MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2024.12.40.44

OPEN ACCESS

Key Words
Haemorrhoids, laser, management

Corresponding Author
Kunal Majoka,
Department of General Surgery, JLN Medical College and Hospitals, Ajmer (Raj.), India

Author Designation
[1,4]Resident
[2]Associate Professor
[3]Assistant Professor

Received: 28 September 2024
Accepted: 09 November 2024
Published: 15 November 2024

Citation: Lalu Prasad Yadav, Shivaji H. Vidyarthi, Jagdish Singh Charan and Kunal Majoka, 2024. A Prospective Comparative Study Between Laser Hemorrhoidoplasty and Conventional emorrhoidectomy Procedure in Patients with Grade 3 Hemorrhoids Admitted in Tertiary Care Hospital. Res. J. Med. Sci., 18: 40-44, doi: 10.36478/makrjms.2024.12.40.44

A Prospective Comparative Study Between Laser Hemorrhoidoplasty and Conventional Hemorrhoidectomy Procedure in Patients with Grade 3 Hemorrhoids Admitted in Tertiary Care Hospital

[1]Lalu Prasad Yadav, [2]Shivaji H. Vidyarthi, [3]Jagdish Singh Charan and [4]Kunal Majoka

[1-4]Department of General Surgery, JLN Medical College and Hospitals, Ajmer (Raj.), India

ABSTRACT

Haemorrhoids, meaning flowing of blood (haem=blood, rhoos=flowing). The word 'piles' comes from Latin word pila meaning a pill or ball. AIM: The aim of this paragraph is to provide a comparative analysis of the intraoperative and postoperative outcomes between patients who underwent laser hemorrhoidoplasty and those who had open hemorrhoidectomy. The study, conducted from January 2023 to August 2024, was designed as a prospective comparative analysis of Laser Hemorrhoidoplasty versus conventional Hemorrhoidectomy in a tertiary care hospital setting. In our study, laser hemorrhoidectomy (L group) demonstrated significantly lower postoperative pain scores and shorter hospital stays compared to conventional hemorrhoidectomy (C group), with 100% cure in the L group versus 93.33% in the C group (p=0.001). Laser hemorrhoidoplasty is a safe, minimally invasive procedure that offers significantly lower postoperative pain and complications compared to conventional hemorrhoidectomy, making it an effective option for hemorrhoid management.

INTRODUCTION

Haemorrhoids, meaning flowing of blood (haem=blood, rhoos=flowing). The word 'piles' comes from Latin word pila meaning a pill or ball[1,2]. It is one of the most common benign anorectal problems worldwide. Hemorrhoids, affecting 2.9%-27.9% of the global population with about 4% symptomatic[1], are clusters of vascular tissue, smooth muscle, and connective tissue in the anal canal. These highly vascular submucosal cushions are organised into three columns: left lateral, right anterior and right posterior. In 1963 Lockhart-Mummery wrote: '...nearly every lesion around the anus is liable to be called 'piles' by the patient and not infrequently by the referring doctor also., Lockhart-Mummery described here that in his time the internal and external haemorrhoids were seen as one diagnosis or easily confused[3]. Symptomatic haemorrhoids arise from the enlargement and protrusion of anal cushions, primarily due to constipation, prolonged straining, and increased intra-anal pressure, which causes vascular engorgement and chronic changes in the supporting connective tissue[4].The most common complaint of patients with symptomatic internal haemorrhoids is painless bleeding during bowel movements[5], often accompanied by tissue protrusion and initial management typically involves increased fluid intake, fibre supplementation and counselling on defecation habits, with treatment options ranging from conservative to various surgical techniques[6]. Patients with hemorrhoids frequently visit general surgery clinics, with hemorrhoidectomy being the definitive treatment for 3rd and 4th degree[7] cases., however, it carries risks like postoperative pain[8], bleeding and anal stricture[9]. For those with 1st and 2nd degree hemorrhoids who remain symptomatic, office-based procedures such as rubber band ligation or laser treatment offer effective alternatives, minimizing complications while enhancing patient comfort. Laser therapy has shown comparable or superior results to traditional surgical methods in various medical fields, and laser hemorrhoidoplasty (LH) has emerged as a promising treatment for hemorrhoids, demonstrating less postoperative pain and quicker recovery compared to conventional hemorrhoidectomy (CH).

