

A Comparative study of Stapler hemorrhoidectomy versus Open hemorrhoidectomy in its Outcome and Postoperative complications

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Abstract

Background: Hemorrhoids are one of the most common benignorectal disorders. Stapled hemorrhoidectomy (SH) has been considered as novel technique in the surgical treatment of prolapsed hemorrhoids. Relevant papers, e.g., randomized controlled trials, review, and meta-analysis from different parts of the world have shown stapled hemorrhoidectomy is less painful and it is associated with quicker recovery, but SH involves substantial added cost. **Aim:** Of the study was to compare the outcome and postoperative complications in patients with grade III and IV Hemorrhoids who underwent hemorrhoidectomy with either stapler hemorrhoidectomy or open hemorrhoidectomy (Milligan Morgan). **Methods:** 150 patients having grade III or IV Hemorrhoids & who full filled the criteria were included in the study from March 2020 to March 2022. 75 pts underwent for stapler and other 75 pts underwent for open Hemorrhoidectomy. All patients were reviewed immediately after surgery and at 1,3,6 weeks and 6 months post-operatively. The two groups were compared for duration of surgery ,hospital stay, return to work and postoperative complications. **Results:** Stapler hemorrhoidectomy technique was quicker to perform in comparison with Open hemorrhoidectomy (P value <0.001). Hospitalization and duration of resumption to daily activity was less in Stapler hemorrhoidectomy group as compared to Open hemorrhoidectomy group (p value < 0.001). **Conclusion:** Stapler hemorrhoidectomy safer alternative to open hemorrhoidectomy in terms of lesser operative time and intra and postoperative bleeding and lower incidence of various post-operative complications was observed.

Keywords: Hemorrhoids, Stapler Hemorrhoidectomy, Milliganmorgan hemorrhoidectomy.

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Introduction

Piles (hemorrhoids) are one of the commonest benign problems in the world. The term hemorrhoids refer to anal cushions that swell, bleed, thrombose & prolapse leads to development of symptoms include discomfort ,itching, mucusdischarge,pain,bleeding per rectum, feeling of incomplete evacuation .There are External and Internal hemorrhoids(IH) , IH are further classified according to degree of prolapsed into four degrees, eventhough they may not reflect the severity of symptoms.1st and 2nd degree hemorrhoids can be managed conservatively, therefore surgery is not viable and better avoided. Whereas for the management of third and fourth degree hemorrhoids is usually surgical[1]. The most commonly performed operation is hemorrhoidectomy[2]. Milligan-Morgan hemorrhoidectomy has been the most popular among the various surgical techniques performed[3]. Surgical hemorrhoidectomy has been reputed as being a painful procedure for a benign disease, and causes postoperative pain which needs about 2-3 days hospital stay and a convalescence of at least one month[4,5]. Stapled hemorrhoidectomy is a newer modality that represents a paradigm change in the treatment of hemorrhoids of grade 3 and grade 4[6]. However it has been met with both skepticism and interest[7].

Stapled hemorrhoidectomy has better outcomes, including shorter operating times, less postoperative pain, early return to work and greater patient satisfaction[8-10].

Although with relatively low complication rates and reduced hospital stays the stapled hemorrhoidectomy procedure is exorbitant even though cost effective .conventional management of hemorrhoids by Open hemorrhoidectomy causes postoperative discomfort and other complications to patients[11]. Hence the aim of the present study was designed to compare the outcomes of stapled hemorrhoidectomy with Milligan-Morgan open hemorrhoidectomy in terms of :

- Time taken for surgery
- Post-operative pain and analgesics requirement.
- Duration of hospital stay.
- Post-operative complications.
- Days taken to normal activities.
- Daily bowel function and recurrence.
- Patient satisfaction.

Aim

The purpose of this study is to compare between Open hemorrhoidectomy's stapler hemorrhoidectomy outcome in terms of postoperative complications and quality of life in a tertiary health care.

Objectives

- To compare duration of surgery

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2. To compare the postoperative complaints such as pain, bleeding, or urinary retention.
3. To compare the time of recovery period
4. To compare the duration of hospital stay.

Methods

The present study was conducted in the department of General Surgery, Indira Gandhi Institute of medicalsciences (IGIMS), Patna, Bihar ,India over two year duration from March 2020 to march 2022. It was a Prospective study comparing Open vs Stapled hemorrhoidectomy for the management of Grade and4 hemorrhoids . 150 patients undergoing surgery for hemorrhoids at our institute who fulfilled the inclusion and exclusion criteria were included in the study.Data was collected by using Proforma.

