

**A Study on Safety and Efficacy of Haemorrhoidectomy (Milligan Morgan Vs Stapler Haemorrhoidopexy)**S. Naresh Kumar<sup>1</sup>, Devender<sup>2</sup>, Gopi Sandeep Raj<sup>3</sup><sup>1</sup>Assistant Professor, Department of General Surgery Gandhi Medical College, and Hospital, Secunderabad, Telangana<sup>2</sup>Assistant Professor, Department of General Surgery Gandhi Medical College, and Hospital, Secunderabad, Telangana<sup>3</sup>Assistant Professor, Department of General Surgery Gandhi Medical College, and Hospital, Secunderabad, Telangana

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Conflict of interest: Nil

**Abstract:**

**Background:** There are various surgical and non-surgical treatment options available for managing hemorrhoids. The conventional open method is widely embraced by many surgeons, while the Minimally Invasive Procedure for Hemorrhoids (MIPH), also known as Stapled Hemorrhoidectomy, represents a recent advancement in hemorrhoid management. The objective of this study is to compare the technical aspects, functional outcomes, and overall effectiveness of two surgical modalities for treating hemorrhoids: Open Hemorrhoidectomy and MIPH (Stapled Hemorrhoidectomy).

**Methods:** A prospective randomized study was carried out at Gandhi Medical College & Hospital, Secunderabad involving a total of n=50 patients. Hospitalization was provided for patients diagnosed with 3rd and 4th-degree hemorrhoids. Comprehensive routine investigations were conducted and evaluated as necessary. The cases were thoroughly examined and closely monitored based on both subjective and objective criteria throughout the study period.

**Results:** The average duration of open hemorrhoidectomy was  $46.5 \pm 10.5$  minutes, whereas it was  $38.0 \pm 5.5$  minutes for MIPH (Stapled Hemorrhoidectomy). For MIPH, the initial cases had a duration of approximately  $68.9 \pm 12.5$  minutes. The majority of patients in the MIPH group experienced mild pain (60%), which improved with the administration of analgesics alone. In contrast, 24% of patients in the open hemorrhoidectomy group reported mild pain. The open hemorrhoidectomy group had a higher percentage of patients (48%) who complained of moderate pain, requiring continuous analgesic treatment.

**Conclusion:** Stapler hemorrhoidectomy demonstrates effectiveness in various aspects, including reduced blood loss during both the perioperative and postoperative periods, minimal pain, decreased need for analgesics, reduced pain during the first bowel movement, accelerated wound healing, faster recovery after surgery, shorter hospital stays with an earlier resumption of normal activities.

**Keywords:** Stapler haemorrhoidopexy, Milligan-Morgan Haemorrhoidectomy, minimally invasive procedure.

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**Introduction**

Hemorrhoids are undeniably one of the most common ailments affecting human beings. They are commonly referred to as Piles, although the two terms have distinct etymological meanings. The term "hemorrhoid" originates from the Greek adjective haimorrhoides, which translates to "bleeding" (haima = blood, rhoos = flowing). [1, 2] On the other hand, the term "pile" is derived from the Latin word pila, meaning a ball, which can be appropriately used to describe all forms of hemorrhoids. [3, 4] Morgagni attributed the occurrence of hemorrhoids to the upright posture of

humans. Obtaining accurate data on the incidence of hemorrhoids is challenging, particularly since many patients with asymptomatic hemorrhoids go undiagnosed. [5] It is a common observation that individuals with hemorrhoids may never experience any symptoms. However, as age advances, the prevalence of hemorrhoids increases. It is estimated that at least 50% of people over the age of 50 have some degree of hemorrhoids. [6] Fear of the pain associated with hemorrhoidectomy often deters hemorrhoid sufferers from seeking treatment. However, troublesome symptoms such as bleeding,

prolapse, and pain necessitate medical intervention. The objectives of this study were to compare circular-stapler hemorrhoidectomy (MIPH) and conventional hemorrhoidectomy in the following aspects a. Duration of the procedure. Postoperative complications, including postoperative pain, postoperative bleeding, and urinary retention Recovery after the surgery, including hospital stay and return to normal activities.

