

## Original Article

# Cutting Seton Fistulotomy for the Management of High Anal Fistula: Prospective Evaluation of Clinical Results in Yaoundé

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## ABSTRACT

### Background

High anal fistulas require multiple operations and the use of sphincter sparing techniques. All these are expensive for patients living in developing countries like ours. Thus, the use of cutting seton is the main surgical method practiced here. The objective of this study was to evaluate its clinical outcomes in high anal fistula.

### Patients and methods

We conducted a prospective study of patients undergoing cutting seton fistulotomy for high anal fistula. Preoperative and postoperative evaluation included anamnesis, clinical examination and anoscopy. Fecal continence was assessed using the Pescatori continence score (0 to 6).

### Results

We registered 19 high transsphincteric fistulas and 1 supratrasphincteric fistula. Nine patients reported varying degrees of earlier faecal incontinence. Their mean continence score decreased from 2.8 to 2.1 ( $p = 0.111$ ). It decreased from 2 to 1.5 ( $p = 0.495$ ) in the diabetic patients and increased from 2.3 to 3.3 ( $p = 0.225$ ) in HIV+ patients while in HIV- patients, we noted an amelioration from 1.1 to 0.6 ( $p = 0.049$ ). There was no difference between pre- and postoperative values of continence in fully continent patients, although 1 patient reported minor alterations of continence (Pescatori score = 2). Healing was achieved in 17 patients with 1 case of recurrence.

### Conclusion

The use of cutting seton in high anal fistula is an effective technique. It improves continence in incontinent patients and respects that of continent patients with a long lasting resolution of the problem of suppuration.

**Key words.** Complex anal fistula, Cutting seton, Fistulotomy

## INTRODUCTION

The treatment of anal fistula remains a challenge for practitioners ever since. Recurrence and incontinence are the two main complications of its surgical treatment. The recurrence can usually be treated by iterative operations, but many interventions could lead to incontinence [1]. The surgeon must bear in mind a balance between an aggressive attitude that ensures healing at the price of continence alteration and a protective attitude, which, preserving continence makes the bed of the persistence or recurrence of suppuration [2]. If simple or low anal fistulae can be treated in a single fistulotomy procedure with recurrence and faecal incontinence rates being low, the management of complex or high anal fistulae runs the risk of faecal incontinence [3]. The degree of incontinence depends on the amount of damaged muscle, pre-existing sphincter damage, and scarring of the anal canal [4]. To preserve the sphincter muscle, multiple operations or anal sphincter sparing techniques are required [5]. Their success rate approximates 40-70% and they often require multiple operations and the use of

additional surgical techniques [6]. These techniques and multiple procedures are expensive for patients living in developing countries like ours. The use of seton in a cutting mode that allows a gradual and slow cutting of anal sphincter could be an alternative. Theoretically, progressive sectioning of anal sphincter by a seton avoids the occurrence of anal incontinence, but this is not often the case in practice with incontinence up to 18-54% in some studies [7-9]. In addition, morbidity related to the pain caused by the progressive tightening of the system, numerous visits to the surgeon office and delayed healing are that this technique is less popular with patients. Thus, several authors did not longer recommend this technique systematically [10]. Despite these results and recommendations, cutting seton remains the only method used for the treatment of complex anal fistula in our health facilities in general and Yaoundé Central Hospital in particular. Therefore, we proposed to evaluate clinical outcomes.

## PATIENTS AND METHODS

### Patient selection

A standardized data collection sheet was used to record demographic characteristics, including age and gender, operative findings and procedures, and surgical outcomes for prospective analysis. Patients with fistulas secondary to inflammatory bowel disease, past or present history of anal tumour, anorectal malformation, and trauma were excluded from the study. Anuscopy was systematically done to eliminate anal tumor or any other anal condition. The rest of the evaluation sought comorbidities such as obesity, diabetes and HIV infection. The treatment method was decided on during the operation based on the relationship of the fistulous tract with the sphincter muscles. Patients with intersphincteric fistula or low transsphincteric fistula, interesting less than half of sphincter muscle, undergone one stage fistulotomy and were also excluded from the study. Elastic cutting seton was used for fistula with main tract involving more than half of the sphincter muscles or an anterior transsphincteric fistula in a female patient.

