ORIGINAL RESEARCH ARTICLE

A COMPARATIVE STUDY OF CHEMICAL SPHINCTEROTOMY USING TOPICAL DILTIAZEM VERSUS LATERAL ANAL SPHINCTEROTOMY IN THE MANAGEMENT OF CHRONIC ANAL FISSURE

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ABSTRACT

BACKGROUND

Enduring the disease and curing internal sphincter spasm while maintaining continence is the aim of treating the anal fissure. Although they can lead to issues like decreased anal continence, surgical techniques such as lateral internal sphincterotomy or manual anal dilatation have a positive healing impact. We wanted to study the effects of lateral internal sphincterotomy and the application of 2% diltiazem gel.

METHODS

At Government Vellore Medical College, 100 patients of both sexes, ages 20 to 60, who had recurrent symptoms of fissure in ano for longer than six weeks, participated in this two-year observational study. Patients were chosen at random for either surgery or diltiazem therapy. Patients who were chosen to get diltiazem therapy were told to implant the gel twice daily, up to a 1.5–2 cm length. Spinal anaesthesia was used for the internal sphincterotomy procedure. Post-surgery complications like haemorrhage and hematoma were noted. For a descriptive analysis, the results were tabulated.

RESULTS
39% of the sample belonged to the 20–30 age group, and 31% to the 31–40 age group. 17% and 13% of those were between the ages of 41 and 50 and 51 and 60, respectively. 36% of people were female, and 64% of people were male. After four weeks, every patient in the internal sphincterotomy group had totally healed and was pain-free. After three months of follow-up, 10 (20%) patients in the diltiazem group reported having minor pain, while 39 (78%) reported being almost pain-free. Due to inadequate pain alleviation from diltiazem, four patients (8%) had internal sphincterotomies. Eight patients were lost to follow-up after receiving treatment with diltiazem gel, leaving 40 (80%) of the patients with fully healed fissures after 4–8 weeks. Out of the 50 patients who had an internal sphincterotomy, 45 (90%) fully recovered after 4 weeks, with six patients lost to follow-up. Both the internal sphincterotomy group and the diltiazem gel group reported no problems.

CONCLUSION
In treating chronic anal fissures, internal sphincterotomy works better than topical diltiazem. However, topical diltiazem is safe, simple to use, and has few side effects. It might be taken into consideration for people who are not surgical candidates or who refuse surgery.

KEYWORDS
Chronic Anal Fissure, Internal Sphincterotomy, Diltiazem.

INTRODUCTION
Anal fissures or anal ulcers are the most common causes of severe anal pain in the general population. An anal fissure is a longitudinal rip or an area of ulceration in the distal portion of the anal canal. The most commonly observed region is the posterior or anterior region, extending from the dentate line level to the anal margin. An acute anal fissure manifests as clean longitudinal rips and discomfort in the anoderm region.

There is a persistent fissure that is linked to a hypertrophy of the anal papilla on the upper side and inflamed skin or a sentinel pile at the far end. When internal sphincter fibres at the base of a chronic fissure are exposed, the fissure also tends to develop deeper. The majority of painful fissures are caused by the spasms of the internal sphincter. The internal sphincter involuntarily contracts muscle in addition to the colon's and the rectum's continuous circular muscular layer. The primary cause of severe pain in the ano fissure is spasm of these internal sphincter muscles.

Numerous studies and examinations have focused on the architecture of the anal canal as well as the pathophysiology and reasons for the rectum and anal canal's continence. Curing internal sphincter spasm and ending the disease are the main objectives of treating the anal fissure without sacrificing continence. While manual anal dilatation and lateral internal sphincterotomy are good surgical techniques, they can lead to issues such as decreased anal continence. Studies on non-surgical options that reduce resting anal pressure without compromising anal continence by using various pharmaceutical medications have yielded mixed results.

The purpose of the current study was to investigate the impact of 2% diltiazem gel and lateral internal sphincterotomy on the management of chronic fissures in ano.

