

THE MANAGEMENT OF FISTULA-IN-ANO, USING INDUSTRIAL CABLE-TIES AS CUTTING SETONS**Dr. Rehan Nasir Khan¹ *, Dr. Abdul Wahid Anwer² and Dr. Waseem Ali³**¹Senior Instructor, Aga Khan University.²Senior Instructor, Shaukat Khanum Memorial Cancer Hospital and Research Centre.³Consultant General Surgeon, The Indus Hospital.***Corresponding Author: Dr. Rehan Nasir Khan**

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ABSTRACT

Introduction: Fistula-in-Ano is a common surgical pathology presenting in world wide. We used simple industrial cable-ties as setons. The main advantages of this material as it is cheap, readily available and most importantly, easy to tighten in controlled fashion, thus overcoming the problem of frequent hospital visits. **Aims:** To determine the outcomes of industrial cable-ties as cutting setons, and to evaluate the efficacy, complications, and the rate of recurrence of disease. **Settings and Design:** A prospective cohort conducted at the Department of Surgery, the Indus Hospital Korangi Karachi, from September 2010 till December 2013. **Methods and Material:** Non-probability sampling technique was employed to induct the patients. All patients were followed for two years after the fall of the seton, in our outpatient clinics. Continuous data, was analysed as means (\pm Standard deviation), whereas categorical data, as percentages & proportions. **Results:** A total of 31 cases were inducted in this study; out of which 26 (83.87%) were male, and 5 (16.13%) were female. The average duration of fall of seton was found to be 65 days (4-471 days). None of the cases required a single re-visit to the operating theatre. And no incontinence or recurrence had been observed. Post operatively, pain was the only complaint; in seven (22.6 %) patients. **Conclusions:** The use of this material as a seton has proved, not only to be easy to handle, but also has reduced the visits to the operative room, and has shown to low complication and recurrence rates.

KEYWORDS: SETON. Fistula in ano. Cable-ties.**INTRODUCTION**

Fistula-in-ano is an abnormal chronic communication, lined by granulation tissue; which extends from the Ano-rectal mucosa to the skin of the perineal or peri-anal region.^[1] It is a common surgical disorder presenting in worldwide, and is believed to be first described, the ancient Greeks; along with other perianal disorders.^[2,3] This is not only a cause of physical nuisance, but also a constant strain on the patient's social life. Its commonest cause is sepsis in the anal glands, which makes its way to the surrounding tissues. Commonly, it presents with initial perianal abscess, pain, discharge (either purulent or sanguineous), and often pruritus ani. According to Park's classification^[4,5] anal fistulae can be segregated into 4 major categories depending on their location in relation to the anal sphincters; namely intersphincteric, transsphincteric, suprasphincteric, and extrasphincteric fistulae.

There are a variety of treatment options for this disorder, which chiefly depend on the type of fistula in Ano and the presenting symptom. One device that is widely used is setons. A seton is a sterile cord, inserted through the fistula, and tied outside the tract. These could be of

cutting or loose variety, depending on their mode of action, and could be composed of range of materials, varying from silk, polypropylene suture, metal wires, nylon cords or plastic bands.^[6,7] Though loose Setons are accompanied by fewer complication rates; the use of cutting Setons requires much less time to provide optimal results.^[8] Studies also show that complication rates are increased in cases with multi-tract fistulae as compared to those with single tract.^[9]

The major disadvantage is this treatment modality is dependency of the patient to follow up in outpatient clinic and of frequent admissions for the tightening of the Seton. This is inconvenient for the patient and a waste of valuable time and resources for the treating facility.

In this study, simple industrial cable-ties are used as setons. Cable ties bear a ratchet interlocking mechanism, along their length, which allows convenient and reliable tightening. The main advantages of this material as it is cheap, readily available^[10] and most importantly, easy for patients to tighten serially by themselves at home, thus overcoming the problem of frequent hospital visits during the course of treatment.

SUBJECTS AND METHODS

This prospective descriptive study conducted at the Department of Surgery, Indus Hospital Korangi Karachi. All patients were above the age of 18 years, with single tract disease were inducted into this study. Those patients with co-existing Irritable Bowel Disease, abdominal tuberculosis, ano-rectal trauma, Crohn's disease or carcinoma of colon or rectum were excluded from the induction process. The selected cases were operated from September 2010 to December 2013. Post operatively, patients were until 2 years of wound healing.

After approval from Institutional Review Board, detailed informed consent was obtained from the study participants. Each patient was allotted a specified serial number, to ensure their confidentiality.

