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ORIGINAL ARTICLE

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Anal dilatation versus left lateral sphincterotomy for chronic anal fissure: a prospective randomized study

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Abstract Background Several surgical methods are accepted for the treatment of chronic anal fissure. The most popular are anal dilatation (AD) and left lateral sphincterotomy (LLS). The objective of the current study was to prospectively evaluate the results of these two procedures in terms of recurrence rate, complications and patient satisfaction. **Methods** The study enrolled all patients who required operation for chronic anal fissure in the Division of General Surgery, Campus Golda, Rabin Medical Center, between the years 1997 and 2001. Exclusion criteria were acute anal fissure or inflammatory bowel disease. **Results** A total of 108 patients participated in the study, at an average age of 42.4 years (SD=12.5). The patients were randomly assigned to two groups; one for LLS (53 patients, 49.1%) and one for AD (55 patients, 50.9%). The study protocol included a questionnaire and a physical examination performed 1, 2, 3, 6 and 12 months after operation. The questionnaire contained questions about pain, bloody stool, incontinence for gas, fluid or hard feces, during the day or night, and soiling. The patients were also asked about their satisfaction on an analog scale from 1 to 10. The average follow-up was 11.2 months (SD=4.1). Minor incontinence occurred in 8 patients of AD group and in 2 patients of LLS group ($p<0.005$). Recurrence occurred in 6 cases of the AD group and in one case of the LLS group ($p<0.003$). Satisfaction score was insignificantly higher in the LLS group (9.1±0.8 in the LLS group and 7.4±2.0 in the AD group). **Conclusions** These results suggest that LLS is the preferred method for the treatment for chronic anal fissure.

Key words Anal dilatation • Left lateral sphincterectomy • Chronic anal fissure • Incontinence • Satisfaction

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Introduction

Anal fissure is a small split or tear in the anal mucosa that may cause painful bowel movements, bleeding with streaks of blood on the outside of the stool, or blood on the toilet tissue [1]. Treatment of anal fissure can be either surgical or pharmacological, such as topical sphincter relaxant or botulinium toxin injection, combined with adequate fluid and fiber intake. Healing of chronic fissure by conservative treatment occurs in about 50% of the patients. Surgical treatment is associated with the highest likelihood of prompt healing and the lowest risk for recurrence, and since the chances for incontinence are very low, this is usually the best treatment for most cases chronic anal fissure [2].

Several surgical methods are accepted for the treatment of chronic anal fissure. Some of the most popular are anal dilatation (AD) and left lateral sphincterotomy (LLS), which was introduced by Eisenhammer in 1959 [3]. LLS is considered today the treatment of choice for anal fissure.

The objective of the current study was to prospectively evaluate the results of these two procedures in terms of recurrence rate, complications and patients' satisfaction.

Patients and methods

The study enrolled all patients who were operated for chronic anal fissure in the Division of General Surgery, Campus Golda, Rabin Medical Center, between the years 1997 and 2001. Exclusion criteria were inflammatory bowel disease and other associated anorectal pathology. The study was approved by local ethics committee, and all participants provided written informed consent before participation in the study.

The study protocol included a questionnaire and a physical examination performed 1, 2, 3, 6 and 12 months after operation. The questionnaire contained questions about pain, bloody stool, incontinence for gas, fluid or hard feces, during the day or night, and soiling. The patients were also asked about their satisfaction on an analog scale in which 1 represents …… and 10 indicates …….

Patients were randomly assigned for either anal dilatation or left central sphincterectomy based on the last digit of their identification number (ID). Both procedures were performed under general anesthesia with the patient in the lithotomy position. AD was performed with four fingers for 4 minutes. Left central sphincterectomy was performed using a closed procedure and a no. 11 surgical blade. Cut length was 1 cm.

Statistical analysis was based on Student's *t* test and on A-parametric tests as adequate. Power analysis was not performed. Statistical significance was set on p=0.05.

Results

A total of 108 patients participated in the study, at an average age of 42.4 years (SD=12.5 years). The patients were randomly assigned to two groups: one for LLS (53 patients, 49.1%) and one for AD (55 patients, 50.9%). Age and sex were similar between the two groups.

The average follow-up was 11.2 months (SD=4.1; range, 6–12 months). Minor incontinence (soiling or unintentional leak of feces) was reported by significantly more patients of the AD group than the LLS group (Table 1). Recurrence occurred in 6 cases (11%) of the AD group and in one case (2%) of the LLS group (p<0.003). Satisfaction score was higher in the LLS group (9.1 vs. 7.4 in the AD group), but this difference was not significant.

Discussion

Chronic anal fissure has traditionally been treated by surgery once conservative measures failed. Lateral internal anal sphincterotomy is the standard treatment for chronic anal fissures. This treatment as well as other treatment modalities such as AD are based on the suggested etiology of anal fissure, that is internal sphincter hypertonia [4–6].

Several adverse reactions have been documented in patients who had LLS. Postoperative impairment is not uncommon, and some degree of incontinence was documented in up to 35% of cases [7]. Yet, in most cases the incontinence was only temporary [8–10].

In the current study, after a follow-up period of about one year, minor incontinence was significantly more prevalent in the AD group than in the LLS group, supporting results of previous studies [11, 12]. Anal dilatation is associated with uncontrolled tearing of the internal sphincter muscle and in some cases portions of the external anal sphincter may also be damaged [13–15]. Incontinence is a possible outcome of such uncontrolled tearing, and reached as high as 27% of the patients in the study of McDonald et al. [15].

Only few studies documented the healing process following LLS. McNamara et al. [16] demonstrated that the resting pressure of the anal sphincter returned to normal values 5 months after the procedure. We previously reported that, one year following LLS, there was still a significant reduction in the pressure of the internal anal sphincter, although somewhat higher than the normal pressure [8]. These results can explain the low recurrence rate in the LLS group: only 1 of 53 patients in this group reported a recurrence in the follow-up period.

When comparing AD to LLS in terms of manometric evaluation, Hiltunen and Matikainen [17] found that after 2 months the basal pressure was significantly lower in all patients who went through LLS, but there were 4 failures among the 19 patients who went through AD. These findings support the results of the current study in which recurrence was significantly more prevalent in the AD group.

Table 1 Post-surgical results for patients in the anal dilatation (AD) and left lateral sphincterotomy (LLS) groups

	AD (n=55)	LLS (n=53)	*p* value
Minor incontinence, n (%)	8 (15)	2 (4)	<0.0005
Major incontinence, n (%)	0 (0)	0 (0)	NS
Patient satisfaction score[a]	7.4 (2.0)	9.1 (0.8)	NS
Pain, n (%)	1 (2)	0 (0)	NS
Recurrence, n (%)	6 (11)	1 (2)	0.003
Bleeding, n (%)	1 (2)	2 (4)	NS

AD, anal dilatation; *LLS*, left lateral sphincterotomy; *NS*, not significant; [a] mean (SD)

Not surprisingly, satisfaction rate was higher among patients in the LLS group. These results are in agreement with those of Mentes et al. [18], who reported high quality of life following LLS, regardless of complications.

To conclude, the current study, with an average follow-up of 11.2 months, suggests that LLS is the preferred treatment for chronic anal fissure. Anal dilatation should not be performed as the standard procedure for chronic anal fissure.

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