METHODS

At Government Vellore Medical College, 100 patients of both sexes, ages 20 to 60, who had recurrent symptoms of fissure in ano for longer than six weeks, participated in this two-year observational study. Children and patients with mental illnesses were not allowed to participate in the trial, nor were patients with fissures associated with Crohn's disease or tuberculosis, fistulas and hemorroids, recurrent fissures, or fissures associated with cancer. Patients were chosen at random for either surgery or diltiazem therapy. Patients who were chosen to get diltiazem therapy were told to implant the gel twice daily, up to a 1.5–2 cm length. Spinal anaesthesia was used for the internal sphincterotomy procedure. Post-surgery complications like haemorrhage and hematoma were noted. For a descriptive analysis, the results were tabulated.

RESULTS

Age Incidence

The majority of study participants (39%) were in the 20–30 age range, and 31% were in the 31–40 age range. 17% of the study participants were between the ages of 41 and 50 years, and 13% were between 51 and 60 years. 36% of people were female, and 64% of people were male.

Age (in years)	No. of Patients	Percentage
20-30	39	39
31-40	31	31
41-50	17	17
51-60	13	13

Table 1: Age Incidence

Of the 100 people we analysed, 34 had anterior fissures and 66 had posterior fissures. Out of 100 patients, 38 (38%) had a sentinel pile, and all instances had a diagnosis of sphincter spasm.

Pain Relief

Out of 50 patients in the diltiazem group whose fissures had healed, 39 (78%) reported nearly no pain, while 10 (20%) had mild pain at follow-up after three months. Four (8%) had internal sphincterotomies as a result of inadequate analgesia. After four weeks, every patient in the internal sphincterotomy group was pain-free and totally healed.

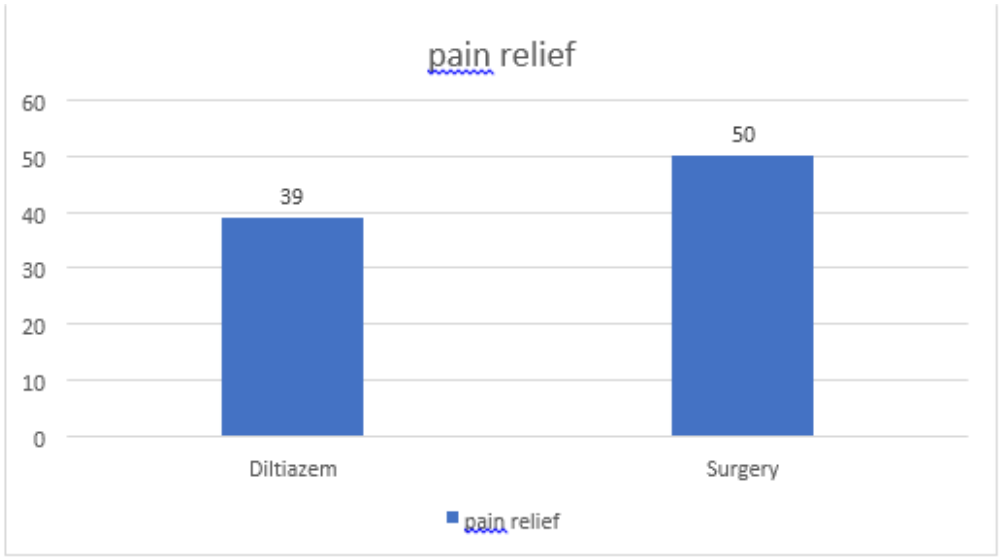

Figure 1: Pain Relief

Healing

Eight participants were lost to follow-up, and of the 50 patients treated with diltiazem gel, 40 (80%) had fissures that healed completely in 4–8 weeks. Six patients were lost to follow-up after an internal sphincterotomy, leaving 45 (90%) of the 50 patients who underwent the procedure to have fully healed after 4 weeks.

After using diltiazem for six weeks and their fissures not closing, three patients underwent internal sphincterotomy because their symptoms persisted. The cracks healed after 4 weeks of surgery.

