Otorinolaryngologie a foniatrie

ČESKÁ SPOLEČNOST
OTORINOLARYNGOLOGIE
A CHIRURGIE HLAVY A KRKU

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A CHIRURGIU HLAVY A KRKU

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Abstracts

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Abstracts

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AUDIOLOGY AND HEARING

Cochlear implantation in children under 12 months of age

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Introduction: Newborn hearing screening allows early detection of hearing impairment. As a result, many children with severe and profound hearing loss can be implanted in early childhood. **Aims:** The aim of our study was to compare the auditory perception and speech development outcomes of children with early implantation with two cohorts of prelingually deaf children. The first group was implanted between the ages of 1 and 3 years, the second one between the ages of 3 and 6 years. **Materials and Methods:** Our study included 15 patients implanted before the age of 12 months. We evaluated their auditory performance and speech perception and expression using the Categories of auditory performance (CAP) and our own scale Motol speech scale (MSS) at intervals of 6 months, 1, 2, 3 and 5 years after surgery. We compared their results with a group of 96 children who were implanted between the ages of 1 and 3 years and a second group of 30 children implanted between the ages of 3 and 6 years. **Results:** Early development was similar in all groups. At 5 years after surgery the group of patients implanted under 12 months of age showed better results in all categories. **Conclusion:** Although implantation in early childhood presents many challenges (risk of anaesthesia, anatomical conditions, cooperation of the child during rehabilitation...), the results of these children in terms of auditory perception and speech development are very good and they are approaching their hearing peers.

Experiences with sodium-thiosulfate as otoprotectant in pediatric oncology – a review

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Introduction: Cisplatin is a highly effective agent in paediatric oncology. But the permanent cost is ototoxicity: tinnitus in 15.9%; hearing loss in 50% and up to 75% in younger children and vertigo in a few. To avoid severe hearing loss occurring on chemotherapy, conventionally, individual cisplatin dose reduction, replacement by carboplatin or other chemotherapy, reduction of other ototoxic medications and modification of cranial irradiation have been applied. Sodium thiosulfate (STS) now offers

the opportunity to protect the inner ear, potentially updating current practice. **Aims:** To examine the knowledge on STS as otoprotectant and compare this with conventional strategies. **Materials and Methods:** A review of the literature and a summary of the combined experiences of the authors. **Results:** Intravenous STS as otoprotectant is approved by the US Food and Drug Administration, the European Medicines Agency, and the British Medicines and Health Regulatory Authority for paediatric patients receiving cisplatin for a non-metastasised localised solid tumour. Administering STS six hours after the cisplatin infusion reduces cisplatin-induced hearing loss (CIHL) without affecting cisplatin antitumour efficacy, with manageable side-effects. Close audiological monitoring should be mandatory. Prevention should start at the first dose of cisplatin as ototoxicity can occur from cycle one. **Conclusion:** Further discussion is required on: whether cisplatin storage in the inner ear causing further progressive hearing loss will be reduced after STS; the eligible tumour groups that need to be defined; other ototoxic substances and type of cranial irradiation to be considered; the risk benefit ratio for any particular child/adolescent and options for children with metastases.

Interrelationships between audiometric parameters across the lifespan

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Aging is associated with a complex decline in hearing functions, affecting both peripheral and central structures. To better understand this process, we measured a comprehensive set of auditory parameters in 291 healthy volunteers aged 20 to over 80 years. Our study focuses on exploring relationships between variables and how they vary with age and hearing status. We conducted three types of analyses: mutual correlations between variables, clustering of variables, and predicting speech comprehension ability based on fundamental auditory parameters. These analyses were performed in specific subgroups, such as individuals with excellent hearing thresholds or those within particular age groups. The findings reveal significant differences in variable relationships across subgroups and suggest that speech comprehension depends on different mechanisms based on age and hearing thresholds.

Auditory brain stem implant – first experiences in the Czech Republic

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Introduction: A cochlear implantation is a standard procedure, that helps to restore hearing to patients with severe to profound hearing loss. In case of contraindication or impossibility to introduce a cochlear implant (CI), e. g. due to obliteration of the cochlea, aplasia or severe hypoplasia of the auditory nerve, tumors of cerebellopontine angle and post-operative changes, etc. There is an option to introduce an auditory implant into the brainstem (ABI – auditory brainstem implant). Accurate electrode placement during surgery is very important for ABI to fix it properly. There is also a much greater risk of the occurrence of various types of parasitic stimulation. This may reduce the benefit of the implant. In children, the setting of a brain stem implant is quite complicated due to their poorer cooperation, lack of experience with auditory sensations and limited possibilities of using subjective and objective examination methods. **Methods:** We present the introduction of ABI in the first children in the Czech Republic in October 2022 and in November 2024. We used eABR monitoring to control electrode placement during operations and to create a model and verify safe stimulation during sound process or activation. We evaluated the development of auditory perception using gain curves and according to the Nottingham scale. **Results:** Both patients with a brain stem implant responded to sounds with the first activation of the sound processor. In the course of setting up after the operation, they gradually detected also other sounds and identified some of the words. No serious complications were noted during the operation or in the postoperative course. **Conclusions:** In some indicated cases, an auditory stem implant can be a suitable alternative to solving a profound hearing loss. Early postoperative results in the first Czech children appear to be optimistic. The auditory perception and speech production is monitored.

Binaural hearing and sound localization assessment in patients with Cochlear implant

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Introduction: Binaural hearing is important for sound source localization, particularly in noisy and social environments. Individuals with unilateral or bilateral hearing loss (HL) face significant challenges in this aspect, impacting their daily lives. Cochlear implants (CIs) can effectively restore sound localization for those with severe to profound HL. Current assessment tools include loudspeaker tests and questionnaires such as the Speech spatial and qualities of hearing scale (SSQ), Quality-adjusted life year (QALY), and Short form health survey (SF-36). **Aims:** This study aimed to systematically review literature to identify the most common tests evaluating binaural skills, sound localization abilities, and quality of life. **Materials and Methods:** A systematic literature review was conducted from 2013 to 2023 across PubMed, Embase, and Web of Science databases, according to PRISMA guidelines. **Results:** A total of 92 out of 253 studies met the inclusion criteria, encompassing 2,736 patients with monolateral CI, bilateral CI, or bimodal CI + HA, aged 2 to 88 years. In the majority of cases (84%) localization tests with loudspeakers were performed. Protocols widely varied, employing from 1 to 24 loudspeakers, positioned at different angles. The AB York was the most frequently protocol used (5%). Other testing methods included visual reinforcement and virtual reality; in one case SSQ test was administered. Studies suggested that impaired localization abilities can persist after CI although these skills may improve in time. **Discussion:** Up to now, no standard protocols are used to evaluate binaural hearing and sound localization abilities in patent with CI. Combining loudspeaker tests with tools like SSQ, QALY or SF-36 is crucial for a comprehensive evaluation of patients' conditions and their quality of life. **Conclusion:** This study emphasizes the importance binaural abilities assessment in patients with CI. Future research should aim for more sensitive measures and standard protocols integrating patient-reported outcomes with objective evaluations.