### Surgery

An experienced digestive surgeon performed all operations. All operations were performed under spinal anaesthesia with the patient in the prone jack-knife position. In terms of operative procedure, we proceeded to the catheterization of the main fistulous tract with a small, blunt-tipped, flexible metal probe. The extrasphincteric tract was then excised, with the incision continuing along the anal mucosa to the inner orifice, allowing us to isolate the sphincter muscles (internal and external). The seton in the form of a thin circular rubber was passed through the sphincter tract and tied with tension by a 2/0 nylon suture around the free edge of the sphincters. Secondary tracts were systematically sought out and treated during the same operation. In case of purulent or mucopurulent discharges, elastic loops were placed for drainage (Figure 1).



**Figure 1:** Complex anal fistula:

A = operative picture, B = postoperative picture (day 4)

Postoperatively, all patients received analgesics and paraffin-based laxatives. A normal diet was started the same day and gentle cleaning of the anal region with warm water three times a day and after each bowel movement was advised. Antibiotic treatment was administered in the presence of purulent or mucopurulent discharges. The patients were informed in detail about

the presence of the rubbers. In the absence of complications, the patient came out with different rubber prosthesis (seton, drains) on the second postoperative day.

### Postoperative evaluation

The patients were regularly seen every 7 to 14 days until complete healing. The seton was gradually tightened and in case of excessive scarring, the lesions were burned using silver nitrate. The days required for the seton to drop and the duration of drainage were recorded, as well as complications and complete healing rates. Remote, patients were reviewed at three, six and twelve months to assess anal continence and exclude any recurrence. Anal incontinence was evaluated using the Pescatori continence score (Table 1) [11].

**Table 1:** Pescatori anal continence score [11]

A: Gas or mucus loss	B: Loss of liquid stools	C: Loss of solid stools
1: Occasional losses	2: Weekly losses	3: Daily losses

*Incontinence can be assessed:*

- Qualitatively by a letter and a number (For example: B1 = occasional incontinence to liquid stools, etc ...).

- Quantitatively by a numerical total of from 0 to 6 (A corresponding to 1, B to 2 and C to 3 points)

(Example: 0 = normal continence, 3 = occasional incontinence to liquid stools, 6 = daily incontinence to solid stools, etc ...).

Recurrence was defined as reappearance of the fistula or development of an additional fistula at or close to the original tract while persistence was defined as continuous purulent discharge several weeks after the drop of the seton. The study received approval from the Ethics Committee of the University of Yaoundé I.

### Statistical analysis

The results were analysed using SPSS software. The data are expressed as mean  $\pm$  standard deviation. Fisher and Wilcoxon tests were used for comparison of different sub-groups,  $p < 0.05$  was considered statistically significant.

### RESULTS

Twenty patients were included in the study for a 30-month average period of follow up. Their average age was  $46.9 \pm 12.8$  (24-71) years, 17 were men and 3 women with a sex ratio of 5.7. Four patients were diabetic, 15 had overweight and 7 were obese. HIV infection was found in 3 patients. Seven patients presented with recurrent fistula.

Upon consultation, the symptoms evolved since  $11.9 \pm 9$  (2-36) months. The external orifice was multiple in 12 patients with a case of horseshoe fistula. Nine patients already had continence disorders of varying degree preoperatively, with an average Pescatori continence score of  $2.8 \pm 0.7$  (0-4). Three of these patients had recurrent fistula.

During the surgery, a single primary orifice was identified in 19 subjects, a subject having presented two distinct primary orifices. The main fistula tract was correctly identified in all patients and we found 19 high transsphincteric fistulae and 1 suprasphincteric fistula.

Secondary tracts and purulent collections have been identified in 15 subjects. A case of horseshoe fistula was found. Purulent collections drainage was carried out in 10 subjects and haemorrhoidectomy in two others.

The average hospital stay was  $10.2 \pm 13.4$  (2-60) days. The drainage was maintained  $35.1 \pm 17.8$  (14-56) days and the seton remained in place  $32 \pm 7.4$  (18 to 49) days. At the end of follow up, 17 patients were completely healed within  $79.2 \pm 56.8$  (35 to 245) days. The scar had a normal aspect in 12 patients. It had a depression in three subjects and was hypertrophic in two others. We noted a slight anal deformation in two patients.

