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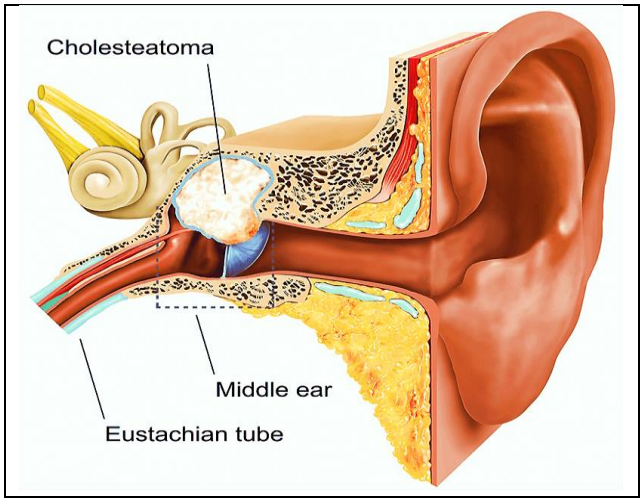
Identification and management of the risk of cholesteatoma development in patients with osteoma

Introduction: Osteomas typically damage the temporal bone, jaw, and paranasal sinuses in the craniofacial region. The external auditory canal (EAC) is the most frequently identified location, although they have also been found in other parts of the temporal bone, including the mastoid region and internal auditory canal.[1] EAC osteomas are uncommon, single, unilateral, benign tumors with a slow growth rate that are pedunculated. Usually, it start from the tympanosquamous or tympanomastoid suture lines that are next to the bony-cartilaginous junction. However, the cause of these conditions is uncertain. Osteomas in the EAC frequently grow slowly and show no symptoms for a long time. If the EAC gets infected, clogged, or constricted by concomitant lesions such as cholesteatomas, symptoms may appear.[2] EAC osteomas can cause stenosis and impair the capacity of the epithelium to migrate and clean itself, trapping keratinized epithelium and causing cholesteatoma to grow. Despite being an uncommon illness, EAC cholesteatoma (EACC) can cause anatomical disturbance and bone erosion, which can result in more difficulties.[1] So, this study was conducted to assess the risk of cholesteatoma development in osteoma patients and to provide a step-by-step approach to managing EAC osteoma patients.



Methods: In this retrospective study, 43 patients diagnosed with EAC osteoma were included. Using high-resolution computed tomography (HRCT) in both axial and coronal views, the osteoma's maximal diameter was determined. The osteoma's relative blockage ratio in the axial and coronal images was calculated. Otoscopy was used before surgery to detect pedicle development. Based on the existence of cholesteatoma, the patients were divided into two groups. Every patient underwent a pathologic examination to verify the existence or nonexistence of cholesteatoma development. Fischer's exact test was used to examine nonparametric variables such as sex, laterality, presenting symptoms, and EAC osteoma features.

Results: Every osteoma was unilateral; 24 (55.8%) developed on the right side and 19 (44.2%) on the left. Fifty-eight (65.1%) of the EAC osteomas were found in the medial EAC and fifteen (34.9%) in the lateral EAC. Among the individuals with EAC osteomas, 9 (20.9%) experienced cholesteatoma development, while 34 (79.1%) did not. Osteomas with and without cholesteatoma had a maximum diameter of 12.67±4.09 and 7.67±3.27mm, respectively. There were 21 osteomas with pedicles and 13 without in the group without cholesteatoma. In the cholesteatoma group, two osteomas had pedicles, while seven did not. There was no difference in the relative blockage ratio between these two groups (Table 1). Canalplasty was performed simultaneously in 8 (88.9%) individuals with cholesteatoma and 10 (29.4%) patients without cholesteatoma. During the three-year follow-up period following surgery, no patient had a cholesteatoma or osteoma recurrence.

Table 1. Characteristics of patients with and without cholesterolomas concerning EAC osteomas.

Characteristics of EAC osteomas	Total	With cholesteatoma	Without cholesteatoma	*P* value
Medial/lateral	28/15	7/2	21/13	.376
Pedicle (with/without)	23/20	2/7	21/13	.037*
Maximum diameter (mm)	8.74 ± 3.99	12.67 ± 4.09	7.67 ± 3.27	<.001*
Relative obstruction ratio (%)	70.19 ± 10.04	74.94 ± 7.37	68.52 ± 10.49	.184
Postauricular approach	8	5/9 (55.6%)	3/34 (8.8%)	<.001*
Canalplasty	18	8/9 (88.9%)	10/24 (29.4%)	.008*

Abbreviation: EAC, external auditory canal.
*With cholesteatoma versus Without cholesteatoma (*P* < .05).