Inclusion criteria

Grade 3 and Grade 4 Hemorrhoids

Exclusion criteria

- 1) Acute hemorrhoidal episodes with thrombosis
- 2) Prior hemorrhoidectomy
- 3) Inter current anal pathology (like fistula in ano and anal fissure)
- 4) Prolapse of single anal cushion
- 5) Anal stenosis

Patients were clinically examined and routine laboratory investigations were donepreoperatively. All patients were operated on an in-patient basis. Patient’s hospital stay for analysis was calculated from the day of surgery. Preoperatively patientswere kept nilper oral overnightand received phosphate enema in the morning of the day of surgery.

One dose of ciprofloxacin and metronidazole were given at the time of anaesthesia for surgery. All operations were performed in the lithotomy position under spinal anaesthesia. Patients were

reexamined under anaesthesia to confirm the grade of hemorrhoids and to rule out associated anal pathologies like anal fissure andfistula in ano. Post-operative management consisted of standard nursing careand analgesia. Patients were started on a soft oral diet within 4 hours postoperatively. Dressing was removed on the morning after surgery and a local external visual examination was done.

Post-operative pain was managed according to the guidelines of French Anaesthesia Society. Pain was assessed using a visual analog scale (VAS) where a score of 0 represented no pain and a score of 10 represented the worst pain ever. The pain score was recorded every 6 hours during the first postoperative day, at the time of first motion and daily until the end of the first week. The aim was to keep the VAS score below 5 with adequate analgesia. Prescribed analgesics were classified using the world health organization (WHO) criteria. Analgesics were administered on the basis of the VAS score 5, class III analgesic (with paracetamol). If a given analgesic was having a partial effect, an analgesic of the next class was prescribed.

In addition to analgesics, patients were advised Antibiotics (in tablet form) ciprofloxacin 500mg twice daily, metronidazole 400 mg thrice daily and syrup lactulose 20 ml at bedtime for two weeks. Patients undergoing open hemorrhoidectomy were also advised Sitz bath twice daily for two weeks. Patients were discharged when pain control and home circumstances permitted. The patients were reviewed on outpatient basis one week after surgery. Patients were advised to reportimmediatelyin case of emergency. Patients were reviewed at 1 week and 3 weeks and between 6-10 weeks postoperatively. On follow up, patients were asked to rate the control of their symptoms, degree of continence to flatus and faeces, duration to return to normal activities and any other problems they had. A physical examination was also carried out at each follow up. The outcome measures were postoperative pain, analgesia requirement, operative time, hospital stay, time to return to normal activity, continence, patient satisfaction and complications.

Observation and Results

Table 1: Age distribution of patients in stapler v/s open group

Age in year	Stapler	Percent	Open	Percent	Total	Percent
20-30	19	25	8	10	27	18
31-40	22	30	22	30	44	30
41-50	15	20	26	35	41	27
51-60	8	10	15	20	23	15
>60	11	15	04	05	15	100
TOTAL	75	100	75	100	150	100

In this study out of 75 patients, the age distribution of the patients is a total of 27 patients in the age group 20 -30 years with the stapler/open distribution is 19/08. Next 44 patients in the age group 31-40 years with the stapler/ open distribution 22/22. Followed by 41 patients in 41-50 year group with the stapler/ open distribution 15/26 &23 in the age group 51-60 with the stapler/open distribution

8/15.Last group of 15 patients in age group >60 with the stapler/ open distribution 11/04. Out of 150 patients group <40 have undergone more stapler hemorrhoidectomy 41/75(55%) as compared to age group > 40 who gave undergone more open surgeries 45/75(60%)

Table 2: Gender distribution of patients stapler v/s open group

Gender	Stapler		Open		Total	
	No	Percent	No	Percent	No	Percent
MALE	45	60	60	80	105	70
FEMALE	30	40	15	20	45	30
TOTAL	75	100	75	100	150	100

The above table shows in this study of 150 patients total males in the present study were 105(70%) distribution in stapler/open group was 45/60 respectively while total female in the present study were 45(30%)distribution in stapler/open group was

30/15 respectively. In this group1of 75 patients of stapler male/female distribution was 45(60%/30(40%)& in group 2of75 patients of open male/female distribution was 60(80%)/15(20%)

Table 3:Duration of surgeries in stapler v/s open group

Duration of surgeries(minutes)	Stapler	Open
20-30	80	
31-40	15	0
41-50	52	8
>50	00	67
TOTAL	75	75

Shows the duration of surgeries in the stapler group of 75 patient was 20–30 minutes in 08 patients, 31-40 in 15 patients 41–50 was in 52 patients where as duration of surgery in open group of 75 was 41-50 minutes in 08 patients &>50 minutes in 64 patients.

