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Original Research

A Comparative Study of Conventional Haemorrhoidectomy versus Minimal Invasive Procedure for Haemorrhoids (MIPH): A Prospective Study

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Abstract
Background: Haemorrhoids are one of the most common anorectal disorders, affecting almost 25–30% of the population.
Aims and objectives: To compare the outcomes of conventional haemorrhoidectomy versus M.I.P.H.
Materials and Methods: The present prospective hospital-based observational study will be conducted in the department of general surgery, *Indira Gandhi Institute of Medical Sciences (I.G.I.M.S)*, Patna, Bihar, India. After the approval of the institutional ethical committee, 120 patients of both genders who need surgical intervention for haemorrhoids will be selected.
Results: Out of 120 cases of grade III and IV haemorrhoids, 104 were males and 16 were females. The male-to-female ratio was 6.5:1. The mean age of patients was 44.85 ± 14.50 years. The most common presenting complaints of patients were bleeding and haemorrhoidal mass protruding per rectum. 84 patients (70%) had grade-III haemorrhoids.
Conclusion: MIPH is associated with a shorter duration of surgery, less postoperative pain, and a shorter hospital stay with minimal postoperative complications as compared with Milligan Morgan (open haemorrhoidectomy).
Keywords: Haemorrhoids, Milligan –Morgan open haemorrhoidectomy, MIPH

Introduction

Haemorrhoids are one of the most common anorectal disorders, affecting almost 25–30% of the population. It commonly presents as mass protruding per rectum and fresh bleeding per rectum. Haemorrhoids may be primarily due to chronic constipation, as a consequence of the adaptation of erect posture by mankind, excessive straining to expel constipated stool, or hereditary It can also occur secondarily due to carcinoma of the rectum, pregnancy, uterine tumours, and difficulty in micturition due to stricture or enlarged prostate and portal hypertension [1–3]. Open hemorrhoidectomy was originally described by Milligan Morgan and associates. The skin-covered component of each pile mass was seized with artery forces and retracted upwards, which caused the lower pole of the piles to protrude out [4]. Grade I and early grade II can be managed conservatively, but grade III, IV, and late grade II haemorrhoids require surgical intervention [5]. Dr. Antonio Longo placed the staples approximately 4 cm from the cephaloid to the dentate line [6]. By means of a circular stapling gun, a low rectal mucosal resection and mucoso-mucosal anastomosis are done, which removes the reductant rectal mucosa above the haemorrhoid, correcting the previous downward displacement of the anal cushion and interrupting the vessels in the submucosal plane. Since this procedure does not involve any surgery below the dentate line, it is painless, unlike an open hemorrhoidectomy. The best definition of "anal canal lifting" is mechanical hemorrhoidectomy, which has the potential to become a new alternative for treating all patients who meet the criteria for surgery due to its short operating time, feasibility, good early and late results, and safety [7].

Aims and Objectives

The present study is designed to compare the outcomes of conventional haemorrhoidectomy versus M.I.P.H. in terms of:

- Intraoperative time
- Intraoperative bleeding
- Post-operative pain
- Cost-effectiveness
- Development of anal stenosis

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Material and Methods

The present prospective hospital-based observational study will be conducted in the department of general surgery, *Indira Gandhi Institute of Medical Sciences (I.G.I.M.S)*, Patna, Bihar, India. After the approval of the institutional ethical committee, 120 patients of both genders who need surgical intervention for haemorrhoids will be selected on the basis of the following inclusion and exclusion criteria:

Inclusion criteria

- 3rd and 4th degree haemorrhoids
- Patients fit for anaesthesia
- Failure of conservative treatment for 2nd-degree haemorrhoids

Exclusion criteria

- 1st and 2nd degree haemorrhoids
- Thrombosed piles/strangulated piles
- Pregnant ladies and patients with bleeding diathesis
- Haemorrhoids associated with anal mass or malignancy
- Recurrent haemorrhoids

