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RESEARCH ARTICLE

AN OBSERVATIONAL CLINICAL STUDY ON LASER TREATMENT FOR HEMORRHOIDS

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Abstract

Introduction: Hemorrhoidal disease is a widespread anorectal disorder, with prevalence rates in India reported to be as high as 36% in the general population. Globally, hemorrhoids constitute the most common colorectal condition, affecting between 3% and 29% of individuals, with symptomatic cases exceeding 4%. Traditional treatments predominantly involve open or closed hemorrhoidectomy procedures. With advances in minimally invasive techniques, laser therapy has gained traction as a promising alternative. Conventional procedures, such as the Milligan-Morgan hemorrhoidectomy, are frequently associated with considerable postoperative pain, bleeding, urinary retention, and occasional abscess development. Long-term adverse effects may include incontinence, fistula formation, and anal stenosis. To overcome these challenges, Burch et al. introduced the Laser Hemorrhoidoplasty (LHP), a tissue-sparing, minimally invasive approach designed for patients with symptomatic second- and third-degree hemorrhoids presenting minimal rectal prolapse. The technique focuses on coagulating terminal branches of the superior hemorrhoidal artery, which leads to a gradual reduction in hemorrhoidal tissue volume.

Objective:- To establish Laser treatment of haemorrhoids as a better alternative to conventional procedures for Haemorrhoids.

Methods:- We studied 25 patients with haemorrhoidal disease. We operated patients over a 6-month period, from 1 June 2024 to 30 December 2024. It included patients who underwent surgical treatment by Laser for first degree, second degree and third-degree haemorrhoids.

Results:- Laser haemorrhoidoplasty is a minimally invasive surgical treatment of haemorrhoids with little disruption of the anal canal structure and has good outcome, especially for first degree, second degree, and third degree haemorrhoids.

Conclusion:- Lasers on the anoderm and the anal canal results in less morbidity. Grade four haemorrhoids with prolapse does not yield good results with laser treatment.

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Introduction:-

Hemorrhoids are normal vascular formations situated within the anal canal, comprised of arteriovenous networks, connective tissue, and smooth muscle—collectively constructing the anal cushions. Enlargement, inflammation, or prolapse of these cushions results in symptomatic hemorrhoidal disease, which is largely attributed to weakening of the supporting connective tissue, amplified intra-abdominal pressure, and compromised venous return (1,2). Risk factors include persistent constipation with straining, prolonged sitting or standing, obesity, pregnancy and childbirth, advancing age, and familial susceptibility (1,3).

Hemorrhoidal disease is one of the most common anorectal complaints, with an estimated prevalence in India of approximately 36%, particularly higher in urban regions (4). Although adults aged 45–65 years are predominantly affected, recent increases among younger adults have been attributed to more sedentary living patterns (2,5). Typical symptoms comprise painless, bright red rectal bleeding, prolapse noted during defecation—initially reducible—perianal discomfort or pain in complicated forms, as well as itching and irritation related to mucus discharge (5,6).

Hemorrhoids are anatomically classified by their relationship to the dentate (pectinate) line:

Internal hemorrhoids originate above the dentate line, are covered with columnar epithelium (insensitive to pain), and generally present with painless bleeding and prolapse (3,6).

External hemorrhoids form below this line, are lined by pain-sensitive squamous epithelium, and may thrombose, leading to acute pain and swelling (6).

Mixed hemorrhoids display features of both internal and external types (3).

For grading internal hemorrhoids, the following stratification is frequently employed:

Grade I: Vascular cushions become prominent without prolapse.

Grade II: Prolapse occurs with straining, but resolves spontaneously.

Grade III: Prolapsed tissue needs manual reduction.

Grade IV: Irreducible prolapse, commonly thrombosed (4,7).

Treatment is determined by disease severity and symptom burden:

Conservative management: Often suitable for milder cases, focusing on increased dietary fiber, hydration, use of stool softeners, topical agents, and sitz baths (1,5).

Office-based procedures: Employed when conservative schemes fail, and include rubber band ligation (primary for Grade II and III hemorrhoids), sclerotherapy, and infrared coagulation (2,3,5).

Surgery: Reserved for advanced or recalcitrant cases; excisional hemorrhoidectomy (Milligan-Morgan or Ferguson) remains the gold standard for Grade III–IV, while stapled hemorrhoidopexy is optimal for circumferential prolapse and Doppler-guided hemorrhoidal artery ligation (DG-HAL) serves as a minimally invasive alternative (2,3,8).

