

Role of set on Versus Conventional Techniques in the Management of Anorectal Fistulas

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ABSTRACT

Fistula-in-ano is a tract that connects the anal canal or rectum from deep inside upto the skin around the anus. It's primary opening is deep in the anal canal or rectum and the superficial openings, which may be multiple, are around the perianal skin. It is one of the commonly encountered surgical problem worldwide with prevalence of 1.2 to 2.8/10000. Hippocrates (460 BC) first wrote about anal fistulas and discussed its specific treatment, 3 but the first description of a fistula in a patient was reported to have multinucleated giant cells is credited to Gabriel in 1921.

Fistula-in-ano is characterized by severe pain and discharge. They arise following infection near the anal canal, or secondary to specific conditions of the intestines like Crohn's disease, tuberculosis. 'Cryptoglandular abscess' means abscess arising from the anal glands. Because of the close association of abscess and fistula in aetiology, anatomy, pathophysiology, therapy and morbidity, it is appropriate to consider both entities as one, i.e., abscess- fistula or a fistulous abscess. It is also appropriate to consider an abscess as the acute and a fistula as the chronic state of anorectal suppuration.

The treatment of perianal fistulas is diverse because no single technique is universally effective. Surgery is the mainstay of treatment of anal fistulas. The principles of anal fistula surgery are to eliminate the fistula, prevent recurrence and preserve sphincter function.

INTRODUCTION

In our study, we used cutting seton as well as seton created by cutting rubber gloves and evaluated it with our past experience in managing fistulas like fistulotomy and fistulectomy. The aim of the study was to know the role of both types of seton in the management of fistula- in-ano in terms of calculating the frequency of putting seton in patients of fistula- in- ano by comparing with patients in which seton is not placed, and evaluating the effectiveness of fistula healing when seton is placed by periodic follow up and calculating the recurrence rates and incontinence rates associated with seton use.

Patients are placed in the prone jack-knife position with the buttocks taped apart to facilitate exposure. Regional anaesthesia is preferred to local anaesthesia for adequate assessment of deep components of complex anorectal abscesses. Malleable blunt probes identify the course of the fistula tract(s) and its internal opening(s). Any associated abscess cavity is widely unroofed.

After the tract has been delineated with the probe, the rectal mucosa and the underlying internal sphincter are divided from the internal opening to the anal verge, along with the cephalad portion of the external sphincter and perianal skin. A seton of heavy, braided, nonabsorbable suture or made by cutting rubber gloves is looped around the distal half of the intact external sphincter and tied loosely to mark the tract. After six to eight weeks, the proximal fistulotomy wound has usually healed, re-establishing the continuity of the anorectal ring. A probe is placed through the remaining low fistula tract marked by the seton, and the remaining external sphincter is divided. In cases of supra-sphincteric fistulas from Crohn's disease or fistulas in patients with AIDS, a Silastic TM vessel loop is used as a seton to promote drainage and prevent recurrent anorectal abscesses. Second stage fistulotomy is not routinely performed. Postoperative care is essentially the same as for other anorectal procedures and includes warm sitz baths four times per day, oral analgesics, and stool softeners.

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CLASSIFICATION

The classification of fistula-in-ano is based on the location of its tract in relation to anal sphincter muscle:

- 1) Inter-sphincteric
- 2) Trans-sphincteric
- 3) Supra-sphincteric
- 4) Extra-sphincteric.

The term complex fistula is modification of the Park's classification, which falls in any one of these conditions, that is, the tract, crosses 30% to 50% of the external sphincter, anterior tracts in females, multiple tracts, recurrent, or the patient has pre-existing incontinence, local irradiation, or Crohn's Disease. Due to the involvement of the anal sphincter, the treatment of complex fistula poses a high risk for impairment of continence [7,8].

MATERIAL AND METHODS

This study is a retrospective non-randomized study conducted at Jawaharlal Nehru Medical College from January 2018 to June 2019.

Study design

It is a retrospective non-randomized study consisting of 124 patients between January 2018 to June 2019, who fulfilled the above selection criteria and were treated with appropriate fistula surgery, depending on the type of fistula.

