Surgical Management of Inferior Turbinate Hypertrophy

Feras Alkholaiwi
ORL, H&N Resident

13 / April / 2016
Objectives:

- Introduction
- Different techniques
- Advantages and disadvantages
- Complications
- Different studies
- Systematic Review of Evidence
Inferior turbinate reduction can be performed by various techniques that resect, displace, or decrease the volume of the turbinate.

Turbinate resection, total or partial, was once the surgical treatment of choice for turbinate hypertrophy.

BUT .. postoperative crusting, bleeding, and atrophic rhinitis, the treatment fell out of favor.
- Outfracturing the inferior turbinate and displace the turbinate laterally is a technique with minimal morbidity.

- BUT .. Improvement in nasal airway is transient

- And .. eventually resumes its original position.

- Submucosal injection of sclerosing solutions.

- Used in an attempt to decrease turbinate engorgement by blocking vascular channels.

- These results are transient.

**Principato JJ. Chronic vasomotor rhinitis: cryogenic and other surgical modes of treatment. Laryngoscope 1979;89:619–38.**
Destructive procedures, including electrocautery, cryosurgery, laser surgery, and submucous resection

Reduce the bulk of the turbinates by inducing scarring or by direct destruction. outpatient office in most adult patients.

Studies of some of these methods show variable long-term success and such complications as bone necrosis, synechiae, and prolonged crusting and bleeding

Total inferior turbinectomy:

- 351 patients who underwent standard total inferior turbinectomy
- were evaluated for subjective improvement in nasal obstruction based on a six question survey administered at 6 and 18 months postoperatively.
- patients (97%) reported improved nasal breathing at both time intervals.

In 2003, Passa` li and colleagues randomized 382 patients symptomatic inferior turbinate hypertrophy into six therapeutic groups. Patients who underwent total or near-total turbinectomy experienced good long term relief of nasal obstruction but also had a significantly higher percentage of crusting and bleeding compared with patients who underwent laser cautery, electrocautery, cryotherapy, or submucous resection.

We recommend, in spite of the greater surgical skill required, \textit{submucosal resection combined with lateral displacement} as the first-choice technique for the treatment of nasal obstruction due to hypertrophy of the inferior turbinates.

Methods of inferior turbinate electrocautery include linear surface electrocautery, bipolar electrocautery, and submucous diathermy.

The main disadvantage is that results are short-lived, postoperative pain, crusting, and scarring.

Meredith reported that 31% of 81 patients treated with both surface electrocautery and outfracture subjectively noted recurrence of nasal obstruction when followed for more than 33 months.

Warwick-Brown and Marks evaluated 307 patients who underwent submucosal diathermy with and without outfracture

noted that patient satisfaction with the procedure declined from 82% at 1 month postoperatively to 41% at 1 year.

Edema and crusting after surface electrocautery has been shown to occur up to 3 to 6 weeks after treatment

Radiofrequency Volumetric Tissue Reduction (RFVTR):

- RFVTR demonstrate statistically significant long-term improvement in several parameters, including increased nasal volume and decreased nasal airway resistance, based on acoustic rhinometry and decreased subjectively.

- A significant increase (P < 0.0001) in nasal volume and decrease in nasal resistance were detected in the first month. No difference was found from three to 20 months after surgery (P > 0.5).

Laser Cautery

- Carbon dioxide

- little blood loss and postoperative discomfort.

Disadvantages:

- eschar formation, which may cause obstruction

- rarely, hemorrhage with sloughing.

- therapy is expensive and requires additional expertise, training.

Cryoturbinectomy:

- A typical treatment involves the application of a cryoprobe to the medial and lateral surface of the inferior turbinate, and freezing at -85°C for 60 to 75 seconds.

- Thought to be most effective in controlling severe rhinorrhea associated with chronic vasomotor rhinitis.

- The duration of results is variable and usually temporary, thus requiring repeated applications.

