

Ambulatory treatment of haemorrhoids with the infrared coagulator

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Abstract

The objective of the study was to demonstrate the effectiveness of infrared photocoagulation (IRC) for the outpatient treatment of internal haemorrhoids.

One hundred and seven consecutive patients were prospectively studied during a 2-year period in a general surgery ambulatory practice using a Redfield infrared coagulation system without anaesthesia or sedation.

There was improvement in 73% of patients. Fifty-nine percent of patients became asymptomatic and 14% of patients had partial improvement with reduction in bleeding and prolapse. No response was seen in 15%.

Infrared coagulation should be considered as a simple trouble-free option in the outpatient management of haemorrhoids.

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1. Introduction

Prolapse and bleeding from haemorrhoids is a very common condition in the population over 50 years [1]. The overall incidence of haemorrhoids is similar in many geographic regions of the world. It has been reported as 4.4% in some Western nations and a similar incidence has been reported from the African and Indian continents [2]. The prevalence of haemorrhoids is thought to be more common than the reported incidence. In a review of 835 patients 86% were found to have haemorrhoids on proctoscopy [1].

Since the development of infrared coagulation in 1978 [3] several reports have compared the results of the treatment of first and second-degree haemorrhoids with infrared coagulation to other modalities not requiring surgical excision. These studies have shown that infrared coagulation has acceptable efficacy as a tool for outpatient management of first and second-degree haemorrhoids [4,5].

2. Materials and methods

A sequential cohort of patients seen between 1999 and 2001 was studied to examine the outcome and effectiveness of infrared coagulation as a suitable outpatient modality in the management of all stages of haemorrhoids. All patients who presented to a general surgery ambulatory suite were evaluated by a single surgeon and offered infrared coagulation as the first treatment modality for all grades of haemorrhoids.

The data collected included the patient demographics, the extent of haemorrhoid disease, the details of infrared treatment, outcome (complete response, partial response or no response), need for re-treatment, complications and follow-up information.

Because of the vague nature of a response of improvement in symptoms, patients were asked to state whether there was improvement in bleeding or prolapse or both symptoms.

All patients were evaluated with inspection, digital examination, anoscopy with and without straining, and sigmoidoscopy. Patients with a suspected colonic lesion were subjected to barium enema or colonoscopy if indicated. Other causes of rectal bleeding were excluded from the study.

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The classification of haemorrhoids used was as follows:

- First-degree haemorrhoids are non-prolapsing and remain within the anal canal.
- Second-degree haemorrhoids prolapse during straining, and spontaneously reduce.
- Third-degree haemorrhoids prolapse requiring manual reduction.
- Fourth-degree haemorrhoids are prolapsed and irreducible.

2.1. Equipment

The equipment used was an infrared coagulator (Redfield Corp., Montvale, NJ).

The coagulation of tissue was performed by means of infrared radiation while applying mild mechanical pressure to the tissue. The infrared coagulator consists of a transformer an infrared radiator and a slightly curved light guide with a contact tip made of Teflon that does not adhere to tissues. A low voltage tungsten halogen lamp (15 V) produces the infrared beam that is focused into the light guide.

The amount of infrared energy transmitted to the tissues is determined precisely by a timer that is set at 1.5 s, limiting the depth of tissue coagulated to 3 mm.

This allows uniformity in the extent and depth of coagulation of the haemorrhoid and removes the element of error [3].

2.2. Technique

The patients were placed in the left lateral position and the haemorrhoid examined using a slotted anoscope. All haemorrhoids were treated during the same visit by three pulses applied via the light guide at the neck of the haemorrhoid. No analgesics or sedation was used and patients were able to depart the ambulatory suite after treatment. Patients were asked to grade their acceptance of the treatment at the initial visit by indicating the level of discomfort during the procedure using a visual analogue pain score.

Medications including stool softeners or analgesics were only administered if requested.

Patients were reviewed 21 days, after treatment and again at 42 days and 6 months.

