



# ENT NEWSBUZZ

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Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you “**ENT NEWSBUZZ**” which contains latest and interesting news.

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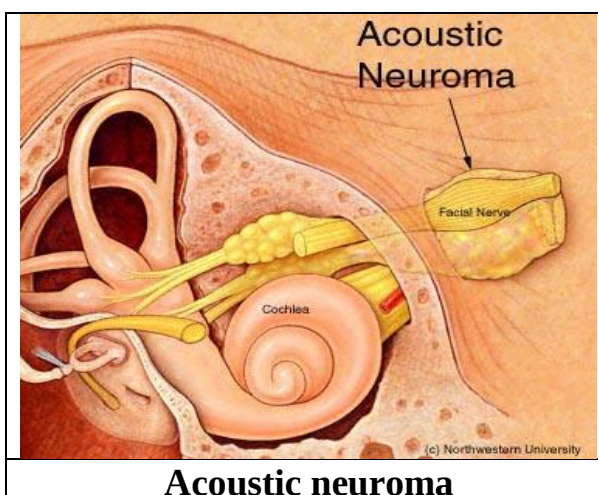
Best Regards,

Medical Team, Micro Labs Ltd



## Early endoscopic surgery and simultaneous cochlear implantation in a small acoustic neuroma

**Introduction:** Schwann cells of the vestibular or cochlear nerves are the source of a benign tumor called an acoustic neuroma (AN), often referred to as vestibular schwannoma. Majority of them are in the internal auditory canal (IAC); however, few can be found within the labyrinth. Further, sensorineural hearing loss is a common consequence of ANs, regardless of their location, and 75% of them eventually lead to nonserviceable hearing. Although several therapy approaches, such as "watch and wait," gamma knife surgery (GKS), and hearing preservation surgery, have been tried, hearing loss is also thought to be an inevitable and irreversible result.<sup>1</sup> Cochlear implantation (CI) in individuals with single-sided deafness or asymmetric hearing loss improves sound localization, hearing in noise, and quality of life, especially in those with concomitant tinnitus. Over the last decade, there have been more reports of hearing rehabilitation with cochlear implants in patients with inner ear schwannomas (IES).<sup>2</sup> After surgery, CI has been used in a number of categories of AN patients who have hearing loss. Although the results show promise, with around half of the patients achieving open-set speech, GKS and post-operative hearing therapy are still not covered in the treatment guidelines. Additionally, a new endoscopic transcanal transpromontorial approach (EETTA) has been developed for the removal of small IAC AN or ILS.<sup>1</sup> So, this study was conducted to examine the viability and outcomes of concurrent EETTA and CI surgery and to provide a unique treatment technique for tiny cancers near or within the labyrinth.



