

**ORIGINAL RESEARCH**

# To Study the clinical outcomes of Ligasure vessel sealer haemorrhoidectomy in patients with symptomatic haemorrhoids: A prospective study

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**ABSTRACT**

**Background:** Haemorrhoidal disease, a most common anorectal disorder, affecting, almost 50% of population. The present study was conducted to assess clinical outcomes of Ligasure vessel sealer haemorrhoidectomy in patients with symptomatic haemorrhoids. **Materials & Methods:** Present study was conducted in between 2022 July to 2023 July at Late Shri Lakhiram Agrawal Memorial Government Medical college, Raigarh. 62 patients with symptomatic haemorrhoids (Grade II to Grade IV), age ranged from 22 – 70 years of both genders admitted to Department of General Surgery, Government Kilpauk Medical college and Hospital underwent Ligasure vessel sealer haemorrhoidectomy. They were asked to grade the severity of pain on Visual Analogue Scale (0-10) (VAS) on the next morning of surgery (day 1), the next day (day 3) and after 1 week of follow up (day 7). **Results:** Out of 62 patients, males were 71% and females were 29%. The maximum age distribution of patient, presenting with haemorrhoids, was in the age group of 40- 50 years -35 patients (56.4%) common for male and females. The maximum percentage of patients presented with Grade 3 haemorrhoids i.e. 54.8% (34 patients). The mean age group for prolapsed Grade 2 haemorrhoids was 29 years, for Grade 3 haemorrhoids was 43 years and for Grade 4 haemorrhoids was 56 years, among both female and male groups. The preoperative assessment of continence was done through Wexner incontinence score and was ranged from 1 to 2, thus all patients were found completely continent before surgery. The duration of surgery ranged from 15- 25 minutes, with 35 patients (56.4%) completed surgery within 20-25 minutes and 27 patients (43.5%) completed surgery within 15-20 minutes. Thus, the mean operative time of the study calculated was found to be 20.6 minutes. There was intraoperative blood loss ranging from 5 ml to 25 ml with 66% of patient had a blood loss of 16- 20 ml followed by 26 % of the patient had a blood loss of 21- 25 ml. There were no major per operative complications. The difference was significant ( $P < 0.05$ ). Post-operative pain evaluation was done through visual analogue score (VAS) and found that maximum number of patients i.e. 51 patients (82%) had mild pain at postoperative day 1 (POD 1- VAS-3), with concurrent reduction in symptoms of pain at 3rd postoperative day (POD 3- VAS-1) and at 1st week (VAS-0). **Conclusion:** Ligasure vessel sealer haemorrhoidectomy showed a promising results of less postoperative pain and decreased rate of complications in our study and should be considered as an alternative to conventional haemorrhoidectomy in symptomatic patients with grade II, grade III and grade IV haemorrhoids.

**Keywords:** Haemorrhoidal disease, POD, VAS

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**INTRODUCTION**

Haemorrhoidal disease, a most common anorectal disorder, affecting, almost 50% of population over the age of 22 - 50 years, and is one of the surgical diseases to which there is still no unison of opinion as to, which is the best form of surgery.<sup>1</sup> Haemorrhoidectomy, is a commonly performed surgical technique. The excisional technique is remarked to be the first option for grade III, grade IV

and recurrent haemorrhoids. A conventional haemorrhoidectomy is related to post procedural pain, hence many alterations have been proposed to diminish this complication. The sub-mucosal dissection approach of Ligasure vessel sealer, with coagulation of the haemorrhoidal pedicle is safe and efficient.<sup>2</sup>

Ligasure vessel sealer is a bipolar electro-thermal sealing device, which utilizes a very high frequency

current, imparting haemostasis by denaturing elastin and collagen from the vessel wall and from the enclosed connective tissue.<sup>3</sup> Due to high frequency current and efficient feedback control, over the power output, it was proposed that, the sealing and segregation of haemorrhoidal mass in between the Ligasure-forceps is obtained, with minimum collateral thermal spread and limited defined tissue charring, hence leading to, a decreased incidence of postoperative pain. The blood vessels and tissues will get compressed to a wafertin seal, leading to good haemostasis.<sup>4</sup>

Suturing is not needed over the pedicle, as the mucosal tissue will get sealed off with the high frequency controlled current. The external elements of the haemorrhoids i.e. skin tags, can also be regarded and treated at the same time.<sup>5</sup> Because of its easiness of use and less postoperative pain and complication rates, Ligasure vessel sealing haemorrhoidectomy would expedite earlier hospital discharge, earlier recovery time and return to normal work or activities hence providing better outcomes and improves short term consequences of conventional haemorrhoidectomy, in patients with symptomatic haemorrhoids.<sup>6</sup> The present study was conducted to assess clinical outcomes of Ligasure vessel sealer haemorrhoidectomy in patients with symptomatic haemorrhoids.