Results of hearing screening program for intellectually disabled people in Special Olympics events (Healthy Hearing program) in the Czech Republic

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Hearing screening is one of 8 health screening programmes organized by Special Olympics International for people with intellectual disability. These screenings are organised during Special Olympics sports events annually over the world, also in the Czech Republic. Hearing problems and ear problems are more common in people with intellectual disability than in the general population. These problems are very often unknown, because usually not reported by people with intellectual disability nor by their families or teachers. The hearing screening consists of the ear canal inspection, otoacoustic emissions measurement (DPOAE) in the first step. The second step (tympanometry and pure tone audiometry including bone conduction) follows immediately for "refer" results from the first step. The individual report and recommendation for follow-up based on screening results is given at the end. We will discuss our data (N = 250) collected at the Special Olympics events in Brno in 2014 and in Jihlava 2024. We will also compare it with data gathered in other Healthy Hearing programs in Europe.

Our experience with TRT (Tinnitus retraining treatment) in treatment of subjective tinnitus

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Introduction: Tinnitus is the conscious awareness of a tonal or composite noise for which there is no identifiable corresponding external acoustic source, which becomes tinnitus disorder – when associated with emotional distress, cognitive dysfunction, and/or autonomic arousal leading to behavioral changes and functional disability. It is frequently associated with Menières disease, hearing loss, otosclerosis or vestibular schwanoma. More than 200 drugs list tinnitus as a potential side effect. Recent studies showed that anxiety associated with COVID-19 has been shown to enhance tinnitus. **Aims:** The aim of this study is to evaluate the general effect, sufficiency and patient's compliance to TRT. **Materials and Methods:** In this 1-year-long study of

112 patients we would like to present our experience with TRT adhering to the categorization, diagnostic and therapeutical protocol. We have been collecting reported data on regular check-ups while using specific questionary forms structured by Pawel J. Jastreboff and Tinnitus handicap inventory. **Results:** We observe various effects depending on category, age, psychological state, social handicap, other ear related problems or previous experiences with different treatments. **Conclusion:** Tinnitus is a quite common problem which affects 10–17% of the general population, even more prevalent in the elderly over 65 years of age. For about 50% of this population is prolonged tinnitus significantly annoying causing them to seek medical help. We conclude that TRT is an effective method leading to habituation of perception and reaction to the annoying tinnitus. In combination with adequate counselling and psychological treatment can lead to a significant improvement of the patient's quality of life.

Surgical treatment of otosclerosis

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Introduction: Otosclerosis is one of the most common causes of acquired hearing loss caused by fixation of the stapes footplate due to the abnormal bone metabolism of the otic capsule. The etiology of the disease is most likely multifactorial, with a hereditary predisposition being assumed. The principle of surgical treatment is to restore the mobility of the ossicular chain by creating a communication, a fenestra, into the vestibule at the site of the fixed disc and replacing the stapes with a prosthesis. **Material and Methods:** A retrospective analysis evaluated 266 cases of stapedial surgery performed in 2019–2023, including at the Department of Otorhinolaryngology and Head and Neck Surgery of the 1st Faculty of Medicine, Charles University and the Faculty Hospital in Motol, Prague. 177 procedures were performed in women, 89 in men. The average age of patients at the time of surgery was 45 years. Preoperative and postoperative audiometric outputs were evaluated in all patients and their influence by demographic parameters and technical parameters of the operation was then statistically processed. **Results:** Overall, the patients had a significant correction of conductive hearing loss. The success rate of the procedure according to the postoperative air-bone gap ≤ 10 dB was 64.66%, one case of postoperative deafness was recorded. Moreover gender, age, surgical approach and stapedotomy method had a significant influence on audiometric results. Vertigo occurred in 16 cases, significantly more often in after stapedectomy. **Conclusion:** Surgical treatment of otosclerosis is a safe solution leading to hearing improvement in most patients.

Asymmetric and unilateral hearing impairment in children: etiology, audiologic factors, and typical audiograms

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Introduction: Asymmetric and unilateral pediatric hearing loss (AHL, UHL) originate from large interaural differences in hearing loss (HL) severity. To date, clinical characteristics of affected children have not been sufficiently examined. **Aims:** We provide etiologic and audiologic factors of children with AHL and UHL from the German Registry of Hearing Loss in Children. **Materials and Methods:** Children with AHL (N = 783) had averaged hearing thresholds of at least 20 dBHL on both ears (PTA-4) and at least 30 dB interaural difference at two or more frequencies (0.5–4 kHz). Children with UHL (N = 2,412) had averaged hearing thresholds of at least 35 dBHL on one ear (PTA-4 or ABR), second ear is normal hearing (< 20 dBHL). Etiologic and audiologic factors were compared using absolute standardized mean difference (ASMD). Audiograms (N = 2,455 ears; PTA-4) were mapped to standard audiograms, using shape-similarity and minimum variance. **Results:** Hereditary HL was more common in AHL--children than in the group with UHL (24% AHL vs. 16% UHL; ASMD 0.19). In both groups, about 25% of children had a family history and about 50% of children had comorbidities alongside their HL. Risk factors affected more children with AHL than UHL (36% AHL vs. 24% UHL; ASMD 0.27). In the subgroup of children with comorbidities, combined HL occurred more frequently in AHL children (16% AHL vs. 8% UHL; ASMD 0.24). Conductive HL was most common in UHL children (8% AHL vs. 34% UHL; ASMD 0.66). The most common audiogram configuration in both groups was pantonal or high-frequency hearing loss. In 60% of children with AHL, audiogram configurations were different between both ears. **Conclusion:** Preliminary results suggest a need for a subgroup-specific approach, for example regarding the proportion of conductive and combined HL in children with comorbidities. As interaural differences in audiogram configurations were common, they should be considered when assessing binaural hearing.

A rationale for hearing screening programs in elderly

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Introduction: Despite its high prevalence among individuals aged 60 and older, hearing impairment remains underdiagnosed and therefore, undertreated. Lack of routine hearing screening in older adults may be an important gap that significantly impacts quality of life, cognitive function, and social engagement. Early identification through screening can facilitate timely interventions, such as hearing aids or auditory rehabilitation, which have been shown to improve communication, emotional well-being, and overall health outcomes. **Aims:** Estimate the prevalence of undiagnosed hearing loss and evaluate the detection rates achieved through screening programs; compare the literature-reported accuracy, feasibility, and acceptability of different hearing screening tools and identify best practices for implementing hearing screening programs in diverse settings, such as primary care clinics, senior centers, and community health programs, in elderly populations. **Materials and Methods:** It developed a scoping review protocol following the PRISMA-ScR guidelines. Peer-reviewed articles, grey literature and conference abstracts. A comprehensive search of electronic databases was conducted. Two independent reviewers will screen and select studies, with disagreements resolved through discussion or consultation with a third reviewer. The data obtained were summarized in the form of narrative synthesis and visual mapping. **Results:** The prevalence of undiagnosed hearing loss in elderly populations is high, particularly among older age groups and underserved populations. Studies estimate that 20–40% of elderly individuals have undiagnosed hearing loss. Detection rates vary depending on the screening tool and setting. Best practices vary according to primary care clinics, senior centers or community health centers. **Conclusion:** Screening programs are effective in increasing detection rates and improving outcomes, but their success depends on the tools used, the setting, and the availability of follow-up care. The literature highlights that no single screening tool is perfect for all settings related to elderly populations. This justifies the efforts to design and develop screening programs for the elderly.

