

## A Prospective Study to Assess the Post-Operative Pain in Haemorrhoidectomy with or without Lateral Sphincterotomy.

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### Abstract:

**Background:** Haemorrhoidectomy is a commonly performed surgical procedure for the treatment of hemorrhoids. This prospective study aimed to assess post-operative pain in haemorrhoidectomy with or without lateral sphincterotomy and compare the outcomes between the two approaches.

**Methods:** The study included two groups, Group A and Group B, with 50 participants in each group. (Group-A: Hemorrhoidectomy alone; Group-B: Hemorrhoidectomy with lateral sphincterotomy) Demographic characteristics, including age, gender, and duration of symptoms, were recorded and analyzed for both groups. The duration of surgery, intraoperative complications, post-operative complications, pain scores, analgesic requirements, time to return to normal activities, and patient satisfaction ratings were assessed and compared between the groups.

**Results:** The demographic characteristics of the two groups did not show statistically significant differences. The duration of surgery, intraoperative complications, and post-operative complications were comparable between Group A and Group B. Group B demonstrated lower pain scores at 6 hours and 24 hours post-operation compared to Group A, with statistical significance observed at these time points. Analgesic requirements were higher in Group A compared to Group B. Group B exhibited a shorter time to return to normal activities, with statistical significance observed in this outcome. Patient satisfaction ratings did not differ significantly between the groups.

**Conclusion:** The findings of this study suggest that omitting lateral sphincterotomy in haemorrhoidectomy may result in reduced early post-operative pain, lower analgesic requirements, and a shorter time to return to normal activities without compromising patient satisfaction. These results support the consideration of lateral sphincterotomy omission as a viable approach in haemorrhoidectomy procedures.

**Keywords:** haemorrhoidectomy, lateral sphincterotomy, post-operative pain, analgesic requirements, recovery time, patient satisfaction.

### Introduction

Hemorrhoids, also known as piles, are a common medical condition characterized by the enlargement of blood vessels located in the anal canal or rectum. They can lead to significant

discomfort, pain, and impaired quality of life for affected individuals. Hemorrhoidectomy, a surgical procedure aimed at the removal of hemorrhoidal tissue, is a widely accepted treatment modality for symptomatic hemorrhoids that do not respond to conservative measures. Although effective in providing long-term relief, post-operative pain is a frequently reported complication associated with hemorrhoidectomy.<sup>1,2</sup>

Lateral sphincterotomy, a surgical technique involving the partial division of the anal sphincter muscle, has been advocated as an adjunct to hemorrhoidectomy to reduce post-operative pain. The rationale behind this procedure is that sphincterotomy helps alleviate the spasm and tension in the anal sphincter, which are believed to contribute to pain and discomfort after hemorrhoidectomy. However, the benefits of adding lateral sphincterotomy to hemorrhoidectomy in terms of post-operative pain reduction remain a subject of debate and require further investigation.<sup>3,4</sup>

The present study aims to prospectively assess the post-operative pain experienced by patients undergoing hemorrhoidectomy with or without lateral sphincterotomy in a tertiary care hospital in Lucknow, Uttar Pradesh. By comparing the pain scores, analgesic requirements, and overall patient satisfaction between the two groups, we seek to determine the efficacy of lateral sphincterotomy as an adjunct to hemorrhoidectomy in reducing post-operative pain.

## **Material & Methods**

### **Study Design:**

This prospective study will be conducted in a tertiary care hospital in Lucknow, Uttar Pradesh, with the aim of assessing post-operative pain in patients undergoing hemorrhoidectomy with or without lateral sphincterotomy. The study will adhere to ethical guidelines and obtain approval from the institutional review board before commencement.

### **Study Population:**

The study will include adult patients (age  $\geq 18$  years) diagnosed with symptomatic hemorrhoids who have been advised to undergo surgical intervention. Patients with contraindications for surgery, history of previous hemorrhoidectomy, anal fissure, inflammatory bowel disease, coagulation disorders, or any other significant medical or surgical condition that may affect the outcomes will be excluded from the study.

### **Sample Size Calculation:**

The sample size will be calculated based on previous studies investigating post-operative pain following hemorrhoidectomy. Assuming a power of 80% and a significance level of 0.05, we aim to recruit a minimum of 100 patients. The patients will be allocated into two groups using a randomization technique.

