

Original Article

Comparison of Stapled Hemorrhoidopexy and Open Hemorrhoidectomy — A Study in a District Level & a Tertiary Care Hospital

DOI: dx.doi.org

Md Mostafizur Rahman^{1*} , Md Shakhawat Hossain²

Received: 21 November 2023

Accepted: 27 November 2023

Published: 28 November 2023

Published by:

Sheikh Sayera Khatun Medical College (SSKMC), Gopalganj, Bangladesh

*Corresponding Author



This article is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

**ABSTRACT**

Introduction: Hemorrhoids are usually managed by hemorrhoidectomy which is associated with postoperative pain, long hospital stay, and a longer convalescence. Stapled hemorrhoidopexy is a newer alternative for the treatment of hemorrhoids. This study aimed to analyze the outcome in patients of both procedures. **Methods and materials:** This cross-sectional study was conducted at the Department of Surgery at Ibn Sina Medical College Hospital in Kallyanpur, Dhaka, Bangladesh; a tertiary care hospital and in a district-level hospital. All necessary data were collected during and after the surgery. Data were entered using SPSS software. Informed written consent was taken from all patients and all data were kept confidential. **Result:** In the present study, duration of surgery was 35±5 min in Group A, while 25±10 min in Group B.

patients of Group A needed 9.5 hours to return to normal bowel function whereas it was 12 hours in Group B. Patients of Group A experienced comparatively less pain than the patients of Group B. Hospital-stay was much shorter (1.5 days) in cases of Group A patients while longer (2±1) in Group B patients. Postoperative bleeding was also less in Group A. Recurrence rate of the disease was much higher (5.7%) in Group A than Group B (1.0%) **Conclusion:** This study concludes that, although stapled hemorrhoidopexy is widely used, the long-term outcome is limited. Stapled hemorrhoidopexy offers the benefits of less postoperative pain, less requirement for analgesics, and less pain at first bowel movement, while the chance of recurrence of hemorrhoid is much higher.

(The Insight 2023; 6(1): 150-156)

1. Associate Professor, Department of Surgery, Delta Medical College & Hospital, Dhaka, Bangladesh
2. Assistant Professor, Department of Burn & Plastic Surgery, National Institute of Traumatology & Orthopaedic Rehabilitation (NITOR), Dhaka, Bangladesh

Keywords: Hemorrhoids, Stapled Hemorrhoidopexy, Open Hemorrhoidectomy, Prolapse

INTRODUCTION

Stapled hemorrhoidopexy (procedure for hemorrhoid) was first introduced by Longo in 1998. It is a good alternative for the Milligan Morgan hemorrhoidectomy and preliminary results in early 2000 confirmed this [1,2]. However further studies and evaluation of long-term results showed a poor outcome [3,4]. The most important short-term results expected from hemorrhoid surgery include recovery and elimination of symptoms like bleeding, prolapse, and pain. Long-term complications due to hemorrhoidectomy include recurrence of mucosal prolapse, incontinence, and problems due to anal stenosis. At our center, hemorrhoidectomy was performed via conventional procedures. Recently, a stapler had been used for the treatment of prolapsed hemorrhoids. Stapled hemorrhoidopexy (SH) is a new, less invasive method and several studies reported favorable outcomes [5,6]. Around 5% of the general population has a hemorrhoidal disease to some extent, particularly those aged > 40 years [7,8]. There is a great number of available therapeutic methods, and hemorrhoidectomy is well established most effective and definitive treatment for grades 3 and 4 symptomatic hemorrhoids[9]. Two well-established methods of hemorrhoidectomy, the open (Milligan-Morgan) and closed (Ferguson) techniques are especially popular [10,11]. However, despite the relatively minor surgical trauma occurring in two methods, the

