

Comparative Study between Stapler and Open Haemorrhoidectomy in the Management of Grade III / IV Haemorrhoids

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Abstract: ***Background:** Milligan Morgan haemorrhoidectomy is the most widely practiced Gold standard surgical technique for the management of 3rd and 4th degree haemorrhoids. Staplers are novel methods known for its simplicity, ease and standardization to an anastomosis. **Methods:** A prospective randomized control study was done including 60 consecutive patients. The patients were divided into two groups' viz. Stapler hemorrhoidectomy and Open haemorrhoidectomy group. Significant difference was estimated using Chi Square test and Student's "t" independent test. Level of significance was taken as 0.05. **Results:** Sixty patients in two equal groups were studied. The mean operating time for open group was significantly higher than the stapled group (P = 0.0001). The SH group returned to normal activity significantly early. There was no significant difference in pain score on day one. Pain score was significantly lower for the SH group on days 2 and 3. **Conclusions:** Operative time, duration of hospital stay and return to normal activity were satisfactory with stapler haemorrhoidectomy than the open method.*

Keywords: Stapler Haemorrhoidectomy, Open Haemorrhoidectomy

1. Introduction

Haemorrhoidal disease is one of the oldest illnesses known to mankind, perhaps since the time he assumed upright position. It leads to significant pain, discomfort, and decreased quality of life. Modern surgical practice has learnt from experience that Surgery as an option is not viable and better avoided in 1st and 2nd degree hemorrhoids. The Milligan Morgan hemorrhoidectomy is the most widely practiced surgical technique for the management of 3rd and 4th degree hemorrhoids and is considered the current Gold standard and has stood the test of time by virtue of its least postoperative complications, cost effectiveness and better long term effects.^{1,2}

This study is to compare both Milligan-Morgan haemorrhoidectomy with minimally invasive procedure for haemorrhoids in reference to operative time, post operative pain, post operative bleeding, duration of hospital stay and recurrence.

2. Methods

A prospective randomized control study was conducted in the Department of Surgery, Nalanda Medical College & hospital, Patna in India from November 2017 to October 2019. The hospital Ethical Committee approved the study protocol. A total of 60 patients were included in the study. The patients were divided into two groups' viz. Stapler hemorrhoidectomy group and Open (Milligan Morgan) hemorrhoidectomy group.

Inclusion criteria

Grade 3 and Grade 4 hemorrhoids with or without external hemorrhoids.

Exclusion criteria

Recurrent fistula, those with co-existing anorectal conditions like Fissure in Ano, Fistula in Ano. Stapled hemorrhoidectomy was performed according to the technique described by Longo with slight modifications using the PPH set. The PPH 01 consisted of circular anal dilator, purse string suture anoscope, suture threader and 33 mm hemorrhoidal circular stapler. The procedures were done under regional anaesthesia subarachnoid block. Milligan Morgan open hemorrhoidectomy was done for the second group. The external and internal haemorrhoids were excised entirely upto the anorectal ring with help of scissors.

A pain score data sheet (visual analogue scale) was filled out by the patients postoperatively (0 mm indicates no pain and 100 mm indicates maximum pain). Pain scores were evaluated for three consecutive postoperative days by a surgical resident not involved with the operative procedure. Patients stayed in the hospital for 3 to 5 days. Patients in both groups received postoperative oral metronidazole 400 mg tid for 3 days.

Data was analysed using SPSS. For descriptive statistics mean, standard deviation and percentages were computed. The significant difference of the percentages between the two groups was tested using the Chi Square test. The significant difference in the mean values between the 2 groups was tested using the Student's "t" independent test. For all the tests, level of significance was taken as 0.05.

3. Results

A total of 60 patients in two equal groups were studied. The age distribution of patients in two groups was similar. Majority of the patients (more than 80%) were between 30

to 50 years of age. The two groups were comparable in age. The male: female ratio was 4:1 for the stapler group and 6.5:1 for the open group. There was no statistically significant variation in gender distribution between the two groups.

Table 1: Comparison of operating time, first bowel movement, return to normal activities between stapler and open hemorrhoidectomy

Study group	Operating time(mints)	First bowel movement(hrs)	Return to normal daily activity(days)
Stapler	25.22±4.12	18.12±5.33	5.10±1.11
Open	32.44±5.11	38.22±4.11	7.22±1.12

Table 2: Comparison of pain scores (visual analogue scale) between stapler and open hemorrhoidectomy

Study group	Pain score (Visual analogue scale 0-100)		
	Day 1	Day 2	Day 3
Stapler	52.77±20.76	38.8±18.0	24.10±16.1
Open	57.03±11.66	72.27±11.05	49.97±13.41
P-Value	0.33	0.0001	0.0001

