Print ISSN: 2321-6379
Online ISSN: 2321-595X

Original Article

Hemorrhoids Treated with Combination Procedure of Finger-guided Hemorrhoidal Artery Ligation and Laser Hemorrhoidoplasty: An Observational Study

Diptangshu Das[1], Purba Bhaumik[2], Kushankur Guha[1], Arijit Roy[3]

[1]Assistant professor, Department of General Surgery, KPC Medical College and Hospital, Kolkata, West Bengal, India, [2]Post-Graduate Trainee, Department of General Surgery, KPC Medical College and Hospital, Kolkata, West Bengal, India, [3]Professor, Department of General Surgery, KPC Medical College and Hospital, Kolkata, West Bengal, India

Abstract

Background: Hemorrhoids (4.4% incidence worldwide) are enlarged blood vessels in and around the lower rectum and anus. Several methods (surgical) for the management of symptomatic hemorrhoids have been proposed in the literature. In the hybrid procedure for the management of hemorrhoids, maximum efficacy is achieved by finger-guided hemorrhoidal artery ligation (FGHAL) and LASER hemorrhoidoplasty (LH).

Materials and Methods: An observational (prospective) study was conducted over a period of 1 year with follow-up of 6 months over 74 patients presented in a tertiary care center, and results were studied in terms of outcome with conventional procedures.

Discussion: The gold standard for managing hemorrhoids is excision and ligation, but these are associated with severe post-operative pain and the creation of extensive raw areas. Finger-guided hemorrhoidal artery ligation, or FGHAL, leads to de-arterialization, whereas LH takes care of non-vascular components in anal cushions and the remaining corpus cavernosum recti network, which is partially taken care of by FGHAL. The present study showed an excellent efficacy (90% success rate) of using LASERs in hemorrhoids with better quality of life after surgery.

Conclusion: Grade III-IV hemorrhoids can be treated by LH with complete resolution of symptoms. Instead of Doppler, FGHAL is preferred as it is equally effective and reduces Doppler costs.

Key words: Finger-guided hemorrhoidal artery ligation, Hemorrhoids, Laser hemorrhoidoplasty, Visual Analog Scale

INTRODUCTION

Dilated columns of vessels in the anorectal region are known as hemorrhoids.[1] Surgery is the treatment for most of the II, III, and IV-degree hemorrhoids. A hybrid procedure combines two or more methods in a synergistic way to increase their efficacy and produce better results.[2] Maximum efficacy in the hybrid hemorrhoid procedure is attained by finger-guided hemorrhoidal artery ligation (FGHAL): Causes dearterialization. Laser hemorrhoidoplasty (LH) is responsible for the non-vascular elements in the anal cushions and the residual corpus cavernosum recti network, with FGHAL handling a portion of this task.[3] It is completed in three steps: (I) Hemorrhoid assessment; (II) FGHAL; and (III) LH. According to visual analog scoring, pain can be rated[4].

Access this article online

www.ijss-sn.com

Month of Submission : 12-2023
Month of Peer Review : 01-2024
Month of Acceptance : 02-2024
Month of Publishing : 02-2024

Aims and Objectives

The aims and objectives are to observe the patient's response and result of hemorrhoids treated with the combination procedure of FGHAL and LH.

MATERIALS AND METHODS

Study Design

Over the course of a year (May 01, 2022–April 30, 2023), 74 patients undergoing a combination procedure of FGHAL and LH at a tertiary care hospital (KPC Medical College and Hospital [KPCMCH]) participated in a prospective study. The patients were followed up for 6 months (until October 31, 2023). Among 74 participants, 46 were males and rest females 28 [Chart-1].

Corresponding Author: Dr. Purba Bhaumik, Post-Graduate Trainee, Department of General Surgery, KPC Medical College and Hospital, Kolkata, West Bengal, India.

Number of patients presented with Grade -II,III,IV hemorrhoids were 20 (M =16+F =4), 25(M=12+F=13), 29(M=17+F=12) respectively. [Chart 1+2] [M=Male,F=Female].

Age groups were divided into:20-29(5),30-39(6),40-49(15), 50-59(17), >/=60(31) where in each age group,it was subdivided based on the 3 considered grades of hemorrhoids [Chart-3].

