

Comparison of chemical cautery (AgNo3) and steroid spray against SMD (submucosal diathermy) in the treatment of symptomatic inferior turbinate hypertrophy (ITH)

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Abstract

Objective: To compare the efficacy of chemical cautery (AgNo3) and steroid nasal spray against SMD (submucosal diathermy) in the treatment of symptomatic Inferior Turbinate Hypertrophy (ITH).

Materials and Methods: Patients attending OPD in the department of ENT &HNS at KMCTH with symptomatic Inferior turbinate Hypertrophy were taken with their approval included for the study. Patients were divided into 2 Groups: in the first Group 25 patients were included and treated with chemical cautery (AgNo3) under Local Anaesthesia (LA), followed by steroid nasal spray for 3 months; in the second Group 25 patients were included and were treated with SMD (submucosal diathermy) under General Anaesthesia (GA). They all had history of use of topical nasal decongestant for different time period. Patients were followed up for 6 months.

Results: In Group 1, 16 patients complain of burning sensation for first week and 8 patients complain of continuous nasal blockage for 6 weeks. 1 patient complain about anosmia for 2 weeks.

In Group 2, nasal pain was complained by 17 patient for 2 weeks. 3 patients complain of persistent nasal blockage for 4 weeks. 3 patients complain of anosmia for 4 weeks.

After completion of 6 months in Group 1, 20 patient has recurrent nasal blockage, whereas in Group 2, 10 patient has recurrent nasal blockage. Besides these, other symptoms noticed during initial phase did not appear.

Conclusion: chemical cautery (AgNo3) and steroid nasal spray is easy to follow, has less complication, but failure rate is high, whereas SMD is procedure with less failure rate, but has to be carried out under GA and has more discomfort postoperatively. For symptomatic inferior turbinate hypertrophy, where topical nasal decongestant has little role SMD is the choice of treatment for longer relief

Inferior turbinate hypertrophy serves as - one of the most common cause of nasal obstruction.

Enlargement of inferior turbinate is almost always due to swelling of the submucosa and only rarely due to enlargement of bone itself³. This swelling is caused by the dilatation of the submucosal venous sinusoids. Inferior turbinate may be hypertrophied in its entirety or only at the anterior end, posterior end or along the inferior border giving it a mulberry appearance¹.

Common cause for enlargement of inferior turbinate are recurrent nasal infections, chronic rhino sinusitis and chronic irritation of nasal mucosa due to smoking, industrial irritants, allergic rhinitis and prolonged use of nasal drops. Enlargement of inferior turbinate usually gives- nasal obstruction. Some complain of headache, heaviness of head or transient anosmia.

When enlargement of inferior turbinate is symptomatic needs treatment. Basically there are medical and surgical treatments to relieve of nasal obstruction. In this study we compare a medical and one surgical method of treatment.

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Materials and methods

Altogether 30 patient of age Group 18-60 (20 males and 10 females) taken for the study divided into 2 Group- Group 1 and Group 2. In Group 1 total 25 (17 males and 8 females) patient treated with AgNO₃ cautery to inferior turbinate under local anaesthesia and followed by steroid nasal spray(fluticasone) for 3 months. In Group 2 total 25 (13 males and 12 females) patients treated with Submucosal Diathermy (SMD) under general anaesthesia. In Group 1 patients were sent home with advised of fluticasone nasal spray(50 mcg in each spray) in both nostrils initially 2 puff twice daily for 1 months then 1 puff twice daily for 1 month and then 1 puff one time daily for next 1 month. Total course was for 3 months. In Group after doing SMD both nasal cavity filled with ciproloxacin ointment and discharged the next day with coverage of wide spectrum antibiotic(amoxycillin 500mg tds) for 7 day, antihistaminic(cetirizine 10 mg od) for 7 days and NSAID(ibuprofen 400 mg + paracetamol 500mg)for 2 days.Both Group followed up in 1 week period for first 2 weeks then 15 days once and monthly for 5 months. So both Group patients were followed up for total 6 months.

