The American Journal of Surgery 194 (2007) 13–16
Clinical surgery–International

Internal anal sphincterolysis for chronic anal fissure: a prospective, clinical, and manometric study

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Manuscript received July 14, 2006; revised manuscript November 7, 2006

Abstract

Background: The author proposes a technique of finger fragmentation of internal anal sphincter fibers to relieve anal sphincter spasm in patients with chronic anal fissures. This prospective study evaluates the clinical and functional outcome in a group of patients with chronic anal fissures.

Materials and methods: Forty-five patients suffering from chronic anal fissure underwent the procedure termed "sphincterolysis." Anal manometry was performed prior to and at 6 and 24 months after treatment. Anal incontinence was evaluated by means of a continence score. Patients were asked to rate the level of satisfaction at the last follow-up.

Results: Forty-four patients completed the study. Symptom control was achieved in 7. 4 ± 3 days in 91% patients whose fissures had healed when examined 4 weeks after the procedure. In 38 of these patients, pain was relieved at the time of first postoperative defecation. Recurrence of fissure was observed in 1 patient at the 6-month follow-up. Three patients had minor continence disturbances, which resolved within 6 months. Anal manometry before and after the procedure showed a significant reduction in mean resting pressure (MRP) ($P < .001$), while the maximum squeeze pressure before and after the treatment did not reached a statistically significant reduction. As regards satisfaction grading, 79.5% of patients were highly satisfied with the procedure, while another 16% of patients rated the procedure as good.

Conclusion: Internal anal sphincterolysis seems to be an effective, safe and easy procedure, which decreases anal resting pressure and achieves good symptom control with high patient satisfaction.

Keywords: Anal fissure; Manometry; Continence; Sphincterolysis; Internal sphincter

Anal fissure is a lesion involving the distal portion of the anal canal; its etiology has not been completely clarified. The initiation of the lesion is generally attributed to local trauma caused by passage of hard stool, forced evacuation, etc, which becomes intensified due to persistent hypertonia of the internal anal sphincter and translates into raised manometric values of mean resting pressure (MRP), associated with a decrease in posterior blood flow [1].

The treatment of acute fissures is conservative, whereas surgery is indicated for chronic anal fissures. Surgical sphincterotomy has been widely accepted as the treatment of choice for chronic anal fissures, resulting in healing in more than 90% of patients.

However, surgical sphincterotomy may be followed by soiling in a significant number of patients. Both V-Y advancement flaps and island flaps have been used with encouraging results in small series [2].

Among more conservative procedures, chemical sphincterotomy with glyceryl trinitrate ointment has shown results comparable to those achieved with placebo and may produce recurrence rates up to 50% [3]. Internal and external sphincters also may be paralyzed with botulinum toxin, which thus may be effective for anal fissure, possibly more so than glyceryl trinitrate. However, there are concerns regarding the cost, toxicity, and long-term atrophy of the external anal sphincter [4].

We invented a new technique of finger fragmentation of the fibers of the internal sphincter at the left lateral side of the anal canal and termed it "sphincterolysis" [5]. A retrospective pilot study on this technique has already been published and this study is being presented as a prospective trial to analyze the manometric and clinical results (effectiveness and patient satisfaction) of sphincterolysis in the treatment of chronic anal fissure with a 2-year follow-up.

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0002-9610/07/$ – see front matter
doi:10.1016/j.amjsurg.2006.11.020

Materials and Methods

Between July 2003 and March 2004, a series of 45 patients with chronic anal fissures were enrolled in this study. The patients were diagnosed as having chronic anal fissure with the associated clinical features, such as undermined edges, visible fibers of internal sphincter at the base, hypertrophied anal papillae or anal skin tag, and anal spasm (anal resting pressure >70 mm Hg at manometry).

The exclusion criteria were: associated anal pathologies (incontinence, stenosis, abscess, fistula, or hemorrhoids), patients with associated conditions (inflammatory bowel disease, acquired immunodeficiency syndrome, immunosuppression, or pregnancy), or those who in the past had undergone surgery for anal lesions.

The study received ethical approval and each patient provided written informed consent before study participation.

