

# Stapled hemorrhoidectomy Vs conventional hemorrhoidectomy – Surgical outcome in Indian population

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## Abstract

**Background:** Stapled hemorrhoidectomy a technique which is concerned with less postoperative pain and lesser morbidity compared to conventional procedures in the treatment of hemorrhoids. This study proposes to compare the outcome of stapled hemorrhoidectomy versus open conventional hemorrhoidectomy. **Method:** A comparative cross sectional study was conducted from October 2014 to May 2015 in Department of Surgery in Siddhartha Medical Collage. Patients with grade III and IV who underwent stapled hemorrhoidectomy (n=40) considered as group A and open hemorrhoidectomy (n=40) as group B. After written informed consent patients were evaluated for the surgical outcome in terms of postoperative pain (visual analogue scale), hospital stay and return to work. Data was analyzed using SPSS 17. The significant difference between the two groups was tested using the Student's t independent test. p values <0.05 to be significant. **Result:** Mean operating time for stapled Hemorrhoidectomy was 27.43 minutes with that of open Hemorrhoidectomy was 36.48 minutes (p value <0.0001). The mean postoperative pain was less in stapled method with statistical significance. Statistical significance was noted for first bowel movements and return to normal work (p value <0.0001). There were no significant differences in the complications. **Conclusion:** Stapled haemorrhoidectomy reported less pain when compared to the conventional open method and allows early return to work. However, long-term complications are still unknown, operative time, duration of hospital stay and return to normal activity were satisfactory with stapler hemorrhoidectomy.

**Key Word:** hemorrhoids, stapled hemorrhoidectomy, open hemorrhoidectomy, post operative pain.

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## INTRODUCTION

Hemorrhoids are one of the most common benign anorectal problems that affect most of the mankind. At least 50% of the people over the age of fifty have some degree of hemorrhoid formation in their lifetime<sup>1</sup>. Excision of the piles or haemorrhoidectomy

(closed or open) has stood to be effective procedure for hemorrhoid disease. 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<sup>2,3</sup>. But still it is associated with significant postoperative pain which require absence from work for several days which remains the most important postoperative complication and the leading cause for deferral of treatment<sup>4</sup>. Among the newer modalities of treatment, stapled haemorrhoidectomy have made a mark in the surgical modality for hemorrhoids. Stapled hemorrhoidectomy (SH) was introduced in 1998<sup>5</sup> as an alternative to excisional hemorrhoidectomy. It has revolutionized the traditional surgical approach to hemorrhoid disease by the concept of dealing with the

rectal mucosal prolapse by resecting a mucosal cylinder above the dentate line through mechanical stapling. It represents a non-excisional approach for the surgical treatment of hemorrhoid disease. This procedure is aimed at repositioning the prolapsed hemorrhoid tissue through a circular resection of the inner layers (mucosa, submucosa, and part of the muscularis propria). In association, the mechanical anopexy would also cause an interruption of the vascular supply to the hemorrhoid cushions leading to a volume reduction of the hemorrhoid tissue. Systematic reviews of randomized controlled trials followed by meta-analyses have demonstrated that the short-term outcomes results favor SH when compared to traditional excisional techniques but have higher recurrence<sup>6,7,8</sup>. SH is associated to shorter operative time, reduced inpatient stay, less pain, and earlier return to normal activities. Recurrence in SH is based on the heterogeneity in the diagnosis of hemorrhoid disease grade<sup>16</sup>. The second is that it must be noted that many of the randomized trials included in these reviews recruited very few patients<sup>6,9,10,11</sup>. 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<sup>12</sup>. All conventional surgical methods have aimed only at resecting the prolapsed hemorrhoidal piles. This technique promises better postoperative sensory function for the patient with fewer disturbances in continence, lower incidence of anal stenosis and less pain. The stapler method is technically easy with a short learning curve<sup>13</sup>. The current study was a prospective study done to compare the outcome of open haemorrhoidectomy versus stapled haemorrhoidectomy procedures in terms of operative time, postoperative pain and hospital stay, length of absence from work or disability time and complications among the patients undergoing surgical procedures in Department of Surgery.

### MATERIALS AND METHODS

A hospital based cross sectional comparative study was done among hemorrhoids patients undergoing surgical intervention for haemorrhoids in department of Surgery in Siddhartha Medical College, Tumkur. The study was conducted during October 2014 to May 2015. All patients with grade IV and V hemorrhoids and both sexes were included in the study. Institutional Ethics Committee approval was obtained and written informed consent was gathered from the study participants before conducting the study. Participants who underwent Stapled Hemorrhoidectomy were considered as group A(n=40) and Open Hemorrhoidectomy (n=40) as group B. Patients were evaluated for socio economic characteristics,

clinical presentation, and surgical outcome in terms of pain, operating time, hospital stay and complications. Postoperative pain measured by Visual Analog Scale (VAS) was used as the primary outcome measure. Secondary outcome measures studies are operative time, postoperative complications, hospital stay duration, time to first bowel motion, and return to normal activity. All clinical variables were obtained through an interview schedule.

