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Dr. Ashok Kumar G Jiladia
Ex. Assistant Professor, Department of Surgery, Gujarat Adani Institute of Medical Science, Bhuj, Gujarat, India

Dr. Himangi V Baldaniya
Associate Professor, Government Ayurvedic College, Kolavda, Gandhinagar, Gujarat, India

Corresponding Author:
Dr. Ashok Kumar G Jiladia
Ex. Assistant Professor, Department of Surgery, Gujarat Adani Institute of Medical Science, Bhuj, Gujarat, India

Conventional haemorrhoidectomy versus Minimal Invasive Procedure for Haemorrhoids (MIPH): A prospective study

Dr. Ashok kumar G Jiladia and Dr. Himangi V Baldaniya

Abstract
Haemorrhoid is a common anorectal disorder which usually requires surgical intervention. Conventional haemorrhoidectomy had been practiced for long time but in 1993 Longo introduced a newer minimally invasive procedure for haemorrhoids. In this study we have compared the post-operative results of MIPH with conventional open haemorrhoidectomy. To analyze and compare various Pre and postoperative factors such as duration of surgery, post-operative pain and analgesia, duration of hospital stay, post- operative complications, recurrence and early return to work in the patients suffering Haemorrhoids undergoing Open Miligan-Morgan's haemorrhoidectomy and Minimal Invasive Procedure for Haemorrhoids (MIPH). In this prospective study a total 60 patients underwent surgery for haemorrhoids at Gujarat Adani Institute of Medical Science, Bhuj . Thirty patients in group A underwent Milligan Morgan technique of open haemorrhoidectomy and thirty patients in group Bunderwent Longo's technique of MIPH (Minimal Invasive Procedure for Haemorrhoids). The average duration of surgery was significantly less in MIPH group as compared to open haemorrhoidectomy group. Only 6.6% of MIPH developed early post-operative complications whereas atleast 25% of open haemorrhoidectomy developed early complications such as pain, bleeding per rectum and wound infection. Shorter hospital stay and Early return to work was significantly with minimal postoperative complications as compared with Milligan Morgan (open haemorrhoidectomy).

Keywords: Haemorrhoids, Milligan–Morgan open haemorrhoidectomy, Minimal Invasive Procedure for Haemorrhoids (MIPH)

Introduction
Hemorrhoidal disease is a very common benign anorectal disease. It affects millions of people around the world, and represent a major medical and socioeconomic problem. The estimated worldwide prevalence of haemorrhoids in the general population is to be 4.4% [1]. It commonly present as mass protruding per rectum and fresh bleeding per rectum. Haemorrhoids may be primarily due to chronic constipation, as a consequence of adaptation of erect posture by mankind, excessive straining to expel constipated stool or hereditary. Based on location, hemorrhoids are usually classified as internal, external and mixed types. Internal haemorrhoids arise above the dentate line, covered by columnar epithelium, while external haemorrhoids arise below the dentate line, covered by squamous epithelium. Another classification tells us the grading of the haemorrhoids ranging from grade I, being only symptomatic bleeding; grade II with spontaneous reduction of prolapsed haemorrhoids mass; grade III requiring manual repositioning of prolapsed haemorrhoids up to grade IV which are completely prolapsed haemorrhoids. The third type of classification determines haemorrhoids by their anatomical position, where 3, 7 and 11 o'clock are considered to be primary and the areas between them to be as secondary [2].

[1] Sun Z, Migaly J. Review of Hemorrhoid disease : presentation and management. Clinics in colon and rectal surgery. 2016;29(1):22. 10.1055/s-0035-1568144
[2]Lohsiriwat V. Hemorrhoids: from basic pathophysiology to clinical management. World J Gastroenterol 2012;18(17):2009-17. And
Sanchez C, Chinn BT. Hemorrhoids. Clin Colon Rectal Surg 2011;24(1):5-13.

Studies conducted elsewhere indicated that inadequate dietary fiber, constipation, diarrhea, hypertension, high body mass index (BMI), pregnancy and old age are the commonly identified risk factors for the development of haemorrhoids [3]. Hemorrhoids are now considered a major cause of morbidity and impose both economical and social impact on society [4]. Hemorrhoids can also occur secondarily due to carcinoma of rectum, pregnancy, uterine tumors, difficulty in micturition due to stricture or enlarged prostate and portal hypertension [5]. 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 [6]. Grade I and early grade II can be managed conservatively, but grade III, IV, and late grade II haemorrhoids require surgical intervention [7]. Dr. Antonio Longo placed the staples approximately 4 cm from the cephaloid to the dentate line [8]. 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 [9].