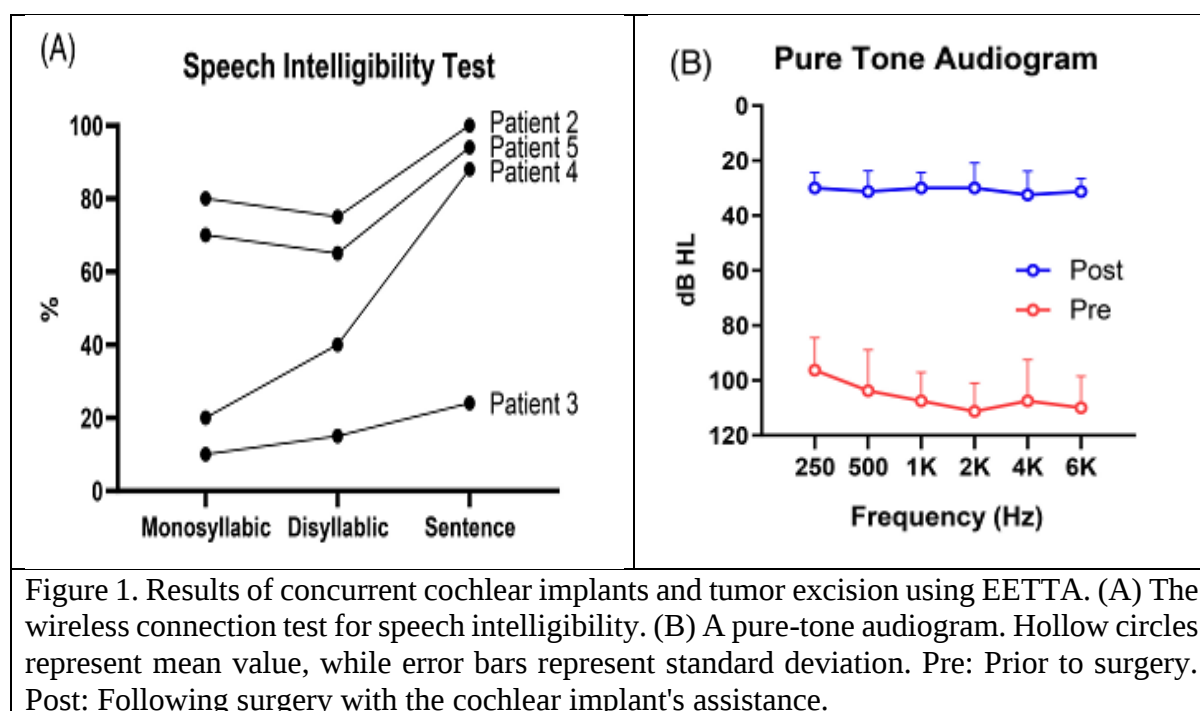
**Acoustic neuroma**

**Methods:** This case series retrospectively examines five patients (two with IAC fundus tumor and three with ILS) who received EETTA and CI at the same time. Their medical records and test results were evaluated. A classic CI procedure was carried out using a surgical microscope and the standard transmastoid technique. After performing a posterior tympanotomy, the electrode was inserted into the circular window. An ear endoscope could be used to observe the implantation. Preoperative and yearly evaluations of auditory performance were conducted



following the device's activation. Speech and assisted pure-tone audiometry were conducted in a soundproof booth's sound field during the surgical follow-up period.

**Results:** There were no serious surgical complications such as meningitis, infection, or skin necrosis after at least a year of follow-up. Auditory stimulation was effective for four out of the five patients. Sentence recognition scores were above 80% for three of the four participants who were auditory sensitive. The patient's cochlear modiolus and electrode placements were normal, but temporal bone computed tomography (CT) showed a slightly deep-inserted electrode. Ten months following surgery, patient 2's electrode—which had been inserted into the EAC without mastoidectomy—was exposed to EAC. Despite varying monosyllabic word recognition scores, the four remaining patients who were successfully implanted responded well to auditory stimulation (Figure 1). Following the extensive incision of the promontory, the tumor was removed by suction and plucking. Throughout these operations, the modiolus was carefully preserved.



**Discussion:** Cochlear implantation is a useful surgery after transcanal infrapromontorial vestibular schwannom excision. CI can be used in conjunction with EETTA for IAC fundus tumors or ILS, even though EETTA will always damage the cochlear bone capsule. Moreover, simultaneous CI with EETTA can successfully produce audiological results, with sentence scores as high as 100%.<sup>1</sup> The primary predictors of audiological outcomes were the remaining cochlear nerve following tumor dissection and the electrophysiological tests conducted during the postoperative phase.<sup>3</sup> Patients who had schwannoma excision with CI also showed



encouraging audiological results; most of them were able to perceive audiological stimuli, and up to 75% of them were able to recognize monosyllabic words.<sup>4</sup> In this investigation, Patient 2 had the best outcomes, scoring 80% for monosyllabic words and 100% for phrase recognition, which is consistent with earlier data.<sup>1</sup>

**Conclusion:** EETTA and CI can be used simultaneously to treat ILS and IAC fundus cancers. For successful CI results, the modiolus and cochlear nerve must be preserved. As a result, ILS and IAC fundus tumors in nonserviceable hearing patients should be surgically removed as soon as possible to allow for proper hearing rehabilitation with CI.

**Early surgical removal of the internal auditory canal (IAC) fundus tumors and intralabyrinthine schwannoma (ILS) is necessary for appropriate cochlear implantation hearing rehabilitation in patients with nonserviceable hearing.**

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## Evaluation of Endoscopic Sinus Surgery Outcome in Chronic Rhino Sinusitis with Nasal Polyps Management

**Introduction:** Chronic rhinosinusitis with nasal polyps (CRSwNP) is defined by continuous inflammation of the nasal and paranasal sinus mucosa, that significantly reduces quality of life (QoL).<sup>1</sup> It is recognized that nasal polyps (NP) are linked to several illnesses, such as aspirin hypersensitivity and asthma. Endoscopic sinus surgery (ESS) is typically recommended for individuals with CRSwNP who are not responding to the maximal medication treatment. Further, it has been widely accepted as a safe and effective procedure. However, with an overall polyp recurrence rate ranging from 4% to 60% regardless of surgical approach and a wide range of recurrence rates within the CRSwNP group, it is obvious that not all clinical and immunologic factors influencing recurrence are recognized.<sup>2</sup> So, this study was conducted to determine independent predictors of recurrence and evaluate ESS outcomes in CRSwNP therapy.

