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Original Article

Comparison of Postoperative Pain in Open Hemorrhoidectomy with and without Lateral Internal Sphincterotomy

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Abstract

Background: Hemorrhoids are a prevalent human ailment, and there are limited options available for traditional open surgical procedures. The primary complication frequently associated with open surgical procedures is the discomfort resulting from the contraction of the inner sphincter muscle. Performing a lateral internal sphincterotomy is a common procedure aimed at alleviating spasm and pain. The study aim was to compare the open hemorrhoidectomy with and without lateral internal sphincterotomy.

Study type, settings & duration: This comparative randomized control trial was done at the Department of General Surgery, Akbar Niazi Teaching Hospital, Islamabad from September 2022 to September 2023.

Methodology: Consecutively enrolled patients who underwent surgical intervention for 3rd and 4th degree hemorrhoids at the hospital were included, with the option of either receiving lateral internal sphincterotomy or undergoing the procedure without it. A total of 40 patients, ages 20-60 years were selected while adhering to the inclusion criteria of the study. There were 20 patients in the open hemorrhoidectomy-only group (Group A), while another 20 patients were in the open hemorrhoidectomy group (Group B), which included lateral internal sphincterotomy. The data underwent analysis using SPSS v 25.

Results: The patients mean age was 38.66±9.32 years, 70% (n=28) were male, while the remaining 30% (n=12) were female. Group-B patients reported lower postoperative pain levels compared to those in Group-A. Upon final assessment, we identified 17 patients in group-B who reported being entirely free of pain, while in group-A, there were 9 patients with the same outcome. During the postoperative stage, visual analog scale revealed lower recorded postoperative pain in group-B.

Conclusion: It is noted that for relieving spasm and pain, the combined procedure of lateral internal sphincterotomy with hemorrhoidectomy is more suitable than open hemorrhoidectomy alone.

Key words: Hemorrhoids, hemorrhoidectomy, lateral internal sphincterotomy, pain, postoperative.

Introduction

Hemorrhoids, also referred to as piles, are a prevalent condition characterized by itching, pain, and bleeding in rectum or anus.[1] While approximately 25% of individuals encounter the swelling and distension in veins, and leading to symptoms that necessitate intervention.[2] Hemorrhoids are categorized as internal or external based on location and surrounding tissues. Generally, external hemorrhoids tend to be more troublesome.[3] The diagnosis of hemorrhoids involves assessing history, symptoms, and conducting rectum examination digitally. If anomalies for example lumps or masses detected, an additional test known as a sigmoidoscopy may be required.[4] After the identification of hemorrhoids, they are classified into grades I to IV. Grade I: Hemorrhoids exhibit bleeding but no prolapse. Grade II: Prolapse but spontaneous retract. Grade III: Prolapse and required manually reduced. Grade IV: Prolapse but no reduction.[5]

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Authors Contribution

WA & AS conceptualized the project. WA & MA did the data collection. AS, MA & AR performed the statistical analysis. WA, SH & MA did the literature search. Drafting, revision & writing of manuscript were done by WA, AS & KR.

The clinical progression of the condition involves bleeding and prolapse, if left untreated, it leads to the development of serious complications.[6] The Milligan Morgan procedure, also known as open hemorrhoidectomy, is commonly employed for the intervention of 3rd and 4th degree hemorrhoids.[7] Postoperative pain, mucous discharge, bleeding, urine retention, and anus stenosis are notable complications associated with this procedure.[8] Pain following hemorrhoidectomy can stem from various factors, including anus packing, urine retention, and wound edema. However, the primary contributor is often the spasm of the internal sphincter, particularly noticeable in young patients with elevated anus tone, especially after open hemorrhoidectomy.[9] Numerous studies yielding conflicting findings of routinely incorporation of internal sphincterotomy with hemorrhoidectomy (IS + H) for alleviating postoperative pain. The integration of this method induces internal sphincter relaxation, contributing reduced postoperative pain, accelerated wound healing, and an expedited recovery process.[10] Certain research suggests that including internal sphincterotomy in routine hemorrhoidectomy may be needless and moreover, poses an increased risk of fecal incontinence, with reported rates ranging from 8% to 30%.[11] In literature, there is not much evidence supporting the inclusion of internal sphincterotomy as a standard intervention. Consequently, the rationale of proposed study was to determine postoperative pain and the incidence of anal incontinence between two interventional modalities: alone hemorrhoidectomy and combine hemorrhoidectomy with internal sphincterotomy. This study objectives were to assess and compare open hemorrhoidectomy with and without internal sphincterotomy concerning postoperative pain, postoperative complications, and wound healing.

