

# Efficacy of Lateral Internal Sphincterotomy in Patients Undergoing Milligan - Morgan Hemorrhoidectomy

K Prashanth<sup>1</sup>, Sushrith Urs<sup>2</sup>, P Hamsa Priya<sup>2</sup>, M Amar<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of General Surgery, Dr. B. R. Ambedkar Medical College, Bengaluru, Karnataka, India, <sup>2</sup>Post Graduate, Department of General Surgery, Dr. B. R. Ambedkar Medical College, Bengaluru, Karnataka, India

## Abstract

**Background and Objectives:** Hemorrhoids are the most common anorectal disorder and usually present with painless bleeding per rectum. Treatment of grade 3 and 4 hemorrhoids usually involves various surgical methods, from open hemorrhoidectomy to modern laser surgery. However, the open excisional technique, i.e., Milligan–Morgan hemorrhoidectomy still remains one of the best methods of treatment. But it is associated with significant postoperative pain, which is attributed to spasm of the internal sphincter, which leads to other complications and delays discharge. So, combining lateral internal sphincterotomy with hemorrhoidectomy was proposed and practiced in various studies. The study was aimed at identifying the efficacy of lateral internal sphincterotomy in reducing post hemorrhoidectomy pain and associated complications after Milligan–Morgan hemorrhoidectomy.

**Materials and Methods:** A prospective observational study was conducted at Dr. B. R. Ambedkar Medical College and Hospital, Bengaluru, between January 2021 and June 2022, which involved 120 patients undergoing surgery for hemorrhoidal disease. They were divided into 2 groups of 60 each, one with patients undergoing Milligan–Morgan hemorrhoidectomy and the other with patients undergoing lateral internal sphincterotomy. Postoperative details were collected, tabulated, and analyzed using statistical tools.

**Results:** Among the study groups, patients undergoing lateral internal sphincterotomy with Milligan–Morgan hemorrhoidectomy were reported to have significantly less postoperative pain compared to patients undergoing only Milligan–Morgan hemorrhoidectomy. Furthermore, postoperative urinary retention, duration of hospital stay, and time to return to work were less with the sphincterotomy group. However, fecal incontinence was seen in 1 patient in the lateral internal sphincterotomy group, though not statistically significant.

**Conclusion:** Lateral internal sphincterotomy is a well-effective method that can be combined with Milligan–Morgan hemorrhoidectomy to reduce postoperative complications.

**Key words:** Excisional hemorrhoidectomy, Hemorrhoidectomy, Hemorrhoids, Lateral Internal sphincterotomy, Post hemorrhoidectomy pain

## INTRODUCTION

Hemorrhoids are the most common and distressing pathology of the anal canal, which refers to the downward displacement of dilated vascular submucosal anal cushions, commonly located at the 3, 7, and 11 o'clock positions of the anal canal. Per rectal bleeding, mucosal discharge,

prolapse, pruritus ani, and pain at rest and during defecation are the common presentations of hemorrhoids, and if not treated, may develop complications.<sup>[1-3]</sup>

Various treatment options for hemorrhoidal disease are in practice, which include the most commonly practiced Milligan–Morgan technique, the Ferguson technique, stapled hemorrhoidectomy, Barron's banding, injection sclerosant therapy, cryosurgery, infrared coagulation, LASER therapy, the technique using a harmonic scalpel or ligasure, and Doppler-guided hemorrhoidal artery ligation.<sup>[4]</sup> All the techniques of hemorrhoidectomy are known to cause significant postoperative pain, and no single surgical technique has been proven to significantly reduce the pain.<sup>[5]</sup>

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**Corresponding Author:** Dr. Amar M, Post Graduate, Department of General Surgery, Dr B R Ambedkar Medical College, Bengaluru, Karnataka, India.

Surgical open hemorrhoidectomy involving Milligan-Morgan technique is the treatment method of choice for grade 3 and grade 4 hemorrhoids. However, Milligan-Morgan hemorrhoidectomy is considered a painful operation.<sup>[6]</sup> The exact cause of post hemorrhoidectomy pain has not yet been completely defined, but it is assumed to be due to spasm of the internal sphincter, (which gets exposed during hemorrhoidectomy), anal packing, urinary retention, and wound edema.<sup>[7]</sup>

Numerous invasive and noninvasive methods are used in the management of posthemorrhoidectomy pain, which includes lateral internal sphincterotomy, Lord's dilatation, perianal application of nitroglycerine ointment,<sup>[8]</sup> calcium channel blocker, or local anesthetics<sup>[10]</sup>, and the use of metronidazole.<sup>[9]</sup> Furthermore, various studies have compared different surgical techniques, like open versus the semi-closed hemorrhoidectomy<sup>[11]</sup> or the use of diathermy versus the use of scissors for closed hemorrhoidectomy,<sup>[12]</sup> trying to identify methods to reduce postoperative pain.

Postoperative pain is associated with significant morbidities like retention of urine, prolonged need for parenteral analgesics, prolonged hospital stay, cost of treatment, and delay in resuming work.

