

Study of The Outcome of Staged Cutting Seton in Treatment of High Perianal Fistula

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ABSTRACT

Background: an inexpensive and effective method of treatment of high complex perianal fistulae is seton suture. Most difficult point in seton is maintaining tension and pressure on suture to produce muscle cutting in anal sphincters.

Objective: the aim of this study was to assess the consequence, which fail to be noticed in seton suture to diminish the recurrence rate and incontinence after the treatment of fistulae.

Patients and Methods: this study was conducted on 53 patients who underwent treatment for an anal fistula with staged seton suture. Clinical examination and MRI fistulogram was done to all patients. Prolene 1 was used as drainage then cutting. Follow up in outpatients was recorded.

Results: there was no pain or mild pain in all cases. The recurrence rate in two cases (3.7%). Incontinence to flatus in three cases (5.6%) and one case to soft stool (1.8%).

Conclusion: there were many factors affecting outcome of high perianal fistula surgery by seton suture to decrease recurrence and incontinence such as proper examination of the patient, magnetic resonance image (MRI) fistulogram, meticulous surgery and good identification of internal opening.

Keywords: perianal fistula, prolene, seton, extracorporeal knotting.

INTRODUCTION

Perianal fistula is a familiar proctologic illness with incidence that reaches 2.8/10,000 in some countries ⁽¹⁾. Fistula-in-ano is a chronic form of perianal abscess that is spontaneously or surgically drained. If the abscess cavity does not heal completely, it will become an inflammatory track with a primary internal opening at the dentate line of anal crypt and a secondary external opening in the perianal skin ⁽²⁾. There are main forms of fistula-in-ano, based on the sphincter muscles involved in the fistula: submucosal, intersphincteric, transsphincteric, suprasphincteric, or extrasphincteric form ⁽³⁾. Complex fistula suspected when the fistula tract crosses more than 30% of the external sphincter or with multiple tracts and has an anterior location in females. Usually the cure of complex fistula pretenses a high risk for impairment of continence and high rate of recurrence ⁽⁴⁾.

Surgical curing of perianal fistula is uttered by the area of sphincter muscles involved, therefore there is no single suitable method for the healing of fistulas, and the cure must be in a sense of balance between the extent of sphincter division, rate of postoperative healing, and functionless of this area ⁽⁴⁾. Type and the degree of fistula are the main beliefs during anal fistula surgery for eradicating the fistulous tract, conserve sphincter function, and avoid recurrence. So, the ethics of surgery include uprooting the fistula; get rid of the infective source in the internal opening, and creating a sufficient drainage ⁽⁵⁾.

There are numerous options for fistula treatment, but most of the superficial or least sphincter involved

fistulas have been usually managed by either fistulotomy, or fistulectomy, which have been confirmed their effectiveness ⁽⁶⁾. Seton has been applied for curing of perianal fistula for many years; however, it was generally used for complex anal fistula with the intention of fecal incontinence avoidance ⁽⁷⁾.

The principle of seton fistulotomy is that a striated muscle superficially to the fistula track is surrounded by a section of soft rubber tubing. The tubing is fixed firmly and left in situ, after one or two weeks, the striated muscle is slowly separated by a progression of ischemic necrosis. Conversely, since the slowly process, the muscle does not spiral apart, leaving a defect, but repairs behind the process of division, so that fibrous tissue is formed in the couch of the fistula. This procedure keep away from the occurrence of gutter deformity and it's associated with soiling and impaired continence. The difficulty with this technique is that recurrent fistulae appear to be relatively common ⁽⁸⁾. Setons possibly of the cutting type or a loose seton which setted to encourage drainage and prevent the recurrence of perineal sepsis, and may be left in place long-term or removed with eventual cure ⁽⁹⁾.

Different categories of setons are used for this purpose like silastic tube, silk, braided silk, rubber band, braided polyester, vascular loop, nylon, cable tie, prolene suture and so forth ⁽¹⁰⁾. The accounted incontinence varies from 0% to 62% and recurrence rate varies from 0% to 16%, with dissimilar seton materials used ^(10,11).

