

A Retrospective Study in the Evaluation of Complications of Laser Haemorrhoidectomy

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Abstract: Background: The search for a minimally invasive surgical procedure to treat hemorrhoids by relying on laser technology has now allowed the introduction of various minimally invasive methods. **Objective:** This study aims to assess complications of haemorrhoidectomy according to the VAS scale and compare it with other studies. **Materials and Methods:** A retrospective study was conducted on 30 patients underwent laser hemorrhoidoplasty in the period between 2020 - 3 February to August 8 - 2020; where this study is specialized in patients with hemorrhoids in the third and fourth stage. This study included 30 patients with stage III and IV hemorrhoidoplasty were compared according to the laser technique. All patients were examined before the operation according to the standard scheme, which included rectal examination, proctoscopy, feature metre, and colonoscopy with blood flow assessment. The VAS scale was used to assess the severity of pain, as the verbal rating scale allows assessing the intensity of pain through a qualitative verbal assessment. The intensity of the pain is described in specific terms ranging from 0 (no pain) to 10 (worst pain). **Results:** This study included 30 patients, ranging in age from 26 to 60 years, who had laser haemorrhoidectomy. Exclusion criteria: emergency haemorrhoidectomy and surgery using another haemorrhoidectomy, age over 60 years, The most common complication in this study was Abscess in 6 patients with 19.4%, Hematoma was found in two patients with 6.5%, and no complications were found in 19 patients with 61.3%, and our study was compared with previously published studies, and the Finding of agreement in the results in terms of the type of complications and their reduction in addition to their severity, and this supports our current study. In terms of relying on laser technology to haemorrhoidectomy, laser haemorrhoidectomy indicated that it is a procedure that does not require hospitalization.

Keywords: Haemorrhoidectomy, laser, VAS, hospitalization, complications, Abscess.

INTRODUCTION

The goal of laser hemorrhoidoplasty is to use heat pulses to shrink the enlarged tissue, as this procedure can be used in patients with grade 3 or 4 variable haemorrhoids [Sardinha, T.C. *et al.*, 2002; Goligher, J. *et al.*, 1984]. That is when the vascular cushions have already come out of the anal canal and no longer retract on their own [Salfi, R, 2009]. Against this background, symptoms such as bleeding, itching, and pain also appear [Chia, Y.W. *et al.*, 1995].

However, this treatment option is only used for significantly enlarged haemorrhoids, which lie outside the anus and cannot be pushed back into the body [Barcly, L, 2008].

Haemorrhoids are physiological structures consisting of arteriovenous and vascular plexuses that form a cushion along the anal canal [Milligan, E.T.C. *et al.*, 1937]. Haemorrhoids cause symptoms when structural changes appear in the haemorrhoidal tissue (dilation and congestion) and/or the adjacent supportive tissue [Ul Ain, Q. *et al.*, 2018]. The prevalence of haemorrhoidal disease, according to different studies and the age

of the studied population, is highly variable and ranges from 4% to 53%. [Longchamp, G. *et al.*, 2021]

Haemorrhoids appear as one or several nodules and are usually asymptomatic, although they can cause itching [Gallo, G. *et al.*, 2020], which can be severe if they clot. In certain cases of thrombosed haemorrhoids, the blood clot can spontaneously pass through the ulceration of the skin, which can lead to bleeding. Haemorrhoids are classically categorized into four grades. [Weyand, G. *et al.*, 2019]

A systematic review [Plapler, H. *et al.*, 2009; Gupta, P.J. *et al.*, 2011] of randomized controlled trials, (378 patients) shows that laser removal of haemorrhoids is effective in the symptomatic treatment of haemorrhoidal complications. Studies randomized patients in which laser removal of haemorrhoids had a reduced relative risk (RR) of persistent symptoms (RR = 0.53; 95 confidence interval % [CI], 0.38-0.73) and risk of bleeding (RR = 0.50, 95% CI, 0.28-0.89). The review also showed a non-significant improvement for other

outcome variables, such as pain, pruritus, and/or prolapse [Brusciano, L. *et al.*, 2019].

MATERIAL AND METHODS

Patient Sample

A retrospective study was conducted on 30 patients underwent laser hemorrhoidoplasty in the period between 2020 - 3 February to August 8 - 2020; where this study is specialized in patients with haemorrhoids in the third and fourth stages.

Study Design

Patient demographic information and data were collected from several different hospitals, where 30 patients with ages ranging from 26 to 60 years were included. Patients were distributed according to gender (20 males - 10 females).

The VAS scale was used to assess the severity of pain, as the verbal rating scale allows assessing the

severity of pain through a qualitative verbal assessment. The intensity of the pain is described in specific terms ranging from 0 (no pain) to 10 (worst pain). The complications that occurred to the patients were evaluated with a period of 1 months for the purpose of taking negative aspects.