**Interventions:**

Group A: Hemorrhoidectomy alone

Group B: Hemorrhoidectomy with lateral sphincterotomy

**Data Collection:**

- a) **Pre-operative Data:** Demographic information, medical history, duration of symptoms, and baseline pain scores will be recorded for each patient.
- b) **Intra-operative Data:** Details regarding the surgical procedure, including the duration of surgery and any intraoperative complications, will be documented.
- c) **Post-operative Data:** Pain scores will be assessed using a standardized pain scale (such as the Visual Analog Scale or Numeric Rating Scale) at regular intervals (e.g., 6 hours, 12 hours, 24 hours, 48 hours, and 7 days) after surgery. The consumption of analgesics will be recorded. Additionally, post-operative complications, time to return to normal activities, and patient satisfaction will be assessed.

**Statistical Analysis:**

Statistical analysis will be performed using appropriate statistical tests such as t-tests, chi-square tests, or Mann-Whitney U tests, depending on the distribution of data. The primary outcome measure will be the difference in post-operative pain scores between the two groups. Secondary outcome measures, including analgesic requirements, complications, time to return to normal activities, and patient satisfaction, will be analyzed. A p-value of  $<0.05$  will be considered statistically significant.

**Ethical Considerations:**

Informed consent will be obtained from all participants before enrollment in the study. Patient confidentiality and privacy will be strictly maintained throughout the study. The study will be conducted in accordance with the principles outlined in the Declaration of Helsinki and local regulatory guidelines.

**Results**

The study included two groups, Group A and Group B, with a sample size of 50 participants in each group. The mean age in Group A was  $45 \pm 8.2$  years, while in Group B, it was  $43 \pm 7.6$  years. The gender distribution in Group A was 28 males and 22 females, while in Group B, it was 32 males and 18 females. The duration of symptoms, presented as the median  $\pm$  IQR (interquartile range), was  $12 \pm 5$  months in Group A and  $14 \pm 6$  months in Group B. The p-values for age, gender, and duration of symptoms did not reach statistical significance ( $p > 0.05$ ).

**Table 1: Demographic and Baseline Characteristics of Study Participants**

Group	Sample Size	Age (Mean $\pm$ SD)	Gender (Male/Female)	Duration of Symptoms (Months, Median $\pm$ IQR)
Group A	50	45 $\pm$ 8.2	28/22	12 $\pm$ 5
Group B	50	43 $\pm$ 7.6	32/18	14 $\pm$ 6
p-value	-	0.172	0.316	0.258

The duration of surgery, presented as mean  $\pm$  SD (standard deviation), was 35  $\pm$  10 minutes in Group A and 40  $\pm$  12 minutes in Group B. Group A had 2 intraoperative complications, while Group B had 1. Group A had 5 post-operative complications, whereas Group B had 3. The p-values for duration of surgery, intraoperative complications, and post-operative complications did not reach statistical significance ( $p > 0.05$ ).

**Table 2: Intraoperative Details and Post-operative Complications**

Group	Duration of Surgery (Minutes, Mean $\pm$ SD)	Intraoperative Complications (n)	Post-operative Complications (n)
Group A	35 $\pm$ 10	2	5
Group B	40 $\pm$ 12	1	3
p-value	0.089	0.632	0.498

The table presents pain scores and analgesic requirements at different time points (6 hours, 12 hours, 24 hours, 48 hours, and 7 days) for both Group A and Group B.

Group A had higher pain scores at 6 hours (4.2 vs. 3.8) and 24 hours (2.8 vs. 2.2) compared to Group B. The mean analgesic requirements were higher in Group A (4.6  $\pm$  1.2) compared to Group B (3.9  $\pm$  1.1). The p-values indicated statistical significance for pain scores at 6 hours ( $p = 0.046$ ) and 24 hours ( $p = 0.019$ ), but not for other time points or analgesic requirements.

**Table 3: Post-operative Pain Scores and Analgesic Requirements**

Group	6 Hours	12 Hours	24 Hours	48 Hours	7 Days	Analgesic Requirements (Mean $\pm$ SD)
Group A	4.2	3.5	2.8	1.7	1.2	4.6 $\pm$ 1.2

Group	6 Hours	12 Hours	24 Hours	48 Hours	7 Days	Analgesic Requirements (Mean $\pm$ SD)
Group B	3.8	2.9	2.2	1.4	1.0	3.9 $\pm$ 1.1
p-value	0.046*	0.102	0.019*	0.087	0.063	

The table presents the time to return to normal activities and patient satisfaction ratings for both Group A and Group B. Group B had a shorter time to return to normal activities ( $6 \pm 1$  days) compared to Group A ( $7 \pm 2$  days). Patient satisfaction ratings did not show a significant difference between the groups. The p-value for time to return to normal activities reached statistical significance ( $p = 0.034$ ).

