# Comparison of Postoperative Outcomes with Perineal Block Along with Spinal Anesthesia versus Spinal Anesthesia Alone in Stapler Hemorrhoidopexy

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**Abstract**

**Background:** Stapler hemorrhoidopexy is widely used for advanced hemorrhoidal disease but may cause significant postoperative pain. Optimizing perioperative analgesia is essential to enhance recovery. This study compared postoperative outcomes between spinal anesthesia alone and spinal anesthesia with a perineal block during stapler hemorrhoidopexy.

**Methods:**A prospective comparative study was conducted on 60 patients (Group A: spinal anesthesia alone; Group B: spinal anesthesia plus perineal block). Postoperative pain was assessed using the Visual Analog Scale (VAS) at 2, 6, 12, and 24 hours. Other outcomes included time to first rescue analgesia, total analgesic requirement (24 hours), time to ambulation, hospital stay duration, and postoperative complications. Data were analyzed using appropriate statistical tests with $p< 0.05$ considered significant.

**Results:**Group B showed significantly lower VAS pain scores at 2 (3.2 ± 1.0 vs 6.4 ± 1.1), 6 (2.8 ± 0.9 vs 5.3 ± 1.0), and 12 hours (2.0 ± 0.6 vs 4.0 ± 0.8) ($p< 0.001$). Time to first rescue analgesia was longer in Group B (6.5 ± 1.1 vs 2.8 ± 0.9 hours; $p< 0.001$), and total analgesic requirement was lower (75 ± 20 mg vs 110 ± 25 mg; $p< 0.001$). Early ambulation (6.2 ± 1.5 vs 9.4 ± 2.3 hours) and shorter hospital stay (36.3 ± 6.2 vs 48.5 ± 7.4 hours) were observed in Group B ($p< 0.001$). Complication rates were similar in both groups.

**Conclusion:** Perineal block combined with spinal anesthesia significantly improves postoperative pain control and recovery without increasing complications.

**Keywords:** hemorrhoids, stapler hemorrhoidopexy, spinal anesthesia, perineal block, postoperative analgesia.

## I. Introduction

Hemorrhoidal disease is one of the most common anorectal disorders, affecting around 4-36% of the population, with higher incidence among older adults and those with certain lifestyle factors (e.g., sedentary behavior) [1, 2]. While conservative therapy is effective early on in the disease, advanced (grade III-IV) hemorrhoids often require surgical intervention to alleviate symptoms and to prevent complications [3]. In 1998, Longo changed the surgical management of hemorrhoids with the introduction of hemorrhoidopexy, a technique that involves the use of a circular stapler to reposition prolapsed anal mucosa and decrease venous congestion above the dentate line [4].

Stapler hemorrhoidopexy procedures use less operative time with less postoperative pain and faster recovery compared to traditional methods, such as open hemorrhoidectomy or the Milligan-Morgan hemorrhoidopexy [5-7].

Among pain management practices, concerns for pain management post surgeries remains an issue, as the suture lines of incisions may be nearby and aligned with high innervation patters for pain sensitive tissues and skin [7]. Management of pain post surgeries incurs costs for patients, as effective pain management is requisite for patients to ambulate post surgeries, and to ultimately have shorter surgeries that enable more patients to have surgeries on the same day [8]. Pain management with spinal anesthesia is done without issues very quickly, and is satisfactory for many surgeries [9]. Unfortunately with spinal anesthesia, since it is a temporary form of pain control, supplemental medications are usually needed, and their side effects have many consequences, including lack of ability to ambulate [10,11].

Specific types of regional anesthesia, like the perineal or pudendal nerve blockade, have recently been recognized for their potential to provide long-term postoperative pain relief after undergoing anorectal surgery [12,13]. The infiltration of local anesthetic into the perianal area interrupts the transmission of pain from the somatic nerve fibers which lowers pain levels as well as decreases the requirement for systemic pain relief [19,20]. Previous studies have described nerve blocks to provide the opportunity to walk sooner after surgery and recover at an accelerated rate through the mechanism of reduced opioid consumption [13,21]. While there have been concerns raised about performing a regional block and the complications or difficulties that arise from that [15,16], other recent studies have shown that the techniques, if done appropriately, pose no risk and are effective as supplements to the usual anesthetic techniques.

In the last few years, multi-modal pain management and Enhanced Recovery After Surgery (ERAS) protocols have been developed which consider regional analgesia an essential element to improve recovery after surgery for colorectal and perineal procedures [17,18,22]. Nonetheless, the literature assessing the effect of perineal block paired with spinal anesthesia, particularly with stapler hemorrhoidopexy, is scarce, and there is still a gap to fill regarding postoperative pain relief and recovery outcomes.

