Original Article

Comparative Study of Open Hemorrhoidectomy with or Without Lateral Internal Sphincterotomy

Amir Iqbal Memon[1]*, Hitesh Kumar, Rasool Bux Behan[1], Aisha Masroor Bhatti[1], Tarnum Naz[1], Shazmah[1]

ABSTRACT

OBJECTIVE: To determine the outcome of hemorrhoidectomy with or without Lateral Internal Sphincterotomy (LIS) in terms of postoperative complications, especially pain.

METHODOLOGY: This interventional experimental research was conducted at surgical Unit-II, Liaquat University Hospital (LUH) Jamshoro, from January to December 2018, using a non-probability consecutive sampling technique. Patients of 18 years and above of both sexes having grade 3 and 4 hemorrhoids were included. The data were analyzed using SPSS version 22.0

RESULTS:. The total number of participants was 52, including 29(55.7%) male participants, 14(53.8%) in Group A, 15(57.6%) in Group B. Women Participants were 23(44.2%), 12(46.1%) in Group A, and 11 (42.3%) in Group B. The ratio of men to women was 1.2: 1. During the follow-up periods, Group B, who had undergone a hemorrhoidectomy with LIS, had less pain during the postoperative period on days 1, 2, 7, and 1 month. Postoperative bleeding was observed in 03 with open hemorrhoidectomy without LIS cases and 01 with open hemorrhoidectomy with LIS cases; urinary retention was observed in 05 cases in the 1st group and 03 in the 2nd group, and fecal incontinence was only observed in 03 cases in the 2nd group observed.

CONCLUSION: Hemorrhoidectomy along with LIS in patients with 3rd and 4th-degree hemorrhoids is the better choice; however, it is followed by a decrease in postoperative pain and morbidity as well.

KEYWORDS: Open hemorrhoidectomy with lateral internal Sphincterotomy, postoperative bleeding per rectum, retention of urine, infection, and early pain relief.

INTRODUCTION

Hemorrhoids are dilated and displaced anal cushions. It presents with bleeding per rectum, something coming from the anal canal, and pruritus.[1, 2] Hemorrhoidectomy (Milligan Morgan) is a surgical option used to treat hemorrhoids. Occasionally, there is postoperative pain, rectal bleeding, urinary retention, and fecal incontinence[3]. Colonoscopy of the general population shows a high prevalence of 40% of hemorrhoids[4]. Studies showed that 50% of cases over the age of 50 had the symptoms of hemorrhoids once in a lifetime. The Milligan-Morgan hemorrhoidectomy causes spasms of the anal sphincter and can lead to pain postoperatively. To overcome this complication, LIS will be performed through one of the hemorrhoidectomy wounds; it will decrease the tone of the anal sphincter and relieve pain early postoperatively[6]. Eisenhammer concluded that LIS, together with hemorrhoidectomy, relaxes the anal sphincter and relieves pain early on postoperatively[7,9]. National and international data suggest that hemorrhoidectomy and LIS help relieve postoperative pain and discomfort[8]. Hemorrhoidectomy, along with LIS, reduces postoperative pain and leads to early recovery and less hospitalization. LIS reduces anal spasms, which leads to early pain relief postoperatively[10].

METHODOLOGY

This interventional experimental research was conducted at surgical Unit II ward-05, Liaquat University Hospital Jamshoro, from January to December 2018, using non-probability consecutive sampling techniques. All diagnosed cases of both sexes, uncomplicated 3rd and 4th-degree hemorrhoids aged 18 years and over, were included in the study. Diagnosed cases of 1st or 2nd-degree hemorrhoids, complicated 3rd and 4th-degree hemorrhoids, associated anorectal pathology, and severe comorbidities, and those who refused to participate in the study were excluded. All included patients had undergone hemorrhoidectomy with or without lateral internal Sphincterotomy under spinal anesthesia.