**Methods:** In this retrospective study, the patients with a minimum follow-up period of 12 months who received ESS for recalcitrant CRSwNP and their medical records were reviewed retrospectively. Previous sinus operations, comorbidities (asthma, aspirin-exacerbated respiratory disease (AERD), and allergic rhinitis), age, sex, smoking status, occupational exposure, and other variables were examined. Patients were categorized based on their medical history and concomitant conditions, such as asthma, allergic rhinitis, and AERD. The Jankowski classification was used to endoscopically classify NP. The Lund-Mackay (LM) grading system (range 0–24) was used to categorize preoperative CT scans. All patients received endotracheal intubation and ESS under general anesthesia, which included at least a polypectomy. CT scan results and surgical observations were used to approach the frontal and sphenoid sinuses. Following surgery, the patients began taking antibiotics for seven days and receiving daily saline douching. After surgery, patients received a follow-up appointment for debridement and began using intranasal corticosteroid sprays. The univariate study's variables were subjected to multivariate logistic regression analysis in order to determine their relative importance and determine an independent prognostic predictor of recurrence.

**Results:** The study involved 280 patients, with a mean age of  $41.44 \pm 14.25$  years and a male gender predominance (male-to-female ratio of 1:11). The majority of patients were nonsmokers ( $n = 206$ , 73.6%). Out of 65 respondents, 23.2% had a history of exposure to dust inhalants at work. The most frequent comorbidity was asthma (36.4%), and 16.8% of the study participants had aspirin-exacerbated respiratory illness. Every patient had a CT scan before surgery. The



average LM score was  $19.9 \pm 4.6$ , with significant paranasal sinus obliteration in 73.2% of the study group (scoring 17-24). The LM score was highest in patients with AERD (21.5/24) (Figure 1). The CRSwNP diagnosis was validated by routine histopathologic assessment, which also found that 152 patients (54.3%) had increased tissue eosinophilia. Following surgery, all patients were prescribed topical steroids, and 81.4% of them took their medications as directed. It was also discovered that 8.9% of patients needed revision surgery and that the recurrence rate was 20.7%. Multivariate analysis revealed that noncompliance with post-operative topical steroid therapy was an independent variable of recurrence (OR=16.056; 95% CI: 7.887-32.684;  $P < 0.001$ ).