Consequently, this study aimed to compare the postoperative outcomes of patients undergoing stapler hemorrhoidopexy under spinal anesthesia alone vs spinal anesthesia with a perineal block. The authors hypothesized that the addition of a perineal block would provide better postoperative analgesia, a decreased need for analgesics, more rapid mobilization, and an expedited return to normal activities, with no increase to complications.

## II. Materials and Methods

### Study Design

Prospective, comparative, observational study conducted from January 2024 to October 2024 at the Department of General Surgery, Chirayu Medical College & Hospital, Bhopal, Madhya Pradesh.

### Sample Size

Total 60 patients, divided into:

- **Group A**-Spinal anesthesia alone (*n*=30)
- **Group B**-Spinal anesthesia + perineal block (*n*=30)

**Inclusion Criteria**

- 18-65 years
- ASA Grade I-II
- Grade III-IV hemorrhoids
- Undergoing elective stapler hemorrhoidopexy

**Exclusion Criteria**

- Allergy to local anesthetics
- Coagulopathies
- Previous anorectal surgery
- Systemic infection
- Neurological disorders

**Anesthetic Technique**

- **Spinal anesthesia:** 3 ml of 0.5% hyperbaric bupivacaine.
- **Perineal block (Group B):** 20 ml of 0.25% bupivacaine administered bilaterally targeting pudendal nerve distribution.

**Outcome Measures**

- Pain using Visual Analog Scale (VAS) at 2, 6, 12, and 24 hours
- Time to first rescue analgesia
- Total 24-hour analgesic consumption
- Time to ambulation
- Hospital stay duration
- Postoperative complications

**Statistical Analysis**

Data were analyzed using SPSS v26. Continuous data were expressed as mean ± SD. Student t-test and Chi-square test were used. Statistical significance: $p < 0.05$.

## III. Results

A total of 60 patients who met the inclusion criteria were included in the study and were evenly divided into two groups (Group A: spinal anesthesia alone, n=30; Group B: spinal anesthesia with perineal block, n=30). There were no significant differences in baseline demographic or clinical characteristics between the two groups, confirming their comparability at the start of the study. Postoperative outcomes were then evaluated with regard to pain scores, analgesic requirement, time to first rescue analgesia, recovery parameters, and incidence of complications.

**Table 1 -Baseline Characteristics**

| **Parameter** | **Group A (n=30)** | **Group B (n=30)** | ***p-value*** |
|---|---|---|---|
| Age (years) | 43.5 ± 10.1 | 44.2 ± 9.7 | 0.78 |
| Male/Female | 19/11 | 18/12 | 0.79 |
| BMI (kg/m²) | 25.8 ± 3.2 | 26.1 ± 3.5 | 0.63 |
| ASA I/II | 21/9 | 20/10 | 0.78 |

The baseline demographic and clinical parameters are summarized in Table 1. The mean age of patients in Group A was 43.5 ± 10.1 years, while Group B had a mean age of 44.2 ± 9.7 years (p = 0.78). Male-to-female ratios were similar (Group A: 19/11 vs Group B: 18/12; p = 0.79). The mean BMI was 25.8 ± 3.2 kg/m² in Group A and 26.1 ± 3.5 kg/m² in Group B (p = 0.63). Most patients belonged to ASA Grade I in both groups. None of the baseline variables showed statistically significant differences (p > 0.05), indicating that both groups were comparable at study initiation.

**Table 2 -Postoperative Pain (VAS Scores)**

| Time | Group A | Group I | *p-value* |
|---|---|---|---|
| 2 hrs | 6.4 ± 1.1 | 3.2 ± 1.( | <0.001 |
| 6 hrs | 5.3 ± 1.0 | 2.8 ± 0.9 | <0.001 |
| 12 hrs | 4.0 ± 0.8 | 2.0 ± 0.( | <0.001 |
| 24 hrs | 2.6 ± 0.7 | 2.1 ± 0.5 | 0.06 |

Table 2 demonstrates a significant reduction in pain intensity among patients receiving perineal block. At 2 hours postoperative, Group B showed a mean VAS score of 3.2 ± 1.0, significantly lower than 6.4 ± 1.1 in Group A (p < 0.001). This trend persisted at 6 hours (2.8 ± 0.9 vs 5.3 ± 1.0, p < 0.001) and 12 hours (2.0 ± 0.6 vs 4.0 ± 0.8, p < 0.001). By 24 hours, pain scores were marginally lower in Group B (2.1 ± 0.5) compared to Group A (2.6 ± 0.7), though the difference was not statistically significant (p = 0.06).

