

Extent of influence of lateral internal sphincterotomy for alleviation of post-hemorrhoidectomy pain

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Abstract

Background and aim: Milligan-Morgan hemorrhoidectomy is still one of the most common types of surgery for hemorrhoids. Spasms in the internal anal sphincter are thought to be one of the reasons why people feel pain following hemorrhoidectomy. The purpose of this study was to assess the effectiveness of lateral internal sphincterotomy in alleviating post-hemorrhoidectomy pain.

Patients and methods: Between June 2021 and January 2025, 240 patients with third- and fourth-degree piles were included in this study. 130 patients (54.2%) were males, and 110 patients (45.8%) were females, with mean age 32 ± 8.2 years (mean \pm SD). Patients were randomized into two groups; each group includes 120 patients (Group A: subjected to hemorrhoidectomy plus lateral internal sphincterotomy and Group B subjected to hemorrhoidectomy only).

Results: (group A) did much better than (group B) as can be seen from the significant differences in the pain scores, greater need for analgesics, and early return to work ($P < 0.05$). Five patients from group (B) complained about urine retention and needed for catheterization, and fifteen patients developed anal strictures that were being treated with progressive anal dilatation.

Conclusion: Adding lateral internal sphincterotomy to Milligan-Morgan hemorrhoidectomy is safe procedure, reduces pain, and avoids post operative urine retention and stenosis.

Keywords: Hemorrhoidectomy, lateral internal sphincterotomy, postoperative pain, anal sphincter spasm, anal stenosis

Introduction

Hemorrhoidal disease is one of the most prevalent problems in surgical practice [1].

Wexner *et al.* [2] reported that the incidence of hemorrhoids increases with age and that 50% of people over 50 years will have some degree of hemorrhoids during their lives. It is a common benign anal condition, affecting between 4.4 and 45% of general population [3].

Hemorrhoids have been treated by surgeons for centuries. Therapies for the topical treatment of hemorrhoids date back to Egyptian papyri of 1700 BC. The first surgical treatment was described in the Hippocratic Treatises of 460 BC and suggested "transfixing them with a needle and tying them with a very thick and large woolen thread" [4].

Excisional hemorrhoidectomy is the most common surgical intervention for symptomatic grade III–IV hemorrhoids due to its high success rate and diminished recurrence rate [3, 5].

Pain is almost a constant feature after hemorrhoidectomy, with as many as 65% of patients stating they experienced moderate to severe pain after surgery [6, 7].

The exact cause of postoperative pain after hemorrhoidectomy has not yet been defined although it is assumed that spasm of the internal sphincter is the major source of anal pain after hemorrhoid surgery [8, 9]. Incarceration of the smooth muscle fibers and mucosa at the transfixed vascular pedicle, as well as epithelial loss of the canal, are two factors that might cause pain and hypertonia [10].

Postoperative pain seemed to be multifactorial and dependent on patient pain threshold, the surgical technique, post-operative analgesia regimens, secondary infection and sphincter spasm [11, 12].

Because several authors have reported that high anal sphincter pressure is a primary cause of hemorrhoidal

disease, several interventions have been advocated including lateral internal sphincterotomy [13], topical treatment, botulinum toxin [14], chemical sphincterotomy [15] or warm Sitz baths [16, 17] have been advocated to reduce internal anal sphincter spasms, treating its pathogenesis and reduce postoperative pain.

The aim of this study was to assess the effectiveness of lateral internal sphincterotomy in relieving post hemorrhoidectomy pain.

Patients and methods

This research was performed at the Department of General Surgery, Qassim University Hospitals, between June 2021 and June 2024.

240 patients were included in this study. 130 patients (54.2%) were males, and 110 patients (45.8%) were females, with mean age 32 ± 8.2 years (mean \pm SD).

Inclusion criteria; all patients with third- and fourth-degree piles.

Exclusion criteria; any patient with associated disease of the anus such as: Crohn's disease, anal fissure, perianal abscess, perianal fistula, thrombosed hemorrhoids or recurrent hemorrhoids.

