



MINIMAL INVASIVE PROCEDURE FOR HAEMORRHOIDS (MIPH) VERSUS OPEN HAEMORRHOIDECTOMY: A COMPREHENSIVE STUDY.

General Surgery

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ABSTRACT

METHODS: Prospective Comparative Study conducted on 60 patients at Santosh Medical College and Hospital, Ghaziabad. 30 patients underwent Longo technique of MIPH and rest 30 underwent Milligan Morgan technique of Open haemorrhoidectomy. Study aimed at comparing the duration of surgery, post-operative pain, analgesia requirement, duration of hospital stay, post-operative complications and the amount of days taken for return to work.

RESULTS: Mean duration of surgery was 25.90 ± 4.21 min and 46.73 ± 5.10 min in MIPH and Open haemorrhoidectomy group respectively, $P < 0.001$. Patients undergoing MIPH had lesser VAS Pain score on postoperative day 0, 1, 7 and analgesia requirement, $p < 0.001$. No patients in the MIPH group had residual prolapse, $p < 0.001$. Time needed to return to work was 4.70 ± 0.83 days and 12.10 ± 2.71 days in MIPH and Open haemorrhoidectomy group respectively, $p < 0.001$.

CONCLUSIONS: MIPH is relatively faster procedure, lesser postoperative pain and analgesia requirement, faster return of bowel movements and earlier return to work.

KEYWORDS

MIPH, Open Haemorrhoidectomy.

Introduction:

Haemorrhoids are very common in day to day practise. They may be primarily due to heredity, natural consequences of adaptation of erect posture by mankind, straining to expel constipated stool or secondarily due to carcinoma of rectum, pregnancy, uterine tumour, chronic constipation, dysuria due to stricture or enlarged prostate and portal hypertension.⁽¹⁾

Haemorrhoids can be classified in many different ways. Primarily they are divided into internal, external and mixed types. Internal haemorrhoids are situated above the dentate line, covered with mucous membrane and external haemorrhoids lie below the dentate line, covered by skin.⁽²⁾ Another classification tells us the grading of the haemorrhoids ranging from grade I, being only symptomatic bleeding, to grade IV which are 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 to be secondary.⁽³⁾

Though grade I and grade II haemorrhoids, can be treated conservatively, whereas grades III and IV require surgical interventions in order to treat the condition.⁽⁴⁾

Open hemorrhoidectomy has long been regarded by the patients as an inherently painful procedure. Reduction of pain after haemorrhoidectomy is an important goal, with the ultimate aim of reduction in the length of hospital stay and the possibility of day care surgery. Hemorrhoidectomy by conventional technique causes considerable post-operative pain.⁽²⁾

MIPH (Minimal Invasive Procedure for Hemorrhoids) is a new concept which is used to overcome these problems. Stapled haemorrhoidopexy for prolapsing haemorrhoids is conceptually different from excision haemorrhoidectomy. It does not accompany the pain that usually occurs after resection of the sensitive anoderm.^(5,6)

Both procedures are effective in treating grade 3 and 4 haemorrhoids, however they both present with pros and cons as to which is the better procedure under which circumstance.

Aims and objectives:

To compare the duration of surgery, post-operative pain and analgesia, duration of hospital stay, post-operative complications and the amount of days taken for return to Work amongst patients undergoing MIPH and Open Hemorrhoidectomy.

Material and methods:

STUDY DESIGN: Prospective Comparative Study

SETTINGS: Department of Surgery, Santosh Medical College and Hospital, Ghaziabad.

STUDY DURATION: January 2016 to June 2017.

SAMPLE SIZE: 60. 30 patients underwent Longo technique of MIPH and remaining 30 underwent Milligan Morgan technique of Open haemorrhoidectomy.

INCLUSION CRITERIAS: All patients above the age of 18 years, with grade III or grade IV haemorrhoids.