Table 3: Comparison of complications between stapler and open hemorrhoidectomy

Complications	Stapler	Open	P Value
Incidence of complications	6/30(20%)	9/30(30%)	
Bleeding	1(3.3%)	2(6.70%)	0.371
Urinary retention	5(16.6%)	5(16.6%)	
Bleeding and Urinary retention	1(3.3%)	2(6.7%)	

Table 1 shows a comparison of mean operating time, time to passage of first bowel movement and time to return to normal activity for the two groups. The mean operating time for open group was significantly higher than the stapled group ($P=0.0001$). Similarly, the open group had a significantly later return of bowel activity at 38.22 hours compared to 18.12 hours for the stapled group. This was also statistically significant. As regards to return to normal activity, the Stapler group of patients returned to normal daily activity after a mean of 5.10 ± 1.11 days compared to 7.22 ± 1.12 days for the Open group. This difference was significant ($P = 0.0001$).

Table 2 shows the comparison of pain scores on days 1, 2 and 3 postoperatively. It was seen that there was no significant difference in pain score on day one. However, pain score was significantly lower for the SH group on days 2 and 3, showing that after the first postoperative day, pain is significantly less for the SH group.

The comparison of complications of the two procedures is shown in Table 3. Overall, the Stapler group had an incidence of complications of 20% compared to 30% for the Open group. This difference was not significant. In the Stapler group, the predominant complication was urinary retention seen in 5 patients, and bleeding and urinary retention in one patient. In the OH group, again urinary retention was seen in 5 patients, bleeding in 2 patients and both in 2 patients.

4. Discussion

The criticism aimed at conventional hemorrhoidectomy relate to the pain in the postoperative period, prolonged

hospital stay, perianal wound requiring dressing and long absence from work. Introduction of staplers has eliminated most of the previously mentioned challenges.

Stapler hemorrhoidectomy has received much enthusiasm as a novel technique in the surgical treatment of hemorrhoids.³ The operating time in our study for stapler hemorrhoidectomy was 25.22 min and for open hemorrhoidectomy 32.44 min. Stapled hemorrhoidectomy was significantly faster than open hemorrhoidectomy (25 min versus 32 min). The time taken for stapler hemorrhoidectomy was more as the procedure is relatively new in our hospital and there is a learning curve involved.

Intra operative bleeding in cases of stapler hemorrhoidectomy was seen only in 1 patient whereas 2 cases of open hemorrhoidectomy were associated with bleeding. The staples act as haemostatic as well as anastomotic linkage. Intraoperative bleeding occurs when the stapler is improperly applied or the staples give away. This bleeding is controlled by additional sutures at the bleeding point. This complication should be rare but as per the study of Randomized Control Trials done in different centers in United Kingdom by Dr. Justin Davis; the intra operative bleeding rates were similar in both open and stapler hemorrhoidectomy^[4-7].

The intra-operative bleeding was less in our study because great care was taken before, during and after the stapler is applied so as not to miss the whole mucosa, giving tamponading effect before and after application of the stapler and avoidance of partial firing of stapler^[8,9].

Four studies have clearly shown that there was lower incidence of pain in the SH group. Postoperative pain was significantly less for the SH group after postoperative day 1 (day 2, $p=0.0001$, day 3, $p = 0.0001$). On the first postoperative day, no statistically significant difference in pain was seen as compared to the open hemorrhoidectomy (day 1, $p=0.33$). Another study supported this observation in our study.¹⁰

The duration of hospital stay was shorter in the SH group in this study. This also has been well documented in previous studies.¹¹ However, in the works of Mehigan et al and Hetzer et al there was no significant difference in the hospital stay between the two groups.^{12, 13} Similar to our study findings was the earlier return to work for the stapled hemorrhoidectomy patients as compared to the OH group.^{14, 15}

The postoperative complication rate was similar in both the open and stapled groups ($P=0.371$). It has been reported that 5% of patients undergoing open hemorrhoidectomy experienced secondary hemorrhage whereas none of the patients of the stapled hemorrhoidectomy experienced secondary bleeding a finding observed in our study also.¹⁶ Many studies have shown that the postoperative hemorrhage incidence is similar in both groups.¹⁷

5. Conclusion

Hemorrhoids are a common problem worldwide, a penalty paid by human beings for their erect posture. Lack of fiber in diet and chronic constipation are the root causes for this problem. The common mode of presentation is painless bleeding, prolapsing pile mass and pain when complicated. Surgery for hemorrhoids has evolved over a period of time. The Stapler procedure for hemorrhoids is superior to Milligan-Morgan hemorrhoidectomy in terms of postoperative pain, operative time, duration of hospital stay and return to normal activity. However, it is difficult to recommend stapled hemorrhoidectomy as a procedure of choice for all patients in view of economic considerations.

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