Lateral internal sphincterotomy, along with Milligan-Morgan hemorrhoidectomy, is a method employed to reduce spasm and anal canal pressure, with a subsequent reduction in pain and other hemorrhoidectomy related complications.<sup>[7,13-15]</sup> However, it is still a matter of debate among surgeons whether to use sphincterotomies for reducing postoperative pain due to the associated catastrophic complication, i.e., fecal incontinence associated with it.<sup>[15,16]</sup>

Hence, the present study was aimed at comparing efficiency of Milligan-Morgan hemorrhoidectomy alone and Milligan-Morgan hemorrhoidectomy with lateral internal sphincterotomy in reducing postoperative pain and other hemorrhoidectomy related complications.

### Objectives of the Study

To compare the efficiency of combining lateral internal sphincterotomy with Milligan-Morgan hemorrhoidectomy with respect to postoperative pain, urinary retention, postoperative hospital stay, fecal incontinence, and resuming work.

## MATERIALS AND METHODS

A prospective observational study was conducted between January 2021 and June 2022 in patients undergoing open surgical treatment for grade 3 and 4

hemorrhoids in all surgical units of the Department of General Surgery, Dr. B. R. Ambedkar Medical College, Bengaluru, which includes a total of 120 patients. Patients were divided into 2 groups of 60 patients: Group A, including patients undergoing Milligan-Morgan hemorrhoidectomy and Group B, including patients undergoing Milligan-Morgan hemorrhoidectomy with lateral internal sphincterotomy.

### Inclusion Criteria

- Age >18 years
- Both males and females
- Diagnosis of grade 3 or 4 hemorrhoids
- Patient willing to give informed consent.

### Exclusion Criteria

- Age <18 years
- Patient not willing to give informed consent
- Recurrent hemorrhoids
- Associated fistula or fissure
- Malignancy
- Cirrhosis and portal hypertension
- Pregnancy.

Patients who were diagnosed with grade 3 and 4 hemorrhoids by clinical examination and underwent hemorrhoidectomy under spinal anesthesia were included in the study. Patients were observed and data collected using a proforma. Parameters noted during the postoperative period were:

1. Pain at the surgical site, assessed using the Visual Analog Scale at 12 h, 24 h, 48 h and at 7 days after surgery
2. Urinary retention
3. Fecal incontinence is assessed using Wexner's scoring system
4. Duration of postoperative hospitalization
5. Return to work.

The data were tabulated using Microsoft Excel and analyzed using SPSS software Version 17 Manufacturer: IBM/ USA. The results were obtained and compared with previous data obtained through a review of the literature.

## RESULTS

- In the study, the patients aged between 21 and 75 years were in the study with a mean age of 45.32 years and a median age of 45.50 years, and the majority of the patients were between 31 and 60 years. However, distribution according to age was similar in both groups. Among the study participants, 90 were males and 30 were females, with a similar distribution in both groups

Age parameters	
Mean (years)	45.32
Median	45.50
Minimum (years)	21
Maximum (years)	75

Age distribution among patients			
Age (years)	Group A	Group B	Total
21–30	10	4	14
31–40	12	18	30
41–50	24	16	40
51–60	10	16	26
61–70	4	12	8
71–80	0	2	2
Total	60	60	120

Gender distribution among patients			
Gender	Group A	Group B	Total
Male	48	42	90
Female	12	18	30
Total	60	60	n=120

- Posthemorrhoidectomy pain was significantly higher among the patients who had undergone only hemorrhoidectomy (Group A and Graph 1) when compared to those who had undergone lateral internal sphincterotomy with hemorrhoidectomy (Group B and Graph 2), signifying the role of lateral internal sphincterotomy in reducing postoperative pain
- Postoperative urinary retention was seen in 12 patients in Group A and 2 patients in Group B, signifying a reduction in urinary retention after lateral internal sphincterotomy, which has reduced postoperative pain

Distribution of urinary retention among patients		
Group	Yes	No
Group A	12	48
Group B	2	58
Total	14	106

- Duration of hospital stay was significantly high among Group A (mean hospital stay= 3.60 days) compared to Group B (mean hospital stay = 2.60 days)

Mean duration of hospital stay			
Group	Mean	SD	SEM
Group A	3.60	0.894	0.163
Group B	2.60	0.675	0.123

SD: Standard deviation, SEM: Standard error of the mean

- One patient in Group B who has undergone lateral internal sphincterotomy has developed fecal incontinence, and none in Group A has developed fecal incontinence

Mean of incontinence score			
Group	Mean	SD	SEM
Group A	0.0	0.000	0.000
Group B	0.10	0.407	0.074

SD: Standard deviation, SEM: Standard error of the mean

- The mean duration to return to work was longer in Group A (17.43 days) compared to Group B (10.23 days).