Cochlear implantation outcomes in patients with far-advanced otosclerosis

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Introduction: Otosclerosis can affect the cochlea and lead to a progressive sensorineural hearing loss. Cochlear implantation (CI) is a possible solution for hearing rehabilitation in these patients. However, CI in otosclerotic cases might show difficulties such as challenging scala tympani insertion because of the ossification or facial nerve stimulation due to transotic conduction from the electrode bundle. The aim of this retrospective study was to evaluate perioperative difficulties and hearing outcomes in patients with far-advanced otosclerosis (FAO) undergoing cochlear implantation. **Methods:** A retrospective analysis of 29 ears in 24 patients who underwent cochlear implantation for hearing loss due to advanced otosclerosis at the Department of Otorhinolaryngology, Head and Neck Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital, Prague between years 2015–2023. Perioperative difficulties with electrode insertion, electrode position, postoperative complications and hearing outcomes were assessed. **Results:** Improved hearing with a better mean value for the pure tone average and speech intelligibility was registered in more than 90% of patients. Severity of ossification of cochlea analyzed on preoperative CT scans and MRI was associated with electrode insertion difficulties; however, a full insertion was accomplished in more than 95% of cases. In 5 cases scala vestibuli insertion was necessary. Cochlear ossification and extent of surgical approach did not predict a poor hearing outcome. In spite of the extensive surgical approaches to cochlea, a permanent severe vestibular lesion due to the surgery was found only in 1 patient. **Conclusion:** Despite more complicated surgery in patients with FAO, which can result into partial cochlea resection and scala vestibuli insertion, the complication rate is low and effect of CI on hearing restoration is favourable in most of the cases.

Sudden bilateral sensorineural hearing loss as a manifestation of Susac syndrome

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Introduction: Susac syndrome (SS) is a rare autoimmune condition. It is also known as retinocochleocerebral vasculopathy or SICRET syndrome (small infarctions of cochlear, retinal and encephalic tissue). It is characterized by microangiopathic multifocal changes that affect the retina, brain, and cochlea. Hearing loss may be one of the first initial presentation of the clinical triad which is often ignored till the other organs get involved. In spite of the ear being one of the main organs involved in the SS, few audiologists are aware of this condition. **Aim:** To present rare condition with focus on otological and audiological aspect of Susac syndrome. **Materials and Methods:** A 31-year-old female patient was referred to audiologist for hearing loss consultation. She was admitted in neurological ward for moderate to severe recurrent unilateral headache since 5 years. Her medical history revealed an episodic sudden hearing deterioration with tinnitus 4 years ago. Neurological, audiological and oculomotor examination as well as psychological examination were performed. Subjective and objective audiological tests were performed and bilateral moderate/severe sensorineural hearing loss was found. MRI examination showed multiple hyperintense lesions (FLAIR, T2), mainly in the frontal lobes of both hemispheres and additionally lesions in the corpus callosum which are considered to be almost pathognomonic. **Conclusion:** Hearing loss can be associated with SS. SS can present with hearing loss as the first presenting symptoms. This rare condition should be known to audiologists.

Disease patterns in individuals with intellectual disabilities with and without hearing loss

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Background: A higher disease prevalence is described in individuals with intellectual disabilities (ID) and hearing loss (HL). HL disproportionately occurs in ID and often remains undetected. We assessed the medical history of individuals with ID with and without HL to evaluate: 1. Which diseases are most common in ID and HL; 2. How disease prevalence differs between those with and without HL; and 3. Whether severity of ID or HL influences disease quantity, medication intake, or surgeries. **Methods:** This population-based, prospective cohort study included 1,053 participants with ID and applied a multi-method approach combining assessment of medical history via questionnaire/interview and on-site hearing screening. The cohort spanned ages 1–90 years. Diseases were coded according to the International classification of diseases 11th revision (ICD-11). Statistical analysis included descriptive statistics and used binary logistic regressions to assess associations between common diseases and age, sex, HL, and ID grade. **Results:** In our data, individuals with ID and HL show higher percentages of a majority of diseases, increased multimorbidity, and greater medication intake than individuals with ID without HL. **Conclusion:** Heightened awareness and multidisciplinary management are essential to ensure equitable care and prevent secondary complications.

How to implement a universal program of hearing screenings, diagnostics, and interventions for people with intellectual disabilities in their living environment?

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Introduction: People with intellectual disabilities (ID) are 5–10-times more likely to have hearing impairments than the general population. These often remain undetected and untreated. **Aims:** A large cohort study investigated the effectiveness, feasibility, and costs of an outreach program of repeated hearing screenings, diagnostics, interventions, and monitoring of people with ID in their living environment compared to an invitation-only program in a clinical setting and to standard care. **Materials and Methods:** 1,052 people with ID of all ages underwent hearing screenings and reference measurements in their living environment (schools, nurseries, homes, workplaces). If they failed the screening, audiometric diagnostics were carried out and, in case of hearing loss, therapy or further external diagnostics were initiated or existing therapy was monitored. A control cohort of 141 participants was invited to a clinic for the same procedure. The program was repeated 1 year later to review the treatment outcome. Furthermore, prevalence of hearing loss, comorbidities and the hearing-related quality of life (QoL) of the participants were determined, and costs were analyzed and modelled. **Results:** In the cohort visited, hearing loss was diagnosed in 42% of cases, 68.3% of which were previously unknown. Screening and diagnostics lead to clear results in 95% of cases. Screening specificity was 96.3%, sensitivity 98.0%. Hospital invitations in the invited cohort were not accepted. Certain comorbidities (e. g. hypertension) frequently coincided with hearing loss. The severity of the hearing loss correlated significantly with hearing-related QoL. Recommended therapies were only carried out to a small extent (24% of newly prescribed hearing aids). **Conclusion:** The outreach program is feasible, valid, and essential for improving social participation and QoL of people with ID. However, as the implementation of interventions represent a significant barrier, a hearing rehabilitation program involving those affected and their caregivers that includes hearing and communication training, is crucial.

Long-term hearing outcomes and surgical strategy in revision stapes surgery for otosclerosis

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Introduction: Revision stapes surgery is delicate and relatively rare procedure. It is carried out on 5–10% after primary stapes surgeries. It includes a heterogeneous group of patients for indication, perioperative finding, and the surgical strategy. **Aims:** The aim of the study was to evaluate the cause of poor hearing after primary stapedotomy and to evaluate the results and safety of revision stapes surgery. **Materials and Methods:** Retrospective analysis of 58 patients after 63 revision stapes surgeries over a period of 13 years (2012–2024) was done. The majority of the group were females, with a female-to-male ratio of 46 : 12. We review the peri-operative findings, type of piston and surgical strategy. Long-term hearing outcomes were evaluated in 47 cases. Pre- and post-operative air and bone conductive thresholds, pure tone average (PTA), air-bone gap (AGB) at 500–2,000 Hz were measured with minimum of 1-year follow-up. **Results:** The most common perioperative finding in our series was the resorption of the long process of the incus in 22 cases, complete dislocation of the piston in 8 cases, loose loop of the piston in 8 cases and obliterated stapedotomy in 7 cases, followed by less frequent findings. We have correlated findings with the time of the primary surgery and type of the piston used. Surgical strategy was discussed. A mean postoperative air-bone gap closure within 10 dB occurred in 28 cases (59%), within 20 dB in 44 cases (93%) We achieved an average improvement in PTA of 19 dB. In one case, we noted a postoperative deterioration of the bone threshold (2%). **Conclusion:** The results of revision stapes surgery depend on the careful evaluation of the perioperative finding and surgical strategy. The outcome is not individually predictable but generally favorable. In experienced hands it is relatively safe procedure with a low risk of deafness.