intraoperative pain and protracted postoperative course are major concerns [12]. Thus, continuing efforts have been made to develop newer techniques and modifications that promise a less painful course and faster recovery. Stapled hemorrhoidopexy (SH), was introduced by Longo in 1998 and uses a specially designed circular stapling instrument to excise a ring of the redundant rectal mucosa or expanded internal hemorrhoids [13, 14]. Despite occurrence of some SH-related complications, its advantages, such as shorter operating time, less postoperative pain, and a quicker return to normal activity have been confirmed by several controlled studies [15-17]. LigaSure hemorrhoidectomy (LH), another new method, uses the Ligasure vessel sealing system, which consists of a bipolar electrothermal hemostatic device that allows complete coagulation of vessels up to 7 mm in diameter with minimal surrounding thermal spread and limited tissue charring. The advantages of this method are simple and easy learning, excellent hemostatic control, minimal tissue trauma, lower postoperative pain, and shorter wound healing time [18]. However, long-term sequelae of the stapled hemorrhoidopexy have not been widely studied and recent evidence has led to suspicion surrounding the complication rates of the procedure and how these compare with other techniques of hemorrhoidectomy [19]. Stapled hemorrhoidopexy (SH) is becoming more popular in the treatment of prolapsed hemorrhoids. Over the last

few years, increasing number of randomized controlled trials comparing SH with open, namely Milligan-Morgan hemorrhoidectomy have been done. These studies have consistently shown SH to be less painful than open hemorrhoidectomy in the postoperative period. The benefits of shorter operating time, hospital stay, and earlier return to work are less certain. SH may be a viable addition to the therapy for hemorrhoids with some advantages in early postoperative pain and some disadvantages in postoperative complications and costs [20].

OBJECTIVE

General Objective

- To analyze the outcome in patients of stapled hemorrhoidopexy and open hemorrhoidectomy

Specific Objectives

- To see the age and sex distribution of the study subjects.
- To know the chances of recurrence rate of hemorrhoids in both procedures.

METHODS & MATERIALS

This cross-sectional study was conducted at the Department of Surgery at Ibn Sina Medical College Hospital in Kallyanpur, Dhaka, Bangladesh; a tertiary care hospital and in a district-level hospital. The study duration was 2 years; from December 2020 to December 2022. A total of 200 patients were divided into 2 groups of 100 in each. In the (stapled

hemorrhoidectomy) SH group (Group A), there were 60% and 40% females. In the open hemorrhoidectomy group (Group B), there were 75% male, and 25% female. Patients with grade 3 and 4 prolapsed hemorrhoids were entered into the study. All necessary data were collected during and after the surgery. Data were entered using SPSS software. Informed written consent was taken from all patients and all data were kept confidential. Ethical clearance was obtained from the hospital's ethical review committee.

Inclusion Criteria

- Patients with 2nd, 3rd, and 4th degree hemorrhoids.
- Patients who had given consent to participate in the study.

Exclusion Criteria

- Positive history of anorectal surgery
- Patients with rectal prolapse.
- Patients with thrombosed hemorrhoids.
- Patients with fissures or fistula.
- Patients who did not give consent to participate in the study.

RESULTS

Table I: Age distribution of study subjects (N=200)

Age	N	%
20-30	128	64.0
31-40	44	22.0
>40	28	14.0

In the present study, most of the patients (128, 64.0%) belonged to the age group of 20-30 years, followed by 22.0% from 31-40 years and the rest 14.0% from >40 years of age. [Table I]

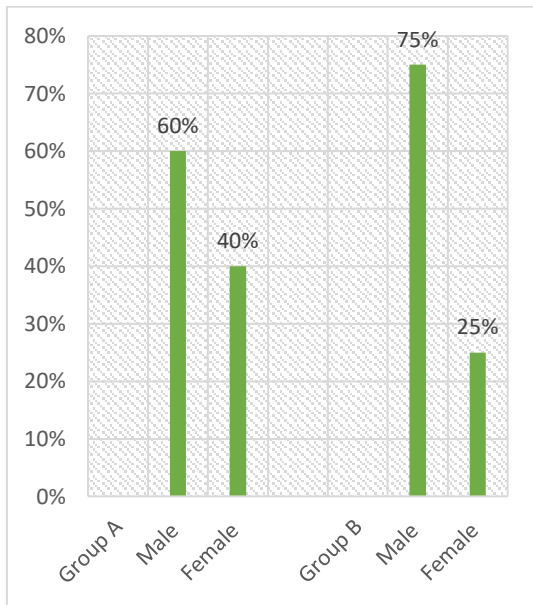


Figure 1: Gender distribution of the respondents (N=200)

60% of the patients were male and 40% were female in group A. 75% of the patients were male and 25% were female in group B. [Figure 1]

Table II: Outcomes in both groups (N=200)