### Material and Methods

This prospective study was carried out in the Department of General Surgery, Gandhi Medical College, and Hospital, Secunderabad, Telangana State. Institutional Ethical approval was obtained for the study and written consent was obtained from all the participants of the study after explaining the nature of the study and possible outcomes in the vernacular language.

### Inclusion Criteria

1. 3<sup>rd</sup> and 4<sup>th</sup> degree hemorrhoids
2. Mass per rectum with pain and irritation
3. Aged 18 and above.
4. Males and females.
5. Willing to participate in the study voluntarily.

### Exclusion Criteria

1. Hemorrhoids are associated with complications such as ulcerations and strangulations.
2. Recurrent cases of hemorrhoids
3. Patients with fecal incontinence
4. Not willing to participate in the study.

A total of n=50 cases were included in the duration of the study the patients were divided into two groups for this study, with n=25 patients undergoing Milligan-Morgan (Open) hemorrhoidectomy and another n=25 patients undergoing Minimally Invasive Procedures for hemorrhoidectomy (MIPH). Preparations for the surgery included shaving the perianal region, perineum, and back. Intramuscular administration of 0.5 ml tetanus toxoid injection was performed. Written consent was obtained from the patients, and a pre-anesthetic evaluation was conducted. Additionally, a soap-water enema was administered the night before and on the morning of the surgery.

Patients were instructed to abstain from oral intake starting from the previous night. Antibiotics were administered on the day of the surgery, before the procedure. Detailed explanations regarding the effects and potential complications of the procedure were provided to the patients.

A comprehensive medical history was obtained from each patient, covering personal history, family history, and diet history. Systemic examinations were conducted, including respiratory and cardiovascular evaluations, as well as per abdominal examination to identify any associated diseases or potential causes predisposing to hemorrhoids.

Local examination, including proctoscopy, was performed according to the study's standardized form, and the gathered data was recorded accordingly. Investigations included tests for hemoglobin, total count, differential count, erythrocyte sedimentation rate, blood sugar, bleeding time, clotting time, blood urea, serum creatinine, and urine routine. Additional investigations such as chest X-ray, electrocardiogram, sigmoidoscopy, and colonoscopy were selectively performed in specific cases.

Patients were given a detailed explanation of their condition and the available treatment options, including Open hemorrhoidectomy, Stapler hemorrhoidopexy, Rubber band ligation, cryotherapy, and sclerotherapy, along with the advantages and disadvantages of each approach. Only willing patients who met the selection criteria were included in the study and underwent the necessary examinations and investigations as per the standardized form.

### Statistical analysis

Data analysis was conducted using SPSS software version 21.0 in Windows format. The continuous variables were represented as percentages, mean, and standard deviation. The categorical variables were measured by chi-square test and the p values of (<0.05) were considered significant.