EXCLUSION CRITERIAS: Patients with possible tumour, previous history of colorectal surgery, low grade haemorrhoids, fissure-in-ano, bleeding diathesis, and patients unfit for spinal anaesthesia.

Study was approved by institutional ethical committee and is in line with the declaration of Helinski and followed the guidelines laid out by Indian council of medical research. Written informed consent was taken from patients. Patient's hospital stay for analysis was calculated starting from the day of surgery. Pre-operatively patients were kept nil per oral overnight and received a phosphate enema in the morning of day of surgery. One dose of Ofloxacin and Metronidazole were given at the time of anaesthesia for surgery. All operations were performed in the lithotomy position under spinal anaesthesia. Pain was assessed using VAS Score. Follow up was done at 1, 2, 3 and between 6-8 weeks postoperatively. Statistical analysis was done using SPSS 17.0., $P < 0.05$ was considered statistically significant.

Results:

The mean age of patients in our study was 45.43 ± 13.08 years. The mean age of patients was 46.10 ± 12.92 years and 44.77 ± 13.42 years in MIPH group and Open haemorrhoidectomy group respectively. (Table 1)

Table 1 Comparison of age distribution of patients studied

Age in years	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
21-30 yrs	1	3.3%	6	20.0%	7	11.7%	0.106
31-40 yrs	14	46.7%	7	23.3%	21	35.0%	
41-50 yrs	5	16.7%	5	16.7%	10	16.7%	
51-60 yrs	4	13.3%	8	26.7%	12	20.0%	
>60 yrs	6	20.0%	4	13.3%	10	16.7%	
Total	30	100%	30	100%	60	100%	
Mean \pm SD	46.10 \pm 12.92		44.77 \pm 13.42		45.43 \pm 13.08		0.696

Majority of patients were males in our study (90% and 83.3% in MIPH and Open haemorrhoidectomy group respectively) (Table 2)

Table 2 Comparison of gender distribution of patients studied

Gender	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
Male	27	90.0%	25	83.3%	52	86.7%	0.706
Female	3	10.0%	5	16.7%	8	13.3%	
Total	30	100%	30	100%	60	100%	

On comparing socio economic status, majority of people in MIPH group belonged to upper (46.67%) and middle class (50%), whereas in Open haemorrhoidectomy group majority of patients (63.3%) came from lower class (p<0.001)(Table3).

Table 3 Comparison of socio-economic status in two groups

Socio-economic status	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
Lower class	1	3.33%	19	63.3%	20	33.33%	<0.001
Middle class	14	46.67%	11	36.7%	25	41.60%	
Upper class	15	50%	0	0.0%	15	25.0%	
Total	30	100%	30	100%	60	100%	

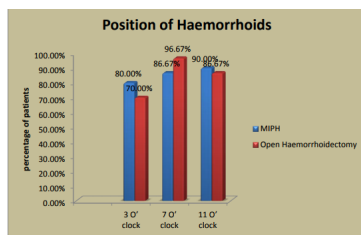
All patients presented with symptoms of bleeding and prolapsed mass. 16 patients in MIPH and 12 patients in Open haemorrhoidectomy group presented with pain. Pruritus was seen in 16 patients in MIPH and in 17 patients in Open haemorrhoidectomy group (Table 4).

Table 4 Comparison of clinical features in two groups

Presentation of patient	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
Bleeding	30	100%	30	100%	60	100%	-
Prolapsed mass	30	100%	30	100%	60	100%	-
Pain	16	53.3%	12	40.0%	28	46.7%	0.301
Pruritus	16	53.3%	17	56.7%	33	55.0%	0.795

Majority of the patients suffered from Grade 3 haemorrhoids (26 patients i.e.86.7% in MIPH group and 25 patients i.e.83.3% in open haemorrhoidectomy group). Remaining patients suffered from grade 4 haemorrhoids.

Majority patients presented with haemorrhoids at 7 o'clock position (Figure 1).



