

A Comparative Study of Short Term Results of Open Haemorrhoidectomy versus Splaped Haemorrhoidopexy

Jayaprakash S.¹, Suganya C.², Santhanakrishnan³, Tirumalaisamai⁴

¹Assisant Professor, Department of General Surgery, Karuna Medical College, Palakkad, Kerela, India.

²Junior Resident, Department of General Surgery, Karuna Medical College, Palakkad, Kerela, India.

³Professor, Department of General Surgery, Karuna Medical College, Palakkad, Kerela, India.

⁴Professor & Hod, Department of General Surgery, Karuna Medical College, Palakkad, Kerela, India.

Received: 12-01-2023 / Revised: 13-02-2023 / Accepted: 15-03-2023

Corresponding author: Dr. Jayaprakash S.

Conflict of interest: Nil

Abstract

Background: In this study, we wanted to evaluate the immediate post-operative complication of open haemorrhoidectomy with those of stapled haemorrhoidopexy (PPH).

Methods: This was a hospital based prospective comparative study conducted among 100 patients who presented with haemorrhoids surgery to the Department of Karuna Medical College Hospital, Palakkad, a rural tertiary-care hospital, Kerala, from March 2016 to March 2018 after obtaining clearance from Institutional Ethics Committee and written informed consent from the study participants.

Results: There was no statistically significant difference in post-operative bleeding, return to normal activity and incidence of postoperative anal stenosis between the two groups. The duration of hospital stays in stapled haemorrhoidopexy group ranges from 1 – 6 days (median 2 days) whereas in open haemorrhoidectomy, it is 1 - 3 days (median 1 day). The p value was < 0.001 which was significant.

Conclusion: The conventional Milligan Morgan open haemorrhoidectomy still holds its place as the “gold standard”, while the fascinating stapler haemorrhoidopexy is a good alternative but cannot replace it altogether and further research is needed regarding long term outcome, and the modality of treatment is tailored according to the need of individual patients.

Keywords: Post-Operative, Complication, Open Haemorrhoidectomy, Stapled Haemorrhoidectomy.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Haemorrhoidal disease is one of the most common ano-rectal disorders affecting more than 50 % of men and women over the age of 50. [1] In fact, about 80 percent of people in India develop haemorrhoids at

some point of time and about 80 percent above the age of 50 have some form of symptomatic haemorrhoidal disease. [2] Due to globalization and immigrant of fast-food culture (low residue diet), the

propensity of disease is gradually increasing in our country. Many therapeutic modalities are available for the treatment of symptomatic haemorrhoids starting from change in dietary habits and lifestyle modification to the latest method like Doppler guided haemorrhoidal artery ligation (DGHAL). [3] For symptomatic 3rd degree and 4th degree haemorrhoids, surgery is a treatment of choice. [4] Of these procedures, conventional milligan morgan open haemorrhoidectomy is still considered as the current gold standard procedure widely practiced. [5-6] Due to less post-operative pain and short hospital stay, stapled haemorrhoidopexy (PPH) is gaining more acceptance especially in western countries, [6,7,8,9] and slowly gaining ground in our part of the world. When cost effective conventional haemorrhoidectomy gained more acceptance and widely practiced in developing countries like India whether newly emerging and costlier stapler haemorrhoidopexy can replace it or not is a million-dollar question. In this regard, I want to conduct a study on widely accepted Milligan and Morgan open haemorrhoidectomy procedure with newly evolving stapler haemorrhoidopexy (Longo's procedure).

Aims and Objectives

To compare the immediate post-operative complication of open haemorrhoidectomy with those of stapled haemorrhoidopexy (PPH) in following regards.

- Post-operative bleeding per rectum (Immediate and late)
- Anal stenosis
- Duration of surgery
- Duration of hospital stay
- Return to work (normal activity)

Methods

This was a hospital based prospective comparative study conducted among 100 patients who presented with haemorrhoids surgery to the Department of Karuna

Medical College Hospital, Palakkad, a rural tertiary-care hospital, Kerala, from March 2016 to March 2018 after obtaining clearance from Institutional Ethics Committee and written informed consent from the study participants.

Inclusion Criteria

- Only elective cases were included in the study.
- Patients with late 2nd degree and 3rd degree haemorrhoids are only included in the study.

Exclusion Criteria

- Patients with proximal lesion like malignancy are excluded from the study.
- Patients with coagulation disorder and bleeding diathesis were excluded from the study.
- Patients associated with inter-current anorectal disease like fistula, fissure etc. Are excluded.
- Prior haemorrhoidectomy or any perineal surgeries are excluded.
- Patients with liver cirrhosis, HIV, uncontrolled diabetes, or on anti-coagulant medication are eliminated from the study.

