Lateral Sphincterotomy Compared with Anal Advancement Flap for Chronic Anal Fissure

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PURPOSE: This study was designed to assess differences between lateral internal anal sphincterotomy and anal advancement flap for chronic anal fissure. METHODS: Forty patients with chronic anal fissure were prospectively studied. Patients randomized to the sphincterotomy group (n = 20; median age, 34 (range, 16-61) years) underwent lateral internal anal sphincterotomy. Patients randomized to the flap group (n = 20; median age, 32 (range, 20-44) years) had an anal advancement flap. RESULTS: All fissures in the sphincterotomy group healed following surgery compared with three patients that failed to heal in the flap group (P = 0.12). No patient in either group was incontinent to any degree following surgery. Patient satisfaction with surgery was similar in both groups. CONCLUSION: Anal advancement flap is an alternative to lateral sphincterotomy for chronic anal fissure. [Key word: Fissure-in-ano]

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Anal advancement flaps were used to cover defects in the perianal area and anal canal,[1, 2] as well as for surgical treatment of ectropion of the anal mucosa.[3, 4] There has been interest recently in using such flaps to resurface chronic or recurrent anal fissures. However, there is no published data on the success or utility of such a procedure in treatment of chronic anal fissure.

Lateral internal anal sphincterotomy is widely regarded as the treatment of choice for chronic or recurrent anal fissure, although subsequent anal incontinence is still a significant complication.[5–7] Comparison between results of anal advancement flap and lateral internal anal sphincterotomy would help establish the role of this form of anoplasty in anal fissure management.

PATIENTS AND METHODS

Forty patients with chronic or recurrent anal fissures were randomized by strict alternation of patients into two groups. All patients were operated on by either author. Informed consent was obtained from all patients. The first (sphincterotomy) group underwent lateral internal sphincterotomy (n = 20) and the second (flap) group underwent an anal advancement flap (n = 20). Chronicity of the fissure was verified by the presence of indurated fissure edges, sentinel pile, hypertrophied anal papillae, and the presence of circular muscle fibers at the base of the fissure. Recurrent fissure was defined as a chronic fissure that occurred in patients following previous lateral sphincterotomy. Both procedures were carried out under general or caudal anesthesia, according to the patient's or anesthetist's choice.

In the sphincterotomy group, lateral internal anal sphincterotomy was performed by exposing the left anal canal with an Eisenhammer bivalve speculum. A 5-mm incision was then made into the perianal skin along the intersphincteric groove. The internal anal sphincter was dissected and a segment withdrawn with a pair of artery forceps and divided with diathermy to the level of the dentate line (Fig. 1). Hypertrophied anal papilla and sentinel pile were routinely removed, but the fissure was not otherwise disturbed.

In the flap group, anal advancement flap was achieved by scalpel incision of a 1-cm diameter rhomboid flap. Hypertrophied anal papilla and sentinel pile were routinely removed and the fissure edges freshened. This flap was dissected free from its lateral attachments and advanced into the anal canal to cover the fissure. The flap was then anastomosed to anal canal skin, and resultant perianal anal defect was closed with Vicryl™ (Ethicon, Somerville, NJ) 3–0 sutures (Fig. 2). No lateral sphincterotomy was performed in any patient in this group.

Postoperative care was identical in both groups. All patients were prescribed a bulk laxative, analgesics, and routine Sitz baths.

Data regarding sex, age, position of fissure, length of operation, length of hospital stay, wound sepsis, fissure healing, and anal continence were collected and tabulated on a standardized chart. Anal incontinence was defined as the inability to control liquid

