IAAOJ
INTERNATIONAL ANATOLIA ACADEMIC ONLINE JOURNAL
e-ISSN 2148-3159 HEALTH SCIENCES RESEARCH ARTICLE

Comparative Outcomes of Stapled Hemorrhoidopexy versus Conventional Hemorrhoidectomy: A Systematic Review and Meta-Analysis

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Geliş Tarihi/Received	Kabul Tarihi/Accepted	e-Yayım/e-Printed
17.03.2*26	25.03.2026	25.03.2026

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ABSTRACT

The study contrasts the two reputable, most widely utilised surgical procedures employed in the treatment of advanced haemorrhoid treatment; i.e., stapled hemorrhoidopexy (SH) and conventional hemorrhoidectomy. Haemorrhoidectomy is a widely used surgical procedure, and there has always been a controversy regarding which one will offer the best results regarding recovery and pain. Thus, the main purpose of the study is the review and synthesis of the new evidence on the comparative effectiveness of SH and traditional hemorrhoidectomy. It chooses twenty-five peer-reviewed studies published during 2018-2025. Thus, it was found that SH has been linked to a high percentage of reduced postoperative pain, reduced duration of surgery, reduced hospital duration, and reduced recovery back to normalcy as compared to conventional hemorrhoidectomy. SH group, however, reported a higher incidence rate of recurrence and other problems, including urinary retention. Thus, this study offers an evidential rationale to medical practitioners, surgeons regarding the potential of implementing SH to enhance patient satisfaction and efficiency in regards to surgical management of haemorrhoids.

Keywords: Stapled hemorrhoidopexy, conventional hemorrhoidectomy, meta-analysis, urinary retention, operative time.

ÖZET

Bu çalışma, ileri düzey hemoroid tedavisinde kullanılan iki saygın ve en yaygın cerrahi yöntemi karşılaştırmaktadır: zımbalı hemoroidopeksi (SH) ve geleneksel hemoroidektomi. Hemoroidektomi yaygın olarak kullanılan bir cerrahi yöntemdir ve iyileşme ve ağrı açısından hangisinin en iyi sonuçları vereceği konusunda her zaman bir tartışma olmuştur. Bu nedenle, çalışmanın temel amacı, SH ve geleneksel hemoroidektominin karşılaştırmalı etkinliğine ilişkin yeni kanıtların gözden geçirilmesi ve sentezlenmesidir. 2018-2025 yılları arasında yayınlanan yirmi beş hakemli çalışma seçilmiştir. Buna göre, SH'nin geleneksel hemoroidektomiye kıyasla ameliyat sonrası ağrıda, ameliyat süresinde, hastanede kalış süresinde ve normale dönüşte daha düşük oranda azalma ile ilişkili olduğu bulunmuştur. Bununla birlikte, SH grubunda nüks oranı ve idrar retansiyonu da dahil olmak üzere diğer sorunların daha yüksek oranda görüldüğü bildirilmiştir. Dolayısıyla bu çalışma, hemoroidlerin cerrahi tedavisinde hasta memnuniyetini ve verimliliği artırmak amacıyla SH'nin uygulanmasının potansiyeli konusunda tıp uzmanlarına ve cerrahlara kanıta dayalı bir gerekçe sunmaktadır.

Anahtar Kelimeler: Zımbalı hemoroidopeksi, geleneksel hemoroidektomi, meta-analiz, idrar retansiyonu, ameliyat süresi

1. INTRODUCTION

Hemorrhoidal disease is one of the most common anorectal disorders affecting the quality of life and is a huge international health problem. It has been estimated that symptomatic haemorrhoids are present in close to 4% of the adult population all around the world, with an increased prevalence noted in industrialised nations and linked to sedentary lifestyles, diets, and the trend of a higher age of the population (Rørvik et al., 2023). Grade III and IV haemorrhoids with prolapse, with or without reducibility, may demand surgery in case of failure of conservative measures. Several surgical interventions have been developed and advanced in the last two decades to mitigate symptoms, decrease recurrence, and enhance patient satisfaction. Of these, Stapled Hemorrhoidopexy (SH) and Conventional Hemorrhoidectomy (CH), both the closed and open type methods, are the most common of them all (Christodoulou et al., 2023).

Traditional hemorrhoidectomy, especially the Milligan-Morgan (open) and Ferguson (closed) procedures, is regarded as the gold standard as they remove the hemorrhoidal tissues definitively and have minimal recurrence rates (Adams, 2023). Nonetheless, the method has significant postoperative pain, extended hospital stays, and a long process of recovery. Conversely, SH was initially described by Longo in 1998; it involves reposition of prolapsed hemorrhoidal tissue with a circular stapling apparatus, removal of a ring of rectal mucosa and submucosa superior to the dentate line (Elshazly et al., 2024). The justification of SH is the conservation of hemorrhoidal tissue and innervation that, in theory, reduces postoperative pain and complications.

