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**Original Research Article**

# A study on clinicopathology of fistula in ano

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## ABSTRACT

**Background:** Perianal fistula is a common surgical problem which poses great discomfort to patients and causes prolonged morbidity when improperly managed or developed complications. Its management protocols are ill defined, and the efficacy of newer treatment modalities are not well established. The aim of the study was to study the clinicopathology of Perianal fistula and its prognostic factors.
**Methods:** This was a prospective study conducted at the Department of General Surgery, Rajiv Gandhi Government General Hospital between August 2014 and July 2015. Purposive sampling method was used select patients with fistula in ano. After obtaining informed consent, patient details were collected in pre-tested structured questionnaire. Data entry and analysis were done using SPSS software.
**Results:** Males between thirty and fifty years were the most affected population. Most of the patients had no co-morbidities while Diabetes Mellitus was the prevalent co-morbid factor, seen especially in the elderly. MRI fistulogram was the investigation of choice. Fistulotomy was the preferred procedure. Recurrence of fistula was an unavoidable morbidity.
**Conclusions:** Proper preoperative evaluation which includes MRI fistulogram and planning the treatment is essential to prevent complications. Fistulotomy is the preferred treatment especially in patients with trans-sphincteric fistula and those with evidence of infection or secondary tract. The prognosis, if properly managed is very good, so proper management protocols need to be established.

**Keywords:** Fistulo in ano, Fistulotomy, MRI fistulogram

## INTRODUCTION

Fistula in ano is essentially a painless condition, but the discharge can cease temporarily, and pus accumulates to form recurrent abscesses. Pain is experienced till the abscess ruptures and gives immediate relief.[1]

Soreness and itching of perianal skin however, are common, due to pruritus resulting from the moist swollen condition of the skin. Anal fistulas are considered one of the commonest causes for persistent seropurulent discharge that irritates the skin in the neighborhood and causes discomfort. It is an abnormal communication lined by granulation tissue between the anal canal and skin which causes chronic inflammatory response. Most often these fistulae develop following an anal abscess secondary to infection of anal glands.[2]

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 with a short and steep fall in recurrence rate. A careful discussion with the patient regarding the options and potential risks must be performed preoperatively.[3] MRI fistulography is a useful diagnostic method which accurately locates the fistula with regards to the anal sphincter, identifies the internal orifice and branching of the fistula while effectively locating the purulent collections and assessment of surrounding soft tissues. The sensitivity of MRI fistulography can be increased by administering gadolinium-based contrast medium into the fistulous canal.[4,5] 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.[6]

In this study, an attempt was made to study the presenting symptoms, the findings on clinical examination, various surgical procedures, post-operative recovery and recurrence. The purpose of the study was to study the etiological factors and clinical presentations of fistula in ano, to determine the predictive accuracy of Goodsall's rule in relation to type of fistula treated, to study the various methods of management of fistula in ano and its outcome and to study the complications and recurrences if any.

## METHODS

This was a prospective observational study conducted at the Department of General Surgery, Rajiv Gandhi Government General Hospital, Chennai, Tamil Nadu, India between August 2014 and July 2015.

The inclusion criterion was patients presenting with first episode fistula in ano or with recurrence after previous surgery during this one-year period. Patients with other causes of perianal injuries and those who were not willing to participate in the study were excluded.

Purposive sampling method was used to select patients. The study was approved by the institutional review board prior to commencement of data collection. After obtaining short history, complete physical examination and appropriate investigations were conducted and fistula in ano was confirmed. Informed consent was taken from patients who were willing to participate in the study.

Chest X-ray and blood parameters were done as necessary. Magnetic Resonance Imaging fistulography was performed in all patients. Trans-rectal ultrasonography was performed in willing patients. Pus culture samples were obtained from the fistulous tract after meticulous preparation of the site, to avoid commensal contamination. Pre-operative factors related to the patient like age, sex and co-morbidities like diabetes, obesity, COPD, etc. were collected in pre-tested structured questionnaire by direct interview. Patients requiring surgical intervention were operated under strict aseptic precautions while practicing meticulous technique. The surgical technique was decided after ascertaining the tract of the fistula and explaining the procedure to the patient. All the resected specimens were sent for histopathological analysis. Post operatively patients were followed for 3 months to document recurrence and complications. Data entry and analysis were done using SPSS software version 17.0. Descriptive data were given in summary statistics.

## RESULTS

This descriptive observational study was carried out to determine the clinicopathology of perianal fistula, the various modalities of treatment and their efficacy. Seventy-five patients fulfilling the inclusion criteria from Department of Surgery of Madras Medical College and Rajiv Gandhi Government General Hospital during the period of August 2014 to July 2015 were included in the study. All cases were evaluated clinically. All patients underwent surgery as warranted in their case. Only essential investigations necessary for diagnosis and preoperative assessment were carried out before surgical intervention. Subject variables like age, sex and co-morbidities in the patient, investigation variables like Radiography, MRI fistulogram, transrectal Ultrasonography and histopathology and surgical variables like type of surgery and post-operative complications were obtained and evaluated.