Discussion: In this study, cholesteatoma cases had osteomas considerably bigger in diameter. This enlarged size can make preoperative eardrum inspection more difficult.[1] According to Chen CK et al., endoscopic transcanal treatment was used for patients with EAC osteomas. Large-scale osteomas without a visible stalk connected to the EAC were removed transcanally using a skin flap, whereas small, pedunculated osteomas were removed directly through the mouth.[2] Li et al. found that cholesteatoma was erosive, the stenotic EAC was greater in their cholesteatoma group than in the non-cholesteatoma group. Following the exclusion of individuals with both cholesteatoma and a faulty bony canal from the analysis, there was no discernible variation in the degree of EAC stenosis between the groups with and without cholesteatoma.[3]

Conclusion: The current study concluded that cholesteatoma was more likely to arise in larger osteomas, although it may also occur less frequently when a pedicle forms. Preoperative testing, such as HRCT and otoscopy, is essential for determining the size of the osteoma and whether cholesteatoma was likely to coexist in symptomatic patients.

Regular surveillance of external auditory canal (EAC) osteoma was recommended for people who do not exhibit any symptoms. Preoperative testing, such as otoscopy and high-resolution computed tomography (HRCT), was essential for determining the size of the osteoma and whether cholesteatoma was coexisting in symptomatic patients.

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Comparison of comorbid allergic manifestations and rhinitis, allergy testing and their associations with patient-related outcomes

Introduction: Asthma and COPD are widespread respiratory disorders that affect 8–10% of the world's population. Both disorders are distinguished by persistent inflammation of the airways and restriction of airflow, which may result in structural remodeling.[1] Allergic rhinitis (AR) is a chronic respiratory condition characterized by inflammation of the nasal mucosa brought on by exposure to allergens such as pollen, trees, weeds, and house dust mites. Interestingly, a connection between asthma and AR has been established. The immune system plays a major role in the pathophysiology of both diseases. An asthma severity has been shown in recent studies to raise the risk of AR by inducing an inflammatory response in the upper respiratory tract.[2] Rhinitis has been linked to an increased incidence of hospitalizations and emergency visits in asthma patients, as well as adverse effects on asthma control, health-related quality of life, and lung function. Although studies on COPD are more limited, allergic rhinitis has been linked to a higher incidence of COPD exacerbations. There was a dearth of studies examining the relationship between allergy manifestations and rhinitis, as well as other patient-related symptoms, in individuals with COPD. Comorbid allergy and rhinitis are widespread not just in asthma but also in COPD; allergy testing is underutilized, and both asthma and COPD are associated with poor patient-related outcomes.[1] So, this study aimed to assess the prevalence of comorbid allergic symptoms and rhinitis, as well as allergy testing and its relationships with patient-related outcomes in asthma and COPD patients.

Methods: A total of 1291 individuals with asthma and 1329 patients with COPD were included in this cross-sectional study. Self-completion questionnaires yielded information on demographics, rhinitis, allergic symptoms at pollen or furry pet exposure, exacerbations, self-assessed disease severity, and scores from the COPD Assessment Test (CAT) and Asthma Control Test (ACT). Additionally, allergy test records were reviewed. A total score of 1 to 5 was the primary result of the Asthma Symptom Control Test (ACT), which used five items to quantify asthma symptoms during the preceding four weeks. The CAT measures the health status of people with COPD. It consists of eight questions that are scored on a 6-point scale from 0 to 5, with the total score serving as the primary end measure.

Results: Asthma patients experienced allergic symptoms more frequently (75%) than COPD patients (38%). Seventy percent of asthma and fifty-eight percent of COPD patients reported having rhinitis (Figure 1). In the last 10 years, 28% of asthma patients and 8% of COPD patients have undergone allergy testing. Comorbid allergies and rhinitis were found to be independently linked to a higher chance of exacerbations (1.58 and 1.38), self-assessed moderate/severe disease (1.64 and 1.75), and poor asthma symptom control (ACT < 20) (OR [95% CI] 1.41 and 2.13). Combination allergies and rhinitis were found to be independently linked to a higher chance of low health status (CAT ≥ 10) in COPD patients (OR [95% CI] 1.46 and 2.59), exacerbations within the preceding six months (1.91 and 1.57), and self-assessed moderate/severe disease (1.70 and 2.13).

