

## Original Research Article


# A comprehensive study of fistula in ano

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## Abstract

**Background:** A fistula-in-ano is an abnormal hollow tract lined with granulation tissue connecting a primary opening inside the anal canal to a secondary opening in the perianal skin. Treatment of fistula-in-ano remains challenging. Surgery is the treatment of choice, with the goals of draining infection, eradicating the fistulous tract, and avoiding persistent or recurrent disease.

**Aim:** This study was intended to investigate the factors determining the course of fistula in ano and its recurrence of patients with fistula in ano came to Govt. Stanley Hospital for 1 year.

**Materials and methods:** 45 patients were selected who were diagnosed as fistula in ano admitted in Govt. Stanley Hospital during June 2015 to May 2016. The anatomy and type of fistula was detected by MRI. Patients underwent definitive treatment. Data regarding the objectives of the study were collected and outcomes of the treatment evaluated by following up the patient for 6 months.

**Results:** Majority of patients (82%) belonged to 31 -60 years of age. Male: Female ratio was 4:1. Most of the fistulas were low anal 41 (91%). About 34 (76%) of external openings were posterior. Fistulectomy was performed in 31 cases, fistulotomy for 10 cases, seton for 4 cases and the operated wound healed in a range of 2 weeks to 8 weeks. Delayed healing was associated with complex fistulas, intersphincteric and transphincteric fistula takes longer time to heal about 4 to 5 weeks (P = 0.007). Fistula of tubercular etiology took minimum 3 weeks to heal (P =0.047). 13 % of cases showed recurrence. Transphincteric fistulas had recurrence rate of 33%. Fistulas with lateral openings had recurrence rate of 67%.

**Conclusion:** Fistulectomy is the commonest and best procedure to get rid of the infective pathology. Fistula in ano has a well recognised incidence of recurrence after surgical treatment.

## Key words

Fistula-in-ano, External opening, Fistulectomy.

## **Introduction**

Throughout the surgical history fistula-in-ano has been a troublesome pathology to both patient and physician. The prevalence of nonspecific anal fistulae has been estimated to be 8.6 to 10/100,000 of the population per year, with a male to female ratio of 1.8:1.

Anal fistula has been described virtually from beginning of medical history. Hippocrates in about 430 B.C., suggested that the disease was caused by “contusions and tubercles occasioned by rowing or riding on horse back” [1]. He was the first person to advocate the use of a seton (from the Latin seta, a bristle) in treatment [2]. The early drainage was advised and fistulotomy described even before matter is fully formed. Medicated setons were used much earlier by Sushruta.

Fistula-in-ano is an abnormal communication between the anal canal or rectum and the perianal skin, which causes a chronic inflammatory response. The most common cause is nearly always by a previous anorectal abscess. There is usually a history of recurrent abscess that ruptured spontaneously or was surgically drained [3]. The occurrence of such abscess is mostly secondary to infection of an anal gland (Cryptoglandular hypothesis of Eisenhammer) [4].

Tuberculosis, lymphogranuloma inguinale, inflammatory bowel disease like Crohn's or ulcerating proctocolitis can also lead to development of anal fistula. Fistulae have been reported following external injury or probing an abscess or low anal fistula [5]. A fistula may develop in chronic anal fissure. A colloid carcinoma of the rectum can manifest itself through an anal fistula [6]. Occasionally ingested foreign bodies, such as fish or chicken bones may penetrate the rectum. Impalement injury after falling astride a sharp object or as a result of a road traffic accident may result in a high anorectal fistula.

According to Park [7], the anal fistula can be classified into four types – Intersphincteric – 70% Transphincteric - 25% Suprasphincteric - 5% Extrasphincteric - 1%

The chief complaint is intermittent or constant drainage or discharge. There is usually a history of previous pain, swelling and recurrent abscess that ruptured spontaneously or was surgically drained. There may be a pink or red elevation exuding pus, or it may have healed.

In Crohn's disease or tuberculosis, the margins may be violaceous and the discharge watery [8]. Physical examination findings remain the main stay of diagnosis. The examiner should observe the entire perineum, looking for an external opening that appears as an open sinus or elevation of granulation tissue. Spontaneous discharge via the external opening may apparent or expressible upon digital rectal examination. Digital rectal examination may reveal a fibrous tract or cord beneath the skin, it also helps delineate any further acute inflammation that is not yet drained [9-12]. Lateral or posterior induration suggests deep posterior anal or ischiorectal extraction [4].

