

## Original Research Article

# A comparative study of short term results of open haemorrhoidectomy and stapler haemorrhoidopexy

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### ABSTRACT

**Background:** Haemorrhoids are the most common benign anorectal problems worldwide. Treatments of third and fourth degree hemorrhoids include surgical haemorrhoidectomy. Milligan Morgan haemorrhoidectomy (MMH) as described in 1937 has remained the most popular among many techniques proposed. In order to avoid the postoperative drawbacks of Milligan Morgan haemorrhoidectomy, a new surgical treatment for prolapsing haemorrhoids has been described by Longo in 1995, procedure called stapled haemorrhoidopexy which is associated with less postoperative pain and a quicker recovery. The objective of this study was to compare the short-term outcome between stapled hemorrhoidopexy and Milligan-Morgan hemorrhoidectomy.

**Methods:** Prospective randomized study of 120 patients with grade 3 and grade 4 haemorrhoids requiring surgical treatment either MMH or SH, 60 in each group for the period of 18 months from June 2014 to November 2015. Post-operative pain, duration of surgery, duration of hospital stays, post-operative complications and time taken to return to work were compared with mean follow up period of 6 months.

**Results:** Duration of surgery is significantly low in stapled group with  $P < 0.001$ , duration of hospital stay is significantly low in stapled group with  $P < 0.001$ , post-operative pain low in staple group with  $P < 0.05$ , time taken to return to work is significantly early in stapled group with  $P < 0.001$ . Post-operative complications incontinence not found in the present study but recurrence of two cases in each group noted.

**Conclusion:** Stapled hemorrhoidopexy is associated with less postoperative pain, shorter duration of surgery and hospital stay, earlier return to work as compared with Milligan-Morgan open hemorrhoidectomy. The procedure is not associated with major post-operative complications.

**Keywords:** Hemorrhoids, MMH, Procedure for prolapse

### INTRODUCTION

Haemorrhoids are the most common benign anorectal problems worldwide. Treatments of third and fourth degree hemorrhoids include surgical haemorrhoidectomy.<sup>1</sup> Milligan Morgan haemorrhoidectomy (MMH) as described in 1937 has remained the most popular among many techniques proposed.<sup>2</sup> They have a well-known long-term efficacy.

Major drawbacks, however, are postoperative pain and protracted wound healing, leading to a significant, although highly variable, postoperative discomfort and prolonged sick leave.<sup>3</sup>

In order to avoid the postoperative drawbacks of Milligan Morgan haemorrhoidectomy, a new surgical treatment for prolapsing haemorrhoids has been described by Longo in 1995, procedure called stapled haemorrhoidopexy.<sup>4</sup>

Stapled hemorrhoidopexy, as developed by Dr. Antonio Longo with use of a circular stapler, has emerged as a possible alternative to open hemorrhoidectomy. This technique has been named "Procedure for Prolapse and Haemorrhoids (PPH)" and should be referred to as stapled haemorrhoidopexy.<sup>5</sup>

According to a recently published consensus among experts, the technique has been standardized and is widely accepted in different countries. The indications, contraindications, and operative technique have been defined. Numerous controlled studies have already demonstrated that this technique is associated with less postoperative pain and a quicker recovery.<sup>6</sup> Objectives of this study was to compare the short-term outcome between stapled hemorrhoidopexy and Milligan-Morgan hemorrhoidectomy in terms of duration of surgery, post-operative pain, duration of hospital stays, postoperative complications, days taken to return to work.

## METHODS

Prospective study done in 120 patients admitted in the General Surgery Department who are clinically diagnosed with haemorrhoids at Government Medical College in the period of 18 months from July 2014 to November 2015. Study protocol was approved by institution ethical committee. All male and female patients with 3<sup>rd</sup> and 4<sup>th</sup> degree haemorrhoids were included in the study. Patients with acute hemorrhoidal episodes with thrombosis, patients with grade 1 and 2 hemorrhoids, patients with associated anorectal pathology, patients who had undergone previous anorectal surgery, patients with significant comorbidities, patients on coagulation therapy and pregnant patients were excluded from the study. Patients were divided in two groups of sixty each for open and stapled haemorrhoidectomy. A detailed history and complete clinical examination of all patients was done including digital rectal examination and proctoscopy. Informed consent was taken after explaining the objective and operative procedure. Base line investigations like complete blood count, serum electrolytes, serum urea and creatinine, random blood sugar and X-ray chest and ECG were done.