The patients were randomized into two groups (Group A: subjected to hemorrhoidectomy plus lateral internal sphincterotomy and Group B subjected to hemorrhoidectomy only) each group includes 120 patients, based on a randomization list using a table of random numbers. The allocations were sealed in opaque envelopes, and an independent observer held the randomization schedule.

All operations were performed under spinal anesthesia, and all patients had complete excision of three hemorrhoids

according to the Milligan-Morgan technique after four-finger gentle dilatation [18].

Patients of group A were subjected to lateral internal sphincterotomy about one cm, in the left hemorrhoidectomy wound at the end of the procedure.

Meticulous hemostasis was ensured, and a soft dressing was applied into the anal canal which was removed the next day. Wounds were left open to granulate.

Postoperative analgesia was in the form of Tramadol tablet 50 mg. Analgesic tablets were dispensed strictly on demand by patients.

Six hours following surgery, the patients were allowed to eat and drink normally. They were advised Sitz bath four times daily and stool softener (Lactulose syrup 15 ml twice daily). Postoperative pain was evaluated with a pain score ranging from 0 (no pain) to 3 (excruciating pain) [13].

0	1	2	3
No pain	Mild pain	Intense	Excruciating

We record the average amount of pain at 6, 12, and 24 hours after operation, after first defecation and one week after operation.

In addition, the patients documented the postoperative day that they returned to work.

The consumption of analgesics, and frequency of demand, and the need to catheterize the urinary bladder were carefully recorded.

They were told to go to the outpatient department every week for a month, or sooner if they had any symptoms that could mean issues, and then every three months after that.

Patients were questioned about continence at the three-monthly follow-up, and then 24 months after the operation.

No patient was lost at follow-up which was completed up to 30 June 2025.

Statistical analysis: Statistical analysis was carried out using the Statistical Package for Social Science (SPSS) program v. 10. Mean day of return to work was expressed as mean ± SD. The comparison between means was done using the two-tailed Student's t-test. Fisher's exact test and X² was used to compare both groups. Statistical significance was assumed when probability was less than 0.05.

Results

Table 1: postoperative course in the two groups of patients

Item	Group A (n= 120)	Group B (n= 120)	P value
Pain after 6 hours	120	120	-
Pain after 12 hours	120	120	-
Pain after 24 hours	100	120	0.114
Pain after first defecation	100	120	0.114
Pain after first week	20	70	0.006*
Need for analgesia after 6 hours	120	120	-
Need for analgesia after 12 hours	120	120	-
Need for analgesia after 24 hours	50	110	0.000*
Need for analgesia after first defecation	100	120	0.114
Need for analgesia after first week	0	20	0.109
Pain score after 6 hours			
No pain	0	0	0.205
Mild	0	0	
Intense	80	100	
Excruciating	20	40	

Pain score after 12 hours			
No pain	0	0	0.054
Mild	0	0	
Intense	100	120	
Excruciating	0	20	
Pain score after 24 hours			
No pain	20	0	0.000*
Mild	50	10	
Intense	50	110	
Excruciating	0	0	
Pain score after first defecation			
No pain	0	0	0.008*
Mild	0	20	
Intense	100	100	
Excruciating	0	20	
Pain score after first week			
No pain	100	20	0.000*
Mild	20	80	
Intense	0	20	
Excruciating	0	0	
Urine retention (catheterization)	0	5	0.234
Incontinence to stool	0	0	-
Incontinence to liquid stool	5	0	0.489
Incontinence to gas	20	0	0.109
Anal stricture	0	15	0.234
Post operative hemorrhage.	0	0	-
Mean day of return to work	18±2.2	22±2.6	0.000**

*= Significant (Fisher's exact test and X²)

**= Significant (Student's t-test)

The postoperative course of the patients was summarized in table one.

Patients who did hemorrhoidectomy and lateral internal sphincterotomy (group A) did much better than patients who did hemorrhoidectomy only (group B) as can be seen from the significant differences in the pain scores, greater need for analgesics, and early return to work.