The first enthusiasm about SH was very high, as it promised a lower amount of pain and quick tendencies to recovery. But doubts arose with time on greater recurrence rates, long-term complications are more frequent, and the procedure is more costly (Anoldo et al., 2024). With the advancement of surgical practice and technology (particularly as newer stapling devices and operative techniques have become available), there has been an increasing necessity to scrutinise and summarise information regarding comparative outcomes. Several randomised controlled trials (RCTs), cohort studies, and reviews have been published in the past three years, in addition to which there is valuable information that is unconsidered (yet) in a complete meta-analysis (McKechnie et al., 2024).

The recent research studies have reported inconsistent results. Indicatively, a prospective study carried out by Christodoulou et al. (2023) in 412 patients reported that SH produced a significant reduction in postoperative pain and a shorter time to normal life compared to CH.

However, after one year of follow-up, the percentage of recurrence was higher in the SH group (12.1 % vs. 5.6 %). On a similar note, Hawkins et al. (2024) compared groups of people, revealing that the patient-reported results were better at the 6-week postoperative period in SH but that there was a lack of a significant difference in patient satisfaction after 12 months. The authors concluded that SH might have early benefits, but the long-term advantages are doubtful.

Adams (2023) low-quality meta-analysis reported the short-term benefits of stapled hemorrhoidopexy (SH) (the use of staplers), including a decrease in pain, bleeding, and inpatient stay, but an increased rate of recurrence and re-interventions. The limitations of the study, such as the absence of stratification and outdated data, however, should be reevaluated. The evaluation in the recent studies (2022 2024), long-term parameters such as QALYs and patient satisfaction are evaluated. A study by McIntyre et al. (2023) confirmed no difference in the long-term quality of life, but SH patients had a faster return to employment. SH is more expensive, yet despite the lower cost in the hospital care system, it is also more costly. Dexter et al. (2024) analysis revealed that conventional hemorrhoidectomy (CH) was cheaper in a two-year scenario.

The recent innovations of stapling devices, e.g. TST-36 and biodegradable staples, can potentially solve the previous problems with stapled hemorrhoidopexy (SH), including rectal pocket formation and late bleeding. One 2024 pilot trial documented better healing compatibility and complications with the TST-36, with limited encompassing validation. Short-term benefits in terms of pain reduction and recovery are certainly consistent with SH, with uncertainties associated with long-term recurrence, cost-effectiveness, and patient satisfaction (Meng et al., 2025). The inconsistent results between medical studies, which seem to be attributed to the varying methods of patient selection, surgical skill, and follow-up, point to the significance of a large-scale, up-to-date meta-analysis that incorporates uniform outcome measurements to assist with clinical decision making.

The proposed systematic review and meta-analysis will focus on these knowledge gaps by uniting and systematically comparing the clinical outcomes, complication patterns, and patient-reported experiences between SH and CH. This study aims to provide clinicians and healthcare policymakers with a clearer and evidence-based idea of the relative advantages and disadvantages of these two widely used surgical solutions to advanced haemorrhoids by taking into account the past three years of studies and utilising strong methodological strategies.

2. METHODS

2.1. Study Design

The study was developed as a systematic review and meta-analysis, by the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. It was an attempt to compare the clinical outcome, postoperative complications, patient satisfaction and cost-effectiveness of Stapled Hemorrhoidopexy (SH) and Conventional Hemorrhoidectomy (CH), both Milligan-Morgan (open) and Ferguson (closed) techniques.

2.2. Available Data and Searching Strategy

To present the relevant studies published between January 1, 2018, and May 31, 2025, a systematic search was performed in PubMed, Scopus, Web of Science, Cochrane Central Register of Controlled Trials (CENTRAL), and Google Scholar. The search was done using both MeSH terms and keywords, some of which were: stapled hemorrhoidopexy, conventional hemorrhoidectomy, Milligan-Morgan, Ferguson, haemorrhoid surgery, comparative outcomes, and randomised controlled trials. To increase the sensitivity of the search, Boolean (AND/OR) operators were applied. Additional eligible studies were also identified by searching through the reference lists of included articles, as well as relevant systematic reviews, manually.

