



International Journal of Surgery Science

E-ISSN: 2616-3470

P-ISSN: 2616-3462

© Surgery Science

www.surgeryscience.com

2023; 7(3): 34-40

Received: 21-04-2023

Accepted: 29-05-2023

Dr. Saurabh Raut

Junior Resident, Department of
General Surgery, Dr. VMGMC
Solapur, Maharashtra, India

Dr. Sanjiv Thakur

Dean and Professor, Department
of General Surgery, BJ Medical
College, Maharashtra, India

Dr. Ritvik Jaykar

Professor and HOD, Department
of General Surgery, Dr. VMGMC,
Solapur, Maharashtra, India

Dr. Ameya Sanjiv Thakur

Lecturer, Department of General
Surgery, BJ Medical College,
Maharashtra, India

Laser procedure for grade 2 and grade 3 haemorrhoids Authors

Dr. Saurabh Raut, Dr. Sanjiv Thakur, Dr. Ritvik Jaykar and Dr. Ameya Sanjiv Thakur

DOI: <https://doi.org/10.33545/surgery.2023.v7.i3a.1008>

Abstract

Background: The art of proctologist is based on the study of haemorrhoid and it seems inappropriate to trace the history of development of our current understanding of this rather in completely understood subject. Use of laser for piles has been described recently. It has been said to be less painful as the laser burns and seals the vessel simultaneously.

Aim: The purpose of this study was to evaluate laser procedure in treatment of second and third grades of haemorrhoids.

Materials and Methods: 30 participants were enrolled for study from July 2020 till November 2022 at VMGMC, Solapur a tertiary care centre in west Maharashtra. Lastronix machine was used, the parameters used were Diode laser wavelength 980nm, continuous wave, Power 5-15 watt, spot size of the hand piece was 0.4mm. Laser haemorrhoidectomy was performed under spinal anaesthesia

Results: It was observed that post operative pain (VAS score) was significantly reduced after 48 hours post operatively. The chi-square statistic is 14.552. The p-value is 0.005726. The result is significant at $p < .05$.

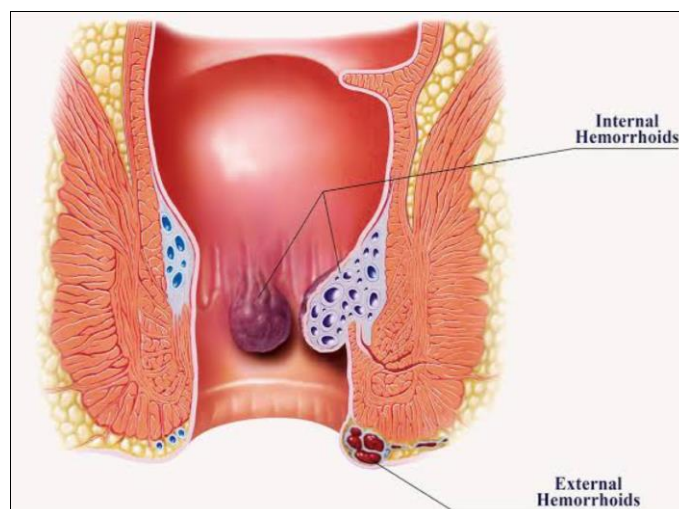
Conclusion: Given all advantages and minimal drawbacks, it can be concluded that laser procedure was observed to have definite edge in the management of grade 2 and grade 3 haemorrhoids.

Keywords: Haemorrhoids laser, proctologist, Lastronix

Introduction

The art of proctologist is based on the study of haemorrhoid (HD) and it seems in appropriate to trace the history of development of our current understanding of this rather in completely understood subject. Use of laser for piles has been described recently. It has been said to be less painful as the laser burns and seal vessel and nerves simultaneously.

Hemorrhoids are one of the common surgical conditions. At least 10% of the population will have symptomatic hemorrhoids at some time in their life. Different modalities of treatment have been used throughout years, one of the alternatives to medical and surgery was using Laser.



Corresponding Author:

Dr. Saurabh Raut

Junior Resident, Department of
General Surgery, Dr. VMGMC
Solapur, Maharashtra, India

Aim

The purpose of this study was to evaluate efficacy of laser in treatment of second and third grades of hemorrhoids.

Materials and methods**Source of data**

This study was done in VMGMC SOLAPUR, early July 2020 to the end of November 2022 30 patients were enrolled in this study.