## MATERIALS & METHODS

Present study was conducted in between 2022 July to 2023 July at Late Shri Lakhiram Agrawal Memorial Government Medical college, Raigarh. The present study consisted of 62 patients with symptomatic haemorrhoids (Grade II to Grade IV), age ranged from 22 – 70 years of both genders admitted to Department of General Surgery, Government Kilpauk Medical college and Hospital. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Procedure was done under Spinal anaesthesia. Preoperative bowel preparation was done to minimize faecal contamination and keeps colon stable for the first few days of operative period. Surgery was done with standard sterile, autoclaved equipment for all patients. Postoperatively anal packing, if applied was removed on the evening of surgery. The patients were advised, to take Sitz bath on the next morning of surgery (POD 1) and were given dulcolax / osmotic laxative i.e. Syp Lactulose 4 tsf bd for 1 week. They were asked to grade the severity of pain on Visual Analogue Scale (0-10) (VAS) on the next morning of surgery (day 1), the next day (day 3) and after 1 week of follow up (day 7). Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

Total- 62		
Gender	Male	Female
Number	71%	29%

Table I shows that out of 62 patients, males were 71% and females were 29%.

**Table II Assessment of parameters**

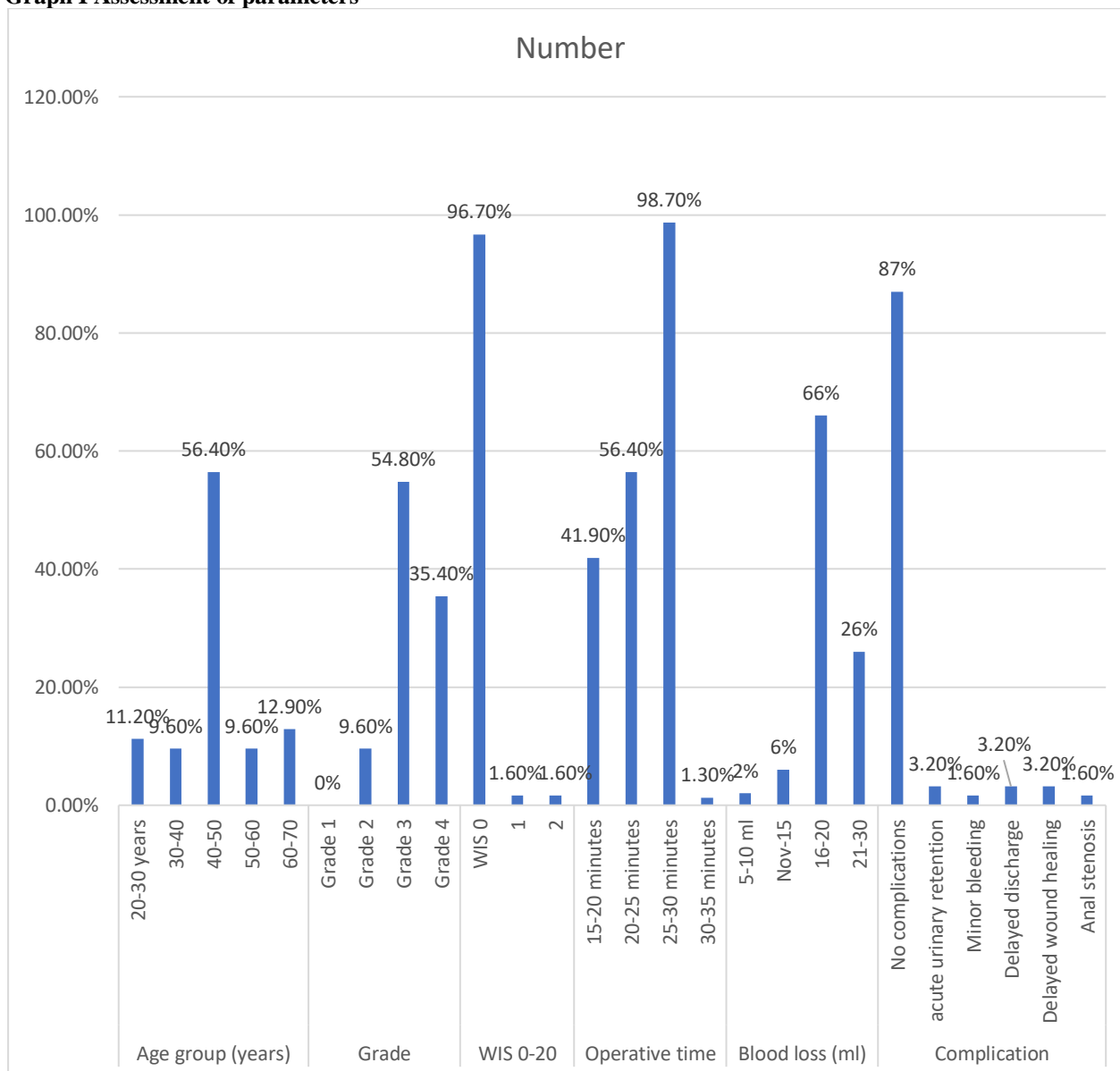
Parameters	Variables	Number	P value
Age group (years)	20-30 years	11.2%	0.05
	30-40	9.6%	
	40-50	56.4%	
	50-60	9.6%	
	60-70	12.9%	
Grade	Grade 1	0%	0.03
	Grade 2	9.6%	
	Grade 3	54.8%	
	Grade 4	35.4%	
WIS 0-20	WIS 0	96.7%	0.01
	1	1.6%	
	2	1.6%	
Operative time	15-20 minutes	41.9%	0.74
	20-25 minutes	56.4%	
	25-30 minutes	98.7%	
	30-35 minutes	1.3%	
Blood loss (ml)	5-10ml	2%	0.05
	11-15	6%	
	16-20	66%	
	21-30	26%	
Complication	No complications	87%	0.04

