

Research Article

Outcomes of Haemorrhoidectomy Performed Under Local Anaesthesia at a Tertiary Care Hospital

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ABSTRACT

Background: Haemorrhoidectomy is an established treatment for advanced symptomatic haemorrhoidal disease. Local anaesthesia may facilitate postoperative recovery and ambulatory management, although outcomes can vary according to surgical technique, anaesthetic regimen, and postoperative care.

Objective: To evaluate the clinical outcomes of haemorrhoidectomy performed under local anaesthesia, focusing on postoperative pain, complications, analgesic requirements, hospital discharge, and follow-up.

Methods: This prospective observational study included 125 adult patients undergoing haemorrhoidectomy under local anaesthesia at a tertiary-care hospital in Pakistan. Demographic, clinical, operative, anaesthetic, and postoperative data were collected using a structured proforma. Outcomes included postoperative pain, bleeding, urinary retention, wound infection, delayed wound healing, readmission, analgesic requirements, hospital stay, and follow-up completion. Data were analysed using IBM SPSS Statistics version 26. Continuous and categorical variables were summarised using appropriate descriptive statistics.

Results: Among 125 patients, 79 (63.2%) were male, and Grade III haemorrhoids were the most common presentation (60.8%). At 24 hours, moderate pain was recorded in 59 (47.2%) patients and severe pain in 18 (14.4%). Postoperative bleeding occurred in 11 (8.8%) patients, urinary retention in 9 (7.2%), wound infection in 5 (4.0%), and delayed wound healing in 8 (6.4%). Unplanned readmission occurred in 4 (3.2%) patients. Same-day discharge was achieved in 87 (69.6%) patients, while 42 (33.6%) required additional analgesia. Follow-up completion was 92.8% on postoperative day 7 and 88.8% on day 30.

Conclusion: Haemorrhoidectomy under local anaesthesia was associated with the feasibility of same-day discharge in selected patients, although postoperative pain and complications remained important considerations. Comparative studies are required to determine its relative effectiveness and safety against other anaesthetic techniques.

Keywords: Haemorrhoidectomy, Local Anaesthesia, Postoperative Pain, Postoperative Complications, Urinary Retention, Ambulatory Surgery, Haemorrhoidal Disease.

INTRODUCTION

Haemorrhoidal disease is one of the most common anorectal disorders and represents an important cause of rectal bleeding, anal discomfort, prolapse, and impaired quality of life. Although its prevalence varies according to diagnostic criteria and population characteristics, a recent systematic review and meta-analysis encompassing 150 studies from 45 countries reported a pooled global point prevalence of 25.92% (95% confidence interval [CI]: 22.62–29.22), highlighting its substantial

healthcare burden [1]. Constipation, older age, obesity, pregnancy, and family history have been associated with haemorrhoidal disease, although the strength of these associations varies across populations [1]. Management depends on disease severity, with dietary modification, lifestyle changes, and office-based procedures commonly used for less advanced disease. Haemorrhoidectomy remains an important surgical option for selected patients with advanced, prolapsing, or refractory haemorrhoids.

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The choice of anaesthesia is an important consideration in haemorrhoidectomy because it can influence postoperative pain, urinary retention, recovery, and the feasibility of day-case surgery. Traditionally, spinal and general anaesthesia have been used for surgical treatment; however, local anaesthesia offers a potential alternative in appropriately selected patients. By providing targeted analgesia while avoiding some disadvantages associated with neuraxial anaesthesia, local anaesthesia may facilitate early mobilisation and discharge. A systematic review and meta-analysis of seven randomised controlled trials involving 440 patients found that haemorrhoidectomy under local anaesthesia, compared with spinal anaesthesia, was associated with lower postoperative pain at 6 and 24 hours, reduced rescue analgesic requirements, and a lower risk of urinary retention and headache[2]. Nevertheless, outcomes may vary according to patient selection, surgical technique, local anaesthetic regimen, and postoperative care. Despite these potential advantages, the practical effectiveness of haemorrhoidectomy under local anaesthesia should be evaluated within individual healthcare settings. Local evidence regarding postoperative pain, bleeding, urinary retention, wound complications, patient recovery, and the need for additional intervention can help determine the suitability of this approach in routine surgical practice. Therefore, the present study aims to evaluate the outcomes of haemorrhoidectomy performed under local anaesthesia at a tertiary care hospital, with particular emphasis on postoperative complications and recovery. The findings may help inform anaesthetic selection, perioperative planning, and the development of context-appropriate surgical protocols.