The prolene suture seton has a number of benefits: it is easy to handle, easy to place in fistula tract, can be intended for drainage of abscesses within the fistula, can be used also for cutting purpose, and it can preserve the tension when tightened. Prolene suture can be heading for many actions: drainage, tightened around and proceed through. It is necessary to use analgesia and even anesthesia in case of tighten of cutting setons as it can be painful and cause troublesome for the patients ⁽¹⁾.

Objective of the study:

In this study we intended to descript our practice staged seton on convoluted perianal fistula with prolene suture and how to minimize occurrence of recurrence.

PATIENTS AND METHODS

This retrospective study was conducted on 53 patients who did prolene seton suture for high perianal fistula in Al-Azhar University hospitals Zagzig general hospital from March 2015 to December 2017. Patients with low perianal fistula, recurrent perianal fistula and patients with inflammatory bowel disease were excluded from this study.

Ethical statements

All patients agreed to share in the study and consents were taken from them. **The study was approved by the Ethics Board of Al-Azhar University.**

The full medical documentations of the patients were obtained and collectively reviewed and recorded. Patients with anal fistula surgery were assessed in accordance with a standard protocol which included history of previous anorectal procedures, clinical rectal examination and proctoscopy for determining the accurate site of openings either internally or externally, presence of local tenderness or abscess, and previous scars. Perianal fistulogram and magnetic

resonance imaging (MRI) were used for investigation of the tract and sphincter involvement. Spinal anesthesia used and position of patients was in lithotomy position during the surgery.

The external opening of the fistula tract was quietly checked out using a standard blunt-tipped probe till the internal opening with regular injection of a hydrogen peroxide throw the external opening for enhancing visualization of the internal opening. The external fistula opening was expanded with presence of chronic granulation tissue debris. In case of deep fistula tract localized transphenteric with sphincter involvement, incision was made from the internal opening to the lateral portion of the tract to permit the seton to settle onto the sphincter. Prolene one was used and two stitches were left in the tract. Tight prolene by extracorporeal roede knotting to make easy tightening by pulling on long limb later on.

Postoperative pain was managed for all patients by oral nonsteroidal anti-inflammatory analgesia. Care at home consisted of hot soaks, betadine dressing and sterile dry gauze covering. Patients were re-examined in outpatient clinic after 10 days to assess wound and to underline postoperative directions. Patients were followed up every other week, and prolene suture was tightened simply by pulling the long end under sedation and analgesia, every three weeks. Complete progression and spontaneous drop of tightened seton was judged as healing sign of the fistula. Patients were followed after 3 and 6 months interval for reassessment.

Statistical analysis

Recorded data were analyzed using the statistical pacjage for social sciences, version 20.0 9spss Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean \pm standard deviation (SD). Qualitative data were expressed as frequency and percentage.



Figure (1): Probing of fistula with excision of skin.

