



Comparing Open and Closed Hemorrhoidectomy: A Comparative Study

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Abstract: Background: This prospective randomized clinical study aimed to evaluate and compare the outcomes of surgical hemorrhoidectomy using both open and closed techniques [1]. The study focused on assessing factors such as postoperative pain, wound healing, and overall morbidity to determine the effectiveness of these two approaches in the treatment of patients with third-degree or fourth-degree hemorrhoids, which are often considered for surgical intervention. **Methods:** In this study, all consecutive patients diagnosed with Grade III internal hemorrhoids or Grade IV hemorrhoids were included and randomly assigned to one of two groups. [2], [3] In the open group, the entire wound was intentionally left open, while in the closed group, the wound was completely closed using 2-0 chromic sutures. Postoperative pain levels were evaluated using a linear analog scale. Additionally, the consumption of analgesic medications on the day of surgery and during bowel movements in the first week following the procedure was carefully documented. Patients were then followed up at 1, 2, and 3 weeks after the surgical procedure to assess their progress and outcomes. **Results:** In this study, both groups consisted of 20 patients each, and no statistically significant differences were observed between the two surgical methods in terms of complications, pain levels, or length of postoperative hospital stay. However, it's worth noting that there were four cases requiring reoperations due to bleeding, and all of these occurred after Milligan-Morgan operations. **Conclusion:** Both the open and closed surgical methods appear to be effective treatments for third and fourth-degree hemorrhoids, and neither method appears to have significant drawbacks [4]. In this study, it was found that the closed method did not provide a notable advantage in reducing postoperative pain. However, it did offer an advantage in terms of faster wound healing compared to the open method. These findings suggest that the choice between the two methods may depend on individual patient factors and surgeon preferences, as both techniques can be considered viable options for the treatment of third and fourth-degree hemorrhoids.

INTRODUCTION

Hemorrhoids have been a prevalent ailment affecting humans throughout history. This condition is widespread, affecting individuals of all ages and genders. It's estimated that approximately 44 percent of the population experience symptoms related to hemorrhoids at some point in their lives. This occurrence may be attributed, in part, to the evolutionary development of the human erect posture. Recent estimates suggest that approximately 50% of the population develops hemorrhoids by the age of 52, making them one of the most prevalent causes of rectal bleeding. Historically, the primary surgical procedures used to address

hemorrhoids were hemorrhoidectomies based on the Milligan-Morgan and Ferguson techniques. However, in recent years, there has been a growing focus on exploring and adopting alternative surgical procedures for the treatment of hemorrhoids. Numerous comparative studies have been conducted to assess existing procedures for the treatment of second, third, and fourth-degree hemorrhoids, as well as to explore new surgical techniques. Nevertheless, the Milligan-Morgan open hemorrhoidectomy remains the most commonly performed surgical procedure for hemorrhoid management and is regarded as the current "gold standard." In this technique, hemorrhoidal tissue is



excised, and the wound is intentionally left open to heal through secondary intention. The primary drawback associated with hemorrhoidectomy is the significant discomfort and pain experienced during the initial postoperative week [5]. In the Fergusson closed hemorrhoidectomy, the excision of hemorrhoids is including reduced risk of bleeding and post-operative wound infections [6]. The objective of this study was to compare postoperative pain, wound healing, and overall morbidity in relation to these two surgical techniques, likely referring to the Milligan-Morgan open hemorrhoidectomy and the Fergusson closed hemorrhoidectomy, to determine their respective benefits and drawbacks.

I. MATERIAL AND METHODS

This prospective randomized clinical study spanned a duration of two years. During this period, all consecutive patients diagnosed with either Grade III internal hemorrhoids or Grade IV hemorrhoids were randomly assigned to one of two groups for further evaluation and treatment. In this study, a comprehensive informed consent process was conducted, and all patients provided detailed consent before their participation [7]. As part of the preoperative preparation, a routine soap water enema was administered on the night before the surgical procedure [8]. Additionally, single-dose prophylactic injections of third-generation cephalosporin (1 gm intravenously) and metronidazole (500 mg intravenously) were administered at the time of induction to prevent infection. The surgical approach differed between the two groups: the open group had the entire wound left open, while the closed group had their wounds completely closed using 2-0 chromic sutures. All surgical procedures were performed by two senior consultant surgeons, and the same team conducted the follow-up assessments [9]. Postoperative pain was evaluated using a linear analog scale, and any additional consumption of analgesic medications on the day of surgery and during bowel movements within the first week after the procedure was meticulously recorded. Patients were then followed up at 1, 2, and 3 weeks after the surgery to monitor their progress and assess the outcomes of the procedure.

II. RESULTS

In this study, a total of forty patients were chosen and

followed by the primary suturing of the mucosal and skin edges using absorbable suture material such as catgut. This method is believed to offer advantages in terms of healing time and fewer postoperative complications,

randomly assigned to one of two procedure groups, with 20 patients in each group. The age of the patients included in the study ranged from 20 years to 60 years [10]. Among the entire patient cohort, 30 were male, and 10 were female. The assessment of pain perception conducted 12 hours after the surgery revealed no significant difference between the open and closed hemorrhoidectomy groups. Following the first bowel movement, it was observed that 3 patients (3.3%) in the open hemorrhoidectomy group did not report any pain. In contrast, in the closed hemorrhoidectomy group, all patients experienced either mild or moderate pain. Additionally, it was noted that a higher proportion of patients in the closed group experienced excruciating pain compared to those in the open hemorrhoidectomy group [11], [12].

