Conventional Hemorrhoidectomy with Electrocautery Versus Stapled Hemorrhoidopexy for Treatment of Haemorrhoids

Rashid Mahmood Khan & Nasma Wabasa

Department of Surgery Bahawal Victoria Hospital Bahawalpur, Pakistan

Corresponding Author: Rashid Mahmood Khan
khani204@yahoo.com

ABSTRACT

Objective: To compare usage of electrocautery versus stapler in hemorrhoidectomy. Study Design: Randomized control trial. Sampling technique: Non-probability consecutive sample selection. Place and Duration of Study: Department of Surgery (surgical unit II) Bahawal Victoria Hospital Bahawalpur Pakistan, in 6months (from July 2014 to January 2015). Methodology: A total of 124 patients fulfilling the inclusion criteria undergoing procedures for hemorrhoids were randomly divided into group ‘A’ and ‘B’ treated by conventional haemorrhoidectomy & haemorrhoidopexy respectively. Procedures were evaluated for operative time, intraoperative blood loss and postoperative pain. Results: There was a significant difference in mean operative time, mean intraoperative bleeding & post-operative pain among two groups. Mean operative time 37.23 ± 6.287 minutes in group A while in group B, it was 32.24 ± 7.334 minutes (p <0.009). Mean intraoperative blood loss in group A patients was 8.00 ± 3.539 ml while in group B, it was 6.29 ± 3.271 ml (p < 0.049). Mean postoperative pain on VAS in group A was 5.34 ± 1.708 while it was 4.13 ± 1.76 in group B (P< 0.02). Conclusion: The Stapled Haemorrhoidopexy was found a better choice in term of less post-operative pain, intra-operative bleeding and operative time as compared to electrocautery Hemorrhoidectomy.

Keywords: Haemorrhoids, Haemorrhoidectomy, Electrocautery, Stapler, Hemorrhoidopexy

1. INTRODUCTION

Hemorrhoids are dilated veins occurring in relation to the anal canal. It is a common disease affecting people of all age groups and either sex, being more common in old age. It has been estimated that 50% of the population has hemorrhoids by the age of 50 years\(^{(3)}\). More found in prosperous societies perhaps due to exercise, diet and bowel habits\(^{(2)}\). Hemorrhoids are the most common cause of rectal bleeding.

Clinically internal hemorrhoids can be classified into four degrees first, second, third and fourth degree\(^{(3)}\):

- 1st degree (only bleed, don\(\_\)t prolapse).
- 2nd degree (bleed and prolapse outside anal canal, but reduce spontaneously).
- 3rd degree (bleed and prolapse outside anal canal and require manual reduction).
- 4th degree (bleed and prolapse remaining permanently outside the anal canal).
1st and 2nd degree usually respond to outdoor measures (dietary modifications, injection-sclerotherapy, rubber band ligation, etc. Surgical treatment is the best modality for 3rd and 4th-degree haemorrhoidal disease. Hemorrhoidectomy is associated with a few complications, postoperative pain and blood loss requiring meticulous hemostasis. It can be performed by various techniques. Closed hemorrhoidectomy is the one in which excision of the hemorrhoids is followed by primary suturing of the mucosal and skin edges this method is commonly used in the USA. This method is stated to be better regarding postoperative pain, healing time and other perioperative complications.

Open Haemorrhoidectomy (Milligan, Morgan) hemorrhoidal tissue is excised, and the wound is left open to heal by secondary intention. Stapled technique pph employs a unique circular stapler which reduces the degree of prolapse by excising a circumferential strip of mucosa from the proximal anal canal. complication associated with haemorrhoidectomy include urinary retention (2-36%), bleeding (0.03-6%), stenosis (0-6%), infection (0.5-5.5%) and incontinence (2-12%). The aim of this study is to compare the usage of the electrocautery with a stapler in Haemorrhoidectomy, for operation time, intraoperative blood loss and postoperative pain.

2. OBJECTIVES

The aim of this study is to evaluate the better technique between conventional haemorrhoidectomy with electrocautery and stapled haemorrhoidopexy in population in terms of less operating time, blood loss and postoperative pain, so, on the basis of these results, we can apply the better technique in our routine practice guidelines for these particular patients.

