



Laser Hemorrhoidoplasty and Lateral sphincterotomy Procedures vs Conservative Treatment for Hemorrhoids and Fissure in Ano: A Trial Comparing Laser and Conservative treatments

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Abstract

Objective: According to the “vascular” theory, arterial overflow in the superior hemorrhoidal arteries would lead to dilatation of the hemorrhoidal venous plexus. Hemorrhoid laser procedure (LHP) is a new laser procedure for outpatient treatment of hemorrhoids in which hemorrhoidal arterial flow feeding the hemorrhoidal plexus is stopped by laser coagulation.

Aim: Our aim was to compare the hemorrhoid laser procedure and laser aided lateral sphincterotomy vs conservative treatment of symptomatic hemorrhoids and fissure in ano.

Material and Method: A comparison trial between hemorrhoid laser procedure, lateral sphincterotomy and conservative treatment for hemorrhoids and fissure in ano was made. This study was conducted at Vels Medical College and Hospital, Manjankaranai, Tamil Nadu. Patients with symptomatic grade III or grade IV hemorrhoids with minimal or complete mucosal prolapse were eligible for the study: 30 patients treated with the laser hemorrhoidoplasty, 30 patients—with laser aided lateral sphincterotomy and 40 patients treated with conservative methods. Operative time, postoperative pain, post-op healing time were evaluated.

Results: A total number of 100 patients (65 men and 35 women, mean age, 46 years) entered the trial. Significant differences between laser hemorrhoidoplasty, laser sphincterotomy and conservative treatments were observed in operative time and early postoperative pain. The procedure time for LHP was 15.49 min laser aided lateral sphincterotomy was 10.19 min.

Conclusion: The laser hemorrhoidoplasty and laser guided sphincterotomy procedures were more effective than conservative methods. Postoperative pain and healing time were drastically less in the early and late post op period.

1. Introduction

Hemorrhoidal disease is ranked first amongst diseases of the rectum and large intestine, and the estimated worldwide prevalence ranges from 2.9% to 27.9%, of which more than 4% are symptomatic. Approximately, one third of these patients seek physicians for advice. Age distribution demonstrates a peak incidence between 45 and 65 years with subsequent decline after 65 years. Men are found to be more frequently affected than women. The anorectal vascular cushions along with the internal anal sphincter are essential in the maintenance of continence by providing soft tissue support and keeping the anal canal closed tightly. Hemorrhoids are considered to be due to the downward displacement suspensory (Treitz) muscle. The treatment options for symptomatic hemorrhoids have varied over time. Measures have included conservative medical management, non-surgical treatments and various surgical techniques. The various conservative medical managements include Sitz bath, dietary changes of including more fibre content in the diet, non-straining during defecation, laxatives when there is associated constipation and drinking plenty of oral fluids.

The various non-surgical treatments include rubber band ligation (RBL), injection sclerotherapy, cryotherapy, infrared coagulation, laser therapy and diathermy coagulation; all of which may be performed as outpatient procedures without anaesthesia. These nonsurgical methods are considered to be the primary option for grades one to three (grade I-III) hemorrhoids. If conservative measures fail to control symptoms, patients may be referred to a surgeon for operative management. The indications for the surgical treatment include the presence of a significant external component, hypertrophied papillae, associated fissure, extensive thrombosis or recurrence of symptoms after repeated RBL. The technique employed may be open (Milligan–Morgan) or closed (Ferguson) and the instruments

used are scalpel, scissor, electrocautery or laser. Milligan-Morgan hemorrhoidectomy is the gold standard and frequently performed procedure. Post hemorrhoidectomy pain is the commonest problem associated with the surgical techniques. The other early complications are urinary retention (20.1%), bleeding (secondary or reactionary) (2.4%–6%) and subcutaneous abscess (0.5%). The long-term complications include anal fissure (1% -2.6%), anal stenosis (1%), incontinence (0.4%), fistula (0.5%) and recurrence of hemorrhoids. The aim of this study was to compare pain, operative time and time needed for wound healing and the overall effectiveness of laser hemorrhoidoplasty and sphincterotomy over conservative methods.

2. Material and Method

In this comparative and prospective study 100 patients were included, of which, 30 patients were treated with laser hemorrhoidoplasty method and 30 patients were treated with laser aided lateral sphincterotomy and 40 patients were treated with conservative methods. Patients were allocated in different groups, according to the stage of hemorrhoids: patients with stage III and minimal prolapse of mucosa were treated with LHP. This study was performed in General Surgery Department of Vels Medical College and Hospital, Manjankaranai, Tamil Nadu from March 2022 to June 2022. After a detailed physical examination and proctoscopy, the laser procedure was performed with Biolitec. With the patient in the lithotomy position, a dedicated disposable proctoscope with a diameter of 23 mm was inserted in the anal canal. Laser shots were delivered with a 980-diode laser through a 1000-nm optic fiber in a pulsed fashion to reduce undesired degeneration of periarterial normal tissue. The depth of shrinkage can be regulated by the power and duration of the laser beam.