The process of laser haemorrhoids removal takes 10 to 15 minutes, The patient does not need any preparation before surgery, as the laser surgery is performed without blood loss, and through the laser, all blood vessels are cauterized, thus preventing bleeding.

If there are cracks, inflammatory processes, and fistulas in the anal and rectal area, laser haemorrhoidectomy usually eliminates these disorders.

Table 1: Distribution of patients according to age

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	26.00	1	3.2	3.3	3.3
	28.00	1	3.2	3.3	6.7
	29.00	3	9.7	10.0	16.7
	33.00	1	3.2	3.3	20.0
	37.00	4	12.9	13.3	33.3
	39.00	2	6.5	6.7	40.0
	42.00	2	6.5	6.7	46.7
	43.00	2	6.5	6.7	53.3
	44.00	1	3.2	3.3	56.7
	51.00	1	3.2	3.3	60.0
	52.00	3	9.7	10.0	70.0
	57.00	3	9.7	10.0	80.0
	58.00	1	3.2	3.3	83.3
	59.00	1	3.2	3.3	86.7
60.00	4	12.9	13.3	100.0	
	Total	30	96.8	100.0	
Missing	System	1	3.2		
Total		31	100.0		

Table 2: Descriptive Statistics of age with a mean duration

Descriptive Statistics			
	N	Mean	Std. Deviation
age	30	44.9667	11.44246
duration	30	14.1333	2.06336
Valid N (listwise)	30		

Table 3: Complication assessment results for patients

Descriptives ^{a,b,c,d}					
VAR00003			Statistic	Std. Error	
age	Abscess	Mean	41.8333	4.20648	
		95% Confidence Interval for Mean	Lower Bound	31.0202	
			Upper Bound	52.6464	
		5% Trimmed Mean	41.5370		
		Median	40.5000		
		Variance	106.167		
		Std. Deviation	10.30372		
		Minimum	29.00		
		Maximum	60.00		
		Range	31.00		
		Interquartile Range	13.00		
		Skewness	1.030	.845	
	Kurtosis	2.238	1.741		
	Hematoma	Mean	60.0000	.00000	
		95% Confidence Interval for Mean	Lower Bound	60.0000	
			Upper Bound	60.0000	
		5% Trimmed Mean	60.0000		
		Median	60.0000		
		Variance	.000		
		Std. Deviation	.00000		
		Minimum	60.00		
		Maximum	60.00		
		Range	.00		
		Interquartile Range	.00		
		Skewness	.	.	
	Kurtosis	.	.		
	NO complications	Mean	45.6316	2.53307	
		95% Confidence Interval for Mean	Lower Bound	40.3098	
			Upper Bound	50.9534	
		5% Trimmed Mean	45.8129		
		Median	43.0000		
		Variance	121.912		
		Std. Deviation	11.04139		
Minimum		28.00			
Maximum		60.00			
Range		32.00			
Interquartile Range		20.00			
Skewness		-.215	.524		
Kurtosis	-1.376	1.014			

a) There are no valid cases for an age when VAR00003 = .000. Statistics cannot be computed for this level.

b) Age is constant when VAR00003 = Fissure. It has been omitted.

c) Age is constant when VAR00003 = Recurren. It has been omitted.

d) Age is constant when VAR00003 = Ulcer. It has been omitted.

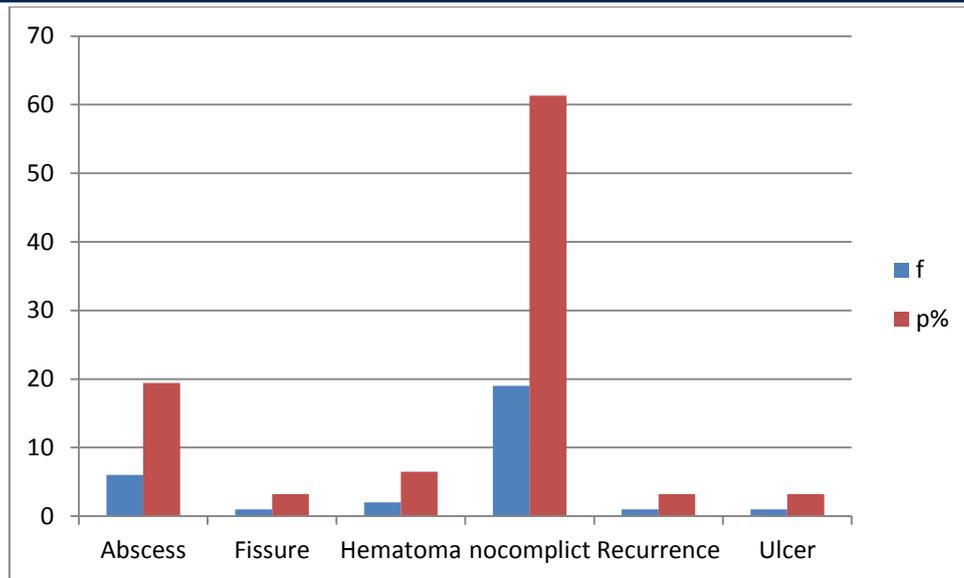


Figure 1: Frequency of complication for the patient (laser hemorrhoidectomy)

In the table below, the degree of pain was shown according to the VAS scale for the purpose of evaluating the intensity of pain in addition to the duration for patients who underwent laser haemorrhoidectomy. Performance was evaluated according to period through three time periods (one day - week -month).