Aims and Objectives: The aim of this study is to provide a comparative analysis of the intraoperative and postoperative outcomes between patients who underwent laser hemorrhoidoplasty and those who had open hemorrhoidectomy.

MATERIALS AND METHODS

The study, conducted from January 2023 to August 2024, was designed as a prospective comparative analysis of Laser Hemorrhoidoplasty versus conventional Hemorrhoidectomy in a tertiary care hospital setting. A total of 60 patients meeting specific inclusion and exclusion criteria were evaluated and divided into two groups based on the surgical procedure they underwent. The sample size was determined using a statistical formula $(2(Za/2 + Zß)^2 SD^2/d^2)$ to achieve a 95% confidence level, ensuring the reliability of the results.

Group I consisted of 30 patients who received Laser Hemorrhoidoplasty, while Group II included 30 patients who underwent open hemorrhoidectomy.

The study included patients over 18 years with symptomatic third-degree hemorrhoids unresponsive to medical treatment and those with recurrent hemorrhoids. Excluded were individuals with conditions like fistula, rectal carcinoma, or IBD, as well as those with other degrees of hemorrhoids, pregnancy and significant medical contraindications. All enrolled patients underwent necessary investigations to confirm their suitability for surgery.

RESULTS AND DISCUSSIONS

Table 1 shows distribution of C group and L group according to their age. In C group maximum 36.67% were observed in 31-45 years whereas minimum were 13.3% in >60 years age group. In L group maximum 40.00% were observed in 31-45 years whereas minimum were 10.00% in >60years age group. Mean age in C group was 42.33±8.5 years whereas 42.08±8.2 years in L group. (p>0.05)

Fig shows distribution of C group and L group according to their clinical feature.

In C group 93.33% were presented with bleeding, 66.6% had anal pain and 20% had itching whereas In L group 90.00% were presented with bleeding, 66.67% had anal pain and itching in 16.67%. (p>0.05)In C group maximum 43.33% were presented after 1-3 yr of symptom appearance whereas minimum 6.67% presented after >5yr. In L group maximum 46.67% were presented after 1-3 yr whereas minimum 6.67% after >5yr.

Mean duration in C group was 1.6±1.1 years whereas 1.55±1.3 years in L group. (p>0.05).

Table 2 shows distribution of C group and L group according to their VAS pain score.

The VAS pain score recorded at12 hrs, 24 hrs and 48 hrs showed that pain score in each reading was more for conventional hemorrhoidectomy as compared to laser hemorrhoidectomy and was statistically significant With a p value which was <0.0001 Table 3 shows distribution of C group and L group according to their days of hospital stay. In C group maximum 80.00% had >2 days of hospital stay whereas minimum 20% presented had 1-2 days. In L group maximum 80% had hospital stay of 1-2 days whereas minimum 6.67% had 0-1 days of stay. Mean duration in C group was 2.95±0.45 days whereas 1.35±0.4 day in L group. (p<0.05).

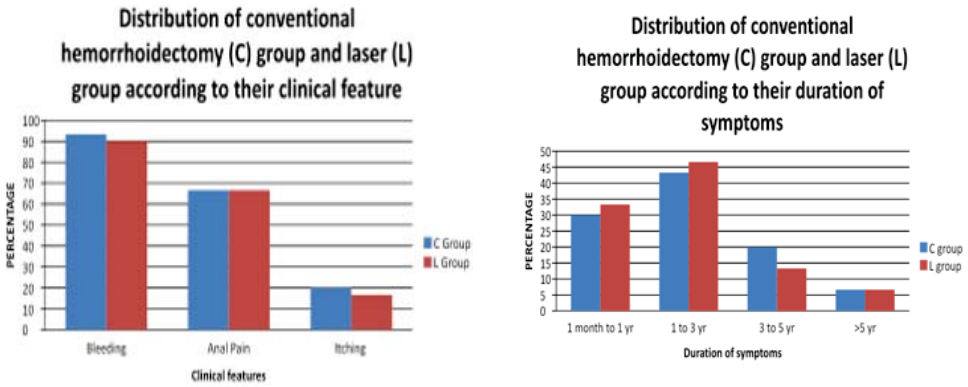

Fig 1: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to their Clinical Feature and According to their Duration of Symptoms

