A Study on Comparison of Open and Closed Haemorrhoidectomy: A Comparative Study

[1] Dr K Hassan Abubakar, [2] Dr. Saravanan PS, [3] Dr. Aravind P

[1] Postgraduate*, [2]HOD and Professor, [3] Assistant professor,

Department of General Surgery

Meenakshi Medical College Hospital and Research Institute, Enathur, Kanchipuram.

Meenakshi Academy of Higher Education & Research (MAHER)

Abstract:

Background: This forward-looking randomized clinical trial sought to assess and contrast the results of surgical hemorrhoidectomy utilizing both open and closed methods [1]. The investigation centered on examining factors including post-surgery pain, healing of the wound, and general morbidity to ascertain the efficacy of these two strategies in managing patients with third-degree or fourth-degree haemorrhoids, which are frequently considered candidates for surgical treatment.

Methods: The research included all sequential patients diagnosed with Grade III or IV internal hemorrhoids, who were randomly divided into two groups. [2], [3] One group underwent a procedure where the entire wound was deliberately left open, while in the other group, the wound was fully closed using 2-0 chromic sutures. Post-surgery pain was assessed using a linear analog scale. The study also recorded the use of pain medication on the day of the operation and during bowel movements in the week following surgery. Follow-up evaluations were conducted at 1, 2, and 3 weeks post-operation to monitor patients' recovery and results.

Results: The research involved two groups, each comprising 20 patients. Analysis revealed no statistically significant variations between the two surgical techniques regarding complications, pain intensity, or duration of hospital stay following the operation. It is noteworthy, however, that four instances necessitating additional surgeries due to haemorrhage were all associated with the Milligan-Morgan procedure.

Conclusion: Both the open and closed surgical methods appear to be effective treatments for third and fourth- degree haemorrhoids, 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 haemorrhoids.

Keywords: Closed hemorrhoidectomy, Hemorrhoids, Open haemorrhoidectomy

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 includes a reduced risk of bleeding and postoperative wound infections [6]. The objective of this study was to compare postoperative pain, wound healing, and overall morbidity of these two surgical techniques, likely refer- ring to the Milligan-Morgan open hemorrhoidectomy and the Fergusson closed hemorrhoidectomy, to determine their respective benefits and drawbacks.

Material and Methods

This prospective study was conducted at Meenakshi Medical College Hospital and Research Institute, Kanchipuram, between January to December 2024. 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- tic 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.

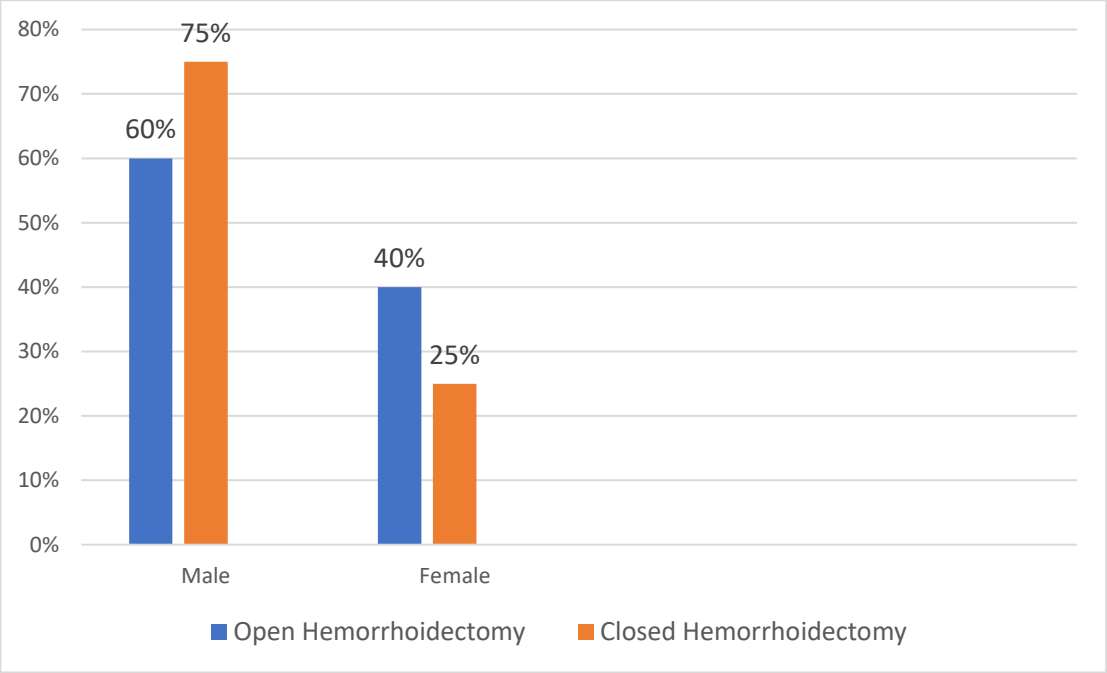
Results

In this study, a total of forty patients were chosen 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].

