



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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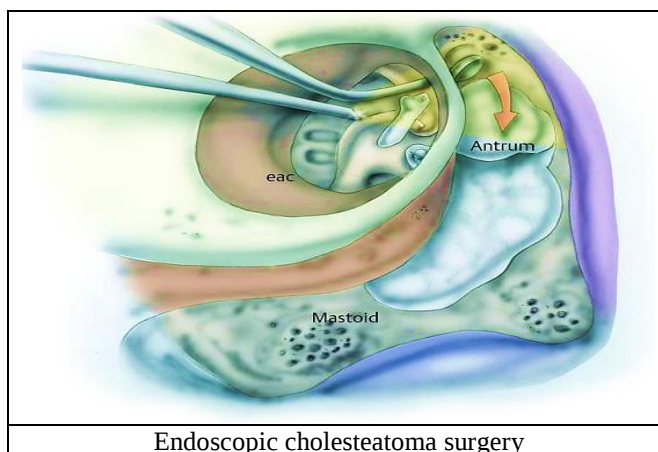
Best Regards,

Medical Team, Micro Labs Ltd



Assessment of the difference between the outcomes of microscopic and endoscopic cholesteatoma surgery

Introduction: Endoscopic ear surgery is a specific type of less-invasive otologic surgery. Since its introduction in the 1990s, endoscopic ear surgery (EES) has become more and more popular due to its anatomical and physiological theories. One of the advantages of endoscopic ear surgery over microscopic ear surgery is the avoidance of endaural vertical incisions, postauricular incisions, and mastoidectomies. A tympanomeatal flap can be elevated endoscopically to facilitate the standard transcanal operation. Using the endoscopic approach, one may observe the facial recess, the rear and anterior epitympanic spaces, the sinus tympani, and the hypotympanum more clearly. Recurrences and residual cholesteatomas following cholesteatoma removal surgery can be reduced with an endoscopy-mediated approach.¹ In otologic surgery, the microscope has traditionally been the tool of choice, particularly for cholesteatoma cases. However, the operative microscope has certain limitations in spite of its ability to illuminate and magnify. These include its inability to expose certain hidden areas, such as the epitympanic space and the sinus tympani, through the narrowest segment of the ear canal, even though the ear canal serves as the main conduit to the operative field. Alternatively, transcanal endoscopic ear surgery removes the narrowest part of the ear canal and, following scutum scooping, offers an extensive view to see around every corner of the tympanic cavity, including the attic.² There have been insufficient reliable studies on the effectiveness and functional results of endoscopic tympanoplasty in comparison to standard microscopic tympanoplasty.¹ So, this study aimed to evaluate and compare the results of microscopic ear surgery (MES) against primary exclusive endoscopic ear surgery.



Endoscopic cholesteatoma surgery

Methods: This randomized clinical trial included eighty people who had been diagnosed with cholesteatoma. Patients were randomly divided into two equal treatment groups. One group underwent microscopic ear surgery for tympanoplasty, while the other group underwent only trans-canal endoscopic ear surgery. A preoperative radiologic and otomicroscopic evaluation was performed on each patient to confirm the diagnosis of cholesteatoma. Assessments of auditory function were also collected. Following surgery, the patients are monitored for one



week, one month, and six months. The patients' perceptions of taste, discomfort, hearing, and the healing phase following surgery were evaluated.

Results: The endoscopic surgery group's mean operation time was 3.0 ± 0.4 h, whereas the microscopic surgery group's was 3.2 ± 0.6 h. These differences were not statistically significant ($p=0.2$). The group that underwent endoscopic surgery healed significantly faster than the group that underwent microscopic surgery (5.4 ± 0.5 vs. 7.7 ± 0.5 weeks, $p<0.001$). Both the ABG (air-bone gap) and AC (air-conduction) did not significantly differ between the two groups under investigation following surgery (Table 1). Using diffusion-weighted MRI for follow-up, patients in the endoscopic group had a considerably lower frequency of residual lesions (5.0% versus 22.5%, $p=0.023$) than patients in the microscopic group. Patients undergoing endoscopic surgery had a significantly lower recurrence rate (7.5%) than those using microscopic surgery (27.5%) ($p=0.019$).