Study Procedure for Milligan Morgan Technique

Under spinal anaesthesia patient on lithotomy position, routine disinfection and draping was done, most of the patients had 3rd degree haemorrhoids at 3'7' and 11 o'clock position were treated. A 'V' shaped incision was made from the body of external haemorrhoids to the anal margin using 15 size blade, after haemorrhoidal pedicle has been mobilized, an absorbable suture is placed at the pedicle site, after haemorrhoidal bundle is excised with any internal or external components of the disease, the mucosa and skin wound be kept open. The internal haemorrhoids at different position are ligated in the same way, keeping the ligated bodies at different levels of the anal

canal with sufficient mucosal bridge between them and sufficient skin flaps are retained between each incision, wound is cleaned appropriate haemostasis achieved using monopolar diathermy. Analgesic suppositories were kept, and anal packing was done.

Study Procedure for Stapler Haemorrhoidopexy (PPH)

Under spinal anaesthesia, patient was placed on lithotomy position, with routine disinfection and draping being done. Most of the patients treated were 3rd degree haemorrhoids at 3, 7, 11 o'clock position. The circular anal dilator (CAD33) is introduced into the anal canal, causes the reduction of the prolapse of the anoderm and parts of the anal mucous membrane. After removing the obturator, the prolapsed mucous membrane falls into the lumen of CAD 33. For safety, we fix the CAD 33 to the perineum by two stitches, at 12 and 6 o'clock position. The Purse-string suture anoscope (PSA 33) is introduced through the CAD 33. By rotating the PSA 33, it will be possible to carry out a purse-string suture around the entire anal circumference. This suture has been carried out at least 5 cm distal from the dentate line, the distance being increased in proportion to the degree of prolapse. The Haemorrhoidal circular stapler (HCS33) is opened to its maximum position. Its head is introduced and positioned proximal to the purse-string, which is then tied with a closing knot. With the help of the suture threader (ST100), the ends of the threads are pulled through the lateral holes of the HCS33. The ends of the threads are knotted externally or fixed using forceps. HCS33 is introduced into the anal canal. During the introduction, we partially tighten the stapler. With a moderate traction of the purse-string, the prolapsed mucous membrane is drawn into the casing. The tightening of the HCS33 is completed and the stapling of the prolapse is carried out. We will allow the instrument to remain in

the closed position for 20 seconds after firing acts as a tamponade and may enhance haemostasis. Having opened the HCS33 a little, the extraction of the head should be checked. Thereafter, the CAD33 and HCS33 should be extracted simultaneously. Following this, the staple line is examined using the PSA33, which enables us to put additional stitches, if needed. Suppository along with a rolled gelatine sponge is inserted. Stapler doughnut examined for completeness.

Patients were started on soft oral diet 6 hour after surgery. Laxative and analgesics were given according to consultant preference, sitz bath started on 1st POD only for MMH group and local visual examination done on first POD for both groups.

Any significant bleeding is noted. Patients were discharged after pain control and home circumstances permitted. Patients were advised to take oral antibiotics, laxative and analgesics twice daily for one week. Patients undergoing open haemorrhoidectomy are advised to take sitz bath twice daily. Patient reviewed on outpatient basis on 1st week, 3rd week and 6th week post-operatively. Patients are advised to report immediately in case of emergency. Anal stenosis was examined on the basis of Milson-Mazier severity index:

- Mild - Tight anal canal can be examined by a well-lubricated index finger or a medium Hill-Ferguson retractor.
- Moderate – Forceful dilatation is required to insert either the index finger or a medium Hill-Ferguson retractor.
- Severe – Neither the little finger nor a small Hill-Ferguson retractor be inserted unless a forceful dilatation is employed.

The outcomes measured were bleeding, anal stenosis, duration of surgery, duration of hospital stay and return to normal

activity.

Statistical Methods

All categorical data were represented by frequency with percentage, and it was analyzed by using Chi-square and Fisher’s exact test. Continuous data were represented by mean (SD) for normal data and median (Range) for abnormal data and

it was analyzed by using independent t-test and Mann-Whitney U test. All the analysis was done by using Statistical Package for Social Sciences (SPSS) 16.0 version. A P value less than 0.05 were considered as significant.