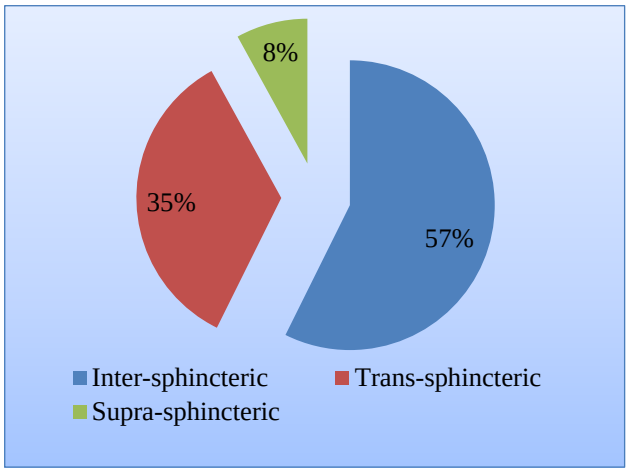


**Figure 1: Distribution of type of fistula in ano as assessed by MRI fistulography.**

Of the total study population (n = 75), most common age group affected was between 30-39 years (33.33%) (n = 25). Males were affected more 69.33% (n = 52). Most of the patients did not had any co-morbidity 70.67 % (n = 53) while Diabetes mellitus was the commonest co-morbidity observed 13.3% (n = 10). Perianal discomfort was the symptom complained by all patients 100% (n = 75) followed by perianal discharge 50.67% (n = 38). External opening was seen in all patients 100% (n = 75)

while internal opening was seen only in 45.33% (n = 34). 61.33% (n = 46) of the external openings opened posterior to the transverse anal line. Induration of fistulous tract was observed in 66.67% of the patients (n = 50).

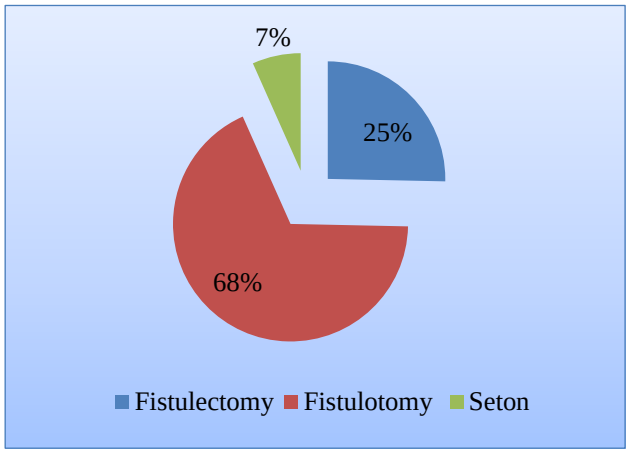


**Figure 2: Distribution of types of surgical procedures performed in fistula in ano.**

MRI fistulography was the most useful investigation showing inter-sphincteric fistula in 57% of patients (n = 43) and trans-sphincteric fistula in 35% of patients (n = 26) (Figure 1). Transrectal ultra-sonogram was done only in 16% of patients (n = 12) which showed trans-sphincteric fistula in 50% (n = 6). Escherichia coli was the most common organism cultured from lesions 57% (n = 43) followed by Klebsiella species in 25% (n = 19). Fistulotomy was the most common procedure for fistula in ano, being performed in 68% patients (n = 51) (Figure 2). Seton fistulotomy was the commonest procedure performed in patients with supra-sphincteric lesions (n = 5/6) (Figure 3).

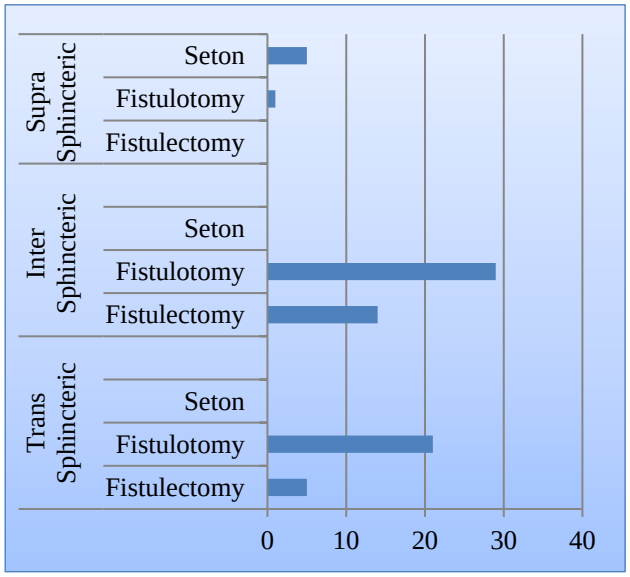


**Figure 3: Type of surgical procedures performed in individual types of Fistula in ano.**

68% of patients had uneventful recovery (n = 51). Incontinence was the most common complication seen in 16% of patients (n = 12). While chronic non-specific inflammation was the histopathological finding in 83% of the lesions (n = 62), tuberculosis was seen in the remaining 17% of patients (n = 13).