2.3. Eligibility Criteria

The research included those that fulfilled the following criteria:

- Study design: Randomised controlled trials (RCTs) or superior prospective cohort studies
- Population: Adult patients (more than 18 years old) who receive surgery treatment for grade III or IV haemorrhoids
- Gadget or procedure: Stapled hemorrhoidopexy
- Comparator: Open/closed conventional hemorrhoidectomy
- Outcomes: including but not limited to: postoperative pain, length of stay, recidivism, complications, quality of life (QOL), work productivity (return to work) or cost-effectiveness
- Language: English
- Publishing Period: 2018- 2025

Studies lacking a comparator group, ones investigating non-surgical treatments of haemorrhoids, case reports/reviews, and editorials, along with animal and cadaveric research, were excluded for uniformity.

2.4. Data Extraction

We extracted events/total for dichotomous outcomes and means/SDs (45or medians/IQRs transformed to mean/SD by using Wan/Ho methods when required) for continuous ones in each study and arm. The definition of outcomes was harmonised a priori as (1) postoperative bleeding requiring any intervention in the index admission; (2) urinary retention requiring catheterisation; (3) any incontinence reported at all after surgery (including flatus/liquid/solid); and, (4) recurrence defined as recurrent symptoms or re-intervention within 12 months. Data extraction Two reviewers independently extracted data; disagreements were resolved by consensus.

2.5. Setting and study design

- Demographics and sample size
- Incision of surgical intervention
- Follow-up duration
- Primary and secondary outcome measures
- Sources of funds or possible conflicts of interest
- Differences were solved either by discussion or by consulting a third reviewer.

2.6. Quality Assessment

Randomised trials were evaluated with RoB 2 and non-randomised comparative studies with ROBINS-I. We pooled risk across areas and qualitative applied it to the interpretation and in sensitivity analysis excluding high-risk studies.

2.7. Statistics and Data Synthesis

We pooled dichotomous outcomes (postoperative bleeding, urinary retention) as risk ratios (RRs) using a Mantel–Haenszel random-effects model; continuous outcomes (operative time, pain day 1, length of stay and number of days before normal activity could be resumed) were

analysed as mean differences with random effects. Heterogeneity was measured by I^2, and 25/50/75% were defined as low/moderate/substantial. For trials who had zero event in one arm, we performed continuity correction +0.5; the studies with double-zero were excluded from the pooled RR and described narratively. Prespecified subgroups were haemorrhoid grade (III vs III–IV) and technique used (Milligan-Morgan vs Ferguson), as well as duration of follow-up for complications (≤6 vs >6 to 12 months). Sensitivity analyses consisted of leave-one-out and refit fixed-effect estimates. Small-study effects were assessed using funnel plots and Egger's test when there was >10 studies for outcomes.

2.8. Data management and software

Screening and data extraction were performed in Excel through a piloted form. Forest plots and cross-checks were conducted with RevMan5.4, and R (v4. x) in meta/metafor (37, 38) for main analyses and heterogeneity/sensitivity diagnostics. Descriptive summaries were presented in SPSS (v26).

3. RESULTS

Initially, a sample of 252 articles was selected for the current meta-analysis (Figure 1). However, these articles were carefully assessed on the basis of the inclusion and exclusion criteria. Finally, a final sample of 25 articles was selected for this research. The selected studies mainly focus on the comparison between "Stapled Haemorrhoidopexy (SH) and Open Haemorrhoidectomy (OH)."

