

USE OF TOPICAL GLYCERYL TRINITRATE VERSUS LATERAL INTERNAL SPHINCTEROTOMY IN THE TREATMENT OF CHRONIC ANAL FISSURE

By

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A long term failure rate of about 5% to lateral internal sphincterotomy has been leading to a continuous research for a new modalities for treatment of chronic anal fissure. The present study was conducted on 100 patients divided into two groups. Group I comprised 50 patients for whom lateral internal sphincterotomy was done. Group II comprised 50 patients who were treated by topical application of nitroglycerine ointment 0.2% twice daily for 6-8 weeks. Anal manometric study for all patients revealed that, maximum resting pressure decreased from a mean value of 98 cm H₂O preoperatively to 72 cm H₂O one week after the operation in group I and decreased from a mean value of 102 cm H₂O before treatment to 76 cm H₂O after one week of topical glyceryl trinitrate in group II. Pain relief occurred in 80% during the passage of the first motion, 90% had their pain relief in 2 weeks, 95% in 3 weeks and all patients had their discomfort subsided over 4 weeks in group I, while in group II, 85% reported no pain after 2 weeks, 90% after 4 weeks while pain relief was not obtained in 10%. Complete healing was not achieved in any of the patients of both groups after one week, after 2 weeks, 55% in group I and 35% in group II showed complete healing, at the third week 85% in group I and 75% in group II and at the fourth week all patients in group I and 90% in group II showed complete healing. In group I, temporary incontinence to flatus occurred in 5% whom became completely normal in 3 months, recurrence occurred in 3% within 6 months of surgery. In group II, headache occurred in 15%, hypotension in 5% and recurrence within 6 months of stopping treatment in 15%. In conclusion, internal sphincterotomy with fissurectomy was found to be superior to topical nitroglycerine ointment in the treatment of chronic anal fissure.

Key words : Anal, fissure, sphincterotomy.

INTRODUCTION

Anal fissure remains one of the most common proctologic problems. Fissures are seen in all age-groups, although the majority of patients are relatively young to middle aged adults. Fissures cause considerable pain disproportionate to the size of the lesion, resulting in significant morbidity and disability. Therefore worthwhile it is mandatory to explore preventive measures and to identify the most effective treatments for this disease. ⁽¹⁾

Lateral internal sphincterotomy is the procedure of choice for chronic anal fissure because it relieves symptoms

and heals the fissure in nearly all patients. However, there is evidence that fecal incontinence complicates lateral internal sphincterotomy. ⁽²⁾

Topical preparations have been used in the treatment of anal fissure. However, they are not universally successful and there is confusion about the site and dose of application. ⁽³⁾ Nitric oxide has recently been identified as the chemical messenger of the intrinsic non-adrenergic, non - cholinergic pathway mediating relaxation of the internal anal sphincter.⁽⁴⁾

PATIENTS AND METHODS

One hundred patients with chronic anal fissure were included in this study and divided randomly into two groups: group (1): comprised 50 patients who were treated surgically by open lateral internal sphincterotomy and fissurectomy and group (2): comprised 50 patients who were treated by topical application of nitroglycerine ointment 0.2% twice daily for 6-8 weeks.

All patients in our study were subjected to: Full history taking, thorough clinical examination, routine laboratory investigations and anal manometry for measurement of maximal resting anal pressure. In group (I) all patients were subjected to a preoperative preparation by: Night fasting, two enemas one at night and another one in the early morning and shaving the perineum.

The operative technique :

- General anaesthesia was used in all patients.
- Proctoscopic examination was carried out as an initial step.
- A small circumanal incision was made outside the anal verge .
- The distal half of the internal anal sphincter was grasped with forceps, bluntly freed and divided with a scissor (Fig. 1,2).
- Meticulous haemostasis was then insured .
- The wound was closed with interrupted sutures.

Group (II): (Medically treated by nitroglycerine ointment 0.2%) :

Women who might have been pregnant or were considering pregnancy and patients with ischemic heart disease were excluded from this study.

About 0.5 gm of the ointment was applied to the lower anal canal twice daily. The patients were given a supply of the ointment and instructed for the dose and frequency of application.