Patients were also divided (of the 3 grades) into: presence of bleeding , pain (No/Moderate/Worst)- as presenting symptoms [Chart-4].

Inclusion Criteria

During the period of May 01, 2022–April 30, 2023, all patients who were admitted to the Inpatient Department or KPCMCH Outpatient Department and who complained of pain or bleeding P/R due to hemorrhoids and who were clinically graded as having a hemorrhoid of II, III, or IV degree were included in the study.

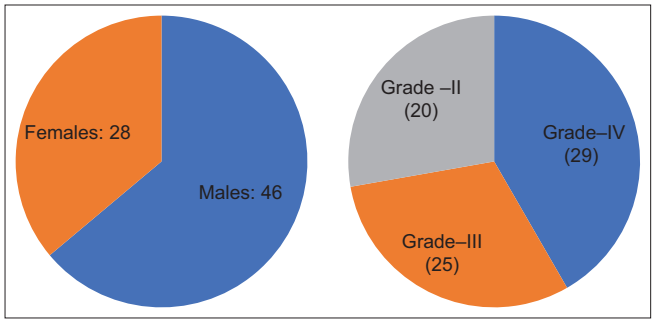


Chart 1: Distribution as per gender (n = 74) and distribution as per grades of hemorrhoids (n = 74)

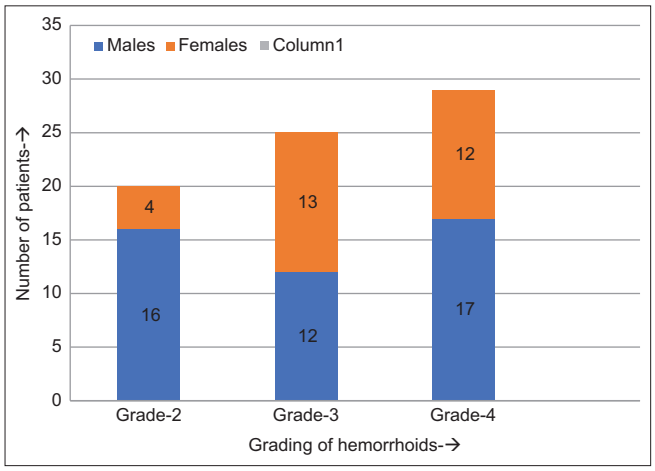


Chart 2: Distribution of patients (as per gender) in 3 different grades of hemorrhoids

Age group (20-70 years)	Grade 2 (n_1 = 20)	Grade 3 (n_2 = 25)	Grade 4 (n_3 = 29)
20-29	2	3	---
20-39	3	1	2
40-49	3	7	5
50-50	6	4	7
≥ 60	6	10	15

Chart 3: Distribution of age of patients with different grades of hemorrhoids

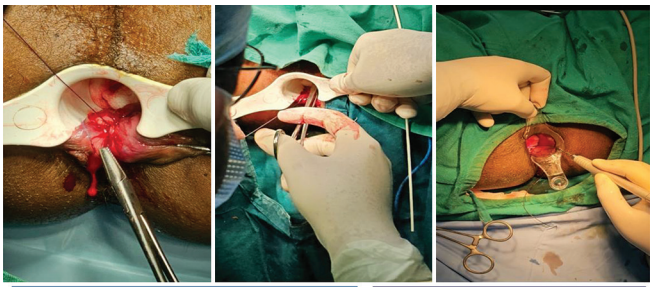
	Grade -2	Grade -3	Grade- 4
Bleeding	20 (100%)	25 (100%)	29 (100%)
PAIN (as per VAS) :			
No pain (1, 2, 3)	17	4	3
Moderate pain (4, 5, 6, 7)	3	9	7
Worst pain (8, 9,10)	---	12	19

Chart 4: Presenting symptoms

Exclusion Criteria

1. Patients who are younger than 20 or older than 70 and patients who refuse to participate in the study
2. Patients with comorbid conditions that the anesthesiologist deemed unfit for surgery were not included.