Methodology

This comparative randomized controlled trial was done from September 2022 to September 2023 at the General Surgery Department, Akbar Niazi Teaching Hospital, Islamabad. The 40 patients were determined using the Open Epi calculator for sample, maintaining the 95% CI, alpha error 5%, and test power 80%. In the group without sphincterotomy, pain mean score was 1.98±0.9, while in group with sphincterotomy, pain mean score was 1.0±0.5.[12] The sampling technique employed was non-probability consecutive sampling. The study included patients aged 20-60 years, of both genders (male/female), with 3rd and 4th degree hemorrhoids, and those available for scheduled follow-up. The exclusion criteria encompassed patients with medical comorbidities (such as hypertension, diabetes mellitus, asthma, ischemic heart disease, neurology disorders, liver and renal diseases), a history of fissure, anus fistula, abscess, incontinence, or prolapse, as well as those with a prior history of hemorrhoid surgeries, pathological hemorrhoids, coagulopathies, and those previous sclerotherapies treated and with other modalities.

Each enrolled patient provided informed consent prior to his involvement in this study. Utilizing random technique, individuals were allocated in two groups equally (each, n=20). Group-A patients underwent open hemorrhoidectomy, while group-B patients underwent open hemorrhoidectomy with internal sphincterotomy. A senior consultant surgeon performed the entire procedure. Postoperative pain was evaluated during follow-up outpatient visits at intervals of 24 hours, 48 hours, one week, and the second week. Pain intensity was evaluated utilizing visual analogue scale (VAS) with scores 0-10. Specifically, 0 no pain, 1-3 denoted mild, 4-6 moderate, and 7-10 severe pain.12

The data underwent analysis using SPSS v 25. Quantitative data like age was computed using mean ± SD, while qualitative variables like gender and hemorrhoid grades were determined in terms of frequencies and their respective percentages. The VAS score was assessed in each group both at baseline and during the follow-up period in the second week. The outcomes between the groups were compared using an independent t test. The test for data normality Kolmogorov-Smirnov was employed across the groups. Adjustment for the effect modifier was made through stratification. Post-stratification involved utilizing chi square test with $p \leq 0.05$ to ascertain significance.

The ethical approval was obtained from the Institutional Review Ethical Board of Islamabad Medical & Dental College, Islamabad vide letter no. 135/IMDC/IREB-2022.

Results

Forty (n=40) patients specifically those with 3rd and 4th degrees hemorrhoids, were enrolled. The test for data normality Kolmogorov-Smirnov was applied, and results consistently indicated that the data was normally distributed ($p \geq 0.05$) during the entire assessment. The patients mean age was 38.66±9.32 years. 70% (n=28) were male, while the remaining 30% (n=12) were female. Out of 40 patients, 72.5% (n=29) received a confirmed diagnosis of 3rd degree hemorrhoids, and the remaining 27.5% (n=11) were diagnosed with 4th

degree hemorrhoids. The demographic information of these patients has been documented (Table-1). Pain severity was assessed at various time intervals (Table-2). A notable disparity in pain severity was noted between groups (p ≤0.05). No patient reported experiencing flatus or fecal incontinence.

Table 1: Demographic details for both groups of patients. n=40

Variables		*H: Group-A (n=20) n (%)*	*H + LIS: Group-B (n=20) n (%)*
Ages	Mean ±SD	37.94±9.37	39.38±9.27
Gender	Male	14 (70)	14 (70)
	Female	6 (30)	6 (30)
Hemorrhoid grades	3rd	15 (75)	14 (70)
	4th	5 (25)	6 (30)

H: hemorrhoidectomy, H+LIS: hemorrhoidectomy with internal sphincterotomy.

Table-3 demonstrates a significant association between open hemorrhoidectomy and hemorrhoidectomy with internal sphincterotomy in terms of postoperative pain at various intervals, given that the p-value consistently falls at or below 0.05.

Evaluation of postoperative pain throughout the follow-up utilizing the VAS (Table-3). A notable disparity in pain between groups was recorded within the first two weeks. Subsequently, the open hemorrhoidectomy with internal sphincterotomy group experienced significantly lower pain.