Results

Table 1: Demographic Distribution

VAR00001		N	Mean	Std. Deviation	P Value
Age	Stapler haemorrhoidopexy	50	40.44	13.694	0.382
	Open haemorrhoidectomy	50	42.84	13.615	
Age Distribution					
Groups				Total	P Value
		Stapler haemorrhoidopexy	Open haemorrhoidectomy		
Sex	Female	6	13	19	0.074
	Male	44	37	81	
Total		50	50	100	
Sex Distribution					

The mean age for open haemorrhoidectomy group was slightly higher than stapled haemorrhoidopexy group (42.44 versus 40.44 p value = 0.382) but p value was insignificant (i.e., > .05). There was no statistical difference in age distribution.

In the stapled haemorrhoidopexy group, male: female ratio was 44: 6. Similarly, in the open haemorrhoidectomy group, male : female ratio was 37 : 13.

The p value was 0.074 (> 0.05) which was statistically insignificant.

Table 2: Duration of Surgery

VAR00001		Statistic	Std. Error	
DU.O.S	Stapler Haemorrhoidopexy	Mean	32.50	
		95% Confidence Interval for Mean	Lower Bound	30.44
			Upper Bound	34.56
		5 % Trimmed Mean	32.11	
		Median	30.00	
		Variance	52.296	
		Std. Deviation	7.232	
		Minimum	20	
		Maximum	60	
		Range	40	
		Interquartile Range	5	
		Skewness	1.328	0.337
		Kurtosis	3.197	0.662
	Open	Mean	31.30	0.603

Haemorrhoidectomy	95 % Confidence Interval for Mean	Lower Bound	30.09	
		Upper Bound	32.51	
	5 % Trimmed Mean		30.94	
	Median		30.00	
	Variance		18.173	
	Std. Deviation		4.263	
	Minimum		25	
	Maximum		50	
	Range		25	
	Interquartile Range		0	
	Skewness		2.138	0.337
	Kurtosis		7.087	0.662
Duration of surgery				
Median		Range		P Value
Stapler Haemorrhoidopexy	30	20 - 60	0.527	
Open Haemorrhoidectomy	30	25 - 50		

The mean operating time of the stapled haemorrhoidopexy group was 32.50 ± 7.2 and open haemorrhoidectomy group was 31.30 ± 4.2 . p value is 0.527 (> 0.05). There is no significant difference in operating time between two groups.

Table 3

		Stapler Haemorrhoidopexy	Open Haemorrhoidectomy	Total	P Value
Bleeding pr	Yes	9	6	15	0.401
	No	41	44	85	
Total		50	50	100	
Groups				Total	P Value
		Stapler Haemorrhoidopexy	Open Haemorrhoidectomy		
Anal Stenosis	Yes	4	6	10	0.370
	No	46	44	90	
Total		50	50	100	

In the stapled haemorrhoidopexy group, the post-operative bleeding was present in 9 patients (18 %) and in the open haemorrhoidectomy group, the bleeding was present in 6 patients (12 %). The P value was 0.401 (> 0.05). There is not much difference in post-operative bleeding between the two groups.

In the stapled haemorrhoidopexy group, the anal stenosis was present in 4 patients (8 %) and in the open haemorrhoidectomy group, the anal stenosis was present in 6 patients (12 %). The P value was 0.370 (> 0.05). There is not much difference in anal stenosis between the two groups.

Table 4

	Median (Days)	Range	P Value
Stapler haemorrhoidopexy	2	1 - 6	< 0.001
Open haemorrhoidectomy	1	1 - 3	
	Median (Days)	Range	P Value
Stapler haemorrhoidopexy	6	3 - 12	0.119
Open haemorrhoidectomy	6	5 - 10	

The duration of hospital stays in stapled haemorrhoidopexy group ranges from 1 – 6 days (median 2 days) whereas in open haemorrhoidectomy, it is 1 - 3 days (median 1 day). The p value is < 0.001 which is significant. The duration of hospital stays in stapled haemorrhoidopexy group significantly greater than the other group.

The return to normal activity in stapled haemorrhoidopexy group ranges from 3 – 12 days (median 6 days) whereas in open haemorrhoidectomy, it is 5 – 10 days (median 6 day). The p value is 0.119 which is statistically insignificant. The duration of hospital stays in stapled haemorrhoidopexy is more or less similar to open group.

Discussion

In our study with regards to the age incidence, mean age is 40 which is contradictory to the fact that increase in incidence of haemorrhoids with increasing age as per sliding theory.[10] This may be due to that young patient are more health conscious and old age people are not coming forward for treatment and reluctance of their caretakers.

