

Original Research Article

An observational study on etiopathogenesis and management in Fistula-in-Ano

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ABSTRACT

Background: Anal fistulas are abnormal communication between the anal canal and perianal skin or result of anal gland obstruction, with secondary abscess formation and external rupture of the abscess perineum. Fistula in ano rarely heals spontaneously and requires surgical therapy to achieve a cure. Surgical techniques like fistulotomy, fistulectomy, primary closure after excision of tract and staged operations have rendered the postoperative period uneventful, short and steep fall in recurrence rate.

Methods: In this retrospective study, 30 patients were selected with diagnoses of fistula in ano admitted in New Civil hospital, Surat, Gujarat during April 2016 to April 2017. Patient underwent definitive treatment. Data related to the objectives of the study were collected from case sheets retrieved from hospital records with permission of competent hospital authority and after approval from ethical committee of institute. Appropriate surgical management were performed. Postoperative findings were noted.

Results: Maximum number of patients were in the age group of 30 to 60 years. There were 27 (90%) male patients, 3 (10%) female patients indicating that the disease is more common in male with a ratio of male to female is 9:1. In the study the commonest symptom is discharge in all patients with pruritus in 2 (6.66%) patients and Pain or perineal discomfort in 20 (66.6%) of patients. The commonest sign is presence of external opening in all cases and internal opening in 21 (70%) of patients. Regarding the procedures performed, the majority of the patients 20 patients (66.66%) underwent fistulectomy, while 06 patients (20%) underwent fistulotomy. Seton was tried in 04 patients (13.33%) out of which in 02 patients associated fistulectomy was done.

Conclusions: We concluded that the previously burst opened or surgically drained perianal abscess is the main aetiological factor for fistula-in-ano. Operative morbidity is usually low. There is a male preference for the disease and the fistulectomy remains the commonest procedure in our study series.

Keywords: Fistula in ano, Fistulectomy

INTRODUCTION

Fistula in Latin word for 'a reed, pipe or flute'. Fistula is defined as an abnormal communication between two epithelium lined surfaces. Anal fistulas are abnormal communication between the anal canal and perianal skin or result of anal gland obstruction, with secondary abscess formation and external rupture of the abscess perineum.

Perianal fistula commonly occur in middle aged men. There are traditionally been made by conventional fistulogram.

The traditional method has consisted in laying open the fistulous tract in part or whole, in one or more stages and letting the wound heal by secondary intention. Fistula in ano rarely heals spontaneously and requires surgical

therapy to achieve a cure. Surgical techniques like fistulotomy, fistulectomy, primary closure after excision of tract and staged operations have rendered the postoperative period uneventful, short and steep fall in recurrence rate

A careful discussion with the patient regarding the options and potential risks must be performed preoperatively. It has been said that more surgeons reputation have been impugned because of the consequences of fistula operations than from any other operative procedures. Complications of fistula surgery are myriad and include faecal soiling, mucus discharge, varying degrees of incontinence and recurrent abscess and fistula. Clearly the surgeon who is fortunate enough to have the first opportunity to treat the patient is the one most likely to effect a cure, to limit morbidity and to minimize disability. Overall anal fistulas are considered to be a discomforting disease that require adequate treatment.

In this study, an attempt is made to study the presenting symptoms, the findings on clinical examination, various surgical procedures, post-operative recovery and recurrence.

Aims and objectives of study were to study etiopathogenesis and clinical presentation of fistula in ano, to study different methods of treatment and their efficacy to know better method of treatment, to study post-operative morbidity, healing time and rate of incontinence and recurrence, to study predictive accuracy of Goodsall's law. References to fistula in ano date to antiquity. Hippocrates made reference to surgical therapy for fistulous disease.¹ In 1376, the English surgeon John Arderne (1307-1390) wrote Treatises of fistula in ano; Haemorrhoids, and clysters which described fistulotomy and seton use. Historical references indicate that Louis XIV was treated for an anal fistula in the 18th century. In the late 19th and early 20th centuries, prominent physician/surgeons, such as Goodsall and Miles, Milligan and Morgan, Thompson and Lockart-Mummery made substantial contributions to the treatment of anal fistula. This physicians offered theories on pathogenesis, classification system for fistula in ano since this early progress, little has changed in the understanding of the disease process.² In 1976, Parks refined the classification system that is still in widespread use. Over the last 30 years, many authors have presented new techniques and case series on effort to minimize recurrence rate and incontinence complications but despite 2500 years of experience, fistula in ano remains a perplexing surgical disease. Ayurved-Ksharsutra is used commonly by many patients as per their compliance.

