Surgical Treatment of Chronic Anal Fissure

A Retrospective Study of 1753 Cases

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Hsu TC, MacKeigan JM. Surgical treatment of chronic anal fissure: a retrospective study of 1753 cases. Dis Colon Rectum 1984;27:475-478.

This is a retrospective study of 1753 cases of chronic anal fissures treated by five varying methods over a five-year period from January 1976 to December 1980. Results showed that the incidence of recurrent fissures was higher in those treated by anal fissurectomy with sphincterotomy. There was also a significant difference in operative time, length of hospital stay, patient discomfort, and incidence of urinary retention among these operative methods. Generally, lateral anal sphincterotomy and multiple anal sphincterotomies showed a lesser incidence of these factors. A simpler procedure, such as lateral anal shipncterotomy or multiple anal sphincterotomies, is the treatment of choice for chronic anal fissure. However, a chronic anal fissure associated with symptomatic enlarged hemorrhoids may have a similar result when treated with hemorrhoidectomy and fissurectomy as a combined procedure. [Key words: Fissures, anal; Sphincterotomy, anal, lateral; Sphincterotomies, anal, multiple; Anoplasty, V-Y; Fissurectomy, anal; Sphincterotomy, superficial, Hemorrhoidectomy]

From the Ferguson Clinic, Grand Rapids, Michigan

ANAL PAIN, especially after a bowel movement, is a frequent complaint. Chronic anal fissure is one of the most common findings. Various surgical methods have been advocated for the treatment of this entity; however, there have been few reports comparing the results of these treatments. This study reports the experience of five different methods of treatment at the Ferguson Clinic.

Clinical Materials

The charts of more than 2000 patients with a diagnosis of chronic anal fissure made over the five-year period from January 1976 to December 1980 were reviewed. After excluding patients with inflammatory bowel disease and patients without postoperative follow-up or with incomplete records, 1753 patients who had surgical treatment for chronic anal fissures were entered in this retrospective study. Only patients who had a trial of six weeks of medical treatment or who had failed medical treatment because of severe pain were included. Anal fissures that were clinically chronic because of a long-standing history or chronic appearance were included. Chronic appearance required that two of these factors be present in the clinical trial; sentinel skin tag, chronic fissure with visible sphincter at the base, or hypertrophied anal papilla.

All operations were done in the left lateral modified Sims position. A majority of patients received light general anesthesia supplemented with Xylocaine® or Marcaine® local anesthesia. Seven different surgeons were involved. All patients received one of the following operations for chronic anal fissures:

1) **Lateral Anal Sphincterotomy:** A radial or transverse incision was made at the left lateral anoderm. The lower third of the internal sphincter muscle was divided sharply. Firm pressure was then applied locally for hemostasis.

2) **Multiple Anal Sphincterotomies:** Transverse incisions were made in the left lateral, right posterior, and right anterior quadrants, about one inch from the anal verge. The anoderm was undermined and superficial sphincterotomies were done in the right anterior, left lateral, and right posterior quadrants. Hemostasis was established with pressure and the Bovie electrosurgical unit.

3) **V-Y Anoplasty:** The fissure, adjacent crypt, and hemorrhoidal tissue were excised through a Y-shaped incision. A broad V-shaped skin flap based outside the anal canal was elevated. Superficial sphincterotomy was made. The V skin flap was then advanced to the anal canal and sutured to the rectal mucosa with continuous sutures.

4) **Anal Fissurectomy with Superficial Anal Sphincterotomy:** Anal fissure was excised through an elliptical incision. The distal margin of the internal sphincter muscle was superficially excised to create a smooth and free margin to the outlet. The pedicle was transfixed with sutures. The wound was partially or completely closed.

5) **Anal Fissurectomy with Hemorrhoidectomy:** The closed hemorrhoidectomy was used routinely. Elliptical incisions were made around the enlarged hemorrhoidal complex. The hemorrhoidal tissues were dissected free from the underlying sphincter muscles and removed. The

Read at the meeting of the American Society of Colon and Rectal Surgeons, Boston, Massachusetts, June 5 to 9, 1983.

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TABLE 1. *Total Number of Five Operations*

	Number	Per Cent
LAS	89	5.1
MAS	199	11.4
V-Y	247	14.1
AF and SS	344	19.6
AF and H	874	49.8
TOTAL	1753	100.0

LAS = lateral anal sphincterotomy;
MAS = multiple anal sphincterotomies;
V-Y = V-Y anoplasty;
AF and SS = anal fissurectomy with superficial sphincterotomy;
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pedicles were transfixed with sutures and the wounds were closed continuously. The anal fissure was excised together with the hemorrhoid or separately.

Results

Of the total of 1753 patients, 1669 (95.2 per cent) were Caucasian, which is consistent with the population seen at the Ferguson Hospital. The cases of patients with anal fissure were evenly distributed over the five-year period.