In Literature it is found that there is no sex predilection for the incidence of haemorrhoids.[10] According to our study, male are predominantly affected; this may be due to females being reluctant to come for treatment because of privacy and cultural issue.

Duration of operating time is measured from the onset of anaesthesia, time in operation theatre, incision to application of dressing and the position of haemorrhoids each position takes times. This may show some heterogeneity in the observation and results. In a study by J. Burch et al. the mean operating time ranges from 9 to 35.4 minutes in PPH and 11.5 to 53 minutes for Milligan Morgan technique. [4] In Madiba et al. meta-analysis, 27 study groups were compared in which 24 study groups

showed PPH had less operative time and the rest were conventional groups with shorter operating time. [11] In our study, the mean operating time for PPH is 32.50 ± 7 and for open group is 31.30 ± 4.2 .

We observe that there is no difference in the mean operating time between stapled and conventional group. The conventional technique is being done years together in our hospital and our surgeons are well-versed with the procedure and hence the operating time is slightly lesser to stapled procedure. In our study, we observed that managing staple line bleeding had increased the operating time in stapler procedure.

According to Jinn-Shiunchen et al. the major post-operative haemorrhage was defined as bleeding requiring surgical intervention or warranting hospital readmission. [12] In 2010 Cochrane review by LumbKJ et al. the haemorrhoidal bleeding in stapled haemorrhoidopexy groups were significantly more at all time, but in conventional group it was not significant. [7] Franc-H-Hetzer et al. on his study observed bleeding resulted most likely from an undetected vessel within the staple line and he transfused for one patient in his study due to persistent bleeding after stapler haemorrhoidopexy. [13] J. Burch et al. on his systemic review, suggest that heterogeneity result on various study due to inclusion of peri-operative bleeding in stapler haemorrhoidopexy group. [4] D.P. Greco et al. day care surgery is not advisable for stapler group as late onset bleeding may occur requiring re-admission. [9] In our study, occurrence of post-operative bleeding is more or less similar in both study group. Interestingly, in the stapled group, one case had persistent bleeding due to staple line granuloma.

Garza et al. have reported occurrence of anal stenosis was 5 % with both stapler

and conventional group, whereas occurrence reduced to 2 % in alternate energy utilized devices. [14] J. Burch et al. on their systemic review concluded there was no significant difference in the occurrence of anal stenosis in both conventional and stapler groups. [9] William C. Cirocco has suggested that anal stenosis is the most common complication after stapler haemorrhoidopexy and usually managed by trans anal technique. [15] Wieslowpesta et al. on his systematic review has mentioned that the anal stenosis is symptom free and is usually detected by digital rectal examination or scopy procedure. [16] In our study, the incidence of anal stenosis in stapler group is 4 out of 50 and open group 6/50 (12 %) and the p value is > 0.5 (0.370) thus there was no significant difference in the occurrence of anal stenosis between both groups and all cases we managed effectively with anal dilatation.

Hospital stay is one of the factors used for assessment of outcome of various surgical methods. T. E Madiba et al., in his meta-analysis of 20 studies emphasizes that hospital stay was similar or less for stapler haemorrhoidopexy (PPH) when compared to conventional haemorrhoidectomy. [11] J. Burch et al. reviewed that mean length of hospital stay ranges from 0.75 to 5.8 days for SH and 9 to 11.2 days for CH. In our study, median length of stay is 2 days for SH, and 1 day for open haemorrhoidectomy group and p value is < 0.001 which is significant. When compared to open literature studies, in our study, hospital stay is stapler procedure is significantly lengthier which may be attributed to the patient apprehensiveness and surgeon's over cautiousness. Many factors are related to the length of hospital stay apart from nature of surgery. [17]

In their review Burch et al. noticed mean number of days to normal activity ranges from 6.1 to 23.1 days in SH groups and 9.8 to 53.9 days after CH groups. [4] T E. Madiba et al. on their systemic review

analyzed 23 studies and concluded that PPH has significantly less days to return to normal activity than EH and he attributed that this may be due to debilitating pain and poor wound healing associated with EH. In our study, the days of return to normal activity for SH is 3 - 12 days while for CH group it is 5 - 7 days and p value not significant (0.119). There is no significant difference in both the group. [18]

Most of the literatures discussed about the immediate post-operative pain and concluded that post-operative pain is significantly less in PPH when compared to CH. In our study, post-operative pain is not included due to the following limitations. That is pain is more subjective rather than objective and the preference of analgesia is consultant dependent, and it is very difficult to quantify the results.

