

Retrospective Analysis of Surgical Management of Hemorrhoids and Postoperative Outcomes

Rajni Ranjan¹, Tarique Anwer²

¹Assistant Professor, Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India

²Assistant Professor, Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India.

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Corresponding Author: Dr. Tarique Anwer

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Abstract:

Background: Hemorrhoid is an anorectal disease and surgical treatment is considered to be the best form of treatment when the disease reaches an advanced stage and the patient shows recurrent symptoms. It is necessary to assess the results of surgery for optimization of treatment protocols.

Aim: To assess the patterns of surgical treatments of hemorrhoids and outcomes of post-surgery of various procedures.

Methodology: An observational retrospective study was done in one year duration in the Department of General Surgery of Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar on 120 patients who underwent surgery due to Grade III and Grade IV hemorrhoids.

Results: Open hemorrhoidectomy was the most common procedure performed (56.7%). Stapled hemorrhoidopexy showed less postoperative pain, shorter duration of stay in hospital and faster recovery, but the recurrence rate was quite low (5.8%).

Conclusion: Surgical treatment of hemorrhoids was safe and effective, but the type of procedure had effects on outcome.

Keywords: Hemorrhoids; Hemorrhoidectomy; Stapled Hemorrhoidopexy; Postoperative Outcomes; Surgical Management; Recurrence.

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Introduction

Hemorrhoids can be defined as one of the most frequent benign anorectal diseases faced by surgeons in their daily practice [1]. The morbidity rates of this condition are rather high across the world. Hemorrhoids occur due to the presence of enlarged and displaced anal cushions, causing rectal bleeding, prolapse, pain, itching, and discharges, which negatively influence patients' quality of life and activities [2]. Despite the fact that the conservative treatment and other methods without surgery are highly efficient in the initial stage of the development of the disease, the surgical treatment is considered the golden standard of care for the advanced Grade III and Grade IV hemorrhoids and for the patients who suffer from hemorrhoids but cannot be managed without surgery [3]. There exist a lot of different surgical methods such as open hemorrhoidectomy, closed hemorrhoidectomy, and stapled hemorrhoidopexy. They are created with the intention to improve recovery after surgery and minimize the number of complications and recurrences [4]. Therefore, the retrospective analysis

of the existing surgical practices and results of their application is crucial.

Background of the Study: Hemorrhoids represent a significant problem in public health and are one of the most common anorectal disorders that require surgical treatment [5]. Hemorrhoids affect adults within middle age range and can be caused by constipation, difficulty in defecation, lack of physical activity, and diet [6]. Although conservative and office-based treatment approaches can be sufficient for dealing with the early stages of the disease, the more advanced Grade III and Grade IV cases often require surgery to provide relief and improve patient's quality of life [7]. Many surgical methods, including open, closed hemorrhoidectomy, and stapled hemorrhoidopexy, were developed throughout the time, each of which has its strengths and weaknesses regarding pain, recovery, complications, and recurrence rates [8]. Therefore, assessing the results of surgery in the clinical setting is crucial for evidence-based medicine [9].

Overview of Surgical Treatment of Hemorrhoids:

Surgical intervention is considered the mainstay in managing patients with advanced hemorrhoids, especially those with Grade III and Grade IV hemorrhoids or who do not respond to non-surgical management and office procedures [10]. Several surgical methods have been introduced in the past years with the aim of providing adequate symptom relief without significant pain and complications during post-operation period [11], as well as high recurrence rate. The conventional method of excisional hemorrhoidectomy, which includes open Milligan-Morgan and closed Ferguson procedures [12], is still recognized as the gold standard in the treatment of advanced hemorrhoids owing to its effectiveness in the long run and low recurrence rate [13]. Recently, minimally invasive techniques like stapled hemorrhoidopexy and transanal hemorrhoidal dearterialization have become increasingly common among surgeons due to their lower pain level and shorter duration of hospital stay. Nevertheless, the decision on the type of surgery is made depending on different factors including grade of the disease, patient's characteristics, experience of the surgeon, and many others.

