



Original Article

SETON IN TREATING COMPLEX ANORECTAL FISTULA – OUR EXPERIENCE

Md. Shahadot Hossain Sheikh¹, Md. Ibrahim Siddique¹, Mohammed Tanvir Jalal², Md. Saiful Islam³, K.M Saiful Islam³, Nasim-E-Tasnim⁴, Tania Ahmed⁵, Ismat Jahan Lima⁶, Ismat Jahan⁶

Abstract:

Background : Complex anorectal fistula may be endowed by the level at which the primary tract crosses the sphincters, the presence of secondary extensions or the difficulties faced in the treatment. Existing different treatment modalities like local advancement flap, LIFT procedure, fistulotomy and use of seton. Surgeons are afraid of incontinence in treating complex anorectal fistula. The aim of treatment of anal fistula is to cure the disease avoiding faecal incontinence. Among different procedures, Seton, a thread of foreign material, passed through the fistulous track and encircling sphincter mass thereby severing the muscle gradually without allowing it to spring apart and replacing the cut by the line of fibrosis thus avoiding incontinence, is an acceptable method practiced world wide. The purpose of the study is to evaluate and share our experience with others about the result of using seton in the treatment of complex anal fistula in our setting .

Method: Between January 2003 and December 2008, I have taken the 1st 100 patients underwent surgery for complex anal fistula in Colorectal Surgery Unit of Bangabandhu Sheikh Mujib Medical University, Dhaka. It involved initial identification and partial laying open of the fistulous tract. A tight seton is placed around the external sphincter and is not removed until the internal orifice has migrated towards the perianal skin.

Results: Out of 100 patients with mean age 43 years (range 19–65 years) 6 female and rest male underwent the procedure of seton. The median follow-up was 28.6 (24-36) months. The mean time of wound healing was 9.5 weeks (range 6–15). Recurrence occurred in two patient (2%). Continence disorders of flatus and loose stool were noted in 14 patients (14%). The duration with the seton in place was 56 days (range 20–190).

Conclusion: The technique shows excellent results in the treatment of complex anal fistulous with preservation of faecal continence.

Keywords : Complex fistula, faecal incontinence, tight seton

1. Associate Professor, Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka
2. Assistant Professor, Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka
3. Medical Officer, Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka
4. OSD, DGHS
5. Honorary Medical Officer
6. MS. Thesis part student, Dept of Colorectal Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka.
7. Ismat Jahan

Correspondence to: Dr. Md. Shahadot Hossain Sheikh, Associate Professor, Colorectal Surgery, Department of Surgery, Room-611, Block-C, BSMMU, e-mail: shsheikh1992@yahoo.com
Received: 10 April 2012 **Accepted:** 15 October 2013

Introduction:

The aim of surgical treatment of anal fistula is to cure the disease by preventing recurrence while ensuring that faecal continence is maintained. Normally, a 'lay-open' fistulotomy or fistulectomy technique is used for intersphincteric or low trans-sphincteric fistulae, but other types such as high trans-sphincteric or supra-sphincteric fistulae would require division of a large portion of the external sphincter, thereby increasing the chance of faecal

incontinence. Many procedures have been described in an attempt to accomplish this, including elastic cutting setons, advancement flaps, fibrin glue or anal plugs with variable results¹⁻⁵.

Setons are the oldest of the surgical alternatives developed over the years to respond to this challenge⁶. A seton is a thread of foreign material inserted through the fistulous track. Setons have been used for years with different purposes in anorectal surgery⁷. Their use in the management of complex anal fistula is based on the assumption that they cause a chronic inflammatory reaction and consequent fibrosis that fixes and prevents retraction of the sphincter when it is divided. The cutting seton is the most commonly used technique based on this simple surgical principle^{8,9}. The purpose of our study is to evaluate the result of using seton in the management of complex fistulae and to share our experiences with others in terms of incontinence to flatus and liquid stool and overall outcome.

Methods:

A prospective study on 100 patients with complex anal fistulae managed by seton placement between January 2003 to December 2011 were included in the study. Complexity may be endowed by the level at which the primary tract crosses the sphincters, the presence of secondary extensions or the difficulties faced in the treatment. Though endorectal USG and MRI has some role in delineating the fistulas track, we have not performed these two investigation because of the unavailability and financial constrains. However fistulogram was carried out in 45 patients which to some extent helped us to assess the nature of the fistulas track.