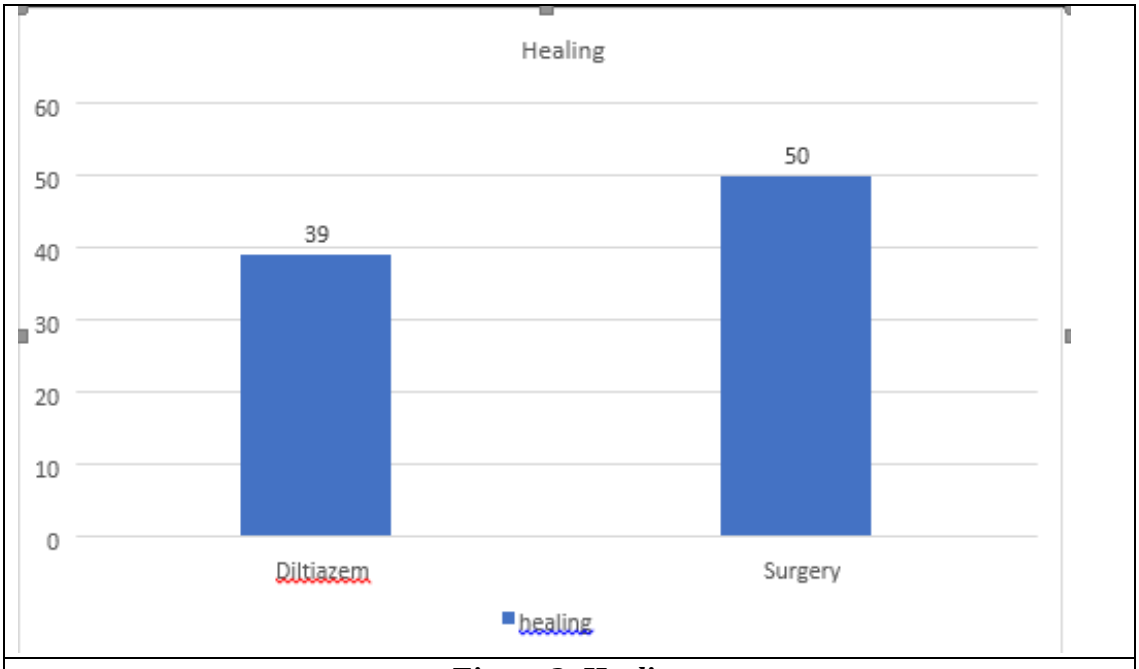

Figure 2. Healing

Complications

Both the internal sphincterotomy group and the diltiazem gel group reported no problems. Three patients in the internal sphincterotomy group and four patients in the diltiazem gel group were not found during follow-up.

DISCUSSION

Surgery is the most straightforward and efficient method of lowering the internal anal sphincter tone. For treating persistent anal fissures, lateral internal sphincterotomy is considered the gold standard of care. In the process, the internal anal sphincter is partially separated from the fissures. Calcium channel blockers, on the other hand, have lately been demonstrated to decrease resting anal pressure and encourage fissure repair. The purpose of the current study was to assess the efficacy, drawbacks, and adverse effects of internal sphincterotomy and topical 2% diltiazem gel for chronic anal fissures.

Demographic Characteristics

The majority of study participants (39%) were in the 20–30 age range, and 31% were in the 31–40 age range. 17% of the study participants were between the ages of 41 and 50 years, and 13% were between 51 and 60 years. 36% of people were female, and 64% of people were male.

The mean age of the entire study group was 35.76 years, and Rajan Vaithianathan et al.[1] noted that this age group is found to have a higher tendency for chronic anal fissures. In their investigation, the male-to-female ratio was 3.2:2.

The fact that male patients seek medical attention earlier than female patients, the conservative attitudes of female patients, and the discomfort of physical examinations for perianal problems could all be contributing factors to this.

According to Rajashekar Jade et al.[2] the age group that was most affected in this study was 31–40 years old (40%); this observation is consistent with data from Goligher et al.[3] which also showed that this was the age group that was most affected. Additionally, they discovered that the incidence was higher in men than in women (2.33:1).