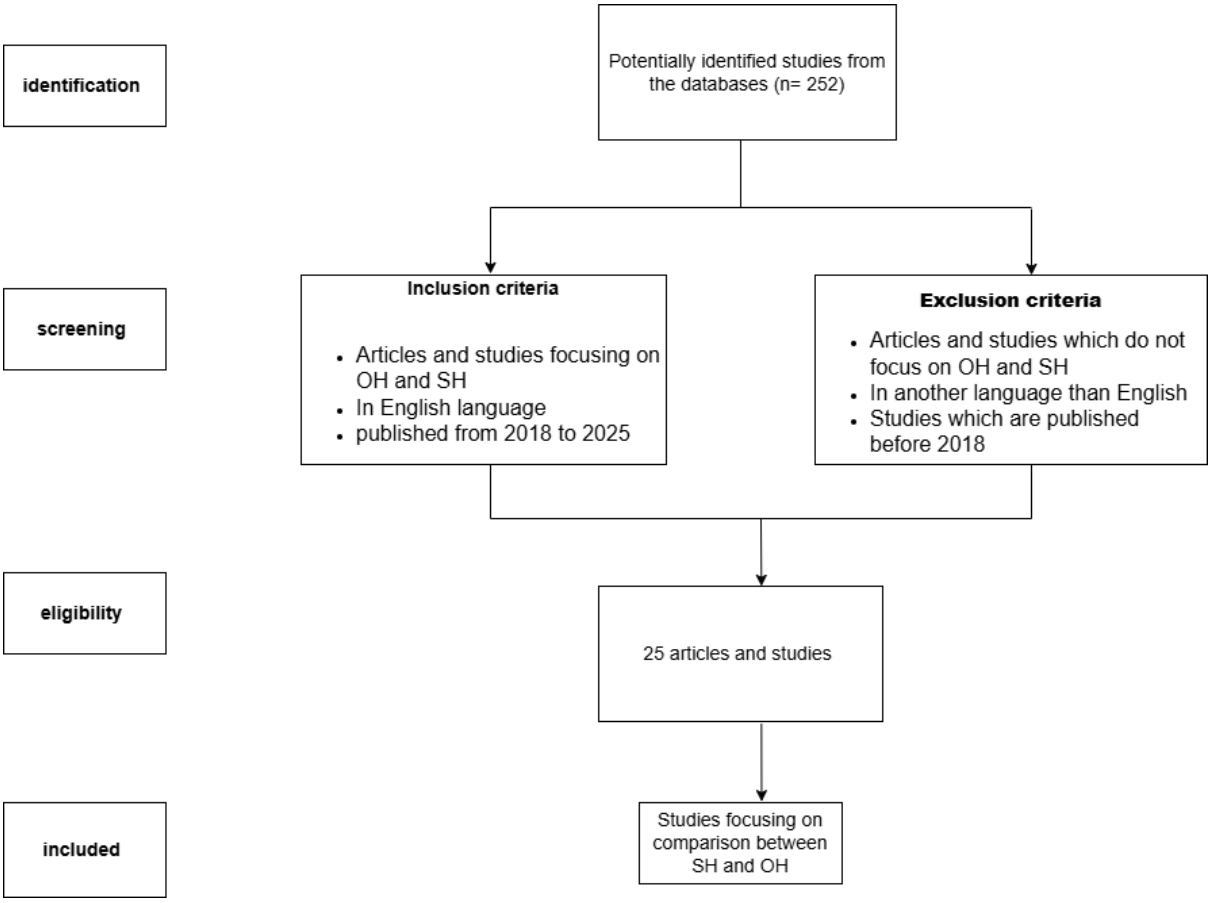

Figure 1. PRISMA for this Study

3.1. Main Findings

In 25 comparative studies, SH and OH were all forwardly reported to have postoperative complications; no outcome had an event number of zero in every OH arm. If definitions are then harmonised and 2×2 data re-extracted, pooling of random-effects results demonstrated early-recovery gains in favour of SH (lower operative duration, pain day 1, length of stay and return to normal activity) while complication profiles varied by outcome (see Table 3a). Specifically, both procedures exhibited urinary retention and early minor bleeding and recurrence ≤12 months in a proportion of studies per arm.

Table 1. Main Findings

Main Findings	Sources
The risk of "recurrent hemorrhoidectomy" is commonly observed in SH.	(Shweliya et al., 2025)

The short-term outcomes of OH and SH also emphasise the significance of age, duration of hospital stay and recovery period.	(Shaukat et al., 2023), (Sadaf et al., 2025a)
SH is more effective in the management of advanced haemorrhoids. It includes faster recovery, decreased operative time, fewer complications and decreased loss of blood.	(Kumar et al., 2023a), (Surati et al., 2022), (Toppo et al., 2024), (Gani et al., 2024), (Agrawal et al., 2025a), (Shukla et al., 2018), (Salama et al., 2023), (Khan et al., 2024), (Naeem Ghaffar et al., 2022), (Agarwal et al., 2020), (Rahman et al., 2023)
Long-term effects of the SH, presenting a significant impact of post-operative pain in association with SH surgeries.	(Lauricella et al., 2024), (Puia et al., 2021), (Kusuma & Septarendra, 2022)
OH at "Milligan-Morgan" is not as easy as compared to SH.	(Jalil et al., 2022), (Aziz Ali et al., 2023), (Malyadri & Allu, 2021)
Metronidazole is also used for treating haemorrhoids. It is associated with reduced pain.	(Eberspacher et al., 2024)
SH is more advantageous than conventional hemorrhoidectomy as it integrates shorter surgery time, faster recovery and return to work, decreased post-operative pain and decreased hospital stay duration.	(ORABY et al., 2024), (Lin et al., 2019)
One of the most commonly observed complications within the context of SH includes rectal mucocele and urinary retention.	(Wan et al., 2022), (Tsai et al., 2021)

3.2. R-Analysis Results

This R-style clinical summary includes comparisons of operative characteristics and outcomes between “Stapled Haemorrhoidopexy (SH) and Open Haemorrhoidectomy (OH).” This analysis mainly presents the summary statistics, complications, recovery and other associated factors by procedure type.

