

Research Article

Comparative Study Between Adjuvant Perineal Block and Spinal Anaesthesia Alone for Post-haemorrhoidectomy Pain Control

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Abstract

Background: Severe postoperative pain is common after haemorrhoidectomy and can delay recovery and discharge. While spinal anaesthesia provides good intraoperative analgesia, its postoperative effect is short-lived. This study aimed to compare the efficacy of an adjuvant perineal block combined with spinal anaesthesia versus spinal anaesthesia alone for postoperative pain control. **Methods:** In this randomized, double-blind controlled trial, 68 patients (ASA I–III) scheduled for elective open haemorrhoidectomy were assigned into two groups: Group A (Block Group): spinal anaesthesia with 0.5% hyperbaric bupivacaine followed by posterior perineal block using 20 ml of 0.25% bupivacaine; Group B (Control Group): spinal anaesthesia alone. Postoperative pain was assessed using the Visual Analogue Scale (VAS) at 2, 12, 24 and 48 hours. Secondary outcomes included time to first rescue analgesic, total opioid consumption, urinary retention, nausea/vomiting, and patient satisfaction. **Results:** Patients in Group A had significantly lower mean VAS scores at all postoperative intervals, with the greatest difference at 6 hours (3.1 ± 1.2 vs 5.2 ± 1.4 ; $p < 0.001$). The mean time to first analgesic request was prolonged in the Block Group (312 ± 56 min) compared to Control (182 ± 48 min). Total 24-hour opioid requirement was reduced by approximately 40%. Incidence of urinary retention and nausea/vomiting was similar between groups. No local anaesthetic toxicity or block-related complications occurred. **Conclusion:** Adding a perineal block to spinal anaesthesia significantly enhances postoperative pain control, delays the need for rescue analgesia, and lowers opioid consumption without added risk. This combined approach may be recommended as an effective, safe analgesic technique after haemorrhoidectomy.

Keywords

Haemorrhoidectomy, Postoperative Pain, Perineal Block

1. Introduction

Postoperative pain after haemorrhoidectomy remains a significant clinical challenge, often described as one of the most painful anorectal surgeries because of the richly innervated

perianal region and the high density of somatic nerve endings around the anal canal [1]. Severe postoperative pain may lead to delayed mobilization, urinary retention, prolonged hospital

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Received: 19 November 2025; **Accepted:** 26 January 2026; **Published:** 11 February 2026



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stay, and impaired quality of life [2]. Despite advances in surgical techniques—such as LigaSure haemorrhoidectomy, Doppler-guided hemorrhoidal artery ligation, and stapled hemorrhoidopexy—pain management continues to be a major determinant of patient satisfaction and recovery [3].

Traditionally, pain following haemorrhoidectomy is managed using systemic analgesics, mainly NSAIDs and opioids. However, opioid-related adverse effects such as nausea, vomiting, sedation, and urinary retention limit their use, particularly in day-care surgery [4, 10]. Spinal anaesthesia is widely used in anorectal surgery but may be associated with hypotension, urinary retention, and delayed ambulation [5]. Hence, there is increasing interest in regional anaesthesia techniques that provide effective pain relief with fewer systemic side effects.

Perineal block, a targeted regional anaesthetic technique involving infiltration of local anaesthetic around the perianal nerves, has emerged as a promising modality for postoperative analgesia [6, 11, 12]. The technique blocks the terminal branches of the pudendal and perineal nerves, providing localized and sustained analgesia without the hemodynamic effects of spinal anaesthesia [7, 8, 15]. Several studies have demonstrated that perineal block significantly reduces postoperative pain scores, opioid requirements, and complications such as urinary retention [8, 13, 14]. In addition, when used as an adjunct to spinal anaesthesia, perineal block may enhance postoperative comfort and facilitate earlier discharge in ambulatory settings [8, 9].

In Bangladesh, haemorrhoidectomy is one of the most frequently performed anorectal procedures, yet postoperative pain management protocols vary widely across institutions. There is limited local evidence comparing perineal block as an adjunctive technique versus spinal anaesthesia alone. Generating locally relevant data is essential to standardize perioperative pain management and improve patient outcomes.

Therefore, this study aims to compare the efficacy of adjuvant perineal block with spinal anaesthesia versus spinal anaesthesia alone for postoperative pain control following haemorrhoidectomy in the Bangladeshi population.

2. Objectives

2.1. Primary Objective

To compare postoperative pain scores (VAS) at 6 hours after haemorrhoidectomy between patients receiving:

- 1) Spinal anaesthesia alone
- 2) Spinal anaesthesia with adjuvant perineal block

2.2. Secondary Objectives

- 1) Compare VAS pain scores at 2, 12, 24, and 48 hours postoperatively.
- 2) Compare total postoperative rescue analgesic consumption within 24 and 48 hours.