Data Collection Procedure: This research was conducted at Liaquat University Of Medical & Health Sciences (LUMHS) Jamshoro. Informed consent was obtained from patients who met the inclusion criteria. All included cases were divided into two groups according to the lottery procedure. Group A cases were operated on by hemorrhoidectomy only without LIS, and Group B was operated on by hemorrhoidectomy together with LIS. The operations

[1]*Department of Surgery, Liaquat University of Medical & Health Sciences, Jamshoro, Sindh-Pakistan*
Correspondence: *dramiriqbalmemon@gmail.com*
doi.10.22442/jlumhs.2022.00849
Received: 02-02-2021 *Revised: 23-11-2021*
Accepted: 28-12-2021 *Published Online: 02-02-2022*

were performed by experienced surgeons with more than five years of experience. All data on age, gender, duration of illness, and degree of hemorrhoids were documented. The prophylactic antibiotic was administered preoperatively. Postoperatively, both groups received a similar standard protocol for controlling postoperative pain. Patients were advised to take a Sitz bath with laxatives and spongol husk twice daily. Patients were discharged 48-72 hours after surgery and received oral antibiotics plus laxatives and spongol husk twice a day. Follow-ups were scheduled weekly for up to 1 month. All the data was entered into the performa.

Data Analysis: The data were analyzed using SPSS version 22.0. The quantitative data includes age, duration of symptoms, gender, degree of disease, pain, and complications. Stratification was performed for age, gender, pain, and complications related to the surgery. The Chi-Squire test was used, and the P-value <0.05 was considered significant.

RESULTS

Age Distribution: The age range in both groups was 18-60 years, as described in **Table I**.

Gender Distribution: There were 29(55.7%) male patients, 14(53.8%) in groups A and 15(57.6%) in group-B and 23(44.2%) female patients, 12(46.1%) in group A and 11(42.3%) in group B, with a p-value of 0.78 .

TABLE I: AGE DISTRIBUTION (n=52)

Age group	A	B
18-30	5	6
31-40	11	12
41-50	7	6
51-60	3	2
Total	26	26

Presenting Complaints: The majority of the cases presented complaints of bleeding per rectum with 3° and 4° hemorrhoids in both groups described in **Table II**. The statistically significant p-value was 0.56.

TABLE II: PRESENTING COMPLAINTS (n=52)

Presenting Complaints	Groups		Total No (%)	p-value
	G-A n=26	G-B n=26		
Bleeding + 3° hemorrhoids	17 (65.3%)	15(57.6%)	32(61.5%)	0.56
Bleeding + 4° hemorrhoids	9(34.6%)	11(42.3%)	20(38.4%)	

Postoperative Pain Score

Pain observed on the 1st day after the operation by visual analog value (VAS) cases in group A had moderate pain in 8 cases (30.7%), severe pain in 12 cases (46.1%) and 06 (23.0%) %) Cases in highly severe pain while in group B moderate pain was observed in 20 cases (76.9%), severe pain in 4 cases (15.3%) and highly severe pain in 2 cases (7.6%). Group B had observed less pain on the 1st postoperative day **Table III**.

TABLE III:
1st POSTOPERATIVE DAY PAIN SCORE (n=52)

Operative Technique	Postoperative Pain score on day 1 (VAS) Scoring					p-value
	0	1	2	3	4	
Hemorrhoidectomy only n=26	0	0	8 (30.7%)	12 (46.1%)	06 (23.0%)	0.003
Hemorrhoidectomy with LIS n=26	0	0	20 (76.9%)	4 (15.3%)	2 (7.6%)	

2nd Postoperative day pain assessment; cases in group A observed mild pain in 06(23.0%), moderate pain in 12(46.1%), severe in 06(23.0%), and highly severe in 02(7.6%) patients. In Group B, cases were observed as mild in 19(73.0%), moderate in 6 (23.0%), severe in 01(3.8%) and extremely severe in 00(00%) patients. Group B cases had early pain relief postoperatively. The calculated p-value was 0.002 on day 2, which is statistically significant.

Postoperative pain assessment on day 7, cases in group A observed no pain in 04(15.3%), mild in 12 (46.1%), moderate in 10(38.4%), severe in 00(0%) and extremely strong in 00(0%) cases. While in group B cases, no pain was observed in 16(61.5%), in 08 patients were mild (30.7%), moderate in 02(7.6%), severe in 00(0%), and highly severe observed in 00 (0%) patients. Group B cases had early pain relief postoperatively. The p-value was calculated to be 0.001 and is considered statistically significant.

Post-operative day-30 pain assessment, group A cases observed no pain in 16(61.5%), mild in 10 (38.4%), moderate in 00(0%), severe in 00(0%) and extremely severe in 00(0%). While in group B cases observed pain free in 25(96.1%), mild in 01(3.8%), moderate in 00(0%), severe in 00(0%) and extremely severe in 00(0%) patients. Group B cases were mostly pain-free during the monthly visit. The P-value was calculated at 0.002 and is considered to be statistically significant.