MATERIAL AND METHODOLOGY

A prospective observational study was conducted to evaluate the outcomes of haemorrhoidectomy performed under local anaesthesia at a tertiary-care hospital in Pakistan. The study was conducted in the Department of General Surgery during the period specified in the approved research synopsis. The study population comprised adult patients presenting with symptomatic haemorrhoidal disease who underwent haemorrhoidectomy under local anaesthesia during the study period. Patients were assessed by the treating surgical team, and eligible

participants were enrolled after obtaining informed consent.

The sample size was calculated using the World Health Organization single-population proportion formula, $n = Z^2 P(1-P)/d^2$, based on an estimated proportion of severe postoperative pain of 8% reported in a previously published study. With a 95% confidence level, an absolute precision of 5%, and an estimated proportion of 0.08, the calculated sample size was 113 patients. After allowing for 10% potential incomplete follow-up or missing data, the adjusted sample size was approximately 125 patients. This calculation was provisional and required confirmation against the primary outcome and sample-size calculation stated in the approved synopsis. A non-probability consecutive sampling technique was used to recruit eligible patients until the required sample size was achieved.

Patients aged 18 years or older with symptomatic haemorrhoidal disease who underwent haemorrhoidectomy under local anaesthesia were included. Patients undergoing haemorrhoidectomy under general or spinal anaesthesia without local anaesthesia as the sole anaesthetic technique, patients requiring additional procedures for unrelated anorectal conditions, and patients with incomplete essential clinical records or who declined informed consent were excluded. Baseline information, including age, sex, presenting symptoms, haemorrhoidal grade, relevant medical history, and comorbidities, was recorded using a structured data-collection proforma. Operative details, including the surgical technique, local anaesthetic agent and dose, operative duration, and intraoperative complications, were documented. Postoperative assessments were performed according to the study protocol and included pain severity, postoperative bleeding, urinary retention, wound infection, delayed wound healing, analgesic requirements, length of hospital stay, and the need for readmission or additional intervention. Follow-up was conducted at the intervals specified in the approved protocol, and all collected information was checked for completeness before analysis. Data were analysed using IBM SPSS Statistics, version 26. Continuous variables were assessed for normality using the Shapiro–Wilk test and, where appropriate, the Kolmogorov–Smirnov test. Normally distributed variables were expressed as mean and standard deviation, while non-normally distributed variables were reported as median and interquartile range.

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Categorical variables were presented as frequencies and percentages. Where appropriate, associations between categorical variables were assessed using the chi-square test or Fisher's exact test, while continuous variables were compared using the independent-samples t-test or Mann-Whitney U test, as applicable. A two-sided p-value of less than 0.05 was considered statistically significant. Ethical approval was obtained from the relevant institutional ethics committee before commencement of the study. Written informed consent was obtained from all participants, and confidentiality was maintained throughout data collection, storage, and analysis. The study was conducted in accordance with the Declaration of Helsinki and applicable institutional ethical requirements.

RESULT

A total of 125 patients were represented in study. The demographic characteristics of the participants are presented in Table 1. Of the participants, 79 (63.2%) were male and 46 (36.8%) were female. The most common age group was 30–39 years, comprising 39 (31.2%) patients, followed by 40–49 years, comprising 35 (28.0%) patients.

The clinical characteristics are presented in Table 2. Grade III haemorrhoids were recorded in 76 (60.8%) patients, followed by Grade IV in 31 (24.8%) and Grade II in 18 (14.4%). Rectal bleeding was reported in 91 (72.8%) patients, prolapse in 83 (66.4%), pain or discomfort in

58 (46.4%), and pruritus in 27 (21.6%). Presenting symptoms were not mutually exclusive. Comorbidities were documented in 29 (23.2%) patients.

Operative and anaesthetic characteristics are summarised in Table 3. Open excisional haemorrhoidectomy was performed in 82 (65.6%) patients, whereas closed excisional haemorrhoidectomy was performed in 43 (34.4%). A lidocaine-based regimen was used in 89 (71.2%) patients. Operative duration was 30 minutes or less in 74 (59.2%) patients and exceeded 30 minutes in 51 (40.8%). Intraoperative complications were recorded in 3 (2.4%) patients.

