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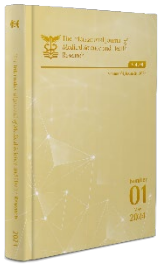

Comparison of Stapled Hemorrhoidopexy With Traditional Excisional Surgery For Hemorrhoidal Disease: An Updated Systematic Review

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ABSTRACT

Background: Hemorrhoid patients encounter prolonged postoperative discomfort following conventional hemorrhoid surgery, resulting in delays in resuming work and daily routines. Stapled hemorrhoidopexy emerges as a novel approach, potentially enhancing pain management and recovery. This study aims to systematically review the comparison of stapled hemorrhoidopexy and conventional open hemorrhoidectomy in literatures of the last 5 years. **Methods:** The systematic review followed PRISMA 2020 standards and examined full-text English literature published between 2019 and 2024. This review excluded editorials, review papers from the same journal, and submissions without a DOI. Literature was sourced from online platforms such as PubMed, SagePub, SpringerLink, and Google Scholar. **Result:** A total of 1,099 articles were retrieved from online databases (PubMed, SagePub, SpringerLink and Google Scholar). After three rounds of screening, four articles directly relevant to the systematic review were selected for full-text reading and analysis. **Conclusion:** Stapled hemorrhoidopexy exhibited superior short-term outcomes compared to traditional hemorrhoidectomy. However, the traditional method had a lower recurrence rate compared to stapled hemorrhoidopexy.

Keywords: Hemorrhoids, stapled hemorrhoidopexy, conventional hemorrhoidectomy

INTRODUCTION

Hemorrhoids are naturally occurring veins in the lower rectum and anus that aid in continence. Hemorrhoids develop due to the enlargement and congestion of the anal cushions, which can progress to prolapse as the condition worsens. Hemorrhoids are prevalent among adults aged 45 to 65, with around 39% of those undergoing colorectal cancer screening having enlarged hemorrhoids, often asymptomatic. Hemorrhoidal disease affects millions worldwide and poses significant medical and socioeconomic challenges. Its etiology includes factors like constipation and prolonged straining.[1]

Hemorrhoids are classified into internal and external types based on their location relative to the dentate line, with four grades based on severity. Grades 1 and 2 typically respond well to medical therapy and office-based procedures like rubber band ligation, while grades 3 and 4 may require surgical removal. Symptoms of third-degree hemorrhoidal disease commonly include bright-red blood on stool or toilet paper after defecation, along with sensations of a hard lump, protrusion, and mucous discharge. Frequent rubbing of the anus exacerbates symptoms, leading to a vicious cycle of irritation, itching, and bleeding known as pruritus ani.[1,2]

Hemorrhoidal disease is classified into four degrees, with severe prolapse typically requiring surgical intervention. Milligan–Morgan hemorrhoidectomy (MMH) has been a popular surgical technique, traditionally considered the gold standard until the 1990s. Various surgical techniques, such as closed hemorrhoidectomy, open hemorrhoidectomy, bipolar diathermy, stapling, and LigaSure, are available with different clinical outcomes, including recurrence rates, complications like bleeding and urinary incontinence, and recovery times. However, surgical hemorrhoidectomy is known for postoperative pain, necessitating hospital stays of 2-3 days and convalescence of at least 1 month.[3]

In 1998, Antonio Longo introduced an alternative method of performing hemorrhoidectomy known as stapled hemorrhoidectomy. Stapled hemorrhoidopexy is a procedure that involves removing a ring of mucosa in the lower part of the rectum, which lifts the hemorrhoidal pads back into their normal positions. This results in reduced tightening of the hemorrhoids during bowel movements and decreased blood flow to the pads. Compared to traditional hemorrhoidectomy, stapled hemorrhoidopexy aims to achieve less postoperative pain, improved functional recovery with faster return to normal activities, and enhanced patient satisfaction by addressing internal rectal prolapse in addition to hemorrhoids.[4]

Many patients experience prolonged postoperative pain following traditional hemorrhoid surgery, leading to delays in returning to work and daily activities. A newer procedure called stapled hemorrhoidopexy represents a significant change in hemorrhoid treatment, offering potential improvements in pain management and recovery.[5] This study aims to systematically review the comparison of stapled hemorrhoidopexy and conventional open hemorrhoidectomy in literatures of the last 5 years.