The procedures were performed in the operative room setting, under spinal anesthesia as a day-case surgery. After proper aseptic techniques, the patients were examined in lithotomy position, and required details were recorded; including the distance of the external opening to the anal verge, anal tone, etc. the fistulae were categorized as per Park's Classification^[4,5], and Goodsall's rule^[11,12], respectively. After an initial assessment of the perineum, and perianal region, regular plain gauze (lubricated in 2% lidocaine solution) was placed in the anal canal, via proctoscope. Then, a soft feeding tube (of 5 or 6 Fr) was gently inserted through the external opening of the tract, and injected with a methylene blue solution. At this point, the liberty was taken to examine for the internal opening of the fistula, if visible. Once the tract was identified, a malleable, blunt-ended probe was introduced, and tract delineated into the anal canal. Afterwards, the skin spanning from between the two openings of the fistula was excised, thus preserving the underlying muscle fibers.

Prior to usage, standard 6" industrial cable-ties were sterilized in 2% glutaraldehyde solution. The cable-tie was then railroaded along the blunt ended probe, using the cut ends of the feeding tube. In this regard, the ties were inserted from internal opening outwards. Once the cable-tie was in place, it would be interlocked, and gently tightened, to allow the loop to rest snugly over the sphincter.

After completion of the procedure, the plain gauze which was placed in the anal canal was removed, and the wound was dressed with commercially available polymyxin ointment, and dry gauze. The patient was later discharged once sensorium was regained in lower

limb, with the advice of daily sitz bath twice daily and oral analgesics. Oral acetaminophen and diclofenac sodium were the primary analgesics prescribed for only 3 to 5 days. After discharge the patients were first followed at the 7th post-operative day, and were clinically assessed for complications and their wound status. If the cable-tie was loose, it would be tightened. Each subsequent visit was performed on a weekly basis till the fall of the seton. After the seton had fallen, the patients were followed to see for up to 2 years to see for recurrence All data will be analysed using SPSS version 17. Continuous data, such as no. of outpatient visits, and days to fall of seton, were analysed as means (\pm Standard deviation). Whereas categorical data, including gender, classification of the fistula, and location were analyzed as percentages & proportions.

RESULTS

There were 31 participants in the study. The patients' ages ranged from 19 to 70 years, with the majority of patients between 31 - 40 years (10 cases; 32.3%). twenty six (83.9%) were male, and only five (16.1%) were female. Twenty-eight (90.3 %) had no comorbidities. Purulent discharge from the wound was the most common presenting complaint; seen in 18 patients, 58.1 (%). Seven (22.6%) patients came with only a palpable lump in the perianal region, four (12.9 %) came with bloody discharge from the lesion, one (3.2%) with serous discharge, and only one (3.2 %) came with complaints pruritus ani (Table 2).

Neither of the thirty-one patients had any past history of prior anal surgery. On the other hand, of three of the female cases, had positive past obstetric history; namely one (3.2%) had a normal vaginal delivery, and two (6.4 %) had past LSCS. Transphincteric type was found to be the most common type of anal fistula, occurring in 27 (87.1 %) cases. the majority of these were anterior (23 cases, 74.2 %) favoring the characteristics of a simple of fistula, as per Goodsall's rule^[11,12] (Table 1).

The only reported complication was of pain in seven (22.6%) patients. these cases eventually became lost to follow up, and ended up getting seton removed elsewhere. the mean time to fall of seton (wound healing) was 65.87 ± 9.387 days (ranging from 4 - 140 days). there was only one outlier, to this trend, in which it took 471 days for seton to fall. All patients were followed 2 years after healing of wound. There were no reported complications, or recurrence of disease, in this duration of time (Table 3).

Table. 1: Baseline Vairables.

Characteristics		Value	Percentages
Gender			
	Male	26	83.9 %
	Female	5	16.1 %
Comorbids			
	None	28	90.4 %
	Hypertension	1	3.2 %
	Diabetes	1	3.2 %
	Both	1	3.2 %
Type of Fistula (as per Park's classification)^[1]			
	Extrasphincteric	1	3.2 %
	Transsphincteric	3	9.7 %
	Intrasphincteric	27	87.1 %
	Suprasphincteric	0	0 %
External Opening (as per Goodsall's rule)^[2,3]			
	Anterior	23	74.2 %
	Posterior	8	25.8 %
Anal Tone			
	Normal	26	83.9 %
	Increased	5	16.1 %

Table. 2: Presenting Complaints.