	Endoscopic surgery (n = 40)	Microscopic surgery (n = 40)	P value
Operative time (Hours)	3.0 ± 0.4	3.2 ± 0.6	0.2
Healing time (weeks)	5.4 ± 0.5	7.7 ± 0.5	<0.001*
ABG	19.6 ± 6.1	20.6 ± 4.7	0.42
AC	20.3 ± 4.4	18.8 ± 4.2	0.12
ABG air-bone gap, AC air-conduction			
*reflecting the most significant P value			

Table 1. Differences in operation and recovery times between the groups under study.

Discussion: In the present study, no significant differences were observed in the operative time among the groups under investigation.¹ According to Bae MR et al., endoscopic surgery took less time to perform than microscopic surgery.³ In the current study, the frequency of persistent lesions was significantly lower in the endoscopic group (5.0%) compared to the microscopic group (22.5%) of patients.¹ Han SY et al. found that the EES group had a considerably reduced residual or recurrence rate of cholesteatoma than the MES group.⁴

Conclusion: The current study concluded that endoscopic surgery definitely performs better than microscopic surgery in terms of recovery time, possibility of residual disease, and probability of recurrence.

Anatomical magnification and minimally intrusive viewing were made possible by the endoscope's enhanced lighting, clarity of image, and ability to "see around the corner".



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Evaluation of perivascular innervation and nerve growth factor (NGF) in allergic rhinitis (AR) and idiopathic rhinitis (IR)

Introduction: Allergic rhinitis (AR) is one of the most common chronic respiratory disorders, with a significant financial impact on the adult and pediatric populations. The quality of life significantly worsens for those with severe rhinitis. Allergic rhinitis is a type I hypersensitivity reaction defined by inflammation and the presence of eosinophils, immunoglobulin E (IgE), and inflammatory mediators that cause the symptoms. Nonspecific hyperreactivity (NHR) is associated with many neuronal alterations in the nasal mucosa and is seen in both allergic and nonallergic rhinitis (NAR).¹ NAR is described as a symptomatic inflammation of the nasal mucosa that is accompanied by at least two nasal symptoms, such as nasal obstruction, rhinorrhea, sneezing, and/or an itchy nose, but does not show any signs of endonasal infection or systemic sensitization to inhaled allergens. NAR symptoms can fluctuate in severity and can be persistent or triggered by exposure to unspecific causes, also known as nasal hyperresponsiveness. Patients with NAR who do not have a known cause for their symptoms, referred to as idiopathic rhinitis (IR) patients, can make up as many as 50% of the patient population. The presence of NHR is the primary characteristic of IR patients.² It is still unclear whether neurological mechanisms underlie AR and NAR. According to recent research, neurotrophins, neuropeptides, nerve fibers, and sodium channels all exhibit increased neural activity in the nasal mucosa of AR patients, which is linked to nonspecific hypersensitivity.¹ So, the purpose of the current investigation is to determine if nerve growth factor (NGF) and perivascular innervation are associated with the severity of clinical symptoms in AR and IR.

Methods: A total of thirty patients aged 18 to 50, who had been diagnosed with chronic rhinitis for more than three years and had a clinical history and physical examination indicating the need for inferior turbinectomy whether or not it was combined with septoplasty were recruited for this prospective study. Based on their acute hypersensitivity skin test results for inhalants, physical examination results, and nasal cytology, and clinical history, patients were categorized as belonging to either the AR or IR groups. A score was assigned to the patients based on their symptoms and indicators. The factors that served as initial predictors and outcome variables were the following: eosinophils per field, mast cells per field, tissue Ubiquitin C-terminal hydrolase L1 (UCHL) (density), perivascular UCHL (density), NGF (density), gender, age, age at disease beginning, types of rhinitis, and tissue UCHL (density).



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Results: The AR group had a higher score for the signs and symptoms. The AR group exhibited a higher concentration of NGF in the cytoplasm of inflammatory cells within the submucosa. There was no variation in the distribution of nerve fibers between the groups; they were primarily found in the subepithelial, glandular, and vascular sections of the tissue. The predictors that remained in the multiple linear regression model to confirm which factors would be linked with disease severity were gender, kind of rhinitis, and perivascular UCHL (density). Figure 1 depicts the impact of rhinitis type and perivascular UCHL predictors on the partial score.