Commonly done investigations in fistula-in ano are Sigmoidoscopy ,colonoscopy, Fistulography, Endo anal/ endorectal ultrasound, Magnetic Resonance Imaging (MRI), Computerized Tomography Scan (CT scan), A barium enema / small bowel series, Fistuloscopy [13]. But thorough physical examination is most needed.

The main object of surgical treatment of an anal fistula is to eradicate it without disturbing anal continence. The three basic surgical techniques for the treatment of anorectal fistulae are fistulotomy, use of a seton, and endorectal advancement flaps, fistulectomy.

Fistula-in-ano one of common peri-anal disorder and there is scarcity of studies on its natural history, incidence, etiopathogenesis, clinical features, investigations and treatment, especially in this part of the country. In this prospective

study on fistula-in-ano the etiological and associated factors which are responsible for recurrence of fistula is dealt.

### Materials and methods

This was a prospective study was conducted at the Department of General Surgery, Govt. Stanley Hospital Chennai, attached to Govt. Stanley Medical College, Chennai during June 2015 to May 2016 .

A number of 45 patients were selected, who were diagnosed as fistula in ano admitted in Govt. Stanley Hospital, Chennai during study period and evaluated. Patients underwent definitive treatment according to the type of fistula. Patients were followed up for a minimum period of 6 months.

### Inclusion criteria

The patients who were clinically diagnosed as fistula- in- ano in all ages and both sex who were subjected to relevant investigation and undergo surgery were be included.

### Exclusion criteria

- All fistulas due to perineal injuries, crohn’s disease.
- All congenital fistulas
- Cases unfit and refused for surgery

The diagnosis of the fistula-in-ano, mainly depends on clinical examination. The selected patients were subjected to pathological, biochemical and radiological investigations. Data related to preoperative and intra-operative interventions along with postoperative outcome was collected. Patients were treated with either fistulectomy, fistulotomy or seton placement according to type of fistulae.

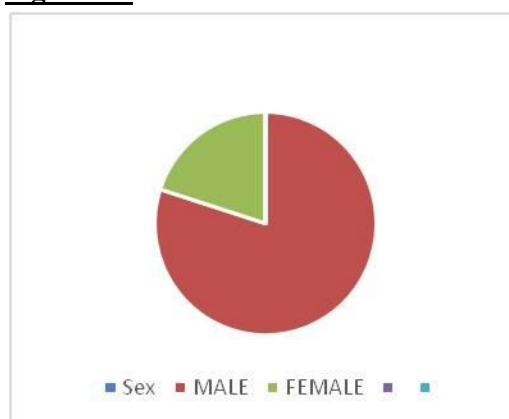
Statistical relation was obtained through chi square test.

### Results

In our study, there were 36 (80%) male patients, 9 (20%) female patients indicating that the

disease is more common in male with a ratio of male to female was 4:1 as per **Figure – 1**.

**Figure – 1:** Sex distribution.



In our study of 45 patients, the age of patients varies from 19 years to 67 years. Maximum number of patients were in the age group 31 – 60 years i.e., 37 (83 %) patients. There was 1 patient (2%) in the age group of ≤ 20 years, 6 patients (13%) in the age between 21– 30 years, 16 patients (35%) in the age group of 31 – 40 years, 12 patients (45%) in 41-50 years, 9 patients (20%) in age group of 51 – 60 years, 1 patient (2%) above 60 years as per **Table - 1**. The commonest type of fistula was low anal as per **Table - 2**.

**Table – 1:** Age distribution.

Age (Years)	N	%
<20	1	2%
21-30	6	13%
31-40	16	35%
41-50	12	26%
51-60	9	20%
61-70	1	2%

**Table – 2:** Type of fistula.

Type of fistula	N	%
Superficial	10	22%
Intersphincteric	22	48%
Transsphincteric	9	20%
HIGH ANAL	4	8%

The commonest symptoms were discharge in all patients with pruritis in 12 (27%) patients and

pain in 26 (58%) patients. The commonest sign was presence of external opening in all cases, internal opening in 37 (82%) of patients and swelling in 22 (48%) cases. Out of 45 cases 31 (68%) cases has the posterior, 11(24%) cases has anterior and 3 (7%) cases has lateral external opening as depicted in **Table - 3**.

**Table – 3:** External opening.

External opening	N	%
Posterior	31	68%
Anterior	11	24%
Lateral	3	6%

Out of 45 cases, fistulectomy done in 31 cases and the operated specimen sent for histopathological examination. 28 cases were diagnosed as due to nonspecific inflammation and 3 cases were of tubercular aetiology as per **Table – 4, 5**. Most of the cases healed within 2-8 weeks as per **Table - 6**.