Pain Relief

After four weeks in the current trial, every patient in the internal sphincterotomy group was pain-free and totally healed. After three months of follow-up, 10 (20%) patients in the diltiazem group reported having minor pain, while 39 (78%) reported being almost pain-free. Due to inadequate pain alleviation from diltiazem, four patients (8%) had internal sphincterotomies. Similar to this, in the fourth review week of Rajan Vaithianathan's study,[1] pain scores considerably decreased in the sphincterotomy group as opposed to the diltiazem group (1.93 vs. 3.58, $p<0.001$). At six weeks, the surgical group's pain management was still getting better, but the diltiazem group was not significantly better (1.87 vs. 3.38). Comparable levels of pain reduction for topical diltiazem have also been reported in other investigations.[4,5] For the treatment of CAF, chemical sphincterotomy combined with diltiazem yields healing rates between 47 and 89%.[6,7] In a recent meta-analysis, healing rates for medicinal therapy and surgical intervention were compared across 15 studies (n = 779). Compared to the surgical group, the patients in the former group had a greater risk of

anal fissure persistence or recurrence (OR 0.11, 95% CI 0.06 to 0.23).[8] Based on our research, topical diltiazem had a 71% healing rate after 6 weeks, while LIS had a far higher rate of 96%. According to other studies, the recovery rate for LIS ranges from 92% to 100%.[9-11]

Diltiazem has been shown in a study by Medhi et al.[12] to be effective in treating chronic fissure-in-ano. According to a study, diltiazem applied topically and taken orally both considerably decreased anal pressure and improved healing rates. Diltiazem was demonstrated in another review by Bharadwaj et al.[13] to be a viable substitute for glyceryl trinitrate, with better healing and reduced recurrence rates.

After four weeks of diltiazem treatment, 16 (61.5%) of the patients in the Rajashekar Jade et al.[2] study reported being pain-free. Within three months, eight (30.7%) of the patients had no pain. Lateral sphincterotomy was used on the two patients (7.6%) who remained after symptomatic alleviation was not achieved.

Healing

Eight participants were lost to follow-up in our study, which had 50 patients treated with diltiazem gel, 40 (80%) of whom fissures healed entirely in 4–8 weeks. Six patients were lost to follow-up after an internal sphincterotomy, leaving 45 (90%) of the 50 patients who underwent the procedure to have fully healed after 4 weeks.

Patients treated with topical diltiazem had an initial healing rate of 70%, according to Akira Tsunoda et al.[14] A 75% healing rate was reported by J. S. Knight et al.[15] following 8–12 weeks of diltiazem gel treatment. We discovered an 88.4% healing rate in our investigation. The recovery process took an average of 4.86 weeks.

In other series, mild side effects such as headaches and perianal dermatitis were found. In a research by G. F. Nash et al.[16] 112 patients received 2% diltiazem gel treatment for six weeks with a two-year follow-up period. Over two-thirds of patients reported satisfaction and success rates with topical diltiazem.

Twenty (66.66%) of the thirty patients in the Rajashekar Jade et al.[2] study who had internal sphincterotomies were pain-free; the other ten patients experienced mild pain at follow-up, which improved over the course of three months. 98% of patients experienced pain reduction following internal sphincterotomy, according to Scouten WR et al.[17]

After six weeks, Adriano Tocchhi et al.[18] reported a 100% recovery rate with internal sphincterotomy and a 96% patient satisfaction rating. Our outcomes were remarkably alike.

Complications

Both the internal sphincterotomy group and the diltiazem gel group in this trial did not report any problems. Three patients in the internal sphincterotomy group and four patients in the diltiazem gel group were not found during follow-up. In a similar vein, Rajashekar Jade et al.[2] discovered that almost 80% of patients had no side effects and that diltiazem-related complaints hardly ever resulted in lower compliance.

CONCLUSION

In treating chronic anal fissures, internal sphincterotomy works better than topical diltiazem. However, topical diltiazem is safe, simple to use, and has few side effects. It might be taken into consideration for people who are not surgical candidates or who refuse surgery.

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