Postoperative Complications

Postoperative complications were described in (**Table-IV**) compared with both groups.

TABLE IV:
POST OPERATIVE COMPLICATIONS (n=52)

Complications	Operative Technique		p-value
	GROUP-A Hemorrhoidectomy	GROUP-B Hemorrhoidectomy with LIS	
Infection	00	00	0.526
Bleeding per rectum	03(11.5%)	01(3.8%)	
Urinary retention	05(19.2%)	03(11.5%)	
Fecal incontinence	01(3.8%)	03(11.5%)	

DISCUSSION

The age ranges from 18-60 years in our study. The mean age of our study was comparable to a study by Harish S 2016[11], showing a mean of 37.8 years without the LIS group and 38.1 years with the LIS group. Our study shows that the ratio of male patients was slightly higher than that of female patients; 55.7% were male, and 44.2% were female; the same results were reported in both groups. A study by Harish S 2016[11] showed that 57% were male and 43% were female. Another study by Vighnesh V 2015[12] reported that 61.5% of the sexes were male and 38.5% were female. In our study, most of the patients had complaints of rectal bleeding with 3rd-degree prolapsed piles in 32 (61.5%) of the patients and bleeding with 4th-degree prolapsed hemorrhoids in 20 (38.4%) of patients compared with a study by Kumar A 2017[13] reported that per rectum bleed was the chief feature in (91.6%), something coming from the anus in 71.6%, painful defecation in 13.33% and generalized weakness in 21.66% cases. Kishore KP 2016[14], in his study, featured the per rectum bleed as the commonest and primary complaint. Our study observed 32(61.5%) cases with 3rd-degree hemorrhoids, dividing 17(65.3%) in the hemorrhoidectomy group and 15(57.6%) in hemorrhoidectomy with LIS group, and 4th-degree hemorrhoids in 20 (38.4%) cases, 9(34.6%) in 1st group (hemorrhoidectomy group) and 11(42.3%) in the 2nd (hemorrhoidectomy with LIS) group. A study by Otho S et al. [1] reported grade 3 hemorrhoids in 38 (65.5%) in group A and 34(58.5%) in group B, while grade 4 hemorrhoids in 20(34.5%) cases in 1st group and 24(41.5%) cases in 2nd group, Harish S 2016[11] reported that the 70% of the cases were presented in grade 3. Kishore KP 2016[14] reported that the average operation time duration observed for hemorrhoidectomy was 28.7 min compared to hemorrhoidectomy with LIS, which was 36.4 min. Postoperative pain is one of the complications of hemorrhoidectomy and an unpleasant physiological state. In our study 1st, postoperative day pain assessment was observed in 1st group, with moderate pain in 8(30.7%), severe in 12(46.1%) and extremely severe in 06 (23.0%) cases, in comparison to 2nd group, moderate pain in 20(76.9%), severe in 4 (15.3%) and extremely severe in 2(7.6%) cases.

Group B, during whom hemorrhoidectomy along with LIS was performed, had early pain relief postoperatively. Our study results were compared with a study by Fernandes AM 2016[15] reporting postoperative pain assessment on day 1 of group A with no pain in 1, mild pain in 28, uncomfortable pain in 12, distressing pain in 6, horrible pain in 3, unbearable severe pain in 1 and group-B no pain in 1, mild pain in 3, uncomfortable pain 9, distressing pain in 24, intense, horrible pain in 9, unbearable severe pain in 5. The test group who had undergone hemorrhoidectomy with LIS had observed early pain relief postoperatively with a p-value < 0.0001 on day 1. Another study by Otho S et al. [1] reported pain perception 12 hours after surgery in hemorrhoidectomy group, no pain in 0(0%), mild pain in 0(0%), moderate pain in 38(65.5%), severe pain in 20(34.4%) and hemorrhoidectomy with LIS group no pain in 0(0%), mild pain in 0(0%) moderate pain in 49 (84.4%) severe pain in 9(15.5%) p-value =0.015. Another study by Harish S 2016[11] reported 1st postoperative (POD-1) pain was observed by visual analog scoring for pain and the dosage of painkillers taken on that day; patients who underwent hemorrhoidectomy had experienced more pain as compared to those who underwent hemorrhoidectomy with LIS. A study by Vighnesh V 2015[12] reporting pain perception after 1st bowel movement in hemorrhoidectomy group pain-free were 0(0 %), mild pain in 1(2.6%), moderate pain in 12(30.8%), excruciating pain in 25(64.1) and hemorrhoidectomy with LIS group 3(7.7%) cases were pain-free, mild pain in 05(12.8%) moderate pain in 1(2.6%) excruciating pain in 18(46.2%) cases. The P-value was calculated at 0.034. In our study 7th, postoperative day pain assessment was, 1st group 04 (15.3%) cases were pain-free, mild in 12(46.1%) patients, moderate in 10(38.4%) cases, and none had experienced severe and extremely severe pain, in comparison to this 2nd group-B cases, 16(61.5%) were pain-free, mild pain in 08 (30.7%), moderate in 02 (7.6%), severe in 00(0%) and extremely severe in 00 (0%) cases. Group B, who had hemorrhoidectomy with LIS, had statistically significant early pain relief during the postoperative period. The P-value calculated was 0.001 on day 7.

