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To study the management of Fistula-In-Ano: An experience at tertiary care centre in rural area, can achieve acceptable fistula care

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Abstract

Background: Fistula In-Ano is one of the major ano-rectal issues. Crypto glandular infection is the main cause, can be multiple that extends from same primary opening. Fistulectomy, sphincter saving operations usually recommended for fistula.

Objectives: 1. to assess the modes of presentation. 2. To assess treatment modality 3. To assess post-operative outcome.

Material and method: Prospective cohort study 49 patients included, carried out at dept. of surgery tertiary care centre, MUHS Nasik, Maharashtra India, between Jan 2014 to Jan 2019.

Result: Maximum patients observed in 46-55 years age group (42.87%). M:F ratio was 3.9:1 Most of them low socioeconomic class. (85.72%) showed low fistula, posteriorly situated with single external opening. Surgeries were fistulectomy, fistulotomy, fistulectomy with closure and curettage. Minimum complication observed infection, incontinence, recurrence. Duration of healing (46.94%) observed in 7-12 weeks, primary healing was (95.91%).

Conclusion: A Good outcome was achieved in the majority of patients with few complications; however there is a need for large-scale trials to evaluate the different surgical treatment modalities.

Keywords: Crypto glandular infection, Fistula-In-Ano, sphincter-saving operation, fistulectomy.

Introduction

Fistula-in-ano (FIA) based on the pathogenesis of the disease and the normal muscular anatomy of pelvic floor [1]. Crypto glandular infection is the main cause of FIA (80%) [2], (90%) [3] there are 8 to 10 Anal crypt glands at the level of dentate line in anal Canal, arranged circumferentially these glands penetrate the internal sphincter and ends in the inter-sphincteric plane, if it catch infection & ruptured a fistula is formed [2, 4, 5]. Multiple series showed fistula formation after ano-rectal abscess occurs in (7-40%) [4, 5]. Sometime local infection, Fissure, Carcinoma or foreign body near perianal, may also causes fistula [6, 23]. A fistula is an abnormal connection between 2 epithelial surfaces lined with granulation tissues [2]. Anal fistulae affect 1 in 10,000 of normal population every year [2, 7]. It has multiple accessory tracks, open or ischio-rectal abscess which drains spontaneously through these tracks [4].

FIA generally classified into 4 types Inter-sphincteric, Trans-sphincter, Supra-sphincteric, & Extra-sphincteric, based on the relationship of fistula to the sphincter muscle [1, 2, 4]. Hence broadly divided into simple (low) and Complex (high) fistula [2, 4]. FIA is a chronic phase of ano-rectal infection characterized by chronic purulent perianal discharge or pain associated with accumulation of pus & intermittent decompression [8]. Imaging findings have been shown to influence surgery and diminish the chances of recurrence. Thus preoperative imaging becomes increasingly routine practice in future [9]. It is very important to distinguish between simple and complex fistula, hence imaging study was helpful [2]. Surgery is the treatment of choice.

The main objective of operative intervention is to heal the fistula with minimal morbidity [10]. Good results can be obtained by performing a fistulotomy on low fistulae that Traverse only one third or less of the external sphincter muscles [6]. Fistulectomy usually recommended for low fistula, success rate is high with minimal incontinence. Low fistula are those that do not traverse any muscle at all, clearly there will be no incontinence if no muscle is divided [6]. FIA is a common condition that often recurs despite seemingly adequate surgery because of infection that was missed at time of surgery [9].

Recurrence and incontinence are the two major paradoxical factors which a surgeon fears [3]. There are different treatment modalities also available like, Fibrin glue injection [11], Fistula plug [12], Ano-rectal advancement flap [13], Ayurvedic Seton [14], LIFT [15], Video assisted anal fistula treatment [16]. This article highlighted the treatment of FIA with multiple cause of origin.

Material and Method

This was prospective observational study (cohort) carried out at Dept. of surgery tertiary care centre MUHS Nasik, Maharashtra India carried out from Jan 2014 to Jan 2019 year study

Exclusion: 1. Complex fistula, tract longer than 10-12 cm and acutely curved, 2. No external opening, 3. Inflammatory bowel disease 4. Tuberculosis 5. Other Ano-rectal Pathology.

Inclusion: All patients diagnosed as fistula-in-ano.

