

# Pudendal Nerve Block as an Adjuvant in Management of Postoperative Pain in Hemorrhoidectomy: A Single-center Study

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## Abstract

**Background:** Following open hemorrhoidectomy, severe pain is common which requires both a few days' postoperative stay in hospital and the use of opioid analgesics, which is associated with several adverse effects. The use of adjuvant pudendal nerve block solves both these problems.

**Aim:** The aim is to compare the efficacy of adjuvant pudendal nerve block to routine postoperative analgesic therapy in the surgical management of hemorrhoids.

**Materials and Methods:** Prospective cohort study was conducted on 70 patients treated for grade III and IV hemorrhoids with open (Milligan-Morgan) hemorrhoidectomy; patients were divided into group A (offered adjuvant pudendal nerve block alongside spinal anesthesia) and group B (spinal anesthesia only). Postoperative pain was assessed using the Visual Analog Score.

**Results:** The need for post-operative opioid analgesics was found to be significantly less in the cohort administered adjuvant pudendal nerve block.

**Conclusion:** Administration with adjuvant pudendal nerve block is highly efficacious in the management of postoperative pain after open hemorrhoidectomy and mitigates the need for both opioid analgesics and hospital stay beyond the day of surgery.

**Key words:** Hemorrhoidectomy, Postoperative analgesia, Pudendal nerve block

## INTRODUCTION

Symptomatic hemorrhoids are a common complaint with an estimated worldwide prevalence of about 11%.<sup>[1]</sup> While non-surgical management is the first line of therapy for grades I and II, selected patients with grade III and all patients with grade IV hemorrhoids are routinely offered surgical treatment.<sup>[2]</sup> Within the Indian setup, although newer methods like stapler hemorrhoidopexy have been found to be superior in terms of reduced pain, hospital stay and period before first stools,<sup>[3]</sup> open (Milligan-Morgan) and

closed (Ferguson) hemorrhoidectomy remain the mainstay of surgical treatment owing to lower costs. However, for the same reason, there is often severe and prolonged postoperative pain which necessitates both longer hospital stay for up to 72 h as well as IV opioid analgesics.

Within the extant literature, the use of pudendal nerve block in combination with sedation or spinal anesthesia is seen to be associated with reduced pain and higher patient satisfaction,<sup>[4,5]</sup> however whether it is associated with reduced hospital stay is debatable.<sup>[6]</sup>

In the present study, we have selected patients opting for open hemorrhoidectomy for grade III and grade IV hemorrhoids. All patients are operated on under spinal anesthesia, with either paracetamol or tramadol, an opioid analgesic used as IV analgesic in the postoperative setting, and selected patients are given pudendal nerve block intraoperatively, the effectiveness of which is to be analyzed.

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## MATERIALS AND METHODS

The study was conducted on 70 patients presenting to the general surgery outpatient department with grade III and IV hemorrhoids within the year 2022 as a prospective cohort study.

### Inclusion Criteria

- Grade III and IV internal hemorrhoids
- Age above 18 years
- Symptomatic external hemorrhoids.

### Exclusion Criteria

- Grade I or II internal hemorrhoids
- Other concurrent anal conditions such as anal fissures
- Inflammatory bowel disease
- ASA III and IV.

### Sample Size

The sample size was calculated to be 66 based on a comparison with extant literature,<sup>[7]</sup> with a confidence interval of 95% and risk difference of 10%.

### Methodology

Patients were divided into two groups before surgery. Group A was assigned a pudendal nerve block with local infiltration alongside spinal anesthesia, and group B received only spinal anesthesia. The distribution of patients to either group was randomized. All patients were subjected to detailed history taking, thorough digital rectal examination, and proctoscopy, as also colonoscopy to rule out inflammatory bowel disease. Preliminary workup and pre-anesthetic evaluation were done, and enema was given to all patients. Informed consent for surgery was taken from both groups, along with consent to be included in our study.

### Procedure

The transperineal pudendal block was administered immediately after the operative procedure in the following manner: The patient remains in the lithotomy position. The ischial spine on each side is palpated transrectally, and 20 mL of 0.25% bupivacaine is injected percutaneously with the needle advanced transperineally underneath the ischial spine and about 2 cm into the sacrospinous ligament. Postoperatively, all patients were given IV paracetamol, with tramadol administration if necessary. Pain was evaluated based on the Visual Analog Score (VAS).