Mean duration of surgery was 25.90+4.21 min and 46.73+5.10 min in MIPH and Open haemorrhoidectomy group respectively. Statistically significant difference was seen in the duration of surgery amongst the two groups (p<0.001) as is evident from Table 5

Table 5 Comparison of duration of surgeries

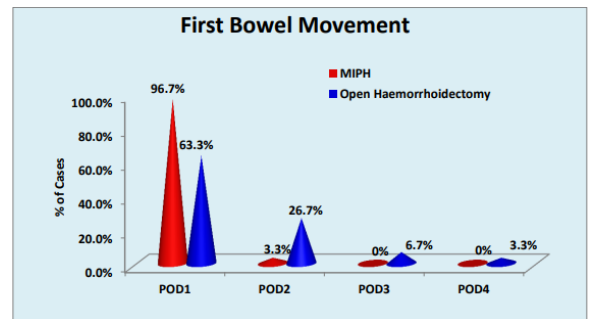
Duration of surgery in minutes	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
21-30	25	83.3%	0	0.0%	25	41.7%	<0.001
31-40	5	16.7%	2	6.7%	7	11.7%	
41-50	0	0.0%	23	76.7%	25	41.7%	
>50	0	0.0%	5	16.7%	3	5.0%	
Total	30	100%	30	100%	60	100%	
Mean ± SD	25.90 ± 4.21		46.73 ± 5.10		36.32 ± 11.48		<0.001

On comparing post-surgery findings, only 1 patient (3.3%) had bleeding and 1 (3.3%) patients had supportive stitch in MIPH group, while in open haemorrhoidectomy group, 12 patients (40%) had residual prolapse, 6 patients had bleeding (20%) and 6 had supportive stitch (20%). No patients in the MIPH group had residual prolapse; p<0.001.(Table 6)

Table 6 Comparison of post-surgery findings

Post-surgery findings	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
Bleeding	1	3.3%	6	20.0%	7	11.7%	0.103
Supportive stitch	1	3.3%	6	20.0%	7	11.7%	0.103
Residual prolapse	0	0.0%	12	40.0%	12	20.0%	<0.001

Bowel movement appeared earlier in the MIPH group patients as compared to Open haemorrhoidectomy group, p=0.015. (Figure 2)

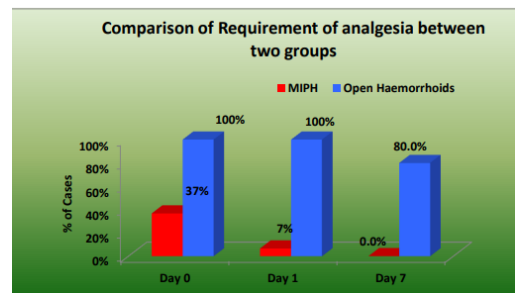


Patients undergoing MIPH had statistically significant lesser VAS Pain score on postoperative day 0, 1 and 7 with p<0.001 (Table 7).

Table 7 Comparison of pain score (VAS) in two groups

Day	MIPH		Open Haemorrhoids		Mean Difference ± SE	P value
	N=30	Mean ± SD	N=30	Mean ± SD		
Day 0	11	3.37 ± 0.49	30	6.90 ± 0.712	3.53 ± 0.158	<0.001
Day 1	2	1.43 ± 0.626	30	3.57 ± 0.77	2.13 ± 0.182	<0.001
Day 7	0	0.03 ± 0.183	24	0.97 ± 0.615	0.933 ± 0.117	<0.001

Also analgesia requirement was significantly lower in MIPH group (Figure 3).



Patients undergoing MIPH had lesser immediate post operative complications like retention of urine, incontinence, bleeding, pain etc (Table 8).

