

# Management of fistula-in-ano - a common clinical problem

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## SUMMARY

A prospective study of 54 patients (age ranging from 18-54 years) operated for perianal fistula. These operations were done in al- Diwanyiah teaching hospital and private hospital in period from: January 2003 to July 2005. To determine the incidence of low or high anal fistula, recurrence rate following surgery and effect of surgery as well as effect of previous procedures on the incontinence. The fifty four patients (54) were subdivided into two groups' i.e. low and high anal fistulae and were operated by laying open technique (fistulotomy) for low fistulae and by two-stage fistulotomy, seton "cut-through technique and Re-routing of the tract for high fistulae.

Patients were followed to see the incidence of recurrence, effect of surgery on continence as well as effect of previous surgery on continence. Overall recurrence was only 4.44% for low fistulae and 11.11% for high fistula in-ano. Minor incontinence was observed only following surgery for high variety. No such complication occurred in low variety.

Low fistulae can be laid open with minimal loss of sphincter muscle but as for as the high variety is concerned it is safer to place a seton or stage the procedure.

## INTRODUCTION

Fistula-in-ano is one of the commonly encountered surgical problems. Different classifications have been put forward which categorize these fistulae into low or high, simple or complex, or according to their anatomy – inter-sphincteric, trans-sphincteric, and supra-sphincteric or extra-sphincteric<sup>1</sup>. Studies have revealed that high fistulae have low incidence<sup>2</sup>. Low fistulae (low inter-sphincteric and low trans-sphincteric) are the commonest anal fistulae and can be treated easily by conventional laying-open technique<sup>3</sup>.<sup>4</sup> High fistula-in-ano (high trans-sphincteric, supra sphincteric or extra sphincteric) are difficult to treat since the conventional laying-open will lead to division of most of the anal sphincter muscles resulting in incontinence.

The ultimate goal of fistula surgery is to eradicate it without disturbing or disturbing minimally the anal sphincter mechanism. To achieve the objective in high anal fistulae, different surgical techniques have been described in literature from time to time. These include Park's fistulotomy<sup>5</sup>, insertion of a seton<sup>6</sup>, two-stage-fistulotomy<sup>7</sup>, primary fistulectomy with occlusion of the internal ostium<sup>8</sup>, fistulotomy with primary repair of the sphincter<sup>9</sup>, endorectal advancement flaps<sup>10,11</sup>, anocutaneous advancement flap<sup>12,13</sup>, repair of fistula using fibrin adhesive glue<sup>14</sup> and re-routing the fistula<sup>15</sup>. The number of procedures mentioned indicates that there is no single established way of treating these high fistulae.

We have analyzed the treatment of 54 patients admitted with perianal fistula. This study presents the methods used for treatment and the results achieved with reference to recurrence rates and postoperative continence.

## **MATERIAL AND METHODS**

This is a prospective study of 54 patients (41 men, 13 women) operated for perianal fistula. The age of the patients ranged from 18 years to 54 years (average age 34 years). Information about mode of onset, duration of illness and any previous treatment for intestinal disease like tuberculosis, ulcerative colitis and Crohn's disease were collected.

Surgery was performed by specialist surgeon or by registrars under supervision. Mostly general anaesthesia was given. Full relaxation was avoided to enable the surgeon to palpate the main parts of the external sphincter especially the anorectal ring. Proctoscopy was performed in search of an abnormality of the anal canal like pus coming out of the internal opening or hypertrophied anal papilla. The external opening was probed gently and the internal opening recognized by probing and injecting dye through the fistula.

Following operative procedures were performed on the patients:

1. *Laying-open technique (fistulotomy).*
2. *Two-stage fistulotomy.*
3. *Seton "cut-through" technique.*
4. *Re-routing of the track.*

In 49 patients with low anal fistula, fistulotomy was performed and a wide, shallow, saucerized wound was left to heal by granulation.

In high fistulae, the external track (extra-sphincteric track) was laid open. Further management of these fistulae varied from surgeon to surgeon.

Three patients were treated by two-stage fistulotomy. A stout silk thread (seton) was passed along the remaining track and tied loosely over the sphincter muscles. Second stage of operation was postponed till complete healing of the external wound (1 to 2 months) and the residual track was laid open at this stage.

Four patients were treated by seton “cut-through” technique. A stout silk thread was passed through the residual track enclosing the sphincter muscle and tied tightly. Post-operatively the wound was examined weekly and the seton tightened as necessary till it gradually divided the enclosed muscle.