### Postoperative continence (Table 2).

The average Pescatori continence score decreased from 1.3 to 1.1 ( $p = 0.359$ ). In patients initially continents or with primary fistula, we did not notice any difference between pre- and postoperative values of continence score ( $p$  of 0.341 and 0.794 respectively), however, one patient reported minor continence disorders after the surgery (Pescatori = 2). A non-significant improvement in continence was observed in initially incontinent patients with Pescatori score decreasing from 2.8 to 2.1 ( $p = 0.111$ ) and in those with recurrent fistula, score of 1.3 to 0.9 ( $p = 0.374$ ). We noted a deterioration of continence but not significantly in HIV-positive patients with a score of continence increasing from 2.3 to 3.3 ( $p = 0.225$ ). For against, HIV-negative patients reported a significant improvement in continence of 1.1 to 0.6 ( $p = 0.049$ ). Other factors such as obesity, diabetes and the presence of multiple tracts do not adversely affect the continence of our patients.

**Table 2:** Pescatori continence score before and after the surgery

Variables	Pescatori continence score (0 to 6)		
	Before surgery	After surgery	P
<b>Primary fistulae versus recurrent fistulae</b>			
Primary (n = 13)	1.2	1.2	0.794
Recurrent (n = 7)	1.3	0.9	0.374
<b>Continent patients versus incontinent patients</b>			
Continent (n = 11)	0	0.2	0.341
Incontinent (n = 9)	2.8	2.1	0.111
<b>HIV positives versus HIV negatives</b>			
HIV + (n = 3)	2.3	3.3	0.225
HIV - (n = 17)	1.1	0.6	0.049
<b>Diabetic versus non diabetic</b>			
Diabetic (n = 4)	2	1.5	0.495
Non diabetic (n = 16)	1.1	0.9	0.580
<b>Obese versus nonobese</b>			
Obese (n = 7)	2	1.1	0.045
Non obese (n = 13)	0.9	1	0.502
<b>Multiple tracts versus unique tract</b>			
Unique tract (n = 5)	0	0.4	0.374
Multiple tracts (n = 15)	1.7	1.3	0.111
Total (n = 20)	1.3	1.1	0.359

### Recurrence and persistence of symptoms (Table 3)

Three HIV positive patients have not healed after monitoring despite strict follow up. Because of their poor condition and their immune status, no additional treatment was undertaken during the study period. One

patient had recurrence after a period of six months. This was a woman with primary anterior fistula without continence disorders. A second operation was carried out eight months after the first with complete healing 3 months later without major functional and aesthetic sequels. Diabetes and obesity do not influence the postoperative course of suppuration in our series.

**Table 3:** Persistence and recurrence of the suppuration after the surgery

Variables	Persistence/Recurrence				P
	Yes		No		
	n	%	n	%	
<b>Primary fistulae versus recurrent fistulae</b>					
Primary (n = 13)	3	75	10	62.5	0.639
Recurrent (n = 7)	1	25	6	37.5	
<b>HIV positives versus HIV negatives</b>					
HIV + (n = 3)	3	75	0	0	0.000
HIV - (n = 17)	1	25	16	100	
<b>Diabetic versus non diabetic</b>					
Diabetic (n = 4)	1	25	3	18.7	0.780
No diabetes (n = 16)	3	75	13	81.3	
<b>Obese versus nonobese</b>					
Obese (n = 7)	1	25	6	37.5	0.639
Non obese (n = 13)	3	75	10	62.5	
<b>Multiple tracts versus unique tract</b>					
Unique (n = 5)	1	25	4	25	1.000
Multiple (n = 15)	3	75	12	75	
Total (n = 20)	4		16		

## DISCUSSION

The treatment of anal fistula has always been a challenge for practitioners. Recurrence and incontinence are the two main complications of surgical treatment of fistula. Their frequency varies according to the authors (Table 4). The recurrence can usually be treated by iterative operations, but many interventions could lead to incontinence [1]. The surgeon must bear in mind a balance between an aggressive attitude that ensures healing at the price of continence alteration and a protective attitude that, preserving continence, makes the bed of the persistence or recurrence of suppuration [2]. In this case, the use of other surgical procedures is often necessary [2].