Surgical technique: The procedure was performed under spinal anaesthesia with the patient in the lithotomy position. After initial evaluation, the external and internal openings were located using a probe and hydrogen peroxide injection along the track. A partial laying open of the fistulous track with partial cutting of the external sphincter (I do not go beyond $\frac{1}{3}$ rd of external sphincter mass) was then performed. The internal opening, the pathological crypts and remaining tract is curetted.

The lower portion of the internal sphincter is divided along with the skin to reach the external opening and no. 1 prolene is inserted in to the fistulas tract. The ends of suture are tied with multiple knot. This cutting with time allows the tract to become more superficial, converting a high fistulas tract into a simple or low one. The proximal fistulotomy subsequently heals by stimulating fibrosis behind it reestablishing continuity of the anorectal ring to prevent separation of the sphincter muscle at a second stage repair, when the remaining external sphincter is divided. It was not tightened at any time during the follow-up. The time from surgery to removal of the seton was also recorded. During follow-up, the patients were seen at 1, 3 and 6 months in the outpatient unit until the seton was removed by second operation or spontaneously felt off.

Results:

The patient demography and peri-operative data are presented in table 1. There were 94 male and 6 female patients, with a median age of 43 years (range 19–65). 78 patients had trans-sphincteric or suprasphincteric fistulae and 22 patients had extrasphincteric fistulae. The mean operative time was 38 minutes (range 22–59). No intraoperative complications were recorded. Early complication was recorded in three patients. Two developed post-operative reactionary haemorrhage and one severe pain: and were managed conservatively. The mean hospital stay was 2.0 days (1–5). The duration with the seton in place was 56 days (range 20–190 days). The mean time of wound healing was 9.5 weeks (range 6–15 week). The median period of follow-up was 28.6 months (range 8-60 months). Recurrence occurred in two patient (2%). Only 62 patient completed 5 years follow up among which 2 patient came with recurrence. This might not be the actual figure because significant number of the patient were lost from the follow up. Continence disorders were noted in 14 patients (14%), of which gas incontinence in 10 patients (10%) liquid stool incontinence in 4 patients (4%) and no patient had solid stool incontinence. Patients who had recurrence had an extrasphincteric fistula with a high rectal opening. They are still under follow up.

Table-I
Patients demography and perioperative data
 (n=100)

Variables	No. of Patients
Number of the Patients	100
Mean age	43 years (19-65) 94 (M) :6 (F)
Gender	
Mean operative time (min) ^a	38 (22-59 min.)
Mean duration of seton in place(days) ^a	56 (20-190 days)
Spontaneously seton removed	2
Post operative complications:	
Recurrence	2
Hard Stool incontinence	0
Minor incontinence (loose stool & flatus)	14
Reactionary Hemorrhage	3

^a mean value (range) expressed.

Discussion

Seton division is an old surgical process which is still widely applied for the management of complex fistulae. It is a relatively simple technique with a universally accepted good cure rate¹⁰. A seton is a thread of foreign material inserted through the fistulous track. Its application in the management of high anal fistula is based on the assumption that a chronic inflammatory reaction is caused thereby stimulating fibrosis. This fixes and prevents retraction and separation of sphincter muscle when it is divided in order to protect the sphincter continuity during the procedure¹¹. This process may be considered similar to that of a wire cutting a block of ice slowly, where the ice is still adherent after the division. However, there are many seton techniques in use in current surgical practice, including chemical setons, drainage setons, cutting setons, and two-stage seton fistulotomy^{12,13}. However, the pros and cons of different seton techniques have not been clearly established. Materials include horsehair wrapped around a lint thread, mersilene, silk, nylon, polypropylene, polyester, rubber, silicone rubber, elastic band, wire, herbal medicated thread, and recently, the cabletie^{12,14}. There are a few studies comparing surgical and functional results in seton division using different seton materials. In our institute,

we used cutting setons for the management of complex anal fistulae. Prolene-1 is our preferred choice as a seton material.