The postoperative pain assessment in our study on 1-month patients in group A who had undergone a hemorrhoidectomy was pain-free in n = 26, 16 (61.5%), mild in 10(38.4%), and no single case. There was moderate, severe, and extremely severe pain. At the same time, in Group B, who underwent hemorrhoidectomy with LIS, 25(96.1%) were pain-free, 01 mild (3.8%), and in no single case moderate experienced severe and extremely severe pain. Group B patients had early pain relief after a one-month follow-up period. The calculated p-value was 0.002, which is statistically significant. A study by Otho S et al.[1] reported pain perception on day 30 after surgery in the hemorrhoidectomy group: no pain in 7(12%), mild pain in 42(72.4%), moderate pain in 09(15.5%), severe pain in 0(0%) and hemorrhoidectomy with LIS group no pain in 21(36.2%), slight pain in 35(60.3%) moderate pain in 2(3.44%) severe pain in 0(0%)), the calculated p-value was 0.002. Regarding the postoperative complications, no postoperative wound infection was observed in our study. Postoperative bleeding was observed in 03 cases in the 1st group,

01 in the 2nd group, urinary retention 05 in 1st group and 03 in 2nd group and fecal incontinence 01 in 1st group and 03 in 2nd group, p-value calculated at 0.526 significance.

A study by Das DK 2013[16] reported complications after the operation, like retention of urine in 8 patients from group A and 1 from group B. From group B, as late complications, fecal incontinence was noted after three weeks in a single case only, and loss of flatus control was observed in 2 cases for the transient duration of 7-10 days. The literature with few references opposes the LIS as it has a 30% risk of fecal incontinence[17]. It has been observed that post-Hemorrhoidectomy pain is usually due to anal spasm[18]. Several studies are in favor of LIS with Hemorrhoidectomy as patients postoperatively became pain-free and there is less need for analgesics aswel[19.] According to sub-Saharan experience (Indian study), (LIS) is a routinely prescribed procedure along with Hemorrhoidectomy due to chances of concurrent chronic anal fissure[20] because LIS, when combined with hemorrhoidectomy, results in early postoperative pain relief, early recovery, and a short hospital stay[21].

CONCLUSION

We concluded from the results of our study that Hemorrhoidectomy along with lateral internal Sphincterotomy (LIS) in patients with 3rd and 4th-degree hemorrhoids is a better choice to reduce postoperative pain and morbidity as well.

Ethical permission: Liaquat University of Medical & Health Sciences, ERC letter No. LUMHS/REC/-619.

Conflict of Interest: There is *no* conflict of *interest among the authors.*

Financial Disclosure / Grant Approval: There was no funding agency.

Data Sharing Statement: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

AUTHOR CONTRIBUTION

Memon AI: Concept & idea, analysis, script writing
Kumar H: Data collection, analysis
Bhatti AM: Data collection, analysis, statistical writing
Latif S: Data collection
Naz T: Data collection
Shazmah: Data collection