Postoperative outcomes are presented in Table 4. At 24 hours, pain was classified as mild in 48 (38.4%) patients, moderate in 59 (47.2%), and severe in 18 (14.4%). Postoperative bleeding occurred in 11 (8.8%) patients, urinary retention in 9 (7.2%), wound infection in 5 (4.0%), and delayed wound healing in 8 (6.4%). Unplanned readmission was recorded in 4 (3.2%) patients.

Discharge and follow-up characteristics are presented in Table 5. Same-day discharge occurred in 87 (69.6%) patients, while 38 (30.4%) required an overnight stay or longer. Additional analgesia was required by 42 (33.6%) patients. Follow-up at postoperative day 7 was completed by 116 (92.8%) patients, and follow-up at day 30 was completed by 111 (88.8%) patients.

Table 1. Demographic Characteristics of Participants (N = 125)

Characteristic	Category	n (%)
Age	18–29 years	24 (19.2)
Age	30–39 years	39 (31.2)
Age	40–49 years	35 (28.0)
Age	≥50 years	27 (21.6)
Sex	Male	79 (63.2)
Sex	Female	46 (36.8)

Table 2. Clinical Characteristics and Presentation (N = 125)

Characteristic	Category	n (%)
Haemorrhoidal grade	Grade II	18 (14.4)
Haemorrhoidal grade	Grade III	76 (60.8)
Haemorrhoidal grade	Grade IV	31 (24.8)
Presenting symptom*	Bleeding	91 (72.8)
Presenting symptom*	Prolapse	83 (66.4)
Presenting symptom*	Pain/discomfort	58 (46.4)
Presenting symptom*	Pruritus	27 (21.6)
Comorbidity	Present	29 (23.2)
Comorbidity	Not documented	96 (76.8)

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Table 3. Operative and Anaesthetic Characteristics (N = 125)

Characteristic	Category	n (%)
Surgical technique	Open excisional	82 (65.6)
Surgical technique	Closed excisional	43 (34.4)
Local anaesthetic regimen	Lidocaine-based	89 (71.2)
Local anaesthetic regimen	Other local regimen	36 (28.8)
Operative duration	≤30 minutes	74 (59.2)
Operative duration	>30 minutes	51 (40.8)
Intraoperative complications	Present	3 (2.4)
Intraoperative complications	Absent	122 (97.6)

Table 4. Postoperative Outcomes and Complications (N = 125)

Outcome	Category	n (%)
Pain at 24 hours	Mild (score 1–3)	48 (38.4)
Pain at 24 hours	Moderate (score 4–6)	59 (47.2)
Pain at 24 hours	Severe (score 7–10)	18 (14.4)
Postoperative bleeding	Present	11 (8.8)
Urinary retention	Present	9 (7.2)
Wound infection	Present	5 (4.0)
Delayed wound healing	Present	8 (6.4)
Unplanned readmission	Present	4 (3.2)

Table 5. Discharge and Follow-Up Characteristics (N = 125)

Characteristic	Category	n (%)
Hospital stay	Same-day discharge	87 (69.6)
Hospital stay	Overnight stay or longer	38 (30.4)
Additional analgesia	Required	42 (33.6)
Additional analgesia	Not required	83 (66.4)
Day 7 follow-up	Completed	116 (92.8)
Day 7 follow-up	Not completed	9 (7.2)
Day 30 follow-up	Completed	111 (88.8)
Day 30 follow-up	Not completed	14 (11.2)

DISCUSSION

Haemorrhoidectomy remains an established surgical treatment for patients with advanced symptomatic haemorrhoidal disease, particularly when conservative measures and office-based procedures are insufficient. The present study evaluated the clinical outcomes of haemorrhoidectomy performed under local anaesthesia, including postoperative pain, complications, analgesic requirements, hospital discharge, and follow-up. The findings provide a useful description of outcomes in the study setting, although the observational design and absence of a comparison group limit conclusions about whether local anaesthesia is superior to spinal or general anaesthesia. Contemporary guidelines similarly emphasise selecting treatment according to haemorrhoidal grade, symptom severity, patient characteristics, and the available expertise. The American Society of Colon and Rectal Surgeons recommends excisional haemorrhoidectomy for selected patients with symptomatic external or

combined internal and external haemorrhoids, particularly grades III–IV, when clinically appropriate [3]. International guidance also recognises that the choice of operative technique and perioperative management should be individualised [4].

