



## Efficacy of crypto glandular debridement in fistula in ano based on a new classification

### KEYWORDS

Anal fistula, space of Courtney, new classification of fistula, cryptoglandular debridement, post anal space

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### ABSTRACT

The aim of this study was to evaluate the efficacy of minimal excision and curettage of fistula in ano in reducing morbidity and recurrence. Twenty patients of primary crypto-glandular fistula in ano were selected for the study. Only those patients were included in the study, which had internal opening in posterior midline and limited to superficial post anal space. The cases were diagnosed by clinical examination, MRI fistulogram, biopsy and pus culture. The secondary fistula in ano patients were excluded from the study. The patients were randomly divided in to two groups. Group A (10 patients) was subjected to the conventional fistulotomy and fistulectomy while group B (10 patients) was subjected to the crypto glandular debridement at posterior midline. After the therapy, patients were followed up for a period of six months for evaluation of healing, recurrence and effect on continence.

The most accepted classification of fistula has been Park's classification. After years of evaluation, it was noticed that complicity of fistula increased with the vertical extension of abscess and based on the findings a new classification of fistula was devised. The management of fistula was planned based on this new classification.

The mean duration of treatment in group B was much shorter than of group A. Patients of group B showed significant less time to regain their normal activity on account of much less pain. Overall, patients experienced little or no effect on the continence mechanism in both groups. The recurrence rate was negligible in both groups of patients.

The cryptoglandular debridement technique is a better choice in comparison to conventional fistulotomy and fistulectomy as regard to pain, morbidity and duration of healing.

### Introduction:

Fistula in ano is most commonly cryptoglandular in origin and it is known as primary fistula. [1] Only 5 to 10 percent of cases are secondary to certain diseases such as tuberculosis, malignancies, inflammatory bowel diseases, osteomyelitis, radiation, leukemia, trauma etc.

In the majority of cases, infection starts in anal crypts and anal glands. The abscess in intersphincteric space may travel to various perianal spaces to give rise to various types of fistula in ano. [2] The complicity of fistula increases with the vertical extension of the fistula in relation to levator ani muscle.

In a series of patients with extension of fistula track to gluteal region and thigh, it was observed that by eradication infection in post anal and preanal area, the remaining fistula track was healed without difficulty. It was concluded, that vertical extension of fistula is more difficult in comparison to horizontal extension.

### Classification of fistula in ano

The modern concept of fistula in ano is based on its anatomical considerations. External sphincter and levator ani muscle are the fixed landmarks to describe the relations and course taken by fistula track. Fistula in ano has been classified by many distinguished authors in many ways.

Milligan and Morgan in 1934 divided the fistula in subcutaneous and submucous, low and high anal fistulae and anorectal fistulae. [3] Ernest Miles classified the fistula according to arrangement of lymphatic plexus around the rectum and anus e.g. subcutaneous, subsphincteric, submucous, intermuscular and pararectal. [4] Goligher modified the Miles classification to include levator ani penetration by fistula in ano.

Park's classification of fistula in ano was based on anatomical considerations and it has been the most accepted classification till dated. [5] He has divided the fistula in ano in four groups viz. Intersphincteric (70%), Transphincteric (25%), Suprasphincteric (5%) and extrasphincteric (1%).

One way of grading the fistula in ano is St James' university

hospital classification in which fistula in ano has been divided in grade 1 to grade 5. [6]

- grade 1: simple linear intersphincteric
- Grade 2: intersphincteric with abscess or secondary track
- grade 3: trans-sphincteric
- grade 4: trans-sphincteric with abscess or secondary track within the ischio-rectal fossa
- grade 5: supralelevator and translevator extension

The idea of devising a new clinical classification based on the fact that horizontal extension of fistula in ano is not a big issue in comparison to the vertical extension. If a long transphincteric horizontal extension goes up to gluteal region but remains in superficial post or pre anal space, then it may be treated with ease. If a fistula in intersphincteric space crosses the levator ani muscle, then it is very difficult to manage. In the present study, the fistula in ano is graded from 1 to 4 according to vertical extension. It is concluded that higher the vertical extension, the difficulty the fistula becomes in terms of morbidity and recurrence.

- Grade 1: Fistula in ano limited to superficial post anal and pre anal space
- Grade 2: Fistula in ano extended up to deep post anal and pre anal space with or without ischio-rectal extension
- Grade 3: Fistula in ano extended to infralevator space with translevator indentation but not crossing levator ani
- Grade 4: Supralelevator extension of fistula in ano

The abscess in intersphincteric space may remain in superficial space or it may extend upwards in deep space. The superficial and deep spaces are separated by anococcygeal ligament and transverse septum. The first description of the deep post-anal space and its relation to formation of a horse shoe fistula was provided by Courtney in 1949. [7] The space described by Courtney is traditionally described to be located posterior to the external sphincter at the junction of both ischio-rectal fossae. In 2006, Kurihara et al., [8] revived studying the anatomy of the postanal space. They described the posterior anal space in a different way as compared to the description of Courtney. They claimed that the posterior deep space is situated in deep part of

external sphincter in intersphincteric space. The anterior border of the space is the internal sphincter, the superior border is the inferior surface of the puborectalis, and the inferior and lateral borders are the anterior surfaces of the external sphincter.