### Exclusion criteria

Patients with Grade I and II hemorrhoids, patients not willing to participate in the study and patients with other systemic diseases were excluded from the study.

### Statistical analysis

Data was analyzed using Statistical Package for Social Sciences (SPSS for Windows V16). All descriptive data were described as frequency, percentage, mean and standard deviation. The significant difference in the mean values between the 2 groups was tested using the Student's t independent test. Statistical testing was undertaken considering p values <0.05 to be significant.

### OBSERVATIONS AND RESULTS

In this present study there were 40 patients in Group A (Stapled method) and 40 patients in Group B (Open method). There were 47.5% and 42.5% patients below the age group of 40 years in group A and Group B respectively. 15% of the patients were above the age of 50 years in both the groups. It was found that hemorrhoids were more common in males in both of the groups, 82.5% in Group A and 85% in Group B. Most of the patients (62.5%) in Group A presented with grade IV hemorrhoids and 70% of the patients from Group B, shown in table 1.

**Table 1:** characteristics of patients in Stapler Vs Open Hemorrhoidectomy

Age group	Group A (Stapler)	Group B (Open)
< 40 years	19 (47.5)	17 (42.5)
41-50 years	15 (37.5)	17 (42.5)
51-60 years	6 (15)	6 (15)
Sex		
Male	33 (82.5)	34 (85)
Female	7 (17.5)	6 (15)
Severity of disease		
Grade III	15 (37.5)	12 (30)
Grade IV	25 (62.5)	28 (70)

Among the study groups the most common clinical presentation was found to be bleeding per rectum, 67.5% of the group A patients presented with perianal pain and 70% of the group B patients had perianal pain. Itching and discharge was seen in 12.5% and 10% of the group A and group B patients respectively as shown in figure 1.

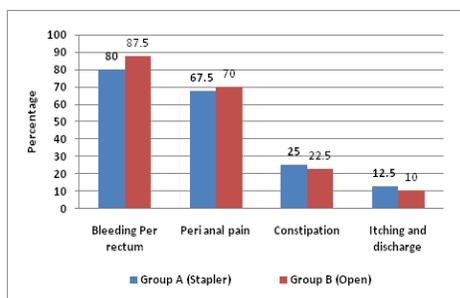


Figure 1: Presenting complaints of patients

The mean operating time for stapled Hemorrhoidectomy was 27.43 with SD 5.70 and the mean operating time for open Hemorrhoidectomy was 36.48 with SD 6.81 hours, with statistical significance (p value <0.0001). The mean and SD for first bowel movement was 16.92  $\pm$  4.77 and 33.34  $\pm$  12.48 in Group A and group B respectively and it was found to be highly statistically significant. (p value <0.0001). After surgery Stapled Hemorrhoidectomy patients return to normal activities was found to be significant when compared with open Hemorrhoidectomy (p value <0.0001). Pain scale was comparatively better in stapler technique when compared to open Hemorrhoidectomy. P value was found to be highly statistically significant for pain on day 2 and 3, shown in table 2.

Table 2: Comparison of pain by visual analogue scale (0 to 100-Mean $\pm$ SD)

Various days	Group A (Stapler)	Group B (Open)	P value
Post operative Day 1	55.13 $\pm$ 20.61	62.81 $\pm$ 18.1	0.0805
Post operative Day 2	34.77 $\pm$ 16.34	49.12 $\pm$ 16.46	0.0002*
Post operative Day 3	22.83 $\pm$ 14.28	35.45 $\pm$ 16.25	0.0004*
Operating time (hrs)	27.43 $\pm$ 5.70	36.48 $\pm$ 6.81	0.0001*
First bowel Movement	16.92 $\pm$ 4.77	33.34 $\pm$ 12.48	0.0001*
Return to normal activities (days)	4.8 $\pm$ 1.6	7.1 $\pm$ 1.5	0.0001*

\*Significant

Incidence of complication was higher (22.5%) in conventional technique when compared to stapled Hemorrhoidectomy, but it was not statistically significant and there was no case of bleeding in stapler method. Urinary retention was found in 5 (12.5%) patients in stapler method whereas in open Hemorrhoidectomy 6 patients had retention, as shown in table 3.

