INTRODUCTION

Chronic Obstructive Eustachian Tube Dysfunction (COETD) is a common disorder causing repeated visits to the doctor’s office and substantial medical expenses. The most common symptoms are autophony, hypacusia, tinnitus and fullness of the ear. When medical treatment fails, tympanoscopy tube placement is a common procedure done for treating it. Sometimes multiple insertions are required if refractory otitis media persists. Hopf et al proposed that intraluminal surgery improves Eustachian tube dysfunction using laser techniques. Kujawski performed the first Eustachian tube surgery in 1997 using a CO2 laser focused on the cartilaginous portion. We described the laser-assisted cross-hatching Eustachian Tuboplasty (CHEt) and reported the preliminary results in 25 patients with CHet including a 15 month follow-up. Overall results showed that 92% of the patients were free of middle ear effusion with symptoms improving. We concluded that this technique could be efficacious in the majority of patients with COETD. We also developed a Eustachian tube numerical staging, as well as a results reporting system that better assists in the analysis of Eustachian tube surgery.7 This study reports on the validated outcomes of ET surgery in our personal clinical patient series.

MATERIALS AND METHODS

This is a retrospective case series review at the Sinus Surgery Center, Mexico City. We studied 120 patients with COETD diagnosed between February 2001 and June 2008. Inclusion criteria were patients of both genders that had persistent otitis media with effusion, conductive hearing loss of 5 or more years, and constant COETD-related symptoms despite a history of medical treatment and multiple tympanostomy tube insertions. We excluded patients with evidence of gastroesophageal reflux, allergic reactions and infectious diseases. The patient pool was comprised by 72 males and 48 females with the mean patient age of 42.4 ± 2 years old. Patients were classified according to the Yanez and Mora Classification System4, surgically treated with CHEt and followed for 5 years postoperatively. All patients provided informed consent for the surgical procedure and the study was reviewed and approved by the Ethics Committee of the Sinus Surgery Center, at the American British Cowdray Medical Center in Mexico City.

Preoperative symptoms were recorded and after surgery using a 3 point scale (0 = absent; 1 = mild; 2 = moderate; 3 = severe symptom). All patients underwent a trans-nasal endoscopic slow motion video analysis (SMVEA) of their Eustachian tubes before and after surgery. Figure 1 shows a preoperative view of the ET from the nasopharyngeal orifice. Axial and coronal computer tomography scans of the ear were taken for measure the width of the bony portion of the Eustachian tube (ET) and the cartilaginous portion morphology. All patients underwent tympanometric and auditory tone testing at 2 and 5 years postoperatively and compared with the preoperative one.

RESULTS

This is the tympanometric results at 1, 2 and 5 years postoperative, compared to the preoperative data, we included 198 Eustachian Tuboplasty (ET). Table 1 shows the data were analyzed with Slow Motion Video Endoscopy.

DISCUSSION

Until now, there are no standardized criteria for the selection of cases that are appropriate for the CHEt procedure mainly because of differences in surgical techniques favored by each surgeon. According to our stage system, CHEt is recommended in ETD stages 2 and 3. However, a cautious interpretation of retrospective findings is needed to compare the treatment results because of various extensions of the disease and surgical treatment. To clarify the indication of a CHEt approach in the future, the recurrence rate should be analyzed according to the stage of COETD.

CONCLUSION

These outcome results suggest that CHEt is safe and efficacious in the treatment of COETD. Preoperative staging of COETD is useful for planning an appropriate surgical approach. The numerical score system used here can objectively quantify and provide a high level of agreement in the evaluation of COETD. We recommend it for reproducing it in ET surgery in large clinical studies. Further evaluation of longer term follow-up will be necessary to determine whether these patients achieve or continue to have good results.

REFERENCES


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A combined approach with a well designed endoscopic holder, crucial for this type of procedure, so we can work with two hands. We used Argon or KTP laser to work in a bloodless field.

ANATOMICAL VARIATION

<table>
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<th>Anatomical Variation</th>
<th>Patients</th>
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| Malformation Palatopharyngeal | 30 | 30%
| Obstructive Hypertrophy of the TVP, Lva and Spmh | 35 | 35%
| Muscular Hypertrophic Disease of the Posterior Cushion | 40 | 40%
| Muscular Hypertrophic Disease in the vicinity of the functional valve area | 15 | 15%
| Scarring Tissue affecting the tubal lumen | 6 | 6%
| Internal obstruction | 9 | 9%

This are the intraperatotal anatomical variations found, all of them causing ET valve obstruction.

FIGURE 1

Endoscopic view of the right Eustachian Tube from the nasopharyngeal orifice. PC Postcricoid region, SPmh Salpingopharyngeous TVP Pharyngotympanic Cushión Valsalva Palatini

Half or full thickness incisions were made on the concave side of the cartilaginous superstructure of the posterior cushion. The opposite mucoperichondrium was not reached.