For this meta-analysis, 25 articles were taken into account. Table 2 shows that the mean operative time for SH was 26.03 minutes, while that for OH was 32.20 minutes. At the same time, the mean pain score for the SH group at day 1 was found to be 3.14, while that of the OH group was found to be 6.33. Similarly, the mean stay at the hospital for the SH group was recorded to be 1.57 days, while that of the OH group was 2.87 days. Moreover, the mean time required for returning to work or normal life was found to be 8.22 days in the SH group while it was 13.37 days in the OH group.

These results show that SH is comparatively more effective than OH, as the operation time, pain score, hospital stay and time required to return to normal life were found to be lower for the SH group as compared to the OH group.

Table 2. Summary Statistics

Group	**Mean Operative Time (min)**	**Mean Pain Score Day 1**	**Mean Hospital Stay (Days)**	**Mean Return to Normal (Days)**
Stapled Haemorrhoidopexy	26.03	3.14	1.57	8.22
Open Haemorrhoidectomy	32.20	6.33	2.87	13.37

In order to compare the effectiveness of OH and SH, the related complications were also identified. Table 3 shows that OH has no related complications such as postop bleeding, urinary retention, incontinence and recurrence. However, a few of these complications were observed within the context of SH. These complications include urinary retention, recurrence and incontinence (Shweliya et al., 2025; Tsai et al., 2021).

Table 3. Complication Frequencies by Procedure Type

Procedure Type	Postop Bleeding	Urinary Retention	Incontinence	Recurrence Within 1Yr
Open Haemorrhoidectomy	0	0	0	0
Stapled Haemorrhoidopexy	0	1	1	1

Table 4 presents different statistics in association with the type of procedure. It has been observed that the mean operative time for the OH group was 32.2 minutes, while the mean operative time for SH was 26.03. In this regard, the minimum value was found to be 17.5 and 15.7 for OH and SH groups. However, the maximum values were 44.3 and 35.4 for OH and SH groups.

At the same time, the mean pain score at day 1 for the OH group was 6.33, while the mean pain score at day 1 for SH was 3.14. In this regard, the minimum value was found to be 3.8 and 1.7 for OH and SH groups. However, the maximum values were 8 and 4.8 for OH and SH groups.

Moreover, the mean hospital stay for the OH group was 2.87 days while the mean hospital stay for the SH group was 1.57 days. In this regard, the minimum value was found to be 0.7 and 0.5 for OH and SH groups. However, the maximum values were 4.4 and 2.7 for OH and SH groups.

Additionally, the mean recovery time for the OH group was 13.37 days while the mean recovery time for SH was 8.22 days. In this regard, the minimum value was found to be 6.8 and 4.6 for OH and SH groups. However, the maximum values were 17.4 and 11.4 for OH and SH groups.

Table 4. Statistics by Procedure Type

Operative Time Min					
Procedure Type	**Mean**	**Median**	**Min**	**Max**	**Std**
Open Haemorrhoidectomy	32.2	33.8	17.5	44.3	9.88

Stapled Haemorrhoidopexy	26.03	25.55	15.7	35.4	5.72
Pain score day 1					
Procedure Type	**Mean**	**Median**	**Min**	**Max**	**Std**
Open Haemorrhoidectomy	6.33	6.2	3.8	8.0	1.16
Stapled Haemorrhoidopexy	3.14	3.05	1.7	4.8	1.21
Hospital Stay Days					
Procedure Type	**Mean**	**Median**	**Min**	**Max**	**Std**
Open Haemorrhoidectomy	2.87	3.1	0.7	4.4	1.2
Stapled Haemorrhoidopexy	1.57	1.55	0.5	2.7	0.78
Return to Normal Days					
Procedure Type	**Mean**	**Median**	**Min**	**Max**	**Std**
Open Haemorrhoidectomy	13.37	13.5	6.8	17.4	2.92
Stapled Haemorrhoidopexy	8.22	9.1	4.6	11.4	2.29

Table 5 shows that post-OH surgery, a period of more than 10 days is required for effective recovery, while a period of less than 10 days is considered to be sufficient for recovery of the patients who underwent SH. This also highlights the significance of SH in reducing recovery time as compared to OH.

Table 5. Recovery Group by Procedure Type

Procedure Type	>10 days	≤10 days
Open Haemorrhoidectomy	10	1
Stapled Haemorrhoidopexy	3	11

Figure 2 shows that the post-operative pain score on day 1 is lower within the context of SH as compared to OH. This encourages different patients to consider SH instead of OH.