Submucous Resection

- removal of the inferior turbinate bone leaving overlying mucosa intact.
- maintaining the mucosal flaps, normal mucosal function is preserved, reducing the likelihood of complications, such as crusting and atrophic rhinitis. After a traditional submucous resection, only minimal crusting is typically observed along the incision site.
- advantage of this method is very low incidence of postoperative bleeding.
- The primary disadvantages of traditional submucous resection are the potential for mucosal shredding in inexperienced hands and the need for nasal packing postoperatively.


More Recently,
Abstract

OBJECTIVES: The aim of the study was to evaluate the long-term efficacy of microdebrider-assisted inferior turbinoplasty with lateralization (MAITL) compared to submucosal resection for hypertrophic inferior turbinates.

STUDY DESIGN: Surgical outcomes were evaluated with respect to visual analogue scale, anterior rhinomanometry, and saccharin test results.

METHODS: From January 2002 to December 2006 inclusively, 160 patients with perennial allergic rhinitis and hypertrophic inferior turbinates were enrolled into this study. The patients, all suffering from chronic nasal obstruction, were randomly classified into two groups, MAITL group or SR group, each comprised of 80 patients. Ten patients who did not display any nasal discomfort served as normal controls. For the submucosal resection group, patients underwent submucosal resection of the inferior turbinate, whereas patients in the MAITL group underwent microdebrider-assisted inferior turbinoplasty with lateralization. Assessments (visual analogue scale, anterior rhinomanometry, and saccharin test) were conducted prior to the surgery and 1, 2, and 3 years after completion of surgery.

RESULTS: Compared to preoperative values, subjective complaints including nasal obstruction, sneezing, rhinorrhea, and snoring improved significantly in both groups at 1, 2, and 3 years after surgery in both groups (P < .05 for all). Rhinomanometric assessment also showed significant improvement at 1, 2, and 3 years postoperatively in both groups (P < .05 for all). Saccharin transit time was significantly decreased (P < .05 for all) compared to preoperative values 1, 2, and 3 years after surgery in both groups.

CONCLUSION: Microdebrider-assisted inferior turbinoplasty with lateralization appears to be as effective as submucosal resection at relieving nasal symptoms and decreasing total nasal resistance and saccharin transit times for more than 3 years in patients with perennial allergic rhinitis who have had substantial nasal obstruction.

PMID: 18401269 [PubMed - indexed for MEDLINE]
Chen and colleagues compared microdebrider-assisted inferior turbinoplasty using this technique to standard submucous resection.

160 patients

Outcome measures were conducted preoperatively and at 1, 2, and 3 years after surgery.

These measures included anterior rhinomanometry and subjective symptoms.

Compared to preoperative values, subjective complaints, including nasal obstruction, sneezing, rhinorrhea, and snoring, improved significantly in both groups as did rhinomanometric measures.

submucosal decongestion with lateral outfracture was the most effective technique for the chronic nasal obstruction, able to respect all the nasal functions.
Surgical management of adult inferior turbinate hypertrophy: A systematic review of the evidence

Contribution to Journal > Article

Pete S. Batra; Allen M. Seiden; Timothy L. Smith

Knight Cancer Institute

Objectives/Hypothesis: The evidence-based medicine (EBM) schema advocates critical appraisal of the scientific literature for treatment of diseases. The objective of this review was to analyze the role of surgery for symptomatic adult inferior turbinate hypertrophy (ITH) by focusing on the following question: in adults with nasal airway obstruction (NAO) from documented ITH having failed medical therapy, does inferior turbinate surgery improve disease-specific quality of life, symptoms, and/or objective parameters with minimum 6-month follow-up?. Study Design: Evidence-based review. Methods: Articles for inclusion were identified by query of appropriate search terms in the PubMed database. The articles were reviewed independently by two authors and assigned an evidence level based on standard EBM guidelines. Results: The search yielded 514 abstracts for review, retrieved 143 abstracts for full review, and included 96 articles in the report. The majority of the articles were assigned level 4 (75) or level 5 (18) evidence. One report was assigned level 1 and two reports were assigned level 2. Median number of patients reported was 50 (range, 1-533). Subjective assessment parameters were reported in 80 studies. Objective parameters were evaluated in 36 studies, including acoustic rhinometry or rhinomanometry (26) and mucociliary function (8). Overwhelming data supported efficacy of surgery for NAO from ITH with positive results in 93 studies. Conclusions: The literature provides considerable level 4 and 5 evidence for efficacy of surgery for adult symptomatic ITH. Given the paucity of level 1 and 2 data, future studies should focus on prospective studies with matched control groups for comparison. ©2009 2009 The American Laryngological, Rhinological and Otological Society, Inc.

