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Comparative Study Between Stapled Hemorrhoidectomy and Milligan Morgan Method for 3rd Degree Piles

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Abstract

Background: Hemorrhoids, or piles, are collections of submucosal, fibrovascular, and arteriovenous sinusoids in the anus and rectum, classified into four grades based on severity. Third-degree piles are more severe, causing discomfort, bleeding, and infection.

Aim: To compare stapled hemorrhoidectomy and Milligan-Morgan hemorrhoidectomy in 3rd-degree piles.

Patients and methods: This prospective observational research involved forty cases which were selected from attendees of the surgery department of Al Azhar University Hospitals. Samples were collected using a random systematic method. Cases were randomized and divided into two groups, as follows: Group (1): 20 patients undergo stapled hemorrhoidectomy, and Group (2): 20 patients undergo Milligan-Morgan hemorrhoidectomy from April 2023 to February 2024.

Results: There was a highly statistically significant distinction among Group one and Group two regarding the duration of surgery (minutes), intraoperative blood loss by (cubic centimeters (CC)) and pain (VAS score) while there wasn't statistically significant variance among Group one & Group two regarding bleeding, stenosis, incontinence, perianal fistula, and return to activity (days).

Conclusion: This study found that the stapled hemorrhoidectomy (SH) method is better than the Milligan-Morgan hemorrhoidectomy (MM) method for treating third-degree circumferential piles. This is because the SH method reduced intraoperative blood loss and the rate of recurrence while having no effect on fecal continence. We concluded that stapled hemorrhoidectomy can thus be considered a safe, reliable, and better surgical procedure for treating 3rd-degree hemorrhoids.

Keywords: Third-degree piles, Stapled hemorrhoidectomy, Milligan Morgan hemorrhoidectomy

1. Introduction

Hemorrhoids, also known as piles, are collections of submucosal, fibrovascular, and arteriovenous sinusoids in the anus and rectum. They are classified into four grades based on their severity. Third-degree piles are considered to be more severe than second-degree piles.¹

Third-degree piles, on the other hand, are temporarily prolapsed and pushed back by a finger. They may cause severe discomfort, bleeding, itching, and can even get infected.²

Patients with third-degree piles may experience symptoms such as bleeding during bowel movements, pain, and discomfort, itching, & a feeling of fullness in the anus. These symptoms can have an important effect on an individual's quality of life & can be debilitating. In some cases, they may also lead

to the development of other complications, such as anemia, if bleeding is excessive and prolonged.³

Stapled hemorrhoidectomy is a surgical procedure that is used to treat piles (also known as hemorrhoids) that are graded as II or III. This procedure is considered to be a more modern and less invasive alternative to traditional hemorrhoidectomy surgery. One of the main advantages of stapled hemorrhoidectomy is that it is correlated with a shorter hospital stay, lower postoperative pain, & a faster recovery time compared to traditional operation. Additionally, stapled hemorrhoidectomy has been shown to have a low recurrence rate, which means that patients are less likely to experience a recurrence of their hemorrhoids after the procedure. Overall, stapled hemorrhoidectomy is considered to be an effective & safe option for curing piles grades III, with a good outcome.⁴

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Stapled Hemorrhoidectomy offers various advantages over traditional hemorrhoidectomy methods. One of the primary benefits is the good outcome of the surgery. Studies have shown that stapled hemorrhoidectomy is an efficient therapy for third-degree piles, resulting in significant enhancements in symptoms like pain, bleeding, & prolapse.^{5,6}

Both open hemorrhoidectomy (Milligan-Morgan) and closed hemorrhoidectomy (Ferguson technique) can be utilized to carry out hemorrhoidectomy. Hemorrhoids are ligated & excision in both procedures. The Milligan & Morgan method involves deliberately leaving the anal mucosa and the skin exposed to promote healing, whereas the closed technique involves suturing the wound.⁷

This study aimed to establish comparisons among stapled hemorrhoidectomy & Milligan morgan hemorrhoidectomy in 3rd degree piles.

