THERAPY

Infra red photocoagulation of early grades of hemorrhoids – 5-year follow-up study

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Abstract

Background: **Infra-red photocoagulation is used as an instrumental treatment for bleeding hemorrhoids. During this procedure the tissue is coagulated by infrared radiation. For treatment, mechanical pressure and radiation energy are applied simultaneously to ablate the blood supply to the hemorrhoidal mass.**
Material and method: **This study describes the results of infrared photocoagulation of Grade I and II bleeding hemorrhoids with 5-year follow-up.**
Results: **300 patients treated by infrared coagulation were followed up for a period of 60 months. 39 patients had persistence or recurrence of bleeding. Other post procedure complaints included post defecation discomfort, pruritus and discharge per anus. No patient had any septic or infective complication.**
Conclusion: **This retrospective study shows that infra red coagulation for hemorrhoids in early stages could be an easy and effective alternative to conventional methods as it is quick, painless and safe. The procedure can be repeated in case of recurrence and should be considered as an alternative to conventional treatment in hemorrhoids *(Ref. 30)*. Full Text (Free, PDF) *www.bmj.sk*.**
Key words: hemorrhoids, infrared coagulation, bleeding, office procedure.

Hemorrhoids or piles are a very common pathology. It is found in almost 50% of the people over the age of fifty who suffer from the disease in some or other form (1).

Many options have been put forth and tried (2). for the treatment of this ancient disease. In modern times, a fast and painless procedure that could be carried out in the office practice under local anesthesia will surely be preferred and accepted (3). Infra red photocoagulation (IRC) is found to fit the bill. It was introduced in late seventies by Nath (4).

In infrared contact coagulation, the tissue is coagulated not by means of an electric current, but through an infrared radiation (5). During treatment, mechanical pressure and radiation energy are applied simultaneously in a manner that eliminate the disadvantages of electrocoagulation like grounding the patient, charring of the tissues which causes extensive and unpredictable lateral damage leading to subsequent fibrosis. There is an obvious risk of electric current passing through the body with the use of electrocoagulation, which may cause painful muscular spasms (6). IRC, on the other hand, being free from these hazards, has proved to be an effective and safe method of treatment for early grade bleeding internal hemorrhoids (7).

We are using the Infra Red coagulator from LUMATEC, Munchen, Germany. A light guide of 220mm with a tip diameter of 6mm is being used for the process of coagulation.

Patients and method

In the present retrospective study, the effect of infrared coagulation on patients with hemorrhoids was observed over a follow up period of 60 months. 300 patients were treated with infrared coagulation. This included 176 males and 124 females. The mean age of the patients was 34 yrs. (Range between 19 and 69 yrs). The study was conducted at Gupta Nursing Home, Nagpur between January 2000 and June 2001 and the follow-up data was collected for at least 60 months of the procedure.

The diagnosis of hemorrhoids was made by anoscopic examination and patients having first and second degree (8) bleed-

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ing hemorrhoids were selected for the procedure. 129 of the patients had grade I hemorrhoids. Remaining 171 patients had Grade II hemorrhoids, which used to prolapse during defecation and got reduced on their own. 223 of the patients from the study have failed to respond to conservative treatment given in the past.

Exclusion criteria

Patients having associated anal fissure or infective anal pathologies like cryptitis or proctitis were excluded from the study. Similarly, patients who had not signed the informed consent and pregnant women with less than 12 weeks of pregnancy were excluded from the study.

All the patients received written explanation of the technique including potential drawbacks, such as relapses and a possible need for a repeat or a resort to other mode of treatment. The procedure was approved by the local ethical committee and was performed according to the declaration of Helsinki.

5 % xylocain ointment was applied in the ano-rectum 10 minutes prior to the actual procedure, to reduce the sensitivity of the area.

Procedure of infra red coagulation

The procedure was performed keeping the patients in left lateral position.