Classification of Internal Hemorrhoids

Grade	Description
1.Grade 1	No prolapse, hemorrhoidal bleeding
2.Grade 2	Hemorrhoids with bleeding and protrusion; reduce spontaneously
3.Grade 3	Hemorrhoid with bleeding and protrusion; manual reduction required
4.Grade 4	Prolapse hemorrhoid that can not be reduced.

Table 1: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to their Age (Years)

	C Group		L Group	
Age (years)	No.	Percent	No.	Percent
18-30 years	6	20.00	5	16.67
31-45 years	11	36.67	12	40.00
46-60 years	9	30.00	10	33.33
>60 years	4	13.33	3	10.00
TOTAL	30	100.00 %	30	100.00 %
MEAN±SD	42.33 ± 8.5		42.08 ± 8.2	
P value	0.874			

Table 2: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to VAS Pain Score

Time	C Group	L Group	P-value
At 12 hrs	6.3+0.70	4.3+0.47	<0.0001
At 24 hrs	5.77+0.68	3.4+0.62	<0.0001
At 48 hrs	4.33+0.61	2.33+0.66	<0.0001

Table 3: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to their Days of Hospital Stay (DOHS)

	C Group		L Group		
DOHS	No.	Percent	No.	Percent	P-Value
0-1 days	0	0.00	2	6.67	0.0001*
1-2 days	6	20.00	24	80.00	
>2 days	24	80.00	4	13.33	
TOTAL	30	100.00 %	30	100.00 %	
MEAN±SD	2.95± 0.45		1.35±0.4		

Table 4: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to their Treatment Outcome

	C Group		L Group	
Outcome	No.	Percent	No.	Percent
Discharged	30	100.00 %	30	100.00 %
TOTAL	30	100.00 %	30	100.00 %

Table 5: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to their Post Operative Complication

	C Group		L Group		
Post op Complications	No.	Percent	No.	Percent	P- Value
Bleeding	4	13.33	1	3.33	0.001*
Pain	20	66.67	1	3.33	
Urinary retention	8	26.67	0	0.00	

Table 6: Distribution of Conventional Hemorrhoidectomy (C) Group and Laser (L) Group According to their Outcome

	C Group		L Group		
Outcome	No.	Percent	No.	Percent	P -Value
Cured	28	93.33 %	30	100.00 %	0.001**
Recurrence	2	6.67 %	0	0.00 %	
Total	30	100.00%	30	100.00%	

Table 3 shows distribution of C group and L group according to their days of hospital stay. In C group maximum 80.00% had >2 days of hospital stay whereas minimum 20% presented had 1-2 days. In L group maximum 80% had hospital stay of 1-2 days whereas minimum 6.67% had 0-1 days of stay. Mean duration in C group was 2.95±0.45 days whereas 1.35±0.4 day in L group. (p<0.05).

Table 4 shows distribution of C group and L group according to their outcome. In C group and L group 100.00% were discharged from hospital.

Table 5 shows distribution of C group and L group according to post op complication.

In C group maximum 66.67% had pain followed by 26.67% had complaint of urinary retention, whereas minimum 13.33% had bleeding. In L group maximum 3.33% had complaint of bleeding and pain. The difference was statistically significant. (p=0.001*)

Table 6 shows distribution of C group and L group according to their outcome.

In C group maximum 93.33% were cured whereas minimum 6.67% had recurrence. In L group all 100.00% were cured. The difference was statistically significant. (p=0.001*).

In our study, in C group maximum 36.67% were observed in 31-45 years whereas minimum were 13.3% in >60 years age group. In L group maximum 40.00% were observed in 31-45 years whereas minimum were 10.00% in >60years age group. Mean age in C group was 42.33±8.5 years whereas 42.08±8.2 years in L group. (p>0.05) Similarly Hosni Mubarak Khan[10] observed age in 42.7±10.1 yr in laser group and 41.6±10.3 in conventional group. Also These observations are comparable with Ersin Gurkan Dumlu[11] study where mean age 48.2 yrs. for group A and 43.6 yrs. for group B. A.A. Abo-hashem[12](2008) study mean age for group A was 44 yrs.