In this study, we aim to report preliminary outcomes of laser therapy for hemorrhoidal disease, evaluating its effectiveness in short- and medium-term follow-up (8,9).

Materials and Methods:-

In this observational study, 50 patients with haemorrhoidal disease presenting to the General Surgery Department of Basaweshwar teaching and general hospital, Kalaburagi were operated over a 6-month period, from 1 June 2024 to 30 December 2024. It included patients who underwent surgical treatment by Lasers for first degree, second degree and third stage haemorrhoidal disease. Informed written consent was taken from each patient before enrolment in the study. After taking history and carrying out relevant clinical examination, patients were taken up for Laser Haemorrhoidal Procedure.

Procedure:-

Preoperatively Bowel preparation enema is given the night before surgery. NBM for 8 hours before surgery. Performed under spinal anaesthesia in lithotomy position. Painting and draping done.

1. Proctoscopic Examination

- A windowed proctoscope is inserted to visualize the hemorrhoidal columns.
- The affected hemorrhoidal tissue is identified.

2. Laser Application

- A diode laser generator, set between 12 and 15 W in pulsed mode which delivers laser energy through a radial fibre.
- Laser is delivered 4cms from above the dentate line to devascularize the haemorrhoids.

- The laser fibre is inserted submucosally into the hemorrhoidal mass.
- Energy is delivered in a controlled manner up to 360 J, causing coagulation and shrinkage of the hemorrhoidal tissue followed by application of ice cubes.
- Mucopexy was done in cases of associated mucosal prolapse.
- The laser seals the blood supply, reducing postoperative bleeding.
- 3. Tissue Shrinkage and Fibrosis Formation
 - The thermal effect of the laser induces fibrosis, which helps to fix the mucosa to the underlying tissue, preventing prolapse.
 - Unlike traditional haemorrhoidectomy, no cutting or excision of tissue is required.
- 4. Completion of the Procedure
 - The procedure is repeated for all affected haemorrhoids.
 - Minimal post-procedure bleeding is expected.
 - No need for sutures.
- 5. Postoperative Care:-Usually patient is observed for 24 hours and adequate analgesics given and stool softeners given and advice dietary changes and called for follow up after 2 weekly.

Patient Demographics and Clinical Profile

Variable	Category	Value
Age		43.3 ± 12.3 years
Sex	Male	16
	Female	9
Hemorrhoid Grade	Grade 1	0
	Grade 2	7
	Grade 3	18
	Grade 4	0
Chief Complaints	Bleeding	23
	Prolapse	22
	Constipation	21
	Itching	5

Operative and Hospitalization Details

Variable	Value
Mean Operative Time	30.2 ± 3.4 minutes
Average Length of Hospital Stay	2 ± 0.5 days
Intraoperative Bleeding	1 case

Postoperative Complications

Complication	Pain Score / No. of Patients	Percentage
Postoperative Pain	VAS 0 (No pain): 9	18%
	VAS 1 (Mild): 20	40%
	VAS 2 (Mild-Moderate): 16	32%
	VAS 3 (Moderate): 5	10%
	VAS 4-10 (Severe): 0	0%
Recurrence	4 patients	8%
Severe Pain	2 patients	—
Wound Infection	2 patients	—
Fecal Incontinence	0	—
Urinary Retention	0	—

An immediate reduction of about 15–20% in hemorrhoid size was noted post-procedure.

An Reduction in size of haemorrhoids is by 50-80% in an duration of 3 months.

Discussion:-

This observational clinical study of 25 patients undergoing Laser Hemorrhoidoplasty demonstrated satisfactory outcomes, characterized by minimal postoperative discomfort and complications. Pain scores post-surgery predominantly indicated mild or no pain in the majority of cases, emphasizing the tolerability of LHP. The length of hospital stay and operative times were shorter than reported for traditional hemorrhoidectomy techniques. Intraoperative bleeding was rare, and no cases of urinary retention or fecal incontinence were recorded, highlighting the safety profile of this modality.

Conclusion:-

Laser hemorrhoidoplasty is a highly effective, minimally invasive option for second- and third-degree hemorrhoids, preserving the anatomy and function of the anal canal. For patients with more advanced disease presentations — including grade 4 hemorrhoids or significant prolapse — conventional surgical excision remains the preferred intervention. Occasional post-procedural complications such as persistent skin tags, thrombosis, or delayed bleeding can occur but remain infrequent.

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