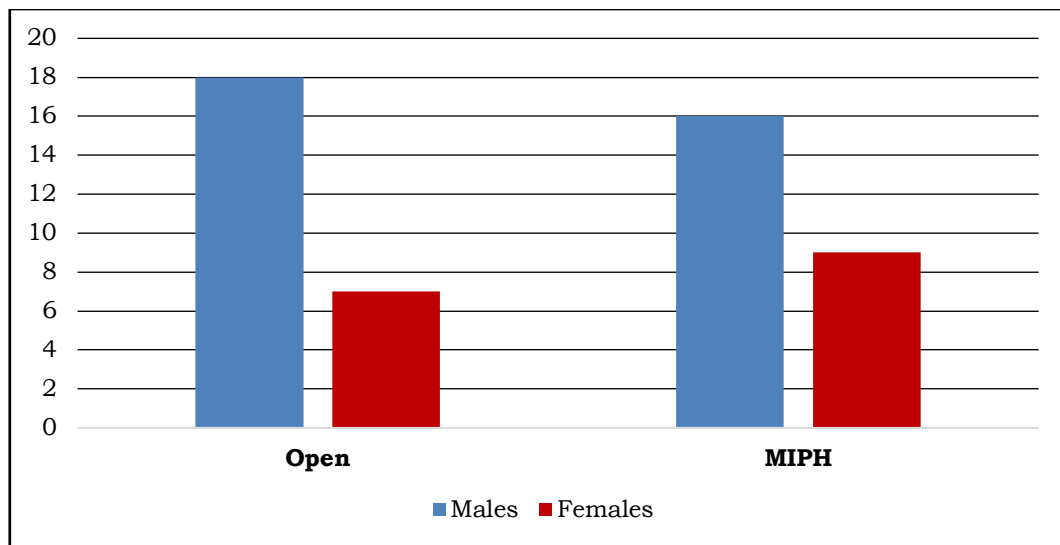
### Results

This study was conducted to compare the outcomes of two distinct surgical techniques used to treat severe hemorrhoids (3<sup>rd</sup> and 4<sup>th</sup> degree): open hemorrhoidectomy and MIPH (Stapled Hemorrhoidectomy). The study included 40 cases for each procedure, and thorough monitoring of these patients was carried out. In this particular investigation, a larger proportion of patients fell within the 41-50 age range, with males being the dominant gender. The average age of patients at the time of diagnosis was  $44.5 \pm 7.3$  years. Of the total patient population, 70% were males, while the remaining 30% were females.

**Table 1: Demographic profile of cases included in the study**

Age in yrs	Males	Females	Total	Percentage
20 – 30	5	1	6	12
31 – 40	6	3	9	18
41 – 50	12	5	17	34
51 – 60	7	3	10	20
> 60	4	4	8	16
Total	34	16	50	100

In the present study, the maximum number of patients belongs to the age group of 41-50 years, with male predominance, with a mean age of presentation of  $46.5 \pm 6.5$  years. 68% were male patients and 32% were female patients. The distribution of cases in two groups of surgeries performed is depicted in Figure 1.

**Figure 2: Distribution of cases based on the type of surgery performed in the study**

The average duration of open hemorrhoidectomy was  $46.5 \pm 10.5$  minutes, whereas it was  $38.0 \pm 5.5$  minutes for MIPH (Stapled Hemorrhoidectomy). For MIPH, the initial cases had a duration of approximately  $68.9 \pm 12.5$  minutes.

The T-value calculated was 2.75, and the corresponding P-value was found to be 0.025. These results indicate a significant difference with a p-value less than 0.05, suggesting that MIPH requires a longer learning period, even for experienced surgeons. The Visual Analog Scale (VAS) was used measure for estimating pain postoperatively in two groups of patients. VAS rating system enables people to self-report the severity of their pain by marking a point on a horizontal line that is generally 10 cm long, with one end denoting "no pain" and the

other denoting "worst imaginable pain." The pain score is calculated by measuring the distance from the "no pain" end to the specified point.

VAS scores are often expressed as percentages or as numbers between 0 and 10. A general rule for interpreting VAS ratings is provided below:

0: No suffering

1-3: Mild pain that doesn't interfere with activities but is uncomfortable.

4 – 6: Moderate pain (disrupts activity)

7 – 9: Extremely painful (disabling)