Table 8 Comparison of complications of surgeries

Complications	MIPH		Open Haemorrhoidectomy		Total (n=60)		P value
	No.	%	No.	%	No.	%	
Retention of urine	1	3.3%	3	10.0%	4	6.7%	0.612
Bleeding	1	3.3%	6	20.0%	7	11.7%	0.103
Incontinence	0	0.0%	6	20.0%	6	10.0%	0.024
Pain	0	0.0%	4	13.3%	4	6.7%	0.112
Total	2	6.7%	19	63.3%	21	35.0%	<0.001

Mean duration of hospital stay was 2.07 ± 0.25 days in MIPH group and 5.93 ± 1.20 days in open haemorrhoidectomy group, $P < 0.001$ (Table 9)

Table 9 Comparison of duration of hospital stay

Hospital Stay (days)	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
<2	28	93.3%	0	0.0%	28	46.67%	<0.001
2-4	2	6.7%	2	6.7%	4	6.67%	
>4	0	0.0%	28	93.3%	28	46.67%	
Total	30	100.0%	30	100.0%	60	100.0%	
Mean \pm SD	1.07 ± 0.254		5.93 ± 1.20		4.86 ± 0.224		<0.001

Mean duration of time needed to return to work in MIPH group was 4.70 ± 0.83 days and 12.10 ± 2.71 days in open haemorrhoidectomy group, $p < 0.001$ (Table 10)

Table 10 Comparison of return to work

Return to work (days)	MIPH		Open Haemorrhoidectomy		Total		P value
	No.	%	No.	%	No.	%	
<7	30	100.0%	0	0.0%	30	50.0%	0.020
7-14	0	0.0%	3	10.0%	3	5.0%	
>14	0	0.0%	27	90.0%	27	45.0%	
Total	30	100.0%	30	100.0%	60	100.0%	
Mean \pm SD	4.70 ± 0.837		16.40 ± 1.92		8.40 ± 4.23		<0.001

Discussions:

In present study both groups were demographically comparable. Mean age in our study was 45.43 ± 13.08 years. Thirumalagiri et al conducted similar study in which mean age of presentation 45.8 ± 13.8 years.^[7]

Male patients were more in number in both group of patients^[7,8,9]

In our study, the most commonly affected people in MIPH group belonged to upper (50%) and middle class (46.67%), while in open haemorrhoidectomy group, maximum number of patients (63.3%) came from lower class. This was most likely due to cost effectiveness of open haemorrhoidectomy as compared to MIPH owing to additional cost of stapler in later group.

In the present study, only patients with grade 3 and grade 4 haemorrhoids were included with presenting complaints of bleeding and prolapsed mass. Few patients presented with complaints of pain and pruritus. In the study done by Thirumalagiri et al, bleeding, pain and mass per rectum were the most common complaints in patients of grade III and grade IV.^[7] Rathore et al, in their study included patients with second and third degree of haemorrhoids, who mostly visited hospital with the complaints of bleeding per rectum and prolapsed of piles during defecation.^[8] In the study done by Iqbal et al, of total fifty eight patients who underwent stapled haemorrhoidectomy, 3(5.17%) had second degree, 46(79.31%) had third degree haemorrhoids and 9(15.51%) had fourth degree hemorrhoids respectively. The most common problem reported pre operatively was something coming out of the anus. Others included bleeding, itching, discharge and pain.^[10]

Most of the patients in our study had haemorrhoids at 7 O' clock position, which is 55 (91.67%); followed by 53 (88.33%) patients with 11 O' clock position. Haemorrhoids at 3 O' clock were found in 45 (75.0%) patients, which was the least in all three.