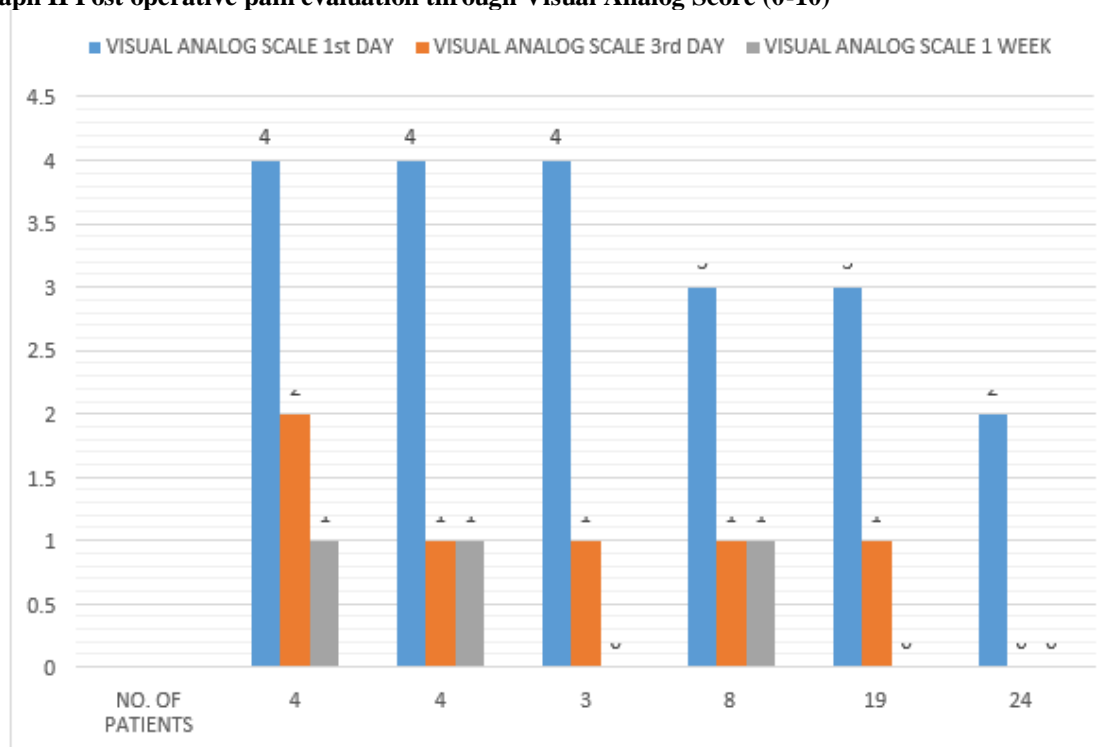
	acute urinary retention	3.2%
	Minor bleeding	1.6%
	Delayed discharge	3.2%
	Delayed wound healing	3.2%
	Anal stenosis	1.6%

