

Clinical Evaluation of Outcome of Open and Closed Haemorrhoidectomy

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Abstract

Background: Hemorrhoids are a very common problem affecting a large group of the population. Milligan-Morgan excision haemorrhoidectomy continues to be widely used as a treatment option for third- and fourth-degree hemorrhoids. On the other hand, Ferguson haemorrhoidectomy is thought to cause less postoperative pain due to its closed wound nature. The objective of this study was to compare the outcome of the two conventional methods of hemorrhoidectomy open and close for third-degree prolapse and complicated hemorrhoids.

Methods: Patients who meet the inclusion and exclusion criteria were included. A total of n=40 cases allocated randomly generated computer numbers to two groups. Group I patients will undergo an open approach to hemorrhoidectomy, as described by Milligan-Morgan. Group II patients, on the other hand, will undergo a closed approach to hemorrhoidectomy, as described by Ferguson. Both procedures will be performed under Spinal Anesthesia.

Results: In our study, we observed a total of n=40 patients, with n=32 cases classified as grade III and 8 cases classified as grade IV. Among the n=32 patients with grade III, n=14 underwent surgery using the open method, while 8 underwent surgery using the closed method. Post-defecation VAS scores were analyzed in both groups of cases, it was found that the mean VAS scores at 24 hours of group II were slightly lesser than group I, and the p values were (<0.05) hence significant.

Conclusion: We found that Ferguson's closed approach has several important advantages over the Milligan Morgan open approach in the treatment of hemorrhoidectomy. These advantages include reduced pain in the immediate postoperative period and at 24 hours, requiring fewer analgesic pills to control pain, leading to the reduced hospital stay and early return to work, along with a better wound healing rate.

Keywords: Haemorrhoidectomy, Open method, Closed method, VAS scores.

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Introduction

Hemorrhoids are a common condition affecting the anorectal region and are frequently experienced by the general population. The exact causes of hemorrhoidal disease are not well

understood, but factors such as constipation, abnormal bowel habits, prolonged standing, and increased abdominal pressure contribute to the development of hemorrhoidal tissue. [1]

Due to its prevalence, various surgical and non-surgical techniques have been developed to address this condition. These techniques include haemorrhoidectomy, rubber band ligation, Lord's procedure, cryosurgery, sclerotherapy, and laser treatment. [2] It is important to address any associated conditions such as anal fissures, skin tags, or external hemorrhoids before treating the hemorrhoids themselves. [3] In cases where the hemorrhoids are complicated, such as thrombosed hemorrhoids, haemorrhoidectomy is recommended. If outpatient procedures fail to produce the desired results, haemorrhoidectomy is recommended. Haemorrhoidectomy has long been the conventional treatment for 3rd-degree hemorrhoids that are prolapsing or complicated, and surgeons have been using various forms of this procedure for a significant period. [4] In our country, individuals from all socioeconomic backgrounds suffer from this condition. It is observed that people with more sedentary occupations such as bankers, accountants, and shopkeepers are more prone to this disease. Unfortunately, haemorrhoidectomy has gained a negative reputation among the general public for being extremely painful, unpleasant, and uncomfortable. [5] Common postoperative complications include severe pain, urinary retention, bleeding, narrowing or strictures, and anal incontinence. [6] To mitigate these complications, various modifications have been made to the standard operative techniques. Recently, there has been a growing preference for day-case stapled haemorrhoidectomy as a way to minimize these issues. Stapled haemorrhoidectomy has emerged as a more effective treatment option in recent years. [7] Extensive research has been conducted in Western countries to compare various methods of haemorrhoidectomy. The present study aimed to compare the outcomes following haemorrhoidectomy by Milligan-Morgan's open and Ferguson's closed technique in the

patients visiting our Tertiary Care Teaching Hospital.

Material and Methods

This cross-sectional study was conducted in the Department of General Surgery, Prathima Institute of Medical Sciences, Naganoor, Karimnagar, Telangana State. Institutional Ethical approval was obtained for the study. Written permission was obtained from all the participants of the study.

Inclusion criteria

1. All patients diagnosed with grade 3 and grade 4 hemorrhoids
2. Failed nonoperative management.
3. Advanced disease process unlikely to respond to conservative management.
4. Mixed hemorrhoids with a bulging external component.
5. Willing to participate in the study voluntarily.

Exclusion criteria

1. Baseline fecal incontinence
2. Inflammatory bowel disease such as Crohn's disease or ulcerative colitis.
3. Portal hypertension with rectal varices
4. Rectocele
5. Not willing to participate in the study.