3. METHODS

The study was conducted in surgical unit II Bahawal Victoria Hospital Bahawalpur. 124 patients were selected divided into group A and B, group A was treated by electrocautery, and group B by the stapler. Patients of both gender and age above 30 and below 70 with the diagnosis of 3rd and 4th degree prolapsed hemorrhoids were included in this study. Patients who fulfilled the inclusion criteria were accrued in the study. After a thorough workup, patients were prepared for the elective Haemorrhoidectomy.

Informed written consent was taken after a thorough explanation of study protocol, after the approval of the study from the Hospital Ethical Committee. Information was collected as mentioned in the study Performa Operating time and blood loss was recorded by the surgeon performing surgery, the post-operative pain was noted at day 1, 24 hrs after surgery in the ward and follow up on VAS (visual analog scale). Day 1 was defined as the day of operation.

Data was entered into SPSS version 22. The outcome variable in this study was age, gender, operating time, blood loss and postoperative pain after the procedure. Descriptive statistics were calculated. Mean and standard deviations were calculated for age, operating time, the quantity of blood loss and post-operative pain. Student t-test was applied to compare mean age, operating time, the quantity of blood loss and pain score between the two study groups. Frequency and percentage were calculated for gender. P value < 0.05 was considered as significant. Stratification was done to control effect modifiers like age and gender to observe the outcome. Post-stratification applying student t-test taken p < 0.05 as significant. The final outcome will be considered successful if there is:

- Less mean operative time
- Less mean blood loss
- Less mean postoperative pain

4. RESULTS

A total of 124 patients presenting with hemorrhoids from Surgical units, Bahawal Victoria Hospital, Bahawalpur were selected for this study, and they were divided into two groups A and B. There were 62 patients in Haemorrhoidectomy with electrocautery group A, and 62 patients were in hemorrhoidopexy with Stapler (PPH gun) group B. The mean age in group A was 45.45 ± 10.832 years. Minimum age in this group was 30 years while the maximum age was 68. Whereas in group B, the mean age was found to be 44.16 ± 9.266 years, the minimum age was 30 and maximum was 69 years.

Data shows that there is a slight male predominance of the disease in the general population of this area presenting to the hospital. In Group A, there was 80.6% males and 19.4% female whereas there was 72.6% males and 27.4% female in group B. The mean operative time in group A was 37.23 ± 6.287 minutes while in group B, it was 32.24 ± 7.334 minutes. The operative time between the two groups was significant. P-Value being 0.009. The minimum operative time in group A was 20 minutes while the
maximum was 55 minutes. While in group B, the minimum was 20 and maximum was 50 minutes. The amount of blood loss in group A patients was 8.00 ± 3.539 ml while in group B, it was 6.29 ± 3.271 ml. P-Value was 0.049. The postoperative pain in two groups, after 24 hours the mean VAS in group A was 5.34 ± 1.708 while it was 4.13 ± 1.76 in group B. p-value was 0.020.

Table 1: Age distribution between two study groups

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Patients</td>
<td>%</td>
</tr>
<tr>
<td>30-50</td>
<td>45</td>
<td>72.58</td>
</tr>
<tr>
<td>51-70</td>
<td>17</td>
<td>27.42</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>100</td>
</tr>
<tr>
<td>Mean Age ± S.D</td>
<td>45.45 ± 10.83</td>
<td>44.18 ± 9.37</td>
</tr>
</tbody>
</table>

Table 2: Gender distribution between two study groups

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Patients</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>80.6</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>19.4</td>
</tr>
</tbody>
</table>

Table 3: Comparison of outcome of variables between two study groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group A</th>
<th>Group B</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Time (mins)</td>
<td>37.23 ± 6.287</td>
<td>32.24 ± 7.334</td>
<td>0.009</td>
</tr>
<tr>
<td>Blood Loss (ml)</td>
<td>8,000 ± 3,539</td>
<td>6.29 ± 3,271</td>
<td>0.049</td>
</tr>
<tr>
<td>Post Operative Pain (on VAS)</td>
<td>5.34 ± 1.708</td>
<td>4.13 ± 1.760</td>
<td>0.020</td>
</tr>
</tbody>
</table>