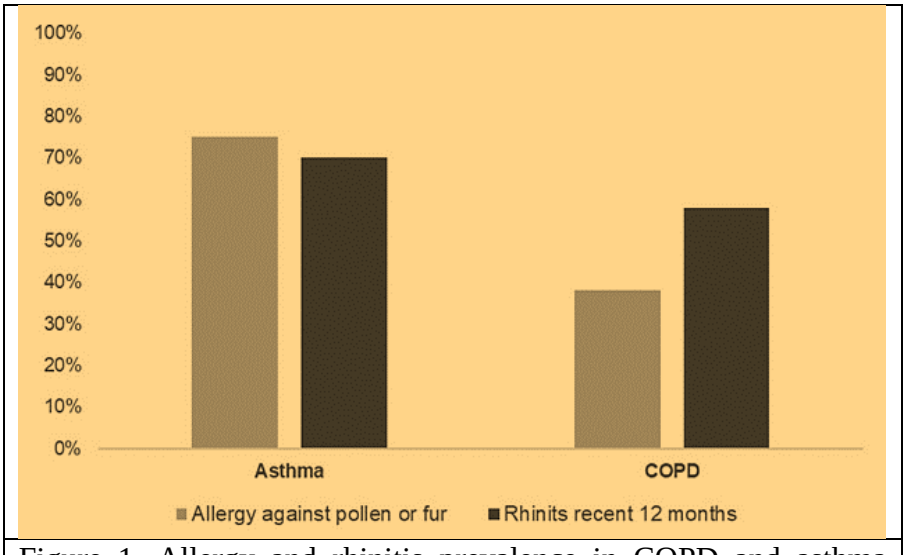

Figure 1. Allergy and rhinitis prevalence in COPD and asthma patients

Discussion: According to this study, asthmatics had higher rates of rhinitis and allergies than people with COPD. Compared to COPD, asthmatics experienced higher allergic symptoms.[1] According to the BREATHE study, compared to patients with COPD, patients with asthma had

higher rates of childhood asthma, atopic dermatitis, and allergic rhinitis. In comparison to patients with COPD, patients with asthma, asthma + COPD, and others exhibited higher sputum eosinophilia but lower sputum neutrophilia.[3]

Conclusion: This study concluded that allergy symptoms and rhinitis were more common in asthma than in COPD but were related to poorer outcomes in both conditions. This emphasized the significance of assessing and treating concomitant allergies and rhinitis in both asthma and COPD.

Asthma has more allergic symptoms and rhinitis than COPD; however, both conditions were associated with poorer outcomes.

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Evaluation of the risk factors and frequency of recurrent laryngeal nerve damage following thyroid surgery

Introduction: Thyroid illness is the most prevalent endocrine ailment worldwide. Treatment options include medication and surgery, with thyroid surgery being one of the most frequently performed operations globally. Thyroid surgery is currently a rather safe operation. Better surgical instruments enhanced operative methods and antisepsis, and an increased comprehension of the anatomy and physiology of the thyroid gland could all be contributing factors to this. Recurrent laryngeal nerve injury (RLNI), which lowers a patient's quality of life, is the most worrying side effect following thyroid surgery.[1] A unilateral damage causes a shift in voice, whereas a bilateral injury compromises the airway to the point of death. Preventing damage to the recurrent laryngeal nerve during thyroidectomy requires anatomic identification of the laryngeal nerve and physiological assessment of its activity. Due to a decreased incidence of RLNI, the surgical approach has shifted to routine identification. In recent years, intraoperative neuromonitoring (IONM) has come to be recognized as a valuable adjunct to functional RLN evaluation. RLN identification can be challenging in people who have already undergone thyroidectomy surgery. Surgeons should detect the RLN and evaluate its function because an intact nerve does not always correlate with normal vocal fold function.[2] The purpose of this study was to assess the prevalence of RLN paralysis in patients and to determine risk factors that increase the possibility of RLN damage after thyroid surgery.

