

Treatment of Haemorrhoidal Disease by Laser Haemorrhoidoplasty at Dakar Preliminary Study of 21 Patients

Abstract

Background: Surgical treatment of haemorrhoidal disease by laser haemorrhoidoplasty is a minimally invasive procedure that facilitates the postoperative course. Due to less aggression on the anoderm and the anal canal mucosa, it causes less significant postoperative pain and low morbidity compared with conventional excision according to the Milligan–Morgan or Fergusson procedure. We report, through a preliminary study, our data on laser haemorrhoidoplasty and discuss the indications and results. **Materials and Methods:** This is a descriptive prospective study carried out on 21 patients operated on for haemorrhoidal disease by laser haemorrhoidoplasty with or without mucopexy. **Results:** The series was composed of 17 men and 4 women with a male/female ratio of 4.25:1. The average age was 39.6 years with a range of 27–62 years. The symptomatology was rectal bleeding in 16 cases (76%) and anal swelling in 18 cases (85.7%). These include grade 2 haemorrhoids in 2 cases (9.5%), grade 3 in 12 cases (57%), and grade 4 in 7 cases (33%). It was associated with an anal fissure in four cases (19%) and an anal fistula in three cases (14.2%). Mucopexy and laser coagulation were performed therapeutically in 13 cases (61.9%) and laser coagulation without mucopexy was performed in 8 cases (38%). The energy delivered was on average 1488 or 496 J per pile. It was associated with skin tag excision in 18 cases (85.7%), fissurectomy, sphincterotomy, anoplasty in 4 cases (19.2%), and fistulectomy for low anal fistula in 2 cases (9.5%). Piles retraction was judged sufficient in 17 patients (81%). The postoperative course was simple with no notable complaints in 16 patients (76%). Complications consisted of minimal bleeding in six cases (28%), significant bleeding in two cases with readmission, residual skin tag in six cases (28.5%), and subcutaneous fistula in two cases (9.5%). No recurrence of the symptoms of the haemorrhoidal disease was noted. **Conclusion:** Laser haemorrhoidoplasty is a minimally invasive alternative for the treatment of haemorrhoidal disease, especially for grade 2 and 3 haemorrhoids without major prolapse. Postoperative pain is minimal, and the risk of stenosis or incontinence is almost non-existent.

Keywords: Anus, good outcome, haemorrhoids, laser haemorrhoidoplasty, proctology

Introduction

Haemorrhoids are normal vascular structures of the anal canal which participate in fine anal continence.^[1] Their dilatation under the effect of multiple factors can generate symptoms dominated by rectal bleeding, anal discomfort, anus pruritus, or anal swelling. They become a concern in 4% of the patients and require medical or instrumental treatment, which have a suspensive effect on haemorrhoidal symptoms with high degree of recurrence. Conventional surgical treatment by the Milligan–Morgan or Fergusson procedure allows for definitive treatment. However, it is a source of acute postoperative pain and significant morbidity that improvements to the procedure or alternative treatment aim to substantially reduce. They are based more on

the pathogenesis of the haemorrhoidal disease, which considers arterial flow (overflow) as one of the causes of haemorrhoids packets' dilatation.^[2] It is therefore the object of new treatments proposed such as arterial ligation guided or not by Doppler, radiofrequency, or laser haemorrhoidoplasty. The laser associated or not with mucopexy coagulates the vessels and favours a progressive retraction of the haemorrhoidal packets. It better keeps intact the anoderm, the mucous membrane of the anal canal, and thus constitutes a minimal invasive treatment. A long-lasting beneficial effect on the symptoms and a sufficient retraction are reported in the literature.

In 2007, Karahaliloglu,^[3] shared the first series of 106 cases of grades 1 and 2 treated with 980 diode laser and noted less pain. However, he reported a postoperative bleeding rate of 0.6% and a re-intervention rate of 54% due

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to insufficient application of the laser on the packets.^[3] Since then, several other series have reported efficacy between 70% and 100%, and post-operative morbidity reduction compared with to conventional treatment by removal of haemorrhoidal prolapse.^[1,4-8] The most frequently reported complications are early or delayed bleeding, persistent skin tags, and thrombosis. Our aim is to report our data on laser plastic surgery for haemorrhoids (LHP) through a preliminary study and to discuss the indications as well as the short- and medium-term results.