So it was observed the duration of surgery is significantly low in the values. As compared to open group the duration of surgery is <50 minutes in 08 patients (10%) only where as>50 minutes in 67 people. (90%)

Table 4: Duration of hospital stay stapler v/s open

Duration of hospital stay in days	Stapler		Open		Total	
	No	Percent	No	Percent	No	Percent
<2	34	00	00	32		
2-4	45	60	12	16	57	38
>4	27	36	63	84	90	60
Total	75	100	75	100	150	100

In this table, duration of hospital stay in stapler group of 75 patients, the postoperative stay was less 4 days in 47 cases (64%) which is significantly low with $t=4.029$, $P< 0.001$ which is significant in comparison to open group of 75 patients in whom <4 postoperative days stay was in 12 patients only (16%), in 63 cases post operative stay was >4 days (84%).

Table 5: Recovery days stapler vs open group

Recovery in	Stapler		Open	
	No	Percent	No	Percent
<10 days	60	80	8	11
>10 days	15	20	67	89
Total	75	100	75	100

Shows total recovery in stapler group of 75 patients was < 10 days in 60(80%) cases and was >10 days in 15 patients (20%) whereas in open group of 75 patients the recovery was >10days in 67 cases (89%) & was 10 days in 08 patients (11%) .

Table 6: Comparison of grade of hemorrhoids in stapler vs open group

Grade of hemorrhoids	Stapler	Percent	open	Percent	Total
Grade III	64	85	49	65	113
Grade IV	11	15	26	35	37
Total	75	100	75	100	150

Above table shows 64 of Grade III underwent stapler Hemorrhoidectomy(85%) ,49 patients (65%)in Open Hemorrhoidectomy. Grade IV hemorrhoids 15% total 11patients underwent stapler Hemorrhoidectomy and 26 patient that is 35% underwent Open Hemorrhoidectomy

Table 7: Comparison of the post defecation pain score with analgesics on pod1 in stapler vs open

Pain score 1st day	Stapler	open
<30	51	45
30 to 40	19	18
>40	5	12
Total	75	75

Shows on POD1 in the stapler group patients reported significantly less pain as compared to open group.

Table 8: Comparison of post operative bleeding in stapler vs open group

Post op bleeding in days	Staple			Open		
	Noticeable	Significant	No bleeding	Noticeable	Significant	No bleeding
Day 1	13	75	10	82		
Day 3	5	00	10	93	17	
Day 7	00	00	50	22	11	42
Total	75			75		

This table shows on a post operative day 1 bleeding as observed in the stapler group was noticeable in 13 & significant in 07 cases whereas it was noticeable in 10 and significant in 08 cases. This significantly reduced in both groups on 3rd Pod bleeding as observed in the stapler group was noticeable in 05 only whereas it was noticeable in 9 and significant in 3 cases in the open group. On Pod 7 none of the patients in the patients in the stapler group had bleeding whereas 3 patients in the open group still had noticeable bleeding.

Table 9: Comparison of urinary retention in stapler vs open group

Urinary retention	Stapler	Percent	Open	Percent	Total
Absent	68	90	61	82	129
Present	7	10	14	18	21
Total	75	100	75	100	150

Urinary retention in the stapler group was present in 7 cases whereas in the open group 14 patients went in urinary retention.

Discussion

Stapled hemorrhoidectomy procedure invented by Dr Antonio Longo is a advanced technique and a considerable modification in the treatment of hemorrhoids, in comparison with the Open hemorrhoidectomy (MM) procedure which is slightly

more invasive and painful in the immediate postoperative period than Stapled hemorrhoidectomy procedure. In the present study we noticed that the time taken to perform surgery was significantly shorter in SH 40 min than in MM 1hr (P value<0.001).The possible reason could be attributed to the surgeon’s experience, expertise with

the technique, same observations were reported by Daniel R et al[12]. However, Simone Manfred Elli et al[13], has reported that there is no statistically significant difference in the operating time and recovery time between the two procedures. A statistically significant difference (P value) was observed when the median intra operative bleeding was compared between the groups 5 to 10ml in Stapler and 50ml in open hemorrhoidectomy. With better intra operative hemostasis only 5ml of median post-operative bleeding was observed in the stapler haemorrhoidectomy procedure, with a statistically significant difference between groups was (P value <0.001). Similar observations were made by Dr. Mohan S V et al[15]. However, Kim JS et al[14]. (2013) has reported that the postoperative bleeding rate was 4.9 % in both groups. Post-operative hospital stay is comparatively less for stapler haemorrhoidectomy group than open hemorrhoidectomy group, with a statistically significant difference (P value <0.001). A study by Daniel R et al. confirmed that hospital stay was significantly shorter in the stapler haemorrhoidectomy group. In contrast, Mehigan BJ et al[1]. found no statistically significant difference for stapled group. However, a systemic review by tjandra JJ et al., a metaanalysis by Nisar PJ et al., a study by RS Bhandari et al. proved that post-operative stay was definitely less for stapler haemorrhoidectomy compared to open hemorrhoidectomy group. The reason for discharging early could be lesser post-operative pain, which is also an important point to patient's resumption of daily routine activity after the surgery. Previous studies have reported higher recurrences following stapler haemorrhoidectomy group in consistent with the present study (5%) participants in the stapler haemorrhoidectomy group, had a recurrence, and (2.5%) participant in the open hemorrhoidectomy group had a recurrence. The difference in the proportion of recurrence between groups was statistically not significant (P value 0.556).