Keeping power (1-beta error) at 80% and confidence interval (1-alpha error) at 95%, the minimum sample size required was 60 patients; therefore, we included 120 (more than the minimum required number of cases) patients in the present study. The study was conducted from February 2018 to March 2020. Informed written consent will be obtained from all patients who will be included in the study, which will be divided into two groups. Half of the patients will be treated by the open method and the other half by M.I.P.H. Patients will be clinically examined, and routine laboratory investigations will be done preoperatively. All patients will be operated on an in-patient basis. The patient's hospital stay for analysis will be calculated from the day of surgery. Preoperatively, patients will be kept nil per oral overnight and receive phosphate enema in the morning of the day of surgery. Preoperatively, antibiotics will be given. All operations will be performed in the lithotomy position under spinal anaesthesia. Patients will be re-examined under anaesthesia to confirm the grade of haemorrhoids and to rule out associated anal pathologies like anal fissure and fistula in ano. Post-operative management will consist of standard nursing care and analgesia. Patients will be started on a soft oral diet within 6 hours postoperatively. The dressing will be removed in the morning after surgery, and a local external visual examination will be done. In addition to analgesics, patients will be advised to take antibiotics (in tablet form): ciprofloxacin 500 mg twice daily, metronidazole 400 mg three times daily, syrup lactulose 30 ml at bedtime for two weeks, and Sitz bath twice daily for two weeks. Patients will be discharged when pain control and home circumstances permit. The patients will be reviewed on an outpatient basis one week after surgery. Patients will be advised to report immediately in case of an emergency. Patients will be reviewed at 1 week, 3 weeks, and between 6 and 10 weeks postoperatively. On follow-up, patients will be asked to rate the control of their symptoms, degree of continence to flatus and faeces, duration to return to normal activities, and any other problems they had. A physical examination will also be carried out at each follow-up. The outcome measures will be postoperative pain, analgesia requirement, operative time, and hospital stay, time to return to normal activity, patient satisfaction, and complications like anal stenosis. The data will be analysed through descriptive statistical analysis. Statistical analysis was done using SSPS 21.0 software and Microsoft 16, and Pearson's chi-square test was used for the test of significance. $P<0.05$ was taken as statistically significant.

Results

In the present study, 120 patients were included and divided into two groups. Group A: MIPH (60 patients) and Group B: Milligan-Morgan open procedure (60 patients). Out of 120 cases of grade III and IV haemorrhoids, 104 were males and 16 were females. The male-to-female ratio was 6.5:1. The mean age of patients was 44.85 ± 14.50 years.

Table 1: Gender-wise distribution of study patients

Gender	MIPH (Group A) n = 60	Milligan-Morgan open haemorrhoidectomy (Group B), n = 60
Male	38	39
Female	22	21

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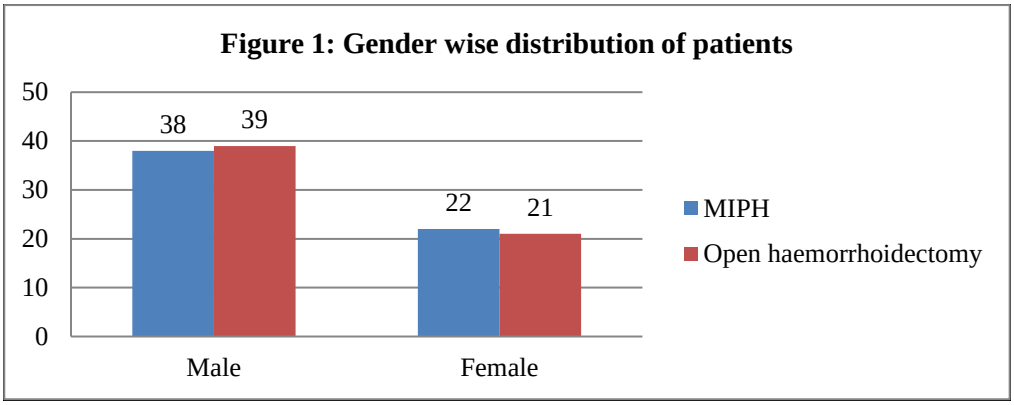