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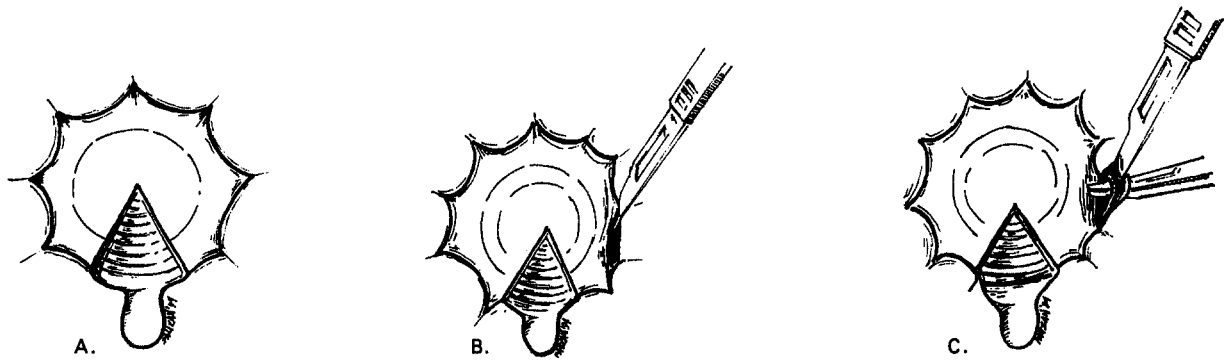

Figure 1. A. Chronic anal fissure. B. Small incision is made at the intersphincteric groove. C. Internal sphincter is withdrawn and divided to the level of the dentate line.

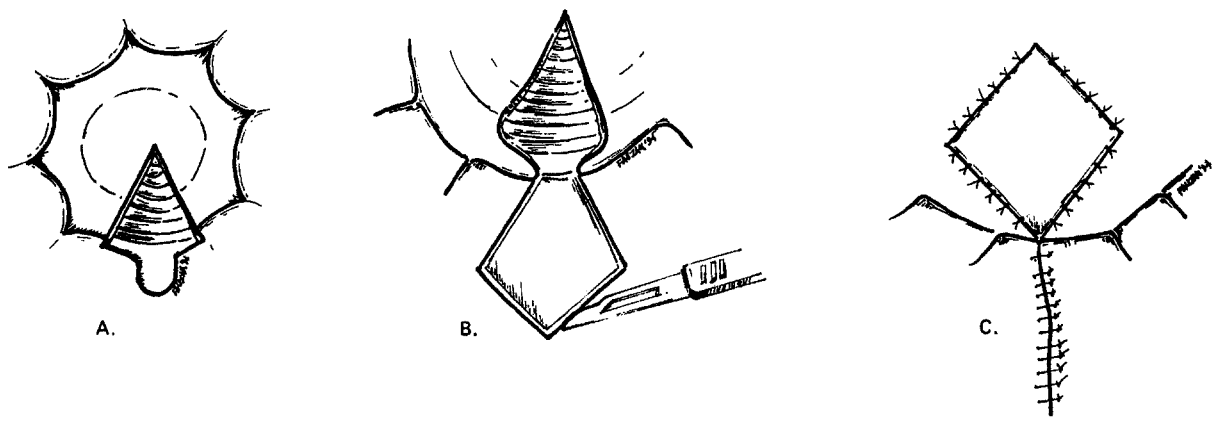

Figure 2. A. Chronic anal fissure. B. Rhomboid flap is isolated. C. Flap is advanced onto the fissure and anastomosed, and skin defect is closed.

stool or solid stool in the patient's normal manner and graded accordingly. Patients were reviewed at one month and six weeks after surgery. Further follow-up was according to wound healing. All patients were followed up by the performing surgeon. At the first follow-up visit, patients were asked to assess their satisfaction with results of surgery, graded according to whether dissatisfied, satisfied, or excellent. Fisher's exact test was used to assess statistical significance where appropriate.

RESULTS

Patient and fissure characteristics are shown in Table 1. The median length of time of operation in the sphincterotomy group was 5 (range, 5–10) minutes and 10 (range, 5–20) minutes in the flap group. The median length of hospital stay was 2 (range, 2–3) days in both groups. Median length of follow-up was 26 (range, 6–48) weeks in the sphincterotomy group and 16 (range, 6–40) weeks in the flap group. There was one case of wound abscess in the sphincterotomy group, but no infective complication occurred in the flap group. Fissure healing was achieved in all 20 patients in the sphincterotomy group, but healing did not occur in three patients in the flap group (P = 0.12). Two of three patients with unhealed fissure underwent lateral internal sphincterotomy subse-

Table 1.
Patient and Fissure Characteristics

	Group	
	Sphincterotomy (n = 20)	Flap (n = 20)
Age		
Median (yr)	34	32
Range (yr)	16–61	20–44
Sex		
Male	7	10
Female	13	10
Nature of fissure		
Chronic	18	20
Recurrent	2	0
Position of fissure		
Posterior	20	19
Anterior	0	1

quently. No anal incontinence was recorded in any patient from either group.

