A Comparative Study between Stapler and Open Surgical Techniques for Grade III & IV Hemorrhoids: Insights from a Tertiary Care Centre

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Abstract: Hemorrhoids, a prevalent ano-rectal condition, affects approximately 30% of the ano rectal conditions in general population. While initially normal anal cushions, they can become pathological, leading to symptoms like anal bleeding, pain, and prolapse. In 1998, Dr. Antonio Longo introduced stapled hemorrhoidectomy as an alternative to conventional surgical methods. This procedure aims to reduce the size of internal hemorrhoids by interrupting their blood supply. We studied A total of 50 patients with grade III and IV hemorrhoids were randomly assigned to either open hemorrhoidectomy or stapled hemorrhoidectomy groups [nonprobability purposive sampling]. Of 50 patients, 38 (77.5) were males and 12 (22.5%) were females with a male: female ratio being 3:1. The operating time and hospital stay were much less in the stapler hemorrhoidectomy group as compared to the open procedure group. Also, postoperative pain (visual analogue scale) was less in the stapler hemorrhoidectomy group with 40% of patients presenting with pain at one week, 20% at one month and 8% at three months in the open hemorrhoidectomy group whereas 12% presenting as pain in one week, 4% presenting at one month and none presenting at three months in the stapler hemorrhoidectomy group. There was repeat bleeding seen in 12% of cases at three months in the open hemorrhoidectomy group as compared to the stapler hemorrhoidectomy group where no recurrence was found at three months follow-up. Our study underscores the safety and efficacy of stapler hemorrhoidectomy. This technique boasts fewer complications and improved patient compliance, making it a promising option for managing third and fourth-degree hemorrhoids. Skillfully performed stapler hemorrhoidectomy can lead to better outcomes and enhanced reliability in hemorrhoidal surgery.

Keywords: Hemorrhoids; stapled hemorrhoidectomy; open hemorrhoidectomy

1. Introduction

Hemorrhoids, one of the most common ano-rectal conditions, are essentially swollen anal cushions that become pathological, causing bleeding, pain, and protrusion from the anal canal. They affect approximately 30% to 40% of the general population at some point in their lives. It is often suggested that hemorrhoids are a consequence of our upright posture as humans [1]. Hemorrhoids can be categorized as either external or internal. Internal hemorrhoids develop from the sub epithelial plexus above the dentate line in the anal canal, while external hemorrhoids are vascular plexuses located outside the anal canal and covered by skin [2]. Internal hemorrhoids are graded into four stages based on the degree of prolapse, although the symptoms may not necessarily correlate with the severity of the patient's discomfort [3]. According to Goligher's classification, internal hemorrhoids are categorized into four types based on their appearance and degree of prolapse: (1) Grade I: Bleeding present with no prolapse; (2) Grade II: Hemorrhoids prolapse outside the anal canal but spontaneously retract; (3) Grade III: Hemorrhoids prolapse and require manual reduction; and (4) Grade IV: Hemorrhoids remain prolapsed and irreducible, including cases of acutely thrombosed hemorrhoids and those with circumferential prolapse of rectal mucosa [4]. Hemorrhoids can manifest in various ways such as bleeding, pain, mucus discharge, itching, and a sensation of something protruding from the rectum [5]. The most common complaint from patients with hemorrhoids is painless rectal bleeding during bowel movements, often described as blood dripping into the toilet bowl. The blood is typically bright red due to direct arteriovenous communication within the hemorrhoidal tissue [6]. Management of hemorrhoids involves dietary and lifestyle adjustments, stool softeners, laxatives, oral flavonoids, and calcium dobesilate [6]. Conservative treatments are typically used for first and second-degree hemorrhoids, including lifestyle changes, dietary adjustments, and medications [7]. Non-surgical options include sclerotherapy, cryotherapy, rubber band ligation, infrared coagulation, and radiofrequency ablation[7,8]. Nonetheless, hemorrhoidectomy remains the most common surgical procedure, and the minimally invasive procedure for hemorrhoids (MIPH), also known as stapled hemorrhoidopexy, is a newer and safer approach performed globally [9,10]. Dr. Antonio Longo introduced the stapled hemorrhoidectomy in 1998, aiming to reduce the size of internal hemorrhoids by disrupting their blood supply, thereby reducing the size of the vascular anal cushions [11]. The staplers perform an immediate re-anastomosis of mucosa. This study aims to compare the outcomes and complications of stapler hemorrhoidectomy and open hemorrhoidectomy for the management of third and fourth-degree hemorrhoids during the postoperative period and follow-up.

2. Patients & Methods

The present study was prospective type and done among 50 patients in the tertiary care centre with a duration of...
patients who had an average discharge time of 2.8 days. With an average of 1.1 days, in contrast to the open surgery patients experienced a swifter discharge from the hospital, particularly for cases of recurrent bleeding per rectum, as compared to the stapler group. The stapler group was notably shorter in the stapler group compared to open hemorrhoidectomy. Stapled hemorrhoidopexy patients could potentially be managed as day care procedures due to their favorable recovery trajectory.

Additionally, postoperative pain, as measured by the visual analogue scale (VAS) ranging from 0 to 10 categorized into mild (0-3), moderate (4-7) and severe (8-10). Follow-up of patients was done at regular intervals at a period of one week, one month and three months. The interpretation of the data was performed using Microsoft Excel (Microsoft® Corp., Redmond, WA). The quantitative data obtained were expressed as percentage in tabular form and were evaluated using SPSS version 20 (IBM Corp., Armonk, NY) by chi-square test with p<0.05 as a significant value.