Materials and Methods

We conducted a prospective descriptive study of 21 patients with haemorrhoidal disease. The study was carried out over a 12-month period, from January 2021 to December 2021, which included patients who underwent surgical treatment by laser haemorrhoidoplasty for haemorrhoidal disease, regardless of the stage: first-, second-, third-, or fourth-degree haemorrhoids.

Informed consent was obtained after providing information about the procedure. Indications were based on symptoms and the Goligher classification. The surgical treatment was performed in a 24-h hospitalization, under spinal anaesthesia or anaesthesia in a sling without prior bowel preparation or colonic evacuation. The procedure used a diode laser generator (Leonardo 1470 from Biolitec), set between 12 and 15 W in pulsed mode and which delivers laser energy through a radial fibre [Figure 1]. It also used a windowed proctoscope and ice cubes. In principle, a mucopexy is associated in case of important mucosal prolapse, followed by intermittent laser application [Figure 2]. Postoperative care included treatment with a stage 1 or 2 analgesic, a non-steroidal anti-inflammatory, metronidazole, a laxative, a twice-daily application of

antiseptic. Follow-up was performed weekly until healing and then every 2 months. Parameters studied included age, sex, personal and family history, previous treatment symptoms, grade of haemorrhoidal disease that qualifies for surgical treatment. Intraoperative data and short- and medium-term results were also evaluated.

Results

Twenty-one patients met the inclusion criteria. They were composed of 17 men and 4 women with a male/female ratio of 4.25:1. The mean age was 39.6±11.22 years with a range of 27–62 years. The commonest symptoms were dominated by rectal discharge in 16 cases (76%), anal swelling in 18 cases (85.7%), and constipation in 21 cases (100%). The proctoscopic examination confirmed the haemorrhoidal disease. It was grade

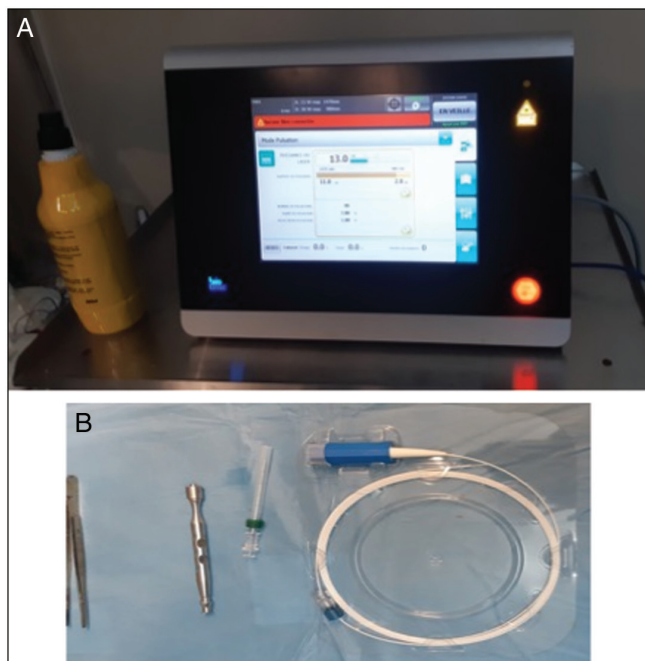


Figure 1: Laser generator (a) and radial fibre (b)