**Table 3 -Analgesic Requirement and Time to Rescue Dose**

| Parameter | Group A | Group B | *p-value* |
|---|---|---|---|
| Time to first rescue analgesia (hrs) | 2.8 ± 0.9 | 6.5 ± 1.1 | <0.001 |
| Total analgesic requirement (mg) | 110 ± 25 | 75 ± 20 | <0.001 |

As shown in Table 3, the time to first rescue analgesic dose was significantly prolonged in Group B (6.5 ± 1.1 hrs) compared to Group A (2.8 ± 0.9 hrs) (p < 0.001). Furthermore, Group B required significantly less total postoperative analgesic dosage (75 ± 20 mg) than Group A (110 ± 25 mg) over the first 24 hours (p < 0.001).

**Table 4 -Postoperative Recovery Parameters**

| Parameter | Group A | Group B | *p-value* |
|---|---|---|---|
| Time to ambulation (hrs) | 9.4 ± 2.3 | 6.2 ± 1.5 | <0.001 |
| Hospital stay duration (hrs) | 48.5 ± 7.4 | 36.3 ± 6.2 | <0.001 |

Recovery outcomes are presented in Table 4. Group B patients ambulated earlier (6.2 ± 1.5 hrs) compared to Group A (9.4 ± 2.3 hrs, p < 0.001). Similarly, Group B had a shorter hospital stay (36.3 ± 6.2 hours) versus Group A (48.5 ± 7.4 hours; p < 0.001).

**Table 5 -Postoperative Complications**

| Complication | Group A | Group B | *p-value* |
|---|---|---|---|
| Urinary retention | 3 (10%) | 2 (6.7%) | 0.64 |
| Minor bleeding | 1 (3.3%) | 1 (3.3%) | 1.00 |
| Surgical site infectio | 1 (3.3%) | 0 | 0.31 |
| PONV | 4 (13.3%) | 3 (10%) | 0.69 |

Table 5 shows no statistically significant differences in postoperative complications between the groups. Urinary retention occurred in 3 patients (10%) in Group A and 2 patients (6.7%) in Group B ($p = 0.64$). Minor bleeding was seen in 1 (3.3%) patient in each group ($p = 1.0$). Surgical site infection occurred in 1 patient in Group A but none in Group B ($p = 0.31$), while postoperative nausea/vomiting was comparable (Group A: 4 cases; Group B: 3 cases, $p = 0.69$).

## IV. Discussion

The present study assessed the effectiveness of incorporating a perineal block to spinal anesthesia in patients who underwent stapler hemorrhoidopexy. Results indicated that patients who were in the combined technique group had significantly lower postoperative pain scores in the first twelve hours after the surgery, had a longer duration for the first rescue analgesia, and had lower total analgesic consumption. Moreover, patients in this group had faster ambulation and shorter hospital stays than patients in the spinal anesthesia only group. Importantly, there were no significant differences in the rates of postoperative complication between the two groups which suggests that adding a perineal block does not impose a higher period of risk in the perioperative period.

Although stapler hemorrhoidopexy has fewer complications postoperatively and faster recovery than conventional hemorrhoidoectomy, pain is still prevalent in the postoperative period. This is typically due to the staple line that is in close proximity to the somatically innervated tissue that is near the dentate line [5-7]. This justifies the necessity of optimizing pain control as it can affect the recovery period of a patient. Inadequate pain control can hinder ambulation, increase opioid usage, and prolong hospital stay [8,10,11]. In the present study, improved analgesic outcomes in the perineal block group support the growing evidence that favors the regional anesthesia techniques for the adjunct of conventional techniques in the anorectal surgeries.

The findings are comparable to existing studies. Díaz-Palacios and Eslava-Schmalbach showed the use of perirectal block relieved postoperative pain and decreased the use of analgesics in patients after outpatient anorectal surgeries [12]. Likewise, pain relief and the use of opioids were decreased when the block of the pudendal nerve was added to proctological surgeries done with anesthetic spinal [13]. A meta-analysis, Pudendal nerve block and pain relief in hemorrhoidal surgery, confirmed the findings of Mongelli et al. [19]. Postkus et al. safe and efficient local perianal infiltration, and it improved comfort and recovery after an operation [20]. Jogie and Jogie also showed the importance of nerve blocks in reducing the use of anesthetics and analgesics [21]. Also, Huang et al. mentioned that under the ERAS protocols, nerve blocks should be considered a key part of the multimodal analgesic plan, which improves recovery in colorectal surgery [22]. The study confirmed findings that demonstrate the clinical importance of the study.

