

## OUTCOME OF HEMORRHOIDECTOMY WITH THE LIGASURE IN COMPARISON WITH THE TRADITIONAL OPEN METHOD

Faiz-Ur-Rahman<sup>1</sup>, Arshad Amin<sup>1</sup>, Shahid Nisar<sup>1</sup>, Musarat Hussain<sup>1</sup>

1. Town Teaching Hospital

### OBJECTIVE

To compare the operative time and outcomes of Ligasure hemorrhoidectomy with that of the traditional open hemorrhoidectomy.

### METHODOLOGY

A total of 49 patients were included in this study. Out of which 24 were in the Ligasure group and 25 in the open group. The main objective or the primary variable was to assess the operative time for the excision of a single hemorrhoidal lesion, the need for morphine, for post operative pain relief and any other complications such as preoperative bleeding and the time to return to work. The data like age, sex, type of Haemorrhoidectomy, type of complicating etc. were recorded in already prepared proforma. The data was analysed through computer program SPSS10.

### RESULTS

The demographic data were comparable between the two groups. The time spent in excision of a solitary hemorrhoidal lesion was significantly shorter in the Ligasure group compared to the open group (8.25 min Vs 16.75 min ) and this difference was found to be statistically significant ( $p < 0.001$ ). Operative bleeding was also significantly lower than the open method of Haemorrhoidectomy. Other parameters like post operative pain, opioid requirement, urinary retention and chronic complications like anal stenosis and gas incontinence were not significant. There was no difference in the period of convalescence and return to work between the two groups.

### CONCLUSION

Hemorrhoidectomy with the Ligasure entails a shorter surgical time and could be associated with a lesser pain besides being safer.

### KEYWORDS

Open hemorrhoidectomy. Ligasure Hemorrhoidectomy. Surgic time.

### INTRODUCTION

Hemorrhoids appear as engorged veins in the anorectal region. Etiology is Uncertain but constipation of long duration, pregnancy and straining during defecation could be the factors in the causation of hemorrhoids (1). It is a fairly common disease and is commonly associated with itching, and bleeding in the form of fresh sprouts of blood following evacuation of stools. They could be associated with severe pain if the hemorrhoids are thrombosed. Different surgical approaches such as the open method of Milligan- Morgan, the closed hemorrhoidectomy proposed by Ferguson, hemorrhoidectomy using stapler and the recently introduced Ligasure hemorrhoidectomy. It seems that the commonly employed surgical approach of hemorrhoidectomy is the Milligan- Morgan approach (2). As this approach causes pain which could be intense, the Ligasure method has been forwarded

#### Correspondence:

Dr. Faiz-Ur-Rahman  
Town Teaching Hospital  
Contact: 0333-9176048  
Email: drfaizdagai@gmail.com

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recently which in fact is a kind of coagulation and hemostasis. It is assumed that this method provides a bloodless field in addition to ensuring total removal of the hemorrhoid lesion and imparts a lesser degree of heat to the hemorrhoids being excised. All these put together cause less postoperative pain (3). There are reports in the literature where it has been stated and proved that the Ligasure hemorrhoidectomy approach does in fact curtail the postoperative pain (4-7), but some reports fail to document a reduction in the postoperative pain with the Ligasure method (8-10). Some of the publications point to a reduction in bleeding with the Ligasure method (8-9). A meta-analysis revealed that the Ligasure method did cause a significant reduction in the surgical time and operative bleeding but as far as postoperative pain, hospital stay and return to job were concerned, there were no differences compared with the open method (11). This study aimed to see whether the Ligasure method helped in reducing the surgical time or not

## METHODOLOGY

In this randomized clinical trial, a total of 49 patients scheduled for hemorrhoidectomy were included. They were randomly allocated to the open hemorrhoidectomy and the Ligasure hemorrhoidectomy group. Randomization was performed through a sealed envelope. Exclusion criteria included patients with prior anorectal surgery, infection at the anorectal region or any suspicion of malignancy.

