

Hypertrophic Rhinitis – Comparative Study of Submucosal Electric Cauterization versus Turbinate Reduction Surgery

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ABSTRACT

We planned this study to compare the results of two basic procedures done for reduction of size of inferior turbinates. This included 160 patients. The patients were equally divided into two groups namely those subjected to submucosal electrocauterisation (Diathermy) and turbinate reduction surgery group. Total number of patients were equally divided in two groups. Group 1 included 80 patients subjected to submucosal electrocauterization while the group 2 included 80 patients subjected to turbinate reduction surgery involving partial turbinectomy. The patients were monitored postoperatively at two weeks, two months and six months and their progress was recorded.

Key words: submucosal electrocauterization. Turbinate reduction surgery.

INTRODUCTION

Hypertrophic rhinitis is a common cause of nasal obstruction in a vast majority of ENT patients presenting in outpatients departments all around the world. The initial medical treatment for this presentation is naturally conservative which includes Antihistamines combined with topical nasal steroids in different formulations. Quite a large number of patients have limited benefit from the medical treatment in the form of persistent nasal obstruction associated with nasal discharge and sometimes sleep apnea as well. For these non responsive patients other treatment modalities are adopted. These include minimally invasive submucosal electro cauterisation of the turbinates using unipolar diathermy with submucosal needles. The other option is surgical reduction of the turbinates by partial turbinectomy. This involves trimming of the medial part of the inferior turbinate using turbinectomy scissors. This study was conducted to compare the results of these two treatment modalities i.e., submucosal electrocauterisation and surgical reduction of the turbinates.

MATERIALS AND METHODS

This was a prospective study conducted in Arif memorial teaching hospital and Hameed Latif hospital Lahore over a period of 3 years from march 2015 upto march 2018. Total number of 160 cases were included in the study. The patients suffering from hypertrophic rhinitis were included in the study. The primary complaint of these patients was obstructed nose with difficulty of breathing and feeling of dyspnea because of this condition. All the patients were already diagnosed cases of hypertrophic rhinitis and were regularly being followed up with medical treatment. The patients who were having very limited relief after medical treatment for more than 2 months were included in the study. The patients had already been subjected to

sympathomimetic and decongestant local treatment with topical nasal steroid sprays. The patients had unsatisfactory response to medical treatment. On clinical examination these patients had boggy inferior turbinates and sometimes middle turbinates as well. The nasal valve areas were narrowed down with frequent sniffing by the patients in an attempt to improve the air intake. Most of the patients had collapsing of the alae nasi due to negative pressure created as a result of excessive inspiratory effort. Half (80) of the patients were subjected to submucosal electric cauterization for reducing the size of inferior turbinates. The submucosal diathermy needles were attached with the unipolar cauterization machine. The diathermy needle was inserted into the turbinate tissue for 4 to 5 mm depth and a pulse of 2 to 3 seconds was given at a time with visual assessment about reduction in size, intactness of the overlying mucosa and protection of surrounding areas. The septum, the lateral nasal wall, the floor of nose and alae nasi were protected.

The other half of the patients were treated with partial inferior turbinate reduction surgery. The inferior turbinates were initially medialized and the redundant portion was clarified and then splitted with turbinectomy scissors. Half of the inferior turbinate was secured to avoid atrophic changes later on. After ascertaining adequate airway the nasal cavities were packed with either gel foam nasal packs or conventional ribbon gauze nasal packs. The packs were removed on the 1st or 2nd postoperative days depending on the amount of soakage of the external nasal bolster or any occurrence of postnasal bleeding or bleeding from the side of all the patients were followed up regularly to ascertain the efficacy of both the procedures and their long term benefits and relevant complications. All the patients were admitted in the hospital and the procedures were done under general anesthesia with oro-tracheal intubation. All the patients were adequately prepared with pre-operative lab investigations including complete blood count, bleeding profile, Hepatitis screening and x-ray paranasal sinuses and/or C.T. sinuses with axial and coronal cuts.

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Table 2: Hypertrophic rhinitis

Total cases	Electric cauterization	Partial turbinate reduction surgery	Male	Female
160(100%)	80(50%)	80(50%)	120(75%)	40(25%)

Table 2: Patient distribution

	Submucosal Unipolar Electric Cauterisation Total Patients 80/160	Turbinal reduction surgery Total Patients 80/160
Haemorrhage	10/80(12%)	40/80(50%)
Difficult Pack Removal	1/80(1.25%)	20/80(25%)
Pack removal on 1 st post op day	75/80(93.75%)	10/80(12.5%)
Pack removal on 2 nd post op day	5/80(6%)	70/80(87.5%)
Crusting	5/80(6%)	50/80(62.5%)
Adhesion formation	3/80(3.75%)	2/80(2.5%)
Revision procedure	20/80(25%)	5/80(6%)
Atrophic changes	2/80(2.5%)	10/80(12%)

Table 3: Comparative postoperative progress

Nasal airway improvement	Submucosal electric cauterisation	Turbinal reduction surgery
At two weeks	68%	88%
At two months	70%	85%
At six months	65%	86%

RESULTS

This study included a total number of 160 patients who were followed up for a period of two years .the results of the study were judged by subjective improvement in nasal ventilation described by the patient. Moreover clinical examination findings regarding the nasal patency and expiratory jet flow intensity. The relative size of turbinate to the available nasal space was also evaluated.65% of the patients who had undergone electro cauterization of turbinates had satisfactory airway at six months postoperatively. While in partial turbinate resection group 86% patients had good airway at six months postoperatively.