The standard treatment for anal fistula involves fistulotomy or fistulectomy. In some cases, because of the very high risk of continence disorders, it cannot be conducted at one time. This separation of the operating time is indicated in cases of high or complex fistula, anterior localization in women, multiple tracts, chronic diarrhoea, pre-existing sphincter injury [5]. It allows not increase the risk of incontinence, compared with that obtained after division in a time of a low fistula [5]. The progressive sectioning of sphincter by a seton leads also to incontinence in 18 to 54% according to some authors [7-9]. To limit this risk, sphincter-sparing techniques have been developed. Nevertheless, they have a success rate of 40-70% and often require multiple operations and the use of additional surgical techniques [6].

The usefulness of cutting seton has been clearly established. However, some large series have reported a

utilization rate of this technique approximately 10% [16]. Cariati used this technique in 80% of 165 patients in his series, representing 100% of patients with high anal fistula [16]. Mentès et al. have also used a cutting seton at 100% of their patients and conclude that the cutting seton may be a valid alternative for the treatment of high anal fistulas [17].

The high rate of continence disorders in our study could be explained partly by the fact that we included initially incontinent patients in the study and by the different criteria used by the authors to define incontinence. Indeed, clinical evaluation of continence is very subjective, despite the use of sophisticated scores. It should use other methods, such as manometry, which are much more objective in assessing sphincter pressures. However, in their study evaluating clinical and manometric results after surgical treatment of 35 complex fistulae, Perez et al. found clinical profiles of continence quite superimposable to manometric data before and after surgery [18]. We observed no cases of major incontinence and one case of minor incontinence in our continent subjects. This rate approximates those of several authors in the literature (Table 4).

**Table 4:** Results of cutting seton in the treatment of anal fistula

Authors (year)	Number of subjects	Incontinence N (%)	Recurrence N (%)
Pearl (1993) [12]	92	5(5,4)	3 (3,3)
Hämätäinen (1997) [1]	44 (35 followed up)	22 (63)	2 (5,7)
Kouadio (2003) [13]	22	0 (0)	10 (45,5)
Zbar (2003) [14]	16	2 (12,5)	1 (6,25)
Chatterjee (2009) [15]	16	1 (6,25)	1 (6,25)
Memon (2011) [10]	79	0 (0)	4 (5)
Cariati (2013) [16]	165	5 (3)	19 (11,5)
Ege (2014) [4]	128	7 (5,46)	2 (1,5)

The recurrence rate obtained is similar to those of several series in the literature. However, Pearl [12] and Ege [4] with larger samples reported lower recurrence rates. The symptoms persisted in the three HIV positive patients. Kouadio et al. found rates of wound infection, delayed wound healing and recurrence higher in HIV patients

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than in healthy subjects [13]. This trend was also reported by Nadal et al. who obtained recurrence rate and higher delayed healing in C3 HIV patients [19]. This could be related to immunosuppression, but also to the modification of the anatomy of the anal fistula during HIV infection. Indeed, as demonstrated by Manookian et al., anal fistulae during HIV infection are often incomplete with blind cavities [20]. These can maintain the suppuration and cause persistence or recurrent of the infection. However, Muñoz-Villasmil et al. have published healing, incontinence and recurrence rates similar to the general population in a population of 60 immunocompromised patients (HIV, digestive tract inflammatory diseases on steroids, malignant tumors and diabetes) [ 21]. In our study, some comorbidities such as diabetes and obesity do not influence the postoperative course of the suppuration, although in one study, Schwandner et al. have shown a negative impact of obesity in the fistulas prognosis [22]. Wang et al. meanwhile, reported the excess weight and diabetes as independent risk factors [23].

These differences with certain series in the literature may be related to the small size of our sample that allows us no conclusion or abusive generalization of the results. However, a better knowledge of these comorbidities and their impact on the prognosis of the disease and careful monitoring of these patients could improve treatment outcomes.

## CONCLUSION

The cutting seton is effective in the treatment of complex anal fistula. It provides a long lasting resolution of the problem of suppuration without major aesthetic disorders and respects continence of patients.

## COMPETING INTERESTS

The authors declare no competing interests

## AUTHOR'S CONTRIBUTION

All persons designated as authors above, qualify for authorship, they took active part in the management of these patients and write up of this manuscript. All authors have read and agreed to the final manuscript.

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