The Results Of Laser Haemorrhoidoplasty With Mucopexy For Symptomatic Haemorrhoidal Disease

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Abstract

Aim: The lasers are quite extensively used in surgery. Recently they have been used for haemorrhoids with good outcomes. However, there are no studies combining laser haemorrhoidoplasty with mucopexy. This study aims to determine short-term outcomes of laser haemorrhoidoplasty combined with mucopexy in U.K. population.

Method: In a day surgical unit at a district general hospital between January 2019 till October 2020, 150 consecutive patients with grade III haemorrhoidal disease were treated with laser haemorrhoidoplasty with mucopexy. Biolitic Diode laser system was used to induce closure of haemorrhoidal plexus. 20 Moncryl was used to perform mucopexy at grade III haemorrhoids. The patients were followed up in post-operative period at 4-8 weeks. All patients were assessed for control of bleeding, reduction of prolapse and post-operative complication.

Results: The follow up was achieved in 135(90%) patients. Six (4.0%) patients needed reoperation for haemorrhoidal bleeding. In addition, 4(2.7%) needed surgery for excessive skin tags. Total 15 (10%) patients reported complications with, 2 Clavien Dindo IIIb, 1 grade IIIa, 12 grade I (three fissures, two urinary retention, one constipation, three local bleeding, one pruritis, one incontinence (70yr old). None (0%) of the patients needed surgery for prolapsing haemorrhoids. At median follow up of 8.5months only 6(4.0%) needed reoperation for haemorrhoidal bleeding.

Conclusion: Laser haemorrhoidoplasty when combined with mucopexy achieves high 88% success rate. However, it leaves few patients with excessive skin tags which needs further surgical interventions. We also had one female patient with post op incontinence, she is 70 yrs old and currently having biofeedback therapy. Hence, we recommend to offer laser haemorrhoidoplasty with caution in elderly patients.

INTRODUCTION

The haemorrhoidal disease is common, affecting 40% of adult population and 50% 0f population over the age of 50 years [1,2]. The most common symptoms include rectal bleeding, mucosal prolapse, anal irritation and disruption of quality of life [3,4]. Nevertheless, the symptoms arising from haemorrhoidal disease are frequently bothersome and difficult to treat. There is poor corelation between grade of haemorrhoids and severity of symptoms [4]. The understanding that anal cushions are important in providing water tight seal to the anus has resulted in surgeons adapting to newer modalities of less invasive treatments [5].The rubber band ligation is regarded as simple and effective commonly performed procedure. Although short term recurrence is 12-18% but is long term 42% reported residual symptoms [6].

The laser haemorrhoidoplasty was first described in 2007 & 2009 is one of the newer innovations in the management of haemorrhoidal disease [7-9]. The principle of this minimally invasive technique is the coagulation of the haemorrhoidal plexus through the submucosal application of laser energy. A diode laser placed in the centre of haemorrhoidal cushions deploys laser energy repeatedly at a wave length of 1470 nm. This thermal energy leads to closure of haemorrhoidal plexuses and fixation of rectal mucosa and sub mucosa to muscularis layer. This leading to reduction in the grade of haemorrhoidal cushions and some retraction [7].

A number of studies have demonstrated that laser haemorrhoidoplasty is associated with minimal post-operative pain [7,10,11], symptomatic relief in 97% of patients [11], associated earlier to work [10] and higher

patient satisfaction [12].

Although quite a few studies have been published about the laser treatment of haemorrhoids, most of these studies are from Europe. We wanted to see if this procedure when offered to NHS patients do results remain same. The main aim of this study was to find out reoperation rate and significant complications.

METHOD

Study design

This is a single centre study evaluating short to medium term outcomes of laser haemorrhoidoplasty with mucopexy over a 2-year period. All the patients above the age of 18 years who had laser haemorrhoidoplasty with mucopexy as a day procedure were included. The patients who had additional procedure like skin tag excision, fissurectomy and wart excision were excluded from the study.

Operative technique

All the patients underwent laser haemorrhoidoplasty and mucopexy under general anaesthesia. A biolitic laser system with 1470 nm laser was used. A small skin incision was performed at the entry point of the laser fibre. The radial fibre was inserted into the haemorrhoidal cushion and then activated. The procedure was performed into one or more haemorrhoidal location as necessary. The aim was to give laser energy of ~ 200 Joules per haemorrhoidal cushion. In addition, mucopexy was performed with 20 Monocryl suture. Operative data including amount of energy used, number of haemorrhoids including grade of haemorrhoids were recorded. A pudendal block with bupivacaine was established at the end of the operation. All patients received single dose of intravenous antibiotic metronidazole. They were all given laxative and adequate pain relief for 5 days.

Follow up

The patients were followed up post operatively in an outpatient colorectal surgical clinic at 6 weeks occasionally earlier if they had any symptoms. A second follow up appointment was arranged if a need for further surgery was not possible during the first follow up. The surgeons gathered information about post-operative pain, bleeding, recurrence of haemorrhoidal prolapse, any complications including hospitalisation, reoperation and any new complaints. In addition, all electronic discharge summaries were checked for any delays in discharge or readmissions.