Table 1: Distribution of sex in the study population

	Open Hemorrhoidectomy (n-20)	Closed Hemorrhoidectomy (n-20)
Male (%)	12 (60%)	15 (75%)

Female (%)	8 (40%)	5 (25%)



Seven days post-surgery, all patients who underwent closed hemorrhoidectomy reported experiencing either mild or moderate discomfort. In comparison, within the open hemorrhoidectomy group, a small fraction (3.3%, or 3 patients) indicated feeling no pain at this time point. It is worth noting that the incidence of severe pain was comparable between the two surgical approaches, with patients in both the open and closed groups reporting similar rates of intense discomfort [13]. Patients in both the open and closed groups experienced similar durations for achieving pain-free status post-surgery, with the open group averaging around 20 days and the closed group taking approximately 21 days. This suggests that there was no substantial difference between the two approaches in terms of pain resolution time. It is noteworthy that no patients suffered from excessive bleeding following the procedures. Nevertheless, four cases required additional surgeries to address bleeding complications, all of which were associated with the Milligan-Morgan technique [14].

Discussion

Hemorrhoids are a prevalent ailment affecting both sexes, though our research indicated a higher proportion of males compared to females than what was reported in a study by Arbman G et al. Our findings showed that the majority of patients presenting with hemorrhoids were between 30 and 50 years old. Two surgical techniques were employed for hemorrhoidectomy: the open (Milligan-Morgan) method and the closed (Ferguson) approach. Post-operative pain was experienced by most patients in both groups, with those undergoing the closed procedure reporting more intense discomfort than those who had open hemorrhoidectomy. The management of pain following hemorrhoidectomy has become a focal point of interest, not only because of the discomfort it induces but also due to its potential effects on urinary function [15].

In our research, 9.13% of patients experienced urinary retention, which is a lower rate compared to the 20.8% reported by Toyonaga et al. and Pescatori. However, our findings are more in line with the 7.77% rate observed by Chik et al. in their study on stapled hemorrhoidopexy. This indicates that while urinary retention remains a potential postoperative complication, its prevalence may differ depending on the surgical technique and patient group. Regarding pain assessment following the initial bowel movement, a higher number of patients in the closed group reported severe pain compared to the open group, with 20 and 12 patients respectively experiencing excruciating discomfort.

Seven days post-surgery, it was observed that 3.3% (3 patients) in the open hemorrhoidectomy group reported no pain, whereas all patients who underwent closed hemorrhoidectomy experienced mild to moderate discomfort. The Ferguson closed hemorrhoidectomy technique has been associated with various advantages, including less post-operative pain, quicker healing, maintained postoperative continence, and reduced necessity for subsequent anal dilation [16]. In a similar vein, McConnell and Khubchandani noted minimal postoperative pain and infection rates, coupled with accelerated healing times.

A separate randomized study by Carapeti revealed no notable distinction in average pain scores between open and closed hemorrhoidectomy methods. Notably, none of the patients in the current study experienced severe post-surgery bleeding. Such bleeding is a major concern in hemorrhoid treatment, with occurrence rates ranging from 0.6% to 10%, as documented by Pescatori and Chik et al. The present study found that patients undergoing closed

hemorrhoidectomy had shorter hospital stays compared to those receiving open hemorrhoidectomy. [17]

Specifically, the average hospital stay for patients in the open group was 5.2 days, while those in the closed group stayed for 4.1 days. Shorter hospital stays not only improve cost-effectiveness but also typically lead to better compliance with post-operative care instructions and follow-up visits by patients [18]. This shorter hospitalization period can be advantageous for both patients and healthcare facilities, allowing for more efficient resource utilization and potentially increasing patient satisfaction by reducing time spent in medical settings.