A sample size of 62 patients, operated with Ligasure method for grade II to IV haemorrhoids, 44 (71%) were male and 18 (29%) were female patients. The ratio of male: female was 2.4: 1. The maximum age distribution of patient, presenting with haemorrhoids, was in the age group of 40- 50 years -35 patients (56.4%) common for male and females. The maximum percentage of patients presented with Grade 3 haemorrhoids i.e. 54.8% (34 patients). The mean age group for prolapsed Grade 2 haemorrhoids was 29 years, for Grade 3 haemorrhoids was 43 years and for Grade 4 haemorrhoids was 56 years, among both female and male groups. The preoperative assessment of continence was done through Wexner

incontinence score and was ranged from 1 to 2, thus all patients were found completely continent before surgery. The duration of surgery ranged from 15- 25 minutes, with 35 patients (56.4%) completed surgery within 20-25 minutes and 27 patients (43.5%) completed surgery within 15-20 minutes. Thus, the mean operative time of the study calculated was found to be 20.6 minutes. There was intraoperative blood loss ranging from 5 ml to 25 ml with 66% of patient had a blood loss of 16- 20 ml followed by 26 % of the patient had a blood loss of 21- 25 ml. There were no major per operative complications. The difference was significant (P< 0.05).

**Graph I Assessment of parameters**



**Graph II Post operative pain evaluation through Visual Analog Score (0-10)**

Post-operative pain evaluation was done through visual analogue score (VAS) and found that maximum number of patients i.e. 51 patients (82%) had mild pain at postoperative day 1 (POD 1- VAS-3), with concurrent reduction in symptoms of pain at 3rd postoperative day (POD 3- VAS-1) and at 1st week (VAS-0).

## DISCUSSION

A considerable part of the adult population is affected by hemorrhoids. When this benign anorectal disorder becomes symptomatic, investigation should follow to rule out other diagnoses. Based on the combination of complaints and the results of clinical examination, hemorrhoidal disease can be classified into four stages.<sup>7</sup> They range from first-degree bleeding to fourth-degree protruding hemorrhoids that cannot be reduced. Along goes the treatment from medical therapy to operative intervention.<sup>8</sup> The present study was conducted to assess clinical outcomes of Ligasure vessel sealer haemorrhoidectomy in patients with symptomatic haemorrhoids.

We found that out of 62 patients, males were 71% and females were 29%. Chung YC et al<sup>9</sup> reported mean pain scores during a 2-week postoperative period in the LigaSure group as 6.5 and in conventional haemorrhoidectomy group as 8.0.

We observed that the maximum age distribution of patient, presenting with haemorrhoids, was in the age group of 40- 50 years -35 patients (56.4%) common for male and females. The maximum percentage of patients presented with Grade 3 haemorrhoids i.e. 54.8% (34 patients). The mean age group for prolapsed Grade 2 haemorrhoids was 29 years, for Grade 3 haemorrhoids was 43 years and for Grade 4 haemorrhoids was 56 years, among both female and male groups. The preoperative assessment of continence was done through Wexner incontinence score and was ranged from 1 to 2, thus all patients

were found completely continent before surgery. The duration of surgery ranged from 15- 25 minutes, with 35 patients (56.4%) completed surgery within 20-25 minutes and 27 patients (43.5%) completed surgery within 15-20 minutes. Franklin EJ and Pattana-Arun J et al<sup>10</sup> reported, on pain at day 14, with similar scores for LigaSure haemorrhoidectomy and conventional haemorrhoidectomy groups.

We found that there was intraoperative blood loss ranging from 5 ml to 25 ml with 66% of patient had a blood loss of 16- 20 ml followed by 26 % of the patient had a blood loss of 21- 25 ml. There were no major per operative complications. We found that post-operative pain evaluation was done through visual analogue score (VAS) and found that maximum number of patients i.e. 51 patients (82%) had mild pain at postoperative day 1 (POD 1- VAS-3), with concurrent reduction in symptoms of pain at 3rd postoperative day (POD 3- VAS-1) and at 1st week (VAS-0). Olfat Issa Ei Sebaei et al<sup>11</sup> in 2015, in his study in Egypt on 20 patients reported mean operative time to be  $6.6 \pm 4.3$  (5 to 10 minutes). Maurizio et al<sup>12</sup> in his study on 25 patients found postoperative pain on 1st POD-3.7 mean VAS, on 3rd POD- 3.14 mean VAS and at 1week mean VAS reduced to 1.6.

The limitation of the study is the small sample size.

## CONCLUSION

Authors found that ligasure vessel sealer haemorrhoidectomy showed a promising results of less postoperative pain and decreased rate of

complications in our study and should be considered as an alternative to conventional haemorrhoidectomy in symptomatic patients with grade II, grade III and grade IV haemorrhoids.

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