Sim's speculum, the internal opening was identified as a deformity or depression at the dentate line with surrounding redness. For visualization of the fistulous tract intraoperatively, the tract was stained by injecting about 2 mL of methylene blue with hydrogen peroxide through the external opening. This was done using the nozzle of a 10cc syringe alone. No canula or needle was used, so as not to create a false tract. Dye coming out into the anal canal identified the internal opening. Most often, multiple attempts were needed before the dye would appear at the internal opening. Excess dye in the anal canal was quickly cleared with suction to prevent blue staining of adjacent mucosa. Following this, an artery forceps was gently passed into the fistulous tract through the external opening, and opened gently to the extent possible.

Using electrocautery, the skin and subcutaneous tissue were incised down to between the blades of the artery forceps, so that the fistula tract was laid open. The artery forceps was then advanced and the process repeated till the entire tract was thus laid open. Close to the internal opening, the external and internal sphincter were also incised as required.

After the fistula tract had been laid open, the fibrous lining of the tract and any mucosal lining, close to the internal opening was excised. Any intersphincteric extensions of the tract were scooped out. Hemostasis was achieved. A dressing was given.

In group B, in addition to above mentioned procedure, the external sphincter was repaired using 2-0 Polyglactin interrupted sutures. In addition, the edges of the fistulectomy wound were approximated from the base upwards. Most commonly, a single layer of Polyglactin 2-0 sutures was used. An additional layer of sutures was sometimes used if needed. The skin was not sutured. Ciprofloxacin and metronidazole were given to all patients, till 5 days postoperatively. For pain relief, Diclofenac(50 mg) tablet was used, to be taken as per requirement by the patient.

The severity of postoperative pain was assessed on a scale of 0 to 10 with help of the visual analogue scale (VAS)<sup>10</sup>, starting from 24 hrs. after surgery. Subsequently, patients were assessed at 48 and 72 hrs. Most patients were discharged after 72 hours. Post-operatively, all patients were followed up for 3 months after surgery in the outpatient. Patients were evaluated for the following, during follow up: wound healing, postoperative pain, anal incontinence and return to work. The time duration upto complete healing of the wound was noted. The patients were observed for recurrence of the fistula during the follow-up period. No patients were lost to follow-up.

## STATISTICAL ANALYSIS

Data was tabulated and statistical analysis was performed using the quickcal graph pad software available at <http://www.graphpad.com/quickcalcs/>. P values were derived by applying the appropriate tests.

## RESULTS

Fifty patients clinically diagnosed to be suffering from a low

Characteristics	Group A	Group B
Mean Age(yrs)	40.64	40.68
Sex ratio(M:F)	20:07	22:01
Type of fistula( transphincteric / Intersphincteric)	19/8	19/4
Mean Duration of symptoms(months)	37 ±3	40 ± 2
Mean Duration for healing (days)	118.7	82.1

**Table-1:** Comparison of the characteristics of the two groups

Mean VAS score AT	24 hrs	48hrs	72hrs
Group A	4.6	4.89	4.19
Group B	5.3	5.09	3.39
P - value	0.613	0.778	0.178

**Table-2:** A comparison of the VAS scores of the two groups at varying times in the post-operative period and the P values. None of the P values was less than 0.05.

anal fistula were included in this study. In the fistulectomy alone group(Group A), the mean age was 40.64 years.while the mean age of the patients in group B was 40.68 years.

The durations of symptoms in both groups A and B, ranged from 2 months to 90 months. There were 6 cases of intersphincteric fistulae and 19 cases of a low trans-sphincteric fistula in group A while there were 4 cases of intersphincteric fistulae and 19 cases of a low trans-sphincteric fistula in group B. The two groups were well matched as shown in Table 1.

The mean time to complete postoperative wound healing was 82.1days in group B; whereas it was 118.7 days in group A. This difference in healing time was statistically significant( $P < 0.001$ ). The pain scores in both groups were similar with no statistically significant difference in scores recorded at various times between the two groups as summarized in Table 2.