Table 2: Presenting complaints

Complaints	Number of patients (n=120)	Percentage
Bleeding	87	72.5
Prolapse	84	70
Itching	18	15
Constipation	96	80
Painful defecation	36	30

The patients usually had more than one complaint at the time of presentation. The most common presenting complaints of patients were bleeding and haemorrhoidal mass protruding per rectum.

Table 3: Degree of haemorrhoids

Grading	Number of patients (n = 120)	Percentage
Grade II	30	25
Grade III	84	70
Grade IV	06	05

Out of 120 patients, 84 patients (70%) had grade-III haemorrhoids.

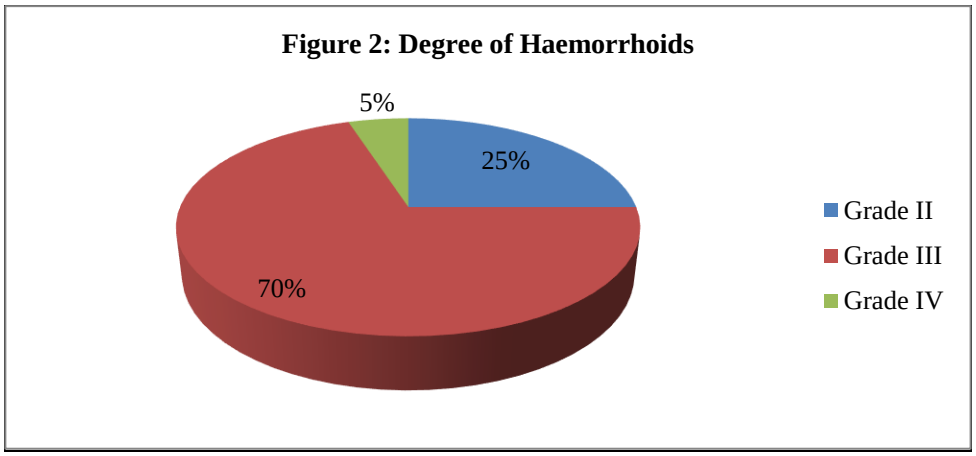

Table 4: Comparison of MIPH versus Conventional Milligan-Morgan Haemorrhoidectomy Based on operative outcomes

Characteristics	MIPH	Milligan-Morgan Haemorrhoidectomy	P value
Mean Age (years)	42.50 ± 10.31	45.92 ±11.89	0.86

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Mean Duration of Surgery (minutes)	24.07 ± 5.31	45.38 ± 5.31	<0.001
Post-operative bleeding (no. of cases)	2	16	0.04
Intraoperative blood loss (ml)	66.30±4.70	98.62±12.97	<0.001
Hospital stay (days)	2.85 ±.052	5.72 ± 1.40	<0.002
Residual Prolapse	NIL	12	<0.001
Mean duration of wound healing (days)	5.30 ± 0.75	12.57 ± 0.98	<0.003
Mean duration of return to work (days)	5.30±0.75	16.74±0.49	<0.001