Conclusion

The research findings indicated that patients who underwent open hemorrhoidectomy experienced significantly less post-operative discomfort compared to those who had closed hemorrhoidectomy. Nevertheless, the closed procedure resulted in quicker wound recovery. Although these distinctions were observed, both surgical approaches were considered comparably effective for treating hemorrhoids, with no major complications reported. These outcomes suggest that selecting between open and closed hemorrhoidectomy techniques may be influenced by various factors, including patient preferences, the surgeon's level of expertise, and specific clinical considerations.

Funding: Nil

Conflicts of interest: Nil

References

[1] Goligher, J. C. (1984). Surgery of the arms, rectum and colon (5th ed.). London: Bailliere Tindall.

[2] Sandhu, P. S., & Singh, K. (2004). A randomized comparative study of micronized flavonoids and rubber band ligation in the treatment of acute internal haemorrhoids. Indian Journal of Surgery, 66, 281-285.

[3] Orlay, G. (2003). Haemorrhoids: A review. Australian Family Physician, 32, 523-526.

[4] Hartlay, G. C. (2000). Rectal bleeding. Australian Family Physician, 29, 829-833.

[5] Watson, N., Liptrott, S., & Maxwell-Armstrong, C. (2006). A prospective audit of early pain and patient satisfaction following out-patient band ligation of haemorrhoids. Annals of the Royal College of Surgeons of England, 88(3), 275.

[6] Milligan, E., Morgan, N. C., Jones, L., & Officer,

R. (1937). Surgical anatomy of the anal canal, and the operative treatment of haemorrhoids. The Lancet, 230(5959), 1119-1124.

[7] Aroya, A., Perez, F., Miranda, E., Serrano, P., Candela, F., Lacueva, J.,et al. (2004). Open versus closed day case hemorrhoidectomy: Is there any difference? Results of a prospective randomized study. International Journal of Colorectal Disease, 19, 370-373.

[8] Ahmed, A. N., Fatima, N., Hussain, R. A.,

Chowdhry, Z. A., & Qadir, S. N.R. (2003). Strengths and limitations of closed vs open haemorrhoidectomy of 2nd and 3rd degree. Annals of King Edward Medical College, 9, 219-220.

[9] Kim, S. H., & Chung, C. S. (2005). Open vs closed hemorrhoidectomy. Diseases of the Colon & Rectum, 48, 108-113.

[10] Arbman, G., Krook, H., & Haapaniemi, S. (2000). Closed vs open hemorrhoidectomy: Is there any difference? Diseases of the Colon & Rectum, 43(1), 31-34.

[11] Bleday, R., Pena, J. P., Rothenberger, D. A., Goldberg, S. M., & Buls, J. G. (1992). Symptomatic hemorrhoids: Current incidence and complicationsof operative therapy. Diseases of the Colon & Rectum, 35, 277-281.

[12] Toyonaga, T., Matsushima, M., Sogawa, N., Jiang, S. F., Matsumura, N., Shimojima, Y., et al. (2006). Postoperative urinary retention after surgery for benign anorectal disease: Potential risk factors and strategy for prevention. International Journal of Colorectal Surgery, 21, 676-682.

[13] Pescatori, M. (2000). Closed vs open hemorrhoidectomy: Associated sphincterotomy and postoperative bleeding. Diseases of the Colon & Rectum, 43, 1174-1175.

[14] Chik, B., Law, W. L., & Choi, H. K. (2006).

Urinary retention after haemorrhoidectomy: Impact of stapled haemorrhoidectomy. Asian Journalof Surgery, 29, 233-237.

[15] Khubchandani, I. T. (1998). Randomized controlled trial of open and closed hemorrhoidectomy. British Journal of Surgery, 85, 716-717.

[16] Carapeti, E. A., Kamm, M. A., McDonald, P. J., & Phillips, R. K. S. (1998). Double-blind randomized controlled trial of effect of metronidazole on pain after day-case hemorrhoidectomy. The Lancet, 351, 169-172.

[17] You, S. Y., Kim, S. H., Chung, C. S., & Lee, D. K.(2005). Open versus closed hemorrhoidectomy. Diseases of the Colon & Rectum, 48, 108-113.

[18] Gencosmanoglu, R., Sad, O., Koc, D., & Inceoglu, R. (2002). Hem- orrhoidectomy: Open or closed technique? A prospective, randomizedclinical trial. Diseases of the Colon & Rectum, 45, 70-75.