No patient in group B developed wound sepsis with dehiscence and widening of the wound. There was no recurrence of fistula in both groups. 4 patients in group A and 3 patients in group B complained of soiling of clothes in the post-operative period. However this was resolved after stoppage of liquid Paraffin which was administered to all patients post-operatively. No patient complained of incontinence after 2 weeks post-operatively.

There was no patient in either group having recurrence of fistula during the course of the study.

## DISCUSSION

Every surgeon is aware of wound healing by 'first intention' which implies that wound edges are brought together, any dead space in the wound is obliterated and it is expected that the wound edges will come together with the body's processes of inflammation and repair, without any infection setting in.

On the other hand, when a wound has been left open for several hours following injury, or when a wound is already infected, suturing is deferred and the wound is allowed to granulate from the base upwards, so that granulation tissue, growing from the floor upwards towards the surface will ensure that drainage of the wound occurs and there is no wound infection. The sutured wound, of course heals much more rapidly than the wound which is allowed to granulate.

The same rationale has been applied to wounds after fistulectomy. Since the fistulectomy wound is created in infected tissue and

is exposed to fecal matter on a daily basis, standard teaching has been that it ought to be left open to granulate. There is also the concern about suturing skin, since infection in part of the wound adjacent to the internal opening would leave a tunnel underneath overlying healed skin and lead to recurrence of the fistula.

Fistulectomy wounds have therefore been traditionally left open to granulate and most patients expect healing times from 2-3 months following surgery.

Given that we now understand wound healing better and the role of surface antibodies in the prevention of infection, perhaps it is time to look again at the time honoured approaches to fistula surgery.

Fistulectomy with primary sphincteroplasty and partial wound suturing is one way of reducing the size of the wound. This would expedite healing while still retaining the advantage of providing adequate drainage of the wound.

Another method that seeks to reduce the size of the fistulectomy wound is marsupialisation. Marsupialization following fistulotomy or fistulectomy leaves smaller unepithelized wounds, which hastens the wound healing.<sup>8-9</sup> However, marsupialisation, which involves the suturing of the skin edge to the edge of the fistulous tract may involve excessive tension if the tract is deeply seated. It would also create a deformity in the perianal region which would be bothersome to the patient.

In our study, the mean time to healing was 82.1 days in group B; whereas it was 118.7 days in group A. Pescatori et al noted that marsupialisation decreased wound size and wound healing time with no increase in post operative pain and sepsis.<sup>10</sup> However, as discussed earlier, marsupialisation may result in skin tension and deformity, in cases where the fistulous tract follows a deep course.

Our study found no difference in postoperative pain at various times, between the two groups. Similar findings have been reported by Pescatori et al.<sup>10</sup>

Kronborg reported that 3 out of 17 patients after fistulectomy and 1 out of 20 patients after fistulotomy developed anal incontinence.<sup>11</sup> However in our study, barring transient complaint of soiling of clothes, no patient complained of incontinence. A limitation of our study has been that we have not enquired into continence using a quantified scale like the lickert scale.

No patient in our study developed recurrence of fistula in either group during the follow up period. Recurrence rates following fistulectomy(9.52%) and fistulotomy(12.5%) were reported by Kronborg with a 12 month follow-up period.<sup>11</sup> The duration of follow up in our present study was probably not sufficient to draw any definite conclusions about recurrence rates.

Yet another strategy to reduce the size of the wound is to use the Lasheen suture, which ensures that the wound edges are brought together, yet wound drainage is ensured and no pockets of space are left behind.<sup>12</sup> The Lasheen suture is really a horizontal mattress suture, passing from just underneath the wound edges and below the floor of the operative wound. However this method needs further critical evaluation.

Several other aspects of the surgical management of fistula –in-ano require further detailed study including the role of sphincteroplasty and the quality of continence, measures of overall patient satisfaction with surgical treatment as also pain relief following surgery.<sup>13-15</sup>

Conclusion: It may be concluded that our study did show a shorter wound healing time and early return to work following fistulectomy with partial wound closure in comparison to fistulectomy alone. This conclusion needs to be reinforced with larger studies with patients having all types of fistulas.

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