Behavioural audiometric methods – specifics of hearing examination in the youngest children

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BAM (behavioral audiometrics methods) are accepted as the gold standard for examination and assessment of the state of auditory perception in the youngest children by the professional community. Examinations of behavioural reactions to auditory stimuli in the youngest children are fundamental to decision-making within therapeutic and rehabilitation procedures that follow. We have been performing BAM (incl. VRA – visual reinforcement audiometry) examinations for more than 10 years at our clinic. Only thanks to practical experience and knowledge gained by using this method, we are able to examined those kids for whom it would only be possible to rely on objective audiometric methods. The combination of the results of objective audiometry and behavioural audiometric methods (e. g. VRA) emergers as an effective way in the diagnosis and therapy in the youngest patients with hearing impairment. The aim of this presentation is to demonstrate how and when behavioral audiometric methods permeate and enter into the care of varied diagnostic groups of children with hearing impairment, while highlighting the possibilities to standardize the procedure itself.

Treatment of sensorineural hearing loss in case of lesions of the central parts of the auditory system due to blast injury

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Introduction: In modern full-scale warfare, the intensive use of powerful explosive weapons has resulted in a significant number of military personnel and civilians sustaining damage to the auditory system, often in combination with other injuries, including brain trauma. **Aims:** To increase the effectiveness of treatment for sensorineural hearing loss (SNHL) associated with lesions of the central auditory system due to blast injuries. **Materials and Methods:** 54 patients with SNHL due to blast injuries, involving lesions to the central parts of the auditory system, were examined and treated. Diagnostic methods included audiometry, auditory evoked

potentials, and electroencephalography. **Results:** In addition to hearing loss, patients commonly reported tinnitus, impaired speech intelligibility, headaches, and dizziness. Based on the examination results, a treatment plan was prescribed. The complex treatment included corticosteroids, nootropics, vascular drugs, and sedatives. Instrumental examinations, including objective tests, showed positive results in 94.4% of cases. The patients' hearing thresholds authentically improved, instrumental test results moved toward normalization, the intensity of tinnitus decreased, headache frequency reduced, and speech intelligibility improved. **Conclusion:** A comprehensive treatment approach for patients with SNHL due to damage to the central parts of the auditory system caused by blast injuries – incorporating steroids, nootropics, vascular drugs, and sedatives when indicated – enhances treatment effectiveness and achieve a positive result in most cases

Tympanic paraganglioma – overview of 38 patients

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Introduction: Overview and evaluation of hearing outcomes, postoperative findings and complications of patients who were diagnosed and treated with the tympanic paraganglioma (T-PGL). **Material and Methods:** In the period 2003–2023, a total of 38 patients with T-PGL were diagnosed in the Department of Otorhinolaryngology and Head and Neck Surgery, University Hospital Motol, Prague. The diagnosis T-PGL was established after evaluation of clinical and radiological findings. 33 patients underwent surgical resection of the tumor (20 after preoperative embolization), 4 patients for associated internal and neurological diseases were only followed up and 1 patient was indicated for primary radiotherapy due to tumor progression with long-term follow-up and contraindication to surgical treatment. Pre- and postoperative clinical findings, tone audiometry in 12 patients, resection success rate, and postoperative complications associated with surgical therapy were retrospectively evaluated. T-PGL was classified according to the modified Fish classification. **Results:** There were 35 women and 3 men in the age range from 25 to 77 years (mean age 55.4 years). Before treatment, 33 (86.8%) of them reported hearing impairment, 22 (57.9%) had pulsatile tinnitus, which persisted after surgery in 7 (37.8%) of them. Pain in the affected ear was presented in 7 (18.4%) patients, 4 (57.1%) of which resolved postoperatively. Vertigo was observed in 1 patient, which disappeared after surgery. In the 12 patients with available audiometric documentation, 10 had an air-bone gap (ABG) less than 15 dB. The mean preoperative ABG was 22.6 dB, and postoperatively it was 7.1 dB. One patient was deaf preoperatively and underwent cochlear implantation subsequently in the second stage. One patient became deaf postoperatively. **Conclusion:** Tympanic paragangliomas are the most common benign tumors of the tympanic bone, affecting mostly women in later life and are not endocrinologically active. Therapy is surgical with a high probability of tinnitus resolution and hearing improvement.

Hearing-related quality of life of people with intellectual disabilities and hearing loss

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Background: People with intellectual disabilities are more likely to have hearing loss than the general population, but in most cases it remains unrecognised and untreated. The aims of this study were to determine whether the hearing status of people with intellectual disability can be correctly evaluated by themselves and/or their caregivers and whether hearing loss compromises the hearing-related quality of life of people with intellectual disability. **Design:** In the prospective cohort study, HörGeist, 1,053 individuals with intellectual disability received hearing screening and, where necessary, diagnostic assessment and intervention within their living environment. A self-developed multi-part questionnaire including items regarding hearing-related quality of life was answered by caregivers of the participants and was cross-checked with the results of the hearing tests. A multivariable regression was performed to verify an association between the hearing-related quality of life score and the degree

of hearing loss. **Results:** Hearing loss was diagnosed in 463 (44.0%) participants, thereof only 120 (25.9%) cases were known beforehand. In 404 participants (59.0%) and 580 caregivers (61.5%) hearing status was rated correctly; it was overestimated in 34.6% and 33.4%, respectively (sensitivity: 0.223/0.271, respectively). The mean hearing-related quality of life score was 3.0 of 4 possible points. The multivariable regression revealed a small but significant association between the degree of hearing loss and hearing-related quality of life ($\beta = -0.069$; $P < 0.001$; adjusted $R2 = 0.081$). **Conclusion:** Regular audiometric tests and intervention seem useful for improving the hearing-related quality of life in people with intellectual disability.

RESEARCH FORUMS

SPEECH AND LANGUAGE

Stuttering anticipation in persons with stuttering: a preliminary study

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Introduction: People who stutter experience the phenomenon of anticipation-the sense that stuttering will occur before it is physically and overtly realized. However, the "anticipation effect," is poorly understood despite much investigation into this phenomenon. There are evidences that some people who stutter have the ability to anticipate a stuttering moment and are important for many currently used treatment techniques having maximum effectiveness. A systematic investigation of how people who stutter respond to anticipation has not been previously reported. In the present paper, possible neurological mechanisms involved in generating conscious anticipation are also discussed, along with directions for future research. **Aim and Objectives:** a) To find out qualitative analysis of experience of anticipation of stuttering; b) To analyze self-report evidence of what people do in response to anticipation of stuttering; c) To determine the extent to which this anticipation occurs. **Method:** Thirty adults who stutter (age range 19 to 40 years) indicated on a Likert rating scale the extent to which they anticipate stuttering and answered three open-ended (written) questions regarding how they respond to anticipation. **Results:** Results revealed that all participants experienced anticipation at least sometimes and more than half of the participants reported experiencing anticipation often or always. The extent to which participants reported experiencing anticipation was not related to stuttering severity, impact, or treatment history. Participants were just as likely to view anticipation as helpful as they were to view it as harmful. **Conclusion:** This can be concluding that adult persons who stutter (PWS) experience anticipation, and the majority of them report doing so at least often. PWS respond to this anticipation by altering the speech production process in various ways. It has been highlighted that the that anticipation plays an important role in how stuttering behavior evident itself.