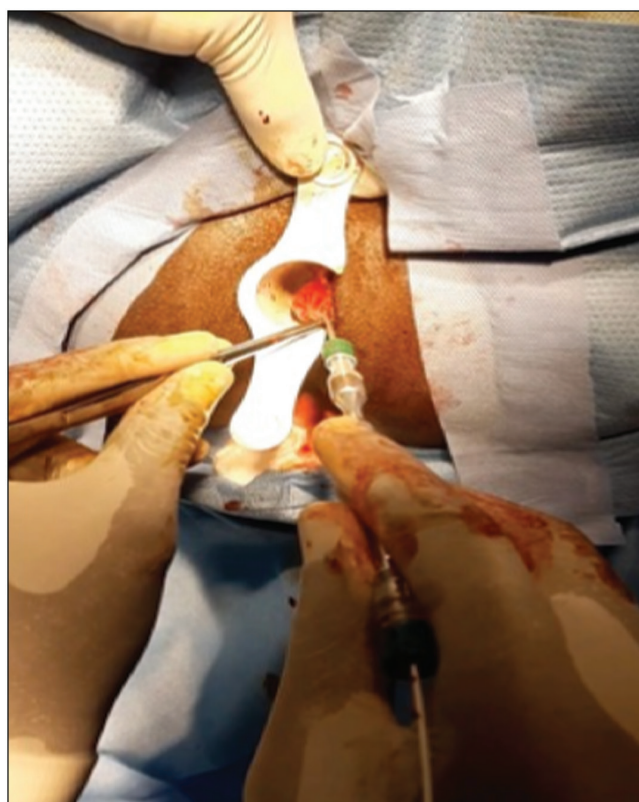


Figure 2: Laser application in a pile

Table 1: Preoperative characteristics

Preoperative characteristics	Number	Percentage
Anal swelling	18	87.5
Bleeding	16	76
Classification (Goligher)		
Grade 1	0	0
Grade 2	2	9.5
Grade 3	12	57
Grade 4	7	33
Associated pathology		
Anal fissure	4	19
Anal fistula	2	9.5



Figure 3: Gradual stage of the haemorrhoidal disease

Table 2: Preoperative characteristics and morbidity

	Number	Percentage
Periop characteristics		
Mucopexy + LHP	13	61.9
LHP without mucopexy	8	38
Mariscus excision	18	85.7
Hypertrophic polyp excision	3	14.2
Fibroid excision	1	4.7
Fissurectomy + sphincterotomy + anoplasty	4	19.2
Fistulectomy	2	9.2
Morbidity and treatment		
Rehospitalization for bleeding (pile stage 4)	2	9.2
Acide tranexamic (Exacyl)	1	4.7
Acide tranexamic (Exacyl) + transfusion	1	4.7
Subcutaneous fistula (MH grade 4)	2	9.2
Fistulectomy	1	4.7
Skin tag	6	28.5
Local anaesthesia excision	2	9.2

2 haemorrhoids in 2 cases (9.5%), grade 3 in 12 cases (57%), and grade 4 in 7 cases (33%) [Figure 3]. It was associated with an anal fissure in four cases (19%) and anal fistula in three cases (14.2%). Table 1 summarizes the clinical data.

The postoperative course was simple with no notable complaints in 16 patients (76%) [Figure 4]. The exact evaluation of the pain by the visual-analogue scale (VAS) was not performed.

The complications consisted of bleeding in 8 cases (38%), of which 6 cases (28%) were minor bleeding that resolved. Two cases (9.5%) required re-admission.

Residual skin tags were noted in 6 cases (28.5%), 2 of which required excision under local anaesthesia. A subcutaneous fistula was noted in 2 cases (9.5%), 1 of which required a fistulotomy. No recurrence symptoms were recorded during the follow-up. The intraoperative and morbidity data are summarized in Table 2.

Discussion

Haemorrhoidal disease remains a common condition with an estimated prevalence of between 2.9% and 27.9% or 50% of

the population.^[9,10] It was found in 4.4% of the population in the United States in 1990 and more recently estimated at 14.4% in South Korea and 38.9% in Australia.^[9,10] It is present in almost half of the subjects over 50 years of age.^[11]

It becomes a concern in about 4% of cases due to symptoms or complications. In the tropics, haemorrhoidal disease has a particular profile due to self-medication, the traditional treatment used by most patients. Taboos, fears of painful surgery, and developed beliefs are the main causes of the delay in management and the frequency of advanced grade haemorrhoids in surgical settings.^[12]