Approximately 36 (30%) of patients also presented with painful defecation and perianal itching. The mean duration of surgery was significantly less (p value <0.05) in the MIPH group (24.07 ± 5.31 minutes) as compared to the open haemorrhoidectomy group (45.38 ± 5.06 minutes) (Table 4). Post-operative bleeding was seen in 16 patients following open haemorrhoidectomy, and six of them required re-suturing, whereas only two patients in the MIPH group had bleeding, which was significantly low. It was calculated by estimating the number of gauze pieces soaked with blood and multiplying it by 10. The P-value is <0.001. So the difference in blood loss between two procedures is highly insignificant. Similarly, significant residual prolapse was seen in 12 cases of open haemorrhoidectomy, whereas no residual cases were found in MIPH (Table 4). The first bowel movement occurred on post-operative day 1 in 110 (91.67%) of cases in both groups. The mean hospital stay for the open haemorrhoidectomy group was 5.72 ± 1.40 days as compared to the MIPH group, which were only 2.85 ±0.052 days (Table 4).The mean duration of wound healing for MIPH cases was 6.02 ± 0.38 days as compared to open haemorrhoidectomy cases, which were 12.57 ± 0.98 days. Similarly, the average time for return to normal activities in the MIPH group was 5.30 ± 0.75 days, whereas in the other group it was 16.74 ± 0.49 days. Patients were followed up to 6 months following surgery, and no recurrence or incontinence was seen in both groups (Table 4).

Table 5: Comparative analysis of postoperative pain using VAS (Visual Analogue Scoring)

VAS score (0–10)	Milligan-Morgan Haemorrhoidectomy	MIPH	P value
Day 0	6.87±0.43	3.73±0.58	<0.001
Day 1	5.67±0.45	2.10±0.55	<0.001
Day 7	3.20±0.50	2.05±0.01	<0.002

Post-operative pain was significantly less in the MIPH group on days 0, 1, and 7 as per the VAS scoring system, and the requirement for additional analgesia was significantly reduced as compared with the cases of open haemorrhoidectomy (Table 5).

Discussion

The present study shows that the condition of haemorrhoids was more common in males as compared to females, and the male-to-female ratio was 6.5:1. In the current study, there is no statistical significance in the mean age group between the two groups. The study conducted by Hetzer et al. [8] also resulted in male dominance with no statistical difference, and in his study, male: female was 15:5.84 patients (70%) had grade-III haemorrhoids. Painless bleeding per rectum (72.5%) and haemorrhoidal prolapse (70%) were the most common complaints; however, painful defecation was associated with approximately 30 percent of cases. This finding is similar to the study conducted by S. C. Ranjan et al. [9]. When compared with various studies on intraoperative blood loss, the mean duration of surgery for MIPH and postoperative bleeding was significantly less than open haemorrhoidectomy [9–12].Recurrence and incontinence were not seen in any group in the present study with follow-up. Similarly, various studies have shown no significant differences between long-term complications in cases of MIPH and conventional open haemorrhoidectomy [12]. However, few studies have also shown high recurrence rates as a long-term complication of MIPH [13]. The duration of hospital stay was significantly less in the MIPH group as compared to the open haemorrhoidectomy group, with a p value<0.002. Similar studies done by Shalaby et al. [14] and Rowsell et al. [15] showed hospital stays were shorter in the MIPH group. The current study shows that in the MIPH group, post-operative pain scores (analysed with the VAS scoring system) and subsequent requirements for analgesics were significantly reduced. The average wound healing time and early return to normal activities were much better for MIPH patients. Tjandra JJ et al. [13] report less pain after stapled hemorrhoidopexy, as evidenced by lower pain scores at rest and on defecation and a 37.6% reduction in analgesic requirement.

Limitations of the study

The short duration of the study and the cost of MIPH may be limiting factors.

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Conclusion

MIPH is a widely used, safe technique for grade III and IV haemorrhoids with reduced pain. After comparison between open haemorrhoidectomy and MIPH, our study confirms that MIPH is associated with a shorter duration of surgery, less postoperative pain, and a shorter hospital stay with minimal postoperative complications as compared with Milligan Morgan (open haemorrhoidectomy). Wound healing and return to normal activities are faster, and there is no significant difference in long-term complications when compared with the Milligan-Morgan technique. We conclude that MIPH is safe and has many short-term benefits. It is a good technique and has emerged as an alternative to open haemorrhoidectomy.

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