Biomechanical evaluation of vocal function in head-neck postures: implications for voice

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Head-neck positions significantly impact various parameters such as lateralization, rotation, elevation, depression, and compression of the vocal tract and its intrinsic structures, including the true vocal folds. This workshop aims to examine and experiment with the biomechanical effects of different head-neck postures on the larynx and vocal tract, using recorded endoscopic demonstrations to illustrate these exercises. Biomechanical assessments of laryngeal function and anatomy were conducted using simple maneuvers like head extension, flexion, and rotation, as well as combined movements involving rotation and flexion, or rotation and extension. These tests were designed to evaluate the different biomechanical compartments of the glottic plane. The postural constraints of the head-neck, coupled with phonation, were analyzed through specific mechanisms and predetermined parameters, such as vowels, frequency, intensity, timbre, duration, and vibratory mechanics. These parameters allowed for the assessment of vocal fold symmetry, edge-to-edge closure quality, tensioning, vibration of the vocal fold cover, laryngeal elevation, body-cover decoupling, and more. The perceptual evaluation of the outcomes from these tests is based on vocal qualities such as breathiness, roughness, instability, breaks, gaps, whistling, asthenia, tremor, and diplophonia. The proposed tests are both sensitive and specific, suitable for use in habilitative and rehabilitative settings. They are effective in assessing vocal health, determining the morpho-functional state of the vocal folds, and providing prognostic indicators for voice disorders. Practical exercises for evaluating these measures are included in the workshop, allowing participants to engage directly with the concepts.

Is bilingual acquisition advantageous or does it result in negative transfer?

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Introduction: There are clear indications in gathered data that bilingual children's speech acquisition differs from that of monolinguals, particularly in terms of phonological development. The possibility of two phonologies affects the course of acquisition. The claim that children in a bilingual learning context may be at an advantage for spoken phonological acquisition is supported many researchers who looked at children exposed to more than one language. However, Negative transfer has also been reported. **Aim:** This study gathered data from a sample of Maltese bilingual and monolingual children in order to compare results of the children's speech skills depending on whether they were primarily monolingual or bilingual speakers, with the aim of carrying out a cross-linguistic comparison to explore positive or negative transfer of bilingual acquisition. **Materials and Methods:** A sample size of over 200 children was used to gather data. Children, aged between 2.0–6.0 years of age were asked to name pictures that represent phonemes of Maltese and English by using a bilingual Maltese-English assessment. **Results:** Data was analyzed in terms of percentage consonants correct, percentage vowels correct, error patterns, consistency of production and oro-motor skills. Z scores, percentiles and standard scores were calculated for different age cohorts on a six-monthly basis and for different parameters used in assessing children's speech. Results supported the claim of bilingual advantage for speech acquisition, particularly from 3.0 years of age onwards. Clinical implications were drawn up in relation to the interpretation of assessment in bilingual children.

Effectiveness of the "nature-method" using speech mentors in the context of self-help for adults who stutter

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Introduction: For decades, many self-help groups for adults who stutter in Germany are practising a speech technique using the so-called "nature-method", but evidence on the effectiveness of self-help and the "nature-method" is lacking. Core of the method is speech mentorship: people who have been helped by the "nature-method" train others. Building blocks are: 1. a different way of speaking (slower; shorter speech segments; breaks; flowing emphasis); 2. breathing technique; 3. mental training. Also central is the direct inclusion in self-help groups. **Aims:** This study aimed to examine the extent to which an improvement in fluency and a reduction in psycho-emotional stress can be achieved with help of the "nature method". **Methods:** Seventeen participants trained the "nature-method" for 2 years, 17 participants in the control group did not. Before and after, videos were made in three speaking situations (reading aloud, conversation, lecture) and the stuttering-related quality of life was recorded using the Overall assessment of the speakers' experience with stuttering. Stuttering severity was assessed using the Stuttering severity instrument (SSI-4). Speech naturalness was rated on a 9-point scale. **Results:** While there was no significant difference in stuttering severity between the intervention and control groups pre-intervention, a significant reduction was achieved with the "nature-method". Compared to the control group, the intervention group achieved a significantly lower percentage of stuttered syllables ($P < 0.001$), shorter stuttering events ($P < 0.001$) and less accompanying motor behavior ($P < 0.001$) after 2 years, and the naturalness of speech also improved. Socio-emotional complaints also decreased more in the intervention group than in the control group. **Conclusion:** Training methods in the context of self-help and the establishment of speech mentors can have positive effects on speaking skills and quality of life for adults who stutter. The "natural method" could therefore enrich the intervention repertoire for them.

Verification of the causes of speech development disorders in children

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Introduction: Diagnosis of speech disorders in children requires a complex diagnostic procedure and some specialistic team. It is necessary to identify the causes of delayed language acquisition in the context of assessment auditory functioning, the child's development in the motor sphere, cognitive, emotional and social and observe the dynamics of the following changes Aim: To study the causes of speech-language delay among children aged 3–6 years. **Material and Methods:** 73 children with delayed speech development aged between 3 and 6 years were included in the study. The parents of these children were asked to complete a questionnaire. The child's morbidity history and risk factors for speech delay were recorded. The speech level was assessed by a speech therapist. Objective audiological tests were performed to assess hearing levels. Dick's intellectual potential was also assessed in a psychological examination. **Results:** Children were referred with suspected: hearing loss (45%), autism (30%), auditory processing disorder APD (16%), dyslogia (5.5%). Verification of the primary diagnosis has resulted in a change of diagnosis and additional diagnoses: alalia prolongata, multilingual family environment, virtual autism. **Conclusions:** 1. Mental retardation is underestimated among children with delayed speech development; 2. Speech disorders caused by inadequate stimulation – virtual autism/multilingual environment – is an increasingly common diagnosis, which should be taken into account in the differential diagnosis; 3. Hearing impairment is still an important cause of speech disorders.

Intensive speech therapy for pediatric dysphonia: a collaborative approach for effective voice rehabilitation

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Vocal nodules are a leading cause of pediatric dysphonia. Dysphonia prevalence in school-age children ranges from 6 to 23%. A significant challenge in pediatric dysphonia therapy is identifying effective treatment, ensuring parental engagement, patient compliance, and skill generalization. We propose a novel, intensive approach for the pre-voice mutation stage. The model includes assessment, therapy with a physiological framework, individualized protocols, and a focus on learning transfer. It begins with an assessment session involving both the child and parents, followed by a 5-day group therapy program (8 hours per day) and 2–3 follow-up sessions spaced 1–2 weeks apart. Therapy exercises are practiced in the child's natural environment to reduce the discrepancy between therapeutic and everyday contexts. Biomechanical exercises are introduced in a playful manner with active therapist involvement. The experiential methodology includes laughter exercises to break down communication barriers and vocal strain-reducing exercises targeting subglottic pressure, fold-fold impact stress, laryngeal constriction, and resonance optimization. Participants reflect on their individual experiences during exercises. This intensive model enhances parental involvement by reducing appointments, facilitating independent practice, and lightening the daily burden, allowing parents to focus on emotional support and recovery. The approach induces biomechanical improvements and fosters skill generalization, making therapy enjoyable in a positive, collaborative environment. All stages of the therapeutic model are explored during the workshop.

