# **ORIGINAL ARTICLE**

# Comparison of Outcome in Unilateral and Bilateral Sphinctorotomy in Patients of Haemorrhoidectomy

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# ABSTRACT

The anal canal is the site of the dilated veins known as haemorrhoids. They're essential for achieving and maintaining complete continence. In the anal canal, they can be either internal or external. Haemorrhoids can cause pain, pruritis, mucous discharge, mucosal prolapse, bleeding (which is often painless), and brilliant red haemorrhage. <sup>2</sup> There are four different types of haemorrhoids, ranging from first degree (just bleeding) to fourth degree (prolapse and stay reduced on reduction) (permanently prolapsed).<sup>3</sup> Even though every case of haemorrhoids bleeds, there are different categories based on how far the haemorrhoids have prolapsed. Only when things get complicated do you see any signs. <sup>4</sup>

**Objective and Methodology:** This research aims to compare the rates of pain experienced by patients after undergoing haemorrhoidectomy, lateral internal sphincterotomy, and bilateral internal sphincterotomy. A Randomized Controlled Trial (RCT) study design was used for this investigation. The investigation took place at the Surgery Department of Allied Hospital in Faisalabad (March to September 2021). In all, 140 patients aged 25-65 with severe haemorrhoids (grades III and IV) were chosen. Any neurological deficiency or chronic pain syndrome, renal disease, or bleeding disorders, as well as patients with recurring haemorrhoids or other anorectal pathology (fistula in ano, anal fissures, etc.), were not included in the study. Hemorrhoidectomy with bilateral internal sphincterotomy (Group BL) and hemorrhoidectomy with lateral internal sphincterotomy (Group UL) were evaluated for postoperative pain.

**Results:** Patients in Group BL had a mean age of 45.36 10.33 years, whereas those in Group UL had a mean age of 43.94 10.22 years. A whopping 76 (54.29%) of the patients fell within the 25-45-year-old age range. The ratio of male to female patients was 2.1:1, with 95 males (67.86%) and 45 females (32.14%) in a total of 140 patients. Pain was experienced by 4 (5.71%) of my patients following haemorrhoidectomy with bilateral internal sphincterotomy and by 25 (35.71%) of my patients following haemorrhoidectomy (p 0.0001).

**Conclusion:** Patients undergoing hemorrhoidectomy were less likely to experience postoperative pain if bilateral internal sphincterotomy was performed.

Keywords: Haemorrhoids, internal sphincterotomy, post-operative pain.

#### INTRODUCTION

The anal canal is the site of the dilated veins known as haemorrhoids. They're essential for achieving and maintaining complete continence. In the anal canal, they can be either internal or external.<sup>1</sup> Haemorrhoids can cause pain, pruritis, mucous discharge, mucosal prolapse, bleeding (which is often painless), and brilliant red haemorrhage. <sup>2</sup> There are four different types of haemorrhoids, ranging from first degree (just bleeding) to fourth degree (prolapse and stay reduced on reduction) (permanently prolapsed).<sup>3</sup> Even though every case of haemorrhoids bleeds, there are different categories based on how far the haemorrhoids have prolapsed. Only when things get complicated do you see any signs.<sup>4</sup>

Additionally, in 1985, four classifications were established for internal haemorrhoids based on the extent of prolapse;<sup>4</sup>in the first category, there is absolutely no prolapse. The only noticeable organs are the blood vessels; Grade II prolapses occur when bearing down but resolve on their own; Grade III prolapses need to be reduced manually; and Grade IV prolapses cannot be reduced manually.<sup>5</sup> The subepithelial tissue that forms the hemorrhoidal cushions does not prolapse in patients with grades I and II internal haemorrhoids. However, these individuals may suffer sudden attacks accompanied by excruciating pain and blood loss.<sup>6</sup>

Colorectal surgeons see haemorrhoids, which manifest as painful, swollen veins in the lower section of the rectum or anus, more frequently than any other benign ailment. <sup>7</sup> Early stages (Grades I and II) normally just require conservative therapy, but later stages (Grades III and IV) almost always require surgical intervention. <sup>8</sup> The standard of care for surgical treatment of haemorrhoids is conventional hemorrhoidectomy, which can be performed through either an open or closed procedure. There is a lot of pain and discomfort throughout the treatment, and the recuperation time is fairly extensive. <sup>9</sup>