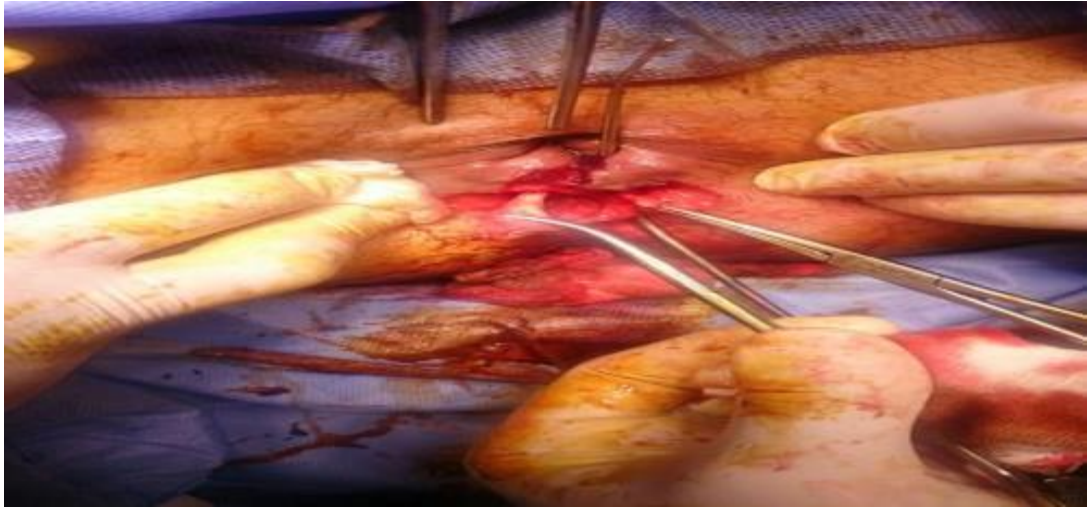


Figure (2): Two branch of tract with probing of lateral one.

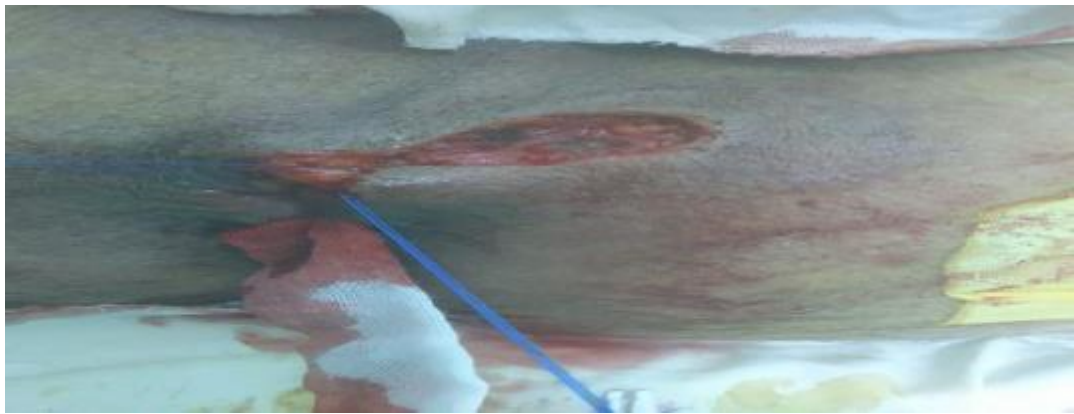


Figure (3): Insertion of doubled prolene stitches.



Figure (4): Tightening of prolene suture.

RESULTS

Patients in this study were 36 males and 17 females. Their mean age was 32.1 ± 8.6 years. Forty five of them have history of perianal abscess either spontaneously opened or surgically drained under anesthesia by surgeon. Preoperative evaluation by perianal fistulogram was done to all cases as it simple and cheap and MRI in all cases but it is more sensitive and decisive to type of fistula. Trans-rectal

ultrasound was done to 4 cases that have pelvic rectal abscess (**table 1**). Examination under anesthesia found that external opening anterior in 20 patients and posterior in 33 one but internal opening presented anterior in 25 and posterior in 28 patients. Identification of internal opening by injection of methylene blue or hydrogen peroxide injection through the external opening (**table 2**). Postoperative follow up there is 14 patients

complaining from pain which controlled with non-steroidal anti-inflammatory drugs with no need for narcotics. There is 17 patients complaining from irritation due to presence of seton between their thigh but all patients complaining from discharge from the anus and its degree differ from patient to other according to size of raw area present and its duration not exceed one month. Tightness of suture done every 3 weeks and its duration average 2 to 3 months (table 3).

As regard postoperative complication: there is only two cases (3.7%) have recurrence mostly due to side branches and their type is pelvirectal type, have three cases (5.6%) with incontinence to flatus which is mild and improve with time and one case (1.8%) incontinence to soft stool but it is mild just mild soiling to clothes. There were no reported cases of fecal incontinence. In this study there is no lost seton as we insert doubled suture (table 3).