2. Patients and methods

This prospective observational research involved forty cases that were selected from attendees of the surgery department of Al Azhar University Hospitals. Samples were collected using the systematic random method, and the stratified randomization method was used. Patients were randomized and divided into two groups as follows: Group (1): 20 patients undergo stapled hemorrhoidectomy, and Group (2): 20 patients undergo Milligan morgan hemorrhoidectomy from April 2023 to February 2024.

Ethical approval: The research protocol received approval from the Local Ethics Committee, & all patients provided written informed consent.

Inclusion criteria: Patients with symptomatic third-degree piles, patients who have failed conservative treatment options, such as diet and lifestyle changes or non-surgical treatments, and cases who have the willingness to comply with instructions following surgery and show the ability to give informed consent.

Exclusion criteria: Patients with inflammatory bowel disease or other significant colonic diseases, pregnant or breastfeeding women, patients with severe cardiovascular or respiratory diseases, patients who are unable or unwilling to comply with postoperative instructions, patients who have had previous surgery in the area, patients who have a bleeding disorder or other contraindications for surgery, patients with another degree of hemorrhoids and patients who are not able to provide informed consent

Sample Size: The sample size for this research was determined using Epi Info STATCALC, which

was based on an investigation conducted by Hetzer et al.⁸ The following assumptions were taken into consideration: A two-sided confidence level of ninety-five percent backed by an eighty percent power. A five percent margin of error. The highest final sample size extracted from the Epi-Info output was thirty-two. In consideration of this, the sample size was increased to forty subjects in anticipation of cases of subject attrition during follow-up. A sample of all cases of patients diagnosed with piles of degree III will be chosen.

Methods: All cases were exposed to complete physical examination, Complete history taking, and pre-operative lab evaluations.

Group (1): The procedure will typically be performed under general anesthesia, although spinal. involved a stapling device to remove prolapsed hemorrhoidal tissue from the anus & rectum. The Patient was positioned on their back, with their legs supported in stirrups (lithotomy position). The surgeon used a special anoscope to visualize the anus and rectum, and the device was inserted to cut and remove the prolapsed tissue, repositioning the remaining hemorrhoidal tissue back to its normal position. Stapled hemorrhoidectomy was an alternative to conventional internal hemorrhoidectomy. A circular stapling device removed circumferential columns of submucosa and mucosa from the upper anal canal, returning the hemorrhoidal tissue to the anal canal and securing it in place. The device also disrupted part of the blood flow to the hemorrhoids, resulting in a reduction in vascularity. A surgical stapler was equipped with an anal dilator or obturator, which facilitated the gentle expansion of the anal canal. We inserted the circular stapling device into the anus and placed the mucosa/submucosa contents inside the stapler. Prior to activating or discharging the stapler, it is important to evaluate the posterior wall of the vagina to confirm that the stapler has not inadvertently contacted it. This observation can be made by displacing the stapler and observing that the posterior vaginal wall remains immobile and does not exhibit any tenting. Upon activation, the stapler formed a circular attachment to all tissues using a nonabsorbable suture that encircled the rectal wall. Essentially, it repositioned and held the protruding internal hemorrhoid tissue in place. Thoroughly assessing the staple line is crucial, as it could potentially trigger early bleeding and necessitate suture ligation treatment. The surgery's key aspect was the precise positioning of the pursestring suture in the mucosa or submucosa, specifically around four centimeters away from the dentate line. It was critical to position the pursestring suture sufficiently close to prevent the stapling device from affecting the sphincter muscles and reduce

