



STUDY OF OPEN AND LASER HEMORRHOIDECTOMY AS A TREATMENT OF HEMORRHOIDS

Dr. Abhijit Yeole*

Junior Resident , Department Of General Surgery, SKNMC & GH, Pune.
*Corresponding Author

Dr. Brijesh Patil

Professor & Guide , Department Of General Surgery, SKNMC & GH, Pune.

Dr. Bahar Kulkarni

Professor & Unit Head , Department Of General Surgery, SKNMC & GH, Pune.

ABSTRACT

Introduction: Haemorrhoids have been referred to in literature dating back to the pre-Christian era (1), and proctology thrived in Ancient Egypt (2). In the centuries that have followed, numerous possible etiologies for hemorrhoids have been proposed

Haemorrhoids have been referred to in literature dating back to the pre-Christian era (1), and proctology thrived in Ancient Egypt (2). In the centuries that have followed, numerous possible etiologies for hemorrhoids have been proposed

Materials and Method: During above said period consecutive 100 patients were admitted and posted for surgeries for hemorrhoids satisfying the inclusion criteria were enrolled for study. The subjects for the present study were selected by giving them both options of surgical treatment among patients who were admitted to surgery department of the tertiary care institute, for undergoing hemorrhoids surgery.

Results: The data on categorical variables is shown as n (% of cases) and the data on continuous variables is presented as mean and standard deviation (SD) across two study groups. The inter-group statistical comparison of distribution of categorical variables is tested using Chi-Square test or Fisher’s exact probability test if more than 20% cells have expected frequency less than

Conclusion: To conclude, diode laser hemorrhoidectomy has a drawback in terms of cost compared to open method but has far more superior advantages like less operative time, less discomfort, lesser complication like bleeding, recurrence which is seen frequently with open method.

KEYWORDS : Haemorrhoids , Proctology , Chi square test, Diode Laser Haemorrhoidectomy.

INTRODUCTION

Haemorrhoids have been referred to in literature dating back to the pre-Christian era (1), and proctology thrived in Ancient Egypt (2). In the centuries that have followed, numerous possible etiologies for hemorrhoids have been proposed (1-10) Haemorrhoids are clusters of vascular tissues, smooth muscles, and connective tissues that lie along the anal canal in three columns—left lateral, right anterior, and right posterior positions. Because some do not contain muscular walls, these clusters may be considered sinusoids instead of arteries or veins (3). Hemorrhoids are present universally in healthy individuals as cushions surrounding the anastomoses between the superior rectal artery and the superior, middle, and inferior rectal veins. Nonetheless, the term “hemorrhoid” is commonly invoked to characterize the pathologic process of symptomatic hemorrhoid disease instead of the normal anatomic structure (4) While no taxonomy of external hemorrhoids is used clinically, internal hemorrhoids are further stratified by the severity of prolapse. First-degree internal hemorrhoids do not prolapse out of the canal but are characterized by prominent vascularity. Second-degree hemorrhoids prolapse outside of the canal during bowel movements or straining, but reduce spontaneously. Third-degree hemorrhoids prolapse out of the canal and require manual reduction. Fourth-degree hemorrhoids are irreducible even with manipulation (5). The most annoying complication after hemorrhoid surgery is pain and bleeding which we aim to compare in this study along with complication and recovery time between two procedures namely open hemorrhoidectomy and laser hemorrhoidoplasty.

2. METHOD AND MATERIALS

METHOD:-

During above said period consecutive 100 patients were admitted and posted for surgeries for hemorrhoids satisfying the inclusion criteria were enrolled for study.

Sample size: 100 patients, 51 in group OHS and 49 in group

LHP

Mode of selection: The subjects for the present study were selected by giving them both options of surgical treatment among patients who were admitted to surgery department of the tertiary care institute, for undergoing hemorrhoids surgery

INCLUSION CRITERIA:

1. Patients admitted to the Surgery Department of our institute
2. Who are American Society of Anaesthesiologists Physical status (ASA) I and II

EXCLUSION CRITERIA:

1. Refusal of patient
2. Uncooperative patients
3. Allergies to local anaesthetic drugs,
4. Local skin infections.
5. Grade 4 with prolapsed hemorrhoids with perianal abscess and other co-morbidities
6. Patients with significant pulmonary pathology
7. Pregnancy
8. Liver, kidney, heart, lung disease
9. Coagulation disorder

Technique:

Open haemorrhoidectomy was performed by Milligan Morgan method as described above.