Variables	Group A	Group B
Duration of surgery (minutes)	35±5	25±10
Return to bowel function (hours)	9.5	12
Pain	Less	More
Hospital stay (day)	1.5	2±1

Functional recovery (day)	8.5	10
Wound healing	Rapid	Slow
Postoperative bleeding	Less	More

In this study, the duration of surgery was 35±5 min in Group A, while 25±10 min in Group B. patients of Group A needed 9.5 hours to return to normal bowel function whereas it was 12 hours in Group B. Patients of Group A experienced comparatively less pain than the patients of Group B. Hospital-stay was much shorter (1.5 days) in cases of Group A patients while longer (2±1) in Group B patients. It took 8.5 days for functional recovery in the patients of Group A and 10 days in the patients of Group B. wound healing was more rapid in Group A than Group B. postoperative bleeding was also less in Group A. [Table II]

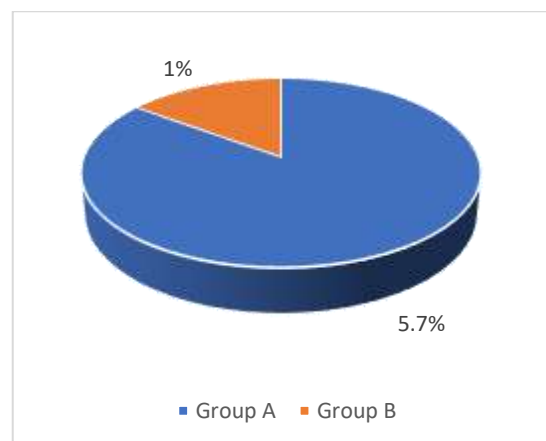


Figure 2: Recurrence rate in both groups after six months of follow-up (N=200)

The recurrence rate of the disease was much higher (5.7%) in Group A than in Group B (1.0%) [Figure 2]

DISCUSSION

In the present study, most of the patients (128, 64.0%) belonged to the age group of 20-30 years, followed by 22.0% from 31-40 years and the rest 14.0% from >40 years of age. 60% of the patients were male and 40% were female in group A. 75% of the patients were male and 25% were female in group B. According to a study, hemorrhoids occur frequently in the adult general population with a male preponderance. Out of the 63 patients under study, 66.67% were males and 33.33% were females in another study [21,22]. In this study, the duration of surgery was 35±5 min in Group A, while 25±10 min in Group B. patients of Group A needed 9.5 hours to return to normal bowel function whereas it was 12 hours in Group B. Patients of Group A experienced comparatively less pain than the patients of Group B. Hospital-stay was much shorter (1.5 days) in cases of Group A patients while longer (2±1) in Group B patients. It took 8.5 days for functional recovery in the patients of Group A and 10 days in the patients of Group B. wound healing was more rapid in Group A than Group B. postoperative bleeding was also less in Group A. In another study, patients in the SH group experienced less postoperative pain/discomfort as scored by pain during a bowel movement ($P < 0.001$), total analgesic requirement over the first 3 days (according to the World Health Organization [WHO] class II analgesics [$P = 0.002$]; class III [$P = 0.066$]), and per-patient consumption frequency of class III analgesics ($P = 0.089$). A clear difference in morphine requirement

became evident after 24 hours ($P = 0.010$). Hospital stay was significantly shorter in the SH group (SH 2.2 ± 1.2 [0; 5.0] versus MM 3.1 ± 1.7 [1; 8.0] [23]. In another study, patients who underwent stapled hemorrhoidopexy had significantly less postoperative pain with mean VAS scores at week 1: 3.1 vs. 6.2; week 2: 0.5 vs. 3; week 4: 0.05 vs. 0.6 ($p < 0.001$), and demonstrated less burning/itching sensation 4 weeks after surgery compared with the Milligan-Morgan group (4.9 vs. 19.7 %; $p < 0.001$) [24]. Portraying a somewhat similar scenario in a study narrated, surgical time was 28.41 ± 10.78 for MMH and 28.30 ± 13.28 min for SH ($P = 0.94$). Postoperative pain was not different between MMH and SH during the first two postoperative days (4.73 ± 2.91 vs 5.1 ± 3.048 ; $P = 0.4$), during the following 6 days, patients treated with SH had less pain (4.63 ± 2.04 in MMH vs 3.60 ± 2.35 in SH; $P = 0.006$). In the SH group, seven patients needed further hospital stay for a complicated course. SH showed a higher incidence of anal fissure compared with MMH (6.3% vs 0%; $P = 0.025$) but no differences in urinary retention, anal stricture, urgency, or anal hemorrhage [25]. The use of a circular stapler in the treatment of haemorrhoidal disease was safe and was associated with fewer complications than a conventional haemorrhoidectomy [26]. Stapled haemorrhoidectomy is a promising method of treatment for prolapsing third-degree hemorrhoids, however, its effectiveness is questionable for fourth-degree ones [27].