METHODS

Protocol

The author carefully followed the rules laid out in the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020. This was done to make sure the study met all its standards. The selection of this methodological approach was specifically aimed at ensuring the precision and reliability of the conclusions drawn from the investigation.

Criteria for Eligibility

This systematic review examined the comparison of stapled hemorrhoidopexy and conventional open hemorrhoidectomy in literature over the past 5 years. This study meticulously analyzed data on literatures to provide insights and enhance patient treatment strategies.

The primary objective of this paper is to highlight the collective significance of the identified key points.

Inclusion criteria for this study entail: 1) Papers must be in English, and 2) Papers must have been published between 2014 and 2024. Exclusion criteria comprise: 1) Editorials; 2) Submissions without a DOI; 3) Previously published review articles; and 4) Duplicate entries in journals.

Search Strategy

The keywords used for this research are “haemorrhoid”, “Stapled Hemorrhoidopexy”, and “Conventional Hemorrhoidectomy”. The Boolean MeSH keywords inputted on databases for this research are: *("haemorrhoid"[All Fields] OR "hemorrhoids"[MeSH Terms] OR "hemorrhoids"[All Fields] OR "hemorrhoid"[All Fields] OR "haemorrhoids"[All Fields] OR "rectum"[MeSH Terms] OR "rectum"[All Fields] OR "haemorrhoidal"[All Fields] OR "hemorrhoidal"[All Fields]) AND (("stapl"[All Fields] OR "stapled"[All Fields] OR "stapling"[All Fields] OR "sutures"[MeSH Terms] OR "sutures"[All Fields] OR "staple"[All Fields] OR "staples"[All Fields]) AND "Hemorrhoidopexy"[All Fields]) AND (("conventional"[All Fields] OR "conventionals"[All Fields]) AND ("haemorrhoidectomies"[All Fields] OR "hemorrhoidectomy"[MeSH Terms] OR "hemorrhoidectomy"[All Fields] OR "haemorrhoidectomy"[All Fields] OR "hemorrhoidectomies"[All Fields]))) AND (y_5[Filter])*

Data retrieval

The authors assessed the studies by reviewing their abstracts and titles to determine their eligibility, selecting relevant ones based on their adherence to the inclusion criteria, which aligned with the article's objectives. A consistent trend observed across multiple studies led to a conclusive result. The chosen submissions had to meet the eligibility criteria of being in English and a full-text.

This systematic review exclusively incorporated literature that met all predefined inclusion criteria and directly pertained to the investigated topic. Studies failing to meet these criteria were systematically excluded, and their findings were not considered. Subsequent analysis examined various details uncovered during the research process, including titles, authors, publication dates, locations, study methodologies, and parameters.

Quality Assessment and Data Synthesis

Each author independently evaluated the research presented in the title and abstract of the publication to determine which ones merited further exploration. The subsequent stage involved assessing all articles that met the predefined criteria for inclusion in the review. Decisions on including articles in the review were based on the findings uncovered during this evaluation process. This criterion aimed to streamline the paper selection process for further assessment, facilitating a comprehensive discussion of previous investigations and the factors that made them suitable for inclusion in the review.