Study design









Prospective cohort study

Selection criteria

Patients full filling inclusion criteria

Inclusion criteria

Patients having grade 2 and 3 haemorrhoid
15 -65 years

GRADING OF INTERNAL HEMORRHOIDS			
WWW.OPENMED.CO.IN			
GRADE 1	Bleeding, No Prolapse		
GRADE 2	Prolapse, Reduces Spontaneously		
GRADE 3	Prolapse requires Manual Reduction.		
GRADE 4	Prolapsed, Can Not be reduced.		

Exclusion criteria

1. Unfit patients
2. Emergency operations
3. Complicated
4. Patient above 70 years

Objectives

1. Operative time
2. Post op pain
3. Hospital stay

Methodology

Informed and written consent was taken for all patients considered for the study. Preoperatively, all patients underwent thorough medical evaluation, biochemical blood analysis (routine), and physical examinations (digital rectal and/or proctoscopic examinations). The rectal prolapse was assessed on digital and/or anoscopic examination.

Time is taken for the procedure, preoperative complications (bleeding), postoperative pain, HD downgrading, resolution, and relapse were collected via the prospective method. Mild sedative. No bowel preparation was needed; however, two enemas were given to the patients (the evening before and

morning of the procedure).

Lastronix machine was used, the parameters used were Diode laser wavelength 980nm, continuous wave, 200Power 5-15watt, spot size of the hand piece was 0.4mm. Laser haemorrhoidectomy was performed under spinal anaesthesia

Procedure

Anoscope inserted, haemorrhoidal mass palpated and laser probe inserted and guided till the apex of the mass under vision. The surgeon is able to see only partial shrinkage and feel the firmness.

Through a small window of the proctoscope approximately 4 cm above the dentate, the terminal divisions of the hemorrhoidal (superior) artery were identified with the help of a Doppler probe (transducer). Once the identification was done, all the branches were lasered (close) using laser optic fiber (6 pulses of 1.1 seconds each with 0.5 seconds pause with the energy of 12 W), which reinstates the probe in the same small aperture of a proctoscope. The effects of the laser were seen by reintroducing the doppler probe. If required, another two new sets of laser shots were delivered at the same point. Pain killer administered only if a patient asked. Almost all patients were discharged within a few days of surgery.



Results

Table 1: Age wise percentage

Age	Number of subject	Percentage
Less than 30	8	27
31-40	12	40
41-50	5	16
51-60	Zero	Zero
More than 60	5	17
Total	30	100