The stapler procedure was done using 33 mm circular stapling device PPHO3 kit was used and excision of a ring of mucosa proximal to hemorrhoids was done thus interrupting the blood supply and maintaining rectal mucosal continuity. In MMH internal hemorrhoids were excised along with external hemorrhoids and perianal skin tags. Post-operative management included standard nursing care and analgesia. Patient were started on a soft oral diet within 4 hours postoperatively. Dressing is removed on the morning after surgery and a local external visual examination is done. Pain was assessed using a visual analog scale (VAS) where 0 represented no pain and 10 represented the worst pain ever. The pain score was recorded 6, 12 and 24 during the first postoperative day. Patients were discharged when pain control achieved.

Patients were reviewed postoperatively at 1 week, 3 weeks, between 6-10 weeks and 6<sup>th</sup> month 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, operative time, hospital stay, time to return to normal activity and complications. Significance is assessed at 5% level of significance. We used the student T test to compare study parameters. Chi square or Fisher's exact tests were used for categorical data. Observed results were calculated by Statistical Package of Social Sciences for Microsoft Windows Version 22 (SPSS v.22 Software).

## RESULTS

### *Patient characteristics*

A Comparative study consisting of 120 patients divided into two groups, 60 in to Stapled haemorrhoidectomy and 60 in Open haemorrhoidectomy is undertaken to study the short-term results. Majority of the patients in the present study are in 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> decade ranging from 18 years to 63 years.

**Table 1: Patient characteristics in both groups.**

	Open haemorrhoidectomy	Stapled hemorrhoidopexy
Number of patients	60	60
Mean age	39.18 years	38.46 years
Gender distribution	Males 39 Females 21	Males 41 Females 19
Grade 3 haemorrhoids	28 patients	26 patients
Grade 4 haemorrhoids	32 patients	34 patients

The mean age was 39.18 years in open hemorrhoidectomy and 38.46 years in stapled

hemorrhoidopexy. In open haemorrhoidectomy group 65% were males and 35% were females and in stapled

haemorrhoidopexy 68.34% were males and 31.7% were females. 46.67% patients had grade 3 hemorrhoids and 53.34% patients had grade 4 hemorrhoids who underwent open hemorrhoidectomy. 43.34% patients had grade 3 and 56.67% patients had grade 4 hemorrhoids who underwent stapler hemorrhoidectomy. The duration of surgery (minutes) was compared in the two groups. In the stapled group 26.6% underwent within 20-30 minutes, 56.6% in 31 to 40 minutes, and 11.6% in 41 to 50 minutes and in 3

patients took more than 50 minutes. The mean duration of surgery was 34.33 minutes, ranging from 25 to 55 minutes. In the open group 11.6% underwent surgery in 21 to 30 minutes, 25% in 31 to 40 minutes, 40% in 41 to 50 minutes and 23.3% took more than 50 minutes and mean of 44.21 minutes, ranging from 25 to 59 minutes.

Duration of surgery is significantly low in stapled group with  $P < 0.001$  which is highly significant.

**Table 2: Comparison of results between open and stapler haemorrhoidectomy.**

Results	Open haemorrhoidectomy	Stapled hemorrhoidopexy
Mean duration of surgery	44.21 minutes	34.33 minutes
Post OP bleeding	10	6
Supportive stitch	09	03
Mean duration of hospital stay	4.08 days	2.35 days
Mean pain score (VAS) 6 <sup>th</sup> hour	2.68	2.11
VAS 12 <sup>th</sup> hour	3.25	2.6
VAS 24 <sup>th</sup> hour	4.07	2.86
Days taken to return to work	14.6 days	9.53 days
Incontinence	0	0
Recurrence	2	2

Comparison of pain scores in two groups of patients was carried out. The pain scores were maintained below 3 in all patients. The pain scores were significantly higher in the open group 2.68 at 6 hours, 3.25 at 12 hours and 4.07 at 24 hours compared to 2.11 at 6 hours with P value 0.047 (significant), 2.6 at 12 hours with P value 0.038 (significant) and 2.86 at 24 hours with P value  $< 0.001$  (highly significant).