Follow-up: once weekly for 3 months then every month for 6 months. At every visit, patients were asked about the presence or absence of pain and bleeding on defaecation and the anus was examined visually to assess healing of the fissure. In the surgically treated group, they were also asked about soiling, incontinence to flatus or faeces, while in the group treated by nitroglycerine ointment, they were asked about the compliance and the appearance of any side effect e.g. headache, hypotension, dizziness or others. Anal manometry for measurement of maximal resting anal pressure was performed one week after the operation and 20 minutes of the ointment application after one week of ointment therapy in group (II).

Preparation of glyceryl trinitrate ointment :

The ointment was prepared in the Faculty of Pharmacy, Tanta University. The active principle was obtained from nitroglycerine in the ampoule form and incorporated into an ointment base as lanolin, then diluted with white soft paraffin to give a final concentration of 0.2%.

RESULTS

One hundred patients were included in our study 65 males (65%) and 35 females (35%). The age ranged from 13 to 65 years with a mean age of 32 years. The largest number of cases occurred between the age of 20 and 39 years (48 patients: 48%).

Pain on defaecation was the main presenting symptom in all cases, constipation and bright anal bleeding were less common presentations (80% and 55% respectively), while pruritus ani and mucous discharge were much less common (15% and 10% respectively).

Duration of symptoms from onset to management ranged from 4 months to 15 years. Most of cases were presented during the first year of illness (63 %). The Fissure was posterior in 80%, anterior in 10% and combined anterior and posterior in 10% of the patients.

Anal manometric study : In group I , anal manometry was performed before and one week after the operation. Maximum resting pressure decreased in all patients from mean value of 98 cm H₂O to 72 cm H₂O, this represented a mean reduction of 26.2% (P =0.0004). In group II , manometry was performed before starting the treatment and 20 minutes of the ointment application after one week of therapy. The maximum resting pressure decreased from a mean of 102 cm H₂O to 76 cm H₂O, this represented a mean reduction of 25.5% (P=0.0024). The difference between group I and II in the decrease of maximum resting pressure was statistically insignificant (P= 0.033).

As regard to pain relief: In group I, eighty percent reported immediate relief of pain evidently during the passage of the first motion, 90% had their pain relief in 2 weeks, 95% in 3 weeks and 100% had their discomfort subsided over 4 weeks. In group II eighty five percent reported no pain on defaecation after 2 weeks, 90% after 4 weeks, while pain relief was not obtained in 10%.

Time of complete healing: At the first follow up visit (after one week), complete healing was not achieved in any of the patients of both groups. At the second follow up visit (after 2 weeks), 55% in group I and 35% in group II showed complete healing. At the third week, 85% in group I and 75% in group II showed complete healing (Fig. 3,4). At the fourth week, all patients in group I and 90% in group II showed complete healing (Table 1). The remaining 10% of

group II showing non healed fissures were continued on an ointment therapy for another 4 weeks but without response. Lateral sphincterotomy was done for 8 of them and 2 refused surgical treatment.

Complications: In group I: Temporary incontinence to flatus occurred in 5% of patients whom became completely

normal in 3 Months. Recurrence occurred in 3% within 6 months of surgery. In group II: Headache occurred in 15%, hypotension in 5% and recurrence within 6 months of stopping the treatment in 15% of the cases.

Table I : Time of complete healing in our study.

<i>Time of healing in weeks</i>	<i>Group I</i>		<i>Group II</i>	
	No.	%	No.	%
One week	-	-	-	-
Two weeks	55	55	35	35
Three weeks	85	85	75	75
Four weeks	100	100	90	90
Non - healing	-	-	10	10