The recurrence rate following treatment with cutting setons is reported to be 0–8%^{14,15}. The rate of incontinence after the procedure of cutting seton ranged from 15.6% to 63%^{14,15,16}. Isbister et al. reported 47 patients with complex anal fistula treated by cutting setons with a mean follow-up period of 1.1 years¹⁶. A total of 17 patients (36.2%) had incontinence to gas, 4 to liquid stool (8.5%), and 1 to solid stool (2.3%). There was no description of the seton material in their report. Recently, Vatansev et al. used the cable tie cutting seton in 32 patients with complex anal fistula and their results showed a low (15.6%) incidence of continence disorders.¹⁴ The mean duration of the seton in place was 53 days, and the healing time was not mentioned in their report.

Recent reports with regard to cutting seton are all of limited case numbers. There was no standardised procedure about the seton material, the tension of seton tightening and time interval of second procedure to remove the seton along with fistulotomy. In our study, the mean duration of the seton in place was 56 days and the mean healing time was 9.3 weeks. The continence disorders were all minor problems (gas or liquid stool incontinence). The tension of seton tightening was moderate. The recurrence rate was low. The wound was left open, so that the wound can be cleaned by water spraying or sitz baths. We consider cutting seton as safe and effective in treating complex anal fistulae.

Conclusion:

With our limited experience in a relatively small number of patients treating anorectal fistula using seton has acceptable recurrence rate with least morbidity. Though actual recurrence in the long run could not be well documented because of unavailability of the patient in follow up, a diligent long term follow up is deemed necessary.

References:

1. Van Koperen P, Bemelman W, Bossuyt P et al. The anal fistula plug versus the mucosal advancement flap for the treatment of anorectal fistula (PLUG trial). *BMC Surg* 2008; 23: 8–11.
2. Swinscoe M, Ventakasubramanian A, Jayne D. Fibrin glue for fistula-in-ano: the evidence reviewed. *Tech Coloproctol* 2005; 9: 89–94.

- 3 Safar B, Jobanputra S, Sands D, Weiss E, Nogueras J, Wexner S. Anal fistula plug: initial experience and outcomes. *Dis Colon Rectum* 2009; 52: 248–52.
- 4 Abbas M, Lemus-Rangel R, Hamadami A. Long-term outcome of endorectal advancement ûap complex anorectal fistulae. *Am Surg* 2008; 74: 921–4.
- 5 Christoforidis D, Pieh M, Madoff R, Meligren A. Treatment of transphincteric anal fistulas by endorectal ûap of collagen fistula plug: a comparative study. *Dis Colon Rectum* 2009;52: 18–22.
- 6 Adams F. On fistulae. In: Adams F, editor. *The Genuine Work of Hyppocrates*. Baltimore: Williams and Wilkins, 1939: PP 337–42.
- 7 McCourtney JS, Finlay IG. Setons in the surgical management of fistula *in ano*. *Br J Surg* 1995; 82: 448–52.
- 8 Allingham W. Treatment of fistulous sinuses by means of the elastic ligature . *Proc Med Soc Lond* 1874–5; ii: 14–25.
- 9 Haggard HW. Medicine in the days of the grand monarch. In: Gladston I, editor. *Medicine and Mankind*. New York:Appleton-Century, 1936: 72–4.
- 10 Allen JH, Haskell B. A two-stage operation for fistula-*in-ano* . *Surg Gynecol Obstet* 1934; 58: 651–4.
- 11 Goldberg SM, Garcia-Aguilar J. The cutting seton. In: Phillips RKS, Luniss PJ, editors. *Anal Fistula*. London: Chapman & Hall Medical; 1996: PP 95-102.
- 12 Garcia-Aguilar J, Belmonte C, Wong DW et al. Cutting seton versus two-stage seton _ stulotomy in the surgical management of high anal fistula *BJS* 1998; S 85:243-45
- 13 Vatansev C, Alabaz O, Tekin A et al. A new seton type for the treatment of anal fistula. *Dig Dis Sci* 2007 793-5
- 14 Pearl RK, Andrews JR, Orsay CP et al. Role of the seton in the management of anorectal fistulas. *Dis Colon Rectum* 1993; 36: 573-9.
- 15 Hamalainen KP, Sainio AP. Cutting seton for anal fistulas: high risk of minor control defects. *Dis Colon Rectum* 1997; 40:1443-7.
- 16 Isbister WH, Sanea NL. The cutting seton: an experience at King Faisal Specialist Hospital. *Dis Colon Rectum* 2001; 44: 722-7.