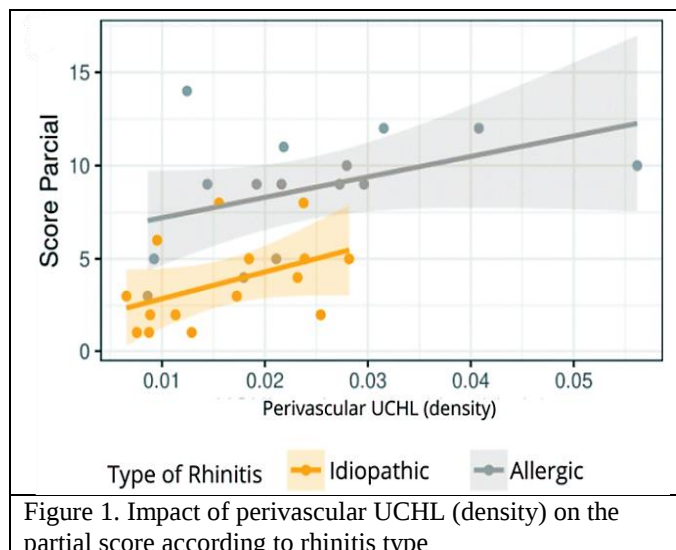


Figure 1. Impact of perivascular UCHL (density) on the partial score according to rhinitis type

A higher score for signs and symptoms was linked to more perivascular innervation.

Discussion: There was no variation in tissue eosinophils in the current investigation. Eosinophils are the primary inflammatory cells implicated in allergic rhinorhinitis (AR), but they can also be found in other forms of rhinitis. The presence of such NAR subtypes that nasal cytology may not have noticed could therefore account for the high number of mast cells in the IR group and the lack of differences in eosinophils.¹ Ramirez GA et al. revealed as effector immune cells oriented to host defense and as modulators of the form of innate and adaptive immunological responses, eosinophils are essential for maintaining immune homeostasis. Moreover, they have a role in the regulation of certain non-immunocompetent tissues functional homeostasis and may even be implicated in tissue regeneration. In order to protect the host from bacterial, viral, fungal, and parasitic infections, an elaborate signalling network centered on eosinophils is triggered by inflammatory stimuli. This network includes Th2 lymphocytes, B cells, mast cells, circulating platelets, and cells that reside at sites of inflammation.³

Conclusion: The current study concludes that NGF produced by inflammatory cells of the submucosa drives the growth of perivascular innervation in rhinitis, resulting in worsening clinical symptoms, particularly in AR.

Allergic rhinitis patients had higher levels of nerve growth factor in the cytoplasm of inflammatory cells in the submucosa.



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Aspects of gastroesophageal reflux disease (GERD) related persistent cough in individuals with laryngopharyngeal reflux

Introduction: Reflux of stomach contents into the esophagus or beyond, into the lung or oral cavity (including the larynx), is known as gastroesophageal reflux disease (GERD). Both esophageal and extraesophageal symptoms are caused by GERD. Laryngopharyngeal reflux (LPR) is the term used to describe the condition in which stomach contents bypass the upper esophageal sphincter (UES). Laryngopharyngeal reflux disease (LPRD) is the term used to describe the symptoms and indicators associated with LPR.¹ A few investigations found that chronic coughing was also caused by LPR. The symptoms of gastric reflux illness that are not related to the esophagus include clearing of the throat, hoarseness, breathing problems, and globus hystericus. The reflux symptom index (RSI) questionnaire is a non-invasive, reliable, and successful method for evaluating LPR. Different symptoms distinguish LPR from gastroesophageal reflux disease (GERD), which is also a unique type of gastroesophageal reflux disease that produces a chronic cough.² This study aimed to enumerate the features of laryngopharyngeal reflux in individuals suffering from GERD-related persistent coughs.

Methods: A total of 44 individuals with cough durations ranging from two months to ten years were included in this retrospective analysis. There were then twenty-one men and twenty-three women. The RSI was used to assess each patient's symptoms. Reflux finding scores (RFSs) were calculated for each patient after a transnasal rhino-laryngo video scope examination. In addition, oropharyngeal pH monitoring (also known as Dx-pH monitoring) was performed on each patient. The monitor system gathered all LPR occurrences and determined the final Ryan score at the end of the 24-hour monitoring period. The Ryan score appeared to be abnormal and signified serious acid reflux when it was ≥ 9.41 for the upright score and ≥ 6.80 for the supine score. Subsequently, oropharyngeal pH values below 6.5 were computed after the monitor's baseline was adjusted to 6.5.



