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Pilot Experience with Infrared Photocoagulation As an Office Based Procedure for the Treatment of Hemorrhoids.

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***Abstract**: There are many minimally invasive modalities in use for the treatment of hemorrhoids, most of which are unavailable in our setting. This study sought to describe our recent experience with infrared photocoagulation with a view to stressing it's suitability as an office based procedure for treating hemorrhoids. A prospective study of consecutive patients presenting with symptomatic hemorrhoids was conducted over a 3 year period. 21 (22.3%) patients had grade 1 hemorrhoid, 53 (56.4%) had grade 2 and 20 (21.3%) had grade 3 hemorrhoids. All 20 patients with grade 3 hemorrhoids at re-assessment after 2 weeks, the grade had changed to 2. 53 (56.4%) patients had 2 sessions of treatment at 2 weekly interval, while 41 (43.6%) patients had a single session of treatment to cure symptoms. 60 (63.8%) patients had minor post procedure hemorrhage, 14 (14.9%) had mild post procedure pain, 4 (4.3%) had recurrence of symptoms and were treated via open hemorroidectomy, while 16 (17.0%) had no procedure related complication. Infrared photocoagulation is an effective, safe and well tolerated procedure for the outpatient treatment of hemorrhoids and may be used to downstage grade 3 hemorrhoids.*

***Keywords:** Infrared photocoagulation, Hemorrhoid, Grade, down stage*

I. Introduction

Hemorrhoids have plagued mankind since the ancient times. They result from the internal disruption and downward displacement of the normal anal cushions. The aetiology of hemorrhoid is unknown. Several contributing factors have been implicated, including the upright posture of humans, aging, pregnancy, hereditary, constipation or chronic diarrhoea, and spending excessive periods of time on the toilet. Though hemorrhoids remain the most common anorectal disorder, the exact prevalence of symptomatic hemorrhoids is unknown, because many sufferers are reluctant to seek medical care for various personal, cultural and socio-economic reasons. Still others rely on over-the-counter remedies whereas others attribute every anorectal symptom to hemorrhoids (1).It is stated however, that 50% of the population will experience symptomatic hemorrhoids at some point in their lives (2). The peak incidence of symptomatic hemorrhoidal disease is between ages 45 to 65 for both sexes (3,4) and development before the age of 20 is unusual (5,6). The main symptoms are bleeding and prolapse, other symptoms include pain, mucoid discharge and itching, though most people ascribe every anal symptom to hemorrhoids and the doctor needs to decide whether they may be responsible for the symptoms.

Hemorrhoid is a progressive disease necessitating staging. The Goligher classification (7) describes 4 grades or stages which is the basis for the different treatment modalities. First degree hemorrhoids remain internal but bleed. Second degree hemorrhoids prolapse on defaecation, but reduce spontaneously, whilst third degree require manual reduction. Fourth degree hemorrhoids are permanently prolaspsed and cannot be reduced (8). There are so many treatment procedures for hemorrhoids ranging from the minimally invasive procedures like Sclerotherapy, Cryotherapy, rubber band ligation, bipolar diathermy, laser therapy and infrared coagulation to the operative procedures. The minimally invasive procedures available in our setting are rubber band ligation and infra red coagulation. Though the best treatment is still debatable, it is generally agreed that the minimally invasive procedures be used for grades 1 and 2, while the operative methods be reserved for grades 3 and 4. Newer methods are being developed that achieve a balance between adequate control of symptoms and acceptable post-operative complications, first of pain and low recurrence rates.Infrared photocoagulation is one of the more recent minimally invasive methods and may be the optimal treatment modality (9). It is usually done as an office procedure and the patient returns to normal activities afterwards. It is as effective as other minimally invasive techniques but in addition requires less procedure time and is less painful (10). Infrared photocoagulation was first described by Neigher in 1977 (11,12). Infrared light penetrates the tissue and converts to heat causing thrombosis to blood vessels thereby cutting off the blood supply to the hemorrhoid. This causes the hemorrhoid to shrink and recede.The aim of this study was to describe our experience with infrared photocoagulation with a view to stressing its suitability as an office procedure.