Table 3: Complications in Stapler Vs Open Hemorrhoidectomy

Complications	Group A (Stapler)	Group B (Open)	P value
Incidence of complications	6/40 (15)	9/40 (22.5)	0.3931
<b>Individual complication</b>			
Bleeding	0	1/40 (2.5)	
Urinary retention	5/40 (12.5)	6/40 (15)	
Both Bleeding and urinary retention	1/40 (2.5)	2/40 (5)	

## DISCUSSION

In this current study most of the patients who presented with hemorrhoids were males and they presented with grade 4 hemorrhoids. 80 to 87 % of the study population presented with bleeding rectum as a common presentation. During surgery it was noted the procedure for stapled technique does not excise the hemorrhoidal tissue at the anus, but, by excising a circumferential column of mucosa and sub mucosa from the lower rectum immediately above the hemorrhoids, and by stapling the defect, the prolapsed hemorrhoidal tissue is drawn back into a more physiological position within the anal canal. In addition, the blood supply to the hemorrhoidal tissue is interrupted by excision and stapling of the sub mucosal layer in which these vessels run. The benefits of the stapled intervention are first, the interruption of inflow from the superior hemorrhoidal arteries to the internal hemorrhoids may contribute to improvement of hemorrhoidal symptoms by relieving vascular congestion. Second, the partial excision of the hemorrhoidal cushions themselves reduces the size of the internal hemorrhoids. Third, the resection of rectal mucosa reduces the tendency to prolapse and restores the internal cushions to their normal physiological position<sup>14</sup>.

### Recurrence of prolapse

In a systematic review, the stapled hemorrhoidectomy technique was associated with less pain in the immediate postoperative period, but with a higher rate of residual prolapse<sup>15</sup>. Moreover, patients affected by third degree hemorrhoids were ten times more likely to develop recurrence and twice as likely to undergo further treatment to correct recurrent prolapses<sup>16</sup>. Study by Nisar *et al* declared that conventional hemorrhoid surgery remained the gold-standard for the surgical management of hemorrhoids<sup>17</sup>.

### Operating Time

The operating time was shorter in stapled hemorrhoidectomy group compared to excision method in our study and it was statistically significant which is similar to studies done by Bickchandani *et al.*<sup>18</sup> by Gravié *et al.*<sup>19</sup> and Mehigan *et al.*<sup>20</sup> where the operating time was lesser in stapled method. The mean operative time in other studies across the world was generally shown to be lesser for stapler hemorrhoidectomy than for conventional open surgery<sup>21,22</sup>.

### Post-Operative Pain

Among the patients in the stapled procedure group there was a significant improvement in postoperative pain (using visual analogue scale) control and with earlier returns to normal activity. The scores for the Milligan-Morgan group remains high at the end of 3 days compared to stapled technique. Pain by Visual analogue scores at 48 and 72 hours post surgery were significantly

lesser in the stapled group when compared to the other group. The reason for less pain in the stapled group is that it does not involve any surgery in the sensitive anal mucosa below the dentate line. Even though the pain is higher in the conventional procedures in the immediate postoperative period, it comes down on the 5<sup>th</sup> or 6<sup>th</sup> postoperative day. You and colleagues<sup>23</sup> found the postoperative pain to be lesser in the stapled group which supports our study and study by Arbman *et al*<sup>24</sup> did not find any difference between the two groups. Randomized studies have shown superior postoperative pain control and earlier return to normal activity compared with conventional open surgery<sup>25,26</sup>.

#### **Bowel movements**

Bowel movement in the postoperative period among the stapled group was earlier and it was significant. Hospital stay, first bowel movement has been similar in patients who undergone stapled or conventional hemorrhoidectomy<sup>27</sup>.

#### **Postoperative Complications**

Most of the complications arose within the first weeks after the surgery. In the current study complications were equal in both the groups which goes with studies done by Bickchandani *et al.*<sup>18</sup> and Mehigan *et al.*<sup>20</sup>

#### **Time of Return to Work**

In our study time to return for work was less in stapled group and it was found to be highly statistically significant. Similar to our study findings was the earlier return to work for the stapled hemorrhoidectomy patients as compared to the open hemorrhoidectomy group<sup>17</sup>.

#### **Postoperative Incontinence**

In a research done by HO *et al*<sup>28</sup> have reported that minor incontinence was not significantly different in stapled group compared with conventional group. In the present study too there was no significance in incontinence between the stapled group and conventional hemorrhoidectomy group.

### **CONCLUSION**

The current study was undertaken to compare the outcome of stapled hemorrhoidectomy with open hemorrhoidectomy. It was observed that stapled technique was effective for more advanced hemorrhoid disease with less postoperative pain which was considered as a great positive of this technique, with less hospital stay and return to normal work and lesser complications when compared to conventional methods. In a nut shell stapled hemorrhoidectomy is having less morbidity pattern but cost effectiveness was better in conventional methods as all patients can't afford for stapled technique. It was noted relapse was also higher in the stapled group. The long term effects of stapler haemorrhoidectomy are still unknown and it is a novel

concept for most of the surgeons. So it is up to the treating surgeon to use his experience, skill in selecting the procedure for treating their patient with hemorrhoids, based on economical, social and curative grounds. This study supports the evidence that stapled hemorrhoidectomy is a safe and effective technique for operative management of hemorrhoidal disease that can be performed on an outpatient basis and also on the postoperative pain scale.

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