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Abstract
Fistula-in-ano connects anal canal to perianal skin producing persistent seropurulent discharge which may be quite discomforting to the patients. The condition has variable clinical presentations, histopathology, management options and postoperative complications, to which a clinician must be well versed with. This study was conducted over a period of five years in a tertiary care hospital. Detailed history, clinical examination, postoperative assessment, histopathology and magnetic resonance imaging findings were recorded. Significant observations were: previous surgery for anorectal abscess in 53.3%; single and multiple external openings in 80% and 20% respectively; 82.67% low fistulae and 17.33% high; 47.1% intersphincteric, 35.5% transsphincteric, 9.8% suprasphincteric & 7.6% extrasphincteric. Overall 77.78% underwent fistulectomy and post operatively, 9.3% developed discharge, 2.2% had wound bleeding and 0.4% developed incontinence. Histopathologically, 2.22% cases revealed tubercular origin. Hence, clinicoepidemiological and histopathological assessment of fistula in ano is not only essential to decide treatment modality but is also harbinger of complications and prognosis.

Keywords: Fistula in ano, low fistula, high fistula, fistulectomy

Introduction
Fistula-in-ano is an abnormal hollow tract or cavity that is lined with granulation tissue and connects a primary opening inside the anal canal to a secondary opening in the perianal skin; secondary tracts may be multiple and can extend from the same primary opening. It is considered one of the commonest causes for persistent seropurulent discharge that irritates the skin in the neighbourhood and causes discomfort. It is seen quite frequently and in fact virtually mirrors perianal and perirectal suppuration. This condition rarely heals spontaneously and requires surgical therapy to achieve a cure. Surgical techniques like fistulectomy, fistulotomy, fistulectomy with seton tie and staged operations have rendered the postoperative period uneventful and short with a steep fall in recurrence rate.

Methods
This retrospective and prospective observational study was conducted on in-patient department cases diagnosed with fistula in ano over a period of five years in a tertiary care hospital. Ethics committee approval was obtained and written informed consent was taken from patients who agreed to participate in the study. Patients with fistula in ano presenting with persistent discharge from the external opening (seropurulent or faecal matter) causing pruritis and discomfort and patients presenting with recurrence after previous fistula surgery were included in the study; whereas patients who were known cases of ulcerative colitis, crohn’s disease, carcinoma of rectum, active abdominal tuberculosis, recipients of radiation therapy and patients with perianal injuries were excluded from the study. Detailed history of patients was noted and they were thoroughly examined. Digital rectal examination was performed for each patient. Magnetic resonance imaging findings were recorded. After appropriate surgical intervention, patients were further observed for any postoperative complications. Biopsy sample was sent for histopathological examination and the findings were noted.
Categorical data were assessed in the form of absolute numbers and percentages. Quantitative data was assessed by calculating range and measures of central tendency such as mean and standard deviation.

Results
In our study all patients presented with discharge from opening. Pain around anus was present in 73.3% (165) and swelling around anus in 45.3% (102) of the patients. Others presenting complaints were itching around anus in 17.3% (38), constipation in 13.3% (30), fever in 9.3% (21) and bleeding per rectum in 2.6% (6) of the patients (Table 1). 53.3% (120) of the patients had history of previous surgery for anorectal abscess (Table 2). Out of 120 patients with history of surgery for anorectal abscess, 50% (60) had interval of 0-6 months while 22.5% (27) developed fistula between 7-12 months. 10% (12) had interval of 13-36 months & 17.5% (21) >36 months between previous surgery for anorectal abscess and fistula formation (Table 3).

It was observed that 80% (180) of the patients had single external opening and 20% (45) had multiple external openings (Table 4). 82.67% (186) of fistulae were low while 17.33% (39) were high (Table 5). 47.1% (106) of fistulae were found to be intersphincteric, 35.5% (80) transspincteric, 9.8% (22) suprasphincteric & 7.6% (17) were extraspincteric (Table 6).

In our study about 77.78% (175) patients were treated by seton tie & 4.89% (11) underwent fistulotomy alone. In the present study, maximum (40%) number of patients were high (Table 4). 82.67% (186) of fistulae were low while 17.33% (39) were high.

Histopathological examination revealed that 2.22% (5) of the fistulae were of tubercular origin and remaining 97.78% (220) had chronic non specific inflammatory pathology (Table 8).

Table 1: Presenting complaints

| Complaints                  | Total | No. of affected Patients (%) |
|-----------------------------|-------|------------------------------|
| Discharge from opening       | 225   | 225(100)                     |
| Pain around anus            | 225   | 165(73.3)                    |
| Swelling around anus        | 225   | 102(45.3)                    |
| Itching around anus         | 225   | 38(17.3)                     |
| Constipation                | 225   | 30(13.3)                     |
| Fever                       | 225   | 21(9.5)                      |
| Bleeding per rectum         | 225   | 6(2.6)                       |

Table 2: Previous surgery for Anorectal abscess

| Previous surgery | No. of patients (%) |
|------------------|---------------------|
| Yes              | 120(53.3)           |
| No               | 105(46.7)           |
| Total            | 225(100)            |

Table 3: Interval between previous surgery for anorectal abscess and fistula formation

| Interval (months) | No. Of Patients (%) |
|-------------------|---------------------|
| 0-6               | 60(50)              |
| 7-12              | 27(22.5)            |
| 13-36             | 12(10)              |
| >36               | 21(17.5)            |
| Total             | 120(100)            |