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Results: The mean duration of a persistent cough was 29.60 (29.60±37.60) months. Every patient reported at least two symptoms of laryngopharyngeal reflux disease (LPRD) in addition to coughing, and their RSI averaged 15.66 (15.66±6.33). The most common symptoms were postnasal drip, increased phlegm, coughing, and throat clearing. Upon examination with the rhino-laryngo videoscope, every patient had indications of LPRD. Their RFSs varied from 5.5 to 17, with an average of 10.89 (10.89 ± 2.81). Diffuse laryngeal edema, posterior commissure hypertrophy, and erythema or hyperemia/vocal cord edema were the most common symptoms (Table 1). RFS and/or RSI abnormalities were present in 42 individuals (42/44, 95.45%). Oropharyngeal pH monitoring revealed 10 individuals (10/44, 22.72%) with abnormal Ryan scores.

Signs	Subglottic edema	Ventricular obliteration	Erythema/hyperemia	Vocal cord edema	Diffuse laryngeal edema	Posterior commissure hypertrophy	Granuloma	Thick endolaryngeal mucus
Number of patients	38	32	43	43	40	41	3	11
Percentage of patients (%)	86.36	72.73	97.73	97.73	90.91	93.18	6.82	25.00

Table 1. The percentage of patients with each LPRD sign

Discussion: There were only six patients with reports of a gastroscopy in this investigation. Three patients suffered from superficial gastritis, two from non-atrophic gastritis, and one from atrophic gastritis. There were two cases of reflux esophagitis. Most patients had a reduction in both their LPRD symptoms and chronic cough following treatment with proton pump inhibitors (PPIs).¹ Yu Y et al. revealed that individuals with GERD who had higher RSI scores would exhibit greater gas reflux, non-acid reflux, and proximal reflux. The PPI group with RSI <19 had greater efficacy at a routine dosage when combined with prokinetic drugs than the RSI ≥19 group.² According to Li X et al., proximal acid reflux (reflux theory) and distal reflux-reflex (reflex theory) may function in coordination when persistent coughs caused by GERD, with the latter playing a larger role. GERD-related cough can also result in reflux, and vice versa, creating a vicious cycle of reflux, cough, and reflux. This ultimately exacerbates reflux and coughing, leading to an uncontrollable cough.³

Conclusion: The current investigation concludes that all of the patients with GERD-induced chronic coughs also exhibited LPRD symptoms and signs. The majority of them might be identified as having suspicious LPRD because they had abnormal RSI and/or RFS. Dx-pH monitoring revealed that some patients experienced LPR episodes, the majority of which happened while the patient was in upright position. The majority of patients with GERD-induced chronic cough may have simultaneously suspected LPRD, and cough was one of their LPRD symptoms.

Regular laryngoscopy examination of the pharynx and larynx were recommended for individuals with chronic coughs, particularly those who do not exhibit symptoms of GERD.



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Papillary Thyroid Carcinoma Emerging from a Branchial Cyst: A Rare Case Report

Introduction: The thyroid gland develops from primordial thyroid migration, which occurs in the third week of embryonic life and emerges from the embryonic endoderm in the primitive pharynx floor. The presence of ectopic thyroid tissue can range from the base of the tongue to the final position of the gland and affect 7% to 10% of individuals. The tongue, larynx, trachea, esophagus, mediastinum, pericardium, diaphragm, and neck branchial cyst are all possible locations for ectopic thyroid. Ectopic thyroid tissue can appear at any age, ranging from the first month of life to 40 years old, in certain instances. Thyroid tissue that is ectopic to the normal gland may coexist in 7% to 10% of people. The presence of ectopic thyroid in two or three different places is extremely rare.¹ The diagnosis of branchial cyst-derived papillary thyroid cancer is rare and challenging to determine. Since ectopic thyroid tissue is uncommon within branchial cysts, a primary malignancy of papillary thyroid cancer may seem unlikely.² In this instance, the present case of lateral neck mass was seen, and postoperative histology revealed that the cancer was papillary thyroid carcinoma that developed in ectopic thyroid tissue inside a branchial cyst. A thyroidectomy was subsequently carried out, and the final histology revealed papillary cancer.