Hemorrhoids were visualized by inserting the anoscope. The operative field was cleaned to obtain a clear view of the area. The base of the pile was traced. It was ensured that the edge of the anoscope is positioned above the dentate line to minimize pain or discomfort. Two or three linear spots of coagulation were made touching the tip of the light guide firmly over the pedicle. A burst of radiation in a cloverleaf fashion to the base of each of the three principal hemorrhoidal cushions was sufficient. The timer of the coagulator was set to 2 seconds, which attained coagulation approximately to a depth of 2 mm of the area. A white round spot appearing at the place of application indicated completion of the coagulation.

Care was taken to ensure that the spots of application do not overlap, as this could lead to an excess amount of tissue destruction.

All the pile bases were coagulated one after the other. There was no special preference for the positions of hemorrhoids to begin with; though we went on dealing with the largest pile first and so on.

The patients were allowed to go home and were advised to return to their routine activities. Patients were asked to consume 20 ml of Lactulose (Duphalac) at bedtime for 1 month. They were asked to apply a 5 % Xylocain ointment before and after defecation to relieve the post defecation discomfort and the possible burning sensation. They were cautioned not to stain at stool and that they should expect little bleeding in the first few days. The patients were invited for a follow up visit after 4 weeks of the procedure. Subsequently they were invited after 5 years of the procedure.

Results

The mean treatment duration was 3 minutes, ranging between 2 to 5 minutes.

Post procedure pain – 47 patients complained of post defecation pain, which lasted for a mean of 7 minutes after passage of stool.

Pain at rest – 9 patients complained of discomfort around the anal region for about a week.

Bleeding – 58 patients complained of post defecation bleeding, ranging from smearing of the stool to small drops. It stopped by its own within a week. Rest of the patients did not face any bleeding right from the very first defecation.

Hemorrhage – 2 patients returned with spontaneous rectal bleeding between the 7th and 14th postoperative day. They were readmitted. Both of them responded to conservative treatment with local compression and haemostatic medication.

Pruritus – 23 patients had itching in and around anus following the procedure. They were asked to discontinue application of Xylocain ointment, which relieved them from itching.

Discharge – 7 patients had scanty discharge per anus. They were reassured. None of them had similar complaints at the follow-up at week 4.

None of the patients developed any septic complication like wound infection, abscess, or fistula formation.

Follow up

The last follow up was carried at a mean of 62 months (range 60–66 months) of the procedure. 41 patients were lost to follow up.

Bleeding – During this period, 39 patients had recurrence of bleeding. They were advised for a repeat photocoagulation. 11 patients refused to undergo repeat procedure. From the remaining 28 patients in whom the procedure was repeated, 8 patients continued to have bleeding even after the second coagulation. They were subjected to band ligation. In the remaining, no bleeding was reported.

Pain – None of the patients had any pain in the anal region. A few complained of minor discomfort during defecation. On being implored, the discomfort was found relatable to their faulty dietary habits. They were instructed to follow regularity in their diet and to strictly avoid spicy and pungent food. Because of external cause no specific medication was prescribed.

Discussion

The infrared coagulator works on the same principle as the CO_2 laser. This method has many advantages (10) for the treatment of hemorrhoids.

Pregnancy is not a contraindication. 22 of the female patients in our study were in antenatal care and were referred by the gynecologist for bleeding per rectum. Earlier medical treatment had failed to control their bleeding. They were found to have internal bleeding hemorrhoids. Infra red coagulation was performed. All of them had an uneventful antenatal period apart from a complete control of bleeding per rectum.

Even when repeated several times, it is a safe and swift procedure. As compared to laser or electro coagulation, injury to bone or periosteum is unknown (11).

When compared with rubber band ligation, probably the most commonly used procedure in early grades of hemorrhoids, certain advantages of photocoagulation can be noted.