Laser haemorrhoidectomy was performed using a dedicated disposable proctoscope with a diameter of 23 mm inserted in the anal canal. Laser shots through was delivered with a 980-diode laser DiodelX model SMART through a 600-nm optic fibre in a pulsed fashion to reduce undesired degeneration of per arterial normal tissue. The depth of shrinkage was regulated by the power and duration of the laser beam.

Study Design: This is prospective interventional study.

Work plan:

1. First I will take patient of ASA1/2 which fulfils suitable criteria of inclusion.
 2. Written, Valid and Informed consent will be taken from the patients before inclusion into this study in their language (English /Marathi/Hindi). (*enclosed)
 3. Detailed history will be taken from the patient and complete physical examination with per rectal examination both digital and via proctoscope along with Pre Anaesthetic check-up will be done.
 4. Patient will be allocated either to OHS or LHS group.
 5. An intracath of proper size will be taken preoperatively.
 6. On arrival of patient to the operation theatre standard monitoring like Pulse oximeter, Non Invasive Blood Pressure (NIBP), ECG will be applied.
 7. Premedication Inj. Emset 4mg iv and Inj. midazolam 1mg iv will be given.
 8. When the patient is ready for surgery the anaesthesiologist will document the various parameters.
 9. Respective surgery will be performed for the respective groups.
 10. post-operative patient will be monitored and analysed on following parameters
- 50
- a. Intraoperative time
 - b. Intraoperative complications
 - c. post-operative pain by VAS
 - d. recovery time and complication (followed up for 2 months)

11. Post-operative pain will be managed through seitz bath and analgesics.

3.RESULTS

Table 1) the distribution sample size studied across two study groups.

Group Code	Description	No. of cases	% of cases
Group 1	Open	51	51.0
Group 2	Laser	49	49.0
	Total	100	100.0

Figure 1) the distribution sample size studied across two Study groups.

Age (years)	Group 1 [Open] (n=51)		Group 2 [Laser] (n=49)		P-value
	Mean	SD	Mean	SD	
Age (years)	40.67	11.71	43.76	14.37	0.241 ^{NS}

Values are mean and SD, P-value by independent sample t test. P-value<0.05 is considered to be statistically significant. NS – Statistically non-significant.

Inter-group comparison of mean age

The mean ± SD of age of cases in Group 1 and Group 2 was 40.67 ± 11.71 years and 43.76 ± 14.37 years respectively. The minimum – maximum age range in Group 1 and Group 2 was 21 – 75 years and 20 – 75 years respectively. The distribution of mean age did not differ significantly between two study groups (P-value>0.05).

Figure 2) Inter-group comparison of mean age.

Table 3) Inter-group sex distribution of cases studied.

Sex	Group 1 [Open] (n=51)		Group 2 [Laser] (n=49)		P-value
	N	%	n	%	
Male	35	68.6	38	77.6	0.315 ^{NS}
Female	16	31.4	11	22.4	
Total	51	100.0	49	100.0	

Values are n (% of cases), P-value by Chi-Square test. P-value<0.05 is considered to be statistically significant. NS-Statistically non-significant.

Inter-group sex distribution

Of 51 cases studied in Group 1, 35 (68.6%) were males and 16 (31.4%) were females. Of 49 cases studied in Group 2, 38 (77.6%) were males and 11 (22.4%) were females. The sex distribution of cases studied did not differ significantly between two study groups (P-value>0.05).

Table 4) Inter-group distribution of grades of hemorrhoids among the cases studied.

Grade	Group 1 [Open] (n=51)		Group 2 [Laser] (n=49)		P-value
	n	%	n	%	
Grade 3	51	100.0	49	100.0	0.999 ^{NS}
Grade 4	0	0.0	0	0.0	
Total	51	100.0	49	100.0	

Values are n (% of cases), P-value by Chi-Square test. P-value<0.05 is considered to be statistically significant. NS-Statistically non-significant.