The prevalence rate of fistula in ano is 8.6 cases per 1,00,000 populations in European country while 20.8 per 1,00,000 populations in Indians.⁵ The prevalence in men is 12.3 cases per 1,00,000 populations, and in women, 5.6 cases per 1,00,000 populations. The male to female ratio is 1.8: 1. The mean age of patients is 38.3 years.³

Most fistulas arise from abscess originating in the anal glands. Anatomical studies show that there are six to ten glands situated around the anal circumference, each discharging through a duct into an anal crypt; sometimes with two entering the same crypt, some crypt have no glands entering them, this explains why there is no detectable opening into the anal canal in 30% of cases. 60% of all fistulae arise in the midline posteriorly, probably because this is the site of anal fissure, inflammation and fibrosis resulting in stasis and infection of the posterior gland. 20% of fistulae arise in the midline anteriorly. 20% are distributed around the rest of the anal canal.

- **Tuberculosis:** It is used to be a common cause of anal fistula in Asian subcontinent, is rare now. In about 1/3rd of patients with active pulmonary tuberculosis virulent tubercular bacilli are present in faecal matter. Diagnosis is suspected if the external opening is flush with the surrounding skin which is often discoloured and discharge is watery.
- Actinomycosis and lymphogranuloma venerum.
- Inflammatory bowel disease (Crohn's disease).
- Trauma.
- Colloid cancer of lower 1/3rd of rectum.

Fistula-in-ano is nearly always caused by a previous anorectal abscess. Anal glands situated at the dentate line afford a path for infecting organisms to reach the intramuscular spaces. The crypto glandular hypothesis states that an infection begins in the anal gland and progresses into the muscular wall of the anal sphincters to cause anorectal abscess. Following surgical or spontaneous drainage in the perianal skin, occasionally a granulation tissue lined tract is left behind, causing recurrent symptoms. Multiple series have shown that the formation of a fistula tract following anorectal abscess occurs in 7-10% of cases.^{4,6}

Other fistulas develop secondary to trauma, Crohn's disease, anal fissure, carcinoma, radiation therapy, actinomycosis, tuberculosis and chlamydial infections.

Differential diagnosis

The following do not communicate with the anal canal.

- Hidradenitis suppurativa
- Infected inclusion cysts
- Pilonidal disease
- Bartholin gland abscess in females

Fistula-in-ano can be treated surgically and non-surgically. No definite medical therapy is available for this condition for years and years; only antibiotics and some newer drugs become effective in some extent like Infliximab.^{6,8} A thorough understanding of the pelvic floor and sphincter anatomy is a prerequisite for clearly understanding the classification system for fistulous disease.⁷

METHODS

In this retrospective study, 30 patients were selected with diagnoses of fistula in ano admitted in New Civil hospital, Surat during April 2016 to April 2017. Patient underwent definitive treatment. Data related to the objectives of the study were collected from case sheets retrieved from hospital records with permission of competent hospital authority and after approval from ethical committee of institute.

The diagnosis of fistula-in-ano mainly depends on clinical examination. The selected patients were subjected to pathological, biochemical and radiological investigations. Data related to preoperative, intraoperative interventions along with post-operative outcome was collected. Patients were treated with either fistulectomy, fistulotomy or Seton placement according to type of fistulae as shown in Fig.1. Follow up of all patients were available upto two years. The patients who are clinically diagnosed as fistula-in-ano in 15 to 70 years of age and both sex were included in the study.

All fistulas occurring due to perineal injuries, all congenital fistulas and all paediatric fistulas were excluded from the study.