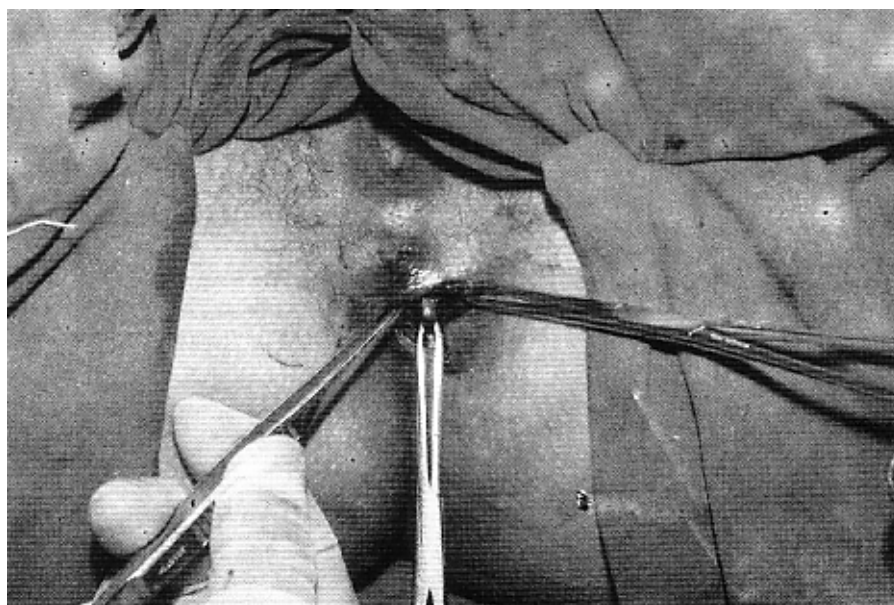


Fig. (1) : The lower part of the internal sphincter grasped by an allis.

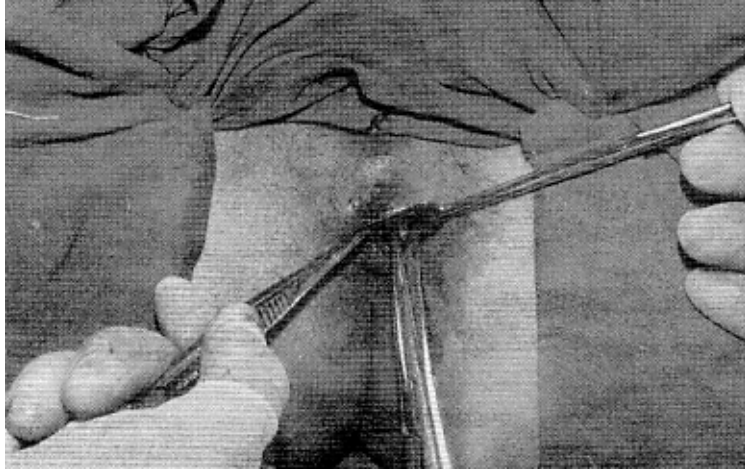


Fig. (2) : Scissor dividing the lower part of the internal sphincter .



Fig. (3) : Chronic posterior midline fissure before using nitroglycerine ointment.

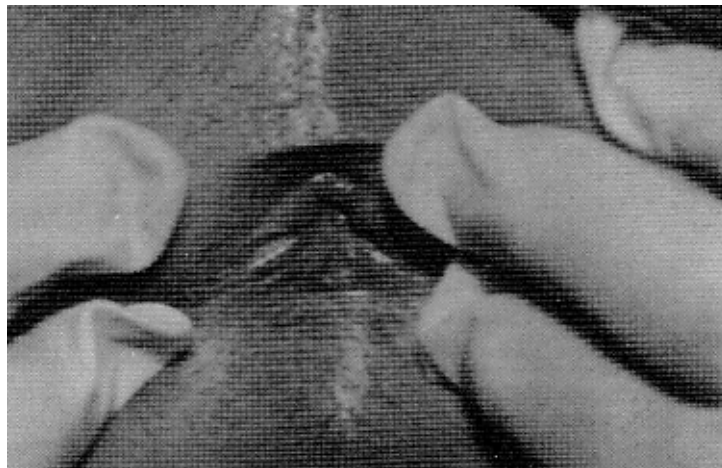


Fig. (4) : Complete healing of chronic fissure in Fig.(3) after 3 weeks of treatment using nitroglycerine ointment .

DISCUSSION

Among the various operative options available for treatment of fissure-in-ano, the procedure that has gained the greatest favour is the lateral internal sphincterotomy⁽⁵⁾. Also, it was found that a concentration of 0.2% from glyceryl trinitrate ointment is the minimum effective concentration that reduces anal tone without intolerable side-effects.^(6,7,8)

In our study, the patients had a mean age of 32 years which is compatible with the mean age reported by Schouten et al.⁽⁹⁾. While OH et al.⁽¹⁾ and Hananel and Gordon⁽⁵⁾, reported mean ages of 39 and 40 years respectively. This difference may be explained on the fact that the number of patients included in the later two studies is greatly higher.

