INTRODUCTION

Inferior turbinate hypertrophy is the most common ailment causing nasal obstruction. Turbinate stoma hypertrophy due to chronic non-allergic rhinitis is the most common condition causing nasal obstruction observed in our Mexico City's patient population. Nasal stenosis and basal nasal septum resection was considered useful as a medical treatment, when this fails a surgical approach may offer a feasible and sometimes effective in a long term basis, for common surgical. Techniques used by surgeons are: partial and total turbinectomy, turbinoplasty, decongestion, sub-mucosal decongestion, and sub-mucous turbinectomy application. The hypothesis was that none of those have follow-up studies in a long-term basis and reported in the worldwide literature.

OBJECTIVES

To compare the efficacy and long-term outcome (8 years) of the submucosal stroma debridement technique (SSD) and radiofrequency volumetric reduction (RFV) of the inferior turbinate, for the treatment of non-allergic chronic inferior turbinate obstructive hypertrophic disease (N/A-CHTOHD).

STUDY DESIGN

Randomized, prospective, comparative and controlled study was analyzed statistically using P value.

MATERIALS AND METHODS

From January 1994 to July 1999 in our Sinus Surgery Center in Mexico City, 106 patients complaining of persistent nasal obstruction due to obstructive non allergic hypertrophy of the inferior turbinates and responsive to medical treatment were included in the study. Final results were analyzed statistically using P value, and followed up 8 years post-operatively. None of the patients had any other nasal or systemic conditions, nor any had previous surgical treatment of the nose. Allergic patients were excluded of this study. These groups of patients were randomly formed:

Group 1: 34 N/A-CHTOHD patients SSD, performed. From these 31 patients completed the follow-up. 8 patients did not complete the follow-up, and were discarded from the study.

Group 2: 33 N/A-CHTOHD patients RFV, 30 patients completed follow up and 3 patients did not completed the follow-up. These group of patients were incorporated from January through September 1999.

Group 3: 34 N/A-CHTOHD patients treated with isotonic saline solution nasal rinses, 28 patients completed follow-up and 6 did not.

Subjective evaluation was carried out with a symptoms questionnaire, standard visual analog scale (VAS). Objective evaluation of the nasal findings were with the next parameters:

A- Nasal endoscopy without previous nasal decongestion. Two parameters (width and length) were registered to classify the size of each turbinate and preoperative and postoperative values were tabulated following up (Fig. 1 and 2).

B- Acoustic anterior Rhinomanometry (Rhinomanometer A2, Hood laboratories)

C- Mucociliary function test (NCC) evaluated with the saccharin test

D- Biopsies obtained of 3 patients of each group after 1 and 8 years post-operatively

RESULTS

Statistical Analysis of the subjective evaluation between groups:

A. P value of P < 0.0001 was obtained when compared the nasal obstruction results at the end of the study (8 years follow-up) between Group 1 and Group 2, showing that there is a significant difference between them. A P value of P < 0.0001 was obtained when compared the nasoendoscopy results at the end of the study (8 years follow-up) between Group 1 and Group 3. A P value of P < 0.05 was obtained when compared the ulceration/engorgement values and results at 8 years of the study (8 years follow-up) between Group 2 and Group 3, showing that there is no significant difference between them.

B. Statistical Analysis of the objective evaluation in terms of turbinate engagement/size evaluation between groups.

Nasal obstruction improved significantly in Group 1 and 2. Turbinate engagement decreases significantly in 100% (P<0.0001) in Group 1. Group 2 patients showed no significant reduction of the turbinate engagement postoperatively (P>0.05). Rhinometric values showed a significant nasal flow increase at 1 year in both groups but diminished at 2 years for group 2. Group 1 maintained nasal flow levels at end of follow-up. 8 years. Mucociliary transit time decreased in group 1 and decreased in group 2. 1 year postoperatively. At 8 years postoperatively both groups showed a normal mucociliary transit time.

DISCUSSION

SSD is a surgical procedure that uses microdebridement to "shave" the submucosal tissue and bony structure of the turbinate. The fundamental difference with the other methods of turbinate ablation is that it spares the critical superficial epithelium. Improvement in Mucociliary transit time seen in SSD vs. RFV patients (3.1 minute improvement compared to 0.14 minutes, P = 0.02 and 17%, improvement compared to 2% P=0.013). SSD is better in maintaining mucociliary transit time intact postoperatively.

Improvement in rhinometric values maintained in 28 patients (90.32%) vs. 76.6% in the RFV patients at the end of the follow-up. Increased airflow resistance values were seen in 27% (7 patients) from year 2 to year 8 post-operatively indicating recurrence of the hypertrophic state.

CONCLUSION:

SSD proved to have long lasting effects on turbinate hypertrophy in 96.32% of the patients in this study. It is a safe procedure for the treatment of obstructive hypertrophic disease of the inferior turbinates. SSD is the only sparing ciliated epithelium technique developed until now with a long term outcome reported. RFV provided only consistent long lasting effects on turbinate hypertrophy (76.6% in this series) as compared to the SSD patient group.

REFERENCE