Two patients with high fistulae were treated by re-routing of the track. After demonstrating that the fistula has a high trans-sphincteric or supra-sphincteric track, a marker seton was passed through the track and tied loosely. The area around the track and the inter-sphincteric plane was infiltrated with dilute adrenaline solution to achieve a bloodless field. The fistulous track was then “cored-out” up to and through the external sphincter or puborectalis muscle which were clearly exposed during the operation. Then the inter-sphincteric plane was opened and dissected up to the opening of the fistulous track. The external part of the track was now passed through the hole in the sphincter and was brought down into the inter-sphincteric plane. At second stage (after 4 to 5 weeks) when the external wound had soundly healed, the fistulous track marked by silk, was laid open by dividing the remaining tissues. All fistulous tracks were sent for histopathology. The patients were followed till complete healing of the wound. A discharge or an abscess developing at the same site as the original fistula indicated a recurrence. Patients were questioned about fecal continence. Rectal examination was performed in every patient to note the resting and maximum squeeze pressures. Any episode of loss of formed stool or persistent leaking of liquid stool occurring more than a week after surgery was defined as major incontinence. Episodic loss of liquid stool or persistent loss of control of flatus was defined as minor incontinence.

## **RESULTS**

Fifty-four patients were operated for perianal fistula. The incidence was low in both sexes below 20 years and after 50 years of age. Peak occurrence was noted between 20 to 40 years. Incidence according to age is shown in Table 1. Out of these 54 patients, 41 were males and 13 were females, the male to female ratio was 3.15:1.

Table 1: Age distribution of fistula-in-ano

Age Group	No. of Patients	%age
10-20 years	5	9.26
21-30 years	17	31.48
31-40 years	22	40.74
41-50 years	7	12.96
51-60 years	3	5.55

Duration of the illness ranged between 6 months and 5 years (average 18 months). Seven patients gave history of treatment for pulmonary or abdominal tuberculosis in the past. One patient was suffering from ulcerative colitis. Not a single patient with Crohn's disease was recorded. Thirty-seven patients gave history of incision and drainage of a perianal abscess, fourteen patients underwent fistulotomy in some other hospital and fifteen patients gave history of operation by a quack. Four patients had undergone multiple operations for recurring fistula (Table 2).

Table 2: Clinical data

Salient Features in History	No. of Patients	%age
History of treatment for tuberculosis	7	12.96
History of ulcerative colitis	1	1.85
Previous operation of an anal abscess	37	68.52
History of fistulotomy in a hospital	14	25.92
Under-went multiple operations for fistula	4	27.41
Operated for fistula by a quack	15	27.78

Out of 54 patients in this study, 45 (83.33%) had low fistula (intersphincteric and low trans-sphincteric), 8 (14.82%) had high trans-sphincteric fistula, 1 (1.85%) patient had supra-sphincteric while no extra-sphincteric fistula was encountered.

Forty-five patients underwent primary fistulotomy for low anal fistulae. Nine patients (16.66%) had a high fistula. Out of them, 3 patients were treated by two-stage fistulotomy, 4 patients by seton "cut-through" technique and 2 patients by re-routing technique.

### ***Incidence of recurrence***

Two of forty-five patients with low anal fistulae developed suppuration at the site of the previous fistula. Simple drainage alone was performed. No further abscess developed after nine months and one year. No recurrence was noted in high fistulae treated by two-stage fistulotomy and re-routing techniques. One patient treated by cutting seton developed recurrence. This recurrent fistula was treated successfully by laying open technique. Incidence of recurrence observed in this series is shown in Table-3.

*Table 3: Incidence of recurrence*

<b>Method Used</b>	<b>No. of Patients</b>	<b>No. of Recurrence</b>	<b>%age</b>
Primary fistulotomy	45	2	4.44
Two-stage fistulotomy	3	0	0.00
Cutting seton technique	4	1	25.00
Re-routing technique	2	0	0.00

### ***Effect of surgery on continence***

Effect of surgery on continence is shown in Table-4. No effect was noted on continence in patients treated for low fistulae. In cases of high fistulae, no major incontinence was recorded. Minor incontinence was noted in three patients in whom the sphincter muscle was divided (1 after two stage fistulotomy and 2 after cutting seton). These patients lost control of flatus after operation which persisted for 4months in only one patient.

*Table 4: Effect of Surgery on Continence*

<b>Method used</b>	<b>No. of Pts.</b>	<b>Major Incontinence</b>	<b>Minor Incontinence</b>	<b>%age</b>
Primary fistulotomy	45	0	0	0.00
Two-stage fistulotomy	3	0	1	33.33
Cutting seton technique	4	0	2	50.00
Re-routing technique	2	0	0	0.00

### ***Effect of previous surgery on continence***

Out of twenty-nine patients who already underwent surgery for fistula-in-ano once, two developed minor incontinence and among those four patients who were operated many times for fistula previously, one developed minor incontinence. It was noted that only incision and drainage of anorectal abscess had no different effect on the continence after fistula surgery. Effect of previous fistula surgery on continence is shown in Table 5.