II. Patients and methods

This prospective hospital based study was carried out in the Jos University Teaching Hospital and FOMAS hospital, both located in Jos. The Jos University Teaching Hospital Ethics and Research committee provided ethical clearance for this study and informed written consent was obtained from the patients.Consecutive patients presenting with anorectal symptoms and diagnosed to have hemorrhoids were recruited into the study, while those with grade 4 hemorrhoids, those with hemorrhoids secondary to rectal tumors, those with recurrent disease, those with concurrent anal conditions and those with incomplete records were excluded from the study. This study spanned a 3 year period (March 2013 - Feb 2016). Procedure: With the patient placed in lithotomy position, a well lubricated specially designed proctoscope with a light source and a slit on one side to accommodate the infra red probe for maximal contact with the base of the hemorrhoid, is inserted into the anal canal and the obturator removed. The infrared coagulator gun is set to between 1.5 and 2.0s and is passed through the proctoscope to the base of the hemorrhoid. Each hemorroidal trunk is coagulated superiorly, inferiorly and bilaterally achieving a diamond shape situated above the dentate line. The coagulated spots appear white and the distance between 2 coagulated spots was 2mm to prevent coagulative necrosis and sloughing of the anal mucosa. The sapphire tip was cleaned with spirit before each coagulation. The proctoscope is rotated and the procedure is repeated at the base of the next hemorrhoid. In some patients an immediate reduction in the bleeding is observed. Following the procedure, the patient is placed on paracetamol tablets and broad spectrum antibiotics and advised on liquid diet for the next 48 hours. All patients bio-data was extracted into a preformed proforma including data on age, sex, symptoms, degree of hemorrhoids, number of sessions of treatment and complications. Extracted data was analyzed for means and percentages using Epi info version 3.5.1 software.

III. Results

A total of 94 patients were involved in this study, there were 63 males and 31 females (M:F 2:1), The study population had a mean age of 37.2 +/- 6.3 years with age range of 21 to 56 years. Most patients 73 (77.7%) had anal protrusion as a symptom. Other symptoms in these patients included bleeding per rectum in 84 (89.4%), discharge of mucus per anus in 7 (7,4%) and pruritus ani in 3 (3.2%). 21 (22.3%) patients had grade 1 hemorrhoid, 53 (56.4%) had grade 2, 20 (21.3%) had grade 3 hemorrhoids, while those with grade 4 hemorrhoids were excluded from the study and treated by the Milligan Morgan technique. All 20 patients with grade 3 hemorrhoids at re-assessment after 2 weeks, the grade had changed to 2. 53 (56.4%) patients had 2 sessions of treatment at 2 weekly interval, while 41 (43.6%) patients had a single session of treatment to cure symptoms. 60 (63.8%) patients had minor post procedure hemorrhage, 14 (14.9%) had mild post procedure pain, 4 (4.3%) had recurrence of symptoms and were treated via open hemorroidectomy, while 16 (17.0%) had no procedure related complication.

IV. Discussion

The most important finding in this research is that grade 3 hemorrhoids were down staged to grade 2 by the next treatment session. Although infra red coagulation and other minimally invasive methods are advocated for grades 1 and 2 hemorrhoids, some studies recommend the use of rubber band ligation for the treatment of grade 3 with a minimal external component (13,14). This provided the impetus for us to try infrared photocoagulation on grade 3 hemorrhoids. We have however not come across any literature suggesting this stage migration with the use of infra red photocoagulation. This study also revealed that majority of the complications were minor and tolerable making it a suitable office procedure. This finding is similar to several studies that showed that infrared photocoagulation is associated with fewer and less severe side effects when compared to the other forms of minimally invasive therapies (15-17).Only 14.9% of the patients complained of mild post procedure pain even though the procedure was performed without any form of analgesia. This is due to the fact that the probe is directly applied to the base of the hemorrhoid above the dentate line which is a pain free zone. This may also be related to the fact that a controlled depth of tissue penetration is achieved with infrared coagulation and therefore minimal tissue destruction which is not achievable with other methods. The maximum number of sessions required in our study to achieve resolution of symptoms was 2. This attests to the efficacy of infrared photocoagulation. Other studies reported a maximum of 4 sessions to achieve symptom control (18), this disparity may well be because this is a pilot study and follow up is still ongoing. In our study, 95.7% had complete resolution of symptoms, this finding is in tandem with studies which compared the various forms of minimally invasive therapies and showed a high rate of resolution of symptoms observed with infrared photocoagulation (19-21).

V. Recommendation

We recommend that this infrared photocoagulation be adopted for patients presenting with grade 3 hemorrhoids that are of poor operative risk. A future study comparing infrared coagulation and rubber band ligation would be helpful.

VI. Conclusion

Infrared photocoagulation is an effective, safe and well tolerated procedure for the outpatient treatment of hemorrhoids and may be used to downstage grade 3 hemorrhoids.

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