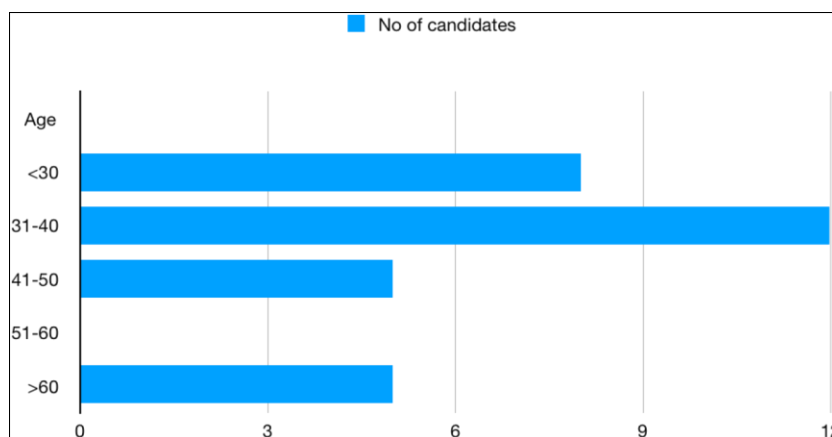


Fig 1: Age wise percentage

Table 2: Gender wise percentage

Gender	Number of subject	Percentage
Male	19	63
Female	11	37
Total	30	100

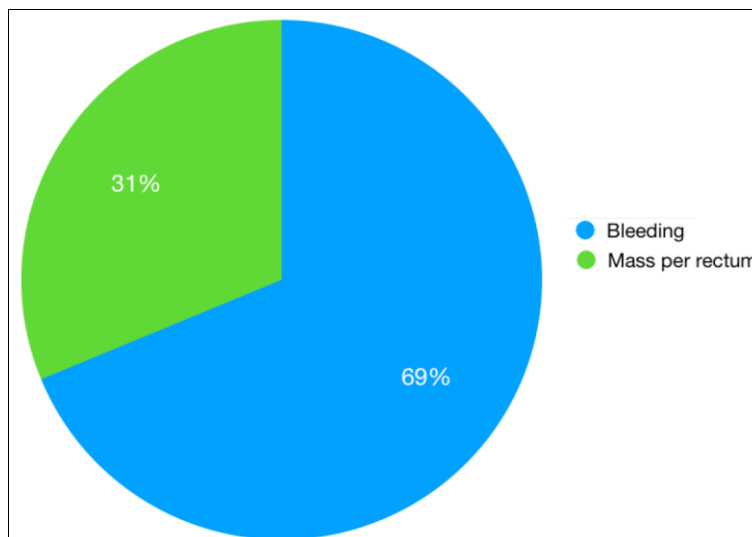


Fig 1: Gender wise percentage

Table 3: Presenting complaints in percentage

Symptoms	No of candidates	Percentage
Bleeding	11	37
Mass per rectum	5	16
Painful defecation	9	30
Bleeding +pain	5	17
Prolapse	0	0
Total	30	100

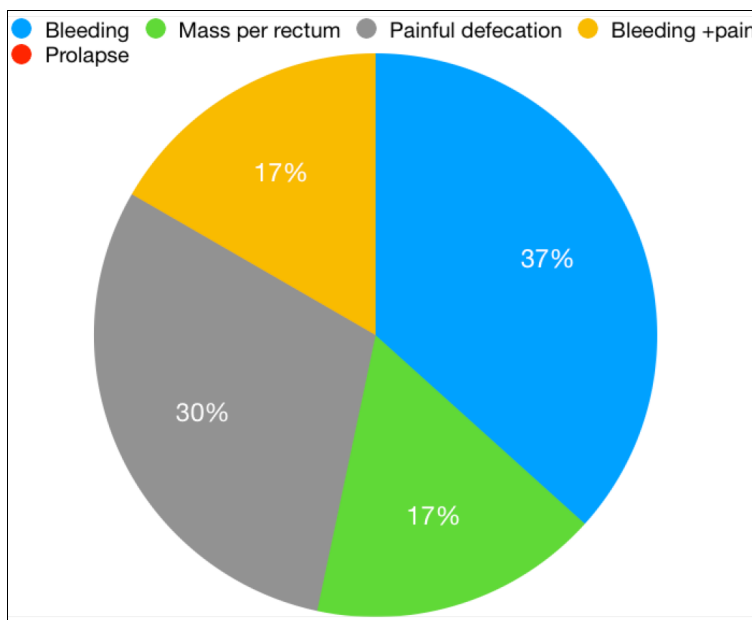


Fig 3: Presenting complaints in percentage

Table 4: Grade wise in percentage

Grade	No of candidates	Percentage
1	0	0
2	13	43
3	17	57
4	0	0
Total	100	100

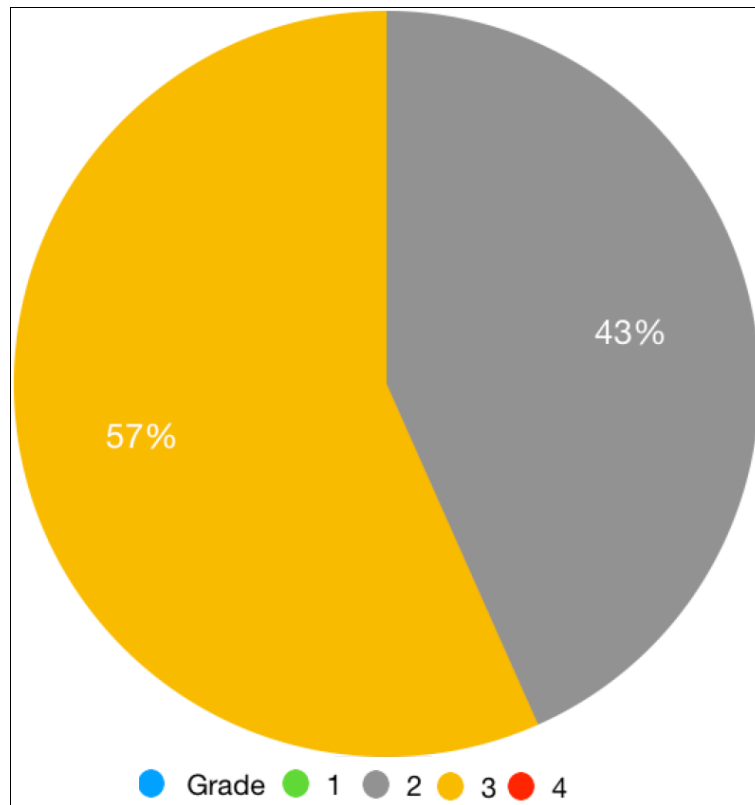


Fig 4: Grade wise in percentage

Table 5: Post operative VAS 6 hour

Score	No of candidates	Percentage
0-3	20	67
4-6	9	30
More than 6	1	3
Total	30	100