Mean duration to return to work in days			
Group	Mean	SD	SEM
Group A	17.43	6.388	1.166
Group B	10.23	2.431	0.444

SD: Standard deviation, SEM: Standard error of mean

## DISCUSSION

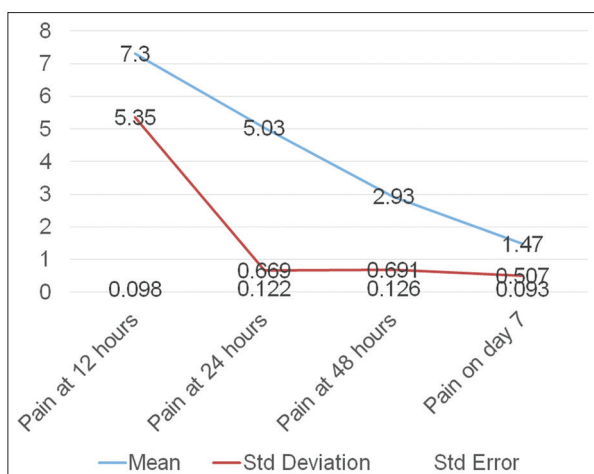
In the present study, postoperative pain, urinary retention, duration of hospitalization, and duration of return to work were found to be less when hemorrhoidectomy was combined with lateral internal sphincterotomy rather than only hemorrhoidectomy without sphincterotomy. However, anal incontinence was seen in one case with a sphincterotomy. The results were consistent with the studies done by Selvarajan,<sup>[17]</sup> Taha,<sup>[3]</sup> Hosseini *et al.*,<sup>[18]</sup> Das *et al.*<sup>[19]</sup> and Vijayaraghavalu *et al.*<sup>[20]</sup>

A meta-analysis conducted by Wang *et al.*<sup>[21]</sup> studied 10 randomized controlled trials involving 1560 patients and concluded that lateral internal sphincterotomy significantly reduces posthemorrhoidectomy pain, and reduces patients' postoperative analgesic needs, and also reduces the incidence of anal stenosis but increases the incidence of fecal incontinence. Notaras<sup>[22]</sup> in 1971 advocated lateral internal sphincterotomy instead of anal dilatation. DiBella and Estienne<sup>[7]</sup> in 1990 found that lateral internal sphincterotomy reduces postoperative pain by reducing the tone of the internal sphincter.

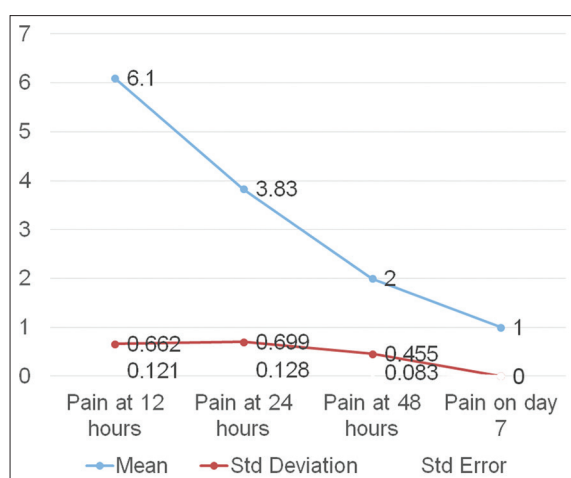
Kamruzzaman *et al.*<sup>[23]</sup> found that open hemorrhoidectomy with lateral internal sphincterotomy reported less post hemorrhoidectomy pain as compared to hemorrhoidectomy alone, which was consistent with our study results. They concluded that lateral internal sphincterotomy combined with hemorrhoidectomy is a more suitable procedure than lateral internal sphincterotomy alone.

Diana *et al.*<sup>[24]</sup> found that patients undergoing lateral internal sphincterotomy have less pain only on the first postoperative day but not in the medium- and long-term follow-up.

Raza<sup>[25]</sup> found that most patients who underwent open hemorrhoidectomy with lateral internal sphincterotomy



Graph 1: Visual analog scale for postoperative pain in Group A



Graph 2: Visual analog scale for postoperative pain in Group B

were totally pain-free at the end of the study when compared to patients who underwent hemorrhoidectomy alone.

According to Abedidost *et al.*<sup>[26]</sup> report, reduction in posthemorrhoidectomy pain with lateral internal sphincterotomy has a significant relationship between the two groups on the 1<sup>st</sup>, 2<sup>nd</sup>, and 5<sup>th</sup> postoperative days.

In contrast, Mathai *et al.*,<sup>[27]</sup> Chen *et al.*<sup>[15]</sup> and William *et al.*<sup>[16]</sup> reported that there was no added advantage in reducing postoperative pain scores, and they concluded that it was unnecessary to add lateral internal sphincterotomy to routine hemorrhoidectomy which has an added risk of fecal incontinence.

## CONCLUSION

The results of our study show that Milligan–Morgan hemorrhoidectomy with lateral internal sphincterotomy is better in terms of reducing posthemorrhoidectomy pain,

urinary retention, the need for urinary catheterization, reducing the duration of hospital stay, and an early return to work. Hence, Milligan–Morgan hemorrhoidectomy combined with lateral internal sphincterotomy can be used as a regular technique to reduce postoperative complications and maximize patient satisfaction.

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