Patients who meet the inclusion and exclusion criteria were included. A total of n=40 cases allocated randomly generated computer numbers to two groups. Group I patients will undergo an open approach to haemorrhoidectomy, as described by Milligan-Morgan. Group II patients, on the other hand, will undergo a closed approach to haemorrhoidectomy, as described by Ferguson. Both procedures will be performed under Spinal Anesthesia.

After receiving the patients, they were managed in the following way:

- A detailed history was taken, including their age, sex, occupation, eating habits, symptoms, and duration.

- A thorough physical examination was done, including a local and digital per-rectal examination.
- All patients also underwent proctoscopic and sigmoidoscopic examinations.
- The number and position of hemorrhoids were assessed.
- Radiological and colonoscopic examinations were carried out if the patients had additional warning signs, such as a change in bowel habits.
- Blood was transfused to the patients who were found to be anemic.
- All patients received pre- and per-operative cover with third-generation cephalosporins.

The progress of each patient in the postoperative period was documented, and any complications were noted and appropriately managed. Patients who

underwent hemorrhoidectomy were advised to take sitz baths, apply local analgesics, and use stool softeners starting from the first day after the surgery. The length of hospital stays for each patient was recorded, typically ranging from 24 to 36 hours. Upon discharge, patients were provided with dietary recommendations. Follow-up appointments were scheduled at one week, one month, three months, and one year after the initial treatment to monitor the patients' progress.

Results

Out of the n=40 cases included in this study, n=20 each was divided into two groups. The age range of group I was from 19 years to 52 years and the mean age was 38.5 years. Similarly, for group II the age range is 20 years to 53 years. The mean age was 39.5 years. The p-values between the two were 0.781 and insignificant. Hence the distribution of cases between the two groups based on age was uniform.

Table 1: Comparison of age distribution between two groups

Age group	Group I	Group II	Total (%)
18 – 20	0	1	1 (2.5)
21 – 30	1	1	2 (5.0)
31 – 40	8	7	15 (37.5)
41 – 50	10	9	19 (47.5)
> 50	1	2	3 (7.5)
Total	20	20	40 (100%)

The genderwise distribution in the groups showed in group I n=14(70%) were males and n=6(30%) were females. Similarly, in group II n=15(75%) were males and n=5(25%) were females.

Table 2: Comparison of Grade of Hemorrhoids in Two Groups

Grade of Hemorrhoids	Group I	Percentage	Group B	Percentage	Total
Grade III	15	75.0	17	85.0	32
Grade IV	05	25.0	03	15.0	08
Total	20	100.0	20	100.0	40

In our study, we observed a total of n=40 patients, with n=32 cases classified as grade

III and 8 cases classified as grade IV. Among the n=32 patients with grade III,

n=14 underwent surgery using the open method, while 8 underwent surgery using the closed method. Among the n=8 patients with grade IV, n=5 underwent surgery

using the open method, and n=3 underwent surgery using the closed method. The grading was matched between the two groups.

Table 3: Comparison of Operative Time of Surgeries

Operation Time in minutes	Group I (open)	Group II (Close)
31 – 40	12	0
41 – 50	08	16
51 – 60	00	04
Mean	42.5 ± 5.5	51.2 ± 3.5

The mean duration of time of surgery in group I was 42.5 ± 5.5 minutes compared to group II with a mean operative time of 51.2 ± 3.5 minutes (Table 3). The comparison of the two groups indicated that the closed method had approximately 10 minutes more mean values as compared to the open method. The chi-square test for significance indicated p values were (<0.05) and hence significant.

The scoring points on the VAS pain scale were used in this study to determine the

intensity of pain in the patients based on the responses of the patients the scores were determined as given below.

- 0: No pain
- 1-3: Mild pain (discomforting but tolerable)
- 4-6: Moderate pain (interferes with daily activities)
- 7-9: Severe pain (significantly affects daily functioning)
- 10: Worst imaginable pain

Table 4: Comparison of pain score using VAS in two groups.

Pain Score at Different Intervals	Group I Open	Group II Closed	P Value
6 hrs	6.5 ± 0.77	5.69 ± 0.79	0.0013*
24 hrs	5.0 ± 0.69	4.87 ± 0.82	0.027*
48 hrs	2.8 ± 0.70	2.57 ± 0.49	0.084
3 Days	1.9 ± 0.54	1.81 ± 0.53	0.198
7 Days	1.7 ± 0.57	1.50 ± 0.40	0.091

* Significant

The mean post-operative VAS scores at 6 hours were lower in group II when compared to group I and the p values were found to be significant. Similarly, at the interval of 24 hours, the mean VAS scores were lesser in group II compared to group

I, and p values were found to be significant. However, the VAS pain score at 48 hrs 3 days and 7 days did not show any significant difference between the two groups (table 4).