the risk of secondary problems such as changes in continence, stricture, and fistula. Patients with grade II to IV internal hemorrhoids who had bleeding and/or prolapsed and had not responded to rubber band ligation underwent treatment with stapled hemorrhoidopexy devices. Another potential function could be for cases who are seeking a potentially less painful alternative to traditional surgery, although these cases must be willing to accept a greater risk of the condition recurring. The procedure typically takes 15 to 20 minutes and was monitored for any complications. Patients typically return home within a day or two but may need to take a few days off work to recover. They were advised to avoid strenuous activities for a week and may be prescribed pain medication to manage discomfort. A follow-up appointment was usually scheduled within a week or two to check for proper healing and remove any staples used during the procedure. Measurements include symptomatic relief, healing, recurrence rate, quality of life, adverse events, return to normal activities, and patient satisfaction. The severity & incidence of adverse events were monitored through vital signs, laboratory tests, and physical examination. Patients' ability to return to normal activities was also evaluated through self-reported measures or by monitoring their activity level (Figure 1).

Group (2): Spinal anesthesia was provided in all cases during a lithotomy position. The sphincter was gently extended while the Patient was positioned in a lithotomy position and sterilized with betadine. Using artery forceps, the skin-covered component of each main pile was seized & retracted outward, resulting in the protrusion of the lower poles of the mucosal-covered component. The mucosal component of each pile is grasped by additional forceps that capture an artery and draw it downward & outward until pink mucosa emerges. We reduced the piles to their highest extent to position the ligature at the upper pole. A V-shaped incision was performed while avoiding the V cross-mucocutaneous junction in the anal & perianal skin. Hemorrhoid tissue was removed via diathermy or scissors from the internal sphincter. Muscular submucosa penetrates the venous plexus without the division of strands. On either side of the pedicle, the underlying mucosa separated before converging towards its apex. We achieved apical trans fixation by using absorbable vicryl zero. Just a few millimeters below the apical ligature, the isolated hemorrhoid tissue was removed. To prevent anal stenosis, the procedure was replicated in an identical way for each alternative position, ensuring that a continuous barrier of skin & mucosa existed between each hemorrhoid that was removed.

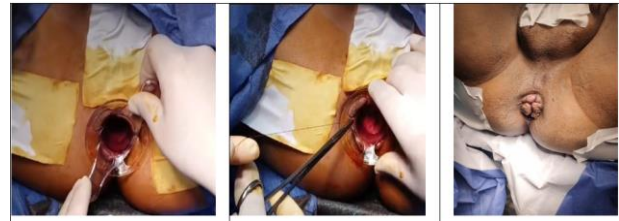


Figure 1. steps of stapled hemorrhoidectomy

3. Results

According to demographic data, Table 1 demonstrated that there wasn't statistically significant variance regarding to age while there was statistically significant variance regarding to sex among group 1 and group 2.

Table 1. Distribution of demographic data between studied groups.

	STAPLED HEMORRHOIDECTOMY GROUP (N=20)	MILLIGAN- MORGAN GROUP (N=20)	TEST VALUE	P- VALUE
AGE (YEARS) MEAN \pm SD	38.95 \pm 10.2	42.4 \pm 12.1	t= 0.97	0.335
SEX				
MALE	17 (85%)	10 (50%)	X ² =	0.01
FEMALE	3 (15%)	10 (50%)	5.584	

P value >0.05: Not significant, P value <0.05 is statistically significant, p<0.001 is highly significant., SD: standard deviation, t: T test, X²: Chi-square test

According to intraoperative results, Table 2 showed that there was highly statistically significant variance regarding to duration of surgery (minutes) and intraoperative blood loss (CC).

Table 2. Distribution of Intraoperative results between studied groups

	STAPLED HEMORRHOIDECTOMY GROUP (N=20)	MILLIGAN- MORGAN GROUP (N=20)	TEST VALUE	P- VALUE
DURATION OF SURGERY (MINUTES) MEAN \pm SD	18.6 \pm 3.23	41.2 \pm 3.6	t=20.89	\leq 0.001*
INTRAOPERATIVE BLOOD LOSS (CC) MEAN \pm SD	38.64 \pm 10.5	60.19 \pm 10.63	t=41.6	\leq 0.001*

According to early postoperative outcomes, Table 3 showed that there wasn't statistically significant variance among both groups regarding to bleeding, urinary retention, wound infection, hospital stay while there was statistically significant variance regarding to urgency & there was greatly statistically significant variance regarding to pain (VAS score).