In the present study, the mean duration of hospital stays (in days) was 2.35 days in the stapled group as compared to 4.08 days in the open group. 73% were discharged within 2 days in the stapled group, whereas only 11% in the open group. 31% were discharged at the end of 4 days in the open group. Duration of hospital stay is significantly low in stapled group with  $t = 4.47$ ;  $P < 0.001$  which is highly significant. When comparing time taken for return to work in days in two groups of patients, a mean of 9.53 days in stapled group and 14.6 days in open group was noted. About 33% of stapled group had returned to work at the end of one week and the rest by the end of third weeks. No patient reported to work in first week in open group. 26% returned to work by third week and 76% patient took more than 3 weeks to return to work. The stapled hemorrhoidopexy allowed a faster functional recovery with shorter time off work ( $P < 0.05$ , which is highly significant). Complete circumferential doughnut of the stapler line at the end of procedure was 93% in our patients. Supportive stitch was required in 3 and 12 patients in stapler and open hemorrhoidectomy respectively. In stapler group, post-surgery 8 patients had bleeding as compared to 20 in the open group (13%, 33%

respectively). Urinary retention was also found to be almost equal in the both group, 13 and 14 patients had urinary retention in open and stapler group respectively. None in the stapled group had a residual prolapse. There was no incontinence in any group at 1 month and 6 months. There was no significant difference was noted in recurrence of disease in both groups. Post-surgery recurrence in two patients in each group was noted.

## DISCUSSION

Hemorrhoidectomy is the accepted method for the treatment of large symptomatic hemorrhoids.<sup>1</sup> Conventional hemorrhoidectomies are effective operations that have withstood the test of time; however, the problem of postoperative pain has never been satisfactorily addressed. The postoperative pain related to excisional hemorrhoidectomy is well known.<sup>7</sup> Also, the high postoperative morbidity and long recovery has prompted the need for an alternative procedure.<sup>4</sup> Several techniques, including diathermy haemorrhoidectomy, dilatation with banding and cryohaemorrhoidectomy have been tried. Stapled hemorrhoidopexy offers a significantly less painful alternative that provides patients definitive treatment of their disease in a single sitting.<sup>8</sup>

Present study confirms short term benefits of stapled hemorrhoidopexy over Milligan Morgan open hemorrhoidectomy. In the present study duration of surgery is significantly low in stapled group. This is similar to the observation of other studies. However, the duration is 5 to 10 minutes longer than observed by many

others (Kim JS et al, Goudam et al, Rowsell M et al, Mehigan BJ, Khalil KH and Bikhchandani J).<sup>4,6,9,10-12</sup> Tjandra JJ et al published systematic review on stapled hemorrhoidopexy of all randomized, controlled trials until August 2006.<sup>13</sup> Stapled hemorrhoidopexy was associated with less operating time ( $P = 0.006$ ). In present study, post-operative pain was assessed using a visual analog scale (VAS). Tjandra JJ et al, report less pain after stapled hemorrhoidopexy, as evidenced by lower pain scores at rest and on defecation and 37.6 percent reduction in analgesic requirement.<sup>13</sup> Stolfi, et al reported postoperative pain on first two postoperative days was similar.<sup>14</sup> Cheetham et al, a controversial study that reported significantly more pain in stapled group.<sup>15</sup> The pain was probably due to low staple line.

Duration of hospital stay is significantly low in stapled group compared with open hemorrhoidectomy group. Present study supports the earlier findings of shorter hospital stay in patients undergoing stapled hemorrhoidopexy as reported by Kim JS et al, Goudam et al, Tjandra JJ, et al.<sup>4,6,13</sup> When comparing time taken for return to work in days in two groups of patients, a mean of 9.53 days in stapled group and 14.6 days in open group was noted.

In a study by Franc et al, patients returned to work at an average of 6.7 days (range, 2-14 days) in the stapler group and 20.7 days (range, 7-45 days) in the excision group ( $P = .001$ ).<sup>16</sup> The stapled hemorrhoidopexy allowed a faster functional recovery with shorter time off work.

Hemorrhoid surgery is not without complications. In our experience, there was no incontinence in any group at 1 month and 6 months. There was no significant difference was noted in recurrence of disease in both groups. Post-surgery recurrence in two patients in each group was noted.

## CONCLUSION

The findings of the present study confirm that stapled hemorrhoidopexy 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 residual prolapse or incontinence in the follow up period of six months and recurrence in two patients in both groups. We conclude that stapled hemorrhoidopexy is safe with many short-term benefits. It is a novel technique and has emerged as an alternative to open hemorrhoidectomy, long considered the "gold standard".

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