Table 4: Number of external openings

| No. of External Opening | No. of Patients (%) |
|-------------------------|---------------------|
| Single                  | 180 (80)            |
| Multiple                | 45 (20)             |
| Total                   | 225 (100)           |

Table 5: Diagnosis based on digital rectal examination & MRI findings

| Diagnosis | No. of Patients (%) |
|-----------|---------------------|
| Low       | 186 (82.67)         |
| High      | 39 (17.33)          |
| Total     | 225 (100)           |

Table 6: Diagnosis based on MRI findings

| Diagnosis            | No. of patients (%) |
|----------------------|---------------------|
| Intersphincteric     | 106 (47.1)          |
| Transsphincteric     | 80 (35.5)           |
| Suprasphincteric     | 22 (9.8)            |
| Extrasphincteric     | 17 (7.6)            |
| Total                | 225 (100)           |

Table 7: Post operative complications

| Complications          | Total | No. of Affected patients (%) |
|------------------------|-------|------------------------------|
| Discharge from wound   | 225   | 21 (9.3)                     |
| Bleeding from wound    | 225   | 5 (2.2)                      |
| Incontinence           | 225   | 1 (0.4)                      |

Table 8: Histopathological findings

| HPE findings           | No. of patients (%) |
|------------------------|---------------------|
| Non specific inflammation| 220 (97.78)       |
| Tubercular             | 5 (2.22)           |
| Total                  | 225 (100)          |

Discussion
Present study comprises a review of 225 patients of fistula in ano, admitted in various surgical wards of a tertiary care hospital over a period of five years.

In our study, out of 225 patients, 80% were males & 20% were females. Male to female ratio was 4:1. Whereas Philip H Gorden et al. (2002) [1] and Murtaza Akhtar et al. (2012) [2] in their studies observed a slightly higher M:F ratio of 5:6.61.

In the present study, maximum (40%) number of patients were encountered in 41-50 years age group followed by 28% (31-40), 18.7% (>50), 12% (21-30 years age group) respectively. Least (1.3%) number of cases were seen in 16-20 years age group. Majority of the patients 68% were of 31-50 years of age and mean age of patients of fistula in ano was 41.8 years in present study. These findings were consistent with the findings of Corman ML et al. (2005) [3] who also reported maximum incidence (42%) in 41-50 years age group with mean age of 40.5 years. Hancock BD et al. (1992) [4] and Corman ML et al. (2005) [3] noted maximum incidence (58 & 65% respectively) in 31-50 year age group with mean age of 42.7 & 38.5 years respectively.

In the present study, discharge from opening was most common presentation among the patients of fistula of ano followed by pain around anus (73.3%), swelling around anus (45.3%), itching around anus (17.3%) & constipation (13.3%). Fever (9.3%) and bleeding per rectum (2.6%) were the least frequent complaints of the patients. Memon AA et al. (2011) [5] and
Murtaza Akhtar et al. (2012) [2] also reported discharge from opening (90%), pain around anus (76.7%) & swelling around anus (53.3%) as the most frequent complaints of patients of fistula in ano. Corman ML. et al. (2005) [3] also reported discharge from opening to be the chief complaint (93.8%) of patients with fistula in ano followed by pain around anus (79.8%) & swelling around anus (56.7%).

In our study, 53.3% of the patients had history of previous surgery for anorectal abscesses where as 66.6% patients in the study by Cox SW et al. (1997) [4] and 77.7% cases in the study by Hammond TM et al. (2006) [5] were reported to have previous anorectal abscess surgery. Philip H Gorden et al. (2002) [6] also reported history of previous surgery for anorectal abscesses in 73.3% of the patients of fistula in ano.

When interval between previous surgery for anorectal abscesses and fistula formation was taken into account, in this study 50% of patients followed by bleeding from wound (9.78%) & discharge from wound to be the chief postoperative complication in 21.3% (0.4%). McCourtney JS et al. (1995) [7] also reported discharge from wound to be the chief postoperative complication in 21.3% of patients followed by bleeding from wound (9.78%) & incontinence (1.3%). Ramanujam PS et al. (1993) [8] & Hammond TM et al. (2006) [9] both reported discharge from wound and bleeding from wound as the most frequent postoperative complications in their respective studies.

In our study, 52% of the patients stayed in the hospital for 4-6 days. The hospital stay was upto 3 days & more than 6 days for 14.7% & 33.3% of the patients respectively. Mean hospital stay for our study was 5.89 days. Memon AA et al. (2011) [10] also observed similar data in relation to hospital stay. Mean hospital stay was 6.0 days.

On histopathological examination, 2.22% of the fistulae were of tubercular origin and remaining 97.78% had chronic non specific inflammatory pathology on HPE. Histopathological diagnosis of fistula in ano rests on identification of large epitheloid cell granuloma with caseous necrosis and / or demonstration of acid fast bacilli in the biopsy specimen. Philip H Gorden et al. (2002) [11] observed tubercular pathology in 6.3% & non specific inflammatory pathology in 93.6% of the specimens. Cox SW et al. (1997) [6] reported tubercular & non specific inflammatory pathology in 10.22% & 89.78% respectively.

Conclusion
From the present study, it could be concluded that fistula in ano is not an uncommon disease affecting young adults of both sexes. All patients present with discharge from the opening. Digital rectal examination & magnetic resonance imaging are useful tools for its diagnosis. Fistulectomy is the most commonly performed surgery among various surgical modalities of treatment available till now with good results.

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