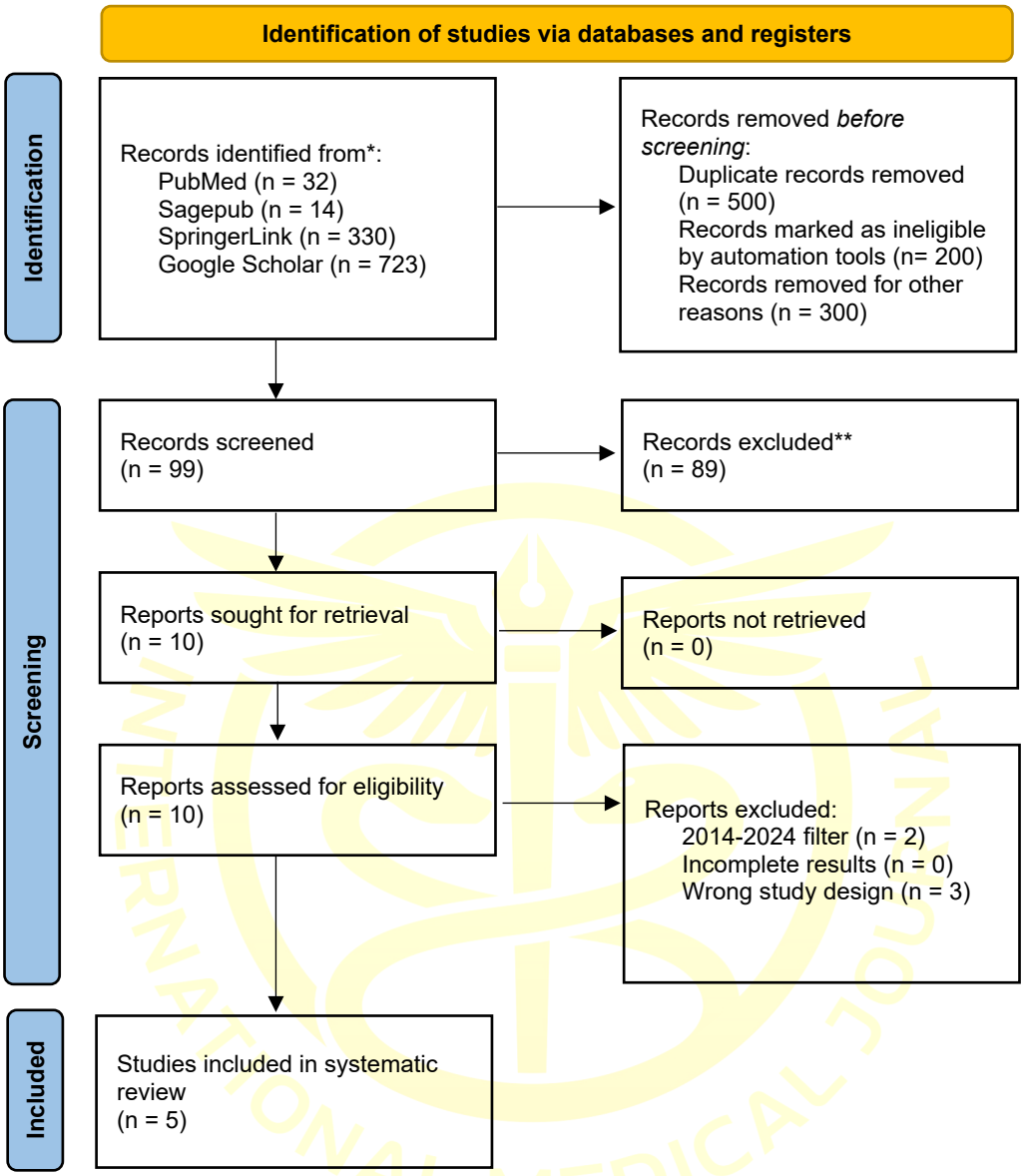

Figure 1. Article search flowchart

RESULT

The initial number of articles retrieved from online databases (PubMed, SagePub, SpringerLink, and Google Scholar) is 1,099 articles. After conducting three levels of screening, five articles that directly relate to the current systematic review have been chosen for further assessment through full-text reading and analysis. Table 1 presents the selected literature included in this analysis.