Material: Enrolled 49 patients, admitted for perianal swelling with discharge & diagnosed as FIA.

Evaluation: After admission detailed history obtained, clinical examination was carried out; with digital per rectal & proctoscopy examination to identify, primary internal opening & induration. Previous operative scarring, sphincter tone or other pathology. Ext opening is near the anal canal posterior to transverse line with short length then most likely, it is simple fistula. (Goodsall's rule). Severe pain, infection treated first before definitive surgery [2].

Fistulogram advised to all & confirmed the diagnosis; other blood investigation carried out for anaesthesia, and then posted for surgery. Written informed consent taken for surgery and for participation in study after explaining the procedure, assessment.

Method: Bowel preparation advised a day prior to surgery with rectal enema, sometime repeated 6 hours before surgery. Lithotomy position given, under spinal/saddle anaesthesia operation performed. Internal opening & fistula tract identified, by injecting methylene blue and H₂O₂ from the external opening. To produce bubble & staining with dye, a grooved fistula probe used to pass along the tract, probing the tract till internal opening, some-time 2 or 3 external openings identified most of them compile into single internal tract. Curvilinear incision made over skin around opening and dissection carried into deeper tissue with scissor and electrocautry. In high fistula inter-sphincteric plane identified and carefully separated fistulous tract would then thoroughly curettage; inadequate clearance of all granulation tissues/sepsis in the distal track may prone to have a recurrence. Near internal opening suture applied with 2-0 Vicryl, avoid not to harm internal sphincter. For all subcutaneous fistulas in which no sphincter muscle is cut, for some Inter-sphincteric fistula distal internal sphincter need to divide. Fistulectomy or fistulotomy usually recommended for low anal fistula, success rate is high. H₂O₂ and betadine wash given haemostasis achieved, mostly all wounds kept open dressing pads applied. NBM break after 6hr IV antibiotics like Inj. Taxim/zone 1 gram BD, Inj. Ciprofloxacin/Metronidazole 500 IV BD/TDS, analgesics Inj. Diclofenac 50mg BD, infused stool softener also recommended. Sitz bath advised from first day with daily dressing. Sometime immediate post op minimal complication observed all were treated conservatively, when patient become comfortable surgeon decided to discharge & advised self-care of operative wound by Sitz bath, local dressing, oral analgesics and antibiotics. Frequent follow up

advised to assess the post op progress of wound, once the complication resolved & time of resumption of work was recorded. Most of patients have good clinical outcome. Few developed incontinence of flatus or liquid in initial phase grade A was also gradually normalized only few had recurrence, those treated secondary operation. Data related to preoperative, intraoperative and post-operative outcome were collected for analysis. Very important observation was made in this study; most of patients do not need secondary treatment & successfully managed primarily.

Study types: Clinical investigation,

Settings: Physical, OPD & IPD.

Study Design: Eligible for participation – Prospective study (cohort) - Post op findings – Follow up – Data collection - clinical outcome - Analysis.

Result

Our study enrolled 49 patients, Maximum reported in 46-55 years age group, 21 patients (42.87%) next was 36-45 year 12 patients (24.48%) then 56-65 year 7 (14.28%), then 25-35 years 5 (10.21%) and >65 years 4 patients (8.16%) noted.

Both male and female were included 39 were male (79.60%) and 10 were female (20.40%), Hence M: F ratio was 3.9:1

Maximum patient belongs to low socioeconomic class 42 patients (85.72%) and only 7 patients (14.28%) under high socioeconomic class.

Table 1: Multiple symptoms

Sr. no	Symptoms	No of pt.	%
1	Swelling	49	100%
2	Discharge	47	95.91%
3	Pain	45	91.83%
4	Redness	08	16.32%
5	Itching	11	22.44%

Symptoms were, swelling in all 49 patients (100%), discharge in 47 patients (95.91%), pain in 45 (91.83%), itching at perianal skin in 11 (22.44%) and redness in 8 patients (16.32%). (Table 1). We identified internal opening in 13 patients (26.53%) where as non-identified in 36 patients (73.47%)