### 3. Results & Discussion

The study comprised fifty participants, divided equally with 25 individuals in both open and stapler hemorrhoidectomy groups. Out of the total, 38 patients (77.5%) were male, and 12 patients (22.5%) were female, yielding a male-to-female ratio of 3:1. The average age of the patients was 46 years. The largest proportion of patients (48%) fell within the 31 to 50 years age group, followed by 12% in the 11 to 30 years range, and 40% in the 51 to 70 years category. Bleeding was the most prevalent symptom, observed in 92% of cases, followed by a rectal mass (40%). A significant 60% of patients exhibited chronic constipation, indicating its prominence as a leading factor in hemorrhoid development.

When considering surgical aspects, the stapler hemorrhoidectomy group demonstrated multiple advantages over open technique. The operative duration and hospital stay were notably shorter in the stapler group compared to the open hemorrhoidectomy group. Stapled hemorrhoidopexy had an average operative time of 25 minutes (ranging from 15 to 40 minutes), whereas open hemorrhoidectomy took around 46 minutes (ranging from 30 to 60 minutes), highlighting the efficiency of stapled hemorrhoidopexy. Furthermore, blood loss during stapled hemorrhoidopexy averaged at 10 ml (ranging from 5 to 25 ml), whereas open hemorrhoidectomy had an average blood loss of 35 ml (ranging from 25 to 75 ml), indicating reduced blood loss in stapler hemorrhoidopexy. The discomfort level at the first bowel movement was recorded as 1.1 (mild) in the stapler group, in contrast to 4.1 (moderate) in the open group. This suggests that patients experienced less postoperative pain and greater comfort with stapler hemorrhoidopexy compared to the open procedure.

The incidence of urinary retention was greater among patients who underwent the open procedure (4%) compared to those who had the stapler surgery (none). There were more instances of emergency visits among the open surgery group, particularly for cases of recurrent bleeding per rectum, as compared to the stapler group. The stapler patients experienced a swifter discharge from the hospital, with an average of 1.1 days, in contrast to the open surgery patients who had an average discharge time of 2.8 days. Additionally, the stapler group demonstrated a quicker return to normal activities. Notably, a considerable number of stapler hemorrhoidectomy patients could potentially be managed as day care procedures due to their favorable recovery trajectory.

### Table 2: Incidence of various postoperative complications in open and stapler hemorrhoidectomy group

<table>
<thead>
<tr>
<th>Complications</th>
<th>Open Hemorrhoidectomy Group n=25</th>
<th>Stapler Hemorrhoidectomy Group n=25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total (post-operative till 3 months follow-up)</td>
<td>At 1 week (n=25)</td>
</tr>
<tr>
<td>Pain</td>
<td>18/22%</td>
<td>10 (40%)</td>
</tr>
<tr>
<td>Bleeding</td>
<td>2 (6.7%)</td>
<td>5 (20%)</td>
</tr>
<tr>
<td>Incontinence</td>
<td>1 (4%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Recurrence</td>
<td>1 (4%)</td>
<td>0</td>
</tr>
</tbody>
</table>

The incidence of postoperative pain was done utilizing visual analogue scale (VAS) ranging from 0 to 10 categorized into mild (0-3), moderate (4-7) and severe (8-10). Follow-up of patients was done at regular intervals at a period of one week, one month and three months. The interpretation of the data was performed using Microsoft Excel (Microsoft® Corp., Redmond, WA). The quantitative data obtained were expressed as percentage in tabular form and were evaluated using SPSS version 20 (IBM Corp., Armonk, NY) by chi-square test with p<0.05 as a significant value.
group, 40% of patients reported pain at one week, 20% at one month, and 8% at three months. Conversely, in the stapler hemorrhoidectomy group, only 12% experienced pain at one week, and none reported pain at one or three months. Recurrent bleeding rates differed as well. In the open hemorrhoidectomy group, a recurrent bleeding was observed in 4% of cases at the three-month mark, whereas in the stapler hemorrhoidectomy group, no instances of recurrent bleeding were observed during the three-month follow-up period.

### Table 3: Comparison of various similar studies with our study

<table>
<thead>
<tr>
<th>Various studies</th>
<th>Operative time (mins)</th>
<th>Hospital stay (days)</th>
<th>Return to normal routine activity (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stapler Haemorrhoidectomy</td>
<td>Open Haemorrhoidectomy</td>
<td>Stapler Haemorrhoidectomy</td>
</tr>
<tr>
<td>Present Study</td>
<td>25±1-15</td>
<td>46±16</td>
<td>1±1.1</td>
</tr>
<tr>
<td>Sachin and Muruganathan (2017) [12]</td>
<td>33</td>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>Singh et al. (2018) [1]</td>
<td>&lt;30</td>
<td>&lt;40</td>
<td>1</td>
</tr>
<tr>
<td>Surati et al. (2022) [14]</td>
<td>34 (20-50)</td>
<td>40 (20-60)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

In comparison to other research focusing on the same method, our study showcased comparable levels of blood loss and duration of hospital stay. Furthermore, the operative time for stapled hemorrhoidectomy was marginally shorter in our facility [12,13,14].

### 4. Conclusion

Stapled hemorrhoidectomy demonstrates better safety and effectiveness, presenting fewer complications and hence better compliance. It stands as a promising treatment option for third and fourth degree hemorrhoids. The technique’s success relies on proper training and expertise, highlighting its potential as a reliable method for hemorrhoid surgery. Further studies with more number of patients and a longer period of follow-up are recommended to attain more encouraging results.

### Declaration

There is no conflict of interest

This is to certify, that the research paper submitted by me is an outcome of my independent and original work. I have duly acknowledged all the sources from which the ideas and extracts have been taken. The project is free from any plagiarism and has not been submitted elsewhere for publication.

### References


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