Table 1. The literature included in this study

Author	Origin	Method	Sample	Result
Aziz Ali, et al.[2] (2022)	Cairo, Egypt	Prospective randomized comparative study	34 patients	Demographic data reveals that the average age of the patients is 40.74 years, with 68% being males and 32% females. Further breakdown between the Milligan-Morgan (MM) and stapled hemorrhoidopexy (SH) groups shows similar mean ages (40.08 years for MM and 40.40 years for SH) and a slightly higher proportion of females in the MM group (48.0%) compared to the SH group (16.0%). Intraoperative findings indicate that the mean duration of surgery was comparable between the MM and SH groups (47.20 minutes for MM and 43.60 minutes for SH), with no significant difference

				observed. However, there was a notable decrease in intraoperative blood loss in the SH group (mean volume of 38.20ml) compared to the MM group (mean volume of 59.80ml), showing statistical significance.
Khan, et al.[4] (2020)	India	Randomized controlled trial	244 patients	In a study of 244 patients with grade III and IV hemorrhoidal disease, divided equally into conventional hemorrhoidectomy (Group I) and stapled hemorrhoidopexy (Group II), outcomes including bleeding, postoperative pain, hospital stay, and recurrence were assessed. Stapled hemorrhoidopexy showed benefits such as shorter hospital stays, less bleeding, and lower postoperative pain, but had a higher recurrence rate compared to conventional hemorrhoidectomy.
Khan, et al.[5] (2020)	Multan	Randomized controlled trial	60 patients	In this study, two equal groups, A and B, underwent stapled hemorrhoidopexy and conventional hemorrhoidectomy,

				respectively. SPSS version 20 was used for data analysis, with mean and standard deviation for quantitative variables. Postoperative pain and hospital stay were significantly lower in the stapled hemorrhoidopexy group (Group A) compared to the conventional hemorrhoidectomy group (Group B).
Rahman, et al.[6] (2023)	Bangladesh	Retrospective cross sectional study	84 patients	The mean age of patients in the stapled haemorrhoidopexy group was 39.05±5.29 years, slightly lower than that of the open hemorrhoidectomy group at 39.52±5.22 years. The gender distribution was relatively similar between the groups, with a slight male predominance in both. Intraoperative bleeding, hospital stay, and surgical duration were notably lower in the stapled haemorrhoidopexy group compared to the open hemorrhoidectomy group. However, urine retention was more prevalent in the open group. Post-operative bleeding

				occurred in fewer patients in the stapled group, while a higher percentage reported pain in the open group.
Sadeghi, et al.[3] (2021)	Iran	Randomized controlled trial	120 patients	This study examined 120 patients with stage 3 or 4 hemorrhoids, randomized into two groups: one undergoing stapled hemorrhoidectomy and the other conventional hemorrhoidectomy. Post-surgery, both groups experienced reduced pain, with stapled hemorrhoidectomy showing lower pain levels. Patients in the stapled group required less analgesics. However, at the 12-month mark, stapled hemorrhoidectomy patients had a significantly higher recurrence rate compared to the conventional group.

Aziz Ali, et al.[2] (2022) showed that stapled hemorrhoidopexy (SH) outperforms the Milligan–Morgan technique in treating third-degree and fourth-degree circumferential piles. SH demonstrates a significant reduction in intraoperative blood loss and recurrence rate without compromising fecal continence. Although there is no significant difference in the complication rates between the two techniques, including postoperative bleeding, urinary retention, and anal stenosis, SH shows promising advantages in terms of efficacy and outcomes.

Khan, et al.[4] (2020) showed that stapled hemorrhoidopexy showed benefits such as shorter hospital stays, less bleeding, and lower postoperative pain, but had a higher recurrence rate compared to conventional hemorrhoidectomy.

Khan, et al.[5] (2020) concluded that tapled hemorrhoidopexy is associated with shorter hospital stays and decreased postoperative pain regardless of age, sex, or grade of hemorrhoids.