After having fasted for 10 hours, the patients were assigned to general anesthesia or spinal anesthesia depending upon the patient's consent and choice. Both the methods were performed by the surgeons involved and surgical time noted down. Ligasure TM (U.S.A) was utilized in this study. Patients were given I/V morphines if they were complaining of severe pain. Patients were discharged the next day if there was no bleeding or any other complication. Patients were prescribed Ibuprofen and to take the drug if there was pain. They were asked to report 10 days after surgery. Data were analyzed with SPSS 10.

## RESULTS

A total of 49 patients were recruited in the study (24 in Ligasure group & 25 in the open group). The average age of the patients was  $37 \pm 7.8$  years (26-64 years). The age and the demographic data were comparable between the 2 groups. Duration of operation, postoperative pain and hospital stay are depicted between the two groups (Table 1).

**Table 1: Comparison of indicators between two groups**

| Indicator   |              | Ligasure group |         | Open group   |         |         | P-value |
|---|--------------|----------------|---------|--------------|---------|---------|---------|
|   | Intermediate | Maximum        | Minimum | Intermediate | Maximum | Minimum |         |
| <b>Morphine doses</b>                               | 1.23         | 2              | 1       | 1.71         | 3.4     | 1       | 0.58    |
| <b>Average pack of hemorrhoid excise time (min)</b> | 8.25         | 11             | 4.9     | 16.75        | 20      | 10      | <0.001  |
| <b>Bedridden days</b>                               | 1.043        | 2              | 1       | 1.71         | 2       | 1       | 0.61    |
| <b>Ibuprofen dose</b>                               | 5.58         | 18             | 2       | 5.61         | 18      | 2       | 0.63    |

### Visual Analogue Scale (VAS)

The mean average surgical time was 23.54 min in the open method and 15.25 min in the Ligasure method. The mean average time in excising a Single hemorrhoidal lesion was  $16.94 \pm 2.84$  min in the open method and  $9.2 \pm 1.25$  in the Ligasure method which was found to be statistically significant ( $P < 0.001$ ).

The consumption of morphine for postoperative pain (POP) was lower in the Ligasure group compared to the open group but it was not statistically significant. The hospital stay was also the same in both the groups (Table 1). Bleeding was not severe in both groups and urinary retention was not significant in both the groups. At home for POP, the use of NSAID was the same in both the groups. At one month follow up no complications such as difficult defecation or gas incontinence were observed in both the groups. Likewise return to job after surgery was the same in both groups.

### DISCUSSION

This study showed that the surgical time was significantly less with the Ligasure method. This is because dissection and layer by layer separation of the sphincter is not needed during the Ligasure method. Secondly, it could be due to the blood—less field that is encountered when the Ligasure method is employed. Although blood loss was not calculated in this study but it appeared that the blood loss was less in the Ligasure method compared to the open method. Postoperative pain was found to be not statistically significant between the two groups. This could possibly be attributed to a small sample size used in this study (3).

A meta- analysis also corroborates with our findings and reveals that there was a significant difference in the surgical time between the two methods but there was no difference in pain following surgery (11). Secondly, in both groups, patients were discharged the next day and not on the same day of operation, thus discharge criteria were the same in both groups of patients. In some centers, patients are discharged on the day of operation as these operations are conducted as outpatient surgeries. In such situations, additional research is needed to get a clear and exact time of discharge from the hospital. Likewise, different surgeons employing these techniques could possibly get different results as such results depend on the expertise and experience of the surgeons as well. Less surgical time would obviously decrease the post-operative pain and other complications that are associated with surgery. Future studies can also calculate blood loss in such types of surgeries. Moreover, if the anesthetic technique is also the same, that would also have an obvious impact on the duration of surgery, the postoperative pain and the blood loss during surgery. As such there were no big limitations in our study except a slight denying behavior for the new technique which was usually easily addressed after counseling. The second problem was at times the unavailability of ligasure.

### CONCLUSION

The Ligasure method appears safe and the surgical time is meaningfully less than in the open method.

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