68 patients were placed in the group to be treated with seton placement in which 30 patients had a cutting seton placed through the fistulous tract and 38 patients had seton made of rubber gloves placed through the fistulous opening. Remaining 56 patients were placed in another group to be treated by other means either with fistulotomy alone in 24 out of 56 patients or with fistulectomy done in 32 out of 56 patients.

Operative steps

Patients are placed in the prone jack-knife position with the buttocks taped apart to facilitate exposure. Regional anaesthesia is preferred to local anaesthesia for adequate assessment of deep components of complex anorectal abscesses. Malleable blunt probes identify the course of the fistula tract and its internal opening. Any associated abscess cavity is widely unroofed. After the tract has been delineated with the probe, the rectal mucosa and the underlying internal sphincter are divided from the internal opening to the anal verge, along with the cephalad portion of the external sphincter and perianal skin. A seton of heavy, braided, nonabsorbable suture or made by cutting rubber gloves is looped around the distal half of the intact external sphincter and tied loosely to mark the tract. After six to eight weeks, the proximal fistulotomy wound has usually healed, re-establishing the continuity of the anorectal ring. A probe is placed through the remaining low fistula tract marked by the seton, and the remaining external sphincter is divided. In cases of supra-sphincteric fistulas from Crohn's disease or fistulas in patients with AIDS, a Silastic TM vessel loop is used as a seton

to promote drainage and prevent recurrent anorectal abscesses. Second stage fistulotomy is not routinely performed. Postoperative care is essentially the same as for other anorectal procedures and includes warm sitz baths four times per day, oral analgesics, and stool softeners.

RESULTS

44 patients who had a simple fistula and 24 patients who had a complex fistula were selected and treated with seton placement (54.8%) in which cutting seton was placed in 30 patients and seton made of rubber glove was placed in 38 patients. Other patients who had either multiple or complex fistulae were treated with either fistulotomy or fistulectomy.

At the end of 1 month, 17 out of 24 patients who underwent fistulotomy had their wounds healed while in seton group, 48 out of 68 patients had their wounds healed. In fistulectomy group, 21 out of 32 patients had their wounds healed and the results were not found to be statistically significant.

At the end of 3 months, 19 out of 24 patients had their wound healed who underwent fistulotomy, 61 out of 68 in patients of seton as the treatment modality, while with fistulectomy alone, complete wound healing was seen in 24 out of 32 patients but the results were not statistically significant.

DISCUSSION

The ano-perineal suppuration or sepsis arising from the glands of the anal crypts leads to fistula formation. It has a primary internal orifice in the anal canal, connecting fistulous tract, and an abscess and/or secondary external (perineal) orifice with purulent discharge. Surgery is the main curative treatment. Perineal abscess is treated by incision and drainage on emergency basis. The primary aim of treatment in perianal sepsis is to control infection without sacrificing anal continence. Second stage or the definitive treatment of the fistulous tract can wait.

A seton has traditionally been described as a loop of strong, nonabsorbable, braided suture or elastic material that is placed in high fistulous tracts to prevent complete disruption of the external anal sphincter muscle. Setons are employed most commonly for less than 10 percent of fistulas that involve the puborectalis muscle, the division of which invariably results in faecal incontinence. Different types of setons are used for this purpose like silastic tube, silk, linen, braided silk, rubber band, braided polyester, vascular loop, polypropylene, nylon, cable tie, and so forth. The reported incontinence and recurrence rate ranges from 0% to 62% 9 and from 0% to 16% 10 respectively, with different materials used as seton.

Different seton materials has been used with different rates of recurrence and incontinence. But whatever the material is, recurrence and incontinence rate is mainly dependent on expertise and judgment of the surgeon. Other factors that need to be considered during the selection of the seton are that it should be durable, cheap, nontoxic/nonallergic, technically easy to tie even in clinic setting, and allows to tight repeatedly without causing pain and without anaesthesia [11,12].