Rahman, et al.[6] (2023) showed that post-operative bleeding was less frequent in the stapled group, but a higher percentage experienced pain in the open group. Overall, stapled haemorrhoidopexy demonstrated advantages in immediate postoperative outcomes, allowing for an earlier return to normal activities without recurrence, chronic prolapse, or incontinence. Therefore, it may be preferred over open hemorrhoidectomy for treating second to third-degree haemorrhoids.

Sadeghi, et al.[3] (2021) concluded that despite its effectiveness in reducing pain and hospitalization duration, stapled hemorrhoidectomy is associated with a higher recurrence rate over a one-year follow-up.

DISCUSSION

Hemorrhoids are prevalent worldwide and are among the most troublesome anal conditions, causing symptoms like prolapse and bleeding. The condition poses significant medical and socioeconomic challenges, with constipation and straining being key contributing

factors. Hemorrhoidectomy is a frequently performed surgical procedure globally due to the high prevalence of hemorrhoidal disease. Various techniques have been developed to minimize postoperative complications, with traditional open or closed methods and stapled hemorrhoidectomy emerging as options.[2,4]

Traditional excisional surgical techniques like Milligan-Morgan hemorrhoidectomy (MMH) have long been standard. This approach leaves patients with a large, painful perianal wound, resulting in prolonged hospital stays and delays in returning to normal activities. An alternative technique, the Ferguson technique of closed hemorrhoidectomy, involves closing the perianal wound but is more technically demanding. Studies have shown that despite wound closure, patients experience similar levels of postoperative pain compared to the open technique. although they can be painful, often likened to passing broken glass. Conventional hemorrhoidectomy is associated with several postoperative complications, including bleeding, pain, urinary retention, anal stenosis, and incontinence.[3–5]

Over time, various modifications have been proposed to enhance postoperative outcomes, particularly focusing on reducing postoperative pain. Stapled hemorrhoidopexy represents a significant advancement in the treatment of hemorrhoidal disease, utilizing modern medical technology and understanding of its pathophysiology. Unlike other methods like sclerotherapy or rubber band ligation, which target the arterial supply to hemorrhoids, stapled hemorrhoidopexy addresses the entire circumference of the anus, reducing the risk of recurrence.[2]

The primary advantage of stapled hemorrhoidopexy is that it causes less postoperative pain compared to conventional hemorrhoidectomy. Studies have shown that stapled hemorrhoidopexy leads to shorter operating times, less postoperative pain, earlier return to work, and greater patient satisfaction. Additionally, research has demonstrated lower rates of postoperative bleeding and less

analgesic medication required with stapled hemorrhoidopexy compared to traditional methods. Overall, stapled haemorrhoidopexy demonstrated advantages in immediate postoperative outcomes, allowing for an earlier return to normal activities without recurrence, chronic prolapse, or incontinence.[2,6]

However, Sadeghi, et al.[3] (2021) showed that despite its effectiveness in reducing pain and hospitalization duration, stapled hemorrhoidectomy is associated with a higher recurrence rate over a one-year follow-up. Previous study showed that after 12 months, the recurrence rate was 32% in the stapled hemorrhoidopexy group and 14% in the traditional excision group. After 24 months, it was 25% and 42%, respectively. Further surgical intervention was required in 9% of patients in the SH group and 6% in the traditional excision group.[3]

Previous study also showed that in the long term, stapled hemorrhoidopexy was associated with increased cost, recurrence, tenesmus, and worse continence. Overall quality of life was better in traditional hemorrhoidopexy. Additionally, another study mentioned a high rate of complications after stapled hemorrhoidopexy, with recurrence in 9.3% of patients, incontinence in 39%, and tenesmus in 38.2%. These findings reinforce previous research on the efficacy and outcomes of stapled hemorrhoidopexy.[5]

CONSCLUSION

Stapled hemorrhoidopexy exhibited superior short-term outcomes compared to traditional hemorrhoidectomy. It boasted advantages like shorter surgery duration, reduced postoperative bleeding, shorter hospital stays, and less postoperative pain. However, the traditional method had a lower recurrence rate compared to stapled hemorrhoidopexy.

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