A pilot study of using the Complete vocal technique-voice therapy (CVT-VT), a pedagogic method to improve voice and vocal function in singers and actors, in the treatment of patients with primary muscle tension dysphonia (pMTD)

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Introduction and Aims: This study was designed to assess the feasibility and acceptability of using the Complete vocal technique, a pedagogic method to improve voice and vocal function in singers and actors, as a form of voice therapy (CVT-VT) in patients with primary Muscle tension dysphonia (pMTD type I–III). **Methods:** Patients were recruited from a Teaching hospital voice clinic during the 6-month trial period into this single-arm, prospective cohort designed study. Eligible patients were given up to 6 CVT-VT sessions delivered by a non-clinical CVT practitioner (CVT-P) using a video link. The first aim was to assess the feasibility of recruiting to an a priori target of 10 patients. The second aim was to measure pre- and post-therapy changes in the voice and voice function using a multidimensional assessment (self-evaluated Voice handicap index), patient goals for treatment, throat symptoms (VTDS – Vocal tract discomfort scale), Maximum phonation time (MPT), a range of acoustic and electroglottographic measures and blinded auditory-perceptual evaluation of the voice. The third aim was to assess the acceptability of the CVT-VT to the patients and the CVT-P using feedback questionnaires. **Results:** Fourteen patients consented to take part with 11 completing the study protocol exceeding the target. All measures, except the MPT, improved demonstrating better control, loudness, coherence, and clarity of the voice with reduced instability, variability, and perceived limitations and discomfort. 49.3% of 138 symptom goals resolved or were much improved. All patients and the CVT-P rated the therapy very satisfactory or satisfactory. **Conclusions:** It is feasible to recruit patients for CVT-VT and is an acceptable method to patients and the CVT-P. CVT-VT improves the voice and vocal function using a multidimensional range of measures and warrants further evaluation as a tool for voice therapy in patients with pMTD.

Optimizing arytenoid movement in vocal production: an exercise protocol

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The cricoarytenoid joint plays a crucial role in vocal quality and endurance. However, it is often overlooked in vocal training and rehabilitation. Recent endoscopic observations have shown that even minor dysfunctions in arytenoid mobility can significantly impact the voice, particularly in high-performance contexts. This study proposes an innovative exercise protocol aimed at enhancing arytenoid movement, reducing functional asymmetries, and optimizing muscular coordination to improve vocal quality and prevent vocal fatigue. The protocol consists of five main phases with many exercises: 1. Relief breath and closure: An exercise designed to stimulate maximum arytenoid excursion, improving their joint mobility. 2. Fast opening and closing with /i/: Exercises focusing on optimizing neuromuscular coordination and improving symmetry in arytenoid movement. 3. Progressive twang: Gradual introduction of twang to improve arytenoid control and glottic closure. 4. Voluntary closure with force and maximum opening: Stimulating maximum joint excursion to enhance arytenoid mobility and prevent tension imbalances. 5. Low--resistance growl (/uà/): An exercise to train the amplitude of arytenoid movement, reducing rigidity and improving fluidity in glottic opening and closing. Application of this protocol to singers and vocal professionals has led to significant improvements in glottic closure management, reduction of asymmetries, and smoother arytenoid movement. Endoscopic observations revealed improved arytenoid symmetry and reduced muscular compensation. The exercises also proved effective in combating vocal fatigue, improving both the duration and efficiency of vocal performance. Additionally, this protocol can be beneficial for healthy voices to reduce fatigue and increase vocal endurance. It is also particularly valuable for patients with complex conditions such as

rheumatoid arthritis, which affects the cricoarytenoid joint, offering an approach to improve joint mobility and alleviate associated vocal issues. This protocol provides an innovative solution for optimizing arytenoid control and preventing vocal fatigue, with positive implications for both healthy and compromised voices, as well as for clinical rehabilitation.

Effectiveness of therapy for developmental language disorders in different settings – a randomized controlled trial

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Introduction: Research on the therapy of developmental language disorders (DLD) is increasingly focusing on their settings, dose, frequency, intensity and qualitative therapy components. **Aim:** In a randomized controlled trial (RCT) we investigated the effectiveness of DLD therapy in the settings a) extensive vs. intensive; b) individual vs. small group; c) face-to-face vs. tele-; d) outpatient vs. inpatient therapy compared to the usual extensive face-to-face individual therapy once a week (standard therapy). **Material and Methods:** After randomized allocation to 4 groups of 51 children each (standard therapy, extensive individual teletherapy, intensive inpatient therapy, intensive outpatient group therapy), 204 children (3.0–6.11 years; mos.) with at least moderate DLD received 20 sessions of language treatment. A waiting-contrast design was created by an intragroup second randomization. Speech test scores (vocabulary, grammar, speech perception, phonological working memory) and the percentage of correctly formed consonants were recorded at the start of the study (T0), 12 weeks later (T1), and one year after the start of therapy (T2). **Results:** The overall score of all language tests showed long-term (T2) progress for all settings; in the short term (T1), natural language progress exceeded the effect of standard therapy. The greatest progress in all language domains except for language comprehension was achieved by teletherapy, whose overall effectiveness significantly exceeded that of standard therapy. Outpatient group therapy, which performed best in language comprehension, fell just short of significance. Standard therapy had the best effect on speech sound production and phonological working memory and the least effect on vocabulary. Inpatient speech therapy for children with persistent DLD was also effective in the long term in all domains except grammar. **Conclusion:** Teletherapy and group intensive outpatient therapies, which have not been standard practice to date in Germany, should be given greater consideration in speech-language therapy practice and indications for inpatient therapies should be provided generously.

Vocal tract discomfort awareness among otolaryngologists and speech and language therapists

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Introduction: Vocal tract discomfort (VTD) refers to sensations of discomfort, pain, or irritation in the throat, anterior neck, or vocal cords, often arising from vocal use. **Aims:** This study investigates the awareness and management practices of VTD among otolaryngologists and speech and language therapists (SLTs), aiming to guide future research on its assessment and management. **Methods:** An online survey was distributed to UK and Irish otolaryngologists and SLTs of all training levels, using relevant associations and social media for outreach. Participants were asked about their familiarity with the Vocal tract discomfort scale (VTDS), evaluation methods, and management recommendations. **Results:** Sixty-six participants (41 SLTs, 25 otolaryngologists) responded. 70% of otolaryngologists were unfamiliar with the VTDS, compared to 75% of SLTs who were familiar. Regarding evaluations, 95% of otolaryngologists used flexible transnasal endoscopy, and 70% referred patients to SLTs. Controversially, 72% SLTs would refer patients to otolaryngologist. Voice hygiene was the primary treatment recommendation for both groups (SLTs 95%, otolaryngologists 70%). **Conclusions:** VTD remains poorly understood, with uncertainty around its management. The low awareness among otolaryngologists suggests further research is needed to better define and treat VTD.

