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Surgical outcomes of stapled hemorrhoidopexy and open Milligan Morgan procedure for treatment of hemorrhoids in tertiary level hospital

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ABSTRACT

Background: Milligan-Morgan open hemorrhoidectomy (MM) is the standard surgical method for hemorrhoids. Stapled hemorrhoidectomy (SH) is now considered a well-established procedure that is used to minimize postoperative discomfort, facilitate rapid wound healing, and accelerate recovery to regular activity. This study aimed to evaluate the surgical outcomes of SH and MM open hemorrhoidectomy.
Methods: This quasi-experimental study was conducted at the department of surgery, Rajshahi medical college hospital (RMCH), Rajshahi, Bangladesh, from January 2022 to December 2022. A total 108 hemorrhoids patients underwent SH and MM open hemorrhoidectomy are included in this study and divide equally in two group. SPSS software was used to perform statistical analysis of the quantitative data.
Results: The mean operative time for SH (27.59±8.56 min) was shorter than MM (35.21±7.13 min). SH resulted in significantly lower pain scores at 6, 12, and 24 hours postoperatively ($p<0.05$). Patients undergoing SH had significantly shorter hospital stays (1.32±0.84 days) compared to MM (3.1±2.8 days; $p<0.001$). Although SH patients had lower incidences of postoperative hemorrhage (7.4% vs. 12.96%) and wound infections (7.4% vs. 11.11%), these differences were not statistically significant. Anal stenosis decreased over time in both groups, with SH showing the lowest rate at six months (1.85%).
Conclusions: SH offers superior postoperative outcomes with reduced pain and length of hospital stay, making it a favorable alternative to the MM procedure for grade III hemorrhoids.

Keywords: Hemorrhoids, Milligan-Morgan open hemorrhoidectomy, Stapled hemorrhoidectomy, Postoperative outcomes

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INTRODUCTION

Hemorrhoids are a commonly encountered problem in the arena of anorectal health. Hemorrhoidal disease is a medical condition that occurs when blood vessels beneath the anal mucosa become abnormally swollen.[1] Although it seems to be more prevalent among men, the condition can afflict persons of all ages.[2] Common features and symptoms of this condition may include discomfort feelings, itching, mucus discharge, bleeding, pain, and prolapsed. Many people also report feeling full and like they haven't fully emptied their bowels.[3] Various perspectives on the development of hemorrhoidal disease can result in varying treatment approaches for hemorrhoids.[4] Physicians typically recommend dietary and lifestyle modifications as the main approach for managing hemorrhoidal disease.[5]

Hemorrhoids with symptoms can be effectively treated with conservative therapy. This approach involves non operative procedures carried out in doctors' offices and the use of various pharmaceutical substances such as creams.[6] Surgical intervention stands as the primary approach for grade III and IV hemorrhoids, particularly in individuals who don't react to other forms of treatment.[7,8] The MM open hemorrhoidectomy is considered to be the standard surgical method due to its minimal postoperative complications, economical pricing, and outstanding long-term outcomes.[9,10] However employing such an open approach results in a substantial exposed region that is challenging to control and is linked to intense pain and bleeding after the surgery. In addition, it is linked to problems such as wound infection, edema, significant short-term incontinence, and urine retention. Consequently, this leads to a rise in illness severity and patient distress.[11] Typical adverse consequences after a MM hemorrhoidectomy are anal verge and mucosal stenosis, delayed healing caused by a chronic anal ulcer, and pain.[12]

Recently, a range of equipment such as circular staplers, ultrasonic scalpels, lasers, and bipolar electrocautery have been employed to minimize postoperative discomfort and blood loss, while facilitating rapid wound healing and a faster recovery to regular activity.[13] The SH operation is considered a well-established procedure due to its comparatively low complication rates and shorter hospital stays 2, 3 and nowadays, it has been used increasingly. Tjandra and Chan conducted a review comparing SH with conventional surgery.[14] The review found that SH had lower rates of postoperative bleeding, constipation, and wound complications. However, a recent publication in the literature has confirmed that SH has a higher frequency of recurrence.[15,16] Nevertheless, the results of SH are uncertain, and there is a lack of comparison data on this topic in Bangladesh. This study sought to assess and compare the surgical outcomes of SH and open MM procedure for the management of Hemorrhoids in tertiary-level hospitals in Bangladesh.

Objectives

The objective of this study was to evaluate the surgical outcomes of SH and MM open hemorrhoidectomy.