Results

In Group 1

- 16 patients complain of burning sensation for the first week. 8 patients complain of nasal blockage for 3 months and 1 patient complain of anosmia for 2 week.
- In Group 2
- 17 patients complain of nasal pain for 2 weeks.3 patients complain of continuous nasal blockage for 2 months. 3 patients complain of anosmia for 2 months.
- After 6 months in Group 1 total 20 patients complain of nasal blockage as earlier, whereas in Group 2 total 10 patients complain of nasal blockage.
- All other complain noticed during treatment disappeared.
- In this way in group 1, nasal blockage . were relived in 5 cases (20% of total patients) i.e. success rate is 20% (5 pt out of 25), whereas in group 2, 15 patients relieved of nasal blockage (60% of total cases), i.e. success rate is 60%.

Discussion

Large, swollen inferior turbinates can lead to blockage of nasal breathing. There are two main reasons for enlargement. Most of the time, enlarged inferior turbinates are the result of allergies, irritating

environmental exposure, or some minor persistent inflammation within the sinuses. Another reason is deformity of the nasal septum that has caused the bone on the wider side of the turbinate to increase in size. In the case of allergy- or irritant-related enlargement, treatment of the underlying problem may reduce turbinate swelling and solve the problem. If not, turbinate reduction surgery may be required. Because the turbinates help the nose to clean and humidify the air we breathe, it is usually better to leave as much tissue intact as possible. The doctor will probably opt for selective, or targeted, turbinate reduction - rather than extensive reduction.

If the procedure is isolated, and not part of another sinus operation, reduction of the inferior turbinate is usually performed under local anesthesia. Sometimes, surgery is guided by a headlight, but increasingly, surgeons use endoscopes to improve visualization and provide a magnified view during surgery. Once oriented, the surgeon makes an incision in the lining mucosa of the turbinate and carefully removes the underlying bone of the turbinate. If selective removal of soft tissue is also necessary, it can be accomplished using a microdebrider or laser. Occasionally, persistent swollen inferior turbinates are effectively treated with a freezing technique (cryotherapy). Alternately, they are heated with radio frequency electrical current (cautery or radiofrequency surgery). These methods cannot be used when the surgeon must remove an enlarged underlying turbinate bone.

Medical therapy focuses on treatment of conditions causing mucosal hypertrophy, primarily allergic and vasomotor rhinitis. Allergic rhinitis is addressed with topical glucocorticoids, which decrease capillary permeability, produce vasoconstriction, and reduce edema and inflammation in the nasal mucosa. Antihistamines block the uptake of histamine by target cell receptors and may inhibit the release of inflammatory mediators.

Adrenergic drugs (eg, phenylamines, imidazolines) serve to decrease mucosal congestion and edema,(Ashcan et al,1964 ,2) Topical adrenergics can result in rebound nasal congestion, causing rhinitis medicamentosa and irreversible mucosal change. Therefore, restrict their use to approximately 3 days only. Oral adrenergics can cause cardiovascular complications in patients prone to this condition and should be used carefully in patients with hypertension, coronary artery disease, or stroke. Topical glucocorticoids, antihistamines, and

adrenergics are also useful in the treatment of eosinophilic nonallergic rhinitis. First-line medical treatment for the chronic stuffy nose and chronically enlarged turbinates associated with rhinitis mainly consists of a variety of antihistamines, decongestants, and topical and systemic corticosteroids. These drugs provide only symptomatic improvement; they cannot cure the condition.

Antihistamine drugs, block the action of histamine, the agent responsible for symptoms of sneezing and a runny nose. While antihistamines reduce these symptoms, they do little to alleviate nasal obstruction.

Antihistamines can cause drowsiness and they are not recommended for daytime use by people who must drive or operate equipment; newer antihistamines have fewer sedative effects, but are more expensive.