As far as just nasal patency is concerned the surgical resection patients had higher satisfaction rate as compared to cauterized patients. The comorbidity was however much lesser in patients who undergone submucosal diathermy treatment as is shown in graph regarding the postoperative progress of these cases.

DISCUSSION

Milo Fradis et al¹ studied one hundred patients to compare results of sumucosal diathermy and bilateral inferior turbinectomy. They concluded that 96% of their patients had subjective improvement in their nasal breathing which later on reduced to 88% after 2 months .while in diathermy group according to them the improvement was lesser i.e., 78%after two weeks which later on came down to 76% after 2 months period. They had however concluded that

both the procedures were helpful in reducing the complaints of the patients however their amount of satisfaction reduced in number later on. In our study we had same trend of improvement but with few differences.

In partial turbinal reduction surgery group we had 88 % nasal airway improvement at the end of first 2 weeks which marginally reduced to 85% at 2 months and was 86% at six months post operatively. These statistics are almost coinciding with the studies of Milo. The minor differences may however be due to subjective description by the patients and their satisfaction level. our studies however prove un equivocally that the procedure of turbinal resection surely is beneficial in reducing the nasal obstruction enormously.

The submucosal diathermy is a substitute procedure to turbinal resection. We tried this procedure on same number of patients to exactly ascertain the pros and cons of the procedure. We found out that the nasal airway improvement at two weeks was 68% which increased to 70% at two months postoperatively and at six months postoperatively was 65%.

McCoul ED et al in their study of 391 subjects concluded that 15.9% of the patients had posterior inferior turbinal hypertrophy with nasal obstruction. They concluded that turbinal reduction procedures should must be considered in patients with reduced nasal airway irrespective of presence or absence of Allergic rhinitis. This study highlights the presence of quite a large number of patients with nasal obstruction needing procedural management. We subjected our patients to the nasal patency improvement procedures and got favourable results which stood fast the test of time and had long term beneficial effects for the patients. Sharhan et al³ concluded that while doing septoplasty for DNS if a surgeon finds that the patient has hypertrophied turbinates then one should always consider adjunct procedure in the form of either turbinectomy or SMD regardless of presence or absence of Allergic rhinitis.40% of our patients had Allergic rhinitis features in the form of complaints of itching sneezing and rhinorrhea. These patients had bluish nasal mucosa on clinical examination and raised eosinophil counts in nasal secretions. These patients had enlarged turbinates and were subjected to the same standard treatment and had favourable results as other patients. Farmer SE et al⁴ studied different electrosurgical techniques for treating turbinal enlargement. They concluded that all the electrosurgical techniques use energy to destroy the submucosal tissue but their mode of transferring energy are different. Submucosal diathermy, cryosurgery, radiofrequency tissue reduction, coblation and laser use electricity to damage the turbinal tissue but differ in control and delivery system of energy transformation. We for our patients however used submucosal diathermy needles attached with unipolar cautry machine a this was cheaper and easily available and maintainable equipment with comparable results. Amina Lami Okhakhu et al⁵ in a serial study of 12 cases with a follow up for 5 years concluded that all the patients had subjective improvement in nasal breathing postoperatively after SMD which reduced to 66.7% by end of 1st year.

Submucosal electro cauterization In our study had 25% revision procedure rate. Higher revision rate is

because of the extra cautious attitude of the surgeon not to have extra ordinary damage to the tissues to avoid crusting and Atrophic changes postoperatively.

M Irfan et al⁶ concluded that SMD as a minor surgical procedure gives good relief to patients with nasal Obstruction. The relief according to his study lasted for more than 2 years. In our study we have followed our patients for more than two years and still 65% of our patients are persistent relief following submucosal cauterization of turbinates.

CONCLUSION

Turbinal hypertrophy in hypertrophic rhinitis can be effectively treated by both of these surgical techniques. As far as immediate patient satisfaction is concerned regarding nasal patency surgical resection has been superior to electrocauterization. But management with submucosal diathermy was more convenient for the patient with reduced complications and shorter hospital stay. Moreover electrocautery was less associated with postoperative haemorrhage which was only 12% while it was about 50% in surgical resection patients with difficult removal of nasal packing on 1st postoperative day.

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