Mean duration of surgery was 25.90 ± 4.21 min and 46.73 ± 5.10 min in MIPH and Open haemorrhoidectomy group respectively. Statistically significant difference was seen in the duration of surgery amongst the two groups ($p < 0.001$). In the study done by Thirumalagiri et al, the operating time for stapler haemorrhoidectomy was 28.76 ± 3.5 min and for open haemorrhoidectomy was 36.2 ± 6.5 min.^[7] The mean operating time for open group was significantly higher than the stapled group ($P = 0.0001$) in the study conducted by Baliga et al.^[9]

On comparing the post-surgery findings, only one patient (3.3%) had bleeding and one (3.3%) patient required supportive stitch in MIPH group, while in open haemorrhoidectomy group, twelve patients (40%) had residual prolapse, six patients had bleeding (20%) and six required supportive stitch (20%). No patients in the MIPH group had residual prolapse in the post-surgery findings which was statistically

different, Bowel movement appeared earlier in the MIPH group patients as compared to Open haemorrhoidectomy group, $p = 0.015$. The difference between both groups was statistically significant ($p = 0.015$). In a study done by Baliga et al, the open group had a significantly later return of bowel activity at 37.23 hours compared to 18.37 hours for the stapled group which was statistically significant ($p = 0.0001$).^[9] In another study by Gravie et al, the mean of first defecation in stapled haemorrhoidectomy group was $1.6 \text{ day} \pm 1.0$ and in open haemorrhoidectomy was $2.1 \text{ day} \pm 1.1$ ($P = 0.006$).^[11]

The mean duration of stay at hospital was significantly lower in the MIPH group ($p < 0.001$). Lesser duration of stay was due to faster recovery in MIPH group. In the study done by Thirumalagiri et al, mean post-operative hospital stay in MIPH group was 1.1 ± 0.35 days and 2.3 ± 1.2 days in open haemorrhoidectomy group, which was statistically significant with p value < 0.005 .^[7] In study by Gravie et al, hospital stay was significantly shorter in the stapled haemorrhoidectomy group $2.2 \text{ days} \pm 1.2$ as compared to open haemorrhoidectomy group $3.1 \text{ days} \pm 1.7$ ($P < 0.001$).^[11]

Pain in MIPH group was significantly lesser as compared to open haemorrhoidectomy group as haemorrhoidectomy is performed above the dentate line, where mucosa is insensitive to pain. Similar findings were observed in studies done by Baliga et al^[9] and Kim et al.^[12] The requirement of analgesia in MIPH group was significantly lesser on all three days ($p < 0.001$).

Total complications were significantly higher in patients who underwent open haemorrhoidectomy in our study. Baliga et al, the stapled haemorrhoidectomy group had an incidence of complications of 20% compared to 30% for the open haemorrhoidectomy group, the difference was not statistically significant.^[9] In another study, the postoperative bleeding rate was 4.9 % in both groups and the rate of urinary retention did not differ significantly (4.9 % vs. 1.6 %; $p = 0.309$).^[12]

Mean duration of time needed to return to work in MIPH group was significantly lesser as compared to Open haemorrhoidectomy. In study done by Aggarwal et al, in the open haemorrhoidectomy group, the patients returned to work postoperatively in twenty five days on average (range: 20-30 days), in the stapler-haemorrhoidectomy group, 52% were able to return to their normal routine and work in two days ($p = 0.002$), 32% in three days ($p = 0.005$) and only 16% in four days ($p = 0.05$).^[13]

In the present study, cost comparison was done between MIPH and open haemorrhoidectomy. Average difference in cost of surgery was around Rs22,000 which is totally attributed to the use of PPH-33 gun. This high cost of MIPH, limits its use to the particular strata of society and deprive the poor.

Conclusion:

MIPH is a safe and noble technique that has emerged as an alternative to Open haemorrhoidectomy and is now considered gold standard for treatment of haemorrhoids. MIPH is a faster procedure, had less residual prolapse, faster return of bowel movement and shorter hospital stay as compared to open haemorrhoidectomy. Limitations of MIPH is that it can only be used in lower degrees of haemorrhoids and the cost of the PPH-33 gun. It is proposed that if the manufacturers of PPH-33 provide us with a mechanism by which we can recharge the gun with disposable staples or reduce the price of gun, then the cost benefit can be offered to poor patients also.

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