Of the total patients, 281 had prior anorectal surgery, of which 261 (92.9 per cent) were hemorrhoidectomies and anal fissurectomies. Previous operations had been performed within the past year in 43 (15.3 per cent).

The majority of patients had posterior fissures (70.2 per cent), anterior fissure occurred in 20.0 per cent, and lateral fissure occurred in 1.6 per cent. The remainder had multiple fissures (8.1 per cent).

Stenosis was found in 268 patients (15.3 per cent). About one-fifth of patients had associated procedures, which included excision of anal papilla and skin tag, fistulectomy, drainage of abscess, or rubber band ligation of hemorrhoids. About half of the patients received anal fissurectomy with hemorrhoidectomy (Table 1).

The average age was slightly younger in the multiple anal sphincterotomy group. Male-to-female ratio was similar (Table 2).

Operation time was shorter and patient discomfort (judged by the number of narcotic injections) was less in the lateral anal sphincterotomy and multiple anal sphincterotomy groups. Postoperative hospital stay was shorter and the incidence of postoperative urinary retention (judged by whether or not the patient was catheterized) was lower in the lateral anal sphincterotomy and multiple anal sphincterotomy groups (Table 3).

TABLE 2. *Average Age and Sex Distribution Among the Different Operations*

	Age	Men		Women	
	(Years)	Number	Per Cent	Number	Per Cent
LAS	42.7	40	44.9	49	55.1
MAS	39.8	93	46.7	106	53.3
V-Y	42.8	116	47.0	131	53.0
AF and SS	43.6	171	49.7	173	50.3
AF and H	43.1	439	50.2	435	49.8
TOTAL		859	49.0	894	51.0

LAS = lateral anal sphincterotomy;
MAS = multiple anal sphincterotomies;
V-Y = V-Y anoplasty;
AF and SS = anal fissurectomy with superficial sphincterotomy;
AF and H = anal fissurectomy with hemorrhoidectomy.

Anal fissurectomy with superficial sphincterotomy had the highest incidence of recurrent fissure. The other four methods showed minimal difference in the incidence of recurrent fissure (Table 4).

Other wound complications were most frequent in the anal fissurectomy with and without hemorrhoidectomy groups (Table 5).

There were 213 wound complications (including recurrent fissures) in 210 patients. Reoperations were done in 77 patients (36.1 per cent). Reoperations were performed within six months in 51 patients. Postoperative bleeding was the indication for surgery in 21 of these. Twenty of these patients had associated hemorrhoidectomies.

Only 21 of 121 patients with recurrent fissure (17.4 per cent) had subsequent operations. Reoperation for recurrent fissures was necessary in two patients following multiple anal sphincterotomies, four patients following V-Y anoplasty, eight patients following anal fissurectomy with superficial anal sphincterotomy, and seven patients following anal fissurectomy with hemorrhoidectomy. The rest of the patients were treated successfully by conservative measures.

TABLE 3. *Operative Time, Number of Narcotic Injections, Postoperative Hospital, Days and Incidence of Urinary Retention*

	Operative Time (Minutes)	Pain Injections (Number of Shots)	Hospital Stay (Days)	Urinary Retention (Per Cent)
LAS	11.1	1.6	2.5	7.9
MAS	15.5	1.7	2.6	8.1
V-Y	45.6	3.3	5.2	27.1
AF and SS	26.5	2.8	4.6	16.6
AF and H	41.7	4.6	5.6	31.0

LAS = lateral anal sphincterotomy;
MAS = multiple anal sphincterotomies;
V-Y = V-Y anoplasty;
AF and SS = anal fissurectomy with superficial sphincterotomy;
AF and H = anal fissurectomy with hemorrhoidectomy.

Discussion

Anal fissure associated with severe pain and bleeding has been a frequent complaint in our patients. These patients were managed with diet, stool softeners, sitz baths, and local ointments, initially. However, when the condition failed to improve or became chronic, one of five operations was offered. Traditionally at this institution, anal fissurectomy with hemorrhoidectomy was the treatment of choice when the patient had associated enlarged symptomatic hemorrhoids. More recently, elastic banding of hemorrhoids has been offered as treatment for symptomatic hemorrhoids with fissure. If there were no enlarged hemorrhoids, one of the four other above-mentioned methods was chosen. The choice of procedure was based upon the surgeon's individual preference. Anal stretching, or the Lord procedure, has not been used at this institution.

There have been few studies comparing different methods for the treatment of anal fissure in a single institution.[1-4] The incidence of recurrent fissure may increase with the length of follow-up.[5] The difficulty of long-term follow-up has been stated.[1,5] This makes it difficult to compare results of treatment in different series.