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

Materials and Methods

The present prospective hospital-based observational study will be conducted in the department of general surgery, Gujarat Adani Institute of Medical Science, Bhuj, Gujarat, 60 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

- Failure of conservative treatment for 2nd-degree haemorrhoids
- Patients who had undergone surgery.
- Patients fit for anaesthesia
- Age more than 18 years

Exclusion criteria

1. Thrombosed piles/strangulated piles
2. Pregnant ladies and patients with bleeding diathesis
3. Haemorrhoids associated with anal mass or malignancy
4. Recurrent haemorrhoids

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. All patients were evaluated for various intra-operative factors and post-operative outcome and data was analysed using IBN statistical package for social sciences (SPSS) version 17.0. Chi-square test and student's t test were used for comparison of data between two groups. P value of <.05 was considered significant. Pain was measured as continuous variable using visual analogue scale (VAS, a 0-10 cm scale).

Results

In the present study, out of 60 cases of Haemorrhoids 48 were male.

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Table 1: Gender-wise distribution of study patients

Gender	Milligan-Morgan open haemorrhoidectomy (Group A), n = 30	MIPH (Group B) n = 30
Male	23	25
Female	7	5

Mean age of patients was 45.43±13.08 year.

Table 2: Presenting complaints

Complaints	Number of patients (n=60)	Percentage
Bleeding	44	73.3
Prolapse	39	65
Itching	18	30
Constipation	51	85
Painful defecation	18	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 = 60)	Percentage
Grade II	23	38.8
Grade III	34	56.6
Grade IV	3	5

Out of 60 patients, 34 patients (56.6%) had grade-III haemorrhoids.

Table 4: Comparative Analysis of MIPH with conventional Miligan-Morgan Haemorrhoidectomy on basis of various Intra- operative and post-operative factors

Various Intra-operative and Post-operative Factors	Miligan-Morgan Haemorrhoidectomy	MIPH	P Value
Mean Age (years)	46.10±2.92	44.77±13.42	NS
Mean Duration of Surgery (minutes)	46.73±5.10	25.90±4.21	< .001(HS)
Post-operative Bleeding (no. of cases)	1	8	< .05(HS)
Hospital Stay (days)	5.93±1.20	2.07±.024	< .001 (HS)
Residual Prolapse	Nil	6	< .001(HS)
Mean duration of wound healing (days)	14.43±0.817	5.43±0.817	< .001(HS
Mean duration of return to work (days)	18.67±0.348	4.23±0.567	< .001(HS

NS - non-significant; HS – highly significant

Mean duration of surgery was significantly less (p value <0.05) in MIPH Group (25.90±4.21 minutes) as compared to open Haemorrhoidectomy Group (46.73±5.10 minutes) (Table 4). Post-operative bleeding was seen in 8 patients following open Haemorrhoidectomy and 3 of them required re-suturing whereas only 1 patient in MIPH group had bleeding which significantly low. Similarly significant residual prolapse was seen in 6 cases of open Haemorrhoidectomy (Table 4). First bowel movement occurred on post-operative day 1 in 90 percent of cases in both the groups. Mean hospital stay for open Haemorrhoidectomy group was 5.93±1.20 days as compared to MIPH group which was only 2.07±.024 days (Table 4). Mean wound healing time for MIPH cases was 5.43±0.817 days as compared to open Haemorrhoidectomy cases which was 14.43±0.817 days. Similarly average time for return to normal activities in MIPH group was 4.23±0.567 days whereas in other group it was 18.67±0.348 days. (Table 4). Patients were followed up to 6 months following surgery and no recurrence or incontinence was seen in both the groups (Table 4).

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

VAS (0-10)	Miligan-Morgan Haemorrhoidectomy	MIPH	P Value
Day 0	6.87±0.43	3.73±0.58	<.001(HS)
Day 1	5.67±0.45	2.10±0.55	<.001(HS)
Day 7	3.30±0.47	1.00±0.0	<.001(HS)

Post-operative pain was significantly less in MIPH group on day 0, day 1 and day 7 as per VAS scoring system and requirement of 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, 34 patients (56.6%) had grade III haemorrhoids. Painless bleeding per rectum (73.3%) and haemorrhoidal prolapse (65%) were the most common complaints; however, approximately 30% of patients also presented with painful defecation and perianal itching. 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 [10].

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Recurrence and incontinence were not seen in any group in the present study with follow-up. First bowel movement occurred on post-operative day 1 in 90 percent of cases in both the groups. 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.

Conclusion

MIPH is a widely used safe technique for Haemorrhoids with reduced pain, hospital stay and early post-operative complications. Wound healing and return to normal activities is faster and there is no significant difference in long term complications when compared with Miligan-Morgan technique. Cost of MIPH stapler gun may be a limiting factor.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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