Slight anal leakage was common during the first postoperative month in both groups; five patients in lateral internal sphincterotomy group reported transient episodes of incontinence to liquid stool, which decreased gradually and stopped within three months. Also, twenty patients from group (A) complained about the incontinence to gas, which decreased gradually and stopped within three months.

Five patients from group (B) complained about urine retention and needs for catheterization, while there were no cases of urine retention with group (A).

Fifteen patients from group (B) developed anal strictures that were being treated with progressive anal dilatation. While no patient from group (A) developed a stricture.

There was a significant difference in the mean day for return to work between both groups, [18±2.2 in group (A) versus 22±2.6 in group (B)].

The two groups had the same follow-up time, and no recurrences were seen in either group.

Discussion

Evidence shows at last that among various procedures described to treat symptomatic hemorrhoids, surgical open hemorrhoidectomy has the best long-term results and is the only effective treatment for hemorrhoidal disease [19].

Pain after conventional excision hemorrhoidectomy continues to be a major problem. Various techniques have been developed with the aim of reducing postoperative pain [1]. The key issue in all hemorrhoidectomy operations has been the control of postoperative pain, because pain is still

the most common reason for suitable patients turning away from surgery. Throughout the surgical literature, various enthusiasts have attempted different techniques or modifications to overcome this problem of postoperative pain^[20].

The exact cause of postoperative pain after hemorrhoidectomy has not been defined yet, but hypertonia of internal sphincter is widely believed to be the cause of postoperative pain after hemorrhoidectomy^[8, 9, 10]. Anorectal manometric studies have shown that internal sphincter spasm is present even before surgery in patients with hemorrhoids^[21].

Eisenhammer^[22] was the first to propagate the idea that post-hemorrhoidectomy pain is due to spasm of the internal sphincter and described that its division through one of the hemorrhoid wounds is certainly an effective way to lessen postoperative pain.

In our series the pain scores and analgesic requirements differed significantly between the two groups; in particular, pain score after 24 hours, after the first week and at first defecation, when anal sphincter spasm causes most pain. Our results are in accordance with those of Galizia *et al.*,^[23] and Kanellos *et al.*,^[13] who stated that pain perception showed statistical difference after the first defecation and one week after surgery. Also, Diana *et al.*,^[24] stated that the number of patients who suffered from post operative pain decreased significantly when performing internal sphincterotomy. On the other hand, contrary to our results, Khubchandani,^[8] reported no statistical difference in post operative pain after adding a sphincterotomy.

In this study there was no statistical difference between both groups for post operative continence, in group A there were five patients who developed transient episodes of incontinence to liquid stool and twenty patients with incontinence to gas, but all were gradually improved and stopped within three months. The same results were given by Kanellos *et al.*,^[13] who stated that, in their study, a greater proportion of patients experienced gas incontinence and soiling in the internal sphincterotomy group, but the differences were not statistically significant. While Khubchandani,^[8] claim that a sphincterotomy increases significantly the risk of incontinence postoperatively.

Regarding the technique of sphincterotomy in our series we did a lateral internal sphincterotomy about one cm, in the left hemorrhoidectomy wound. This in accord with that of Diana *et al.*,^[24] Wile Galizia *et al.*,^[23] and Kanellos *et al.*,^[13] reported sphincterotomy up to the dentate line.

In our series there was statistically significant early return to work in (group A) than that of (group B). No patients experienced urinary retention, and there was no development of anal strictures in (group A) patients. While in (group B) five patients experienced urinary retention and needed for catheterization, and five patients developed anal strictures and needed progressive anal dilatation. Also, Galizia *et al.*,^[11] stated that, patients in the lateral internal sphincterotomy group did not experience urinary retention, and there were no anal strictures in patients, whereas fifteen patients who underwent hemorrhoidectomy alone developed anal strictures and needed progressive anal dilatations.

Conclusion

The addition of lateral internal sphincterotomy to Milligan-Morgan hemorrhoidectomy is safe procedure, reduces pain, and avoids post operative urine retention and stenosis.

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