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Case presentation: A 42-year-old male patient admitted to hospital with complaints of enlarging left neck lesion. The patient had no previous medical history and non-smoker. An easily palpable, painless, and nontender lump on the left neck was the only anomaly found during a standard head and neck physical examination. A contrast-enhanced computed tomography (CT) scan revealed a solitary cystic mass measuring 3 cm × 3 cm × 3.5 cm located on the lower lateral neck, deep and posterior to the left sternocleidomastoid (Figure 1). Magnetic resonance imaging revealed a cystic mass that was consistent with a branchial cleft cyst, with low signal intensity on the T1 sequence and high signal intensity on the T2 sequence (Figure 2).



Figure 1. A computed tomography scan showing a cystic mass measuring 3 cm × 3 cm × 3.5 cm located on the lower lateral neck, posterior, and deep to the left sternocleidomastoid.

Under general anesthesia, the tumor was removed from the patient. A dark brown fluid mass measuring 3 x 3 x 4 centimeters that was lateral and in close proximity to the internal jugular vein was one of the intraoperative observations. Histological analysis revealed results consistent with a normal cystic lesion, although there was also lymphocytic infiltration. A representative section of the cyst revealed a complicated papillary-appearing tumor with fibrovascular centers and neoplastic epithelium lining them. Thyroxine-binding globulin (TGB), TTF-1, and CKAE1/AE3 were all detected positively in the immunohistochemistry test. Cytological and nuclear characteristics of papillary carcinoma were seen in the tumor cells (Figure 3). The exceptional histology results led to the decision to perform a thyroid gland ultrasound after surgery. These revealed two nodules: one on the right lobule measuring approximately 1.4 cm (TIRADS 4) and one on the left lobule measuring approximately 1.1 cm (TIRADS 4). Reasonably, a fine needle aspiration biopsy (FNA) guided by US was performed, and the results raised the possibility of thyroid gland papillary cancer (Bethesda grade V). Due to these factors, a complete thyroidectomy was carried out, and a subsequent histology revealed the existence of papillary cancer.

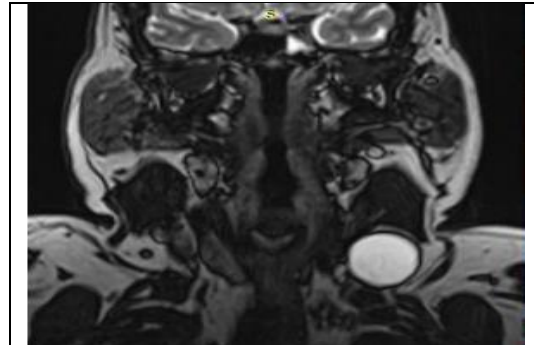


Figure 2. T2-weighted magnetic resonance imaging with high signal intensity.



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Discussion: In this case, a contrast-enhanced computed tomography scan located posteriorly and deeply to the left sternocleidomastoid revealed a solitary cystic mass measuring 3 cm x 3 cm x 3.5 cm on the lower lateral neck. The patient underwent a total thyroidectomy, and histology confirmed the existence of papillary cancer.² According to Papadakis CE et al., a neck CT scan showed a 3.3 x 3 cm cystic lesion in the left lateral neck that was compatible with a branchial or thyroglossal duct cyst and in touch with the left internal jugular vein and left sternocleidomastoid muscle. Under general anesthesia, the neck lump was surgically excised, and the pathology of the tissue showed that thyroid papillary cancer was present.¹ Surgical excision is the main course of treatment for symptomatic branchial cysts after the diagnosis with CT and ultrasound.³

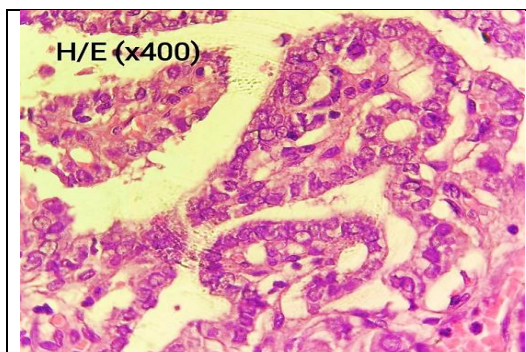


Figure 3. Histological sections showing the growth of papillary thyroid cancer within the wall of a branchial cyst (BCC)

Conclusion:

A primary malignancy of papillary thyroid cancer is a remote possibility as ectopic thyroid tissue is rarely detected within branchial cysts.

A computed tomography (CT) scan used to detect a thyroglossal duct cyst is most often associated with the hyoid bone and presents as a low-density, well-circumscribed cystic lesion in the center.

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