Research Objectives

The objectives of the study are:

- To analyze the demographic and clinical profile of patients undergoing surgical management for hemorrhoidal disease.
- To evaluate the distribution and utilization of different surgical procedures employed in the management of hemorrhoids in a tertiary care teaching hospital.
- To assess postoperative outcomes following surgical treatment of hemorrhoids in terms of pain, complications, duration of hospital stay, recovery period, and recurrence.
- To compare postoperative outcomes among different surgical techniques used for hemorrhoid management and determine their relative effectiveness and safety.

Methodology

This was a retrospective observational study that sought to examine the pattern of surgery for hemorrhoids, as well as the postoperative results of the surgery among patients who had undergone surgery for their hemorrhoids. This study intended to produce evidence on the efficacy, safety, and clinical outcomes of the various surgeries carried out during surgery practices.

Study Design: This research was conducted by using a retrospective observational study design based on hospital records. The medical records of patients that have been treated with surgical management of hemorrhoids were analyzed to

assess the demographic profile, clinical picture, surgical procedures used, and their outcome.

Study Area: The research was carried out at the Department of General Surgery of Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India

Study Duration: The research was conducted within a period of one year.

Study Participants: The study population consisted of patients diagnosed with hemorrhoidal disease who had undergone surgical intervention in the Department of General Surgery during the study period.

Inclusion Criteria: Patients were included in the study if they fulfilled the following criteria:

- Patients of age group 18 years and above.
- Patients suffering from Grade III and Grade IV hemorrhoids needing surgery.
- Patients having undergone any form of operation for their hemorrhoids like haemorrhoidectomy surgery or other methods.
- Patients having complete medical history with perioperative and postoperative information.

Exclusion Criteria

Patients were excluded from the study under the following circumstances:

- Those who were managed conservatively without undergoing any surgery.
- Those with incomplete or unavailable medical records.
- Those with anorectal complications like anal fissure, fistula-in-ano, rectal prolapse, or anorectal cancer.
- Those who had undergone emergency surgery due to other anorectal diseases apart from hemorrhoids.
- Those who could not be traced after surgery and before evaluation of results.

Sample Size: In total, 120 patients' records that fulfilled the eligibility requirements were selected in the study and were used in the final analysis. The sample size consisted of all eligible cases who had undergone surgery for hemorrhoids in the course of the study period. It was adequate for assessing the surgical practice and results in the study setting.

Procedure: Following approval by the institutional authorities, patient records and surgical register were perused to obtain appropriate subjects. Demographic details, along with pertinent clinical parameters like age, sex, presenting complaints, severity of hemorrhoids, presence of any comorbid conditions, and duration of symptoms were obtained using a proforma for data collection.

Information pertaining to the type of surgery undergone, either open hemorrhoidectomy, closed hemorrhoidectomy, stapled hemorrhoidopexy, or any other surgical intervention, was collected. Information on intra-operative variables like time of surgery and peri-operative complications was also obtained, wherever possible.

The post-operative parameters of pain, bleeding, urinary retention, wound infection, time spent in hospital, time needed to resume normal daily activities, and recurrences in follow-up visits were collected from patient records and out-patient follow-up notes.

Statistical Analysis: Data collection was performed using Microsoft Excel and analyzed using the Statistical Package for the Social Sciences software. Data for descriptive statistics were used in this study to describe the demographic and clinical variables where the continuous variables were measured as means $\pm$ SD while categorical variables were expressed as frequencies and percentages.

Surgical methods and post-surgery complications were correlated using either the chi-square test and Fisher's exact test for categorical data and Student's t-test for continuous data where applicable. A statistical significance level of $p < 0.05$ was used.