Similarly, post-operative urinary retention is not included in our study due to our protocol where we put indwelling catheter for all stapler groups' patient and conventional groups with benign prostatic hyperplasia. Anaesthetic component also plays a major role in post-operative urinary retention and all cases performed under spinal anaesthesia.

Conclusion

Surgical treatment has been the mainstay of therapy in 3rd and 4th degree haemorrhoids. Among the various surgical procedures available, Milligan Morgan haemorrhoidectomy and stapler haemorrhoidopexy are widely practiced throughout the world. Both procedures have their merits and demerits. Our study reveals that there is not much difference between the two procedures pertaining to immediate post-operative complications. Hence, we conclude conventional Milligan Morgan open haemorrhoidectomy still holds its place as the "gold standard", while the fascinating stapler haemorrhoidopexy is a good alternative but cannot replace it altogether and further

research is needed regarding long term outcome, and the modality of treatment is tailored according to the need of individual patients.

References

1. Senagore AJ, Singer M, Abcarian H. A Prospective, Randomized, Controlled Multicenter Trial Comparing Stapled Hemorrhoidopexy and Ferguson Hemorrhoidectomy: Perioperative and One-year Results. *Dis Colon Rectum*. 2004;(47):1824-36.
2. <http://www.thehindu.com/todays-paper/tp-features/tp-downtowntreatment-for-hemorrhoids/article571441.ece>. DOWNTOWN August 15, 2022.
3. Kim DY, Boushey RP. The use of alternative energy sources and new techniques for the treatment of hemorrhoidal disease. *Semin Colon Rectal Surg*. 2007;18(3):181-6.
4. Burch J, Epstein D, Baba-Akbari Sari A, Weatherly H, Jayne D, Fox D, Woolacott N. Stapled haemorrhoidopexy for the treatment of haemorrhoids: a systematic review. *Colorectal Disease*. 2009;11(3):233-43.
5. Diurni M, Di Giuseppe M. Hemorrhoidectomy in day surgery. *International Journal of Surgery* 2008;6:S53-5.
6. Hiremath B, Gupta S. Stapled haemorrhoidopexy for haemorrhoids: a review of our early experience. *Indian Journal of Surgery*. 2012;74(2):163-5.
7. Lumb KJ, Colquhoun PH, Malthaner R, Jayaraman S. Stapled versus conventional surgery for hemorrhoids. *Cochrane Database of Systematic Reviews*. 2006(4).
8. Ho KS, Ho YH. Prospective randomized trial comparing stapled hemorrhoidopexy versus closed Ferguson hemorrhoidectomy. *Techniques in Coloproctology*. 2006;10(3):193-7.
9. Greco DP, Miotti G, Della Volpe A, Magistro C, De Carli S, Pugliese R. Stapled hemorrhoidopexy: Day surgery or one day surgery? *Surgical Oncology*. 2007; 16:173-5.
10. Cirocco WC. Why are hemorrhoids symptomatic? The pathophysiology and etiology of hemorrhoids. *Semin Colon Rectal Surg*. 2007;18(3):152-9.
11. Madiba TE, Esterhuizen TM, Thomson SR. Procedure for prolapsed haemorrhoids vs excisional haemorrhoidectomy: a systematic review and meta-analysis. *South African Medical Journal*. 2009;99(1):43-53.
12. Gravié JF, Lehur PA, Hutten N, Papillon M, Fantoli M, Descottes B, et al. Stapled hemorrhoidopexy versus milligan-morgan hemorrhoidectomy: a prospective, randomized, multicenter trial with 2-year postoperative follow up. *Annals of Surgery*. 2005;242(1):29.
13. Hetzer FH, Demartines N, Handschin AE, Clavien PA. Stapled vs excision hemorrhoidectomy: long-term results of a prospective randomized trial. *Archives of Surgery*. 2002;137(3):337-40.
14. De la Garza M, Counihan TC. Complications of hemorrhoid surgery. *Semin Colon Rectal Surg* 2013;24(2):96-102.
15. Cirocco WC. Life threatening sepsis and mortality following stapled hemorrhoidopexy. *Surgery*. 2008;143(6):824-9.
16. Pesta W, Wirkowski A, Leksowski K. Stapled haemorrhoidopexy for the treatment of haemorrhoids: a review of our experience. *Videosurgery and other Miniinvasive Techniques*. 2009; 4(4):147-53.
17. Euanorasetr C, Sriyodwieng W. Stapled and closed hemorrhoidectomy: a comparative retrospective study with long-term follow-up. *Thai Journal of Surgery*. 2005;26(1):9-16.