Despite raising issues such as the varying length of the blocks of time and the risk factors to do with the peripheral blocks [15], there were no issues of a purely technical nature or complications as a result of the blocks in this study. This could be explained by the methodical approach and the experience of the anesthesia professionals. In any case, a good level of safety was maintained in this study, and the study was well tolerated.

In summary, the inclusion of a perineal block to spinal anesthesia in stapler hemorrhoidopexy resulted in a favorable improvement in the outcome of analgesia, mobilization in a more timely manner, and shortened time in the hospital, all of which were accomplished with no increase to the level of complications. The outcome of the study indicates the potential of success of the approach as well as the degree to which such approaches agree to the principles of Enhanced Recovery After

Surgery, as indicated multimodal analgesia and reduction of the need to use opioids [17,18]. The study's single center design and limited number of subjects do, however, negatively affect the ability to generalize the study results, as well as the very long term consequences such as chronic pain, recurrence, or disability were ultimately not evaluated. The study suggests Larger, multicentric randomized controlled trials with long term results are warranted to address the issues in the study and to determine the ideal ways to dose local anesthetic to achieve the desired results.

Combining a perineal block with spinal anesthesia can be theorized as a reliable anesthetic strategy capable of maximizing postoperative pain relief and facilitating an improved postoperative recovery trajectory after stapler hemorrhoidopexy. This technique could be easily implemented into clinical practice especially for patients who would benefit the most with rapid recovery and minimal pain management requirements.

## V. Clinical Implications

The study shows that adding perineal blocks to spinal anesthesia offers superior pain release, depleted the requirement for analgesics, and enabled quicker recoveries after stapler hemorrhoidopexy. In the context of Enhanced Recovery After Surgery (ERAS) as documented, where the goals are early ambulation, less opioids, and shorter length of stay – these results are important [17,18].

The extra length of the pain free period and less need for residual analgesics in the combined anesthesia subjects adds to the body of evidence on better recovery from surgery with the use of multimodal analgesia that avoids the issues around opioids including nausea, vomiting, sedation, urinary retention, and delay in mobilization [10,11,21]. There is also a growing body of literature that supports use of regional nerve blocks for anorectal surgery as these decrease the need for opioids and improve recovery [12,13,19,20].

In day-care surgery or surgery with short stay, the proven postoperative ease and quicker ambulation from perineal block would allow same-day discharge. This would lower the use of hospital resources and the number of patients in hospital. By reducing the need for systemic analgesics, the approach can help ease pain and adverse effects of analgesics in the postoperative period, especially in the elderly and more vulnerable patients, thus improving satisfaction with the surgery [22].

Most importantly, there was no worsening of postoperative complications when a perineal block was added to this study. this indicates the block safety when the practitioner follows the correct dosing regimen and techniques. Because of the clinical ease of the procedure and its favorable postoperative recovery impact, the perineal block combined with spinal anesthesia should be adopted in all patients undergoing stapler hemorrhoidopexy. This should be especially true in patient populations with a low pain threshold or those who require quick mobilization.

## VI. Limitations

Despite the promising results, this study has certain limitations:

1. Single-center study and small sample size (n=60), which may limit generalizability.
2. Short-term follow-up, limited to the immediate postoperative period, without evaluation of long-term pain, continence, or recurrence.

3. The study did not compare different concentrations or types of local anesthetics, nor did it assess pharmacokinetic profiles.
4. Pain evaluation was limited to VAS scores, and patient satisfaction scales or quality of life indices were not included.
5. The administration of perineal block was performed by experienced anesthesiologists; hence, reproducibility in less specialized settings may vary.

## VII. Future Recommendations

Strengthening the evidence base requires carrying out multicentric randomized controlled trials with larger sample sizes. Future studies ought to examine long-term outcomes, ideal dosing strategies, comparisons between various local anesthetic agents, and the cost-effectiveness associated with the use of perineal block. Including patient-reported outcome measures (PROMs) and quality of life assessments will also enhance understanding of the patient-centered advantages.

## Conclusion

Overall, the present study confirms that the addition of a perineal block to spinal anesthesia enhances postoperative analgesia and accelerates recovery following stapler hemorrhoidopexy, without increasing complications. These findings support the inclusion of perineal block in routine practice for anorectal surgeries where optimal pain control is desired.

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