Characteristics	Value	Percentages
Lump	7	22.6 %
Purulent Discharge	18	58.1 %
Serous Discharge	1	3.2 %
Bloody Discharge	4	12.9 %
Itching / Pruritis ani	1	3.2 %

Table. 3: Post Operative Findings.

Characteristics	Means	Range
No. of days till wound healing	65.87 ± 93.4 days	4-471* days
No. of Clinic Visits	4.42 ± 2.8 visits	1-14 visits
Recurrence	0	
Incontinence	0	
Need for re-visit re-visit OR†	0	
* A single case had seton in place for 471 days		
† Operation Theatre		

DISCUSSION

Many years of surgical intervention have provided us with a range of surgical options for the treatment of anal fistulae. Despite which method is use, the aim of management remains the same, i.e. to close the fistulous tract, without any compromise to the patient's continence. A number of factors influence the selection of an appropriate technique in any particular case. These include severity of disease, available resources, and most importantly the surgeon's preference for a specific technique.^[6,10]

Our study was conducted to assess the feasibility of industrial cable-ties as cutting Setons, in the treatment of fistula-in-ano. Cable ties bear a number of features, which make them ideal candidates to be used as setons. They are non-allergenic, cheap, and easily available.^[10,13]

And most importantly, their specially designed interlocking mechanism grants them the added benefit of being easily tightened, in a controlled fashion.

The use of cable-ties as setons, was first described by Gurer *et al.*^[13] in this series performed on a sample size of 17 patients, they reported a mean healing time of 38.94 days, and a complication rate of up to 12 %. A similar study was performed by Vatansev *et al.*^[14], on 32 patients, showed a mean healing time of 53 days, with a 15.6 % complication rate. Both of these studies reported no recurrence of disease. A third series, conducted by Memon *et al.*^[15], focused on a larger number of cases (79 patients). Interestingly, they found no incontinence, but had a recurrence rate of 5%, and reported a mean healing time of 11.2 weeks (78 days). These results are comparable to our own, considering that despite the

difference in sample sizes, we've seen a 65.87 day mean healing time, with neither recurrence, nor evidence of incontinence in our two year follow up. Our findings of 0% incontinence can be correlated to the mechanism are which setons work. As the seton cuts through the muscle fibers, it allows adequate time for fibrosis to ensue before they can retract. This imparts to preservation of sphincter function.

Management of anal fistula with the use of setons is often as associated with myriad of complications. These can range from mild discomfort, bleeding, abscess formation, discharge (either fecal or mucoid), or even recurrence.^[16] As mentioned, the only complication faced by our cases was that of pain, which could not be relieved by routine analgesics. Unfortunately, the 7 patients (22.6 %) whom had developed these complaints, and had eventually dropped out of the study.

In accordance to Park's classification^[4,5], intersphincteric fistulae are most common type of fistula, contributing to 70% of cases. The second most common are transsphincteric lesions at 24 %, suprasphincteric at 5 %, while the extrasphincteric variety makes up only 1 % of the bunch. It is also noteworthy, that our findings compliment these statistics, with respect to intersphincteric & transsphincteric varieties at 87.1 % and 9.7 %, respectively.

It is noteworthy, that a number of alternative surgical techniques are available for treatment.^[17,18] These include fistulectomy, fistulotomy, and fibrin glue, amongst others. Fistulotomy and fistulectomy are procedures better suited for superficial fistula. Studies show that their no significant difference in terms of outcomes between the two^[19], however their impact is limited to cases in which less muscle fiber are involved. Fibrin glue does not offer any advantage over other techniques^[18], and is hampered by its high cost, and limited availability in our setting. High fistulae incorporate a significant amount of skeletal muscle, thus these are good candidates for treatment with setons.^[20,21] Though other treatment options like flaps and Ligation of intersphincteric fistula tract (LIFT)^[22] are available, these procedures are time consuming and often require a longer learning curve. Fistula laser Closing (FiLaC™)^[3,23,24] is a newer device which is now being used in more complicated fistulae, and has shown a lot of promise. One major drawback with this method however is the limited availability of such tools and expertise in third world, thus cementing the role of cutting setons in less developed Asian countries.

CONCLUSION

In conclusion, the use of industrial cable-ties as cutting setons provides an alternative to the conventional operative treatment for anal fistulae. They are safe, effective and readily available materials resulting in low morbidity. We recommended the use of these devices, as they are easy to use and management in the outpatient

clinic, and do not require frequent patient visits to the operating room. However, further comparative studies, in the patient population are required confirm its role in the management of anal fistulae.

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