Conclusion

The study confirms that stapled hemorrhoidectomy is associated with shorter duration of surgery, less postoperative pain and need for analgesia, shorter duration of hospital stay and a quicker recovery, earlier return to work and a high patient satisfaction as compared with Milligan - Morgan open hemorrhoidectomy. The procedure is not associated with major post-operative complications. There is no recurrence, residual prolapse or incontinence in the follow up period of six months.

Hence it was concluded that stapled hemorrhoidectomy is safe with many short-term benefits. It is a novel technique and has emerged as an alternative to open hemorrhoidectomy.

References

- Sayfan J, Becker A, Koltun L. Sutureless closed hemorrhoidectomy: a new technique. *Ann Surg.* 2001;234(1):21-4.
- Shalaby R, Desoky A. Randomized clinical trial of stapled versus Milligan - Morgan haemorrhoidectomy. *Br J Surg.* 2001;88(8):1049-53.
- Milligan ETC, Morgan CN, Jones LE, Officer R. Surgical anatomy of the anal canal and the operative treatment of hemorrhoids. *Lancet.* 1937;2:119-24.
- Mehigan BJ, Monson JR, Hartley JE. Stapling procedure for haemorrhoids versus Milligan Morgan haemorrhoidectomy: randomised controlled trial. *Lancet.* 2000;355(6):782-5.
- Rowell M, Bello M, Hemingway DM. Circumferential mucosectomy (stapled haemorrhoidectomy) versus conventional haemorrhoidectomy: randomised controlled trial. *Lancet.* 2000;355(9206):779-81.
- Cataldo P, Ellis CN, Gregorcyk S, et al. Practice parameters for the management of hemorrhoids (revised). *Dis Colon Rectum* 48 (2005): 189-194.
- Fazio VW. Early promise of stapling technique for haemorrhoidectomy. *Lancet.* 2000;355:768-9.
- Rovelo JM, Tellez O, Obregon L. Stapled rectal mucosectomy vs. closed hemorrhoidectomy: a randomized clinical trial. *Dis Colon Rectum.* 2002;45:1367-75.
- Hetzer FH, Demartines N, Handschin AE. Stapled vs. excisional hemorrhoidectomy: long-term results of a prospective randomized trial. *Arch Surg.* 2002;137:337-4.
- Singer MA, Cintron JR, Fleshman JW. Early experience with stapled hemorrhoidectomy in the United States. *Dis Colon Rectum.* 2002;45:360-9.
- Ahmed Q, Noonari S. Stapled haemorrhoidectomy/anoplasty: a study at KVSS Site Hospital, Karachi. *Pak J Surg* 2003;19: 9-12.
- Daniel R, SF Paneerselvam P, et al. Open Haemorrhoidectomy Versus Stapled Haemorrhoidectomy- A Prospective Study In A Tertiary Hospital In South India 2017: 3939-3942.
- Manfredelli S, Montalto G, Leonetti G, et al. Conventional (CH) vs. stapled hemorrhoidectomy (SH) in surgical treatment of hemorrhoids. Ten years' experience. *Ann Ital Chir* 2012;83: 129-134.
- Kim JS, Vashist YK, Thielges S, et al. Stapled hemorrhoidectomy versus Milligan Morgan hemorrhoidectomy in circumferential third-degree hemorrhoids: long-term results of randomized controlled trial. *J Gastrointest Surg* 2013;17: 1292-1298.
- Gravié JF, Lehur PA, Hutten N, et al. Stapled hemorrhoidectomy versus milligan- morgan hemorrhoidectomy: A prospective, randomized, multicenter trial with 2 year postoperative follow up. *Ann Surg* 2005;242: 29-35.
- Mehigan BJ, Monson JR, Hartley JE. Stapling procedure for haemorrhoids versus Milligan - Morgan haemorrhoidectomy: randomised controlled trial. *Lancet* 2000;355 : 782-78.

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