Table 6: Post operative VAS 24 hours

Score	No of candidates	Percentage
0-3	27	90
4-6	3	10
More than 6	0	0
Total	30	100

Table 7: Post operative VAS 48 hours

Score	No of candidates	Percentage
0-3	30	100
4-6	0	0
More than 6	0	0
Total	30	100

Table 8: Comparison of post operative VAS score

Score	6 hour	24 hours	48 hours
0-3	20	27	30
4-6	9	3	0
More than 6	1	0	0
Total	30	30	30

Table 8: Operative time

Operative time	Value
Mean	34.16
Median	35
SD	9.9

Table 9: Post operative hospital stay

Post operative hospital stay	Values
Mean	1.96 day
SD	0.32 day
Median	2 day

In the current study we assessed the Post operative hospital stay and mean duration required for return to work among the study subjects. We observed that the mean Post operative hospital stay was 2.73 ± 1.08 days, In the current study we assessed the Comparison of Post-operative VAS score over the period of follow up among the study subjects. We observed that post operative pain (VAS score) was significantly reduced after 48 hours after the surgery. The chi-square statistic is 14.552. The p-value is 0.005726. The result is significant at $p < .05$.

Discussion

Hemorrhoidal disease (HD) treatment still remains controversial. In fact, despite many surgical progresses, postoperative pain, and discomfort remain the major weaknesses. Laser hemorrhoidoplasty (LHP) is a minimal invasive procedure for HD treatment determining the shrinkage of the hemorrhoidal piles by diode laser. In a study of the University of Sao Paulo Brazil, they stated that laser hemorrhoidectomy had the advantages of being haemostatic, bactericidal, fast healing, not affecting neighboring structures, less postoperative complications and less hemorrhage and stenosis. Open surgical hemorrhoidectomy is the most widely used procedure in the surgical management of hemorrhoids. However, hemorrhoidectomy is associated with significant complications including pain, bleeding and wound infection which can result prolonged hospital stay.

The present study was conducted to assess the efficacy of grade II-III hemorrhoid post laser hemorrhoidectomy, the degree of pain post laser hemorrhoidectomy, and hence to assess the

recovery duration and return to work duration at a tertiary healthcare Demographic information

Demographics

In the current study we assessed the Age distribution among the study subjects. We observed that majority of the study subjects belonged to the age group of 31 to 40 years (40%), followed by below 30 years (27%), 41 to 50 years (16.%) and more than 60 years (17%)

In the current study we assessed the Gender wise distribution among the study subjects. We observed that majority of the study subjects were males (63%), followed by 37% were female. Paolo Giamundo *et al.* in their study observed that out of total of 60 patients (35 women, 25 men; mean age, 46 years). Halit Maloku *et al.* in their study conducted LHP procedure was performed on 20 consecutive patients which had symptomatic grade III hemorrhoids with moderate mucosal prolapse at proctoscopy and a medical history of rare episodes of prolapse manual reduction, with mean age 47 ± 12.6 (range, 24-70) years. There were 11 men and 9 women.

Grade of haemorrhoids

In the current study we assessed the Grade of hemorrhoids among the study subjects. We observed that majority of the study subjects presented with grade 2 type of hemorrhoids 43%, whereas 57% subjects had grade 3 hemorrhoids.

Symptoms

In the current study we assessed the symptoms among the study subjects. We observed that Bleeding was reported among 37% study subjects, Pain Bleeding was reported among 17% study subjects, pain was reported in 30% and mass per rectum was reported to be 16 percent.

Operative parameters

In the current study we assessed the Operative time and blood loss among the study subjects. We observed that mean operating time was 34.16 minutes.

Halit Maloku *et al.* in their study observed that the mean operative time was 15.94 ± 3.5 min in the LHP group and 26.76 ± 5.8 min ($p < 0.01$).

Post-operative pain (VAS score)

Postoperative pain is the most important complication that disturbs our patients and makes them reluctant to surgery. In the current study we assessed the Post-operative VAS score (6 hrs) among the study subjects. We observed that 33.3% had VAS score between 0-3 (mild pain), In the current study we assessed the Post-operative VAS score (24 hrs) among the study subjects was observed that 90% had VAS score between 0-3 (mild pain), while 10% had moderate pain. Post operative period at 48 hour 100 percent people had there VAS score between 0-3.