Results

A total number of 120 patients with surgical treatment for hemorrhoids during the study period was analyzed. The study group comprised mainly middle-aged patients where males had a higher representation among cases compared to females. Bleeding per rectum and prolapse while passing stools were the commonest symptoms experienced by patients. Open hemorrhoidectomy was the commonest type of surgery conducted, while closed hemorrhoidectomy and stapled hemorrhoidopexy were also done in many cases. Post-surgical outcomes were favorable.

Table 1: Demographic Characteristics of Study Participants (n = 120)

Variable	Frequency (n)	Percentage (%)
Age Group (years)		
18–30	18	15.0
31–40	32	26.7
41–50	38	31.7
51–60	22	18.3
>60	10	8.3
Gender		
Male	78	65.0
Female	42	35.0

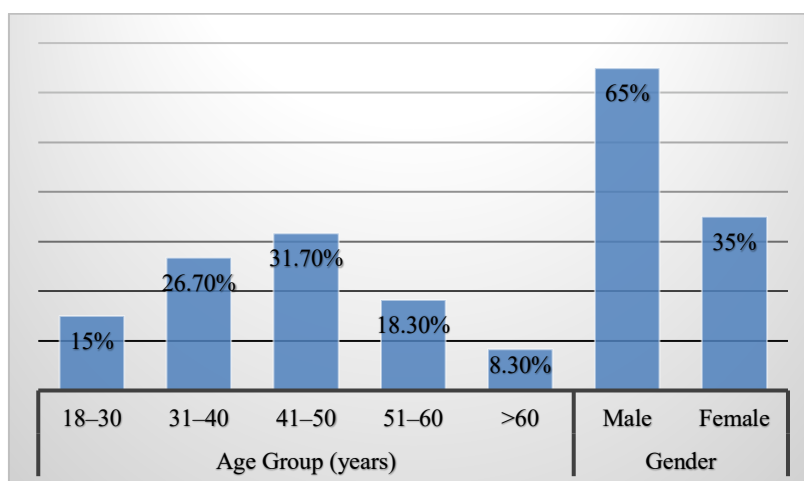


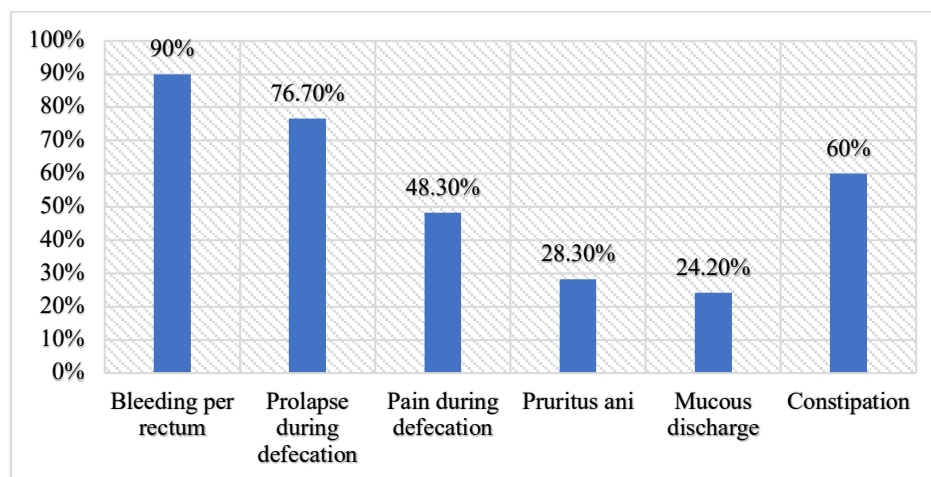
Figure 1: Visual Representation of Demographic Characteristics of Study Participants

Table 1 shows that surgical cases of hemorrhoid disease were mostly seen among middle-aged people. The largest number of patients was aged between 41 and 50 years, making up 38 cases (31.7%), whereas 32 cases (26.7%) were in the 31–40-year age bracket. On average, the age of the study

participants was 43.8 ± 11.6 years, which means that the disease occurred mostly during economically active ages. There were 78 cases (65.0%) of male patients, while female patients made up 42 cases (35.0%).