METHODS

A quasi-experimental study was conducted at the department of surgery, RMCH, Rajshahi, Bangladesh from January 2022 to December 2022. A total 108 hemorrhoids patients underwent SH and MM open hemorrhoidectomy are included in this study and divide equally in two group.

Inclusion criteria

Patients diagnosed with grade III hemorrhoids, patients who failed conservative treatment for grade II hemorrhoids and adults aged 18 years and above were included.

Exclusion criteria

Patients with a history of anorectal surgery, presence of anorectal fistulas, fissures, or thrombosed external hemorrhoids were excluded.

Study procedures

The study involved 108 patients meeting selection criteria, divided into the SH group and MM open hemorrhoidectomy group. After being informed about the techniques and potential outcomes, 54 patients in the SH group underwent SH, and 54 in the MM group underwent open hemorrhoidectomy, all under subarachnoid anesthesia in lithotomy position by experienced surgeons. Preoperative, operative, and postoperative care followed guidelines. Postoperatively, patients were instructed to wash perianal wounds daily and after bowel movements, and received analgesics as per guidelines. Initial postoperative assessments occurred on the first day, followed by evaluations at one week, and at one, three, and six months. Pain levels at six, twelve-, and twenty-four-hours post-procedure were measured using a visual analog scale (VAS). Surgical outcomes were assessed based on operation duration, postoperative bleeding, infection, hospital stay length, VAS pain levels, and risk of anal stenosis.

Data collection

To collect data, a semi-structured questionnaire that had been evaluated earlier was utilized.

Statistical analysis of data

Statistical analysis was performed using SPSS version 23. Continuous data were summarized as median and range, while categorical data were presented as percentages and frequencies. The Shapiro-Wilk test checked data

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normality. Differences in VAS scores and hospital days between groups were evaluated using the student T test, and relationships between categorical variables were analyzed using chi-square tests. A p<0.05 was considered statistically significant.

RESULTS

The majority of participants suffering from hemorrhoids were from the 41-50 years age group. The mean age of the MM group participants was 42.12±7.04 years which was slightly higher than the patients of the SH group, where the mean age was 38.52±8.45 years. More than two-thirds of the patients with hemorrhoids were male. However, patients in both groups were demographically similar in gender and age distribution (Table 1).

Table 1: Distribution of the study subjects based on demographic traits, (n=108).

Parameters		MM group, (n=54)	SH group, (n=54)	P value
Age (in years)	<20	0 (0.0)	1 (1.9)	0.3
	21-30	4 (7.4)	8 (14.8)	
	31-40	17 (31.5)	22 (40.7)	
	41-50	26 (48.1)	19 (35.2)	
	>50	7 (13.0)	4 (7.4)	
Mean±SD		42.12±7.04	38.52±8.45	
Sex	Male	37 (68.5)	36 (66.7)	0.84
	Female	17 (31.5)	18 (33.3)	

Table 2: Distribution of the study subjects based on outcomes, (n=108).

Outcomes	MM group, (n=54)	SH group, (n=54)	P value
Operative time (Min)	35.21±7.13	27.59±8.56	0.57
Postoperative hospital stays (days)	3.1±2.8	1.32±.84	<0.001
Postoperative hemorrhage	7 (12.96%)	4 (7.40%)	0.31
Wound infection	6 (11.11%)	4 (7.40%)	0.46

Operating hemorrhoid patients by MM open hemorrhoidectomy (35.21±7.13 minutes) or SH (27.59±8.56 minutes) took a similar form of time. Patients treated with SH were shown to have a significantly shorter postoperative hospital stay. No significant decrease in wound infection and post-operative hemorrhage was noted in the SH patient group compared to the MM patient group (Table 2).

Patients treated with SH were found to experience less postoperative pain than those treated with MM open hemorrhoidectomy at 6 and 12th hours, even 24 hours after the operation (p<0.05) (Table 3).

Table 3: Distribution of the study subjects based on post-operative pain by VAS.