Detailed clinical history and examination of the patient was recorded. All Investigations relevant to the study were done in all the patients. Appropriate surgical management were performed. Postoperative findings were noted. Data was compiled in MS Excel and checked for its completeness and correctness. Then it was analysed using online statistical calculator. The diagnosis of the fistula-in-ano, mainly depends on clinical examination. The selected patients are subjected to pathological, biochemical and radiological investigations. Data related to preoperative and intraoperative interventions along with postoperative outcome was collected patients were treated with either fistulectomy, fistulotomy or seton placement according to type of fistulae as shown in Figure 1-3.



Figure 1: Fistula in ano treated by fistulectomy kept lay opened.



Figure 2: Probe through the external opening.



Figure 3: Fistulectomy with primary closure.

RESULTS

Table 1: Age distribution.

Age in years	No. of patients	Percentage
18 to 29	10	33.33
30 to 60	16	53.33
61 to 75	4	13.33

Table 2: Sex incidence.

Sex	No. of Patients	Percentage
Male	27	90
Female	3	10

Table 3: Symptoms and signs.

Symptoms and signs	No. of patients	Percentage
Pain or perineal discomfort	20	66.66
Discharge from external opening	30	100
Swelling	0	0
Pruritus	2	6.66
Internal opening	21	70
Bleeding per rectum	1	3.33

Table 4: Types.

Types	No. of patients	Percentage
Low variety-total	29	96.66
Anterior	03	10.34
Posterior simple	15	51.72
Posterior complex	04	13.79
Multiple tract	03	
Horse shoe	01	
Lateral	7	24.13
High variety	01	3.33

Table 5: Type of fistula on MRI fistulogram (20 patients).

Type of fistula	No. of patients	Percentage
Transsphincteric	12	60
Intersphincteric	08	40
Suprasphincteric	01	05

Table 6: Histopathological report.

Histopathology report	No. of patients
Nonspecific inflammation	30
Tuberculosis	0

Table 7: Treatment.

Type of operation	No. of patients	Percentage
Fistulectomy	20	66.66
Fistulotomy	6	20
Seton Placement	4	13.33

Table 8: Distribution of procedure according to type of fistula.

Procedure	Type of fistula	No. of patients	%
Fistulectomy	Transsphincteric	13	66.66
	Intersphincteric	07	
	Suprasphincteric	00	
Fistulotomy	Transsphincteric	00	20
	Intersphincteric	06	
	Suprasphincteric	00	
Seton	Transsphincteric	03	13.33
	Intersphincteric	00	
	Suprasphincteric	01	
Total		30	100

In this retrospective observational study of 30 patients who presented with fistula in ano diagnosed clinically and minimal preoperative evaluation, operated upon with fistulectomy, fistulotomy or Seton placement. All data regarding presentation, investigations, treatment and results were collected and analysed as follow.

Table 9: Complications.

Complications	No. of patients	Percentage
Perineal sepsis	2	6.66
Temporary incontinence	1	3.33
Retention of urine	2	6.66
Recurrence	0	0
No complications	25	83.33

DISCUSSION

This descriptive and observational study was carried out to determine the clinicopathology of perianal fistula, including the various modalities of treatment and its efficacy age of patients varies from 15 to 70 years. Maximum number of patients were in the age group of 30 to 60 years as shown in Table 1. There were 27 (90%) male patients, 3 (10 %) female patients indicating that the disease is more common in male with a ratio of male to female is 9:1 as shown in Table 2. Post-operative hospital stay ranged from 2 days to 22 days with mean of 6.66 days.

In the study the commonest symptom is discharge in all patients with pruritus in 2 (6.66%) patients and Pain or perineal discomfort in 20 (66.6%) of patients. The commonest sign is presence of external opening in all cases and internal opening in 21 (70 %) of patients (Table 3).

The previously burst opened or surgically drained perianal abscess is the main aetiological factor for fistula-in-ano in 10 (33.33%) patients. The commonest type of fistula is low lying in 29 (96.66%) patients. Out of 29 cases 19 (65.51%) cases has posterior, 3 (10.34%) cases has anterior and 7 (24.13%) has lateral external opening; and out of these low lying fistula 04 (13.79%) patients have complex fistulas including 01 horse shoe variety. About 66% of external openings are posterior to the anal axis of which 75% followed the Goodsall’s rule. In only 01 (3.33%) patient there was high variety fistula (Table 4).