RESEARCH FORUMS

SWALLOWING

Management of post-stroke dysphagia: current practice and emerging innovations

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Post-stroke dysphagia (PSD) is a prevalent and significant complication affecting approximately 30–50% of stroke survivors. It increases the risk of aspiration pneumonia, malnutrition, dehydration, and mortality, while also impacting quality of life. Effective management of PSD requires a multidisciplinary approach involving early screening, accurate diagnosis, and tailored interventions. Current practices emphasize the use of bedside screening tools, instrumental assessments like videofluoroscopy and fiberoptic endoscopic evaluation of swallowing (FEES), and compensatory strategies such as modified diets and postural adjustments. Emerging innovations are advancing PSD care through technology and novel therapies. Neuromodulation techniques, including transcranial magnetic stimulation (TMS) and transcutaneous electrical stimulation (TES), show promise in enhancing neural plasticity and swallowing function. Digital health tools, such as tele-rehabilitation platforms and biofeedback systems, are improving access to therapy and patient engagement. Additionally, artificial intelligence and machine learning are being integrated into diagnostic and treatment frameworks to enhance precision and outcomes. This presentation explores the current state of PSD management, highlighting evidence-based practices and the potential of emerging innovations to transform care. It emphasizes the need for further research to optimize treatment strategies and bridge gaps between innovation and clinical implementation.

The effects of swallow manoeuvres and postural strategies in the behavioural treatment of oropharyngeal dysphagia in adults: a systematic review

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Objective: To explore the efficacy of frequently applied swallowing techniques, including manoeuvres, exercises, and postural adjustments, when used independently in the behavioural management of oropharyngeal dysphagia in adult populations. **Methods:** A systematic search of the Embase and PubMed databases was conducted in accordance with PRISMA guidelines. The search targeted studies that featured a comparative component, such as (pseudo)randomized controlled trials, investigations with parallel control groups, and designs employing within-subject or crossover methodologies. The methodological rigor of the selected studies was appraised using the standard quality assessment tool (QualSyst). **Results:** A total of nine studies fulfilled the inclusion criteria, addressing interventions such as the chin tuck, effortful swallow, Mendelsohn manoeuvre, modified jaw-opening exercise, volitional closure of the laryngeal vestibule, and the Shaker exercise. All included studies demonstrated positive outcomes, indicating therapeutic benefits from both compensatory and restorative strategies across different patient groups – predominantly individuals with stroke. Nonetheless, the small number of eligible studies and notable variability in study characteristics precluded a meta-analytic approach, rendering the current evidence suggestive but not yet conclusive. **Conclusions:** Although the findings reinforce the potential of individual behavioural interventions in treating oropharyngeal dysphagia, further research involving methodologically rigorous trials and larger cohorts is warranted. Future studies should

address variability in participant profiles, intervention delivery, and outcome measurement, while employing sophisticated statistical analyses to generate more definitive insights into treatment efficacy.

Does ipsilateral false vocal fold removal influence swallowing after transoral laser cordectomy? – a FEES study

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Introduction: ELS recommends removal of false vocal fold during "deeper" transoral laser cordectomies for better intraoperative tumor visualization. Nevertheless, false vocal fold resection may carry the risk of impaired swallowing. **Aims:** To investigate early and late impact of false vocal fold resection on swallowing using FEES after type III, IV and V transoral laser cordectomies. **Materials and Methods:** Fifteen patients with endoscopically resectable early glottic cancers (10 T1a, 2 T1b, 2 T2, 1 selected T3) underwent transoral laser cordectomy with ipsilateral false vocal fold removal. FEES was performed preoperatively, in the early and late postoperative period, respectively, establishing modified penetration-aspiration scale (mPAS) and pharyngeal residue severity scale (PRSS). Wilcoxon signed-rank test was used to assess differences among the investigated timepoints ($P < 0.05$ was deemed statistically significant). Laryngeal preservation and local recurrence were also noted. **Results:** 2 type III, 9 type IV, 2 type Va and 2 type Vd cordectomies were performed. Early postoperative mPASs changed significantly compared to preoperative values ($P = 0{,}046$). Difference between early and late postoperative mPASs was also significant ($P = 0{,}046$). There was no difference between preoperative and late postoperative mPASs ($P = 1.0$). Regarding pharyngeal residue, significant changes were noted in the early postoperative period compared to preoperative values ($P = 0{,}002$). Regarding late postoperative PRSSs, significant decrease was noted compared to the early postoperative status ($P = 0{,}004$). No remarkable difference was found between preoperative and late postoperative PRSSs ($P = 0{,}317$). One patient required definitive radiotherapy, while laryngeal preservation failed in another case due to advanced recurrence and lack of compliance. **Conclusion:** In our serie, ipsilateral false vocal fold removal during transoral laser cordectomy did not influence swallowing unfavorably in the long term neither by increased pharyngeal retention nor by increased penetration/aspiration risk. Investigation of cases without co-morbidities (diabetes, stroke) may be considerable to further confirm our observations. Nevertheless, TLC provided excellent laryngeal preservation.

Acoustic markers of dysphagia: correlating formant frequencies with swallowing dysfunction in neurodegenerative diseases

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Introduction: The impairment of tongue propulsion and motility in neurodegenerative diseases affects both swallowing (dysphagia) and phonation (dysarthria) due to alterations in lingual propulsion and articulatory capacity. **Aims:** This study evaluates the potential of acoustic voice analysis to quantify these deficits, aiming to correlate articulatory alterations with swallowing dysfunctions by leveraging the relationship between acoustic formant frequencies and the effectiveness of tongue body movement. **Methods:** Eighty-nine patients with neurodegenerative diseases (46 M, 43 F; mean age = 64.1 ± 13.3 years) underwent acoustic analysis, extracting the first (F1) and second (F2) formants during sustained phonation of /a/, /i/, /e/, and /u/. Clinical swallowing assessments (using the DOSS, FOIS, and ASHA-NOMS scales) and fiberoptic endoscopic evaluation (using the Pooling score, Penetration-aspiration scale) were performed. Correlations between acoustic and dysphagia metrics were analyzed using Spearman's correlation. A Structural equation model (SEM) integrated significant formant features into a Dysphagia formant index (DFI), whose predictive value was tested via ROC analysis on 174 healthy controls. **Results:** A significant correlation was found between F2 values, particularly for the vowels /e/ and /i/, and swallowing efficiency, as measured by the Pooling score for liquid, semi-solid, and solid consistencies. The DFI, incorporating the most significant formant values, demonstrated a reliable discriminative ability in identifying moderate-to-severe dysphagia across all consistencies, distinguishing it from absent or mild dysarthria, with a cut-off value of 3.79 (Se 82.8%; Sp 52.8%; AUC 0.772). **Conclusions:** Acoustic formant analysis during sustained

vowels is significantly associated with tongue motility deficits in neurodegenerative diseases, reinforcing the link between dysarthria and oropharyngeal dysphagia. The DFI could aid early dysphagia screening, identifying patients requiring further clinical and/or instrumental assessment.