Table 2: Clinical Presentation of Patients

Clinical Variable	Frequency (n)	Percentage (%)
Bleeding per rectum	108	90.0%
Prolapse during defecation	92	76.7%
Pain during defecation	58	48.3%
Pruritus ani	34	28.3%
Mucous discharge	29	24.2%
Constipation	72	60.0%

**Figure 2: Visual Representation of Clinical Presentation of Patients**

Rectal bleeding was found to be the most common presenting complaint, with 108 patients (90.0%) experiencing it. Protrusion of the tissue during defecation came second on the list of symptoms, with 92 patients (76.7%) experiencing it, indicating the fact that advanced hemorrhoids disease was the leading reason for surgical intervention.

Constipation was noted in 72 patients (60.0%) and might have played a role in the exacerbation of symptoms and condition. Painful defecation was recorded in 58 patients (48.3%), whereas 34 (28.3%) patients complained about pruritus ani and 29 patients (24.2%) of mucous discharge.

Table 3: Distribution According to Grade of Hemorrhoids

Grade of Hemorrhoids	Frequency (n)	Percentage (%)
Grade III	82	68.3%
Grade IV	38	31.7%

The patients' distribution based on hemorrhoid grade shows that Grade III hemorrhoids were the commonest at 82 patients (68.3%) while Grade IV was second at 38 patients (31.7%). The higher number of Grade III diseases shows that most of the

patients had failed conservative therapy. This is further reinforced by the lack of any Grade I or Grade II cases since surgery is performed only when advanced disease is present.

Table 4: Surgical Procedures Performed

Surgical Procedure	Frequency (n)	Percentage (%)
Open hemorrhoidectomy (Milligan-Morgan)	68	56.7%
Closed hemorrhoidectomy (Ferguson)	34	28.3%
Stapled hemorrhoidopexy	18	15.0%

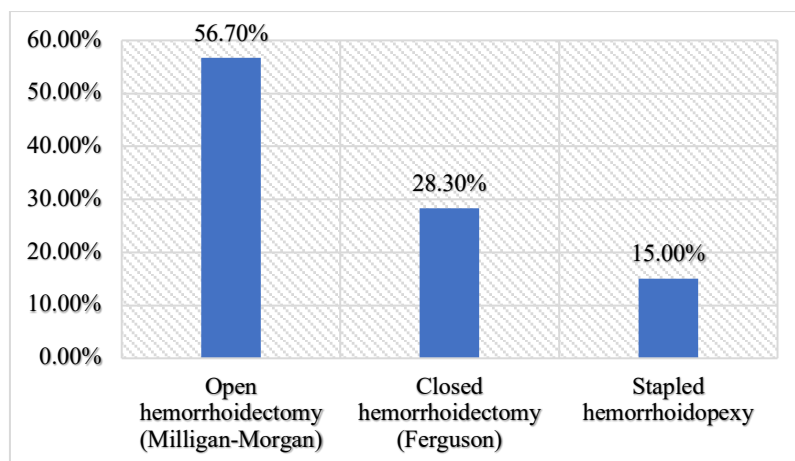


Figure 3: Visual Representation Surgical Procedures Performed

The commonest operation performed in the study is the open hemorrhoidectomy which was conducted on 68 patients (56.7%). Closed hemorrhoidectomy was done on 34 patients (28.3%) whereas stapled hemorrhoidopexy was done in 18 patients (15.0%). It is notable that open hemorrhoidectomy was more

common due to the familiarity of the surgeons, effectiveness of the surgery, and proven long-term results. The average duration of the operations was least in case of stapled hemorrhoidopexy (31.8 ± 6.5 minutes) followed by open (38.4 ± 9.2 minutes) and closed hemorrhoidectomy (42.1 ± 8.7