**Table – 4:** Procedure.

Procedure	N	%
Fistulectomy	31	68%
Fistulotomy	10	22%
Seton	4	8%

**Table – 5:** Pathology.

Pathology	N	%
Nonspecific inflammation	28	62%
TB	3	6%

All the patients came for follow up once or twice vary from three months to six months. There was recurrence in 6 cases after 4 weeks and it was excised. Five cases were males, while 2 had tubercular etiology as per **Table – 7**. Age distribution in recurrent cases was as per **Table – 8**.

### Recurrence

Out of 45 cases, 13 % had recurrence, 5 male cases and 1 female case.

**Table – 6:** Healing in weeks.

Healing in weeks	N	%
2	4	8%
3	7	15%
4	19	42%
5	10	22%
6	2	4%
7	0	0%
8	1	2%

**Table – 7:** Etiology.

ETIOLOGY	N	%
TB	2	33%
Nonspecific	4	66%

**Table – 8:** Age distribution in recurrent cases.

Age (Years)	N	%
21-30	1	2%
31-40	3	6%
41-50	1	2%
51-60	1	2%

Transphincteric fistulas (50%) had recurrence rate of 33%, Superficial fistulas (33%) treated with fistulotomy had recurrence rate of 20% and Intersphincteric fistula showed recurrence rate of 4.5% as per **Table – 9**.

**Table – 9:** Type of fistula in recurrent cases.

Type	Recurrence	Total cases	%
Transphincteric	3	9	33%
Intersphincteric	1	22	4.5%
Superficial	2	10	20%

Fistulas with posterior openings had recurrence rate of 9%, fistulas with lateral openings had recurrence rate of 67% as per **Table – 10**.

Intersphincteric fistula takes 4 weeks to heal, transphincteric fistula takes longer time to heal about 5 weeks , and high anal about 4 to 5 weeks (P = 0.007). Fistula of tubercular etiology took minimum 3 weeks to heal (P =0.047). Many

associated conditions along with fistulae-in-ano were noted, commonest condition was Anorectal abscess which was found in 22 (48%) cases. 13 patients had transient incontinence for fluids and flatus for about 2 weeks which was probably due to operative edema, pain and to some extent lack of tone of sphincter musculature.

**Table – 10:** External opening in recurrent cases.

External opening	Recurrence	Total	%
Posterior	3	31	9.6%
Lateral	2	3	67%
Anterior	1	11	9%

### Discussion

Fistula-in-ano is one of the most common benign colorectal diseases, with significant risk of morbidity and recurrence. Factors identified for recurrence of fistula are technical difficulties in preoperative evaluation, missing the right tract or additional tracts during surgery, complex type of fistula, lack of identification of internal fistulous opening, previous fistula surgery, lack of

treatment of etiological factors or pathology and lack of proper follow up.

The cases in our study were broadly classified into 4 types superficial, intersphincteric, transphincteric and high anal. 10 (22%) of 45 cases were superficial, 22 (48%) were intersphincteric, 9 (20%) were transphincteric and 4 (8%) were high anal fistula. Comparison [14, 17, 18] of type of fistula was as per **Table – 11**.

In our study of 45 cases, 3 cases (6%) had histopathological evidence of tuberculosis. Comparison [16, 18, 20] of tuberculous etiology was as per **Table – 12**.

In a study by Malouf, et al. in St. Mark s hospital, UK the proportion of the tuberculous pathology was too low owing to the lesser incidence of Tb in European countries [18]. In the present study, we found 13% (6 cases) of cases had recurrence and most of it were males. Comparison [18, 19] of recurrence was as per **Table – 13**.

**Table – 11:** Comparison of type of fistula.

	Superficial	Intersphincteric	Transphincteric	High anal
Malouf, et al. [18]	11%	31%	53%	5%
Barwood, et al. [17]	15%	43%	35%	7%
Garcia-aguilar, et al. [14]	21%	48%	28%	3%
Present study	22%	48%	20%	8%

**Table – 12:** Comparison of tuberculous etiology.

Study	TB
Bokhari, et al. [16]	11%
Wijekoon, et al. [20]	7%
Malouf, et al. [18]	1%
Present study	6%

Parks and Stitz demonstrated that healing times was much longer in patients treated for transphincteric and suprasphincteric as compared with those treated for an intersphincteric fistula [14, 15].

