

Closed anal sphincter manipulation technique for chronic anal fissure

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Fecha recibido: 1 noviembre 2007 • Fecha aprobado: 26 marzo 2008

Abstract

Background: *The author describes a technique of closed manipulation of the fibers of the internal anal sphincter to relieve anal spasm in patients with chronic anal fissures.*

Patients and methods: *301 patients with chronic anal fissures treated with this technique were enrolled for the study. Preoperative and postoperative anal manometry was recorded. An independent observer assessed postoperative course and early and 24-month follow-up results.*

Results: *Fissure healing and relief of symptoms was observed in 97% of patients at the first follow-up at 4 week. The notable complications included ecchymosis, hematoma and submucous abscess. 284 patients achieved complete healing within 4 weeks. The remaining 17 needed 4 more weeks for the fissures to heal. Mean resting pressure before the procedure was 89.5 mmHg and it was recorded as 47.3 ± 4.3 at 6-month follow-up ($p < 0.001$). Two of the patients had persisting complaint of incontinence to flatus.*

Conclusion: *Manipulation of internal anal sphincter is an easy, safe and effective procedure for the treatment of chronic anal fissure.*

Key words: *anal fissure, Internal sphincterotomy, incontinence, anal sphincter.*

Resumen

Antecedentes. *El autor describe una técnica para la manipulación cerrada de las fibras del esfínter anal interno, para aliviar el espasmo anal en pacientes con fisuras anales crónicas.*

Pacientes y métodos: *Fueron incluidos 301 pacientes tratados con esta técnica, por fisuras anales crónicas. Se registraron las manometrías anales pre y postquirúrgicas de los mismos. Un observador independiente asentó el curso postoperatorio temprano así como los resultados del seguimiento a 24 meses.*

Resultados: *En 97% de los pacientes fue observado alivio y resolución de sus síntomas en su primera revisión a las 4 semanas. Las complicaciones más notorias fueron equimosis, hematoma y absceso submucoso. 284 pacientes mostraron completo alivio durante las primeras 4 semanas. Los 17 restantes requirieron de 4 semanas más para que la fisura sanara. La presión anal promedio de reposo antes del procedimiento fue de 89.5 mmHg. A los 6 meses de seguimiento resultaron de $47.3 \pm 4,3$ ($p < 0.001$). Dos de los pacientes mantuvieron incontinencia a los flatos.*

Conclusión: *El procedimiento de manipulación interna del esfínter anal interno es sencillo, seguro y efectivo para el tratamiento de la fisura anal crónica.*

Palabras clave: *fisura anal, esfínterotomía interna, incontinencia, esfínter anal.*

Introduction

Anal fissure is a common problem and is associated with severe pain and rectal bleeding. It is a longitudinal or elliptical ischemic ulcer in the anoderm, extending below the dentate line to the anal verge.¹ One of the many suggested causes of anal fissure is high anal resting pressure, which in turn causes elevation of the tone of the internal anal sphincter and relief of this internal anal sphincter spasm has been demonstrated to achieve fissure healing.² The various treatments designed to lower sphincter pressure includes sphincterotomy, anal dilatation and pharmacological manipulation of the sphincter.^{3,4,5}

We innovated a new technique of finger fragmentation of the fibers of internal sphincter at the left lateral side of the anal canal and termed it “sphincterolysis”. A retrospective pilot study⁶ and another prospective trial⁷ to analyze the manometric and clinical results on this technique have already been published and this study is being presented with a longer follow-up of 24 months.

Patients and methods

Between February 2005 and August 2005, 312 patients of chronic anal fissure who were non-responders to medical therapy [analgesics, stool softeners and nitroglycerine ointment] were treated with this procedure. Eleven patients were lost to follow-up and were excluded. The remaining 301 patients were enrolled in the study (194 men, 107 women; mean age 29 years, range 16-63 years).

The most common symptoms encountered in this series were pain (100%) and hematochezia (68%). Discomfort with bowel movements was reported in all cases while 148 patients suffered from constipation. The following data were recorded: patient's age and sex, site of the fissure, symptoms and their duration, bowel habit, pre and postoperative anal manometry, duration of surgical procedure, postoperative continence index, minor and major complications and long-term outcome.

The consideration for selecting patients and labeling them having chronic anal fissure were presentation of anal fissure for more than 8 weeks duration or with clinical features like indurated edges, sentinel pile, hypertrophied anal papillae, or the presence of circular muscle fibers at the base of the cutaneous defect. Balloon manometry was performed in all patients preoperatively and 24

months postoperatively. Manometric assessments were carried out using an 8-lumen catheter perfused with sterile degassed water according to the technique described by Williams *et al.*⁸

The study protocol was performed according to the Declaration of Helsinki.

Procedure of sphincterolysis

All the patients were operated by the author. They were asked to consume 17 gms of polyethylene glycol on the night prior to the procedure. The patients were operated under a short-term general anesthesia.

With the patient in a lithotomy position, the right index finger was introduced in the anal canal to meticulously explore the sphincter complex. A Eisenhammer retractor was then introduced in the anal canal and its blades were opened in antero-posterior 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 intersphincteral groove.

Then by means of delicate but firm pressure over the stand out fibers of the internal sphincter just below the inter-sphincteric 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. Patients were discharged on the same evening with prescription for a mild analgesic and instructions to consume a high-fiber diet.

Outcome measures and follow-up.

The primary outcome measure was healing of the fissure, defined as its complete reepithelization. Secondary outcome measures were pain control, reduction in anal resting pressure, and anal continence.

The patients were reviewed at 4 weeks, and then at 6 and 24 months.

Follow-up data were collected by personal interview and examination including symptom relief, early and late complications, and continence scores and healing of fissure and were analyzed by an independent and blinded observer, who was not from the operating team.