Table 5: Postoperative Complications

Complication	Frequency (n)	Percentage (%)
Postoperative pain requiring prolonged analgesia	28	23.3%
Urinary retention	12	10.0%
Postoperative bleeding	8	6.7%
Wound infection	6	5.0%
Anal stenosis	2	1.7%
No complication	64	53.3%

Protracted need for analgesia due to pain after surgery emerged as the most prevalent complication seen in 28 patients (23.3%). Post-operative retention of urine was seen in 12 patients (10.0%), whereas post-operative bleeding and wound infections were found in 8 (6.7%) and 6 patients (5.0%),

respectively. The least prevalent complication was anal stenosis, which was noted in just 2 patients (1.7%). Notably, more than half of the subjects ($n=64$; 53.3%) did not suffer from any post-operative complications.

Table 6: Postoperative Recovery Outcomes

Outcome Variable	Mean $\pm$ SD
Duration of hospital stay (days)	3.2 ± 1.1
Time to return to normal activities (days)	11.6 ± 3.8
Postoperative pain score at 24 hours (VAS 0–10)	4.9 ± 1.7
Follow-up duration (months)	5.8 ± 2.1

The average period of hospitalization after the operation was 3.2 ± 1.1 days, which suggests early postoperative recovery. The return to normal activity happened within 11.6 ± 3.8 days after surgery, which suggests good functional results of

the procedure. The average postoperative pain rating within 24 hours was 4.9 ± 1.7 by the visual analog scale, meaning moderate pain after the operation. The average time of follow-up was 5.8 ± 2.1 months.

Table 7: Postoperative Outcomes According to Surgical Procedure

Outcome	Open Hemorrhoidectomy (n=68)	Closed Hemorrhoidectomy (n=34)	Stapled Hemorrhoidopexy (n=18)	p-value
Mean hospital stay (days)	3.6 ± 1.2	3.1 ± 0.9	2.4 ± 0.8	0.012
Postoperative pain score	5.4 ± 1.5	4.8 ± 1.4	3.6 ± 1.2	0.001
Return to routine activities (days)	13.2 ± 3.9	10.8 ± 3.1	8.6 ± 2.7	0.001
Postoperative complications	22 (32.4%)	9 (26.5%)	3 (16.7%)	0.284

Postoperative comparison of patients by surgical techniques has revealed that there are some significant distinctions between various recovery factors. The group of patients who underwent stapled hemorrhoidopexy spent less time in the hospital (2.4 ± 0.8 days) compared to the closed (3.1 ± 0.9 days) and open hemorrhoidectomy (3.6 ± 1.2 days) with a significant p-value of 0.012. In the same manner, patients who had postoperative pain after

stapled operations scored lower pain levels (3.6 ± 1.2) compared to the open hemorrhoidectomy (5.4 ± 1.5) with p-value of 0.001. Also, patients who had stapled hemorrhoidopexy recovered and returned to their daily routine faster (8.6 ± 2.7 days) compared to conventional techniques ($p = 0.001$). Though postoperative complications occurred less often in the stapled technique group (16.7%), they were insignificant statistically ($p = 0.284$).

Table 8: Recurrence During Follow-up

Recurrence Status	Frequency (n)	Percentage (%)
Recurrence observed	7	5.8
No recurrence	113	94.2

There were only seven cases of recurrence (5.8%) of the condition, while in 113 cases (94.2%) no recurrence was reported. Of the cases that experienced recurrence, four underwent stapled hemorrhoidopexy, two had open hemorrhoidectomy, and one underwent closed hemorrhoidectomy. Although stapled hemorrhoidopexy proved to be better in recovery, there were more cases of recurrence associated with this procedure in comparison to conventional methods of treating hemorrhoids. Nonetheless, the rate of recurrence was relatively low, indicating the efficacy of surgical interventions for treating severe forms of the condition.