Hemorrhoidectomy is still the best option for patients with haemorrhoids in grades 3 and 4, especially if they are experiencing

symptoms. <sup>10</sup> Hemorrhoidectomy's biggest negative is the unpleasant pain experienced in the first week after surgery. <sup>11</sup> Pain following hemorrhoidectomy is typically caused by a spasm of the internal sphincter, which is left exposed during an open procedure. This is especially true for younger patients with higher anal tone. <sup>12</sup>

It has been attempted to lessen the discomfort felt after a hemorrhoidectomy in a number of different ways. With reduced complications, discomfort and postoperative internal sphincterotomy is a popular surgical option; with sphincterotomy a decrease in postoperative pain occurs. 15,16 According to a study, 92.8% of patients who underwent haemorrhoidectomy with bilateral internal sphincterotomy reported no discomfort after the operation, while 75.2% of those who underwent the procedure without the additional procedure reported no pain. <sup>17</sup> According to research by Farooq AS et al, only 13.33% of patients who underwent haemorrhoidectomy without lateral internal sphincterotomy experienced no pain after the operation, but this number increased to 63.33% in patients who underwent the treatment in conjunction with this technique. <sup>18</sup>

The goal of this study was to compare the effectiveness (in terms of post-operative pain) of hemorrhoidectomy with and without bilateral internal Sphincterotomy, as post-operative pain following hemorrhoidectomy is the most common patient complaint that not only affects the patients physically but is also associated with high morbidity. Based on these findings, we can make changes to our normal practise guidelines to ensure these patients receive the most effective method, one that is also associated with less post-operative pain, thereby decreasing the whole population's rate of morbidity.

#### METHODOLOGY

This research aims to compare the rates of pain experienced by patients after undergoing haemorrhoidectomy, lateral internal sphincterotomy, and bilateral internal sphincterotomy. A Randomized Controlled Trial (RCT) study design was used for this investigation. The investigation took place at the Surgery Department of Allied Hospital in Faisalabad, (March to September 2021).

With a 5% level of significance, 80% power of study, and assuming 75.2% of patients experienced no pain after hemorrhoidectomy without bilateral internal Sphincterotomy and 92.8% of patients experienced no pain after hemorrhoidectomy with bilateral internal Sphincterotomy, the required sample size is 140, or 70 cases in each group. In this study, 17 participants were selected at random, rather than using a statistically sound method. Participants included 25 to 65-year-old male and female patients with operational classification haemorrhoid grades III and IV. Excluded from the sample were the patients with a history of haemorrhoids, other anorectal pathology (fistula in ano, anal fissures, etc.), neurological deficit, chronic pain syndrome, renal disease (creatinine >1.2mg/dl), or bleeding disorders (INR>2).

Totaling 140 patients, those hospitalized to the Department of Surgery at Allied Hospital in Faisalabad who met the inclusion criteria were chosen after receiving approval from the local ethical review committee.

All patients provided their informed permission before their treatment began. Patients' ages, sexes, diagnoses, body mass indexes, haemorrhoid grades, and locations were recorded. Each patient was given the opportunity to select a slip from a jumbled pile; half of the slips contained the letter "BL," and the other half contained the letter "UL." Hemorrhoidectomy with bilateral internal sphincterotomy and hemorrhoidectomy with lateral internal sphincterotomy (Group UL) were performed on patients. One surgeon handled all of the surgeries (with at least 3 years post - fellowship experience). After 24 hours, all patients were evaluated for post-operative pain (using standard operational definitions). It was all written down on a proforma created just for the purpose (Annexure -I).

SPSS version 25.0 was used for all data entry and analysis. Data on mean and standard deviation were provided for age, disease duration, and post-operative pain score. Haemorrhoids pain (yes/no) and severity (III/IV) and location (rural/urban) were also provided as frequencies and percentages. Chi-square analysis was used to compare the two groups' reports of pain, with a significance level set at p 0.05.

Haemorrhoids patients were divided into rural and urban groups based on age, gender, disease duration, haemorrhoids severity, and grade. For analysis of their impact on suffering, we used chi square tests after grouping the participants, with a cutoff for significance set at P 0.05.

#### RESULTS

The participants' ages ranged from 25 to 65, with the mean age being 44.32 10.29. Patients in Group BL had a mean age of 45.36 10.33 years, whereas those in Group UL had a mean age of 43.94 10.22 years. According to Table III, 54.29 percent of the patients were between the ages of 25 and 45.