Methods: Thirteen hundred sixty-eight thyroidectomy patients were included in this retrospective analysis. Pathological characteristics, surgical method type, and status of the RLN during surgery were all evaluated as potential contributors to RLNI. Every patient had an indirect laryngoscopy examination both before and after surgery, either with or without video stroboscopy. In every case, intraoperative neuromonitoring (IONM) or neurostimulation and laryngeal palpation (NSLP) were used to assess the RLN physiologically. Vocal fold paralysis (VFP) was defined as the absence or considerable reduction in vocal fold motion.

Results: The mean age of the patients was 48.36 ± 13.03, with a male-to-female ratio of 1:3.6, and 62% of them were above 45. A total of 851 patients (58.6%) had subtotal or complete thyroidectomies (1602 nerves at risk). A total of 276 nerves were at risk from 276 hemithyroidectomy patients, and 291 patients had complete or repeat procedures (299 nerves at risk). In 47 (3.4%) patients, post-operative laryngoscopy revealed limited or absent vocal

fold mobility. Out of 47 patients, 43 had unilateral vocal fold paralysis and 4 had bilateral VFP (Figure 1). The results indicated that age (OR, 1.01; 95% CI, 0.98–1.05; p = 0.365) was no longer significant among the three risk factors that were statistically significant for postoperative RLN palsy. The extent of surgery and the histological diagnosis, the other risk factors, continued to be statistically significant. Once adjustments were made, there was a substantial correlation between the extent of surgery—including revision and total thyroidectomy—and the probability of developing postoperative RLN palsy. All patients with NSLP or INOM underwent physiological RLN stimulation, and no significant relationship between the occurrence of VFP and the stimulation was found. Most of the time, the symptoms went away on their own, and the vocal folds started moving again after a few months.

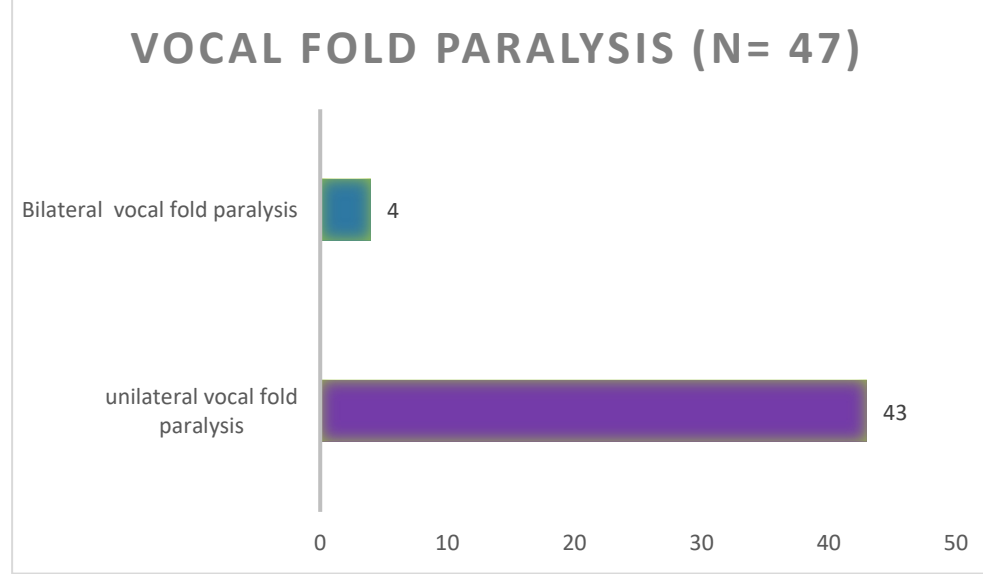

Figure 1. Vocal fold paralysis in patients

Discussion: After adjusting for confounding variables, this study demonstrated a significant correlation between the degree of surgery—including revision and complete thyroidectomies—and the chance of developing postoperative RLN palsy. The risk of lasting RLN injury was significantly increased in patients over 45, those undergoing complete thyroidectomy, and those with malignant disease.[2] The rate of RLN injury varied considerably according to the primary reason for surgery; patients with a single nodule receiving surgery had an injury rate of 4.3%, while patients with differentiated cancer received an injury rate of 9.0%. Compared to lobectomies, thyroidectomies and procedures without intraoperative nerve monitoring were associated with a higher incidence of RLN injury. Following multivariate

adjustment, a diagnosis of thyroid cancer, a total thyroidectomy, and age greater than 65 years were all independently correlated with RLN injury.[3]

Conclusion: The current study concludes that either temporary or permanent VFP was present in 3.4% of the RLN following surgery. During thyroidectomy, intraoperative nerve identification remains the gold standard of care. Neuromonitoring does not lessen nerve harm as compared to NSLP, although it does assist in recognizing the nerve, especially in severe situations.