3. Results

One hundred and seven patients with a diagnosis of haemorrhoids were treated with infrared coagulation. Eight patients (7.5%) had first-degree 52 patients (48.5%) had second-degree haemorrhoids, 43 (40%) had third-degree hemorrhoids, and four (3.7%) had fourth-degree haemorrhoids. There were 47 males and 60 females seen who had examination of a total of 370 haemorrhoids with follow-up over a period of 6 months. The mean age of patients was 41.2 years with an age range of 18–89 years. Of the patients seen 25

did not return for further evaluation. Eighty-two patients had long-term follow-up examination. There was improvement in 73% of patients. Of these 59% of patients became asymptomatic and 14% of patients had partial improvement with reduction in bleeding and prolapse. No response was seen in 15%, four of these patients with third-degree haemorrhoids failed to respond and required haemorrhoidectomy. Seventeen patients required two treatment sessions and one patient required three sessions before improvement in symptoms was detected. Minor pain and bleeding occurred in approximately 6% of patients. Five patients complained of discomfort during the procedure and this was addressed by repositioning the anoscope and resuming coagulation at a more proximal level above the dentate line. All the complications following infrared coagulation were observed within the first 7 days: mild anal pain in 5/82 patients (6.0%) and mild bleeding in 7/82 (8.5%). Seventeen patients required two treatments and one patient required three sessions before improvement in symptoms was detected. No significant differences were found regarding the effectiveness of infrared coagulation for the treatment of first- or second- or third-degree haemorrhoids.

There were no long-term complications resulting from infrared coagulation in any patient.

4. Discussion

Internal haemorrhoids are normal vascular cushions that are important for continence [6]. During defecation the haemorrhoidal cushions are subjected to pressure and slide downwards weakening the fibromuscular bonds which keep them in place resulting in haemorrhage and prolapse [5]. Surgical treatment of haemorrhoids with haemorrhoidectomy has been declining in popularity since the advent of non-surgical measures. Several methods have evolved which attempt to restore the normal position of the haemorrhoids by fixation to the underlying fibromuscular layer.

The best known methods include rubber band ligation, infrared coagulation, sclerotherapy, laser photocoagulation and cryotherapy [5,7,8].

The effect of infrared treatment is immediate reduction in blood flow to the haemorrhoid followed by necrosis at the point of coagulation that is controlled by a timed exposure that limits the depth of penetration of infrared energy to 3 mm.

Despite several trials comparing effectiveness of these modalities no single treatment has emerged as superior to the other [5].

In a recent review infrared coagulation and rubber band ligation were shown to have equal efficacy for the management of all grades of haemorrhoids, despite a higher relapse rate in patients with third-degree haemorrhoids [4]. Both treatments have the advantage of being ambulatory resulting in convenient outpatient care. Additional costs are negligible with infrared coagulation as is the need for special training. Rubber band ligation requires training and replacement bands are necessary for each procedure. Infrared coagulation also

results in less trauma, but may require re-treatment for relapse [9].

Rubber band ligation has been associated with a significant incidence of post treatment pain more marked than infrared coagulation, although fewer patients require re-treatment for relapses than infrared coagulation [2]. The small advantages in efficacy seen with rubber band ligation is negated by the increased incidence of complications particularly pain. The improved long-term efficacy seen following treatment with rubber band ligation may result from the increased depth of tissue destruction, which follows the placement of the rubber band at the upper end of the haemorrhoid.

Sloughing of the haemorrhoid follows placement of the rubber band, resulting in scarring and fixation of the mucosa to the underlying fibromuscular layer [7].

Rubber band ligation has also been associated with complications such as recto-vaginal fistula, pelvic inflammation, and bacteremia and in rare cases tetanus [10–12].

Reviews, which have compared sclerotherapy with infrared coagulation and rubber band ligation, have demonstrated the need for adequate training, an increased frequency of recurrent symptoms and an increased need for repeat therapy with sclerotherapy [4].

The procedure is therefore not considered a first option for the management of symptomatic first and second-degree hemorrhoids [13].

The main disadvantage of surgical haemorrhoidectomy is the well-known occurrence of postoperative pain and the protracted period of postoperative recovery. Cost and inpatient hospitalisation are lesser considerations.

Infrared coagulation is a procedure that is entirely office-based and is inexpensive.

The procedure is easily learned and apart from mild pain and occasional discomfort as seen in our patients is almost free of complications [14]. Despite the necessity for repeat treatment the procedure has no long-term complications and may be repeated over and over again without significant morbidity. The few side effects include mild delayed bleeding that may occur days after treatment or mild pain that may be due to coagulation of haemorrhoids close to the dentate line.

In conclusion in this review of 107 patients there were no severe complications requiring therapy.

The procedure was used in patients representing several age groups and repeat treatment was well tolerated. The technique is easily learned, rapidly performed, requires no anaesthesia and may be used for all grades of haemorrhoids with little short or long-term morbidity.

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