10: Worst imaginable pain

**Table 2: VAS scores recorded in two groups of patients**

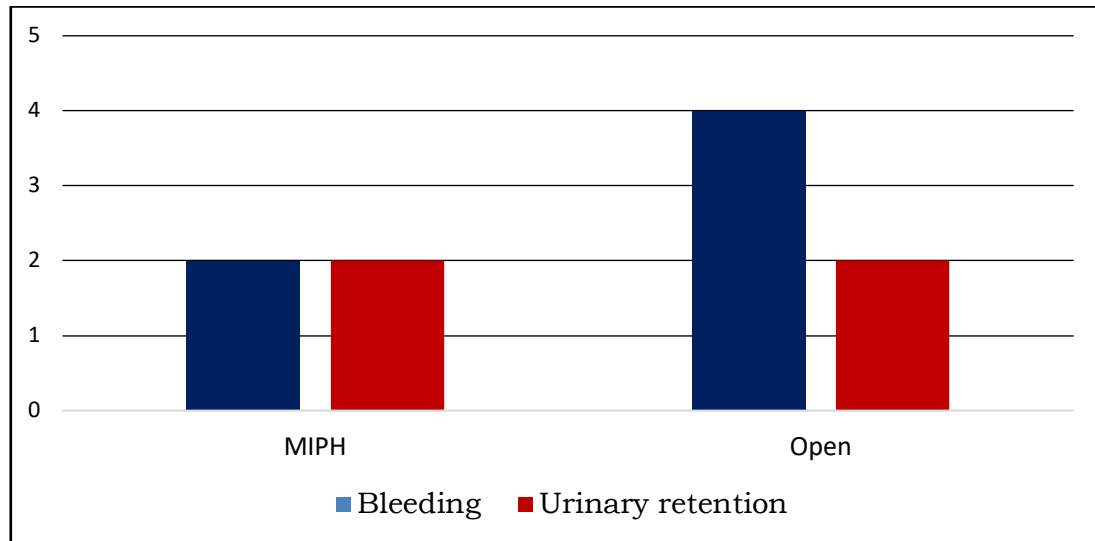
Post-operative pain scores	MIPH		Open	
	N	%	N	%
Mild (0 – 3)	15	60	6	24
Moderate (4 – 7)	8	32	12	48
Severe (8 – 10)	2	8	2	8

The majority of patients in the MIPH group experienced mild pain (60%), which improved with

the administration of analgesics alone. In contrast, only 24% of patients in the open hemorrhoidectomy

group reported such mild pain. The open hemorrhoidectomy group had a higher percentage of patients (48%) who complained of moderate pain, requiring continuous analgesic treatment. On the other hand, only 32% of patients who underwent MIPH had a moderate level of pain. Among those who underwent open hemorrhoidectomy, 30% of

patients reported severe pain that was unrelieved even with continuous analgesics. These patients required opioid analgesics and sedatives (Table 2). The overall mean pain scores of MIPH were lesser than that of mean VAS scores by open method and the p values were ( $<0.05$ ) hence it was significant.



**Figure 2: Postoperative complications recorded in two groups**

The postoperative complications recorded in two groups revealed 8% of MIPH patients were experiencing bleeding in comparison to the open method where 16% of patients experienced bleeding

post-defecation. Similarly, the incidence of urinary retention in the two groups was found to be similar at 8% each. The p values were calculated to be ( $>0.05$ ) and hence insignificant.

**Table 4: Duration of Hospital stay in two groups of cases**

Duration of Hospital stay	MIPH		Open	
	N	%	N	%
1 – 3 days	23	92	6	24
4 – 6 days	2	8	15	60
> 6 days	00	00	4	16
Total	25	100	25	100

The mean duration of Hospital stay was much shorter for the MIPH group. All patients who underwent MIPH were discharged by the 3<sup>rd</sup> – 5<sup>th</sup> postoperative day the mean duration of stay in MIPH was 2.5 days.

In contrast, only 24% patients of with open haemorrhoidectomy were discharged on 3<sup>rd</sup> postoperative day. The mean postoperative hospital stay in the open group was 5.5 days.

MIPH is associated with a short postoperative hospital stay due to less pain and less morbidity with fewer complications. The chi-square statistic value was (0.001) and the result was significant depicted in Table 4.