Due to these properties, we selected cutting setons (non-absorbable sutures) and seton made by cutting rubber gloves. The rubber seton was superior to cutting seton as it could be easily passed through the fistulous opening, and the surgeon could adequately tight it without any need of further assistance or retraction. In cutting setons, the knot was applied by sliding the knot over the suture and so there was high risk of slippage and loosening of the knot. Hence, tightening is gradual and controlled by the use of rubber setons in comparison to cutting seton. After tightening, none of the patients had unbearable pain for more than few minutes; this is attributed to the precise and controlled tightening achieved by rubber seton as well as the fact that we did not tighten it until found loose. This controlled and gradual tightening decreased the incidence of incontinence and recurrence. None of the patients reported any difficulty in walking or carrying out routine activities

In the study by Pearl RK et al (1993), 116 patients were evaluated for the role of setons in fistulas. Setons were employed as part of a staged fistulotomy in 65 patients to identify and promote fibrosis around a complex anorectal fistula. Other indications for seton placement were anteriorly situated high trans-sphincteric fistulas in 24 women and 3 patients with massive anorectal sepsis (2.5%). In addition, setons were used to preclude premature skin closure and promote controlled long-term fistula drainage in 21 patients with severe anorectal Crohn's disease (18%) and in three patients with AIDS. In our study, out of 124 patients, 68 patients [44 patients with simple and 24 with complex fistulas] had undergone seton placement in which 30 out of 68 had a cutting seton placed and 38 out of 68 had a seton made of rubber gloves. Rest of the patients underwent sphincter cutting procedures namely- fistulotomy or fistulectomy. Complete healing was seen in 69.4% of the patients at 1 month and 83.9% of the patients at 3 months. In patients who had seton, complete healing was observed in 38.7% at 1 month and at 3 months with healing of rubber seton was found to be better than the cutting seton at 1 month but comparable at 3 months.

In this study, there were 20 cases of recurrence with overall recurrence rate of 16.1%. However, 10 cases of recurrence out of 68 patients was seen in patients in whom seton placement was done with 8 out of 30 (26.3%) seen in patients with cutting seton and 2 out of 38 (5.2%) in patients in whom seton made of rubber gloves were used with rate of recurrence more with the cutting seton as compared to the rubber seton. The recurrence rate varied with the type of fistula i.e. simple or complex, but there was no statistically significant relation between the type of surgical treatment and recurrence. The difficult target is the complex fistula, that is, those fistulas with any of these characteristics: primary track crossing 30–50 % of the external sphincter (high trans-sphincteric, supra-sphincteric, and extra-sphincteric), anterior track in a female, multiple tracks.

In the study by Eitan, Koliada and Bickel (2009) the recurrence rate of the fistula or suppuration was reported as 19.5% in cases of trans-sphincteric fistulae. Factors associated with recurrence included type and extension of the fistula, lack of identification or lateral location of the internal fistulous opening, previous fistula surgery and the surgeon experience

In Poon Chi-Ming et al study (135 patients), there was recurrence in 13.3% of patients operated by fistulectomy compared to the present study in which there were 25% recurrence rate in patients operated by fistulectomy.

Other techniques for treatment of fistulas includes fibrin glue, Ligation of Inter-sphincter Fistula Tract (LIFT) and collagen plug. Metanalysis of trials on fibrin glue did not report any statistically significant difference over other techniques for recurrence or incontinence 16; moreover, it is too expensive to be used in a low-income country—the cost of fibrin glue equals the cost of entire day care procedure of seton placement. Early experience of LIFT is also promising and sounds good alternative ; however, besides a steep learning curve, it needs technical expertise especially for complex fistulae.

There is no relationship between incontinence and the frequency of tightening, type of seton, or classification of fistula. Hence, we further reinforce the importance of surgeon's experience and the use of a seton having additive qualities as stated above.

CONCLUSION

Setons are safe, low-cost, ubiquitous, pragmatic, precise, and a cost-effective option for the treatment of simple and complex fistulae-in-ano. It does not carry the disadvantage of repeated anaesthesia and visits to the operating theatre and reduces the morbidity, inconvenience, and cost of the patient. Rubber seton is better than the cutting seton owing to its better healing and low recurrence rates. There was improvement in the quality of life in all the patients in whom seton was placed. Patient were able to perform their normal day to day activities soon after the procedure and also without any inconvenience.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interests regarding the publication of this article.

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