*Table 5: Effect of previous surgery on continence*

<b>Method used</b>	<b>No. of Pts.</b>	<b>Major Incontinence</b>	<b>Minor Incontinence</b>	<b>%age</b>
Drainage of Abscess	37	0	0	0.00
Previous Fistula Surgery	29	0	2	6.89
Multiple operations for fistula	4	0	1	25.00

## **DISCUSSION**

A vast majority of perianal fistulae belong to the low variety i.e. opening below the anorectal ring. They can be easily treated by simple laying-open technique without division of anal sphincter muscles and thus without danger of permanent incontinence<sup>3, 4, 16, 17</sup>. High and complex fistulae are rare<sup>2</sup>. These open into the anal canal at or above the anorectal ring and can be treated only by staged operations. Out of 54 patients of anal fistulae, 45 (83.33%) had a low fistula – low inter-sphincteric or low trans-sphincteric and all of these patients were successfully treated by simple laying-open technique. Nine patients (16.67%) had high fistulae (high trans-sphincteric and supra-sphincteric). The incidence of high fistulae in this study is quite high as compared to other centres. Inadequate treatment at peripheral hospitals seems to be the most probable cause of this high incidence of high fistula-in-ano. Both the diagnosis and treatment of high anal fistulae are difficult. Various surgical techniques have been described to treat these fistulae<sup>8, 9, 18, 19,20,21,22</sup>.

Conventional laying-open technique in high perianal fistula may involve sacrifice of part or whole of the sphincter muscle impairing continence. It is quite obvious that the more the extent of anal muscle division, the greater the degree of anal incontinence<sup>23</sup>. The re-routing technique was used in two patients with high fistulae. The operation depends upon an exact demonstration of the anal muscles. The operation incorporates the use of seton as a

marker/drain and also the use of staged interventions at short intervals to allow healing and consolidation of the tissues between each surgical procedure. It enables complete laying open to be achieved without sacrificing the integrity of the sphincter muscles. Healing time is less and continence and shape of the anal canal is preserved<sup>21</sup>.

Seton fistulotomy, either performed in two stages (two-stage fistulotomy n=3) or using the seton to cut through the sphincter muscles (cutting seton n=4) cured all 7 patients. Similar high success rates have been reported by other centres<sup>15, 23, 24</sup>. High complex fistulae can be safely treated with only minor loss of continence using different seton technique<sup>24, 25, 26, 27, 28</sup>. Seton treatment of high anal fistulae is simple to perform. Recurrence rates are low and disturbance in continence is minor and not long lasting. The results are comparable to those obtained after more complex methods of treating these difficult fistulae.

Fistula surgery can be complicated by incontinence. In this study no patient developed major incontinence. Three patients developed minor incontinence and in these three patients the sphincter muscle was divided either in the second stage or using a cutting seton. One of these patients had undergone multiple operations for perianal fistula. The loss was transient and did not persist in any patients. Postoperatively, some loss of continence and loss of control of flatus has also been reported by others. Simple laying-open of low fistulae is associated with disturbance in fecal continence in up to 34% of patients<sup>17, 29</sup>. The incidence of minor incontinence after two-stage fistulotomy has been reported to be significantly high<sup>23</sup>. In this study it is 33.33% which is also very high.

Increased incidence of developing postoperative incontinence has been observed in patients with previous fistula surgery<sup>6, 8, 29</sup>. Correlation of rising incidence of this complication with rising number of previous fistula operations has also been reported. In our study, among 4 patients with previous history of multiple operations for fistula-in-ano, Only one developed minor incontinence. Some idea about the possibility of developing this complication can be gained by manometric studies. Low resting and squeeze pressures are more likely to be associated with postoperative incontinence than normal pressures<sup>30</sup>. Anal endosonography is a useful imaging technique of the sphincters that can assess the integrity and the defect can be visualized as a clear discontinuity in the muscular ring<sup>31</sup>.

It can give significant information in patients who have undergone previous fistula surgery. Both anal endosonography and hydrogen peroxide enhanced ultrasound can be very reliable and useful in definition of fistula anatomy, its relationship with anal sphincter and hence surgical strategy<sup>32</sup>. Magnetic

resonance imaging is an accurate method of demonstrating the course of anal fistula<sup>33</sup>. This should be considered for patients with difficult fistulae.

## CONCLUSION AND RECOMMENDATIONS

To achieve the goals of treatment it is necessary to completely lay open the track with minimal or preferably no loss of sphincter muscle. Proper preoperative evaluation, light general anaesthesia, gentle probing, staining the track with a dye, local infiltration of dilute adrenaline to achieve almost bloodless field and clearly exposing the sphincter muscles in all cases is a key to success. If in doubt it is worthwhile to place a seton and stage the procedure.

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