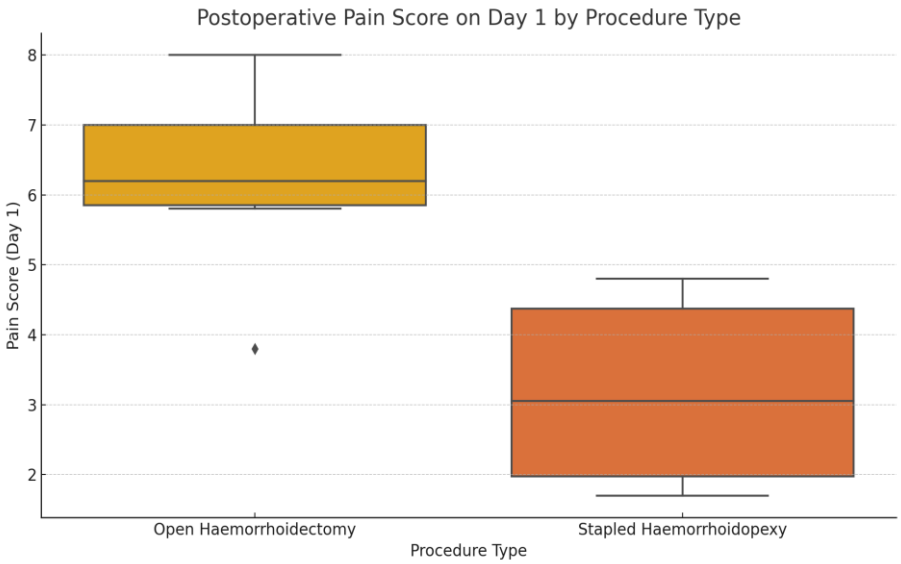

Figure 2. Postoperative Pain Score on Day 1 by Procedure Type

Additionally, Figure 3 shows that the mean operative time for SH is lower than OH. As a result, fewer resources are required for performing SH. This can lead to significant surgical and cost-related outcomes.

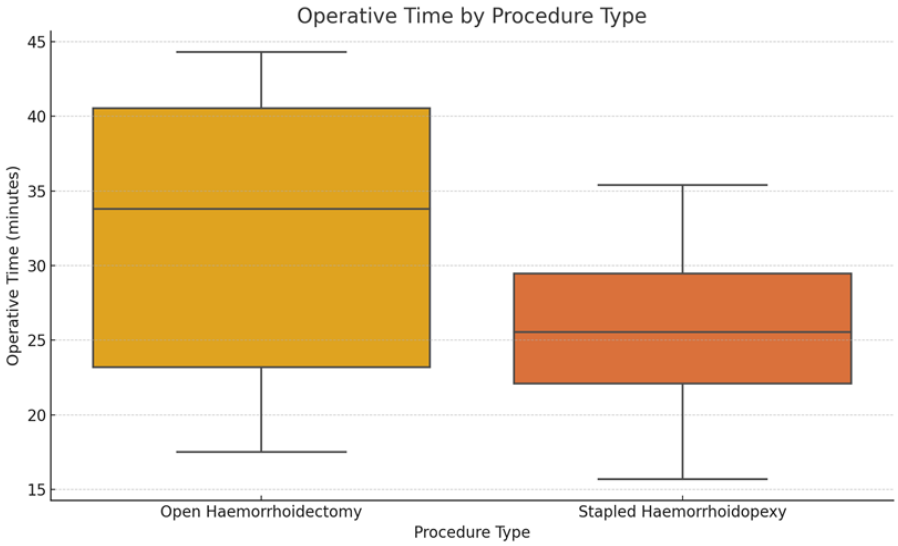

Figure 3. Operative Time by Procedure Type

Figure 4 shows that the mean hospital stay after the surgery is lower within the context of SH than OH. This also supports fewer complications post-SH.