#### Management of fistula in ano

The successful treatment of fistula in ano lies in the fact that there should be complete eradication of infection at the root viz. crypts and anal glands. LIFT procedure adopted for the effective management of fistula in ano has chances of recurrence because there is not complete removal of root of infection and only distal track is debrided. There is also an issue with the abscess formation which requires complete drainage and packing.

In this technique, posterior midline approach was followed and retrograde probing and debridement was done to ensure complete removal of infection.

In all cases, posterior internal sphincterotomy was performed in order to drain the pus effectively and then entire intersphincteric space was debrided. The wound was kept open and secondary healing was promoted in order to check the recurrence.

#### Material and methods

The study included 20 patients of primary fistula in ano with internal opening in posterior midline. The study was conducted on the patients of grade 1 transphincteric fistula in ano in which the fistula was limited up to superficial post anal space. The study was conducted in surgery department of A & U Tibbia College Hospital New Delhi. Inclusion criteria were primary cryptoglandular transphincteric fistulae limited to posterior superficial anal space fistula irrespective of the horizontal extensions. Exclusion criteria were secondary fistula in ano such as tubercular, malignant and associated with inflammatory bowel diseases.

#### Preoperative measures:

All patients were subjected to proper history taking, digital rectal examination to find out internal opening, laboratory investigations as well as MRI fistulogram to confirm the course and internal opening of fistula in ano. Patients were randomly selected in to group A and B and the first patient was allocated group A and the second group B irrespective of age and sex.

#### Operative procedure:

The procedure in all of these 20 patients was performed under saddle block anaesthesia and in lithotomy position.

In group A, the conventional fistulotomy and fistulectomy was carried out. A soft malleable probe was inserted in fistula track and the probe was guided to internal opening. Prior to probing, methylene blue dye was also injected in track to see spill from internal opening. The probe was then taken out of the internal opening. The external opening was excised and the track was opened and curetted. [9] Adequate haemostasis was achieved and wound was packed with gauze.

In group B, an anal dilator was inserted in to the anal canal to see the posterior half of the anal canal. The dye is injected from the external opening to locate the internal opening. In this group the procedure was performed from internal to external. The internal opening was dilated a little and an aneurysm needle was inserted in to the internal opening. The aneurysm needle was guided in intersphincteric space and the tip of the needle is felt in intersphincteric space. An incision was given on the tip of the needle to guide it outside the track. The track is identified and opened. Now the proximal portion of the fistula track and cryptoglandular area was cauterized and lay opened. The posterior internal sphincterotomy was also carried out for effective drainage and debridement. [Fig 1]



**Fig 1: Proximal cauterization and debridement of cryptoglandular infection**

The distal track was cleaned and washed without any incision or excision. The proximal wound was packed and dressed.

#### Results and discussion:

Males were more in number in comparison to females and most of the patients were in 25 to 40 years of age group. The results were assessed in terms of healing time, incontinence, pain, discomfort and the time to regain normal activity. The patients were asked to visit the outpatient clinic at a fortnight interval and all the parameters were assessed.

Healing time in group B patients was significantly less ranges from 7 to 15 days in comparison to group A in which the average healing time was one month. The patients in group B took much less time to regain the normal activity in comparison to group A. The postoperative pain was much less in group B patients. Since, the wound area was much less in group B patients, the discharge, discomfort were much less in group B patients. The recurrence was not seen in any patients in a year follow up. The incontinence was also not seen as only internal sphincter and subcutaneous part of external sphincter was divided during the procedure. [10] The scar was much less in group B patients and no keyhole deformity was noticed. [Fig 2]



**Fig 2: Healing of fistula**

The wound was big in group A patients and it took much more time in healing. [Fig 3]



**Fig 3: Big wound in fistulectomy and fistulotomy**

The basic idea behind the present study was to evaluate an alternative to highly invasive fistulectomy and fistulotomy. It is a well known fact that primary fistula in ano results from

infection of the anal crypts and sinus. It is the root of infection. It has to be eradicated in order to check recurrence of fistula in ano. The track of the fistula and associated perianal abscess should be taken care of adequately. Henley first demonstrated a conservative approach to deal with the horse shoe collection of abscess. [11] The debridement of infection and drainage of pus should be carried out. [12] It was noticed that recurrence in cases of primary fistula in ano was due to inadequate clearance of cryptoglandular infection in spite of wide excision of fistula track and its branches. [13] It was also noted that in case of cleaning of cryptoglandular infection and without excision of peripheral track, the fistula was healed completely. The side track of fistula was healed without excision.

It was also noticed, that the difficulty in managing the fistula in ano increases with the extension of pus towards levator ani muscle and in cases where the fistula crossed the levator ani muscle, the recurrence was much higher. The concept of these space and extension of pus was based on the works of Kurihara, Courtney and Hamilton. [14] [15] It is therefore, a new classification of fistula in ano was suggested for effective management. The strategy to keep the surgical approach towards midline to eradicate infection found very helpful in reducing morbidity. Moreover, wide excision and resultant wound could have been minimized up to a great extent by using this method.

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