

To Study the Effectiveness of Combining Internal Sphincterotomy in Patients Undergoing Open Hemorrhoidectomy**Manish Shah¹, Manish Mandal²**¹Senior Resident, Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar²Professor and Head of Department, Department of Surgical Gastroenterology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar

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Conflict of interest: Nil

Abstract:**Background:** One of the most typical anal canal presentations is hemorrhoids. Over the years, numerous therapeutic techniques have been documented. The best option for treating symptomatic hemorrhoids permanently is still hemorrhoidectomy. In this study, two patient groups who underwent open hemorrhoidectomy and open hemorrhoidectomy with internal sphincterotomy were compared for postoperative discomfort and other postoperative sequelae.**Methods:** From September 2019 to February 2020, this randomized control trial was carried out in the Department of Surgical Gastroenterology, IGIMS, Patna, and Bihar. Open hemorrhoidectomy was performed on Group-A, while internal sphincterotomy was performed on Group-B. Wexner's Score for fecal incontinence, duration of postoperative hospitalization, and return to work were all examined. Postoperative pain was measured using the Visual Analog Scale (VAS) at 12 hours, 24 hours, 48 hours, Day 7, and Day 14.**Results:** At 12 hours, 24 hours, 48 hours, and Day 7, the mean postoperative VAS for Group A was 7.30, 5.03, 2.93, and 1.47, respectively. The postoperative VAS for Group-B was 6.10, 3.83, 2.00, and 1.00, respectively, at 12 hours, 24 hours, 48 hours, and Day 7. In Group-A, postoperative hospitalization lasted an average of 3.6 days, while it lasted 2.6 days in Group-B. In Group-A, the mean Wexner's Score for fecal incontinence was 0.00, while it was 0.20 in Group-B. Mean time to return to work in Group-A was 17.43 days, while it took 10.23 days in Group-B. After analysis, it was discovered that the results were statistically significant.**Conclusion:** In comparison to Group-A (open hemorrhoidectomy), patients in Group-B (open hemorrhoidectomy with internal sphincterotomy) experienced less postoperative pain, shorter stays in the hospital following surgery, and quicker returns to work.**Keywords:** Hemorrhoids, Open hemorrhoidectomy, Internal Sphincterotomy, Complications, Postoperative pain.

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Introduction

One of the most typical anal canal presentations is hemorrhoids [1]. Over the years, numerous therapeutic techniques have been documented. The best option for a long-term treatment for symptomatic hemorrhoids is still hemorrhoidectomy [1,2]. The patient experiences intense discomfort during the first postoperative week, which is the major consequence of hemorrhoidectomy [3]. The internal sphincter spasm that results from an open hemorrhoidectomy is the primary source of painful post-hemorrhoidectomy pain [4,5,6]. Internal sphincterotomy was examined over time and demonstrated to improve the postoperative period in terms of reduced postoperative pain and fewer complications [1,7]. By eliminating the hypertonicity (spasm/pressure) of the internal anal

sphincter, internal sphincterotomy lessens post-hemorrhoidectomy pain and the associated problems [7,8,9]. Numerous clinical studies contrasting hemorrhoidectomy alone and hemorrhoidectomy coupled with internal sphincterotomy have been carried out. Internal sphincterotomy has been beneficial for patients undergoing open hemorrhoidectomy, according to a meta-analysis [6]. This study compared two groups of patients treated with open hemorrhoidectomy and open hemorrhoidectomy with internal sphincterotomy to see how they fared in terms of postoperative discomfort, urine retention, fecal incontinence, duration of return to work, and postoperative anal stenosis.

Material and Methods

From September 2019 to February 2020, this randomized control trial was carried out in the Department of Surgical Gastroenterology, IGIMS, Patna, Bihar. In this study, participants with Grade 2/3/4 hemorrhoids who underwent open hemorrhoidectomy and were older than 18 years of age and willing to provide informed consent were included. In this trial, patients under the age of 18, unwilling to provide informed consent, experiencing recurring hemorrhoids, having a related fistula or fissure, having a malignancy, and having cirrhosis and portal hypertension related with it were all excluded.

Calculated sample size was 60. In a trial involving 60 patients, study participants were randomly assigned to one of two groups: Group A underwent open hemorrhoidectomy, and Group B underwent open hemorrhoidectomy with lateral internal sphincterotomy. Pre-anaesthetic fitness and physician fitness were obtained for each case. All patients and their attendants received explanations of the surgical procedure, its risks, and costs in addition to a pre-informed signed consent.

All study participants were required to take history. A complete physical examination was performed. There was a pre-operative workup and

investigations. For each patient, a proctoscopy and rectal examination were performed. Hemorrhoids were graded and noted for their locations. It was noted if there were any connected conditions or fissures.

Following surgery, the following information was noted: Visual Analog Score, with a range of 0 to 10, was used to measure pain in the postoperative phase at the following intervals: 12, 24, 48, and the seventh day. If the study patient experienced urine retention after surgery, specifics were recorded. After surgery, the length of hospital stay was reported. Wexner's Incontinence Score was used to identify postoperative incontinence. During the six-week follow-up, anal stenosis was screened for. It was noted how long the return to work took. These variables were examined statistically between Group A and Group B. Up until six months, patients with fecal incontinence were routinely monitored. They received nutritional recommendations and workouts for the perineum.

Mean, Standard Deviation (SD), Standard Error of Means, Levene's Test for equality of variances, t-Test for equality of means, ANOVA, Chi-square test were used for statistical analysis. p value<0.05 was considered statistically significant.