On fistulogram, fistula tract identified in 27 patients (55.11%) and not identified in 22 patients (44.89%). Compared intra-op findings fistulogram reports were correct in 11 patients (22.44%). In this study 42 patients (85.72%) showed low or simple fistula and 7 patients (14.28%), shows high or complex fistulae. External opening situated anteriorly in 14 patients (28.57%) & posteriorly 35 patients (71.43%) from the transverse line of mid anal canal. (Goodsall's rule) External openings varies in number 43 patients (87.75%) showed a single, 4 patients (8.16%) observed 2, & 2 patients (4.09%) shows > 2 openings. We observed maximum patients showed, Inter-sphincteric fistula in 23 patients (46.94%) followed by Trans-sphincteric in 19 (38.78%), then Supra-sphincteric in 4 (8.16%) & Extra-sphincteric in 3 patients (6.12%).

Table 2: Different treatment modality

Sr. no	Type of surgery	No of pt.	%
1	Fistulectomy	27	55.10%
2	Fistulotomy	13	26.53%
3	Fistulectomy with closure	04	08.16%
4	Curettage of fistula tract	05	10.21%

Different treatment option performed fistulectomy in 27 patients (55.10%), fistulotomy in 13 (26.53%), fistulectomy with closure in 4 (8.16%) and curettage of tract in 5 patients (10.21%). (Table 2)

We try to overcome the postoperative infection always used non standardized regimens of antibiotics exist

Study shows minimal postoperative complications like pain observed in all 49 patients (100%), Infection in 5 (10.20%) and incontinence (grade A) shown in 1 patient (2.04%).

Table 3: Duration of healing (mean time 12 week)

Sr. no	Healing (week)	No of pt.	%
1	<6	17	34.69%
2	07-12	23	46.94%
3	13-18	07	14.29%
4	19-24	2	04.08%

Duration of healing, maximum patients observed in 7-12 weeks 23 patients (46.94%), followed <6 weeks 17 patients (34.69%). Then in 13-18 weeks, 7 patients (14.29%) seen & in 19-24 weeks 2 patients (4.08%). Mean healing time was 12 weeks. (Table 3).

Complete primary healing showed in 47 patient (95.91%) whereas recurrence in 2 patients (4.08%).

Discussion

In our study maximum patients reported in 46-55 years age group (42.87%). Mohanlal Khadia *et al.* observed age ranged 29- 65; peak incidence was in the age group 41-50 year. Median age was 46 years¹⁸. Like to our study Yadu S *et al.* observed 36% of patients reported in 41-50 years and 6% > 60 years¹⁷. Phinehas E *et al.* stated commonly affected 30-39 year age group²⁰.

Our study, M:F ratio showed 3.9:1 Mohanlal Khadia *et al.* observed M:F 4:1 out of 45 patients¹⁸.

Maximum patient belongs to low socioeconomic status (85.72%). Yadu S *et al.* observed high socioeconomic 34% and low socioeconomic- 66% of patients¹⁷.

We observed symptoms were swelling in all, discharge in (95.91%), pain (91.83%), itching (22.44%) and redness (16.32%). Mohanlal Khadia *et al.* said Common presenting symptoms were purulent discharge seen 100%, pain 13.3%, & bleeding (4.44%)¹⁸. Yadu S *et al.* stated Discharge 74%, perianal pain 66%, swelling 20%, perianal irritation 10%, and past history of anal abscess (40%)¹⁷. Saadeldin Ahmed idris *et al.* observed anal discharge 99%, pain 57.5%, Itching 43.4%, Bleeding 3.8%, Constipation (14.2%)¹⁹. Phinehas E *et al.* stated Perianal discharge 56.67%, external opening seen in all (100%)²⁰. Van Koperen PJ *et al.* described small, painful anal swelling with intermittent sero-purulent discharge⁶.

Internal opening was identified in (26.53%). Phinehas E *et al.* observed internal opening only 45.33%, of patients²⁰.

On fistulogram, tract was identified (55.11%) and not identified (44.89%) & compared intra-op findings with length of tract, fistulogram report correct in (22.44%). Han C Kuiper's *et al.* said Some were analysed for length of extension & internal openings were compared with the surgical findings, Fistulograms were correct in only 16%, false positive results occur in 10%, hence fistulography is unreliable²¹.

In our study 42 patients (85.72%) showed low or simple fistula. Mohanlal Khadia *et al.* found FIA was high level 57.77% and low level (42.22%)¹⁸. Yadu S *et al.* describe High level of fistula seen in 14% and low fistula (86%)¹⁷.