	Open Hemorrhoidectomy (n=20)	Closed Hemorrhoidectomy (n=20)
Male (%)	15 (66.6)	15 (66.6)
Female (%)	5 (33.3)	5 (33.3)

TABLE 1: Distribution of sex in study population

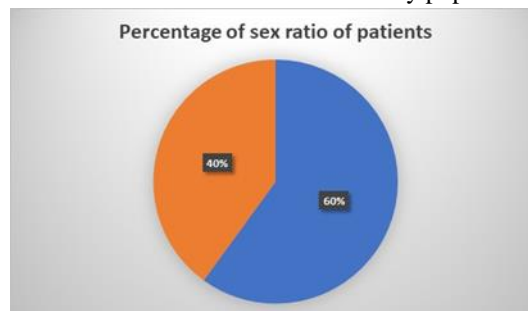


FIGURE 1: Percentage of sex ratio of patients

One week after the surgery, it was observed that all patients in the closed hemorrhoidectomy group experienced either mild or moderate pain. In contrast, in the open hemorrhoidectomy group, 3 patients (3.3%) did not report any pain at this point. Notably, there was no significant difference in the occurrence of excruciating pain between the two groups, with both open and closed groups reporting similar levels of this severe discomfort



[13]. The average time it took for patients to become pain-free after surgery was approximately 20 days in the open group and 21 days in the closed group, indicating that there was no significant difference in this aspect between the two groups. Importantly, there were no cases of excessive postoperative bleeding. However, it's worth noting that there were four instances requiring reoperations for bleeding, and all of these occurred after the Milligan-Morgan operation [14].

III. DISCUSSION

Hemorrhoids are a common condition that tends to affect both males and females, although in our study, we observed a higher male-to-female ratio compared to a study by Arbman G et al. The present study revealed that a larger number of patients presented with hemorrhoids within the age group of 30 to 50 years. Hemorrhoidectomy was performed using two methods: open (Milligan-Morgan) and closed (Ferguson) hemorrhoidectomy. Most of the patients in both groups experienced pain following the procedure, but it was more pronounced in the closed group than in those who underwent open hemorrhoidectomy. Pain management after hemorrhoidectomy has garnered significant attention, not only due to the discomfort it causes but also because of its potential impact on urinary symptoms [15]. Urinary retention cases observed in our study accounted for 9.13% of patients, which is lower than the rates reported by Toyonaga et al. and Pescatori (20.8%). However, our findings align more closely with the data presented by Chik et al. (7.77%) in a study on stapled hemorrhoidopexy. This suggests that urinary retention can be a concern in the postoperative period but may vary in frequency across different surgical approaches and patient populations. The assessment of pain perception after the first bowel movement indicated that more patients in the closed group experienced excruciating pain compared to those in the open group, with 20 patients versus 12 patients, respectively. One week after surgery, it was noted that 3 patients (3.3%) in the open hemorrhoidectomy group did not experience any pain, while all patients in the closed group reported mild to moderate pain. The Ferguson closed hemorrhoidectomy has been reported to be associated with several benefits, including reduced post-operative discomfort, faster healing, preserved postoperative continence, and a decreased need for subsequent anal dilation [16]. Similarly, McConnell and Khubchandani reported a low

incidence of postoperative pain and infection, along with faster healing. In another randomized trial conducted by Carapeti, it was demonstrated that there was no significant difference in mean pain scores between the open and closed hemorrhoidectomy techniques. Importantly, no patient in your study suffered from excessive postoperative bleeding. Postoperative bleeding is a significant concern in the treatment of hemorrhoids due to its frequency, which can vary between 0.6% and 10%, as reported in studies by Pescatori and Chik et al. In your study, it was observed that hospital stays were shorter for patients who underwent closed hemorrhoidectomy compared to those who had open hemorrhoidectomy. [17] Specifically, the average hospital stay for patients in the open group was

5.2 days, while it was 4.1 days for patients in the closed group. A shorter hospital stay not only contributes to cost-effectiveness but also typically leads to improved patient compliance with postoperative care and follow-up [18]. This shorter duration of hospitalization can be advantageous for both patients and healthcare systems, as it allows for more efficient resource utilization and may enhance patient satisfaction by minimizing the time spent in a healthcare facility.

IV. CONCLUSION

In your study, it was evident that post-operative pain was significantly lower in the open hemorrhoidectomy group when compared to the closed hemorrhoidectomy group. However, the closed hemorrhoidectomy was associated with faster wound healing. Despite these differences, both methods were deemed fairly efficient treatments for hemorrhoids, with no significant serious drawbacks noted. These findings suggest that the choice between open and closed hemorrhoidectomy may depend on factors such as the patient's preference, surgeon's expertise, and specific clinical considerations.

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CONFLICTS OF INTEREST

The authors declared no conflict of interest.



ETHICAL CONSIDERATION

Compliance with ethical guidelines Ethical approval for this study was obtained from the University Institutional Research Board.

AUTHORS' CONTRIBUTIONS

All authors equally contributed to preparing this article.

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