Healing of the fissure was scored as complete, incomplete, or none (persistent). The continence was graded according to the score of Jorge and Wexner.⁹

Early complications were defined as conditions developing within one month following the procedure, which resolved spontaneously or with intervention (i.e., ecchymoses, hematoma, abscess or hemorrhage).

Long-term complications were defined as conditions that occurred after 1 month of surgery that required some type of corrective procedure (i.e., recurrence of fissure, persistent prolapsed hemorrhoids and continence disturbances).

Results

Table 1.
Clinical data.

Symptoms	(n)
Pain	301
Bleeding	204
Duration of symptoms (months)	11 (mean)
Operative time (min)	3 ± 1.3

Mean operative time was 3 minutes; there were no intra-operative complications. Mean resting pressure before sphincterotomy was 89.5 mmHg (median 91 mmHg). Six months after surgery it was recorded as 47.3 ± 4.3 mmHg (median 48 mmHg; Wilcoxon test $p < 0.001$). No patient showed deficit of continence preoperatively, however, there was deficit of squeezing pressure in five multiparous females.

Early complications included ecchymosis ($n = 7$), and hematoma ($n = 4$). Pain control was achieved in 288 patients within 2 weeks. 11 patients complained of loss of continence to flatus or fecal soilage in the first 4 weeks. One patient developed abscess at the site of division of the fibers in the submucosal area, which needed drainage under anesthesia. The follow-up was uneventful in this patient with no further complaints at 2 years follow-up.

Complete continence was restored within 1 month in 97 percent of the cases, including three women with preoperative manometric findings of damage to the external sphincter. The difference between resting pressure at anal manometry in patients with and without continence problems did not reach statistical significance (43.3 vs. 47.7mmHg,

$p = 0.11$). 284 patients achieved complete healing within 4 weeks. The remaining 17 needed 4 more weeks for the fissures to heal.

No recurrent fissures were observed during follow-up. Two of the patients had persisting complaint of incontinence to flatus.

Discussion

Chronic anal fissure is one of the most frequently reported proctologic diseases. Internal anal sphincter spasm has been recognized to play a key role in the pathogenesis of this disease, even if it is not always present.

The treatment is aimed at reducing the anal spasm when present, thereby allowing spontaneous healing of the fissure. This may be achieved by, anal stretch, pharmacological manipulation or surgical sphincterotomy.

Anal stretch causes sphincter lesions in more than 30% of patients, with incontinence in about half of them. The recurrence rate reported with this procedure is very high.¹⁰

Sectioning the internal sphincter to reduce the basal sphincter pressure is being widely practiced. While open posterior sphincterotomy is fraught with complications like abscess, delayed wound healing or key hole deformity.¹¹ Lateral internal sphincterotomy has been found to be more effective and easy procedure with least incidences of complications and has been acknowledged as the treatment of choice in most part of the world.¹² However, disturbed continence with this procedure ranging between 1.2 to 40% lead in generating interest in pharmacological approaches such as chemical sphincterotomy with topical nitrates and injection of botulinum toxin into the internal anal sphincter.¹³ However, these lack efficacy, are poorly tolerated and their long-term results are still not known.¹⁴

The procedure proposed by us could be termed as a combination of sphincterotomy and anal stretch, in the sense that the internal sphincter fibers are severed by way of fragmentation leading to a localized division of internal sphincter fibers like that achieved after sphincterotomy using fingers in place of surgical dissection or division. This in turn helps in minimizing the inherent complications accompanying both the procedures i.e., avoidance of surgical wound and its sequel like bleeding, suppuration or fistula formation¹⁵ and averting

inadvertent injury to the sphincter fibers caused due to anal stretch.¹⁶

The antipathy to digital dilation of the anus for the treatment of chronic anal fissures is known as it has been found to cause disproportionate damage to both, the internal and external anal sphincters.¹⁷ However, there are many reports available which show that a controlled and gentle digital anal dilatation accomplishes a very high fissure healing rate and at the same time causes minimal disturbance of continence.¹⁸ It has been recommended as the first management choice in the treatment of chronic anal fissures.¹⁹

With regard to my technique, a question may be asked as to how much of the internal sphincter should be divided? I have observed that with the Eisenhamer retractor in the anal canal, the fibers of the internal sphincter which stand taught on palpation should be targeted to undergo lysis from the intersphincteric groove proximally to extend in the anal canal further up to the dentate line. This is because manipulations that are too limited or too extended are destined to suffer treatment failure or anal incontinence, respectively.²⁰ The dentate line should be the reference while dividing the internal sphincter.

The digital detection of the proximal sphincter edge is a precise, yet simply achieved anatomical reference employed in the adopted technique. The near-total division of internal sphincter allows early healing, while the resultant intramuscular linear fibrosis prevents long-term incontinence.²¹

Furthermore, while the careful preservation of the mucosal lining minimizes the rate of local septic complications, the goal of preserving the continuity of the intestinal lining is achieved easily.²²

The procedure adopted here is simple if the surgeon has clear understanding of and adequate experience with the anal anatomy, which could be achieved with a short training. Success of the procedure can be measured by the fissure healing rate achieved, associated with negligible postoperative complications, and minimal disturbances of anal continence. As an independent observer carried out the measurements of the outcome, the possibility of a bias was eliminated in this study.

Conclusion

Because of the high degree of surgical success, patient satisfaction and the low rate of major morbidity, the procedure of manipulation of the internal sphincter may be considered as a straightforward, safe, and effective treatment for anal fissure.

Nevertheless, randomized and control trials comparing this procedure with the conventional approaches like open and closed sphincterotomy, botulinum toxin injections and nitroglycerine ointment are required before recommending this procedure as an alternative treatment approach for chronic anal fissure.

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