In our study, C group 93.33% were presented with bleeding, 66.6% had anal pain and 20% had itching whereas In L group 90.00% were presented with bleeding, 66.67% had anal pain and itching in 16.67% (p>0.05) Balla Diop[13]. The symptomatology was rectal bleeding in 16 cases (76%) and anal swelling in 18 cases (85.7%). It was associated with an anal fissure in four cases (19%) and an anal fistula in three cases (14.2%).

In our study, in C group maximum 43.33% were presented after 1-3 yr of symptom appearance whereas minimum 6.67% presented after >5yr. In L group maximum 46.67% were presented after 1 to 3 yr whereas minimum 6.67% after >5yr. Mean duration in C group was 1.6±1.1 years whereas 1.55±1.3 years in L group (p>0.05). As there is several other traditional techniques of treatment for piles the case will present to surgeon after all the experiments and after no treatment from conventional and conservative treatment.

In our study the VAS pain score recorded at12 hrs, 24 hrs and 48 hrs showed that pain score in each reading was more for conventional hemorrhoidectomy as compared to laser hemorrhoidectomy and was statistically significant With a p value which was <0.0001. Similarly Ian Jun Yan Wee[14] Concerning postoperative pain, the use of analgesia (3 studies, n=160) was significantly lower in the LH group than in the CH group (RR, 0.59., 95% CI, 0.42-0.81., P=0.001) (Supplementary Fig. 6). Only VAS scores reported on postoperative day (POD) 1 were meta-analyzable. Patients in the LH group had significantly lower POD 1 VAS scores (5 studies, n=445) than those in the CH group (MD, -2.09., 95% CI, -3.44-0.75., P=0.002). This remained consistent in the VAS scores 1 week postoperatively (2 studies, n=105., MD,-3.94., 95% CI,-6.36-1.52., P=0.001) Also Alla A Alsisy[15] Postoperative pain scores at the first 24 h were significantly lower in the laser group compared with the MM group (P<0.001). Also Halit Maloku[16] Significant differences between laser hemorrhoidoplasty and open surgical procedure were observed in early postoperative pain.

In our study, in C group maximum 80.00% had >2 days of hospital stay whereas minimum 20% presented had 1-2 days. In L group maximum 80% had hospital stay of 1-2 days whereas minimum 6.67% had 0-1 days of stay. Mean duration in C group was 2.95±0.45 days whereas 1.35±0.4 day in L group (p<0.05). Similarly Wesam Nuri Yahya[17] The mean hospital stay for MMH group was 36.25±6.58 hours and 7.85±2.11 hours for LHP, MMH group significantly associated with longer hospital stay.

In our study, in C group maximum 66.67% had pain followed by 26.67% had complaint of urinary retention, whereas minimum 13.33% had bleeding. In L group maximum 3.33% had complaint of bleeding and pain. The difference was statistically significant. (p=0.001*) Similarly Wesam Nuri Yahya[17] MMH group was significantly associated with more bleeding at 1st and 2nd week but no bleeding founded after 2nd week at both groups. Also Balla Diop[13] The postoperative course was simple with no notable complaints in 16 patients (76%). Complications consisted of minimal bleeding in six cases (28%), significant bleeding in two cases with readmission, residual skin tag in six cases (28.5%), and subcutaneous fistula in two cases (9.5%).

In our study, in C group maximum 93.33% were cured whereas minimum 6.67% had recurrence. In L group all 100.00% were cured. The difference was statistically significant. (p=0.001*). Similarly Balla Diop[13] No recurrence of the symptoms of the haemorrhoidal disease was noted.