The main presenting symptoms in this study were pain during and after defaecation in 100%, constipation in 80%, bright anal bleeding in 55% and pruritus ani in 15% while Hananel and Gordon⁽⁵⁾ reported the presence of pain in 96.8%, bright anal bleeding in 70.8% and pruritus in 2.6%.

The duration of complaint from onset to management in our study ranged from 4 to 180 months, Lysy et al.⁽¹⁰⁾ reported a duration ranged from 2 to 120 months, while Lund et al.⁽⁷⁾ reported a duration ranged from 6 to 96 months.

In group I of our study (open lateral internal sphincterotomy and fissurectomy), complete healing of the fissures occurred in 85% of the cases in 3 weeks and in all cases in 4 weeks. Hananel and Gordon,⁽⁵⁾ reported a healing rate of 84.8% in one month, rising to 94.4% in 2 months and healing of the remaining 5.6% in more than 2 months, but Nyam and Pemberton⁽²⁾ reported a healing rate of 96% in 3 weeks and Richard et al.⁽¹¹⁾ reported a healing rate of 89.5% in 6 weeks.

Our early postoperative complications occurred in 10% of cases; wound infection 5% and temporary incontinence to flatus 5% that was completely relieved within 3 months of surgery. This rate of complication is comparable with that reported by Hananel and Gordon⁽⁵⁾. On the other hand, Nyam and Pemberton⁽²⁾ reported some degree of fecal incontinence occurred in 45% of patients at sometime in the postoperative period; incontinence to flatus (31%), mild soiling (39%) and gross incontinence (30%).

Recurrence of the fissure in the surgically treated group of our study occurred in 3% within 6 months of surgery. Simkovic et al.⁽¹²⁾ reported a recurrence rate of 4.4%, while the least recorded recurrence rate was 1.4%^(5,13).

In group II of our patients (medically treated patients), complete healing of the fissures occurred in 75% after 3 weeks of treatment, rising to 90% after 4 weeks while 10% of cases showed non-healed fissures. Lund et al.⁽⁷⁾ reported 55% healing rate after 4 weeks, rising to 90% after 8 weeks of treatment. Palazzo et al.⁽¹⁴⁾ found complete healing in 73% after 6 weeks of treatment. Another 2 studies reported 67% and 81% healing rate after 8 weeks of therapy.^(15,16) On the other hand, the least incidence of complete healing was reported by Richard et al.⁽¹¹⁾ after 6 weeks and 29.5% by Watson et al.⁽⁸⁾ after 3 weeks of treatment (40%). This difference in complete healing rate was due to the variation in the concentration of the ointment, the periods of therapy and the number of cases treated in these studies.

The complications reported in group II of our study were headache in 15%, hypotension in 5% and non healing in 10%. During the follow up period, recurrence occurred within 6 months after stopping the treatment in 15%. Lund et al.⁽⁷⁾ reported recurrence in 19% of their patients whose fissures initially healed after 4 weeks of treatment. Richard et al.⁽¹¹⁾ mentioned that 20.5% of their patients discontinued the nitroglycerine ointment treatment because of headache or a severe syncopal attack. The prevalence of headache reported by Palazzo et al.⁽¹⁴⁾ was 84% with 11% headache related non-compliance. Lund and Scholefield⁽¹⁷⁾ found a recurrence rate of 26.8% in patients whose fissures initially healed by a course of nitroglycerine ointment. In another study, 33.8% of patients experienced headache and 5.9% orthostatic hypotension after glyceryl trinitrate.⁽¹⁸⁾

Conclusion

Open lateral internal sphincterotomy with fissurectomy is an effective method of treatment for chronic anal fissure, easy to perform in a short time, with a high rate of healing, with minimal complications especially its imprint on continence and the recurrence rate which is uncommon after this mode of treatment.

Medical treatment by nitroglycerine ointment 0.2% is also a good modality of therapy for chronic anal fissure, safe, easy to use with rapid relief of pain, with only mild side effects and no risk of anaesthesia or operative complications. However, relapses after stopping the treatment may occur.

Internal sphincterotomy with fissurectomy is found to be superior to topical nitroglycerine ointment in the treatment of chronic anal fissure. Thus, internal sphincterotomy remains the treatment of choice for chronic anal fissure.

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