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To Compare the Post-operative Pain Following Laser Hemorrhoidoplasty versus Open Hemorrhoidectomy

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ABSTRACT

Objectives: To compare postoperative pain between laser hemorrhoidoplasty and open hemorrhoidectomy. **Materials and Methods:** This randomized controlled trial was conducted at the multiple centers including Yashfeen General Hospital Peshawar, Mumtaz Surgimed Hospital Vehari, Khushal Medical Centre Peshawar and Muhammad Teaching Hospital Peshawar, Pakistan, from 15 February 2024 to 15 August 2024 with approval from the hospitals' ethical boards and research committees. Patients meeting the inclusion criteria and providing written informed consent were enrolled. A total of 60 patients were randomized into two groups: Group A underwent Laser hemorrhoidoplasty, while Group B received Open Hemorrhoidectomy. Follow-up was conducted on day 3, assessing primary (pain) and secondary outcomes (hospital stay, wound infection, postoperative bleeding, procedure duration, itching, and mucus discharge) using a structured questionnaire. Data analysis was performed using SPSS version 25. **Results:** The mean age was 37.87±11.27 years, with 61.7% aged 18-40 years. Males comprised 51.7% and females 48.3%. The mean pain score was lower in Group A (2.43±1.10) than in Group B (5.43±1.54) (p=0.00). Wound infection (36.7% vs. 10.0%, p=0.015), bleeding (30.0% vs. 0%, p=0.00), itching (46.7% vs. 13.3%, p=0.00), and mucus discharge (40.0% vs. 10.0%, p=0.00) were significantly higher in Group B. **Conclusion:** Laser hemorrhoidoplasty significantly reduces postoperative pain, requires less analgesia, and speeds up recovery compared to open hemorrhoidectomy. However, the choice of procedure should consider patient needs, surgeon expertise, and available resources. Further research is needed to assess its long-term efficacy.

INTRODUCTION

Hemorrhoids are a common anorectal condition that affects a significant portion of the population, often leading to discomfort, bleeding, and impaired quality of life.(1-3) Hemorrhoidal disease is the most common condition affecting the rectum and large intestine, with a global prevalence estimated between 2.9% and 27.9%, of which over 4% present with symptoms.(4, 5) Men are more frequently affected than women.(5) Surgical intervention is required in cases where conservative management fails, with open hemorrhoidectomy being the traditional gold standard.(6, 7) However, despite its effectiveness, open hemorrhoidectomy is associated with significant postoperative pain, prolonged recovery, and a higher risk of complications such as bleeding and wound infection.(8)

In recent years, laser Hemorroidoplasty has emerged as a minimally invasive alternative that aims to reduce postoperative morbidity while maintaining treatment efficacy.(9, 10) The use of laser technology allows for precise tissue coagulation and reduced collateral damage, potentially leading to less postoperative pain, faster recovery, and improved patient outcomes. However, despite its growing popularity, there is ongoing debate regarding its superiority over open hemorrhoidectomy in terms of pain management and overall surgical outcomes.

This study aims to compare postoperative pain levels between laser Hemorroidoplasty has and open hemorrhoidectomy, along with secondary outcomes such as hospital stay, wound infection, postoperative bleeding, procedure duration, itching, and mucus discharge. The findings will help determine whether laser Hemorroidoplasty has offers a significant advantage in reducing postoperative discomfort and

improving recovery, thereby guiding clinical decision-making in hemorrhoid management.

Objective: To compare postoperative pain between laser hemorrhoidoplasty and open hemorrhoidectomy.

MATERIALS AND METHODS

Study Design: Randomized control trial.

Study setting: The study was conducted at the multiple centers including Yashfeen General Hospital Peshawar, Mumtaz Surgimed Hospital Vehari, Khushal Medical Centre Peshawar and Muhammad Teaching Hospital Peshawar, Pakistan.

Duration of the study: Duration of the study was 6 month.

Sampling Technique: Non-probability Consecutive sampling was used for the recruitment of patients.

Selection Criteria

Inclusion Criteria

- Patients with Grade II, III or IV hemorrhoids requiring surgical intervention.
- Patients of 18-65 years of age.
- Male and female.

Exclusion Criteria

- Patients with coagulopathy, active infections, inflammatory bowel disease, or anal malignancies.
- Thrombosed hemmorhoids.
- Patients with previous anorectal surgeries.
- Pregnant or lactating women.

Methods

Patients who met the inclusion criteria and provided written informed consent were included in the study. The purpose and benefits of the study were thoroughly explained to all patients, assuring them of confidentiality and making it clear that their participation would not affect their future medical care. A total of 60 patients were enrolled in the study and were divided into two groups by block randomization. Group A patients were treated with Laser hemorrhoidoplasty while group B patients were treated with Open Hemorrhoidectomy. All the patients were followed after 3 days and the primary outcome such as pain and secondary outcomes such as hospital stay, wound infection, postoperative bleeding, length for procedures, Itching and Mucus discharge were noted in a predesign structured questionere.

Data analysis was conducted using SPSS version 25.