Inter-group distribution of grades of hemorrhoids

Of 51 cases studied in Group 1, all had grade 3. Of 49 cases studied in Group 2, all had grade 3. The distribution of grades of hemorrhoids among the cases studied did not differ significantly between two study groups (P-value>0.05).

Table 5) Inter-group comparison of mean discomfort score during procedure.

Discomfort score	Group 1 [Open] (n=51)		Group 2 [Laser] (n=49)		P-value
	Mean	SD	Mean	SD	
Discomfort score	5.35	1.23	2.96	0.58	0.001 ^{***}

Values are mean and SD, P-value by independent sample t test. P-value<0.05 is considered to be statistically significant. ***P-value<0.001.

Inter-group comparison of mean discomfort score during procedure

The mean ± SD of discomfort score during procedure of cases in Group 1 and Group

2 was 5.35 ± 1.23 and 2.96 ± 0.58 respectively. The minimum – maximum discomfort score during procedure range in Group 1 and Group 2 was 2 – 8 and 2 – 4 years respectively. The distribution of mean discomfort score during procedure is significantly higher in Group 1 compared to Group 2 (P-value<0.05).

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 hemorrhoids (112), 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 (113)

A meta-analysis found that the long-term outcomes of excisional hemorrhoidectomy were unequivocally superior to those of office-based procedures, such as rubber band ligation. Furthermore, patients undergoing excisional hemorrhoidectomy are less likely to require multiple treatments. (52)

In a study of the University Of Sao Paulo Brazil, they stated that laser hemorrhoidectomy had the advantages of being

hemostatic, bactericidal, fast healing, and not affecting neighboring structures, less postoperative complications and less hemorrhage and stenosis (114, 115).

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 (116). In this study, the mean operation time in the diode laser was shorter than open hemorrhoidectomy. Intraoperative blood loss decreased in the laser group. On the day of the surgery, the patients, who underwent hemorrhoid surgery using the diode laser, had less postoperative pain and needed fewer dosages of analgesics injections and thereafter postoperative oral analgesics requirement. In this study, no patient had any significant long term complications in laser group, whereas in the open group, 13 (25.5%) had pain, 3 (5.9%) had bleeding, 2 (3.9%) had recurrence and 1 (2.0%) had re-operation.

Foley's catheterization was done where ever needed in open group due to pain. Three patient who had bleeding from the surgical wound stayed in the hospital. Anal packing and hemostatic drugs stopped the bleeding. Different studies reported that laser therapy was more effective than open surgery in terms of reduced postoperative pain, operation time, blood loss, and time to return to normal activity. Maloku et al. (117) reported that laser hemorrhoid treatment was more efficient than open hemorrhoidectomy in reducing postoperative pain and mean time of operation. Jahanshahi et al. (118) reported that laser is a safe technique for the treatment of hemorrhoids due to less postoperative complications such as bleeding, pain, stenosis, and recurrence. Karahaliloglu (119) used a 980-nm diode laser in the treatment of patients with grade I and II hemorrhoids, and reported that this procedure is painless, resulting in faster recovery of all patients. The study by Sadra and Keshavarz (120) was founded on the superiority of using intrahemorrhoidal coagulation with a 980-nm diode laser in comparison with MM hemorrhoid surgery in patients with symptomatic hemorrhoid nonresponding to medical treatment. This promising efficacy was practical in terms of pain level, severity of intraoperative and postoperative hemorrhage, length of postoperative hospital stay, and dosage of obsessive morphine for pain relief. However, no difference was observed regarding the frequency of urinary retention, postoperative wound infection, regression of hemorrhoids, and improvement of the clinical signs of the hemorrhoid till 6 months after the procedure (120)

CONCLUSION

To conclude, diode laser hemorrhoidectomy has a drawback in terms of cost compared to open method but has far more superior advantages like less operative time, less discomfort, lesser complication like bleeding, recurrence which is seen frequently with open method. Post-operative pain also is less compared to open and long term relief is more in follow up group and hence our study suggests that intrahemorrhoidal diode laser treatment, if available, should be the treatment of choice.

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