Table 3. Distribution of early postoperative outcomes between studied groups

	STAPLED HEMORRHOIDECTOMY GROUP (N=20)	MILLIGAN- MORGAN GROUP (N=20)	TEST VALUE	P- VALUE
PAIN (VAS SCORE) MEAN \pm SD	7.65 \pm 1.14	6.05 \pm 1.54	t = 3.735	\leq 0.001*

BLEEDING	1 (5%)	3 (15%)	X ² =1.11	0.29	ROLE LIMITATION				
URINARY RETENTION	9 (45%)	7 (35%)	X ² =0.417	0.52	MEAN± SD				
WOUND INFECTION	1 (5%)	3 (15%)	X ² =1.11	0.29	PAIN	38.8±9.52	34.3±8.97	t=1.53	0.13
URGENCY	6 (30%)	1 (5%)	X ² =4.33	0.04*	MEAN± SD				
HOSPITAL STAYS (DAY)	1.95±1	2.4±1.3	t=1.227	0.23	GENERAL HEALTH	48.3±4.83	59.7±3.7	t=8.37	≤0.001*
MEAN ± SD					MEAN± SD				
					VITALITY (ENERGY)	60.9±6.7	53.8±9.6	t=2.71	0.01*
					MEAN± SD				
					SOCIAL FUNCTION	54.4±5.3	61.8±11.1	t=2.69	0.01*
					MEAN± SD				
					EMOTIONAL ROLE LIMITATION	75.3±14.9	56.3±7.9	t=5.03	≤0.001*
					MEAN± SD				
					MENTAL HEALTH	61.9±4.27	64.3±4.9	t=1.65	0.106
					MEAN± SD				

According to late postoperative outcomes, Table 4 revealed that there wasn't statistically significant distinction among studied groups regarding to bleeding, stenosis, incontinence, perianal fistula and return to activity (days). While there was statistically significant distinction among studied groups regarding to recurrence.

Table 4. Distribution of late postoperative outcomes between studied groups.

	STAPLED HEMORRHOIDECTOMY GROUP (N=20)	MILLIGAN- MORGAN GROUP (N=20)	TEST VALUE	P- VALUE
BLEEDING	0 (0%)	2 (10%)	X ² =2.105	0.14
STENOSIS	1 (5%)	2 (10%)	X ² =0.36	0.54
RECURRENCE	1 (5%)	6 (30%)	X ² =4.32	0.03*
INCONTINENCE	0 (0%)	1 (5%)	X ² =1.02	0.31
PERIANAL FISTULA	2 (10%)	0 (0%)	X ² =2.105	0.14
RETURN TO ACTIVITY (DAYS)	3.65±1.3	4.35±1.46	t=1.6	0.117
MEAN± SD				

According to patient satisfaction, there was no statistically significant difference between studied groups (Table 5).

Table 5. Distribution of patient satisfaction between studied groups.

	STAPLED HEMORRHOIDECTOMY GROUP (N=20)	MILLIGAN- MORGAN GROUP (N=20)	TEST VALUE	P- VALUE
VERY SATISFIED	4 (20%)	3 (15%)	X ² =1.676	0.64
SATISFIED	11 (55%)	10 (50%)		
INDIFFERENT	3 (15%)	2 (10%)		
DISSATISFIED	2 (10%)	5 (25%)		

According to patients' quality of life, Table 6 showed that there wasn't statistically significant distinction among studied groups regarding physical function, pain, mental health. While there was statistically significant variance among studied groups regarding vitality (energy) and social function and there was highly statistically significant variance among studied groups regarding general health, physical role limitation, & emotional role limitation.