Post operative pain score (VAS)	MM group, (n=54)	SH group, (n=54)	P value
06 hours	2.81±0.79	1.73±0.62	<0.001
12 hours	2.12±0.74	1.77±0.53	0.006
24 hours	1.80±0.72	1.42±0.56	0.003

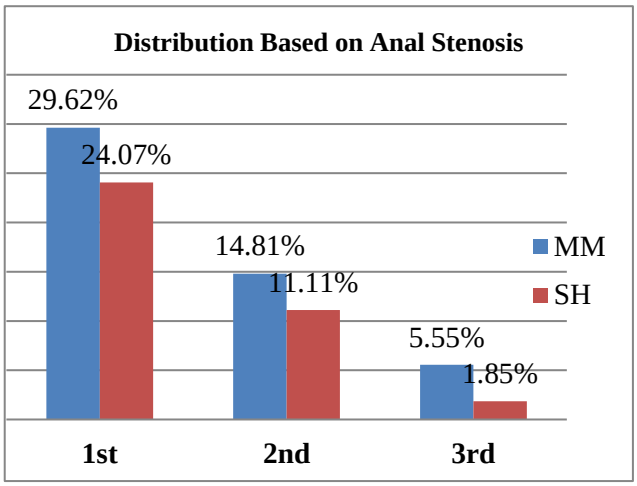

Figure 1: Distribution of the study subjects based on anal stenosis.

In the 1st month following surgery, the MM group had a non-significantly higher incidence of anal stenosis at 29.62% compared to the SH group, where the incidence was 24.07%. By the 3rd month post-treatment, both groups showed a decrease in the incidence of anal stenosis. The MM group's incidence decreased to 14.81%, while the SH group's incidence decreased to 11.11%. At the 6th month mark, it further decreased in both groups. The MM group had a lower incidence of 5.55%, while the SH group had the lowest incidence at 1.85% (Figure 1).

DISCUSSION

In Europe, the preferred treatment for hemorrhoidal prolapsed is the MM procedure, while in North America; the favoured approach is the Ferguson-closed hemorrhoidectomy incision. In comparison to open hemorrhoidectomy operations, the Ferguson treatment offers improved pain relief and a more comfortable recovery. SH is a widely recognized surgical intervention that provides an alternative to conventional methods of hemorrhoidectomy.[14] Multiple randomized trials have evidenced several immediate advantages, including reduced discomfort and pain, shorter hospital stays, expedited recovery, and a return to regular social and occupational activities.[14-17] Our study findings suggest

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that SH is a therapeutic intervention that significantly decreases postoperative pain and results in a shorter hospital stay than the traditional approach. Both study groups were predominantly composed of males, with the MM group of patients being slightly older than the SH group. A study conducted by Mattana et al revealed that the age and sex distribution were comparable in both groups.[18] Cultural and socioeconomic variables can impact the disparity in gender distribution, as women may be less inclined to seek medical care unless their symptoms deteriorate. Consequently, the number of females in our study is fewer than the number of males. The study found that there was no significant statistical difference in operative time between the SH and MM operative procedures. Interestingly, these findings aligned with previous studies conducted by Manfredelli et al and Khan et al.[19,20] In a study conducted by Malyadri and Jayachandra Allu, it was discovered that the operative time was lower in SH compared to MM.[2] One possibility for the lack of a significant difference in operative times could be the surgeon's high level of experience and expertise with the technique. In this study, a highly skilled surgical team performed the procedure.

The MM operation is recognized for being marginally more intrusive and causing more pain in the immediate postoperative period. SH is renowned for inducing much reduced postoperative pain.[21] Our study found that patients who had undergone SH experienced reduced levels of post-operative pain in comparison to those who had undergone MM at six, twelve, and twenty four hours following the surgery. Bhandari et al. conducted a study suggesting that SH may provide better short-term results in terms of postoperative pain and the need for pain-relieving medication compared to open hemorrhoidectomy, Kim et al and Daniel et al reported comparable results.[9,22,23] Multiple studies have presented evidence indicating that the duration of postoperative hospitalization is notably reduced for patients undergoing stapler hemorrhoidopexy compared to those who undergo open hemorrhoidectomy.[14,17,22] The result of our study was the same. Following stapler hemorrhoidectomy, the patient reported decreased discomfort and a minimal occurrence of complications.

Furthermore, the patient was released from the hospital ahead of schedule and was allowed to resume their regular daily activities. In comparison to the MM group, the stapler hemorrhoidopexy group had a significantly lower occurrence of complications, including postoperative hemorrhage and wound infection.

Limitations

This study was conducted in only one medical college hospital with a limited sample size, which limited generalizability. Outcomes like the recurrence of hemorrhoids, urinary retention, or inconsistency were not explored. Patients were followed only for six months, so long-term outcomes could not be explored.

Future studies should include larger, multicenter populations, employ randomized controlled designs to minimize bias, and extend follow-up periods to assess long-term outcomes.

CONCLUSION

SH offers benefits for individuals with second and third-degree hemorrhoids, including shorter hospital stays and reduced post-operative pain when compared to MM open hemorrhoidectomy.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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