RESULTS

The study included 150 patients, unfortunately 12 patients were lost to follow further 3 patients were awaiting further follow up and hence 15 patients were excluded from the study. The follow up was achieved in 135 (90%) patients. Out of 135 patients, there were 69 women and 66 men with median age of 45 years. A median number of 3 haemorrhoids were treated. A mean energy of 530 Joules per patient was applied. There were no intra-operative complications.

Post-operative complications

The 45-day complication rate was 14%. There were 15 complications in 14/135 patients. Total 14 (10%) patients reported complications with two Clavien-Dindo IIIb, one grade IIIa, twelve grade I (three fissures, two urinary retention, one constipation, three local bleeding, one pruritis, one incontinence (70 year old). One patient needed blood transfusion and reoperation for post-operative bleeding Clavien-Dindo IIIa & IIIb. One 70-year-old lady who was complaining of incontinence went on to have anorectal physiology test found to have normal resting and squeeze pressures. She responded well to biofeedback measures. The three patients who attended accident and emergency for local bleeding did not need any intervention in the immediate post-operative period. Two of these two patients were on anticoagulants.

Table

Complications	Clavien-Dindo III B	Clavien-Dindo III A	Clavien-Dindo I
15	2	1	12

Additional procedures

Total 10 patients needed additional operations. Six patient needed reoperation for bleeding which were managed with THD or Milligan Morgan haemorrhoidectomy. Four patients complained of excessive skin tags and needed surgery to remove it.

Reduction of haemorrhoidal prolapse

All patients reported reduction of haemorrhoidal prolapse, more importantly no one needed re-operation for prolapse of haemorrhoidal tissue.

In addition, none of our patients developed fistula in ano or anal stenosis.

DISCUSSION

The need for treatment for haemorrhoids is primarily based on the subjective perception of severity of symptoms. There are various modalities of treatment for haemorrhoidal disease. These range from Classical Milligan Morgan haemorrhoidectomy, closed Fergusson's technique, stapled haemorrhoidopexy, Ligasure haemorrhoidectomy, infrared coagulation, radio frequency ablation, HALO, transhaemorrhoidal dearterialization (THD) to simple ligation of haemorrhoids. In surgery if there are multiple options then it means there is no single best operation which is suitable for all patients. We believe that good pre-operative conversation with the patient is essential for satisfaction of patient post-operatively.

Recently there is a trend towards non excisional surgery after realising the importance pf preserving anal cushions as these are important in maintaining tight closure of anus. The other reason is excisional surgery is by and large more painful than non-excisional surgery.

The laser works by causing photocoagulation of perivascular submucosal tissue. There has been advancement in the laser fibre technology. Most importantly radially emitting Diode lasers and depth of penetration to less than 1.5mms. This makes laser more superior and it works where it is needed to work i.e. submucosa. Due to its precision and short application field, causes less damage to deeper anatomical structures[13-15 A12-14]. Hence less damage to sphincter muscles so less incontinence related complications.

Although there is some retraction of haemorrhoidal tissue with laser haemorrhoidoplasty (LHP) it is not sufficient to control prolapsing haemorrhoids. So, we thought of combining LHP with mucopexy to address this issue. Combining LHP with mucopexy gives compete resolution of symptoms and enhances the patient satisfaction.

In our group, all patients were referred from primary care and were refractory to medical management of haemorrhoids. The immediate post-opearative pain is not a problem with good pudendal block with Bupivacaine which we tend to administer at the start of procedure to decrease intra-operative requirement of analgesia. None of our patients stayed overnight due to pain. There was one patient who required blood transfusion due to excessive bleeding also needed to go back to the theatre for haemostasis. It was unfortunate we don't know if it is related to excessive mucosal damage at the time of LHP. The minor bleeding observed in two patient who were on anticoagulant. It may be beneficial if we don't offer these patients laser haemorrhoidoplasty. It is author's choice to perform alternative procedure like THD in these patients. There were three patients with fissures which are difficult to explain we suspect it might be related to instrument trauma. A Quite a few patients required surgery for skin tag excision after LHP + mucopexy. The reason being once the haemorrhoidal plexuses reduced in size, they tend to produce redundant skin which patients complain as skin tags. It is debatable whether we could have talked through with these patients and avoided an unnecessary re-operation.

There was 70-year-old lady who complained of incontinence to wind and liquid faeces. She underwent thorough anorectal physiological tests and was found to have normal resting and squeeze anal pressure. She responded well to bio-feed therapy. It was probably more of an urgency issue than true incontinence. This has led to change in our practice in offering these procedures in elderly population with caution.

We could have included time taken for the procedure in the study which can be difficult to monitor in absence of dedicated manpower. But we could easily do 5 cases in a half a day session. We are currently in the process of collecting more data and conducting the patient satisfaction survey to see if they recommend this operation.

CONCLUSION

Laser haemorrhoidoplasty when combined with mucopexy achieves high 88% success rate. It is a safe procedure with no immediate post op complications with good control of bleeding and prolapsing haemorrhoids However, it leaves few patients with excessive skin tags which needs further surgical interventions. It is reasonable to reserve skin tag excision for only few patients who are complaining about it. We also had one female patient with post op incontinence, she is 70 years old and currently having biofeedback therapy. Hence, we recommend to offer laser haemorrhoidoplasty with caution in elderly patients.

We had few patients with post op bleeding who were on anticoagulants, it will be safer not to offer these patients laser haemorrhoidoplasty to these patients until further research comes out.

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