RESULTS

The mean age of all the enrolled participants was 37.87±11.27 years. The majority (61.7%) were between 18-40 years, while 33.3% were in the 41-60 years age group, and 5.0% were above 60 years. In terms of gender distribution, 51.7% of the participants were male, and 48.3% were female. The mean pain score was 2.43±1.10 in Group A and 5.43±1.54 in Group B, with a statistically significant difference (p=0.00). The comparison of postoperative complications between Group A and Group B showed a significantly higher incidence of wound infection in Group B (36.7%) compared to Group A (10.0%) (p=0.015). Postoperative bleeding was observed in 30.0% of patients in Group B, while none were affected in Group A (p=0.00). Similarly, itching was more prevalent in Group B (46.7%) than in Group A (13.3%) (p=0.00). Mucus discharge was also reported more frequently in Group B (40.0%) compared to Group A (10.0%) (p=0.00), indicating statistically significant differences in all assessed complications.

Table 1

Descriptive Statistics for Quantitative Variables of all enrolled patients (n=60)

Variables	Mean±SD/ n (%)
Age	37.87±11.27
Age Groups	
18-40 years	37(61.7%)
41-60 years	20(33.3%)
>60 years	3(5.0%)
Gender	
Male	31(51.7%)
Female	29(48.3%)

Figure 1

Frequency of patients on the basis of age and gender

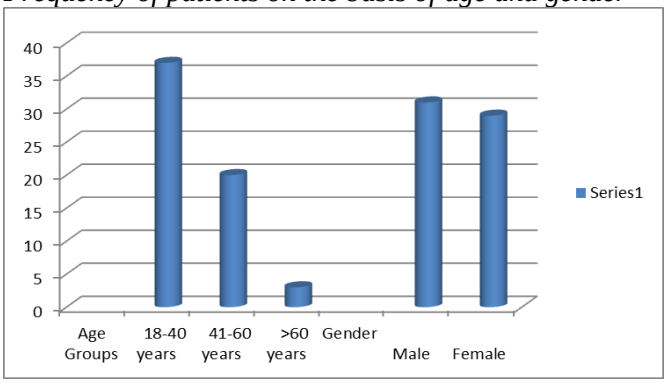

Table 2

Comparison of Postoperative Pain Between Group A and Group B (n=60)

	Group A (n=30)	Group B (n=30)	p-value
Pain	2.430±1.10	5.43±1.54	0.00

Table 3

Comparison of postoperative complications between Group A and Group B (n=60)

	Group A (n=30)	Group B (n=30)	p-value
Wound infection			
Yes	3(10.0%)	11(36.7%)	0.015
No	27(90.0%)	19(63.3%)	
Post-operative bleeding			
Yes	0(0.0%)	9(30.0%)	0.00
No	30(100.0%)	21(70.0%)	
Itching			
Yes	4(13.3%)	14(46.7%)	0.00
No	26(86.7%)	16(53.3%)	
Mucus Discharge			
Yes	3(10.0%)	12(40.0%)	0.00
No	27(90.0%)	18(60.0%)	

DISCUSSION

Hemorrhoidectomy remains the most effective surgical intervention for patients with symptomatic grade III and IV hemorrhoids that do not respond to conservative management. Traditionally, open hemorrhoidectomy (Milligan-Morgan or Ferguson technique) has been widely performed due to its definitive removal of hemorrhoidal tissue. However, the procedure is associated with significant postoperative pain, prolonged recovery, and a higher risk of complications. In recent years, laser hemorrhoidoplasty has emerged as a less invasive alternative, offering potential advantages in reducing postoperative discomfort. This study aimed to compare postoperative pain levels between laser hemorrhoidoplasty and open hemorrhoidectomy, providing insights into their clinical implications. Pain is one of the most significant postoperative concerns following hemorrhoidectomy, affecting patient recovery, hospital stay, and overall satisfaction. We have found in the present study that the mean pain score were significantly lower in Group A as compared to Group B. Our study was supported by another study conducted by Halit Maloku et al.(11) Postoperative pain is the primary complication that causes significant discomfort for patients and often leads to reluctance toward undergoing surgery. The reduced pain in the laser group can be attributed to the precise and controlled nature of laser energy, which minimizes collateral tissue damage, seals nerve endings, and reduces inflammation. In contrast, open hemorrhoidectomy involves excision of hemorrhoidal tissue, often leading to extensive tissue trauma, prolonged inflammation, and exposed nerve endings, all of which contribute to severe postoperative pain. Our study demonstrated that laser hemorrhoidoplasty is a safe and effective surgical technique with a favorable postoperative profile. It is associated with significantly lower levels of postoperative pain compared to traditional open hemorrhoidectomy, making it a more comfortable option for patients. The reduced pain can be attributed to the minimally invasive nature of the procedure, which causes less tissue trauma and promotes faster recovery. These findings suggest that laser hemorrhoidoplasty may enhance patient satisfaction and improve adherence to surgical treatment for symptomatic hemorrhoids. The findings of this study reinforce the advantages of laser hemorrhoidoplasty in minimizing postoperative pain, enhancing patient comfort, and accelerating recovery.

CONCLUSION

It was concluded that laser hemorrhoidoplasty offers a significant advantage over open hemorrhoidectomy in terms of reduced postoperative pain, lower analgesic requirements, and faster recovery. However, the choice between these two techniques should be guided by patient-specific factors, surgeon expertise, and institutional resources. While laser hemorrhoidoplasty is a promising alternative for reducing postoperative morbidity, further research is required to establish its long-term efficacy and cost-benefit profile.

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