The literature provides considerable level 4 and 5 evidence for efficacy of surgery for adult symptomatic ITH. Given the paucity of level 1 and 2 data, future studies should focus on prospective studies with matched control groups for comparison.

The Value of Intranasal Splints After Partial Inferior Turbinectomy

Osama G. Abdel-Naby Awad and Khalf A. Hamid

Otolaryngology, Head and Neck Department, Minia University Hospital, 122 Kornish El-Neel Street, Minia City, Minia 61111 Egypt

Osama G. Abdel-Naby Awad, Phone: +2-01115032992, Email: omarsmsm2014@yahoo.com.

Abstract

To assess the value of using the intranasal septal splint after partial inferior turbinectomy (PIT) surgery. Prospective, randomized comparative study. The study was conducted over a period of 2 years from January 2012 to January 2014 at Minia University hospital, Minia, Egypt. A total of 100 patients underwent bilateral PIT. They were randomly divided into 2 groups. Group A included 50 patients had PIT with intranasal splints and group B included 50 patients had PIT without splints. A comparison was made between the 2 groups regarding the postoperative pain, degree of nasal obstruction and the degree of tissue healing and adhesions formation at 2 time points (2 and 4 weeks postoperatively). At 2 weeks postoperatively: visual analogue score (VAS) for the pain was 5 in group A versus 2.1 in group B (P = 0.01), VAS for nasal obstruction was 6 in group A versus 5 in group B (P = 0.328), 70% of patients had good healing in group A versus 24% in group B (P = 0.02). At 4 weeks postoperatively: VAS for the pain was 1.5 in group A versus 1.8 in group B (P = 0.423), VAS for nasal obstruction was 7 in group A versus 6 in group B (P = 0.353), 80% of patients had good healing in group A versus 54% in group B (P = 0.03). The use intranasal septal splints after PIT without septal surgery can cause increased postoperative pain in the short term follow-up period with significant evidence of decreasing rates of intranasal adhesions.
The most commonly-preferred techniques to treat inferior turbinate hypertrophy were a limited turbinate excision (61.9%) and turbinate outfracture (35.2%).
Current perioperative practice patterns for minimizing surgical site infection during rhinologic procedures.

Smith EJ, Stringer S.

Author information

1Department of Otolaryngology and Communicative Sciences, University of Mississippi Medical Center, Jackson, MS.

Abstract

BACKGROUND: There is a paucity of information in the literature regarding the best practices to reduce surgical site infections associated with rhinologic surgery.

METHODS: We surveyed the American Rhinologic Society (ARS) membership to assess current perioperative infection control measures performed for rhinologic procedures, with the goal of establishing a baseline of current practice.

RESULTS: Results revealed that for most rhinologic procedures performed in the operating room (OR) setting, the majority of physicians gown and drape in a sterile fashion and perform a complete surgical scrub of their hands and forearms but do not prep the facial skin with an antimicrobial agent. For rhinologic procedures performed in the office setting, the majority of physicians do not perform any of the aforementioned perioperative measures for any of the office procedures. Interestingly, for physicians that perform inferior turbinate reductions in both settings, 45% gown and drape in a sterile fashion and 28% perform a complete surgical scrub of their hands in the OR setting but not in the office setting. The most stringent measures were performed for endoscopic skull-base procedures, with over 90% of responders administering perioperative antibiotics, gowing and draping in a sterile fashion, and performing a complete surgical scrub of their hands. Despite lack of demonstrated benefit, antibiotics were used variably for the other procedures.

CONCLUSION: This survey demonstrates that there is great variability in the perioperative measures rhinologists perform to reduce surgical site infection, which differs by the practice site. These data serve as a baseline for future studies.
Thanks.