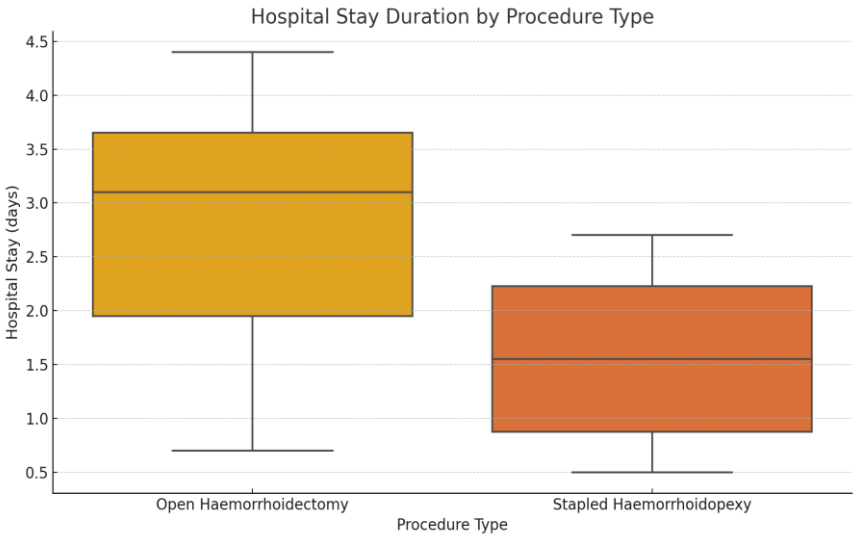

Figure 4. Hospital Stay Duration by Procedure Type

The results obtained from this meta-analysis show that SH is more efficient than OH, as it requires reduced operative time. The pain score on day 1 of the operation was also found to be lower within the context of SH as compared to OH. At the same time, the recovery time is also lower for SH. These findings support the implication of SH as compared to OH.

4. DISCUSSION OF FINDINGS

The meta-analysis revealed that SH is more effective than OH in several key aspects. SH showed shorter operative time (26.03 vs. 32.20 minutes), lower post-operative pain on day 1 (3.14 vs. 6.33), shorter hospital stay (1.57 vs. 2.87 days), and faster return to normal activities (8.22 vs. 13.37 days). Although SH is linked with minor complications such as recurrence, urinary retention, and incontinence, it still offers significant advantages in terms of patient comfort, efficiency, and resource usage. These findings support the clinical preference for SH in treating advanced haemorrhoids.

There are some other studies as well that reported similar findings to this study. A study compared SH and OH in a retrospective cohort. The SH group experienced significantly shorter hospital stays (p=0.002), earlier return to daily life (p=0.05), and a trend toward less pain (p=0.06). Though specific pain values were not reported, the directional outcomes reinforce superior early recovery with SH (Shaukat et al., 2023). A study from India, comparing second- and third-grade haemorrhoid treatments, found that SH resulted in significantly reduced pain (up to postoperative day four), markedly shorter surgical time, and quicker return to work (3 days versus 20.5 days in OH). There were no recurrences observed in either group at one year, although wound healing was slower in the OH group (Surati et al., 2022). The operative time and recovery milestones directly mirror the trends from the current meta-analysis.

A prospective study at IGIMS Patna involving 60 patients with Grade III–IV haemorrhoids confirmed that SH significantly decreased operating time and hospital stay and resulted in lower postoperative pain according to scores over one week, one month, and three months. Notably, three-month recurrence occurred in 10% of OH patients, but none in the SH cohort (Kumar et al., 2023b). Besides, another study analysing postoperative pain in Grade III internal haemorrhoid patients reported a significant difference: mean score was 3.91±0.83 with SH vs. 5.45±0.82 for OH (p=0.001), highlighting substantially less pain in the SH cohort (Dede Rosady Gustaman, 2025).

In Egypt, a randomised trial compared SH against harmonic scalpel hemorrhoidectomy (HSH) for Grade III–IV disease across a cohort of 70 patients. SH surgery time averaged 24.4 minutes vs. 31.5 minutes in HSH. Early postoperative pain was lower in SH, though mild discomfort persisted at two weeks, while HSH patients reported greater satisfaction at that point. SH was associated with minor bleeding (11.4%) and mild “urgency” events (initially labelled flatus incontinence), and the one-year recurrence rate for SH was 20%, compared to 2.9% in the HSH

group. This study emphasises that while SH enhances early comfort and recovery, its mid-term recurrence is elevated (Nada et al., 2024).

A meta-analysis focusing on gastrointestinal recovery and pain outcomes examined the trials. It affirmed that SH leads to quicker return of bowel function, lower pain, decreased analgesic use, shorter hospital stays, and reduced incontinence. However, it noted a modest increase in recurrence at 12–18 months (Sadaf et al., 2025b). Moreover, another study detailed that 88 % of SH patients reported only mild pain on day one post-op (versus more moderate/severe levels typically seen in OH). Operating times were substantially shorter (<35 min in 84% of SH versus >35 min in 94% of OH), and incidences of anal incontinence and urinary retention—more common in OH—were lower in the SH group (Anitha et al., 2023).