Table 4: Outcomes according to VAS scale to the evaluation of complications of laser haemorrhoidectomy

		Statistics		
		One Day	Week	Month
N	Valid	30	30	30
	Missing	1	1	1
Mean		4.7000	2.8667	2.0667
Median		4.0000	2.0000	2.0000
Mode		3.00	2.00	2.00
Std. Deviation		2.29166	1.77596	1.57422
Variance		5.252	3.154	2.478
Range		8.00	5.00	5.00
Minimum		1.00	1.00	.00
Maximum		9.00	6.00	5.00

Table 5: Logistic regression to analyse the relationship between Pain score with severity complication post-operatively

V	P	
	L n = 30	P-Value
Pain score		
1-day post-operatively	1.65 (0.55–2.99)	0.01
1-week post-operatively	1.11 (0.45–1.87)	0.66
One month post-operatively	0.92 (0.44–1.33)	0.89

DISCUSSION

In this study, information and demographic data were collected for thirty patients who underwent laser removal of hemorrhoids from multiple hospitals, and the statistical analysis program was relied on IBM soft spss 25 for the purpose of knowing the type of complications to patients. The

patients' ages ranged between 26 - 60 years, and the mean± sd to Patients' ages: was 44.9 ± 11.44.

Most people who undergo the procedure usually report minimal pain or discomfort after the treatment, and the downtime of the procedure is minimal as there is no cutting or tissue removal, which is one of the main reasons why it is preferred.

The duration of the operation lasted between 10-20 minutes under local anesthesia, and the patients were subjected to laser hemorrhoids removal as a result of it being considered modern techniques that have created great popularity in getting rid of hemorrhoids problem without worry, as it is suitable for patients suffering from hemorrhoids in stage 3-4, and it gives them the best treatment

results. [Plapler, H. et al., 2009; Poskus, T. et al., 2020]

When we compare our current study with other previous studies that stipulated the use of different methods for removing hemorrhoids, we find that the current method used by laser offers methods, as a statistically significant relationship was found between the decreases in duration compared with other methods, as shown in Table 6.

Table 6: Person correlation between best results with Duration by laser, other method

Correlations				
		Results	Duration By Laser	Other Method
age	Pearson Correlation	1	.673**	-.284
	Sig. (2-tailed)		.000	.128
	N	30	30	30
duration	Pearson Correlation	.673**	1	-.006
	Sig. (2-tailed)	.000		.976
	N	30	30	30
Other method	Pearson Correlation	-.284	-.006	1
	Sig. (2-tailed)	.128	.976	
	N	30	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

The most common complication in this study was Abscess in 6 patients with 19.4%, Hematoma was found in two patients with 6.5%, and no complications were found in 19 patients with 61.3%, and our study was compared with previously published studies, and the finding of agreement in the results in terms of the type of complications and their reduction in addition to their severity, and this supports our current study. In terms of relying on laser technology to haemorrhoidectomy.

Hemorrhoids occur due to increased load or pressure on the anal area, which leads to the expansion of the veins and blood vessels in the rectum and around the anus, causing swelling, and this makes the process of excretion very painful, in addition to many other annoying symptoms, which depend on the location of the protrusion of the blood vessels. [Giamundo, P. et al., 2011; Giamundo, P. et al., 2011; El Nakeeb, A.M. et al., 2008]

Haemorrhoids are divided into two types depending on the location of the swollen veins. In the case of swollen veins in the rectal area, the haemorrhoids are internal and can only be felt or seen through endoscopy [Aigner, F. et al., 2016].

If there are swollen veins in the area of the skin surrounding the anus, then haemorrhoids are

external, and this type causes many symptoms [Zhai, M. et al., 2016].

CONCLUSION

Hemorrhoidectomy is considered the most effective method of treating hemorrhoids, but its significant drawbacks are severe pain and a long period of disability in the postoperative period, as well as a high risk of complications. The active introduction of new methods such as a laser is easy to reduce complications as well as faster recovery.

Thus, the laser technique in Hemorrhoidectomy proved to be more efficient than other methods. This technique can be used to treat all patients with chronic hemorrhoids of the third and fourth stages.

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