CONCLUSION

The laser hemorrhoidoplasty is a minimally invasive and safe procedure, being more preferred in comparison with conventional open surgical

hemorrhoidectomy. Postoperative pain is significantly lower in laser procedures compared with the open surgical hemorrhoidectomy. Intraoperative and postoperative symptoms like blood loss, analgesic dose, duration of recovery and duration of surgery showed a positive outcome in the study group. There were fewer postoperative complications and negligible need for analgesics and wound care after laser hemorrhoidoplasty. As a consequence, the laser hemorrhoidoplasty is a good and safe procedures for surgical management of hemorrhoids.

REFERENCES

1. Johanson, J.F. and A. Sonnenberg, 1990. The prevalence of hemorrhoids and chronic constipation. Gastroenterology, 98: 380-386.
2. Loder, P.B., M.A. Kamm, R.J. Nicholls and R.K.S. Phillips, 1994. Haemorrhoids: Pathology, pathophysiology and aetiology. J. Br. Surg., 81: 946-954.
3. Cartwright, E.L., 1937. The management of strangulated hemorrhoids. Am J Dig Dis., 4: 425-427.
4. MacRae, H.M. and R.S. McLeod, 1997. Comparison of hemorrhoidal treatments: a meta- analysis. Can J Surg., 40: 14-17.
5. Bhatti, M.I., M.S. Sajid and M.K. Baig, 2016. Milligan–Morgan (Open) Versus Ferguson Haemorrhoidectomy (Closed): A Systematic Review and Meta-Analysis of Published Randomized, Controlled Trials. World J. Surg., 40: 1509-1519.
6. MacRae, H.M. and R.S. McLeod, 1995. Comparison of hemorrhoidal treatment modalities. Dis. Colon amp Rectum, 38: 687-694.
7. Sanchez, C. and B.T. Chinn, 2011. Hemorrhoids. Clin Colon Rectal Surg., Vol. 24, No. 1 .
8. Kuehn, H.G., O. Gebbensleben, Y. Hilger and H. Rohde, 2009. Relationship between anal symptoms and anal findings. Int. J. Med. Sci., 6:.
9. Khan, H.M., V.S.S. Gowda, B.S. Ramesh and D. Sandeep, 2021. A comparative evaluation of laser hemorrhoidoplasty versus open surgical hemorrhoidectomy treatment of grade III and IV hemorrhoids. A prospective observational study. J. Clin. Invest. Surg., 6: 30-36.
10. Dumlu, E., A. Gurer and M. Tokac,et al., 2015. Hemorrhoidectomy in Patients with Grade III or IV Disease: Harmonic Scalpel Compared With Conventional Closed Technique. Intern Archi Med., 8: 1-8.
11. Abo-hashem, A.A., A. Sarhan and A.M. Aly, 2010. Harmonic Scalpel® compared with bipolar electro-cautery hemorrhoidectomy: A randomized controlled trial. Int. J. Surg., 8: 243-247.
12. Diop, B., P.A. Ba, A. Diouf, B. NDiaye, A. Phiri and C. Sylla, 2021. Treatment of Haemorrhoidal Disease by Laser Haemorrhoidoplasty at Dakar Preliminary Study of 21 Patients. J. West Afr. Coll. Surgeons, 11: 33-37.
13. Wee, I.J.Y., C.H. Koo, I. Seow-En, Y.Y.R. Ng, W. Lin and E.J.K.W. Tan, 2023. Laser hemorrhoidoplasty versus conventional hemorrhoidectomy for grade II/III hemorrhoids: A systematic review and meta-analysis. Ann. Coloproctology, 39: 3-10.
14. Alsisy, A., Y. Alkhateep and I. Salem, 2022. Milligan–Morgan hemorrhoidectomy vs. hemorrhoid artery ligation and recto-anal repair: A comparative study. BMC Surg., Vol. 32, No. 2 .10.1186/s12893-022-01861-z.
15. Maloku, H., R. Lazovic and H. Terziqi, 2019. Laser hemorrhoidoplasty versus Milligan-Morgan hemorrhoidectomy - short term outcome. Vojnosanitetski pregled, 76: 8-12.
16. Yahya, W.N., D.O. Refaat and W.A. AbdElhady,et al., 2022. Comparison between Laser Hemorrhoidoplasty Procedure and Conventional Open Surgical Hemorrhoidectomy. Egyp Jou Hosp Med., 86: 112-116.