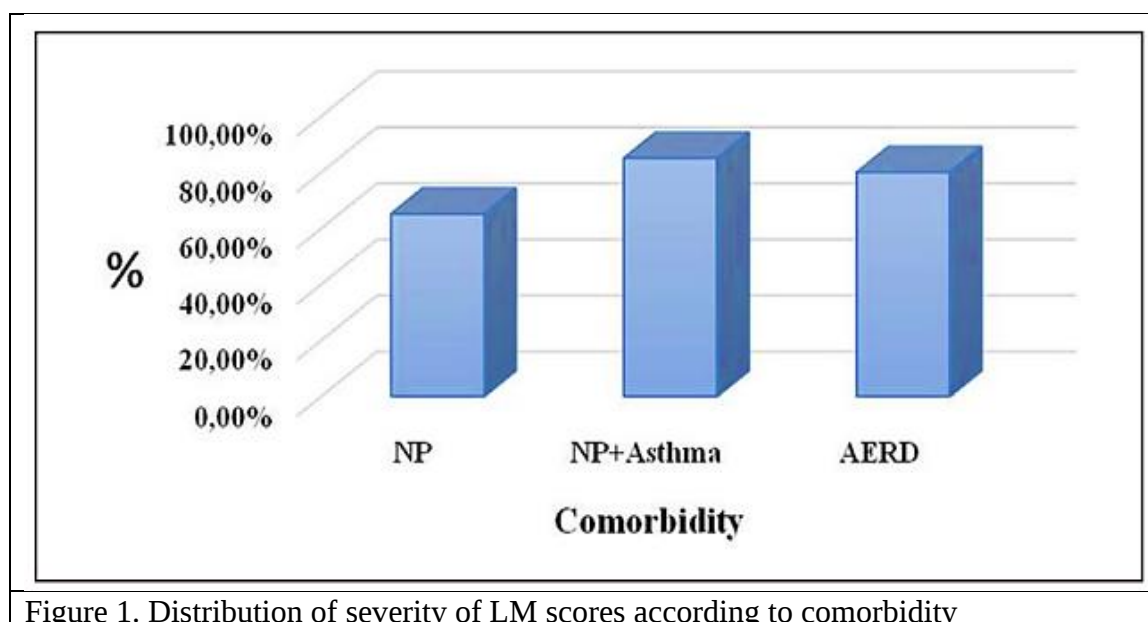


Figure 1. Distribution of severity of LM scores according to comorbidity

**Discussion:** According to this study, the most prevalent comorbidity was asthma, and 16.8% of participants had a respiratory condition that was made worse by aspirin. It was also discovered that 8.9% of patients needed revision surgery and that the recurrence rate was 20.7%. Multivariate analysis revealed that noncompliance with post-operative topical steroid therapy was an independent predictor of recurrence ( $P < 0.001$ ).<sup>2</sup> According to Velo-Teles R et al., all rhinology symptoms subsided following surgery. The incidence of moderate problems was 15.3%, and serious complications were 1.2%. Only 7% of patients needed surgical reintervention, despite 31% of patients experiencing a disease recurrence. Multivariate logistic regression analysis revealed that in contrast to the other variables examined—age, sex, IgE-mediated asthma, allergic rhinitis, smoking habits, nasal polyps' endoscopic grade, Lund-Mackay score, and postoperative topical corticoid use occupational dust exposure and non-immunoglobulin E (IgE)-mediated asthma were independent predictive factors in CRSwNP recurrence.<sup>3</sup>



**Conclusion:** Endoscopic sinus surgery was demonstrated to be a successful treatment for CRSwNP, although with a high recurrence rate. These findings showed a significant relationship between disease recurrence and postoperative topical steroid compliance.

**The diagnosis of chronic rhinosinusitis with nasal polyps (CRSwNP) was confirmed by a routine histopathologic investigation that revealed elevated tissue eosinophilia levels.**

## References:

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## Evaluation of vocal impairment after thyroid surgery using different subjective and objective modalities

**Introduction:** Thyroid surgery is a precise procedure that necessitates, to the greatest extent possible, the preservation of neighboring nerve function when eliminating thyroid abnormalities. Routine thyroid surgery has made extensive use of intraoperative neural monitoring (IONM), an additional technique for locating and identifying the external branch of the superior laryngeal nerve (EBSLN) and the recurrent laryngeal nerve (RLN).<sup>1</sup> Laryngeal nerve injury is not the only reason for voice changes. Damage to the cricothyroid and pyrethroid strap muscles, as well as decreased laryngotracheal mobility due to wound contracture after soft tissue surgery, are other possible causes. Although it is yet unknown if voice changes can occur after thyroidectomy without laryngeal nerve damage, a cautious surgical technique may



prevent these problems. Post-thyroidectomy dysphonia may result from endotracheal intubation, cervical muscle stretching and stabilization, laryngeal nerve injuries, cricothyroid muscle injuries, or manipulation. Even in the absence of laryngeal nerve injury, functional dysphonia can occur. Vocal abnormalities following thyroid surgery are a common and well-known side effect that can be linked to both neuronal and non-neuronal voice breakdown. However, their effects on many voice features are not entirely known, and their underlying mechanisms remain poorly understood.<sup>2</sup> So, this study was conducted to assess post-thyroidectomy voice impairment using several subjective and objective methods.

**Methods:** A total of 100 adult patients who had thyroid surgery were included in this prospective cohort study. The voice handicap index (VHI-30), video laryngoscopy, auditory perceptual assessment (APA) of the voice, and computerized speech lab (CSL) acoustic analysis were used to subjectively evaluate voice complaints in all subjects prior to surgery, as well as 15 days, 1 month, and 2 months after surgery. Comparing multi-parameter voice assessment instruments at various assessment time points was done statistically.