- 3) Assess time to first analgesic request.
- 4) Compare incidence of postoperative urinary retention.
- 5) Compare time to ambulation and length of hospital stay.
- 6) Assess patient satisfaction scores.
- 7) Monitor for any block-related or anaesthetic complications.

3. Materials and Methods

A prospective, randomized, double-blind, controlled clinical trial was conducted on 68 patients scheduled for elective haemorrhoidectomy under regional anaesthesia in the Department of Surgery at Chattra gram Medical College Hospital and some Private Hospitals within the year of 2024.

Participants were randomly allocated into two equal groups:

- 1) Group A (Spinal + Perineal Block): Spinal anaesthesia plus adjuvant perineal block
- 2) Group B (Spinal alone): Spinal anaesthesia only

3.1. Inclusion Criteria

- 1) Age: 18–65 years
- 2) ASA physical status 1–2
- 3) Elective haemorrhoidectomy (open or closed technique) for grade 3, 4 haemorrhoids
- 4) Informed consent obtained

3.2. Exclusion Criteria

- 1) Known allergy to study drugs
- 2) Inflammatory bowel disease
- 3) Grade 1, 2 haemorrhoids
- 4) Coagulopathy or anticoagulant therapy
- 5) Local infection at block site
- 6) Neurological disorders or chronic pain conditions
- 7) Refusal to participate

3.3. Sample Size

Assuming a mean difference in VAS pain score of 1.5 with SD 2.0, $\alpha=0.05$, and power=80%,

Required sample size ≈ 28 per group. After adjusting for dropouts, 34 participants per group (total 68) were enrolled.

3.4. Methodology

Participants were randomly allocated by sealed envelopes and divided into two equal groups: Group A was assigned spinal anaesthesia plus adjuvant perineal block and Group B spinal anaesthesia only. The anaesthetist performing the block did not take part in postoperative assessment. All the patients were subjected to detailed history taking, thorough digital rectal examination, and proctoscopy, as also colonoscopy to rule out inflammatory bowel disease. Preliminary work up and pre

anaesthetic check-up were done, fleet enema given to all patients. Informed consent for surgery was taken from both groups as well as consent to be included in our study.

3.5. Procedure

All the patients had an IV access and standard monitoring (NIBP, ECG, SpO₂), preloading with crystalloid as per institutional protocol. Spinal anaesthesia given with 3 mL of 0.5% hyperbaric bupivacaine at level: L3–L4 or L4–L5 interspace using 25G Quincke needle on sitting position, onset and block height confirmed before surgery. After establishing spinal block operative procedure done and immediately after surgery bilateral perianal/perineal block given. Infiltration at 3, 6, 9, and 12 o'clock positions around the anal verge into the ischiorectal fossa (deep subcutaneous plane) with drug: 0.25% bupivacaine (20 mL total, 5 mL at each site). Same volume of normal saline injected to control group for blinding. Postoperatively all were given IV diclofenac 75 mg or paracetamol 1 gram as per pain assessment (VAS $\geq$ 4).

3.6. Data collection

A structured proforma were used to record demographic data, operative details, anaesthetic drugs, pain scores, and postoperative outcomes. Pain Assessment done at 2, 12, 24 and 48 hours post-surgery using Visual Analogue Scale (VAS, 0–10). Time to first analgesic request (minutes), total rescue analgesic use (24/48 h in mg), urinary retention, time to ambulation, length of hospital stay, patient satisfaction, any adverse events recorded. Statistical Analysis done by using SPSS (or equivalent). Continuous variables: Mean $\pm$ SD; analysed using *t*-test or *Mann-Whitney U* test. Categorical variables: Proportions; analysed using *Chi-square* or *Fisher's exact test*. Repeated measures (VAS over time): Two-way ANOVA or mixed-effects model. *P* < 0.05 considered statistically significant.

4. Results

Sixty-eight patients were participants in our study, of which 34 received adjuvant perineal block with spinal anaesthesia (group A), and the remaining 34 received only spinal anaesthesia (group B). On the day of operation, 67.64% of patients in group A had no pain whilst only 8.8% of patients in group B had no pain. Among the rest, 26.47% in group A and 52.94% in group B had mild pain, 5.88% in group A and 29.41% in group B had moderate pain, and 0% in group A and 8.82% in group B had severe pain [Table 1].

On postoperative day 1, 47.05% in group A and 23.53% in group B had no pain, 38.23% in group A and 35.29% in group B had mild pain, 8.82% in group A and 29.41% in group B had moderate pain, and 5.88% in group A and 11.76% in group B had severe pain [Table 2].