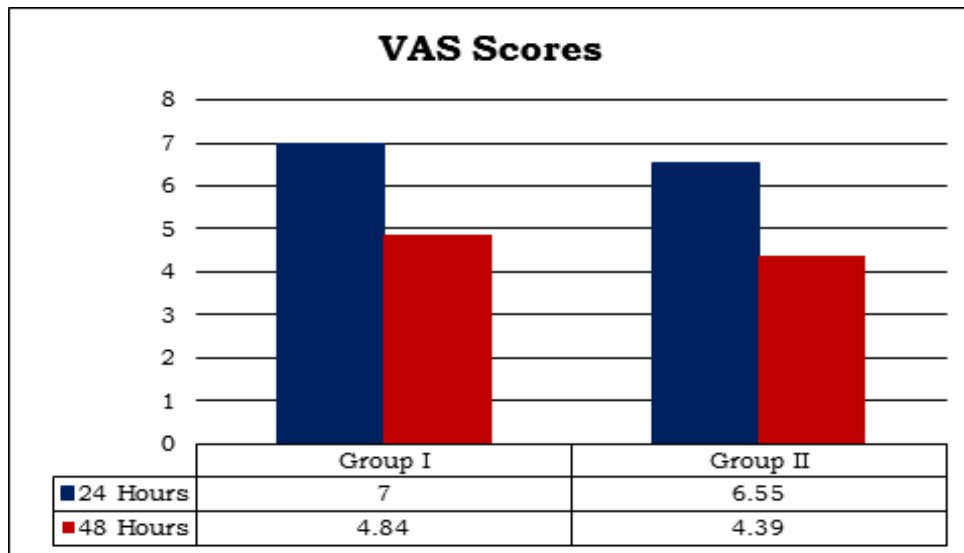


Figure 1: Post-defecation VAS scores in two groups of cases

Post-defecation VAS scores were analyzed in both groups of cases, it was found that the mean VAS scores at 24 hours of group II were slightly lesser than group I, and the p values were (<0.05) hence significant.

Similarly, the VAS scores of Group II were lesser than Group I at 48 hours however the values were not found to be significant depicted in Figure 1.

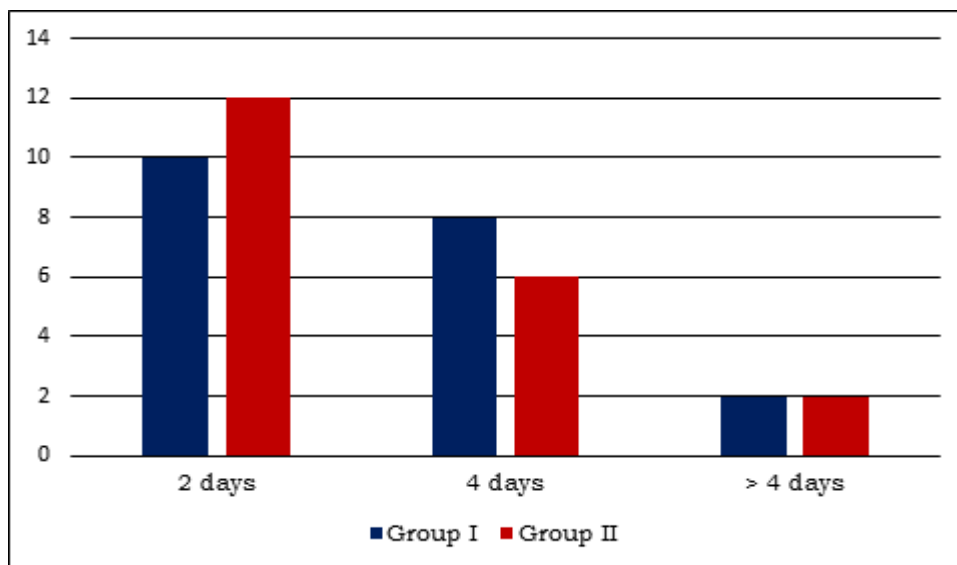


Figure 2: Comparison of duration of hospital stay between two groups

The overall mean duration of hospital stay between the two groups was determined in this study. It was found that the mean duration of hospital stays in group I was 1.93 ± 1.0 days and in group II it was 2.5 ± 1.0 days depicted in Figure 2. The p values were (>0.05) and hence not significant.

The mean oral analgesic requirement in group I was 2.5 ± 0.75 dose and in group II it was 1.8 ± 0.60 doses. The chi-square test p values were found to be (<0.05) and hence significant. The overall satisfaction scores following the surgery were recorded in both groups of patients. It was found that the overall satisfaction scores of Group I was

3.9 ± 1.5 and Group II was 3.95 ± 1.0 and the differences were not found to be significant. The mean duration of wound healing in group I was 4.8 ± 2.5 weeks and for group II it was 2.4 ± 1.5 weeks. The differences were found to be significant because the p values were (<0.05).