**Results:** After 15 days postoperatively, the voice changes were 51%, but after two months of follow-up, they had significantly decreased to 33%. Table 1 displayed the clinical information and demographics of individuals with vocal fold immobility. Total thyroidectomy was the most common surgery, conducted on 30 patients (85.7%), whereas partial thyroidectomy was performed on the remaining patients. Malignant thyroid disease affected 74% of the patients, whereas benign lesions affected the remaining individuals. Among these cases, 35% had vocal fold paralysis and reported a breathy voice (27% developed unilateral vocal fold paralysis and 8% acquired bilateral focal fold lesions), while the remaining 16% had no paralytic signs. In addition, only one patient acquired the gross lesion "bilateral vocal fold nodules." Significant improvement was observed in the VHI subscales and overall score from 15 days postoperatively to 2 months of follow-up, according to the subjective assessment of voice outcome following thyroidectomy ( $P < 0.001$ ).

| Variables                                                                     | N = 35 |        |
|-------------------------------------------------------------------------------|--------|--------|
| <b>Age (years)</b>                                                            |        |        |
| • Range                                                                       | 20–73  |        |
| <b>Sex, n (%)</b>                                                             |        |        |
| • Male                                                                        | 5      | (14.3) |
| • Female                                                                      | 30     | (85.7) |
| <b>Pathology, n (%)</b>                                                       |        |        |
| • Malignant                                                                   | 25     | (71.4) |
| • Benign                                                                      | 10     | (28.6) |
| <b>Types of surgery, n (%)</b>                                                |        |        |
| • Total thyroidectomy                                                         | 30     | (85.7) |
| • Partial thyroidectomy                                                       | 5      | (14.3) |
| <b>Follow-up assessment up to 1 year</b>                                      |        |        |
| • Recovered                                                                   | 5      | (14.3) |
| • Unrecovered                                                                 | 20     | (57.1) |
| • Missed                                                                      | 10     | (28.6) |
| Data are presented as range or number (percentage)                            |        |        |
| Table 1. Clinical characteristics of patients who have focal fold immobility. |        |        |



**Discussion:** Significant progress was observed in the VHI subscales (emotional, physical, and social domains) and overall score between 15 days postoperatively and 2 months of follow-up.<sup>2</sup> Tabibzadeh-Hagh et al. found that individuals with paralysis or paresis after thyroidectomy had higher postoperative questionnaire scores and a larger difference between the preoperative and postoperative tests compared to those with normal vocal fold mobility.<sup>3</sup> The Voice Handicap Index (VHI) score was substantially linked with the grade, roughness, breathiness, asthenia, and strain (GRBAS score) preoperatively and postoperatively at 1- and 8-week intervals. Additionally, a week after surgery, there was a strong correlation between pitch and VHI.<sup>1</sup> After thyroidectomy, voice alterations can happen even if there is no visible damage to the laryngeal nerve. Patients should be informed that even after simple thyroid surgery, they may experience slight voice alterations.<sup>4</sup>

**Conclusion:** After a thyroidectomy, voice quality deterioration is a regular observation. In addition, it is important to let patients and caregivers know about the particular subjective discomforts that often accompany thyroid surgery. Further, clinicians should inform patients that transient vocal issues are common after a full thyroidectomy, even if there is no laryngeal nerve injury.

**Clinicians should inform patients that, even in the absence of laryngeal nerve damage, temporary vocal problems are common after a full thyroidectomy.**

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## Case Report on Sinonasal Polyposis and Choanal Atresia in a Single Patient

**Introduction:** Sinonasal polyposis (SNP) is a long-term inflammatory condition that affects the nasal and facial sinus mucosa. It is distinguished by an oedematous, multifocal, and bilateral degeneration of the noisiness mucosa that begins in the lateral masses of the ethmoid and results in the production of smooth, gelatinous, translucent, and pyriform polyp lesions.<sup>1</sup> The pathophysiology of nasal polyposis, a complicated inflammatory disease of the nose and paranasal sinuses, is influenced by numerous variables. Sinonasal polyposis has been explained by a variety of theories, such as immunological theories, allergies, changes in aerodynamics caused by pollutants being trapped, disturbances of the epithelium, and intolerance to aspirin. However, the fundamental mechanism has no clear, widely recognized theory.<sup>2</sup> This case describes unilateral choanal atresia combined with bilateral sinonasal polyposis, rendering the airflow or aerodynamic explanation of sinonasal polyposis obsolete.

**Case presentation:** A 29-year-old woman who had no past medical history of chronic illness came to the outpatient otorhinolaryngology clinic to have a persistent nasal blockage evaluated. She had a chronic history of left-sided nasal blockage that progressed over years to right-sided obstruction. This was followed by a persistent discharge from the left side of the nose. Despite medical intervention, the condition did not improve. The patient's history included frequent episodes of runny nose, sneezing, and itching. There are no past medical records of aspirin intolerance or bronchial asthma. The patient underwent functional endoscopic sinus surgery for bilateral nasal polyposis and septoturbinateplasty, and nasal surgery ten years ago to treat left choanal atresia. Two years later, her symptoms re-occurred.