Comparison of Post-operative VAS score

In the current study we assessed the Comparison of Post-operative VAS score over the period of follow up among the study subjects. We observed that post operative pain (VAS score) was significantly reduced after 48 hours after the surgery. (The chi-square statistic is 14.552. The p-value is. 005726. The result is significant at $p < 0.05$

Paolo Giamundo *et al.* in their study observed that the median postoperative pain score was 2.9 (range, 1-5) with rubber band ligation vs 1.1 (range, 0-2) for hemorrhoid laser procedure ($P < 0.01$). At 6 months, resolution of symptoms was observed in 16

patients (53%) with ligation vs 27 (90%) with hemorrhoid laser procedure ($P < 0.001$).

Halit Maloku *et al.* in their study observed that early postoperative pain is dominantly lower in the LHP group compared with surgical group. The same values also resulted for the period of one month. They found that the pain scores were significantly lower in the LHP group compared with open hemorrhoidectomy procedure group, in the early postoperative period after VAS score was 5 vs. 0 for score 0-1, 15 vs. 18 for score 2-5 and 0 vs. 2 for score above 5 in the respective groups. In their study, postoperative pain during the first month after both procedures, was significantly lesser in the laser hemorrhoidectomy compared with conventional open surgical hemorrhoidectomy ($p < 0.05$).

Luigi Bruscianno *et al.* in their study observed that fifty patients (28 males and 22 females) were enrolled in the study. No significant intraoperative complications occurred.

Postoperative pain score (at 12, 18, and 24 h postoperatively), evaluated through visual analogue scale, was extremely low (mean value 2). No postoperative spontaneous bleeding occurred. The 100% of our population came back to daily activity 2 days after.

Post operative hospital stay

In the current study we assessed the Post operative hospital stay and mean duration required for return to work among the study subjects. We observed that the mean Post operative hospital stay as 1.96 days.

P De Nardi *et al.* in their study observed that postoperative complications were bleeding ($n = 4$) and external hemorrhoidal thrombosis ($n = 4$). Mean bleeding and pain scores at 3, 12, and 24 months were significantly reduced. After 24 months, complete resolution of bleeding was observed in 28/29 patients (96.7%), resolution of pain in all patients, and resolution of the mucosal prolapse in 15/18 patients (76.9%). At 12-month follow-up, 86.3% of patients reported improvement with the PGI Scale. They concluded that the hemorrhoid laser procedure was effective in improving bleeding and pain symptoms in patients with grade II and III hemorrhoids.

Nicola Crea *et al.* in their study observed that there as no significant intraoperative complications occurred. The median follow-up was 15 months. Postoperative pain was null in most patients. Symptoms and HD downgrading reached a "plateau" at 3 to 6 months after the HeLP. At this evaluation, frequency of bleeding, pain, itching, and hemorrhoidal acute syndrome decreased by 76% to 79%. HD grade showed a significant reduction. HD recurrence rate was 5% at 2 years.

They concluded that the HeLP is a safe, effective, and painless technique for the treatment of symptomatic second- to third-grade hemorrhoids with minimal or moderate mucosal prolapse, ideally suitable as ambulatory treatment.

Conclusion

It is often encountered that the severity of hemorrhoids and their size are not correlated well. When there is an initial prolapse in second-to third-grade hemorrhoids, the patient may experience itching, bleeding, and recurrent acute pain. In such cases, excisional techniques or stapled hemorrhoids are commonly overtreated. In such cases, the LP procedure may be considered a more suitable choice when the conservative mode of treatment fails. Our results demonstrated that LP could be a secure, compelling, and effortless technique for the treatment of symptomatic second to third-degree HD with negligible or minimum prolapse of rectal mucosa. Besides, this technique is also minimally invasive, does not require anesthesia, can be

performed as an outpatient procedure, has the advantage of short hospital stay, and faster recuperation.

Given all advantages and minimal drawbacks, it can be concluded that laser haemorrhoidoplasty has definite edge in the management of grade 2 and grade 3 haemorrhoids.