Patient satisfaction with their operation is recorded in Table 2. Three patients in the sphincterotomy group who were dissatisfied with their operations developed painful scars or skin tags at the operation site. All pain subsequently subsided spontaneously on later follow-up. Three patients in the anal advancement flap group were dissatisfied because of nonhealing, of which two underwent a secondary lateral sphincterotomy. Both of the latter patients who underwent lateral sphincterotomy subsequently achieved fissure healing. The third patient refused lateral sphincterotomy but healed his fissure and flap wound three months after the operation.

DISCUSSION

The use of skin flap for treatment of anal fissure was reported by Samson and Stewart[8] who performed a Y-V anoplasty with good results. Because there were no controls in this study, any advantage over lateral internal sphincterotomy could not be demonstrated.

Rhomboid advancement flaps have been demonstrated as a useful method of covering defects in the perianal area of the anal canal.[1] Although its use has been mainly confined to defects resulting from surgery, the ease of construction and lack of serious complications have led the present authors to assess their utility in resurfacing anal fissures. Furthermore the use of advancement flaps does not involve internal sphincter division and may have the theoretic advantage of not compromising anal continence, although in this small series anal incontinence was not evident in either group.

In our study, the rhomboid anal advancement flap took slightly more time to perform, but in practical terms the 5 to 10 minutes difference is insignificant.

Table 2.
Satisfaction with Surgery at One Month

	Sphincterotomy	Flap
Dissatisfied	3	3
Satisfied	11	6
Excellent	6	11

Lateral internal sphincterotomy resulted in complete healing in all patients, whereas the rhomboid anal advancement flap procedure had three failures. Although this did not reach statistical significance, it may have been because our numbers were small. There was no significant difference in infection rate in either group, and no patient reported changes in postoperative anal continence. Patient satisfaction with the results of surgery was also similar.

Potential application of the anal advancement flap might be in patients who may experience the compromise of anal continence following internal anal sphincter division, such as in elderly, multiparous women or patients with previous internal pudendal nerve damage. This procedure deserves further study in such patients.

CONCLUSION

Rhomboid anal advancement flap is an alternative to lateral internal sphincterotomy in treatment of chronic anal fissure. A larger series is needed to ascertain whether nonhealing of the mobilized flap anal fissure remains a problem.

REFERENCES

1. Lopez-Rios FL. Rhomboid flap in proctologic reconstruction. Dis Colon Rectum 1990;33:73–7.
2. Caplin DA, Kodner IJ. Repair of anal stricture and mucosal ectropion by simple flap procedures. Dis Colon Rectum 1986;29:92–4.
3. Peled IJ, Manny J, Wexler MR, Luttwak EM. The triangular island skin flap for treatment of anal ectropion. Dis Colon Rectum 1984;27:33–4.
4. Kaplan HY, Freund H, Muggia-Sullan M, Wexler MR. Surgical correction of ectropion of the anal mucosa. Surg Gynecol Obstet 1982;154:83–4.
5. Lewis TH, Corman ML, Prager ED, Robertson WG. Long-term results of open and closed sphincterotomy for anal fissure. Dis Colon Rectum 1988;31:368–71.
6. Walker WA, Rothenberger DA, Goldberg SM. Morbidity of internal sphincterotomy for anal fissure and stenosis. Dis Colon Rectum 1985;28:832–5.
7. Khubchandani IT, Reed JF. Sequalae of internal sphincterotomy for chronic fissure in ano. Br J Surg 1989;76: 431–4.
8. Samson RB, Stewart WR. Sliding skin grafts in the treatment of anal fissures. Dis Colon Rectum 1970;13:372–5.