Depending on the stage, the treatment of haemorrhoidal disease can be medical, instrumental, and/or surgical. The indications depend more on the symptoms that the treatment aims to improve significantly with the minimum of complications and sequelae. The surgical procedures used are numerous with their own advantages and disadvantages. The conventional treatment by excision according to Milligan–Morgan carries out an ablation of the haemorrhoidal prolapse leaving the cutaneous–mucosal bridges. It is the most common procedure for its effectiveness, simplicity, and the fact that it requires little equipment. However, it is the cause of acute postoperative pain (VAS between 3 and 10 from the 1st to the 6th week), urinary retention (20.1%), reflex constipation, bleeding (2.4–6%), and a long healing time of 4–6 weeks. In the medium- and long-term, there is a reported risk of anal incontinence (0.4%) and anal stenosis (1%), among others.^[4,12–14]

Less-invasive methods have recently been developed to overcome these disadvantages and to facilitate the postoperative period. The most commonly used are Doppler-guided arterial ligation, radiofrequency, and laser haemorrhoidoplasty. A substantial gain in pain relief and few postoperative complications have been reported.

Laser haemorrhoidoplasty, like the endovenous laser, acts by thermal effect and leads to a sealing of the vessel walls and thus to an ablation of the vascular structures of the haemorrhoidal cushions. Its less aggressiveness on the anoderm and the anal canal results in less morbidity.

Thus, in terms of postoperative pain, the comparative study between laser haemorrhoidoplasty and the Milligan–Morgan procedure by Alsisy *et al.*^[4] reported pain scores (VAS) of 2 and 6, respectively. The study by Poskus *et al.*^[8] reported pain scores of 3.1 and 5, respectively. Postoperative analgesia was significantly less important.^[4,7,8] In the Alsisy *et al.*'s^[4] series, it was limited to analgesia on demand and in the Poskus *et al.*'s^[8] series to anti-inflammatory drugs.

Postoperative bleeding is a complication noted in several series.^[1,5,15] It is mostly minimal without any notable repercussion as noted in four (19%) patients in our series. Recurrent bleeding was noted in 2 (9.5%) of our patients with the need for re-hospitalization. Jahanshahi^[15] and Naderan *et al.*^[5] report a readmission and haemostasis rate of 0.6% and



Figure 4: Preoperative result and day 1 postoperative result

10%, respectively. In our series, long mucopexy and grade 4 haemorrhoids were a source of complications (bleeding, insufficient retraction, thrombosis, marisque, fistula).

Thrombosis is a frequent complication of intrahaemorrhoidal instrumental or surgical procedures. It is partly related to the loss of venous drainage.^[5] It is noted in 6.7–10% of the cases.^[4,5]

A residual skin tag was noted in 28.5% of the cases in our series, whereas it was 33.3% in the study by Plapler *et al.*^[16] Intraoperative skin excision or “lifting” prevents their occurrence but increases the size of the wound, even though it is superficial.

Postoperative care in this preliminary study required analgesia, antibiotic prophylaxis, anti-inflammatory medication, and twice-daily touching.

Studies comparing laser haemorrhoidoplasty with the Milligan–Morgan procedure conclude, among other things, similar efficacy, control of symptoms, and prolapse if the latter is small, shorter operative time, short hospitalization or outpatient in some series, faster recovery, and rapid resumption of activities.^[4-6,16,17]

Data on recurrence still vary, though Poskus *et al.*^[8] and Karahaliloglu^[3] reported a recurrence rate of 10% and 11.3%, respectively, whereas Alsisy *et al.*^[4] and Jahanshahi *et al.*^[15] report a rate of 0. Within a follow-up period of 12 months, there were no recurrence. Long-term follow-up is nevertheless necessary. The limitations of this study were the small number of patients in this study and the cost of setting up the equipment the laser haemorrhoidectomy.

Conclusion

This study has shown that laser haemorrhoidoplasty is a minimally invasive surgical treatment of haemorrhoidal disease with little distortion of the anal canal and has good outcome with few complications, especially for first-, second-, and third-degree haemorrhoids. Advanced forms such as grade 4 haemorrhoids and haemorrhoidal prolapse expose to

complications under laser and remain as indications for removal by conventional surgery according to Milligan and Morgan.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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