

A novel material in seton treatment of fistula-in-ano

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Abstract

Fistula-in-ano is a common surgical problem. Various materials have been used to perform the seton technique in the treatment of fistula-in-ano. In this study, a novel material, a self-locking cable tie, was used regardless of the fistula type. Seventeen consecutive patients with anal fistula underwent surgery with the cutting seton technique using the novel material. Nine patients had high fistulas. The average tightening was 3.18, the mean fall-out time was 17.41 days, and the mean follow-up period was 8.2 months. No recurrences or incontinence were recorded. There are statistically significant differences between superficial and high fistula cases regarding the number of setons tightening, seton fall-out time, and complete healing time. The novel material presented here has some advantages: it is cheap, easily available, and easily applied, moreover, a gradual tightening can be performed. We think this novel material is a good choice in the treatment of fistula-in-ano. © 2007 Excerpta Medica Inc. All rights reserved.

Keywords: Seton; Anal fistula; Surgery

Anal fistula is a common disease of the perianal region and always requires surgical intervention. The shared aim of the surgical treatment options is to drain local sepsis, eradicate the fistula, and avoid recurrence while protecting sphincter function, however, the type of surgical procedure differs according to the type of fistula. Low fistulas generally are treated with a simple fistulotomy or fistulectomy, whereas seton application is generally preferred for high and complex fistulas [1].

Indeed, seton placement has been one of the oldest therapeutic tools for anal fistulas [2]. Miscellaneous materials such as rubber bands [3], Penrose drains [4], and synthetic suture materials [5–7] have been used as a seton.

To date, a very limited number of studies have investigated routine seton placement for the treatment of anal fistulas regardless of fistula type, therefore this subject still remains controversial. In the present study, we treated all anal fistula cases with a routine cutting seton technique with a novel material.

Materials and Methods

Seventeen consecutive patients who were admitted to our clinic with an anal fistula between October 2003 and No-

vember 2004 were treated with a cutting seton technique regardless of the fistula type. A new self-locking cable tie (polyamide, 2–3 × 75–200 mm; Colring Legrand, Gebze, Turkey) was used as a seton (Fig. 1). Cables were sterilized with ethylene oxide before use. All patients were informed about both the material and the technique and informed consent was obtained. No patients had specific pathologies other than cryptoglandular disease such as Crohn's disease or immune deficiency. The classification proposed by Parks et al [8] in 1976 was used for fistula type recording.

There were 12 patients with transsphincteric fistulas. The fistulous track extended around more than 50% of the external sphincter muscle in 8 patients, and extended around less than 50% in 4 patients. A suprasphincteric fistula was encountered in only 1 patient. The location of the fistula was intersphincteric in 4 patients. In total, there were 9 high and 8 low fistulas in the series.

Internal orifices were found during the preoperative examination in 12 patients. No patients had incontinence preoperatively.

Intraoperative examination under anesthesia revealed an internal opening in another 4 patients. Only 1 patient required a hydrogen peroxide injection through the external opening to find the internal orifice. The patients with low fistulas underwent surgery with topical EMLA cream (lidocaine 2.5% plus prilocaine 2.5%; Astra Zeneca, London, UK) anesthesia on an outpatient basis. Spinal anesthesia

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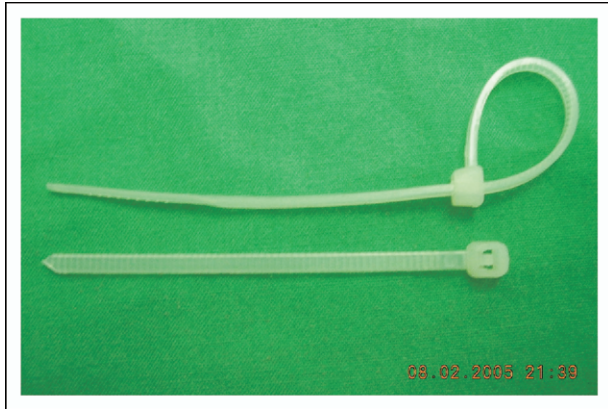


Fig. 1. Self-locking cable tie (polyamide, 2–3 × 75–200 mm; Colring Legrand).

was used in patients who had high fistulas. Seton placement was performed using a standard technique in all patients as described later.

Technique

After identifying the internal fistulous opening, an olive-tip malleable metal guide was inserted through the external orifice. A plastic intravenous infusion line was grasped at the tip of the guide and pulled outside together. By using the plastic line as a lumen, a properly sized seton could be inserted through it into the anorectum. The plastic line then was taken out and the seton was left in situ. The mucosa and skin were incised over the muscle to lock the seton around only the sphincter muscle (Fig. 2).

Postoperative follow-up evaluation

The patients who underwent surgery with local anesthesia were discharged on the same day, whereas the others stayed in the hospital for 24 hours. All patients were given an EMLA cream prescription and a warm sitz bath was recommended twice a day. All patients were seen once every 5 days for follow-up examinations. In patients in whom the seton loosened, the seton was tightened until the patient felt discomfort after topical EMLA cream application. Then the seton was locked. A visual analog scale was used for pain evaluation. A continence grading scale was used for all patients in the third postoperative month [9,10].

Statistical analysis

Data from patients' records were evaluated using the SPSS 9.0 software system (Chicago, IL). Statistical analysis was performed by chi-square test and a *P* value of less than .05 was accepted as significant.