## DISCUSSION

In the present study, age of the 75 patients ranged from 18-75 years with a mean of 42.8 years. The patients were predominantly of the 30 - 39 age group. This was similar to the study by Jena S et al (50%) but Khadia et al obtained a higher incidence in 41-50 age group (46.66%).[7,8] Prevalence of fistula in ano was higher in males (69.33%) and the male to female ratio was 3:1. The ratio was similar to the study by Khadia et al (4:1) while it was higher in the study by Emile et al. (6.6:1).[8,9] More than seventy percent of the patients had no co-morbidities. In those with co-morbidities, Diabetes mellitus was the predominant co-morbid factor (13.3%). This was higher than the study by Neto C et al. (6.5%) but lower than the study by Elhassan et al (23%).[10,11]

Perianal discomforting pain was seen in 100% of patients which was similar to the study by Elhassan et al (100%) but discharge was the most common symptom in the study by Khadia et al (100%).[8,11] 50.67% patients presented with perianal discharge in the present study. Internal opening could be definitely traced in only 45.33% of the patients which was lower than the study by Garg et al (84.3%).[12] External opening was in the anterior circumference in 38.66% (n = 29) patients which was similar to the results obtained by Alexander et al. (30%).[13] *Escherichia coli* was the most common micro-organism grown in pus culture (57%) (n = 43) which was similar the results obtained by Ulug et al (44.4%) (n = 36/81) and Liu et al (67.1%).[14,15] Interestingly, anaerobes were not grown in any of the patient but it was seen in 23.5% of the patients in the study by Ulug et al.[14]

All patients were evaluated by MRI fistulography while only 12 patients were evaluated by trans-rectal ultrasonography. Inter-sphincteric fistula was the most common type observed by MRI fistulography in the present study (57%) which was similar to the study by Neto C et al. (70%) and Khadia et al (46.66%). Trans-sphincteric fistula was seen in 35% of patients which was similar to the study by Neto C et al (28%) and Khadia et al (42.22%) but it was higher in the study by Alexander et al (58.3%).[8,10,13] Fistulogram was useful in making out both the external and internal openings in all the patients but gave no useful information regarding either the course of the tract or about the presence of any collections.

Fistulotomy was the most common procedure performed (68%) (n = 51) in the present study followed by fistulectomy (25%) which was in contrast to the study by Emile et al in whose study fistulectomy was the most

common procedure (35%) (n = 198) and fistulotomy in 15.2% only.[9] Fistulotomy is a less aggressive procedure with better healing outcomes and these patients had the least rates of complication with only eight out of fifty one patients (15.6%) having one. 80.7% (n = 21/26) of the patients with trans-sphincteric fistula and 67.44% (n = 29/43) of the patients with inter-sphincteric fistula in ano underwent fistulotomy. In fistulectomy group, four patients had persisting sepsis, two developed incontinence and five patients developed recurrence. Seton ligation was performed in all five patients with supra sphincteric fistula. But all patients complained of persistent discharge even after the surgery.

Histopathological examination of the resected tract showed chronic non-specific inflammatory process in sixty-two patients (83%) while tuberculosis was seen in thirteen patients (17%). The incidence of tuberculosis was similar to the study by Bokhari et al (11%).[16] Any chronic inflammatory lesion should be suspected and investigated for tuberculosis as tuberculosis is still common in India.[17] 10.67% of the patients had recurrence after surgery which was similar to the study by Emile et al. (7.4%). Of the eight patients who had recurrent fistula, 6 had tuberculosis. 32% of the study population (n = 24) developed post-operative complications, most common being incontinence seen in twelve patients (16%). This was higher than the study by Emile et al (1.7%) (n = 10).[9] Persisting infection or sepsis, indicating remnant tract or preserved anal gland was seen in nine patients (12%).

To conclude, proper preoperative evaluation which includes MRI fistulogram and planning the treatment is essential to prevent complications. Fistulotomy is the preferred treatment especially in patients with trans-sphincteric fistula and those with evidence of infection or secondary tract. The prognosis, if properly managed is very good, so proper management protocols need to be established.

As this study was carried out over a limited period of time with a limited number of patients, 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 fistula in ano needs to be analyzed to determine the pathophysiology of the disease.

## CONCLUSION

Proper preoperative evaluation which includes MRI fistulogram and planning the treatment is essential to prevent complications.

Fistulotomy is the preferred treatment especially in patients with trans-sphincteric fistula and those with evidence of infection or secondary tract.

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