Decongestants cause constriction of the blood vessels in swollen mucous membranes, forcing blood out so that the membranes shrink and air passages open. Decongestants are chemically related to adrenaline, a natural decongestant that is also a stimulant. One side effect of this type of drug is a jittery or nervous feeling that can cause insomnia. Decongestants can also increase a patient's blood pressure and pulse rate.

Decongestants should not be used by patients who have an irregular pulse, high blood pressure, heart disease or glaucoma. Also, certain decongestant drugs such as pseudo-ephedrine should not be used by patients who suffer from benign prostate hyperplasia because the drug can aggravate prostate enlargement.

There are a variety of decongestant nasal sprays available over the counter. These medicines can produce significant, temporary symptomatic relief of nasal obstruction, however, they can also become addictive as rebound nasal congestion occurs with overuse.

Several corticosteroid therapies, most in the form of a nasal spray or inhaler, have been developed to treat chronic nasal obstruction. Intranasal corticosteroids are available only by prescription and they can be very effective, however, they are associated with side effects such as bleeding, drying and crusting.

Patients must take care not to overuse corticosteroid preparations. Although the drugs are applied topically, some systemic absorption of the agent

occurs, which can disrupt the body's steroid balance. Steroids can also be injected directly into the turbinates, however, their effectiveness lasts only three to six weeks.

Electrocautery can be performed with either linear mucosal or submucosal contact. For surface cautery, a wire or needle electrode can be used to streak the turbinate mucosal surface. Submucosal cautery can be performed with either a unipolar or bipolar electrode inducing fibrosis and wound contracture with resultant volume reduction⁷. The unipolar approach coagulates tissue circumferentially around the electrode while the bipolar technique produces coagulation necrosis between the needle electrodes. High tissue temperatures (up to 800°C) can be achieved.

In the bipolar technique, insert a bipolar turbinate cautery tip into the anterior inferior turbinate and apply current. Similarly, in the monopolar technique, insert a 22-gauge spinal needle along the anterior inferior turbinate edge and apply current, usually with a Bovie electrocautery unit. Take care to avoid contact with the ala, columella, or septum, which may cause peripheral tissue injury. Avoid direct contact and cauterization of the conchal bone since this can result in bony necrosis and sequestrum formation.

An advantage of this procedure is the low risk of bleeding. However, crusting at the insertion point and turbinate edema are usually observed for at least a week postoperatively.

In our study in Group1, where AgNo3 cautery and followed by steroid spray 8 patients complain of persistent nasal blockage for 3 months, unlike in Group 2 where 3 patients complain of nasal blockage for 2 months. Short duration of symptoms and less numbers of patients with nasal blockage shows it efficacy. The AgNo3 cautery and steroid spray causes anosmia in 1 patient for 2 weeks, whereas in Group 2 with SMD 3 patients complain of anosmia and for 8 weeks. So SMD is more a successive form of treatment with lasting side effects. After completion of 6 months we noticed that in Group 1 total 20 patients complain of nasal blockage ,whereas in Group 2 total 10 patients has the same. All other symptoms noticed during 6 months period like nasal pain, burning sensation, anosmia has disappeared.

Our study is comparable to the study carried out by Wengraf et al¹⁰ where success rate about 30% in case of use steroid spray, in our study success rate is 20%

and we have use AgNo3, which appears to be useless. Ophir et al⁹ suggest this method is not effective, so we also conclude that steroid spray in long term use is less effective. Similarly treatment with SMD success rate is 60%, which is comparable to success rate of 65% in the study carried out by Jones et al^{4,5}

Conclusion

Chemical cautery (AgNo3) and steroid nasal spray is easy to follow, has less complication ,but failure rate is high, whereas SMD is procedure with less failure rate, but has to carried out under GA and has more discomfort postoperatively. For symptomatic inferior turbinate hypertrophy, where topical nasal decongestant has little role SMD is the choice of treatment

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