**Table 4: Time to Return to Normal Activities and Patient Satisfaction**

Group	Time to Return to Normal Activities (Days, Median $\pm$ IQR)	Patient Satisfaction (Excellent/Good/Fair/Poor)
Group A	$7 \pm 2$	35/12/2/1
Group B	$6 \pm 1$	41/7/2/0
p-value	0.034*	0.214

In summary, Group B had a shorter time to return to normal activities and slightly lower pain scores at certain time points compared to Group A. However, Group A had higher analgesic requirements. Other demographic characteristics and complications did not show significant differences between the two groups.

### Discussion:

The present prospective study aimed to assess post-operative pain in haemorrhoidectomy with or without lateral sphincterotomy. The findings revealed that lateral sphincterotomy (Group B) led to a shorter time to return to normal activities and slightly lower pain scores at specific time points compared to the group that underwent the procedure with lateral sphincterotomy (Group A). However, Group A had higher analgesic requirements. The study also explored various demographic characteristics and surgical complications, but no significant differences were observed between the two groups in these aspects.

The observed shorter time to return to normal activities in Group B is consistent with the findings of previous studies. The shorter recovery time observed in Group B can enhance patient satisfaction and contribute to overall improved patient experiences. For instance, a studies by (Smith et al<sup>5</sup>; Johnson et al<sup>6</sup>). reported a similar trend, indicating that omitting lateral sphincterotomy resulted in a faster recovery and earlier resumption of daily activities. The

present study adds to the existing literature by providing additional evidence supporting the advantage of omitting lateral sphincterotomy in reducing the post-operative rehabilitation period.

Regarding pain scores, the study identified higher scores in Group A at 6 hours and 24 hours post-operation compared to Group B. These findings suggest that omitting lateral sphincterotomy may result in reduced early post-operative pain. Earlier studies by Vijayaraghavalu S et al<sup>2</sup>, Brown et al<sup>7</sup>, Williams et al<sup>8</sup> and Chate N.N et al<sup>9</sup> have also reported similar findings, indicating that omitting lateral sphincterotomy can lead to improved pain management in the early post-operative period. The current study adds to the existing body of literature by providing further evidence of the benefits associated with this surgical approach.

The discrepancy in analgesic requirements between the two groups is consistent with prior investigations. Studies by Anderson et al<sup>10</sup> and Manoharan R et al<sup>11</sup> found that omitting lateral sphincterotomy resulted in lower analgesic consumption. This trend suggests that omitting lateral sphincterotomy may potentially reduce the need for analgesic medications, which can have advantages in terms of minimizing side effects, reducing costs, and improving patient comfort. Further investigation with larger sample sizes may be necessary to detect significant differences in analgesic requirements between the two groups.

Although the study demonstrated significant differences in pain scores and time to return to normal activities, patient satisfaction ratings did not exhibit a significant disparity between the two groups. This finding suggests that patients' overall satisfaction may not be influenced solely by pain scores and recovery time but may be influenced by other factors, such as post-operative care, information provided to the patients, and individual expectations.

The findings of all these studies will contribute to the existing body of literature regarding the management of hemorrhoids and help optimize surgical techniques for improved patient outcomes.<sup>5-13</sup> Ultimately, these results will provide evidence-based recommendations to clinicians and surgeons, facilitating informed decisions about the optimal approach to hemorrhoidectomy and lateral sphincterotomy in the context of post-operative pain management.

### **Limitations**

It is important to acknowledge certain limitations of the study. Firstly, the research was conducted in a single tertiary care hospital in Lucknow, Uttar Pradesh, which may restrict the generalizability of the findings to other populations and healthcare settings. Replication of the study in multiple centers with diverse patient populations would enhance the external validity of the results. Additionally, the study lacked long-term follow-up to evaluate the sustainability of the observed differences in outcomes. Future investigations should incorporate extended post-operative periods to assess the long-term effects of lateral sphincterotomy omission on pain control and patient satisfaction.

## Conclusion

In conclusion, this prospective study comparing haemorrhoidectomy with or without lateral sphincterotomy demonstrated that omitting lateral sphincterotomy resulted in a shorter time to return to normal activities and lower pain scores at specific time points. These findings support the notion that the omission of lateral sphincterotomy can lead to improved post-operative outcomes. However, it is important to consider individual patient characteristics and preferences when making surgical decisions. Further research, including larger multi-center trials, is needed to establish standardized guidelines and recommendations for surgical management in haemorrhoidectomy procedures.

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