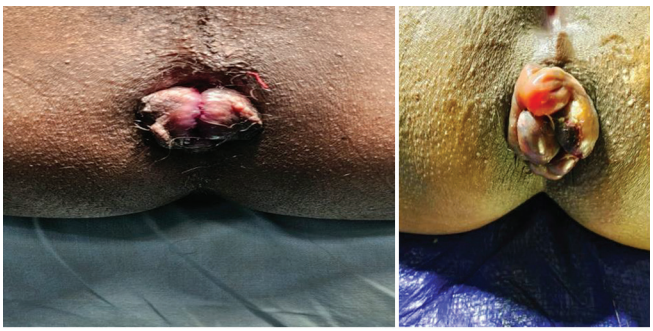
Operative Procedure



FGHAL (Finger Guided Hemorrhoidal Artery Ligation)

LH (Laser Hemorrhoidoplasty)

RESULTS AND ANALYSIS



Before OT

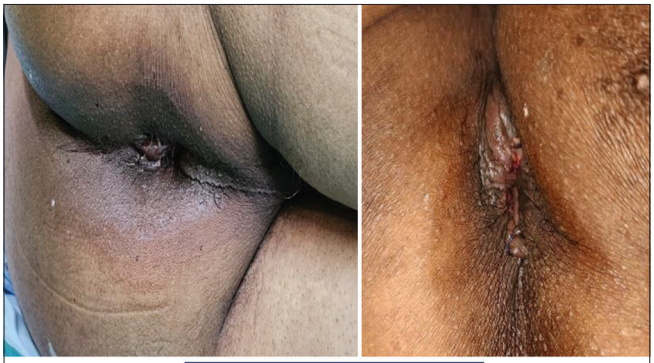
Intraoperative Period

	Grade -2	Grade -3	Grade - 4
Pain	4 (20%)	8 (32%)	29 (100%)
Bleeding	---	3 (12%)	6 (30%)
Local hematoma	---	3 (10%)	3 (12%)

POD-1 Follow-Up

	Grade -2	Grade -3	Grade - 4
Pain	4 (20%)	8 (32%)	29 (100%)
Bleeding	---	3 (12%)	6 (30%)
Local hematoma	---	3 (10%)	3 (12%)

NB: 1 case of 2' hemorrhage was noted on POD-7 in a case of Grade-IV hemorrhoids



1 Month Follow-Up

	Pain	Burning sensation during defecation	Bleeding
Grade-II	----	2	----
Grade-III	3	5	1
Grade-IV	7	6	3

6-month Follow-up

	Pain	Burning sensation during defecation	Recurrence
Grade-II	----	----	----
Grade-III	----	3	----
Grade-IV	----	1	2

DISCUSSION

Management of hemorrhoids includes:[5]

1. Non-operative:

Sitz Bath

Local applicants

Antibiotics, laxatives, and anti-inflammatory drugs

Fiber diet, plenty of water

2. Inflamed, permanently prolapsed, edematous piles:

Lord's Dilatation

3. Injection-sclerosant therapy:

5% phenol in almond oil is commonly used

4. Barron's banding:

Causes ischemic necrosis and piles fall off

5. Cryosurgery:

Using nitrous oxide (−98') or liquid nitrogen (−196'): Cold temperature is used to coagulate and cause necrosis of piles, which get separated and fall off subsequently

6. Infrared coagulation:

Pulses of infrared radiation applied through a handheld applicator

7. Laser therapy for piles:[6]

Nd-YAG, diode, and carbon dioxide lasers can be used

An intense beam of light interacts with tissue and can be used to cut, coagulate, or ablate tissue. Sealing off nerves and tiny blood vessels can be done by a laser beam.

By sealing superficial nerve endings, patients have minimum post-operative discomfort.

Lasers are used for dissecting and excising pile masses

8. Doppler-guided hemorrhoidal artery ligation:[7]

An advanced instrument that works under Doppler-guided ultrasound.

Painless, 20-min procedure.

Causes choking and blocking of the blood supply in piles.

Done using a proctoscope with an incorporated Doppler probe.

A proctoscope inserted and used to locate hemorrhoidal arteries by an audible signal.

Once located, the needle holder is inserted into the lumen of the proctoscope, and the artery is ligated with a "Figure of 8" absorbable suture into the submucosa.

The procedure was repeated until no more Doppler signals were identified.

9. Stapled hemorrhoidopexy (Antonio Longo):[8]

Circumferential excision of the mucosa and sub-mucosa 4 cm above the dentate line using a circular hemorrhoidal stapler passed per anally (a minimally invasive procedure for hemorrhoids).