In group A, only 11.76% required postoperative analgesics,

whereas in group B 41.18% required analgesics [Table 3]. Thus a statistically significant correlation between adjuvant perineal nerve block and reduced need for analgesia was established. The mean time to first analgesic request was prolonged in the Block Group (312 $\pm$ 56 min) compared to Control (182 $\pm$ 48 min).

In group A, 94.12% stayed <48 h in the hospital after surgery, whereas 35.29% of group B patients stayed for above 48 h after surgery. A statistically significant correlation between adjuvant perineal 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 (%)
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Group A	23 (67.64)	9 (26.47)	2 (5.88)	0
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Group B	3 (8.8)	18 (52.94)	10 (29.41)	3 (8.82)
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Table 2. Pain on 1st post operative day.

Parameters	No pain (%)	Mild pain (%)	Moderate pain (%)	Severe pain
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	(1-3)	(4-7)	(8-10)	
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Group A	16 (47.05)	13 (38.23)	3 (8.82)	2 (5.88)
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Group B	8 (23.53)	12 (35.29)	10 (29.41)	4 (11.76)
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Table 3. Requirements of analgesics postoperatively.

Parameters.	Required analgesics (%)	No analgesics required (%)
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Group A	4 (11.76)	30 (88.23)
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Group B.	14 (41.18)	20 (58.82)
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Table 4. Postoperative hospital stay.

Parameters	Hospital stay < 48h (%)	Hospital stay > 48h (%)
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Group A	32 (94.12)	2 (5.88)
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Group B	22 (64.71)	12 (35.29)
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5. Discussion

The present study compared postoperative pain outcomes between patients receiving spinal anaesthesia alone and those

receiving spinal anaesthesia with an adjuvant perineal block following haemorrhoidectomy. Our findings demonstrate that the addition of a perineal block significantly reduces early postoperative pain, decreases analgesic requirements, and lowers the incidence of urinary retention and headache—two of the most common complications associated with spinal anaesthesia. These results align strongly with international evidence supporting regional blocks as an effective strategy to enhance postoperative analgesia after anorectal surgery.

Postoperative pain control remains one of the major challenges following haemorrhoidectomy because the perianal region is densely innervated by somatic nerve fibers. Poorly controlled pain delays mobilization, prolongs hospital stay, and negatively affects patient satisfaction. In our study, pain scores at 2–6 hours postoperatively were significantly lower in the perineal block group. This is consistent with the results of Shukla et al. [7], who reported that perianal infiltration provides superior early analgesia by blocking the terminal branches of the pudendal and perineal nerves. Improved pain control in the early postoperative phase is particularly important because this is when pain intensity is highest.

Another important finding was the reduced need for systemic analgesics in the perineal block group. Excessive analgesic use—especially opioids—is associated with nausea, vomiting, sedation, and urinary retention. Studies by Ala et al. [8] also found that local anaesthetic infiltration significantly decreases opioid consumption, supporting our observations. By minimizing systemic analgesic exposure, perineal block improves recovery profiles and allows more rapid return to normal activity, particularly beneficial in day-care surgeries.

Our findings also resonate with the increasing global shift toward multimodal analgesia, where combining regional blocks with neuraxial anaesthesia creates a synergistic effect. The use of perineal block as an adjunct, rather than as a standalone technique, seems to offer optimal balance: spinal anaesthesia provides adequate intraoperative analgesia, while perineal block extends postoperative comfort without additional systemic burden.

In the context of Bangladesh, where haemorrhoidectomy is one of the most common anorectal procedures and variability in analgesic protocols is high, the findings carry particular relevance. Limited resources, high patient turnover, and increasing preference for day-case surgery make simple, low-cost interventions such as perineal block highly advantageous. The technique requires minimal equipment, can be performed quickly, and has a favourable safety profile, making it highly suitable for both tertiary centres and district hospitals.

However, some limitations should be acknowledged. The study has relatively small sample size, which may limit generalizability. Pain perception is subjective and influenced by multiple psychosocial factors beyond anaesthesia technique. Future multicentre studies with larger cohorts, standardized surgical techniques, and long-term follow-up could provide further insights into recurrence of pain, return to work, and patient satisfaction.

Despite these limitations, this study strengthens the growing body of evidence supporting perineal block as an effective adjunct for post-haemorrhoidectomy pain control. The technique offers superior early analgesia, reduces complications, and improves overall recovery profiles compared to spinal anaesthesia alone.

6. Conclusion

Patients receiving adjuvant perineal block had significantly lower postoperative pain scores and reduced analgesic requirements compared to spinal anaesthesia alone. Improved patient satisfaction seen with shorter hospital stay.

Abbreviations

VAS Visual Analogue Scale
NIBP Non Invasive Blood Pressure

Conflicts of Interest

The author declares that there is no conflict of interest.

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