Results

The median patient age was 41.7 years (range, 20–61 y). No difference was seen between patients with high and low fistulas (38.2 vs 44.8, *P* > .05). There were 13 male and 4 female patients. All patients had a history of perianal abscess. The mean follow-up period was 8.2 months (range, 2–15 months). No significant differences were observed between patients with high and low fistulas with regarding

to their pain and incontinence scores. On the other hand, patients with high fistulas had a significantly higher number of seton tightenings, longer seton fall-out times, and longer complete healing times (Table 1).

Comments

The principles of anal fistula treatment probably were first described by Hippocrates [2]. To date, many surgeons have reported their methods and results for this treatment. Numerous surgical techniques have been recommended, however, probably the greatest improvement in treatment was observed after the excellent anatomic classification by Parks et al [8].

Low fistulas generally are treated with a fistulotomy or fistulectomy. Nevertheless, high or complicated fistulas require more complex surgical care because of the incontinence risk secondary to the division of the sphincter. This procedure may be considered similar to that of a wire cutting through a block of ice. The ice is still adherent after division. A cutting seton slowly transects the sphincter over a number of days or weeks as a result of pressure necrosis. However, the integrity of the sphincter is not compromised [11].

Routine seton placement in anal fistulas has been reported in several recent articles [6,12,13]. Lentner and Wienert [12] reported a low recurrence rate (3.7%) and a very low incontinence rate (.9%) with a loose seton technique in low transsphincteric and intersphincteric fistulas. Nevertheless, the therapy lasted for a long time (average, 54.8 wk). This delay in treatment completion may be attributed to a loose seton technique. Recently, Theerapol et al [13] achieved complete healing within a median of 9 weeks in

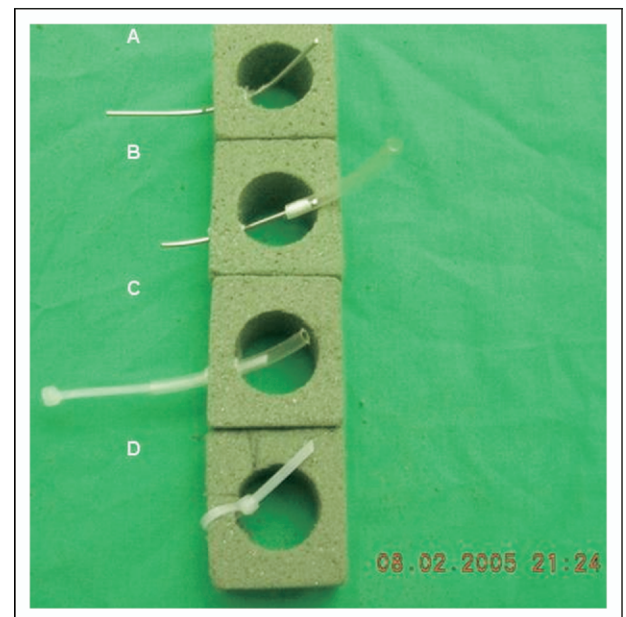


Fig. 2. Placement of cutting seton. (A) Metal guide is inserted through the external orifice. (B) Plastic line is grasped at the tip of the guide and pulled outside together. (C) By using the plastic line as a lumen, a seton is inserted through it into the anorectum. (D) After the skin is incised over the muscle, the seton is locked around only the sphincter muscle.

Table 1
Characteristics of 17 patients who were treated with a seton, and the differences between the low and high fistula groups

	Low-fistula group	High-fistula group	Overall	P
Number of patients	8	9	17	NS
Mean age, y (range)	38.2 (20–61)	44.8 (27–59)	41.7 (20–61)	NS
Pain score (range)	3 (2–4)	3.88 (1–7)	3.47 (1–7)	NS
Incontinence score (range)	.25 (0–1)	.66 (0–3)	.47 (0–3)	NS
Tightening number (range)	2.38 (2–4)	3.89 (3–5)	3.18 (2–5)	<.05
Fall-out time, d (range)	12.5 (7–22)	21.77 (16–45)	17.41 (7–45)	<.05
Complete healing time, d (range)	25.37 (15–36)	51 (27–90)	38.94 (15–90)	<.05
Complications, %	12.50	11.11	11.76	NS

NS = nonsignificant.

90% of the patients by using a double-seton (cutting and drainage) technique. Misra and Kapur [6], in 1988, reported their results on a cutting seton technique on an outpatient basis using stainless steel wire. The series comprised both low fistulas and high horseshoe fistulas. The overall healing time was 3.6 weeks; only 2 recurrences were seen and none of the patients experienced temporary or permanent incontinence. The mean healing time in the present study (38.9 d) was shorter than that of Lentner and Wienert [12] and Theerapol et al [3] and similar to the healing time in the series of Misra and Kapur [6].

Several different incontinence severity scoring systems have been described in the literature for patients with anal fistulas treated either with seton replacement [9] or with a fistulotomy [14]. In the present study, posttreatment incontinence scores were low in both the low fistula and high fistula groups, without any significant differences. However, because the mean follow-up period was obviously quite short in the present study, it is difficult to discuss our results with respect to the recurrence rate.

A self-locking cable tie has some advantages: it is cheap, easily available, and easily applied. Moreover, a gradual and controlled tightening can be performed. Because a self-locking cable tie is sold in various diameters and lengths, its use in all fistula cases is possible. Generally, the finer sizes should be preferred. We have mostly used cable ties of 2 to 3 mm in thickness.

Routine seton placement regardless of fistula type has a low incontinence rate. Although various materials could be used as a seton, the novel material presented here provided the surgeon with a gradual and controlled tightening of the

seton. Therefore, we think this novel material is a good choice for use in seton treatment.

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