10. Open operative methods: still the gold standard

Hemorrhoidectomy: The best treatment for hemorrhoids.

Using an open (Milligan-Morgan) or closed (Hill-Ferguson) technique.

Both involve ligation and excision of hemorrhoids, but in the open technique, the anal mucosa and skin are left open to heal by second intention, and in the closed technique, the wound is sutured.

11. Management of strangulated, thrombosed or gangrenous piles:

Initially, conservative treatment was done using a warm water sitz bath, antibiotics, elevation, bed rest, saline compression dressing, and analgesics.

Reduces edema and piles shrink.

12. Newer methods:[9]

Using ultrasound or controlled electric energy (Harmonic scalpel or LigaSure), hemorrhoidectomy can be done with less post-operative pain.

Post-operative Complications[10]

Pain: due to spasm, nerve irritation, or muscle injury.

Retention of urine is the most common, at 50%.

Reactionary or secondary hemorrhage.

Anal stricture; anal fissure; recurrence.

Anal discharge for some time.

Incontinence for feces or gas.

Ectropion (whitehead deformity).

Limitations

There was a tiny sample size.

A mere 74 cases is insufficient for this type of research.

Since the study was conducted in a tertiary care hospital, it was not possible to rule out hospital bias.

CONCLUSION

Four patients reported experiencing pain at their 1-month follow-up, which had decreased to none at their 6-month follow-up. There were no notable adverse effects from the procedure. A sizable fraction experienced total symptom resolution. 90% success rate and improved post-operative quality of life achieved with combination of FGHAL +Laser Hemorrhoidoplasty. FGHAL is recommended in place of Doppler since it is less expensive and equally effective.

ACKNOWLEDGMENTS

The author would like to thank the Department of General Surgery, KPCMCH, for their willing support and the active interest that they showed in the preparation of this work. He would also like to thank all the patients for their kind co-operation, without whom this study would not have been possible.

REFERENCES

1. Walega P, Romaniszyn M, Kenig J, Herman R, Nowak W. Doppler-guided hemorrhoid artery ligation with recto-anal-repair modification: Treatment of advanced hemorrhoidal disease. ScientificWorldJournal 2012;2012:324040
2. Gupta, K., Agarwal, N., & Mital, K. (2021). Clinical outcomes in patients with hemorrhoids treated by finger guided hemorrhoidal artery ligation with laser hemorrhoidoplasty: A retrospective cohort study. *Journal of Advances in Medicine and Medical Research*, *33*, 143-152.
3. Kant R, Mital K, Gupta K. Latest innovation in surgical management of haemorrhoids. Int J Diabetes Metabolic Disorders 2019;4:1-4.
4. Mahna A. Comparative analysis of band ligation technique versus conventional hemorrhoidectomy for the treatment of grade III hemorrhoids. Asian J Pharm Clin Res J 2022;15:78-80.
5. Gupta K, Agarwal N, Mital K. Clinical outcomes in patients with hemorrhoids treated by FGHAL with LH: A retrospective cohort study. J Adv Med Med Res 2021;33:143-52.
6. Jain A, Lew C, Aksakal G, Hiscock R, Mirbagheri N. Laser Hemorrhoidoplasty in the Treatment of Symptomatic Hemorrhoids: A Pilot Australian Study. Maryland: National library of Medicine; 2022.
7. Thomson WH. The nature of haemorrhoids. Br J Surg 1975;62: 542-52.
8. Goligher JC, Duthie H, Nixon H. Surgery of Anus, Rectum and Colon 5. London: Balliere Tindall; 2007.
9. Blaisdell PC. Office Ligation of internal haemorrhoids. Am J Surg 1958;96:401-4.
10. Aigner F, Bodner G, Gruber H, Conrad F, Fritsch H, Margreiter R, *et al*. The vascular nature of haemorrhoids. J Gastrointest Surg 2006;10: 1044-50.

How to cite this article: Das D, Bhaumik P, Guha K, Roy A. Hemorrhoids Treated with Combination Procedure of Finger-guided Hemorrhoidal Artery Ligation and Laser Hemorrhoidoplasty: An Observational Study. Int J Sci Stud 2024;11(11):38-41.

Source of Support: Nil, **Conflicts of Interest:** None declared.