With a male to female ratio of 2.1:1, 95 (67.86%) of the total 140 patients were men, while 45 (32.14%) were women (Table IV). In this case, 5.39 months (standard deviation: 2.15) was the average time spent sick. Tables I and II demonstrate the demographic breakdown of haemorrhoid sufferers based on their haemorrhoid severity and where they currently make their homes. The average pain rating in Group BL was 1.33 + 0.89 and the average pain rating in Group UL was 5.46 + 1.26.

Pain was experienced by four patients (5.71%) following bilateral internal sphincterotomy haemorrhoidectomy and by twenty-five patients (35.71%) following lateral sphincterotomy haemorrhoidectomy (p 0.0001).

Table III shows the distribution of postoperative pain according to age, gender, disease duration, severity, and country of residence.

Table 1: Distribution of patients according to place of living in both groups.

	Group BL (n=70)		Group UL (n=70)		Total (n=140)	
Place of living						
	Frequency	%age	Frequency	%age	Frequency	%age
Rural	46	65.71	47	67.14	93	66.43
Urban	24	34.29	23	32.86	47	33.57

Table-2: Comparison of frequency of post-operative pain after haemorrhoidectomy with lateral and bilateral internal sphincterotomy.

	Group BL (n=70)		Group UL (n=70)		p-value
	Yes	No	Yes	No	
Post-operative pain	04	66	25	45	0.0001
	(5.71%)	(94.29%)	(35.71%)	(64.29%)	

Table 3: Stratification of post-operative pain with respect to age, gender, duration of disease, grade and place of living.

		Group BL (n=70)	Group UL (n=70)	Group BL (n=70)	Group UL (n=70)	P value
		Pain		Pain		
		Yes	No	Yes	No	
Age (years)	25-45	02	35	19	20	0.0001
		(5.41%)	(94.59%)	(48.72%)	(51.28%)	
	46-65	02	31	06	25	0.108
		(6.06%)	(93.94%)	(19.35%)	(80.65%)	
Gender	Male	03	46	18	28	0.0001
		(6.12%)	(93.88%)	(39.13%)	(60.87%)	
	Female	01	20	07	17	0.033
		(4.76%)	(95.24%)	(29.17%)	(70.83%)	
Duration (months)	≤6	01	45	14	31	0.0002
		(2.17%)	(97.82%)	(31.11%)	(68.89%)	
	>6	03	21	11	14	0.015
		(12.50%)	(87.50%)	(44.0%)	(56.0%)	
Grade	Ш	01	35	09	21	0.002
		(2.78%)	(97.22%)	(30.0%)	(70.0%)	
	IV	03	31	16	24	0.002
		(8.82%)	(91.18%)	(40.0%)	(60.0%)	
Place of living	Rural	02	44	14	33	0.001
		(4.35%)	(95.65%)	(29.79%)	(70.21%)	
	Urban	02	22	11	12	0.003
		(8.33%)	(91.67%)	(47.83%)	(52.17%)	

## DISCUSSION

For third and fourth degree haemorrhoids, the Milligan Morgan haemorrhoidectomy is the most common surgical procedure. Pain after the operation is usually severe because of internal anal sphinter spasm. Reduced internal sphincter tone and postoperative pain can be achieved by performing lateral internal sphincterotomy through one of the haemorrhoidectomy incisions at the same time. Patients sometimes put off getting treatment for prolapsing, bleeding, and unpleasant piles because of the persistent agony they experience after undergoing haemorrhoidectomy. Pain after haemorrhoidectomy has long been thought to result from spasm of the internal sphincter; Eisenhammer was the first to suggest that this muscle could be divided through one the of haemorrhoidectomy incisions to alleviate postoperative discomfort. <sup>19</sup> Lateral internal sphincterotomy is one procedure used to alleviate discomfort (LIS). Haemorrhoidectomy in conjunction with lateral internal sphincterotomy has been shown in a small number of randomised controlled trials to reduce postoperative pain and speed up healing. During LIS, the internal anal sphincter is surgically separated to the right or left.<sup>19,20</sup> Since 2LIS reduces internal sphincter spasm, it facilitates less painful recovery from anal procedures. 20,21