REFERENCES

1. Otho S, Dalwani AG, Memon KN, Shaikh NA, Sushel C, Syed BM. Haemorrhoidectomy with Internal Sphincterotomy: A Useful Method to Relieve Postoperative Pain? J Liaquat Univ Med Health Sci. 2015; 14(2): 73-7.
2. Suchdev S, Ghayassuddin M, Younus SM, Mirani AJ, Ghias N, Qazi A et al. Calcium Channel Blockers for pain relief after haemorrhoidectomy; a randomized controlled trial from Karachi, Pakistan. Pak J Surg. 2014; 30(2): 187-92
3. Agbo SP. Surgical management of hemorrhoids case report. J Surg Tech Case Rep. 2011; 3(2): 68-75.
4. Wang WG, Lu WZ, Yang CM, Yu KQ, He HB. Effect of lateral internal Sphincterotomy in patients undergoing excisional hemorrhoidectomy. *Medicine (Baltimore)*. 2018; 97(32): e11820.
5. Bai-ke-re M, Huang HG, Re WN, Fan K, Chu H, Wang YR et al. How we can improve patients' comfort after Milligan-Morgan open Hemorrhoidectomy. World J Gastroenterol. 2011; 17(11): 1448-56.
6. Raza MW, Khan A, Kamran RA, Waqas K, Yusuf A. Hemorrhoidectomy With and Without Lateral Internal Sphincterotomy. J Rawal Med Coll. 2013; 17(2): 189-91.
7. Eisenhammer S. Internal anal sphincterotomy plus free dilatation versus anal stretch with special criticism of the anal stretch procedure for hemarrohids: the recommended modern approach to hemorrhoid treatment. Dis Colon Rectum. 1974; 17(4): 493-522.
8. Zulifqar A, Qureshi U, Shafique MS, Khan JS. Comparison of hemorrhoidectomy and internal Sphincterotomy in terms of postoperative pain. Professional Med J. 2020; 27(4): 677-681.
9. Williams NS. The anus and anal canal. In: Bailey and Love's Short Practice of Surgery. 25th ed. London, England: Arnold; 2008.1253-59.
10. Rotholtz NA, Bun M, Mauri MV, Bosio R, Peczan CE, Mezzadri NA. Long-term assessment of fecal incontinency after lateral internal Sphincterotomy. Tech Coloproctol. 2005; 9(2): 115-8.
11. Harish S, Sringeri RR, Ajay G. Routine Internal Sphincterotomy with Hemorrhoidectomy: A Prospective Study. Int J Sci Study. 2016; 3(11): 182-8.
12. Vighnesh V. Venkates T, Subramanian C, Swaminathan G. Role of lateral internal Sphincterotomy in open Hemorrhoidectomy- a prospective analysis. CibTech J Surg. 2015; 4(3): 9-16.
13. Kumar A, Aggarwal M, Singla RL, Kansal T, Goyal S. Open (Miligan Morgan) Hemorrhoidectomy versus Stapled Hemorrhoidopexy: A Comparative Study. Br J Med Med Res. 2017; 21(12): 1-7.
14. Kishore KP, Sruthi PB, Obulesu G. Comparative study between stapler and open hemorrhoidectomy in the management of grade III/ IV hemorrhoids. Int Arch Integr Med. 2016; 3 (9): 218-221.
15. Fernandes AM, Tauro LF. An evaluation of postoperative pain relief in open

hemorrhoidectomy with and without lateral Sphincterotomy. Saudi Surg J. 2016; 4: 1-6.
16. Das DK, Choudhury UC, Lim ZS. Effectiveness of Internal Sphincterotomy in reducing Post Open Hemorrhoidectomy Pain: A Randomized Comparative Clinical Study. Int J Collabor Res Intern Med Pub Health. 2013; 5(6): 428-35.
17. Taha S. Routine internal sphincterotomy with hemorrhoidectomy for third and fourth-degree hemorrhoids greatly improves the outcome. Int J Gastroenterol. 2003; 1: 48-51.
18. Lohsiriwat V. Hemorrhoids: From basic pathophysiology to clinical management. World J Gastroenterol. 2012; 18(17): 2009-17.
19. Emile SH, Youssef M, Elfeki H, Thabet W, EL-Hamed TM, Farid M. Literature review of the role lateral Sphincterotomy when combined with excisional hemorrhoidectomy. Int J Colorectal Dis. 2016; 31(7): 1261-72.
20. Elnaim AL, Wong M, Ang CW, Sagap I. The Sub-Saharan Experience of Excisional Hemorrhoidectomy with Simultaneous Lateral Internal Sphincterotomy. Indian J Surg. 2020; 83 (2): 522-5 10.1007/s12262-020-02175-1.
21. Farooq AS, Ahmed S, Javed MR, Rizwan S, Asif M, Khan RH. Comparison of Hemorrhoidectomy Alone Vs Hemorrhoidectomy with Lateral Sphincterotomy in Terms of Postoperative Pain Relief. Annals Punjab Med Coll. 2019; 13(4): 283-6.