Postoperative pain is an important consideration because excisional haemorrhoidectomy involves tissue dissection in a highly innervated anatomical region. In the present study, the observed postoperative pain pattern indicated that pain control remained an important component of recovery despite the use of local anaesthesia. This is consistent with the PROSPECT systematic review, which identified postoperative pain as a substantial problem following haemorrhoid surgery and recommended a multimodal approach to analgesia [5]. Local anaesthetics inhibit voltage-gated sodium channels and temporarily interrupt nociceptive impulse transmission; however, their effect depends on the agent, concentration, volume, infiltration technique,

and duration of action. As the local anaesthetic effect diminishes, inflammatory responses and stimulation of exposed sensory nerve endings may contribute to ongoing discomfort. Therefore, local anaesthesia should not be regarded as a substitute for an appropriate postoperative analgesic regimen.

Comparative evidence supports the potential role of local anaesthesia in selected patients, although results are not entirely consistent. In a multicentre randomised controlled trial of 58 patients undergoing open haemorrhoidectomy, postoperative pain outcomes were broadly similar between local anaesthesia and saddle block, indicating that local anaesthesia may be a feasible alternative in appropriately selected cases [6]. A comparative study of open LigaSure haemorrhoidectomy also investigated local versus spinal anaesthesia, providing additional evidence regarding the feasibility of local anaesthesia in surgical practice [7]. However, these studies used different anaesthetic approaches, surgical techniques, and pain-assessment schedules, limiting direct comparisons with the present findings. The clinical interpretation is that local anaesthesia may provide satisfactory operative conditions without guaranteeing freedom from postoperative pain. Patient selection, adequate infiltration, surgical technique, and structured analgesia remain important determinants of recovery.

The pattern of postoperative urinary retention also warrants consideration because this complication may delay mobilisation and discharge. Urinary retention following anorectal surgery is multifactorial and may be influenced by anaesthetic effects on bladder function, postoperative pain, pelvic-floor spasm, intravenous fluid administration, and opioid exposure. Evidence comparing local and neuraxial anaesthesia suggests that anaesthetic choice can influence this outcome. In a retrospective cohort study, Lin and colleagues reported lower urinary-retention rates and a longer analgesic effect with general anaesthesia combined with local infiltration than with spinal anaesthesia [8]. These findings support the biological plausibility of an association between anaesthetic technique and postoperative bladder function. Nevertheless, the present study did not include a control group, so the observed frequency of urinary retention cannot establish a protective effect attributable to local anaesthesia alone. Future comparative studies should also account for fluid administration, opioid use, baseline urinary

symptoms, and the criteria used to diagnose retention.

Postoperative bleeding, wound infection, and delayed wound healing are additional outcomes relevant to the safety of haemorrhoidectomy. Bleeding may arise from inadequate haemostasis, disruption of a ligature, or separation of a healing wound, whereas wound infection may be influenced by tissue injury, local contamination, and patient-related risk factors. Delayed healing can also be affected by the extent of excision, wound-management practices, comorbidities, and the surgical technique. Current evidence-based guidelines continue to recognise excisional haemorrhoidectomy as an effective option for advanced disease, while emphasising appropriate operative selection and postoperative management [3,4]. Importantly, these complications cannot be attributed solely to the anaesthetic technique because local anaesthesia does not itself determine the extent of surgical tissue injury or the quality of haemostasis. The findings should therefore be interpreted as describing the postoperative course of patients managed with local anaesthesia rather than demonstrating that this technique independently reduces surgical complications.

The need for additional analgesia provides further insight into postoperative recovery. In a randomised controlled trial, Steen and colleagues investigated whether adding a pudendal nerve block to perianal wound infiltration and a standardised analgesic regimen improved early pain control after haemorrhoidectomy [9]. Medina-Gallardo and colleagues also evaluated bupivacaine combined with triamcinolone for postoperative pain control, illustrating the continuing investigation of local and anti-inflammatory approaches to analgesia [10]. More recently, a randomised study found that adding a perineal block to spinal anaesthesia reduced postoperative pain and opioid requirements, although it did not establish a clinically significant difference in hospital stay or complication rates [11]. These studies suggest that the duration and distribution of analgesia may be as important as the initial anaesthetic technique. However, differences in study design, anaesthetic combinations, and outcome measures mean that their results should not be interpreted as direct estimates of the effectiveness of the regimen used in the present study.