LIMITATIONS OF THE STUDY:

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

This study concludes that, although stapled hemorrhoidopexy is widely used, the long-term outcome is limited. Stapled hemorrhoidopexy offers the benefits of less postoperative pain, less requirement for analgesics, and less pain at first bowel movement, while the chance of recurrence of hemorrhoid is much higher. Stapled hemorrhoidopexy is safe with many short-term benefits. The long-term results are similar to the conventional procedure.

Funding: No funding sources

Conflict of interest: None declared

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

RECOMMENDATION

SH may be a viable addition to the therapy for hemorrhoids with some advantages in early postoperative pain and some disadvantages in postoperative complications and costs. Moreover, further studies should be conducted involving a large sample size and multiple centers, to compare these two procedures.

REFERENCES

1. *Racalbuto A, Aliotta I, Corsaro G, Lanteri R, Di Cataldo A, Licata A. Hemorrhoidal stapler prolapsectomy vs. Milligan-Morgan hemorrhoidectomy: a long-term randomized trial. International journal of colorectal disease. 2004 May;19:239-44.*
2. *Ortiz H, Marzo J, Armendariz P. Randomized clinical trial of stapled haemorrhoidopexy versus conventional diathermy haemorrhoidectomy. Journal of British Surgery. 2002 Nov;89(11):1376-81.*
3. *Jayaraman S, Colquhoun PH, Malthaner RA. Stapled hemorrhoidopexy is associated with a higher long-term recurrence rate of internal hemorrhoids compared with conventional excisional hemorrhoid surgery. Diseases of the colon & rectum. 2007 Sep;50:1297-305.*
4. *Giordano P, Gravante G, Sorge R, Ovens L, Nastro P. Long-term outcomes of stapled hemorrhoidopexy vs conventional hemorrhoidectomy: a meta-analysis of randomized controlled trials. Archives of surgery. 2009 Mar 16;144(3):266-72.*
5. *Picchio M, Palimento D, Attanasio U, Renda A. Stapled vs open hemorrhoidectomy: long-term outcome of a randomized controlled trial. International journal of colorectal disease. 2006 Oct;21:668-9.*
6. *Ceci F, Picchio M, Palimento D, Cali B, Corelli S, Spaziani E. Long-term outcome of stapled hemorrhoidopexy for Grade III and Grade IV hemorrhoids. Diseases of the colon & rectum. 2008 Jul;51:1107-12.*
7. *Arslani N, Patrlj L, Rajkovic Z, Papeš D, Altarac S. A randomized clinical trial comparing Ligasure versus stapled hemorrhoidectomy. Surgical Laparoscopy Endoscopy & Percutaneous Techniques. 2012 Feb 1;22(1):58-61.*
8. *Cohen Z. Symposium on outpatient anorectal procedures. Alternatives to surgical hemorrhoidectomy. Canadian Journal of Surgery. Journal canadien de chirurgie. 1985 May 1;28(3):230-1.*
9. *Cataldo P, Ellis CN, Gregorcyk S, Hyman N, Buie WD, Church J, Cohen J, Fleshner P, Kilkenny J, Ko C, et al. Practice parameters for the management of hemorrhoids (revised) Dis Colon Rectum. 2005;48:189-194.*
10. *Milligan ET, Morgan CN, Jones L, Officer R. Surgical anatomy of the anal canal,*