Both of the treatments are ambulatory. Although rubber band ligation demonstrated greater long-term efficacy, it is associated with a significantly higher incidence of post treatment pain (12). In contrast, infra red coagulation is associated with fewer and less severe complications. The most efficacious therapy, however, may not be the optimal one if the risks of potential complications outweigh the benefits of the treatment (13).

No special training is required to carry out coagulation provided the area of coagulation is kept above the dentate line. While application of band needs training for placing the band at the right place, failing of it can lead to complications like pain, strangulation of pile, necrosis, or even sepsis. The anatomical results following photocoagulation suggest that the progression of hemorrhoids and probably, the need for surgery are prevented (14).

Band ligation is marked by a great number of complications of an inflammatory character (15, 16).

Rubber band ligation has been associated with life threatening complications like tetanus, liver abscess, pelvic cellulitis, rectovaginal fistula, and bacteremia. The septic complications are manifested with a clinical triad of pain, fever and retention of urine (17, 18, 19, 20, 21).

Infra red photocoagulation is effective, inexpensive, and optimally patient-friendly (22). It is well tolerated by the younger patients with hyperactive anal sphincter, where rubber band ligation had reportedly caused conceivable pain after therapy (23). Pain after RBL occurs more often than previously recognized. It is suggested that informed consent should be obtained before RBL and that patients should be given the opportunity to delay treatment if they wish so (24).

Few other instrumental procedures that are proposed for Grade I and II hemorrhoids include injection sclerotherapy, cryodestruction, using direct current probe and electrocauterization.

Freezing of hemorrhoids using liquid nitric oxide or carbon-di-oxide is still being practiced in some parts of the world. Cryosurgery is associated with a higher rate of complication and less patient satisfaction (25). It is almost never justified.

Complications like fissures, bleeding, and rectal spasm had occurred with the bipolar probe, and with the heater probe. The heater probe caused more pain during treatments (26). These electro surgical equipments are unable to accomplish a spot welding like the IRC. As contrast to true cautery, which causes damage similar to 3rd degree burns (27), the tissue damage that does occur with IRC is very superficial and is comparable to that which occurs with Lasers. Nevertheless, the amount of tissue destruction caused by electrocautrization is unpredictable.

Sclerotherapy is useful only in early grades of hemorrhoids, and needs a proper placement of injection in the hemorrhoid mass. To achieve such perfection, it requires experience. The technique is often associated with septic complications (28). Life threatening complications like retroperitoneal sepsis and necrotizing fascitis have been reported after submucosal injection therapy (29). ‚Oleogranuloma' is another complication reported with the sclerotherapy. Such complications are not reported with the IRC.

Direct current probe [Ultroid, Hemoron] is also used by some proctologists. But the procedure is time consuming and cumbersome in application. It needs about 10 minutes to deal with a single hemorrhoid and is thus associated with more pain and reduces compliance both of the patient and the operator.

The reason for spontaneous, heavy bleeding in two of the patients in our study was possibly due to the sloughing of the pedicle following the coagulation. This alarming complication could be averted if overlapping of the coagulation spots is avoided while coagulating the pedicle.

The cost of photocoagulation is limited to the acquisition of the coagulator, since it does not require any maintenance, except the normal care during disinfections and use. The running cost is minimal and only one new tungsten halogen bulb needed replacement during the last 7 years of our use of the instrument.

The post coagulation pain was mostly observed in patients in whom the hemorrhoids were large in size and coagulation was done too close to the dentate line (30).

The reason for anal pruritus probably was a hypersensitivity to the ointment used for application. Another contributory factor was the lack of proper local hygiene. A false notion and an anxiety of not disturbing the ‚operated' area distracted a few patients keeping the area clean. Appropriate instructions with regards to local cleanliness solved the problem.

Conclusion

The study shows that infra red coagulation could be adopted as an effective alternative to conventional method of pile management as it is quick, hassle free and safe. It is better tolerated than the band ligation, and more effective when compared to the other modalities of hemorrhoid treatment in practice.

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