Through a 1000-micron optic fiber, five laser shots generated at a power of 13 W with duration of 1.2 s each and a pause of 0.6 s caused shrinkage

of tissues to the depth of approximately 5 mm. This procedure was performed as an inpatient procedure. Two enemas were administered, one at midnight and one early in the morning before the intervention. Patients were discharged within 12 to 24 hours, and were followed for 2 to 6 months for healing progress and complications. Others 40 patients were treated with conservative methods in an outpatient manner. The patients were followed for the level of postoperative pain and duration of operation. Postoperative pain was recorded by using a 10-point visual analog scale (VAS) on which 0 represents no pain and 10 represents the worst pain imaginable. VAS protocol was followed up after 1 week, 2 weeks, 3 weeks, 1 month, 2 months and 6 months and the mean was found to be 3 on the VAS protocol. The duration of intervention was recorded in minutes.

3. Results

The Laser hemorrhoidoplasty procedure was performed on 30 consecutive patients (There were 18 men and 12 women) which had symptomatic grade 2-3 hemorrhoids with moderate mucosal prolapse at proctoscopy and a medical history of rare episodes of prolapse manual reduction and lateral sphincterotomy was performed in 30 patients with fissure in ano with mean age 47 (range, 24–70) years. The laser guided lateral sphincterotomy was performed on 30 patients who had fissure in ano and with mean age 49 (range 28-72) years. There were 21 men and 9 women. And conservative treatments were given to 40 patients 26 men and 14 women.

As far as pain is concerned, early postoperative pain is dominantly lower in the LHP and laser lateral sphincterotomy. The same values also resulted for the period of one month.

4. Discussion

The need for treatment for hemorrhoids is primarily based on the subjective perception of severity of symptoms and the assignment of treatment is decided on the traditional

classification of haemorrhoids which is not connected to the severity of symptoms. Multiplicity of treatment modalities has added confusion in decision about the treatment method. The question of the optimal treatment technique remains unanswered despite most of the techniques in use being subjected to randomized evaluation. Generally an uncomplicated hemorrhoidectomy is satisfactory on non-surgery or operation for both, patient and surgeon. In a study of the university of Sao Paulo, Brazil, they stated that laser hemorrhoidoplasty had the advantages of being haemostatic, bactericidal, fast healing, not affecting neighboring structures, less postoperative complications and less hemorrhage and stenosis^(2,3). 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⁽³⁾. We found that the pain scores were significantly lower in the LHP group. Postoperative pain is the most important complication that disturbs our patients and makes them reluctant to surgery. In our study, postoperative pain during the first month after both procedures, was significantly lesser in the laser hemorrhoidectomy compared with conventional open surgical hemorrhoidectomy. Also, the patients treated with conservative methods have considered doing LHP as to be relieved of the symptoms and taking into consideration the duration of stay at the hospital and the post-operative pain which were significantly low. Our study showed that laser hemorrhoidoplasty is a safe procedure associated with less postoperative pain. Laser hemorrhoidectomy is associated with lesser duration time compared with conservative methods, which is satisfactory for symptomatic hemorrhoidal patients with III or IV stage.

5. Conclusion

In summary, laser hemorrhoidoplasty procedure is more preferred in comparison with conventional open surgical hemorrhoidectomy or conservative methods. Postoperative pain is significantly lesser in laser procedure compared with surgical procedure. Duration time is significantly shorter in laser procedure.

Conflict of Interest: None Declared.

References

1. Johanson JF, Sonnenberg A. The prevalence of hemorrhoids and chronic constipation: an epidemiological study. *Gastroenterology*. 1990;98(2):380–386. [PubMed] [Google Scholar]
2. Salfi R. A new technique for ambulatory hemorrhoidal treatment Doppler-guided laser photocoagulation of hemorrhoidal arteries. *Coloproctology*. 2009;31:99–103.
3. Laurie Barclay. Best option for evaluating and treating hemorrhoids. *BMJ*. 2008 Feb 25;336:380–383. [Google Scholar]
4. Milligan ET, Morgan CN, Jones LE, Officer R. Surgical anatomy of the anal canal and the operative treatment of hemorrhoids. *Lancet*. 1937;2:1119–1124. [Google Scholar]