**Table – 13:** Comparison of recurrence.

Study	Recurrence
Sangwan, et al. [19]	6.5%
Malouf, et al. [18]	4%
Present study	13%

Whereas in the present study, Intersphincteric fistula took 4 weeks to heal, transphincteric fistula took longer time to heal about 5 weeks , and high anal about 4 to 5 weeks than superficial type. (P = 0.007)

One drawback of this study is the failure to detect the exact pathology in cases who underwent fistulotomy and seton insertion, and more specifically the recurrence in 2 cases of superficial fistula who underwent fistulotomy, whose proportion is quite significant (33%), have the possibility of varying the percentage of recurrent cases with different pathology.

## Conclusion

To conclude, fistula in ano carries a significant risk of recurrence. Factors vary ranging from type of fistula to etiology of the disease, apart from inadequate excision of branching tracts, failure to visualize the entire tract and internal opening. Preoperative MRI may help to detect the type of fistula, localize the internal opening and should be performed in all complex fistulas. Histopathological examination assumes paramount significance to suspect and anticipate recurrence. Regular follow-up in patients with fistula after treatment is required to monitor recurrence.

## References

1. Deeba S, Aziz O, Sains PS, Darzi A. Fistula in-ano: advances in treatment. *The American Journal of Surgery*, 2008; 196(1): 95-99.
2. Babu AK, Naik MB, Babu MR, Madhulikia M. Seton - as a gold standard treatment for high fistula in ano. *Journal of Evidence Based Medicine And Healthcare*, 2015; 2(11): 1687-1693.
3. Russel TR. Anorectum. In Lawrence W editor; *Current surgical diagnosis and treatment*. 10<sup>th</sup> edition, 1994.
4. Adams D, Kovalcik PJ. Fistula in ano. *Surg Gynecol Obstet.*, 1981; 153: 731-732.
5. Gupta PJ. Frequency fistulotomy: A better tool Radio frequency fistulotomy: A better tool than the conventional techniques in anal fistula. *Indian J Surg.*, 2006; 68: 48-52.
6. Isbister WH. Fistula in ano: a surgical audit. *International journal of colorectal disease*, 1995; 10(2): 94-96.
7. Parks AG. Pathogenesis and treatment of fistula-in-ano. *Br Med J.*, 1998; 1(5224): 463-469.
8. Panda UN. *Current Medical Diagnosis and Treatment*. Jaypee Brothers Publishers, 2002.
9. Tadataka Yamada. *Textbook of Gastroenterology*. John Wiley & Sons, 2011.
11. Anal fistula / fistula in ano. Available from <https://sites.google.com/site/drsumeryadavcom/anal-surgery/anal-fistula-fistula-in-ano>
10. Sainio P. Fistula-in-ano in a defined population. Incidence and epidemiological aspects. *Ann Chir Gynaecol.*, 1984; 73: 219-224.
11. Kim JW, Kwon SW, Son SW, Ahn DH, Lee KP. Comparative Review of Perianal Sinus & Fistula in Ano. *J Korean Soc Coloproctol.*, 2000; 16(1): 7-11.
12. Marks CG, Ritchie JK. Anal fistulas at St Mark's Hospital. *Br J Surg.*, 1977; 64(2): 8491.
13. Vasilevsky CA, Gordon PH. The incidence of recurrent abscesses or fistula-in-ano following anorectal suppuration. *Dis Colon Rectum*, 1984; 27(2): 126-130.
14. Parks AG, Stitz RW. The treatment of high fistula in ano. *Disease of the Colon and Rectum*, 1976; 19: 487-499.
15. Williams JG, Farrands PA, Williams AB, et al. The treatment of anal fistula: ACPGBI position statement. *Colorectal Dis.*, 2007; Suppl 4: 18-50.
16. Bokhari I, Shah SS, Inamullah, Mehmood Z, Ali SU, Khan. A Tubercular fistula-in-ano. *J Coll Physicians Surg Pak.*, 2008; 18(7): 401-3.
17. Barwood N, Clarke G, Levitt S, Levitt M. Fistula-in-ano: a prospective study of

- 107 patients. Aust N Z J Surg., 1997; 67(2-3): 98-102.
18. A. J. Malouf, G. N. Buchanan, E. A. Carapeti, S. Rao, R. J. Guy, E. Westcott, J. P. S. Thomson, C. R. G. Cohen. A prospective audit of fistula-in-ano at St. Mark's hospital. Blackwell Science Ltd. Colorectal Disease, 2002; 4: 13-19.
19. Sangwan YP, Rosen L, Riether RD, Stasik JJ, Sheets JA, Khubchandani IT. Is simple fistula-in-ano simple? Dis Colon Rectum, 1994; 37(9): 885-9.
20. Wijekoon NS, Samarasekera DN. The value of routine histopathological analysis in patients with fistula in-ano. Colorectal Dis., 2010; 12(2): 94-6.