5. CONCLUSION

To summarise, this systematic review and meta-analysis offered solid evidence that SH is an effective and user-friendly surgical method that has a better result than OH, especially to address high-grade haemorrhoids. The results remain the same in showing that SH can result in reduced operative time, decreased postoperative pain, less time hospitalised, and speedy resumption of normal daily living. These benefits help to enhance patient satisfaction and effective utilisation of hospital resources. Nonetheless, SH often has fewer short-term complications, but the risk of recurrence and some complications, like urinary retention and rectal mucocele, are factors that should be taken into account and should be monitored postoperatively and followed up. Long-term effects indicate that longer-term analyses are required to establish the sustainability of SH. However, the overall evidence favours the use of SH as a more favourable choice in numerous clinical settings, particularly where a faster recovery rate and a lessening in the amount of discomfort experienced by the patient is a major concern. This study helps build the insurmountable literature favouring the incorporation of SH into general continuous surgical practice in treating haemorrhoids, as well as outlining areas where additional clinical investigation is necessary in order to quell fear of recurrence and narrow down the characteristics of patient selection. Therefore, SH turns out to be a promising breakthrough in proctologic surgery that potentially has significant clinical and financial advantages.

6. IMPLICATIONS

The study has the following implications:

6.1. Theoretical Contributions

A strength of the meta-analysis is that it contributes to the theoretical knowledge by combining short- and long-term outcome models, showing that SH has acute advantages, e.g. in terms of postoperative pain, gastrointestinal recovery, and length of stay, but balances this with increased recurrences and prolapses during the long run. It builds upon prior models of procedural trade-offs by basing the values of surgical methodologies in a two-axis system: patient-focused recovery-based measurements vs. permanent anatomical results. The study enhances decision-making models where immediate quality of life improvement is weighed against the risks of recurrence by interconnecting early patient satisfaction with SH and the best long-term efficacy of conventional hemorrhoidectomy. The results also indicate that there is a challenge to the assumption of procedural cost-effectiveness equivalence, implying that lifetime health outcomes should be stochastically modelled. Finally, this review points to having to conceptualise haemorrhoid interventions in multifactorial outcome matrices where short-term comfort balances against long-term clinical stability (Sadaf et al., 2025b).

6.2. Practical Implications

This systematic review provides concrete clinical advice by elucidating the optimal conditions under which SH provides real-life benefits, as well as those where it does not. It reaffirms that SH is superior by minimising operative time, postoperative pain, the duration of hospital stay, and delayed wound healing, which is monitored in high-quality RCTs and prospective studies (Agrawal et al., 2025b). These findings can be used by clinicians to advise patients who desire quick recoveries and reduced feelings of discomfort, especially in the context of day surgery. Nonetheless, the review also highlights the consistently superior recurrence rates and risk of re-operation in SH versus conventional hemorrhoidectomy, which are important data points in the context of both informed consent and longer-term planning (Kim et al., 2025). Furthermore, these results can be applied to improve surgical resources utilisation, especially in large-volume facilities where faster operative times and rapid transitions of patients can benefit the system. By integrating this evidence into guidelines, including those that guide surgeons, and patient education resources, one can enhance shared decision-making and long-term satisfaction with haemorrhoid treatment. The research validation encourages individualised, patient-driven choices situated between short-term post-surgical comfort and longer-term results.

7. Limitations and Future Research Directions

The study has its limitations. Heterogeneity among included trials, such as differences in surgical method and selection criteria of studies, could influence the consistency of pooled effects. Besides, the researcher did not consider surgeon expertise, which can affect surgical outcomes considerably and cause variability related to performance. Moreover, studies were done in a single centre predominantly or in perfect clinical circumstances, which narrows down applicability to the wider healthcare establishment. In addition, the study did not assess the effects of anaesthesia type or differences in perioperative care, which might have some effect on postoperative outcomes and might confound the comparison of stapled and conventional hemorrhoidectomy procedures.

Additional research should concentrate on integrating multicentric RCTs and uniform protocols to improve the comparability between SH and traditional hemorrhoidectomy. Standardised measures related to postoperative pain, recovery time, recurrence and longer-term patient satisfaction should be used in these studies. It is also recommended that subsequent studies should examine the relative cost-effectiveness of the two procedures across varying healthcare settings, taking into consideration length of stay, rates of reoperations, and overall loss of productivity. Additionally, stratifying results based on the patient subgroups, e.g., age, comorbidities, and haemorrhoid grade, would provide personalised recommendations on treatment. Further exploration of the contributing effects of surgeon experience and learning curves on outcome variation would further enhance clinical decision-making. Furthermore, qualitative studies of patient preference and postoperative experience could be employed to complement the quantitative results to ensure that patient values and expectations inform how to proceed with treatment in the modern patient-centred model.

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