### Data Collection

Patient details included age, sex, findings on digital rectal examination, proctoscopy, types of anesthesia, postoperative pain on days 0 and 1, need for analgesics, and duration of hospital stay. All the data was analyzed after tabulation, and using the Chi-square test the baseline

characteristics were compared to ensure homogeneity of the groups. The mean VAS scores were calculated and compared in both groups using the student *t* test.

## RESULTS

Seventy patients were participants in our study, of which 35 received adjuvant pudendal block with spinal anesthesia (group A), and the remaining 35 received only spinal anesthesia (group B). On postoperative day 0, 65.71% of patients in group A had no pain whilst only 8.57% of patients in group B had no pain. Among the rest, 25.71% in group A and 45.71% in group B had mild pain, 8.57% in group A and 34.28% in group B had moderate pain, and 0% in group A and 8.57% in group B had severe pain [Table 1].

On postoperative day 1, 45.71% in group A and 22.85% in group B had no pain, 42.85% in group A and 40% in group B had mild pain, 8.57% in group A and 28.57% in group B had moderate pain, and 2.87% in group A and 14.28% in group B had severe pain [Table 2].

In group A, only 11.42% required postoperative analgesics, whereas in group B 42.85% required analgesics [Table 3]. Thus a statistically significant correlation between adjuvant pudendal nerve block and reduced need for analgesia was established.

In group A, 91.42% stayed <48 h in the hospital after surgery, whereas 37.14% of group B patients stayed for above 48 h after surgery. A statistically significant correlation between adjuvant pudendal nerve block and reduced postoperative hospital stay was established [Table 4].

**Table 1: Pain on the day of operation**

Parameters	No pain (%)	Mild pain (%)	Moderate pain (%)	Severe pain (%)
Group A	23 (65.71)	9 (25.71)	3 (8.57)	0
Group B	3 (8.57)	16 (45.71)	11 (34.28)	3 (8.57)

**Table 2: Pain on 1<sup>st</sup> postoperative day**

Parameters	No pain (%)	Mild pain (1–3) (%)	Moderate pain (4–7) (%)	Severe pain (8–10) (%)
Group A	16 (45.71)	15 (42.85)	3 (8.57)	1 (2.87)
Group B	8 (22.85)	14 (40)	10 (28.57)	5 (14.28)

**Table 3: Requirement of analgesics postoperatively**

Parameters	Required analgesics (%)	No analgesics required (%)
Group A	4 (11.42)	31 (88.57)
Group B	15 (42.85)	20 (57.14)

**Table 4: Postoperative hospital stay**

Parameters	Hospital stay<48 h (%)	Hospital stay >48 h (%)
Group A	32 (91.42)	3 (8.57)
Group B	22 (62.86)	13 (37.14)

## DISCUSSION

Pudendal nerve block has routinely been used in both general surgical and gynecological procedures for many years and is both easily administered and safe. It is also known that the sequelae of hemorrhoidectomy often result in patients undergoing much suffering due to both pain due to the surgery itself as well as the use of opioid analgesics with its attendant adverse effects.

Our study conducted on 70 patients over 10 months shows that pudendal nerve block when used as an adjuvant to spinal anesthesia is unquestionably superior to spinal anesthesia alone with respect to both postoperative pain as well as duration of hospital stay, both of which also result in greater cost-effectiveness, thus ensuring greater patient satisfaction. This is also corroborated by the 2020 meta-analysis conducted by Mohamedahmed *et al.*, comparing hemorrhoidectomy under local anesthesia versus spinal anesthesia.<sup>[8]</sup> Other studies such as by Mongelli *et al.* as well as Mongelli *et al.* (both in 2021) have shown that the use of pudendal nerve block is associated with lower readmissions.<sup>[9]</sup>

## CONCLUSION

Adjuvant pudendal nerve block with spinal anesthesia is shown to be associated with better results in comparison

to routine postoperative analgesia in multiple parameters, including both postoperative pain, use of opioids as rescue analgesics, and hospital stay after surgery. However, further studies are needed on larger sample sizes to further corroborate our findings.

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