Results

Table 1: Age distribution in two groups of patients studied

Age in years	Group A	Group B	Total
21-30	5	2	7
31-40	6	9	15
41-50	12	8	20
51-60	5	8	13
61-70	2	2	4
71-80	0	1	1
TOTAL	30	30	60

Mean (years)	45.32
Median	45.50
Standard Deviation	11.598
Minimum	21
Maximum	80

Most of patients were in the age group of 31-60 years. Age of patients ranged between 21 and 80 years. Age distribution was comparable between 2 groups.

Table 2: Sex distribution in two groups of patients studied

Sex	Group A	Group B	Total
Male	24	21	45
Female	6	9	15
Total	30	30	60

45 out of 60 patients were males and 15 out of 60 were females with Male: Female ratio of 3:1.

Table 3: Post-operative Pain among groups through Visual Analog Scale

Pain at 48 hours(VAS)	Group A	2.93	0.691	0.126	2.68	3.19	2	4
	Group B	2.00	0.455	0.083	1.83	2.17	1	3
	Total	2.47	0.747	0.096	2.27	2.66	1	4
Pain at Day 7(VAS)	Group A	1.47	0.507	0.093	0.48	2.46	1	3
	Group B	1.00	0.000	0.000	1.00	1.00	1	1
	Total	1.23	0.325	0.024	0.593	1.87	1	3

Table 4: Post-operative pain analysis – ANOVA

		Sum of Squares	df	Mean Square	F	p-value
Post op pain VAS 12 hours	Between Groups	21.600	1	21.600	59.657	0.000
	Within Groups	21.000	58	0.362		
	Total	42.600	59			
Post op pain VAS 24 hours	Between Groups	21.600	1	21.600	46.172	0.000
	Within Groups	27.133	58	0.468		
	Total	48.733	59			
Post op pain VAS 48 hours	Between Groups	13.067	1	13.067	38.148	0.000
	Within Groups	19.867	58	0.343		
	Total	32.933	59			

At 12 hours, 24 hours, 48 hours, and Day 7, individuals who underwent open hemorrhoidectomy with internal sphincterotomy experienced less postoperative pain than those who underwent simply open hemorrhoidectomy. Statistically, it was significant.

Table 5: Post-operative urinary retention

	Urinary Retention		Percentage
	No.	No.	
Group A	24	24	20.00%
Group B	29	29	3.33%
Total	53	53	11.67%

Although it was not statistically significant, patients who underwent internal sphincterotomy along with open hemorrhoidectomy experienced a lower incidence of urine retention than those who underwent only open hemorrhoidectomy. In comparison to patients who underwent only open hemorrhoidectomy (Mean: 3.6 days), those who underwent internal sphincterotomy with open hemorrhoidectomy experienced a shorter post-operative hospital stay (Mean: 2.6 days). Statistically, it was significant.

Table 6: Incontinence Score at Day 7 and Duration of return to work

	Group	Mean	Standard Deviation	Standard Error
Incontinence Score (0-20)	Group A	0.00	0.000	0.000
	Group B	0.20	0.407	0.074
Duration of return to work in days	Group A	17.43	6.388	1.166
	Group B	10.23	2.431	0.444

In comparison to patients who underwent only open hemorrhoidectomy, those who underwent open hemorrhoidectomy with internal sphincterotomy had a mean incontinence score of 0.2. In contrast to patients who underwent only open hemorrhoidectomy (Mean: 17.43 days), patients who underwent open hemorrhoidectomy with internal sphincterotomy saw shorter recovery times (10.23 days on average). Statistically, it was significant.

Discussion

The most effective method for treating hemorrhoids is still open hemorrhoidectomy. However, following open hemorrhoidectomy, post-operative problems like discomfort and urine retention are related to hypertonicity of the exposed internal anal sphincter. But after an internal sphincterotomy, the rate of fecal incontinence rises. Numerous studies

have compared hemorrhoidectomy alone with hemorrhoidectomy combined with internal sphincterotomy. In our study, 30 patients underwent only open hemorrhoidectomy and 30 patients underwent open hemorrhoidectomy plus internal sphincterotomy as a Randomized Control Trial (RCT). Patients who underwent internal sphincterotomy in addition to open hemorrhoidectomy experienced much less post-operative pain, post-operative hospitalization, and time spent recovering before returning to work. Although it was not statistically significant, patients who underwent hemorrhoidectomy with internal sphincterotomy had a lower rate of urine retention. Wexner's incontinence score revealed that individuals receiving hemorrhoidectomy with internal sphincterotomy had a greater incidence of fecal incontinence. However, a 6-month follow-up of all of those individuals revealed that the

incontinence was transient and cleared on its own. In this investigation, anal stenosis was not identified in any of the patients. Many authors have discussed the benefits of combining internal sphincterotomy with open hemorrhoidectomy in patients. Numerous research comparing hemorrhoidectomy alone and hemorrhoidectomy combined with internal sphincterotomy have been conducted, including randomised control trials (RCTs) and meta-analyses. These trials looked at how well internal sphincterotomy and open hemorrhoidectomy worked together to lessen the risk of problems after surgery like discomfort, urine retention, fecal incontinence, and anal stenosis. Our findings were in line with those of research by Diana G et al. [10], Wei Guo Wang et al. [11], and Lu et al.[12].

Conclusion

The findings of our study were compared to those of other studies, such as Randomized Control Trials and Meta-analyses, which also produced comparable findings.

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