5. DISCUSSION

A total of 124 patients fulfilling the inclusion criteria were selected from surgical unit II of Bahawal Victoria Hospital Bahawalpur. Although hemorrhoids can occur at any age and no age is immune to this disease, but the peak incidence was found to be in the 5th decade of life(8) Aroya et al.,(4) concluded that the mean age of the patients presenting with symptomatic hemorrhoids was 43.5 years. In the study by Omar et al., the mean age of patients presenting with hemorrhoids was found to be 35 ± 4.5 years. The mean age of patients in my study is 45.45 ± 10.83 years in Group A and 44.18 ± 9.266 years in Group B. The percentage of each gender in the study by Omar et al.(12) was 41% male and 59% females while in my study it was found to be 80.6% male and 19.4% females in group A and 72.6% males and 27.4% females in group B showing the male predominance of the disease. Aroya et al. 4 also reported in his study that the disease is more prevalent in males than in females, but some studies(9,10,11) are there which describe that varicose veins and hemorrhoids are more common in females but in our study, there was a male predominance of the disease.

The mean operative time in our study was 37.23 ± 6.287 in group A (Electrocautery) while in group B, it was 32.24 ± 7.334 minutes [Stapler (PPH Gun)]. This is comparable to the results by Chung CC et al.(13) in which the mean operative time with Electrocautery is 36 ± 3 minutes and with Ultrasonic Harmonic Scalpel is 30 ± 4 minutes. In the study by Tsunoda et al.,(12) median operative time was 16 (95% confidence interval: 14.6-18.2) minutes in electrocautery group while in harmonic scalpel group it was 31 minutes (95% confidence interval: 28.1-35.3), with p-value ≤0.0001.

The amount of intraoperative blood loss in my study was 8,000 ± 3,539 ml in Electrocautery group, while in Stapler Hemorrhoidopexy group; it was 6,29 ± 3,271 ml. In the study by Chung CC et al.(13), the amount of blood loss in Stapler group was 7 ± 3 ml while in Ultrasonic Harmonic Scalpel group; this was 10 ± 4 ml. In the study by Tsunoda et al.(12), reduced intraoperative blood loss was observed in the diathermy group; mean blood loss is 9 ± 3ml versus...
Harmonic scalpel group, mean blood loss 7 ± 3 ml with p-value < 0.001. In this study by Chung CC et al.,(12) there was a trend towards lower postoperative pain scores on day one in the Stapler group with median VAS of 2 (95% confidence interval: 1.8-3.5) versus electrocautery group having median 3 (95% confidence interval: 2.6-4.2) with p-value = 0.135. In my study, the mean VAS score on day 1 in electrocautery group Haemorrhoidectomy group was 5.34 ± 1.708 while in Stapler Haemorrhoidopexy group, it was 4.13 ± 1.76. This is in contrast to the study by Armstrong et al., in which the postoperative pain on day one on VAS in diathermy group is 5.0 ± 0.7 while in harmonic scalpel group, it was 4.0 ± 0.6. The current study demonstrates a significant decrease in post-operative pain, the amount of blood loss and shorter operative time in Stapler Hemorrhoidopexy and provides a promising avenue for further research. These results must, however, be reproduced by other investigators before a definitive role for the Stapler (PPH Gun) can be established.

6. CONCLUSION

This comparative study showed that Stapler Haemorrhoidopexy is a safe and effective procedure as compared to electrocautery haemorrhoidectomy. It decreases post-operative pain, intraoperative blood loss and shortens operative time but carries a significantly higher incidence of recurrences and additional operations compared with electrocautery. It is the patient’s choice whether to accept a higher recurrence rate to take advantage of the short-term benefits of SH. Therefore, it is concluded that in clinical settings where Stapler (PPH Gun) expertise and equipment are available and affordable, Stapled Haemorrhoidopexy seems to be an effective and safe alternative to other hemorrhoidectomy procedures. Therefore it should be continued as a therapeutic option for patients with hemorrhoids. However, all aspects of Stapler and electrocautery haemorrhoidectomy must be compared, including wound infection, the cost of the procedure, patient’s quality of life and long-term complications. This study is only a first step towards this goal. Further studies are deemed necessary to define whether Stapler Haemorrhoidopexy should be considered the treatment of choice for grade 3 and 4 hemorrhoids.

DISCLOSER

This is a dissertation-based article.

REFERENCES