- and the operative treatment of haemorrhoids. *The Lancet*. 1937 Nov 13;230(5959):1119-24.
11. Ferguson JA, Heaton RJ. Closed hemorrhoidectomy. *Diseases of the colon & rectum*. 1959 Mar 1;2(2):176-9.
 12. Brisinda G, Civello IM, Maria G. Haemorrhoidectomy: painful choice. *Lancet*. 2000 Jun 24;355(9222):2253-.
 13. Rowsell M, Bello M, Hemingway DM. Circumferential mucosectomy (stapled haemorrhoidectomy) versus conventional haemorrhoidectomy: randomised controlled trial. *The Lancet*. 2000 Mar 4;355(9206):779-81.
 14. Cirocco WC. Life threatening sepsis and mortality following stapled hemorrhoidopexy. *Surgery*. 2008 Jun 1;143(6):824-9.
 15. Lal P, Kajla RK, Jain SK, Chander J, Ramteke VK. Stapled hemorrhoidopexy: a technique for applying the crucial purse string suture (MAMC Technique). *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*. 2007 Dec 1;17(6):500-3.
 16. Correa-Rovelo JM, Tellez O, Obregón L, Miranda-Gomez A, Moran S. Stapled rectal mucosectomy vs. closed hemorrhoidectomy: a randomized, clinical trial. *Diseases of the colon & rectum*. 2002 Oct;45:1367-76.
 17. Goulimaris I, Kanellos I, Christoforidis E, Mantzoros I, Odisseos C, Betsis D. Stapled haemorrhoidectomy compared with Milligan-Morgan excision for the treatment of prolapsing haemorrhoids: a prospective study. *The European journal of surgery*. 2002 Jan 1;168(11):621-5.
 18. Milito G, Cadeddu F, Muzi MG, Nigro C, Farinon AM. Haemorrhoidectomy with Ligasure™ vs conventional excisional techniques: meta-analysis of randomized controlled trials. *Colorectal Disease*. 2010 Feb;12(2):85-93.
 19. Porrett LJ, Porrett JK, Ho YH. Documented complications of staple hemorrhoidopexy: a systematic review. *International Surgery*. 2015 Jan 1;100(1):44-57.
 20. Ho KS, Ho YH. Prospective randomized trial comparing stapled hemorrhoidopexy versus closed Ferguson hemorrhoidectomy. *Techniques in coloproctology*. 2006 Oct;10:193-7.
 21. Riss S, Weiser FA, Schwameis K, Riss T, Mittlböck M, Steiner G, Stift A. The prevalence of hemorrhoids in adults. *International journal of colorectal disease*. 2012 Feb;27:215-20.
 22. Ravindranath GG, Rahul BG. Prevalence and risk factors of hemorrhoids: a study in a semi-urban centre. *International surgery journal*. 2018 Jan 25;5(2):496-9.
 23. Gravié JF, Lehur PA, Hutten N, Papillon M, Fantoli M, Descottes B, Pessaux P, Arnaud JP. Stapled hemorrhoidopexy versus milligan-morgan hemorrhoidectomy: a prospective, randomized, multicenter trial with 2-year postoperative follow up. *Annals of surgery*. 2005 Jul;242(1):29.
 24. Kim JS, Vashist YK, Thieltges S, Zehler O, Gawad KA, Yekebas EF, Izbicki JR, Kutup A. Stapled hemorrhoidopexy versus Milligan–Morgan hemorrhoidectomy in circumferential third-degree hemorrhoids: long-term results of a randomized controlled trial. *Journal of Gastrointestinal Surgery*. 2013 Jul;17:1292-8.
 25. Stolfi VM, Sileri P, Micossi C, Carbonaro I, Venza M, Gentileschi P, Rossi P, Falchetti A, Gaspari A. Treatment of hemorrhoids in day surgery: stapled hemorrhoidopexy vs Milligan–Morgan hemorrhoidectomy. *Journal of Gastrointestinal Surgery*. 2008 May;12:795-801.
 26. Shalaby R, Desoky A. Randomized clinical trial of stapled versus Milligan—Morgan haemorrhoidectomy. *British journal of Surgery*. 2001 Aug;88(8):1049-53.
 27. Goulimaris I, Kanellos I, Christoforidis E, Mantzoros I, Odisseos C, Betsis D. Stapled haemorrhoidectomy compared with Milligan-Morgan excision for the treatment of prolapsing haemorrhoids: a prospective study. *The European journal of surgery*. 2002 Jan 1;168(11):621-5.