Anal fissure has been attributed to the spastic and contracted internal anal sphincter. Increased resting pressure of the internal anal sphincter has been described in patients with anal fissures.[6,7] Reduction of anal pressure to normal range has been observed following sphincterotomy.[7] Lateral anal sphincterotomy has been reported to have good results and low complication rates, as seen in studies reported by Parks,[8] Hoffman and Goligher,[9] and Abcarian.[3] This was also seen in this series. Multiple anal sphincterotomies have been advocated by Mazier,[10] with similar results.

V-Y anoplasty was reported by Samson and Stewart,[11] and Nickell and Woodward[12] for treatment of anal fissure, with good results. They claimed that patients had less pain, that wounds healed better by primary intention, and that complications were fewer. In this series, the wound complications and recurrences were certainly not much higher than with lateral anal sphincterotomy or multiple anal sphincterotomies. However, prolonged operation time, longer hospital stay, higher incidence of urinary retention, and the need for skillful technique were noted with this procedure. It is a valid procedure for the patient with anal fissure and significant stenosis with loss of anoderm. Routine application of this procedure for patients with chronic anal fissure does not appear to be necessary.

Anal fissurectomy with sphincterotomy has been reported many times since Gabriel first described the technique.[3,4] The main disadvantage of this procedure is the high rate of incontinence and so-called "key hole" deformity. We have experienced a much lower incidence of incontinence with a much more conservative sphincterotomy. However, this more conservative approach may account for the higher incidence of recurrences and complications seen in this series. We believe that this procedure should not be the first choice for treatment of anal fissure, especially if one considers that lateral anal sphincterotomy and multiple anal sphincterotomies have shorter operative time and hospital stays, a lower incidence of urinary retention, and less postoperative pain.

Anal fissures in our patients have frequently been found to be associated with enlarged hemorrhoids. Anal fissurectomy with hemorrhoidectomy was associated with a recurrence rate similar to that of lateral anal sphincterotomy and multiple anal sphincterotomies. One may argue that anal fissure in this group may not be as chronic as in other groups. The indication for surgery might have been the symptomatic hemorrhoids instead of chronic anal fissure. Anal fissurectomy might have been merely the associated procedure. We could not prove or disprove

TABLE 4. *Recurrent Fissure Rate by Procedure*

	Number	Per Cent
LAS	5	5.6
MAS	10	5.0
V-Y	18	7.2
AF and SS	45	13.1
AF and H	43	4.9

LAS = lateral anal sphincterotomy;
MAS = multiple anal sphincterotomies;
V-Y = V-Y anoplasty;
AF and SS = anal fissurectomy with superficial sphincterotomy;
AF and H = anal fissurectomy with hemorrhoidectomy.

TABLE 5. *Wound Complications*

Complications		Number	Per Cent
LAS	Abscess	1	1.1
MAS	Bleeding	3	1.5
V-Y	Abscess (1) Bleeding (1) Flap necrosis (1) Poor healing (1) Stenosis (2)	6	2.4
AF and SS	Abscess (5) Fistula (9) Incontinence (1) Poor healing (2) Stenosis (4)	21	6.1
AF and H	Abscess (10) Bleeding (29) Fistula (6) Incontinence (1) Poor healing (1) Stenosis (14)	61	7.0

LAS = lateral anal sphincterotomy;
MAS = multiple anal sphincterotomies;
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AF and H = anal fissurectomy with hemorrhoidectomy.

this view. From the experience obtained from this large series, we believe that well-performed hemorrhoidectomy with anal fissurectomy can be accomplished with a low incidence of recurrence, especially if the patient is followed carefully to prevent the occurrence of anal stenosis. Whether those patients with hemorrhoids and an anal fissure will be benefited by lateral anal sphincterotomy or multiple anal sphincterotomies with rubber banding of hemorrhoids is still undetermined. Further prospective study is necessary to answer this question.

Conclusion

Five different methods for the surgical treatment of 1753 chronic anal fissures were reviewed. Lateral anal sphincterotomy and multiple anal sphincterotomies were associated with shorter operative time and hospital stay, lower incidence of postoperative urinary retention, and less postoperative pain. These simpler procedures should be the treatment of choice for most chronic anal fissures. V-Y anoplasty should be reserved for the patient with anal stenosis and lack of circumference of anoderm. Due to a higher incidence of recurrences and complications, anal fissurectomy with superficial sphincterotomy should not be the first choice for the treatment of chronic anal fissure. Only in the face of enlarged hemorrhoids should anal fissurectomy with hemorrhoidectomy be performed.

Acknowledgment

The authors acknowledge the assistance of the Office of Research Consultation (ORC) in conducting this research. ORC is cosponsored by the Grand Rapids Medical Education Center and the Michigan State University College of Human Medicine.

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