This research was done so that I could see how often people experienced discomfort after having a haemorrhoidectomy, a lateral internal sphincterotomy, or both. Pain was experienced by 4 (5.71%) of patients following bilateral internal sphincterotomy for haemorrhoidectomy and by 25 (35.71%) following lateral sphincterotomy for haemorrhoidectomy in my study (p 0.0001). Pain was reduced significantly with LIS compared to no sphincterotomy (p 0.001) or bilateral sphincterotomy (33.37%) at 48 hours postoperatively. <sup>16</sup> Another study found that after haemorrhoidectomy, patients experienced no pain in 75.2% of cases when no bilateral internal sphincterotomy was performed, and in 92.8% of cases when this surgery was performed. Research by Farooq AS et al. shows that whereas only 13.33% of patients experiencing haemorrhoidectomy without lateral internal sphincterotomy reported no pain after the treatment, this number rises to 63.33% for those who underwent the more invasive procedure. 18

Compared who underwent to a group open haemorrhoidectomy alone (28.8%), individuals whose surgeries included lateral internal sphincterotomy with haemorrhoidectomy reported significantly less postoperative pain. <sup>21</sup> Kanellos discovered that more patients in the non -internal sphincterotomy group than in the internal sphincterotomy group reported experiencing excruciating pain. There was a statistically significant gap between the two groups. <sup>22</sup> Amorroti determined that internal left lateral sphincterotomy is a safe surgery that lessens pain and stenosis after haemorrhoidectomy by the Milligan morgans technique. 23

Nienhuijs and Ozer found that traditional haemorrhoidectomy is linked to more postoperative pain, and they detailed various strategies for mitigating that discomfort. They hypothesised that performing LIS at the same time as haemorrhoidectomy would be the quickest and most efficient way to lessen discomfort after surgery. <sup>24,25</sup> A research with similar findings appeared in Dis Colon Rectum in 2005. <sup>26</sup> Open haemorrhoidectomy, according to the results of a study by Ascanelli, is linked to higher levels of postoperative pain. <sup>27</sup>

The pain and risk of sequelae after haemorrhoidectomy were found to be greatly reduced when sphincterotomy was performed routinely through one of the haemorrhoidectomy sites, as reported in a study by Sami et al. <sup>28</sup> Galizia discovered in a study that doing a lateral internal sphincterotomy in conjunction with a haemorrhoidectomy greatly improves the postoperative course and is safe to do. <sup>29</sup> According to research conducted by Diana C. et al., conventional haemorrhoidectomy without LIS is linked to lengthier periods of postoperative discomfort and slower rates of functional recovery. <sup>30</sup> Research conducted by Chauhan A. et al. found that individuals who underwent haemorrhoidectomy using LIS experienced much less postoperative discomfort than those in the open haemorrhoidectomy group.  $^{\rm 31}$ 

According to a study by Das & Choudhury<sup>32</sup>, the average postoperative pain score for patients who underwent open hemorrhoidectomy with internal sphincterotomy was 1.60, while the average postoperative pain score for patients who underwent open hemorrhoidectomy alone was 2.32. As a result of his research, he came to the conclusion that internal sphincterotomy might be safely added to hemorrhoidectomy to lessen the severity of postoperative pain and the risk of complications, especially in younger patients. In another study, participants who underwent open hemorrhoidectomy without a lateral internal sphincterotomy reported significantly higher postoperative pain (6.121.31) compared to those who underwent the surgical procedure with the sphincterotomy (5.321.25). This difference was statistically significant (P = 0.002). <sup>33</sup>

A study by Aaron Marian Fernandes in 2016 found that after 24 hours, most patients who underwent open hemorrhoidectomy reported either no pain or mild pain, while only a small percentage of patients who underwent open hemorrhoidectomy plus internal sphincterotomy reported persistent, bothersome pain. The p-value for the difference between the two groups was less than 0.0001. <sup>34</sup> Sumaira Otho<sup>35</sup> found that after 24 hours, all patients in the open hemorrhoidectomy combined internal sphincterotomy group experienced moderate to severe pain (84.5 percent moderate pain and 15.6 percent severe pain). Similarly, after 24 hours, 100% of patients who had an open hemorrhoidectomy alone reported moderate to severe discomfort (65.5% moderate, 34.4% severe). P = 0.015 indicates a statistically significant contrast between the two groups. However, discomfort was worse in the open hemorrhoidectomy group compared to the control group (P 0.05).

## CONCLUSION

This research found that compared to lateral internal sphincterotomy, the incidence of post-operative discomfort following haemorrhoidectomy with bilateral sphincterotomy was much lower. The goal of our study was to determine whether routine haemorrhoidectomy combined with bilateral internal sphincterotomy could reduce morbidity in our cohort.

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