

Cryosurgical Treatment of Vasomotor Rhinitis

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ABSTRACT

A prospective study was designed between January 1981 and October 1984 to compare the effectiveness of cryosurgery with submucous diathermy of the turbinates for patients suffering from vasomotor rhinitis.

Cryosurgery was performed on 157 patients and submucous diathermy on 165 patients. Both methods gave effective relief of airway and reduction of secretion. No complications were recorded for either method. A slightly higher recurrence rate was found after cryosurgery than after submucous diathermy. The result suggests comparable effectiveness of both methods in the treatment of vasomotor rhinitis. Cryosurgery of the turbinates is painless, easy to perform and it can be carried out as an office procedure.

INTRODUCTION

The possible use of cryosurgery in the ear, nose and throat was shown by Cahan¹ when he used cryosurgery for tonsillectomy in dogs in 1965. Cryosurgery as a treatment for chronic rhinitis was recorded in 1970 by Ozenberger².

This study has been designed to determine the effectiveness of cryosurgery of the inferior turbinates compared with submucous diathermy.

METHODS

Cryosurgery is performed using nitrous oxide at 800-1000 lb/in² and a special flat silver probe, which can achieve a temperature of -85° C to -95° C through the Joule Thompson effect. The procedure is performed under L.A. or G.A. in accordance with the patient's wish. The inferior turbinates are

fractured medially with a Hill's elevator; then the probe is applied to the inferior turbinates three times, each application being for one minute, utilising the freeze-thaw method. Nasal toilet is done afterwards and followed up after four days, when the slough is removed with Tilley's forceps. Follow-up continues for the next four weeks.

A conventional diathermy procedure was used; submucous diathermy was applied starting from the posterior end of the inferior turbinates and progressing very slowly to the anterior end.

All of the patients selected for the study had no other diseases and they underwent cryosurgery or submucous diathermy as an isolated procedure. The major criterion for selection was nasal obstruction due to enlarged inferior turbinates with no nasal polyps, no sinus disease, no infection and no history of septal surgery or septal irregularity.

The airway is judged by nasal examination through posterior and anterior rhinoscopy, air-jet observation, subjective feeling of improved airway and relief of related symptoms of the Eustachian tube, pharynx and lower respiratory tract. Rhinometric measurement was not done as it was thought unnecessary.

RESULTS

Cryosurgery was performed on 157 patients as an isolated procedure. Ninety-six were Bahrainis and 61 were of different nationalities; 111 were males and 46 were females. Their age range was between 20 and 50 years.

Submucous diathermy was performed on 165 patients as an isolated procedure. Ninety-three were Bahrainis and 72 were of different nationalities; 139 were males and 26 were females. Their age range was between 20 and 50 years.

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All of the patients had initial relief of obstruction and symptoms of rhinorrhoea, sneezing and related symptoms. Recurrence of symptoms, i.e. nasal obstruction or sneezing or rhinorrhoea, was seen in 28 cases (17.8%) after cryosurgery and in 15 cases (9.09%) after submucous diathermy.

No major complication was seen with either procedure, and no bone necrosis, occasional bleeding, foul odour and discharge was seen after submucous diathermy. Patients that had submucous diathermy frequently needed analgesics compared with those who had cryosurgery. Both are accompanied by post-operative nasal congestion.

DISCUSSION

Nasal obstruction due to vasomotor rhinitis is usually caused by an increase in the bulk of erectile tissue over the inferior turbinates, and to a lesser extent, over the middle turbinates and the septum. Besides the discomfort of nasal obstruction, it could lead to sinus, throat and ear diseases. Ogura³ has pointed to the relationship between nasal obstruction and pulmonary changes and possible cardiovascular abnormalities.

Techniques currently used to relieve nasal obstruction include linear cautery which gives only inadequate and temporary relief, the mucosal surfaces are frequently scarred with impaired ciliary action. Submucosal sclerosing agent is a painful procedure and the result is short term. Submucosal corticosteroids⁴, the result is short term and blindness has been reported. Unipolar and bipolar submucosal diathermy achieve reduction in the turbinate size due to intra turbinate fibrosis and cicatrization. Submucosal resection of the inferior turbinates as described by House⁵, is associated with significant bleeding which needs nasal packing and hospitalisation. Vidian neurectomy⁶ is a major operation with occasional temporary paralysis of the 3rd and 6th cranial nerves, and recurrence is possible after 2 years.

Cryosurgery has been used in chronic rhinitis since 1970. The mechanism of destruction of tissues by cryo⁷ is achieved when the temperature goes below -20°C, where intracellular ice crystals form with disruption of nuclear and cell membranes. Thereafter, sharp demarcation from the surrounding normal tissue is seen with no tissue inflammation, scarring and rapid regeneration of nasal epithelium⁸. Definitive reduction of mucosal thickness and signifi-

cant loss of vessels and glandular acini, maximum response is achieved at the 4th week after cryosurgery and at the 6th week after submucous diathermy. Ciliary action is restored as evidenced by methylene blue or Saccharin technique⁸.

In this study we observe that vasomotor rhinitis is a common condition in Bahrain, being more than twice as common in males as females and that it affects the adult age group.

We also observe that cryosurgery is as good as submucous diathermy in the treatment of vasomotor rhinitis, with a slight increase in recurrence rate but with the following advantages: it can be repeated with no ill effect; it can be carried out under L.A. as an office procedure, while submucous diathermy frequently needs G.A. and hospitalisation; it is painless with the minimum discomfort and it is not associated with bleeding. Bone necrosis, foul odour, discharge and atrophic changes were not seen compared with other procedures and no packing is required post-operatively. Patients with nasal congestion induced by drugs or pregnancy have been excluded. No complications were seen and relief of symptoms of chronic nasal obstruction and nasal discharge was achieved on more than 80% of patients.

CONCLUSION

Cryosurgery is as good as submucous diathermy in the treatment of vasomotor rhinitis, which is a common condition in Bahrain.

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