Information regarding age, sex, symptoms, bowel habits, examination findings, and manometric values were collected at the time of admission. Early and late complications, fissure healing, and recurrence were collected at the time of admission and thereafter were noted at follow-up visits 4 weeks, 6 months, and 2 years after the procdure. Healing was defined as complete re-epithelization of the fissure and absence of symptoms.

Anal incontinence, when present, was assessed by means of a scoring and grading system as described by Pescatori et al [6]: A, incontinence for flatus and mucus; B, liquid stool; C, solid stool; and 1 for occasional, 2 for weekly, and 3 for daily. A = 1, B = 2, C = 3. The score for the worst incontinence, or C3, is 6.

The patients also underwent functional evaluation of anal sphincter by means of anorectal manometry performed before and after surgery.

Anorectal manometry was performed using a twice-distilled water perfusion system with a 6-lumen catheter having radially arranged ports in cross-section. Pressures were recorded by means of a pressure transducer situated within each infusion line and connected to a chart recorder. With the patient in the left lateral position with flexed hips and knees, the probe was introduced into the anal canal up to 6 cm and withdrawn at 1-cm intervals, in order to record during such withdrawal the MRP and maximum squeeze pressure (MSP).

Operative procedure

Patients were operated under a short-term general anesthesia. With the patient lying in the lithotomy position, the right index finger was introduced in the anal canal to explore the sphincter complex. An Eisenhammer retractor was then introduced in the anal canal and its blades were opened in anteroposterior direction of the anus to make the sphincter fibers prominent and to sense their presence with the finger on left lateral wall of the anal canal. The point of the finger was placed within the anal canal corresponding to the inter-sphincteric groove. Then by means of delicate but firm pressure over the stand out fibers of the internal sphincter just below the intersphincteric groove, the fibers were fractured and the finger was progressively retracted. This exerted a cautious, gentle but firm direct pressure on the mucosa to ease the full-thickness division of the sphincter fibers while carefully avoiding breaching the anal mucosa.

As the desired division was accomplished, a "give" on the sphincter could be clearly palpated. Hypertrophied anal papillae and sentinel piles, if present, were removed.

The patients were discharged on the same day with instructions regarding high-residue diet, laxatives, analgesics, and warm water sitz bath.

Following sphincterolysis, patients underwent a proctologic examination at 4 weeks' follow-up. Anal manometry was performed 6 and 24 months after surgery. Patients were asked to rate the level of satisfaction as high, good or low at the last follow-up.

Statistical analysis

The data were analyzed using standard statistical methods and results were expressed as mean ± SD. The differences between pretreatment and post-treatment manometric data were analyzed by *t* test. The difference was considered statistically significant at $P < .05$.

Results

The characteristic of the population studied was as follows. The mean age of presentation was 32.5 years (range 15 to 63 years); there were 19 females and 25 males and the mean duration of symptoms was 24 months (range 4 to 37 months). The patient demographics along with the presentation symptoms are given in Table 1.

Postoperative mortality was nil. Perianal ecchymosis and hematoma were observed in 3 patients. No treatment was needed. No anal sepsis was observed.

Symptom control was achieved in 7. 4 ± 3 days in 41 patients (91%) and their fissures healed when examined 4 weeks after the procedure. In 38 patients, pain was relieved at the time of first post-sphincterolysis defecation. Of the remaining 4 patients (4/45; 9%), the fissures in 3 patients took 2 months for complete healing. The fourth patient was lost to follow-up.

Recurrence of fissure was observed in 1 of the 44 patients at the 6-month-follow-up visit. He had an increased anal resting pressure of 91 mm Hg at manometry, so sphincterolysis was repeated. The patient was symptom-free 18 months after the second procedure.

Table 1
Patient demographics and presentation symptoms

	Patients under study
Characteristics	
Mean age (y)	32.5
Gender (men/women)	25/19
Duration of symptoms (mo)	24 (range 4–37)
Symptoms	
Pain	44
Bleeding	27
Sentinel tags	22
Pruritus	13
Discharge	3
Site of fissure	
Posterior midline	36
Anterior midline	6
Bilateral	2