Discussion

In our study, we conducted a comparison between open hemorrhoidectomy with and without lateral internal sphincterotomy. Group-B patients reported lower pain postoperatively compared with those in group-A. In the postoperative stage, as measured by the VAS, group-B exhibited significantly lower levels of pain postoperatively compared with group-A (p ≤ 0.05). The results of our study are consistent with study conducted by Kamruzzaman et al.[12] Rehman et al study concluded that internal sphincterotomy is an effective option when combined with open hemorrhoidectomy.[13] This combined method leads to internal sphincter relaxation, resulting in reduced pain, accelerated healing, and early recovery.

Hemorrhoid is a prevalent condition that can affect people of all ages and sex. Approximately 50% of individuals aged 50 and older are estimated to experience symptoms of hemorrhoids at least once during a certain period.[14] Recently, several new surgical procedures, like hemorrhoidectomy with Harmonic knife and Ligasure, have become available for the treatment of this condition. None of these procedures have emerged as the universally accepted gold standard in both terms of efficacy and safety.[15] The results of a meta-analysis study, the traditional hemorrhoidectomy, initially proposed by Milligan and Morgan, remains the most commonly employed, effective, and conclusive intervention for individuals experiencing symptoms of 3 and 4 degrees grades of hemorrhoids.[16] Anal canal dilatation, introduced by Lord in 1989, was associated with a high incidence of uncontrolled damage to the internal sphincter muscle fibers, resulting in fecal incontinence.[17] Post-hemorrhoidectomy pain is associated with the contraction of the internal sphincter muscle. They proposed that dividing the internal sphincter muscle through lateral hemorrhoidectomy could lead to a reduction in postoperative pain.[18]

Number of studies conducted in diverse locations have measured the effects of internal

Table 3: Evaluation of postoperative pain throughout the follow-up period. n=40

VAS	*H: Group-A (n=20)*	*H + LIS: Group-B (n=20)*	*p*
at 24 hrs	7.21±1.81	5.23±1.94	.099
at 48 hrs	5.1±0.55	3.75±0.78	.0001
at week one	2.1±0.24	1.27±0.25	.0001
at week two	1.1±0.2	0.44±0.21	.0001

Table 2: Analyze postoperative pain scores at various intervals. n=40

VAS (pain)		*No n (%)*	*Mild n (%)*	*Moderate n (%)*	*Severe n (%)*	*p*
at 24 hrs	H: group-A	0	0	10 (50)	10 (50)	.047
	H + LIS: group-B	0	0	16 (80)	4 (20)	
at 48 hrs	H: group-A	0	4 (20)	12 (60)	4 (20)	.014
	H + LIS: group-B	0	13 (65)	6 (30)	1 (5)	
at week one	H: group-A	1 (5)	16 (80)	3 (15)	0	.048
	H + LIS: group-B	7 (35)	12 (60)	1 (5)	0	
at week two	H: group-A	9 (45)	10 (50)	1 (5)	0	.027
	H + LIS: group-B	17 (85)	3 (15)	0	0	

sphincterotomy when combine with hemorrhoidectomy. Mukadam et al conveyed that the addition of internal sphincterotomy to hemorrhoidectomy is bearable by patients and enhances their comfort levels.[19] The findings of our study indicated that incorporation of internal sphincterotomy decreased pain associated with hemorrhoidectomy, as measured at various intervals. Raza et al measured superior outcomes with combined method.[20] In Das et al research,only one patient experienced fecal soiling, which persisted for two weeks, and few patients encountered temporary incontinence of reflex.[21]

In this study, no patients experienced incontinence of reflex, and results align with the findings of Amoroti et al and Diana et al studies.[22,23] However, the outcomes of this study differ from those reported in the study by Khubchandani et al.[24] UN agency found insignificant relieve in postoperative pain between groups treated with hemorrhoidectomy and internal sphincterotomy or hemorrhoidectomy alone.[12] A parallel study documented a higher occurrence of anal incontinence in these individuals.[25]

The study concluded that postoperative pain and complications are significant concerns. Therefore, findings of this study suggest that postoperative pain and complications were reduced in open hemorrhoidectomy with internal sphincterotomy, leading to early wound healing.

Conflict of interest: None declared.

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