The feasibility of same-day discharge is another clinically relevant consideration. Early discharge can reduce bed occupancy, improve operating-room and inpatient resource utilisation, and reduce the indirect costs associated with hospitalisation. Nevertheless, discharge decisions should depend on adequate pain control, haemostasis, the ability to mobilise, the absence of significant urinary retention, and the patient's overall clinical condition. The American Society of Colon and Rectal Surgeons and other guideline groups emphasise evidence-based perioperative management and appropriate selection of surgical candidates [3,4]. In the present study, the discharge pattern supports the feasibility of ambulatory management for selected patients, but it does not prove that local anaesthesia independently shortens hospital stay because no alternative anaesthetic group was included. Local anaesthesia may be particularly useful in settings where access to operating-room resources or specialist anaesthetic services is limited, provided that trained personnel, monitoring, rescue analgesia, and emergency support are available.

The findings also need to be considered in the context of evolving local anaesthetic regimens. A multicentre randomised controlled trial published in 2025 compared liposomal bupivacaine with ropivacaine for perianal infiltration and reported better postoperative pain control and reduced rescue analgesic requirements with liposomal bupivacaine, with comparable adverse-event rates [12]. These results indicate that the choice of local anaesthetic agent and its duration of action may influence postoperative comfort. However, the findings cannot automatically be generalised to other agents or regimens. Differences in cost, availability, dosing, surgical technique, and postoperative analgesia should be considered before adopting newer formulations. Future research should compare standardised local anaesthetic protocols and assess pain at multiple time points, functional recovery, patient satisfaction, adverse events, and total treatment costs.

An important strength of the present study is its prospective observational approach, which allowed clinical outcomes to be assessed within a defined care setting. The inclusion of perioperative complications, analgesic requirements, discharge, and follow-up provides a broader assessment of recovery than pain assessment alone. Nevertheless, several limitations should be acknowledged. First, the

absence of a spinal or general anaesthesia comparison group prevents conclusions about relative effectiveness or safety. Second, a single-centre design may limit generalisability to institutions with different patient populations, surgical expertise, and perioperative protocols. Third, variation in surgical technique and local anaesthetic regimens may have influenced outcomes. Fourth, incomplete follow-up may have resulted in under-ascertainment of complications occurring after discharge. Finally, without adjusted analyses of relevant clinical factors, potential associations between patient characteristics, operative variables, and postoperative outcomes cannot be interpreted as independent effects. The sample-size calculation and final analysed population should also be verified against the approved protocol and actual study records before publication.

Future studies should use prospective comparative designs with clearly defined eligibility criteria, standardised local anaesthetic protocols, and prespecified primary outcomes. Randomised trials comparing local, spinal, and general anaesthesia would provide stronger evidence regarding postoperative pain, urinary retention, bleeding, wound healing, rescue analgesia, patient satisfaction, and discharge readiness. Multicentre recruitment and adequate sample-size calculations would improve precision and generalisability. Further research should also assess cost-effectiveness and patient-reported recovery, particularly in healthcare systems where ambulatory surgery may improve access to elective treatment. In conclusion, the present study describes the clinical outcomes of haemorrhoidectomy performed under local anaesthesia and supports further evaluation of this approach as part of appropriately selected perioperative care. Its findings should be interpreted as descriptive evidence rather than proof of superiority over other anaesthetic techniques.

CONCLUSION

Haemorrhoidectomy under local anaesthesia was associated with a postoperative recovery profile that included manageable pain, a low observed frequency of recorded complications, and the feasibility of same-day discharge in selected patients. Nevertheless, postoperative pain and the need for additional analgesia remained relevant clinical considerations. These findings support the potential role of local anaesthesia in appropriately selected patients undergoing haemorrhoidectomy. However, the

observational design and absence of a comparison group prevent conclusions regarding its superiority over spinal or general anaesthesia. Further comparative studies are needed to establish its relative effectiveness, safety, and impact on recovery.

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