Table (1): Summarizes the demographic data of cases

Sex	36 M / 17 F
Age	32.1 ± 8.6
Previous drainage procedure: for abscess	40 (75%)
Co-morbidity: DM	10 (18.8%)
Fistulogram	53 (100%)
MRI fistulogram	53 (100%)
Trans-rectal U/S	4 (7.5%)

Table 2: Intraoperative examination data

External opening location	Anterior	20
	Posterior	33
Internal opening location	Anterior	25
	Posterior	28
Mean operation time (min)	30 (25-45)	

Table (3): Postoperative data and complication

Pain	14
Irritation	17
Discharge	53
Frequency of tight	Every 3 weeks
Time for removal of seton	2 to 3 months
Recurrence	2 (3.7%)
Incontinence	(5.6%) to flatus and 1(1.8%) to soft stool
Lost seton	0

DISCUSSION

High perianal fistula still one of the demanding procedure to a lot of surgeons. Perianal fistula has a high rate of recurrence and its terrible problems which are anal incontinence and

recurrence which mostly depend on experience and capability of the surgeon (10). There are varieties of techniques which deal with high fistula. However, seton has a main responsibility in these surgeries. Moreover, several types of seton material scan be used in this operations like prolene (10). The seton materials of prolene are characterized by non-allergic, non-toxic, easy handle and tighten. Tightness of the prolene suture can be done by pulling on long limb of suture under sedation (12). Extracorporeal roders knot are simply applied by all surgeons and preserve tension on tissue proper.

Excellent preoperative evaluation is essential to identify the type of fistula. In this study we depend mainly on MRI fistulogram which gave accurate informations about fistula type and side branch of fistulae. Corresponding to authors(13), who demonstrated that MRI imaging could illustrate more expansions and/or associated findings than direct surgical exploration without preoperative imaging. So, supplementary informations that can be obtained from preoperative MRI imaging recover the surgical outcomes, especially in patients with complexed grade fistula (14).

In our study, all patients done as day case surgery and then follow up in outpatients clinic and this accepted as in a paper written by Gupta et al. (15), the mean hospital stay was 7.3 h (range 4–21 h), while the overall complication rate was 2.5%, which included bleeding, urinary retention, infection, continence problems and recurrence. A day care clinic is defined as an society in which patients go through voluntary operations on the day of their admission and are discharged within 24 h of the surgery (16).

Other procedures of fistula management have been mentioned including fibrin glue, ligation of intersphincteric fistula tract (LIFT) and collagen plug. Many trials on fibrin glue did not attain any statistically significant difference for recurrence or incontinence (19). Accumulated experience of LIFT is also promising and sounds high-quality choice (20); however, it needs technical knowledge especially for complicated fistula.

In this study, it was required to proper attain internal opening by use of hydrogen peroxide and this was reflected on incidence of recurrence which was in two cases (3- 4 %). Different published data on the use of setons in perianal fistula reported a 4–5% rate of recurrence (17) that are in accordance of the present results.

The factors concerned in recurrence of fistula include the complications, grade of the fistula, the presence or absence of a horseshoe extension, the level of laterality of the external opening, failure to identify the internal opening at beginning of surgery,

and surgical experience of the operator for handling the complicated proctologic practice⁽¹⁸⁾.

The most common follow up complication of this study were incontinence to flatus in three cases and one case to soft stool. The improvement of this symptoms occurred gradually as most of cases in the study were due to complex fistula. Treatment started by loose seton then tightening to suture.

Similarly, a broad range of incontinence rates was described after treatment by seton treatment, **Ritchie et al.**⁽¹⁰⁾ have concluded that there was 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.

Frequency of tightening of the suture was easy practice done under sedation as there is some pain, and it was applied about two to three times to avoid rapid cutting of the sphincter to prevent incontinence. The presence of suture in perineal region may lead to some irritation to few numbers of patients especially in first week till they accommodate on it. In this study there was no lost suture as we inserted two suture in every patients.

CONCLUSION

Proper examination of the patient, MRI fistulogram, good identification of internal opening, meticulous surgery, and use of prolen size one and two sutures improve outcome of seton in treatment of complicated fistulus cases and decrease the incidence of recurrence and incontinence.

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