### Discussion

This prospective study found the prevalence of hemorrhoids was very common in all age groups and

more prevalent among individuals aged 40 to 50 years and older, with a mean age of presentation was  $44.5 \pm 7.3$  years. The number of patients above 60 years was relatively low. Male patients constituted 70% of the cases, while female patients accounted for 30%. The most common complaints reported by the majority of patients who underwent surgery were bleeding pain and the presence of a rectal mass. The majority of these patients were classified as grade III or IV. In this study, the average operating time for open hemorrhoidectomy was  $46.5 \pm 10.5$  minutes, whereas it was  $38.0 \pm 5.5$  minutes for MIPH (Stapled Hemorrhoidectomy). The findings of this study align with the research conducted by Gravié JF et al., who observed that stapled haemorrhoidectomy was significantly quicker compared to open haemorrhoidectomy, with a respective average duration of 21 minutes and 31 minutes. However, the duration of stapler haemorrhoidectomy was

slightly longer in our hospital due to the procedure being relatively new, requiring a learning curve. In this study, patients who underwent MIPH reported milder-grade pain, whereas a higher percentage of patients in the Milligan-Morgan group experienced more severe pain. The mean pain score for the MIPH group was  $3.5 \pm 2$ , whereas, for the Milligan-Morgan group, it was  $5.7 \pm 2.2$ . Other studies in this field also indicated that pain tends to appear after weaning off of the spinal anesthesia and required rescue analgesics to be used in the cases. [8-12] In this study we found 8% of MIPH patients were experiencing bleeding in comparison to an open method where 16% of patients experienced bleeding post-defecation. Bleeding ranged from dressing soakage to about a few drops of blood during defecation. RJ Davies et al., [13] in a similar study of comparison of MIPH and open method found postoperative bleeding was significantly lower in the MIPH group. Urinary retention in our study is 8% in the MIPH group and 8% in the Milligan-Morgan group. Similar observations have been made by Kim JS et al., [8] and J Davis et al., [13] reported incidence of urinary retention was 15% and 20% in MIPH and Open methods respectively. The mean duration of hospital stay in MIPH was 2.5 days as compared to the Milligan-Morgan group's mean duration of hospital stay was 5.5 days and the difference was found to be statistically significant. In a randomized clinical trial conducted by Ammaturo C et al., [9] a comparison was made between Stapled hemorrhoidopexy and Milligan-Morgan hemorrhoidectomy for grade III hemorrhoids. The study concluded that Stapled hemorrhoidopexy provides superior short-term advantages, including reduced pain, shorter hospital stays, and quicker return to work, leading to higher patient satisfaction. However, it was found to be less effective than Milligan-Morgan hemorrhoidectomy in terms of being a definitive cure for grade III hemorrhoids. In a systematic review conducted by Jayaraman S et al., [14] the long-term outcomes of stapled hemorrhoidopexy were compared to conventional excisional hemorrhoidectomy in patients with internal hemorrhoids. The review concluded that conventional hemorrhoidectomy is more effective in preventing postoperative recurrence of internal hemorrhoids compared to stapled hemorrhoidopexy. Furthermore, in the long-term follow-up, fewer patients who underwent conventional hemorrhoidectomy reported complaints of haemorrhoidal prolapse when compared to those who underwent stapled hemorrhoidopexy. A comparative study conducted by Nisar PJ et al., [11] found that Stapled hemorrhoidopexy was compared to conventional hemorrhoidectomy. The study concluded that Stapled hemorrhoidopexy carries unique potential complications and is less effective as a cure compared to a hemorrhoidectomy. However,

considering this understanding, it may be considered an option for patients who prefer a less painful alternative to conventional surgery. Nevertheless, it is important to note that hemorrhoidectomy remains the "gold standard" treatment for this condition.

### Conclusion

Stapler hemorrhoidectomy demonstrates effectiveness in various aspects, including reduced blood loss during both the perioperative and postoperative periods, minimal pain, decreased need for analgesics, reduced pain during the first bowel movement, accelerated wound healing, faster recovery after surgery, and shorter hospital stays with an earlier resumption of normal activities. However, it is important to note that MIPH (Stapled Hemorrhoidectomy) is relatively expensive compared to the open technique. Nevertheless, further evaluation through long-term follow-up is essential to determine the applicability of these initial findings in the general population.

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