There were only seven cases of recurrence among patients who had their hemorrhoidal disease managed surgically. Four of the patients who experienced recurrence after surgery had been subjected to stapled hemorrhoidopexy, while two had open hemorrhoidectomy, and one underwent closed hemorrhoidectomy. The statistical analyses conducted indicated lower pain scores and shorter recovery time in patients who had been operated on through stapled hemorrhoidopexy, though with a relatively higher number of recurrences.

Discussion

The current retrospective study found that the presence of hemorrhoids that had been operated upon was common amongst middle-aged subjects with the greatest age group of patients being those between the ages of 41 and 50 (31.7%) and 65% of them were males. Hemorrhoidal disease with bleeding per rectum (90.0%) and prolapse on

defecation (76.7%) were found to be the most prevalent presentations with Grade III hemorrhoids being the most prevalent type (68.3%). These results corroborate the results of Benjamin R. Davis et al., (2018) [14] whose studies showed that bleeding and prolapse are the most common presentation in the case of surgical or procedural treatment of advanced hemorrhoidal disease. Likewise, T. Higuero et al. (2016) [15] found that surgery is common amongst Grade III and Grade IV hemorrhoids when there is failure of other forms of treatment.

As far as the mode of surgical intervention is concerned, open hemorrhoidectomy emerged as the commonest surgery conducted (56.7%), followed by closed hemorrhoidectomy (28.3%) and stapled hemorrhoidopexy (15.0%). Notwithstanding the shorter operative duration and faster recovery involved in stapled surgery procedures, conventional hemorrhoidectomy still remained the favorable choice of surgery at the current facility due to its economic feasibility and proven long-term results. This observation has been made by Mauro Picchio et al. (2015) [16] as well, as he states that conventional excisional hemorrhoidectomy remains the gold standard in the treatment of Grade III and Grade IV hemorrhoids because of its proven clinical outcomes. The same observation has also been made by Tian Du et al. (2019) [17], who found out through their network meta-analysis that conventional hemorrhoidectomy still had low long-term recurrence rates despite the advent of minimally invasive techniques. Moreover, Sergio Eduardo Araujo et al. (2016) [18] also noted an increasing trend in the adoption of stapled hemorrhoidopexy

due to lesser postoperative pain and quicker recovery, which is the same observation of the current study.

Postoperative assessment showed good surgical outcomes and a low incidence of complications and recurrences. More than half of the patients (53.3%) did not have any postoperative complications, but the most frequent adverse effect was pain after surgery, requiring prolonged analgesic therapy in 23.3% of patients. Postoperative pain scores were significantly lower for patients with stapled hemorrhoidopexy (3.6 ± 1.2), their stay in the hospital was also shorter (2.4 ± 0.8 days), and they could resume daily activities faster (8.6 ± 2.7 days) compared with other procedures ($p < 0.05$). These results correspond to the conclusions of the retrospective cohort study performed by Hakan Demir et al. (2017) [19], where better short-term comfort after postoperative period and decreased pain were shown in less invasive hemorrhoidal operations. Similarly, Tzu-Han Wang et al. (2020) [20] demonstrated decreased recovery time and more favorable short-term postoperative outcomes in patients with stapled procedures, despite somewhat higher recurrence rates at the later stages of follow-up. Recurrence was found only in 5.8% of patients in the current study, and it occurred more frequently for stapled hemorrhoidopexy procedure.

Conclusion

In the current study, it was found that surgical treatment of hemorrhoidal disease gave good clinical and surgical results in patients with complicated hemorrhoids. Most of the cases included middle-aged men with symptoms of bleeding and prolapse, and Grade III hemorrhoids were the most common indications for surgery. The most commonly used procedure in the study was open hemorrhoidectomy due to the proven efficiency of this technique, while stapled hemorrhoidopexy had certain advantages with respect to lesser pain after surgery, shorter hospitalization, and faster return to routine activities. Overall, the complications after surgery were rare and could be managed, and the incidence of recurrence was also small. Thus, according to the study results, surgical treatment of hemorrhoids is safe and efficient; however, the selection of the surgical technique is an individual matter.

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