In Group I, n=7 patients experienced post-operative bleeding at 24 hours, and n=5 patients at 48 hours. In Group II, n=4 patients had postoperative bleeding at 24 hours, and n=3 patients at 48 hours. The postoperative bleeding was classified as mild and was effectively managed with stool softeners and sitz baths. No further intervention was necessary for either group. Regarding surgical site infection, one patient in Group I and two patients in Group II exhibited signs of infection. These cases were managed conservatively using antibiotics. No significant statistical difference was observed between the two groups in terms of surgical site infection.

Discussion

The anal canal lining, among the tissues of the digestive tract, is the most abundantly innervated tissue. The primary concern following a hemorrhoidectomy is the occurrence of postoperative pain. While conventional hemorrhoidectomy has long been considered the preferred treatment option and has stood the test of time, it has been associated with significant pain during the recovery period. [8] Efforts have been made to prioritize the management of postoperative pain, considering its impact on urinary symptoms as well. Numerous studies have been conducted to explore approaches that can minimize post-operative complications. Stapled hemorrhoidectomy, as demonstrated in several randomized trials, has been shown

to result in reduced postoperative morbidity. [9] Despite the introduction of several newer procedures, conventional hemorrhoidectomy remains the preferred choice due to its affordability and ease of execution. Open hemorrhoidectomy, although leaving a larger wound for healing through secondary intention, is associated with significant post-operative pain. [10] Moreover, the loss of the anoderm during the open procedure leads to reduced anal sensation. There is also a potential risk of anal stenosis due to the absence of scar retraction. The open wound in the anal canal has been linked to postoperative morbidity. For these reasons, closed hemorrhoidectomy can be considered as an alternative option. [11]

Closed hemorrhoidectomy has garnered significant attention in numerous countries due to its advantages of faster wound healing, improved patient compliance, and reduced post-operative pain. However, there have been conflicting findings from randomized controlled trials regarding the comparison between closed and open hemorrhoidectomy. [12] In light of this, we are currently undertaking a study to compare the postoperative outcomes, complications, and rates of wound healing between closed and open hemorrhoidectomy procedures. Our study involved a total of 40 patients, out of which 32 cases were classified as grade III, and 8 cases were classified as grade IV. Among the 32 patients with grade III, 14 underwent surgery using the open method, while 8 underwent surgery using the closed method. Among the 8 patients with grade IV, 5 underwent surgery using the open method, and 3 underwent surgery using the closed method. The grading of hemorrhoids was consistent and matched between the

two groups. The mean duration of time of surgery in group I was 42.5 ± 5.5 minutes compared to group II with a mean operative time of 51.2 ± 3.5 minutes. Aziz A et al., [13], Pokharel et al., [14], and Giordano P et al., [15] The mean post-operative VAS scores at 6 hours were lower in group II when compared to group I, and the p values were found to be significant. Similarly, at the interval of 24 hours, the mean VAS scores were lesser in group II compared to group I, and p values were found to be significant. Hadi A. et al., [16] studied the outcomes of open and closed hemorrhoidectomy in 50 patients with grade III and IV hemorrhoids. They found that pain was significantly less in the closed group. Pokharel N et al., [14] compared the outcomes of open and closed hemorrhoidectomy techniques. They found that the closed technique resulted in significantly less pain, less need for analgesics, and faster wound healing. Arroyo et al., [17] and colleagues compared the results of 100 patients who underwent hemorrhoidectomy with either an open or closed approach. They concluded that postoperative pain was significantly less in the closed group. The overall mean duration of hospital stay between the two groups was determined in this study. It was found that the mean duration of hospital stay in group I was 1.93 ± 1.0 days and in group II it was 2.5 ± 1.0 days. It was similar to the results obtained by other similar studies done in the past by Aziz A et al., [13], Arbman G et al., [18], Pokharel N et al., [14] and Gencosmanoglu R et al., [19] Both the open and closed approaches exhibited postoperative complications including bleeding, infection, incontinence, urinary retention, and anal stenosis. However, there were no significant differences observed

between the two groups in terms of these complications and all the complications were mild and managed adequately.

Conclusion

We found that Ferguson's closed approach has several important advantages over the Millian Morgan open approach in the treatment of hemorrhoidectomy. These advantages include reduced pain in the immediate postoperative period and at 24 hours, requiring fewer analgesic pills to control pain, leading to a reduced hospital stay and early return to work, along with a better wound healing rate. However, the closed technique has these advantages at the expense of a longer operative time, which can be neglected as it did not affect the overall outcome.

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