Conflict of interest

Not available

Financial support

Not available

References

1. Churchill's livingstone book of surgery by Andrew Traftery 4th edition, zOtl, 2S4
2. Maria G, Alfonsi G, Nigro C, Brisinda G. Whitehead's hemorrhoidectomy. A useful surgical procedure in selected cases. *Tech Coloproctol.* 2001;5:93–96. [PubMed] [Google Scholar]
3. Morinaga K, Hasuda K, Ikeda T. Novel therapy for haemorrhoids: Ligation of the hemorrhoidal artery with a newly devised instrument (Mori corn) in conjunction with a Doppler flow meter <https://web.s.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=00029270&AN=16062327&h=3dPhGYxioa4%2fdzsm5oM237R7OHuNIVJ%2bX69UAw4rhwa0BSe21u9KtGGM Yam74Hdjml1MxNGEYGrseTCI5YZJHg%3d%3d&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCriNotAuth&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d00029270%26AN%3d1606232>
4. Am J Gastroenterol. 1995;90:610–613. [PubMed] [Google Scholar]
5. Felice G, Privitera A, Ellul E, Klaumann M. Doppler-guided hemorrhoidal artery ligation: An alternative to hemorrhoidectomy. *Dis Colon Rectum.* 2005;48:2090–2093. [PubMed] [Google Scholar]
6. Pucher PH, Qurashi M, Howell AM, Faiz O, Ziprin P, Darzi A, Sodergren MH. Development and validation of a symptom-based severity score for haemorrhoidal disease: the Sodergren score. <https://doi.org/10.1111/codi.12903>. *Colorectal Dis.* 2015;17:612–618. [PubMed] [Google Scholar] Complications of Milligan-Morgan hemorrhoidectomy. Sayfan J *Dig Surg.* 2001;18:131–133. [PubMed] [Google Scholar]
7. Konsten J, Baeten CG. Hemorrhoidectomy vs. Lord's method: 17-year follow-up of a prospective, randomized trial. *Dis Colon Rectum.* 2000;43:503–506. [PubMed] [Google Scholar]
8. Ambrose NS, Morris D, Alexander-Williams J, Keighley MR. A randomized trial of photocoagulation or injection sclerotherapy for the treatment of first- and second-degree hemorrhoids. *Dis Colon Rectum.*
9. Ratto C, Campenni P, Papeo F, Donisi L, Litta F, Parello A. Transanal hemorrhoidal dearterialization (THD) for hemorrhoidal disease: A single-center study on 1000 consecutive cases and a review of the literature. *Tech Coloproctol.* 2017;21:953–962. [PMC free article] [PubMed] [Google Scholar]
10. Giordano P, Overton J, Madeddu F, Zaman S, Gravante G. Transanal hemorrhoidal dearterialization: A systematic review. *Dis Colon Rectum.* 2009;52:1665–1671. [PubMed]

[Google Scholar]

11. Ng KS, Holzgang M, Young C. Still a case of "No pain, no gain"? An updated and critical review of the pathogenesis, diagnosis, and management options for hemorrhoids in 2020. *Ann Coloproctol.* 2020;36:133–147. [PMC free article] [PubMed] [Google Scholar]
12. Burch J, Epstein D, Baba-Akbari A, *et al.* Stapled hemorrhoidectomy (haemorrhoidopexy) for the treatment of haemorrhoids: A systematic review and economic evaluation. *Health Technol Assess.* 2008;12(3-4):4-10, 1-193.
13. Karahaliloglu A. First results after laser obliteration of first- and second-degree hemorrhoids. *Coloproctology.* 2007;29:327–336.
14. Jahanshahi A, Mashhadizadeh E, Sarmast MH. Diode laser for treatment of symptomatic hemorrhoid: A short term clinical result of a mini invasive treatment, and one year follow up.
15. Boarini P, Boarini LR, Boarini MR, Lima EM, Candelaria PA. Hemorrhoidal laser procedure (HeLP): A painless treatment for hemorrhoids. *J Inflamm Bowel Dis Disord.* 2017, 2(2).
16. Giamundo P, Braini A, Calabro' G, Crea N, De Nardi P, Fabiano F, *et al.* Doppler-guided hemorrhoidal dearterialization with laser (HeLP): A prospective analysis of data from a multicenter trial. *Tech Coloproctol.* 2018;22(8):635–643.
17. Jahanshahi A, Mashhadizadeh E, Sarmast MH. Diode laser for treatment of symptomatic hemorrhoid: A short term clinical result of a mini invasive treatment, and one year follow up. *Pol Przegł Chir.* 2012;84(7):329-332.

How to Cite This Article

Raut S, Thakur S, Jaykar R, Thakur AS. Laser procedure for grade 2 and grade 3 haemorrhoids Authors. *International Journal of Surgery Science* 2023; 7(3): 34-40.

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