Nerve identification remains the gold standard for recurrent laryngeal nerve therapy in thyroid surgery.

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An Uncommon Case of Ectopic Salivary Gland in the Vocal Cord

Introduction: The presence of normal salivary gland tissue outside of the normal distribution of the major (parotid, submandibular, and sublingual) and minor (pharynx, upper airways, and oral cavity) salivary glands is known as heterotopic salivary gland tissue (HSGT), also referred to as "ectopic salivary gland" or "salivary gland choristoma." Salivary gland acini cells can be found in any aberrant place without a duct system.[1] Although ectopic salivary glands are uncommon in the vocal cords, they have been seen in a variety of other places, particularly close to the boundary between the external ear canal and the medial border of the clavicle.[2] Hemoptysis, throat clearing, painful throat, dysphagia, and a lump in the neck are examples of clinical symptoms. The size and extent of the lesion (such as its expansion into the para-glottic area) may be shown by CT imaging; however, it might not be able to distinguish between the disorders. Following a histological examination, the definitive diagnosis was determined.[3] In this instance, a male patient had surgery performed to remove the vocal cord's ectopic salivary glands.

Case presentation: A 78-year-old man was admitted to the hospital with a major complaint of persistent hoarseness. The patient had a history of hypertension and angina pectoris and was on antiplatelet drugs. An anterior right vocal cord smooth mass was discovered during a laryngeal endoscopic examination, as shown in Figure 1. The right vocal cord had a reduced-wave pattern, as shown by a stroboscopy. After having the mass lesion removed during a general anesthetic procedure to reduce hoarseness. By adopting the micro flap technique with cold instruments, only the submucosal tissue was removed while the mucosa was maintained. As a differential diagnosis, laryngeal papilloma was considered; however, during surgery, linear tissue, not a polyp or tumor, was identified as the pathological diagnosis. On the third postoperative day, the patient was discharged from the hospital after an uncomplicated postoperative treatment. Figure 2 illustrates the histological specimen, which has been defined as salivary gland tissue. The patient was diagnosed with ectopic salivary glands of the vocal cord based on the pathology results. One year following the procedure, there was no sign of recurrence.

Figure 1. Laryngoscopy-based intraoperative findings both before and after operation. (a) Before surgery. A smooth mass was in the right vocal cord's anterior region. (b) Following surgery. Mucosa preserved; tumor removed.

Discussion: Ectopic salivary gland tissue must be considered in the differential diagnosis of a laryngeal submucosal mass, particularly if it is situated in the laryngeal ventricle or anterior true or false vocal cord.[3] To confirm the diagnosis and rule out malignancy, surgical excision should be recommended. An MRI scan of the neck can be used to determine the lateral aspect of the lesion into the laryngeal ventricle and rule out other lesions in the larynx.[4]

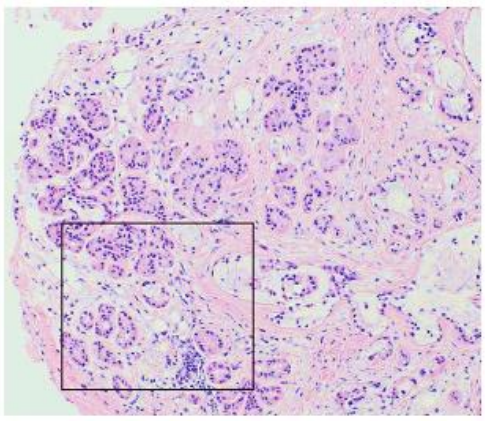

Figure 2. Histological examination (use 200× hematoxylin and eosin stain)

Conclusion: It was important to consider the potential for ectopic salivary glands to manifest as vocal cord mass lesions. It was necessary to have surgical resection, and following surgery, long-term monitoring is required.

A magnetic resonance imaging scan of the neck can be used to determine the lateral aspect of the lesion into the laryngeal ventricle and rule out additional laryngeal lesions.

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