Figure 1. Evaluation by nasal endoscopy revealing left choanal atresia



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Nasal endoscopy revealed bilateral grade 3 nasal polyps as well as bilateral thick mucoid nasal drainage, with the left side being more prominent. Choanal atresia on the left side with an anterior C-shaped septal deviation was noted (Figure 1). Non-contrast computed tomography of the nose and paranasal sinuses revealed a left-sided bony choanal atresia together with pansinusitis. For sinus polyposis, the patient had functional endoscopic sinus surgery. A biopsy was obtained from the sinonasal polyps for histology, and the choanal atresia was repaired with crossing flaps, posterior septectomy, fibrin glue, and a stent over the flaps (Figure 2). Two weeks after surgery, the stent was removed, and histological analysis revealed allergic nasal polyps (Figure 3). Every stage of the diagnostic evaluation was clearly explained to the patient, who was convinced that the plan for addressing her condition would be beneficial.

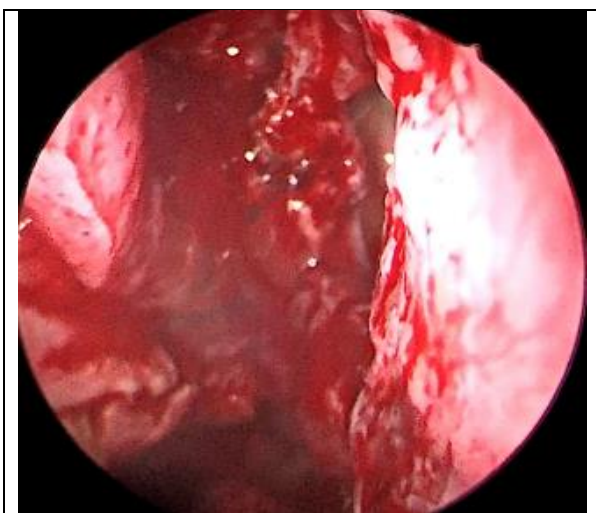


Figure 2. Nasal endoscopic image demonstrating atresia repair and effective endoscopic sinus surgery

**Discussion:** The aerodynamic theory of nasal polyposis is repressed when polyps form within a restricted nasal cavity, implying that mechanical irritation caused by turbulent airflow is not required for nasal polyp formation. Moreover, allergen exposure-induced mucosal inflammation and polyp development seem to be lessened in the blocked nasal cavity without inhaling. However, allergens can still passively enter an atretic nasal cavity by inhalation.<sup>2</sup> According to Lee B. et al., the development of nasal polyps in an atretic nasal cavity raises the possibility that the genesis of these polyps is not significantly influenced by nasal airflow or aerodynamics. Additionally, it appears to support the idea that nasal polyps, at least in certain people, are caused by an inflammatory condition unrelated to an inhalant allergen challenge.<sup>3</sup>

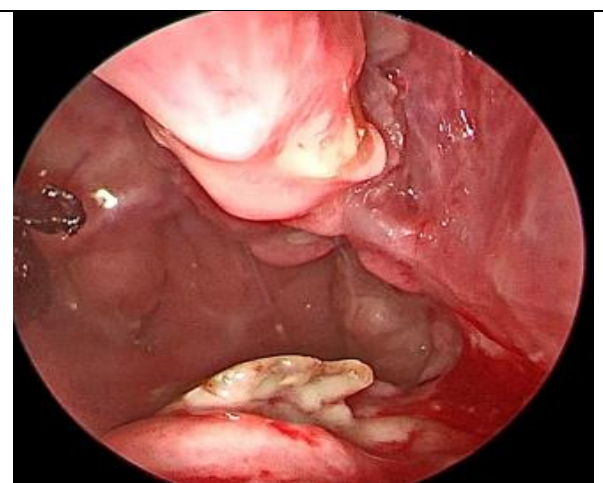


Figure 3. Nasal endoscopic image of the posterior septectomy and atresia repair after two weeks of surgery



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**Conclusion:** In this case, choanal atresia and sinus polyposis are extremely uncommon to exist together. The aerodynamic theory of nasal polyp production is dubious because it fails to explain how airflow turbulence contributes to mucosal prolapse and polyp formation when nasal polyps form inside an atretic nasal cavity.

**Additional evaluation is necessary to determine the inhaled allergen and the mechanism by which it causes mucosal inflammation and polyp growth, particularly in cases where the nasal cavity is atretic.**

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