Table 6. Distribution of patients Quality of life between studied groups.

	STAPLED HEMORRHOIDECTOMY GROUP (N=20)	MILLIGAN- MORGAN GROUP (N=20)	TEST VALUE	P- VALUE
PHYSICAL FUNCTION	73.5±10.6	73.9±10.5	t=0.119	0.90
MEAN± SD				
PHYSICAL	0	66±8.32	t=35.4	≤0.001*

4. Discussion

According to demographic data, this study demonstrated that there wasn't a statistically significant variance regarding age, while there was a statistically significant variance regarding sex.

This study can be supported by Bhagvat et al.,⁹ who demonstrated that the mean age of stapled group patients was 49.60 ± 14.89 years while the mean age of Milligan-Morgan group was 49.28 ± 14.72 years & there wasn't statistically significant variance among Stapled hemorrhoidectomy & Milligan-Morgan groups regarding age.

According to intraoperative results, there was a highly statistically significant variance regarding the duration of surgery (minutes) and intraoperative blood loss (CC).

Similarly, this study confirms those of Malyadri & Allu,¹⁰ who established that the median intra-operative bleeding for patients undergoing stapler hemorrhoidectomy was five millilitres (IQR 4.25 to 6), while it was 38 ml (36 to 40) for patients undergoing open hemorrhoidectomy; a significant variance in intra-operative bleeding was observed between the two groups. Additionally, they revealed that the median duration of operation for stapler hemorrhoidectomy was 15 to 20 minutes, while for open hemorrhoidectomy, it was 50 minutes (IQR: 48 to 51); this was a statistically significant distinction among both groups.

In contrast, this study disagreed with Panigrahi et al.,¹¹ who reported that there was a statistically significant distinction among both groups as regards the duration of surgery and Stapled hemorrhoidopexy was significantly faster than the Milligan-Morgan technique (28minutes versus 34 minutes p<0.001).

As regards early postoperative outcomes, this study demonstrated that there wasn't statistically significant variance among Stapled hemorrhoidectomy & Milligan-Morgan groups regarding bleeding, urinary retention, wound infection, and hospital stay, while there was a statistically significant distinction among both

studied groups regarding urgency & there was greatly statistically significant variance regarding pain (VAS score).

According to early postoperative outcomes, this study was in agreement with Ali et al.,¹² who discovered that there wasn't statistically significant variance among Stapled hemorrhoidectomy and Milligan–Morgan groups regarding bleeding, urinary retention, wound infection, and hospital stay while there was statistically significant variance among both studied groups regarding urgency & postoperative pain (VAS score).

As well, this study agreed with Bhagvat et al.,⁹ who demonstrated that there was statistically significant variation among Stapled hemorrhoidectomy & Milligan–Morgan groups regarding postoperative pain (VAS score).

According to late postoperative outcomes, this study revealed that no statistically significant distinction occurred among the study groups regarding bleeding, stenosis, incontinence, perianal fistula, and return to activity (days). At the same time, there was statistically significant variance regarding recurrence among studied groups.

As regards late postoperative outcomes, this study in line with Ali et al.,¹² who revealed that there wasn't statistically significant distinction among both studied groups regarding bleeding, stenosis, incontinence, and perianal fistula. While there was statistically significant variation among studied groups regarding recurrence as stapled hemorrhoidectomy significantly decreased the recurrence rate in circumferential piles.

This study disagreed with Shafiquzzaman et al.,¹³ who demonstrated that there was statistically significant variation among the Stapled hemorrhoidectomy & Milligan–Morgan groups regarding patient satisfaction and return to normal activity.