Proceeding to investigations, routine blood investigations showed no abnormalities. Imaging was done by means of either fistulogram in 10 patients and MRI fistulogram in 20 patients. MRI fistulogram showed the presence of Trans-sphincteric fistula in 12 (60%) patients, while inter sphincteric fistula was seen in 08 (40%) patients and suprasphincteric fistula in 01 patient (5%) (Table 5). Fistulogram was useful in making out both the external and internal openings in all the patients but gave no useful information regarding the course of the tract nor about the presence of any collections. Although fistulogram is common tool of investigation for simple fistula presenting earlier, MRI is investigation of choice for recurrent and complex fistula-in-ano.

Regarding the procedures performed, the majority of the patients 20 patients (66.66%) underwent fistulectomy, while 06 patients (20%) underwent fistulotomy. Seton was tried in 04 patients (13.33%) out of which in 02 patients associated fistulectomy was done. On comparing the procedure underwent with the type of fistula the patient had it was found that 13 out of 16 transsphincteric fistula patients underwent fistulectomy while the remaining 03 underwent added Seton procedure. 07 of 13 patients with intersphincteric variety underwent fistulectomy, while in the remaining 06 fistulotomy was done. Seton was also done in 01 suprasphincteric patients (Table 7 and 8).

Histopathological examination of the resected tract showed chronic nonspecific inflammatory process in all 30 patients (100%) while tuberculosis was not seen in any patients in our study even though it is not rare in literature (Table 6).

Only five (16.66%) patients developed post-operative complications, temporary incontinence seen in 01 patients (3.33%) with horse shoe fistula. Persisting infection or sepsis, indicating remnant tract or preserved anal gland was seen in 02 patients (6.66%). No patients had recurrence of symptoms and had to undergo resurgery within follow up period of upto two years. An analysis of the complications with respect to the procedure underwent, showed that patients who had fistulectomy had a complete removal of tract with no evidence of persistent sepsis, but 01 patient had features of temporary incontinence in horse shoe fistula while no recurrence was seen. Two patients had postoperative retention of urine in fistulectomy patients, probably due to pain. Fistulotomy patients had the least rates of complication except 02 patients having perineal sepsis. All four patients who underwent Seton had complications with complain of persistent discharge even after the surgery (Table 9).

Limitations

As this study has been carried out over a limited period of time with a limited number of patients and there was lack of financial and infrastructural support, it could not have been large enough to be of reasonable precision. The follow up period was not long enough to comment about long term morbidity and mortality. More number of patients with perianal fistula need to be analysed to determine the pathophysiology of the disease. The newer modalities of treatment should also be included in future studies. All the facts and figures mentioned here may considerably vary from those of large series covering wide range of time, but still then, as the cases of this study were collected from a tertiary level hospital in our country, this study has some credentials in reflecting the facts regarding prevalence of perianal fistula and the efficacy of various treatment modalities.

CONCLUSION

Our study included 30 patients who were diagnosed to have fistula-in-ano and underwent surgical intervention. We conclude that the previously burst opened or surgically drained perianal abscess is the main aetiological factor for fistula-in-ano. Operative morbidity is usually low. There is a male preference for the disease and the fistulectomy remains the commonest procedure in our study series. Even with advent of newer techniques probably to remove the diseased part at one stage operation. The post-operative complications are usually mild in nature and are minimal.

The things that can be taken into the considerations are as proper preoperative evaluation which includes MRI fistulogram and planning the treatment is essential to prevent complications. Good toilet of the track before procedure. Ensuring complete closure of the inner opening. We hereby recommend that a high lying fistula require complex surgical approach while low lying can be managed surgically with fistulotomy or fistulectomy.

This study was conducted in Government medical college, Surat from April 2016 to April 2017. The data were collected from clinical notes of patients retrieved from record section of the hospital with permission of competent authority and the study is approved by ethical committee. In this study the mean hospital stay after surgery was 15 days. Out of 30, 20 patients were subjected to fistulectomy. It indicates that fistulectomy is most commonly performed surgery. Post-operative complications are minimum. Patient has significant improvement in discomfort during defecation after surgery. In this study data regarding presentation, etiopathogenesis and post-operative complications in immediately and those developed after month was studied.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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