Maximum (71.43%) openings situated posteriorly from the

transverse line of mid anal canal. Yadu S *et al.* found 25% anteriorly, 76% posteriorly situated¹⁷. Phinehas E *et al.* observed external opening posterior to transverse line in (66.67%)²⁰. Helena Tabry *et al.* found external opening is near the anal canal posterior to transverse line with short length then most likely, it is simple fistula²¹.

We observed maximum patients showed, Inter-sphincteric fistula in 23 patients (46.94%). Mohanlal Khadia *et al.* found, Inter-sphincteric fistula 46.66%, Trans-sphincteric fistula 42.22%, Supra-sphincteric (11.11%)¹⁸.

We performed fistulectomy in (55.10%), fistulotomy (26.53%), fistulectomy with closure (8.16%) and curettage of tract in (10.21%). Arun Rojanasakil JP *et al.* described LIFT (ligation of inter-sphincteric fistula tract). Procedure was quite simple and consisted of ligation of the fistula tract in the inter-sphincteric space with curettage of remaining track²². Yadu S *et al.* describe Fistulectomy 78%, fistulotomy 14%, fistulectomy with primary closure 2%, Seton 4%, Curettage of fistulous tract (2%)¹⁷. Saadeldin Ahmed idris *et al.* described I & D done in 8.5%, fistulotomy / fistulectomy (6.6%)¹⁹. Phinehas E *et al.* described fistulectomy done in 25%, fistulotomy in 68%, Seton 7%²⁰. Helena Tabry *et al.* stated during fistulotomy the fistula tract is curated to remove infected or necrotic tissues²¹. Van Koperen PJ *et al.* stated good results can be obtained by performing a fistulotomy on low fistulae⁶. Farquharson described laying open of the tract is the simplest definitive surgical treatment of fistula²³.

We always used non standardized regimens of antibiotics exist and also sitz bath, stool softener recommended. Mohanlal Khadia *et al.* describe IV antibiotics for 5 days, sitz bath from first day, analgesics for pain relief and stool bulking agent¹⁸.

Study shows minimal complications, pain seen in all, Infection (6.25%), incontinence (2.04%). Phinehas E *et al.* observed Incontinence (16%)²⁰. Tower P & Cariati A *et al.* observed incontinence is minor range from (11.5-20%)²⁶.

Duration of healing, maximum patients observed in 7-12 weeks 23 patients (46.94%), followed <6 weeks (34.69%). Then in 13-18 weeks (14.29%) seen & in 19-24 weeks (4.08%). Mean healing time was 12 weeks. Steve Halligan *et al.* observed 94.4% healed primarily, Mean healing time was 4 weeks and none had disturbances in clinical anal continence⁹. According to shanwani A *et al.* primary healing rate was 82% with median healing time of 7 weeks, ranges 4-10 weeks²⁴.

In our study, complete primary healing showed in 47 patient (95.91%), whereas recurrence in 2 patients (4.08%). Shanwani A *et al.* stated recurrence seen in 8 patients over a period of 3-8 month with no significant morbidity²⁴. Yadu S *et al.* describe complete healing 90%, Recurrence (10%)¹⁷. Phinehas E *et al.* described 68% uneventful recovery²⁰. Bruce M Lo, MD, MBA described excellent prognosis after surgery with recurrence rate approximately (7-21%)⁴. Recent papers showed a success rate as high as 95.8% with an insignificant change in the continence score²⁷.



Fig 1: Fistula with 2 ext. opening



Fig 2: < 3 cm from anal verge



Fig 3: Probing of ext. opening



Fig 4: Fistulectomy of mature track

Conclusion

In our study with all above methods, fistula-in-ano could be easily treated; it is quite simple with low postoperative infection rate without any resultant high grade Incontinence. Anal fistula remains challenging for treatment, more research are needed to evaluate, combined surgical and medical treatment to optimize curative relief in patient associated with other anal Pathology. Last decades new surgeries have been added there is certainly lot of scope for more studies with different treatment modalities in this area.

A Good outcome was achieved in the majority of patients with few complications; however there is a need for large-scale trials to evaluate the different surgical treatment modalities. Our observation shows early and proper diagnosis with management and it improves quality of life.

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