Traditional excisional surgery is less costly when compared with stapled haemorrhoidopexy

The evidence suggests that, on average, the total mean costs over the 24-month follow-up period were significantly higher for the stapled haemorrhoidopexy

4. Conclusion

This study compared stapled hemorrhoidectomy and Milligan morgan hemorrhoidectomy in 3rd-degree piles. We found that SH is superior to the MM technique in the treatment of third-degree circumferential piles, as SH had a significant decrease in intraoperative blood loss & significant decrease in the recurrence rate, with no effect on fecal continence. We concluded that stapled

hemorrhoidectomy could thus be considered a safe, reliable, and better surgical procedure in treating 3rd-degree hemorrhoids.

Disclosure

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Authorship

All authors have a substantial contribution to the article

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There are no conflicts of interest.

References

1. Margetis N. Pathophysiology of internal hemorrhoids. *Ann Gastroenterol.* 2019;32(3):264-272.
2. Ng KS, Holzgang M, Young C. Still a Case of "No Pain, No Gain"? An Updated and Critical Review of the Pathogenesis, Diagnosis, and Management Options for Hemorrhoids in 2020. *Ann Coloproctol.* 2020;36(3):133-147.
3. Lobascio P, Laforgia R, Novelli E, et al. Short-Term Results of Sclerotherapy with 3% Polidocanol Foam for Symptomatic Second- and Third-Degree Hemorrhoidal Disease. *J Invest Surg.* 2021;34(10):1059-1065.
4. Gupta K. Hemorrhoidectomy: The Gold Standard. In: *Lasers in Proctology* 2022 Nov 23 (pp. 71-84). Singapore: Springer Nature Singapore. doi.org/10.1007/978-981-19-5825-0_6
5. Emile SH, Elfeki H, Sakr A, Shalaby M. Transanal hemorrhoidal dearterialization (THD) versus stapled hemorrhoidopexy (SH) in treatment of internal hemorrhoids: a systematic review and meta-analysis of randomized clinical trials. *Int J Colorectal Dis.* 2019;34(1):1-11.
6. Hetzer FH, Demartines N, Handschin AE, Clavien PA. Stapled vs excision hemorrhoidectomy: long-term results of a prospective randomized trial. *Arch Surg.* 2002;137(3):337-340. doi:10.1001/archsurg.137.3.337
7. Altomare DF, Giuratrabocchetta S. Conservative and surgical treatment of haemorrhoids. *Nat Rev Gastroenterol Hepatol.* 2013;10(9):513-521.
8. Hetzer FH, Demartines N, Handschin AE, Clavien PA. Stapled vs excision hemorrhoidectomy: long-term results of a prospective randomized trial. *Arch Surg.* 2002;137(3):337-340.
9. Bhagvat VM, Aher JV, Bhagvat SR. Comparative study between open (milligan morgan) haemorrhoidectomy and stapled haemorrhoidectomy. *International Surgery Journal.* 2017;4(1):43-52.
10. Malyadri N, Allu VJ. A prospective comparative study of stapler hemorrhoidectomy vs open haemorrhoidectomy (Milligan Morgan) in its outcome and postoperative complications. *Journal of Surgery and Research.* 2021;4(1):4-13.
11. Panigrahi SK, Behera CR, Mishra S, Kanungo A. Stapled hemorrhoidopexy versus Milligan-Morgan haemorrhoidectomy: a paradigm shifts in the management of 3rd and 4th degree hemorrhoids. *International Surgery Journal.* 2018;5(1):209-215.
12. Ali MM, Nada MA, El-Wahab EH, Abbas AA. Stapled hemorrhoidopexy versus Milligan–Morgan technique (open hemorrhoidectomy) in surgical treatment of third-degree and fourth-degree circumferential piles. *The Egyptian Journal of Surgery.* 2022 Jul 1;41(3):1240-1250.
13. Shafiquzzaman H, Suman A, Akter S, Haque S, Ali S. A Comparison between Stapled Hemorrhoidopexy and Conventional Milligan Morgan Procedure in the Treatment of Hemorrhoids. *SAS J Surg.* 2022; 3:168-172.