Prevalence and characteristics of dysphagia in adolescents with Down syndrome: a preliminary cross-sectional study

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Introduction: Down syndrome (DS) is a genetic condition characterized by hypotonia, distinctive craniofacial features, and developmental delays, predisposing individuals to feeding and swallowing difficulties. While feeding challenges in young children with DS are well-documented, research focusing specifically on dysphagia in adolescents remains limited. Effective management of dysphagia in this population requires understanding the physiological changes of puberty, the increasing drive for independence, and the necessity of multidisciplinary care. **Aims:** This study aimed to determine the prevalence and characteristics of dysphagia in adolescents with DS using the validated Pediatric eating assessment tool-10. A secondary aim was to explore potential risk factors associated with swallowing difficulties. **Materials and Methods:** A cross-sectional study compared adolescents aged 10–19 with a DS diagnosis to a control group of typically developing peers. Dysphagia was assessed using the scale mentioned above, a validated screening questionnaire. Caregivers completed the scale and provided additional information regarding feeding behaviors and respiratory symptoms. Statistical analysis examined relationships between dysphagia severity, feeding behaviors, and a history of recurrent respiratory infections. **Results:** Preliminary findings reveal a high prevalence of dysphagia in adolescents with DS. 60% of the DS group exhibited clinically significant dysphagia based on scale scores, significantly higher than the control group. Commonly reported and significantly more prevalent difficulties in the DS group included prolonged mealtimes, coughing during feeding, and drooling. A history of lower respiratory tract infections was also significantly more prevalent in the DS group. **Conclusions:** Dysphagia is a prevalent, yet often under-recognized, challenge in adolescents with DS. Early identification of high-risk individuals is crucial for preventing complications such as malnutrition, aspiration-related respiratory issues (potentially leading to morbidity and even mortality), and associated social and financial burdens. Further research is needed to investigate long-term outcomes and optimize management strategies for dysphagia in this vulnerable population.

Effect on dissolution of phenytoin in opened-capsule form across various thickness of liquids and two common foods

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Introduction: Difficulties in swallowing medications in tablet or capsule form is common for patients with dysphagia. When alternative dosage forms are not available, it was common practice to modify solid oral dosage forms, by crushing, splitting, or opening capsules and mixing it with regular or thickened liquids. This have caused concerns in modified-release properties, deviation from dosage, and reduced bioavailability of medications due to reduced rate of dissolution and disintegration of medication in thickened liquid. **Aims:** The current study investigated the effect of dissolution of different thickness levels of liquids and two types of food on a common medication, Phenytoin, in capsule form. **Methods:** The study was an *in vitro* study. Phenytoin was obtained from Dilantin 100 mg in capsule form. The vehicles (IDDSI level 0–4 by starch and gum-based thickener, pudding and congee; total 12 conditions) were prepared. The dissolution test was performed with the ERWEKA DT 820, and a medium of distilled water. Sample of 5-ml solution was drawn at 5 intervals until 120th minute. The experiment was repeated twice for each testing condition. The samples were processed through high performance liquid chromatography. A standard curve of stock solution with 2-fold serial dilution performed using methanol was obtained. **Results:** The results showed that the condition of level 0 liquid with an unopened capsule had the most ideal cumulative drug release profile. Among IDDSI levels, the profiles did not differ, which could be explained by opened capsule in all conditions involving thickened liquids. All conditions of thickened liquid and food as vehicle did not reach a drug release over 50% across all time intervals. **Conclusion:** This study

confirmed that opened capsule affected medication dissolution. The clinical implication from this study was capsules should not be opened for consumption regardless of the liquid/food vehicle as it would affect the medication dissolution significantly.

Swallowing outcomes after surgical treatment for unilateral vocal cord immobility: a comparative analysis of injection laryngoplasty, medialisation thyroplasty, and unilateral non-selective laryngeal reinnervation

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Background: Unilateral vocal cord immobility (UVCI) can impair swallowing, causing choking, coughing, throat hypersensitivity, aspiration, and recurrent chest infections. While surgical interventions for UVCI are primarily aimed at improving voice outcomes, swallowing-related complications due to glottal insufficiency can significantly impact quality of life and warrant equal consideration in clinical management. **Aims:** To evaluate swallowing and throat symptoms in UVCI patients following injection laryngoplasty (IL), medialisation thyroplasty (MT), or unilateral non-selective laryngeal reinnervation (UNSLR). **Methods:** Retrospective review of UVCI patients undergoing IL, MT, or UNSLR between January 2023 and May 2024 at a tertiary laryngology centre. Two outcome measures were used: the primary measure, EAT-10 score, to assess swallowing ability, while the secondary measure, RSI, reflects laryngopharyngeal symptoms. Both are evaluated pre- and post-procedure. A paired t-test was used to assess for statistical significance. **Results:** 56 patients (23 F : 33 M) were identified, 70% (40/56) underwent IL, 23% (13/56) MT, and 7% (3/56) UNSLR. By comparing pre- and post- procedure outcomes: In IL group (29/40 hyaluronic acid, 11/40 calcium hydroxyapatite): At 4 months, EAT--10 improved by 3.32 (Δ –1.08 to –5.56; P = 0.005), and RSI by 5.69 (Δ –3.11 to –8.26, P = 0.0001). In MT group (12/13 VOIS®, 1/13 silicone implant): At 10 months, EAT-10 improved by 7.42 (Δ –2.11 to –12.72; P = 0.01), and RSI by 8.23 (Δ –1.49 to –14.97; P = 0.02). In UNSLR group: At 10 months, EAT-10 improved by 6.50 (Δ +12.56 to –25.56; P = 0.1), and RSI by 11.33 (–0.99 to –21.68; P = 0.04). **Conclusion:** All three surgical treatments can significantly improve swallowing and throat symptoms in UVCI patients and should be routinely considered to optimise outcomes. Treatment choice should be guided by UVCI aetiology, surgical candidacy, and patient preference.

Oropharyngeal dysphagia in infants – a retrospective analysis from 2016–2022

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Introduction: The anatomy and physiology of the swallow are very complex. Mature born and healthy infants are equipped with all reflex paths necessary for a functioning suck-swallow-coordination. In the first months of life and early childhood swallowing abilities further develop and mature. The increasing survival in preterm infants and infants with complex anomalies or syndromes leads to a growing number of infants with swallowing disorders and the need for detailed investigation. **Aim:** The purpose of this study was to characterize our patient collective of infants aged 0–9 months having undergone further investigation for dysphagia. **Materials and Methods:** We retrospectively analyzed all consecutive patients aged 0–9 months who were examined at the Department of ENT/Phoniatrics at the Medical University of Vienna and also underwent a videofluoroscopic swallowing study in the years 2016–2022. Results: 65 infants were included in this study. 32/65 (49%) showed laryngeal pathologies, including laryngomalacia (N = 15), vocal fold paralysis (N = 7), subglottic stenosis (N = 3) and others. Comorbidities were present in 55/65. Videofluoroscopy identified aspiration in 19 out of 65 exams. The Penetration-aspiration scale (PAS) was distributed as follows: PAS 1 (31/65), PAS 2 (6/65), PAS 4 (5/65), PAS 5 (4/65) and PAS 8 (19/65). In infants with PAS 8, laryngeal pathologies were detected in 7/19 (37%). Detailed videofluoroscopic analysis showed malfunction in suck rhythm (N = 2), bolus formation (N = 8) and timing of the initiation of pharyngeal swallow (N = 23), leaking (N = 6), nasal regurgitation (N = 23) and residues (N = 12). **Conclusion:** A well-functioning act of swallowing is a prerequisite for thriving and developing. The understanding and identification of its impairment are of utmost importance. Interdisciplinary management, as well as an individual diagnostic and therapeutic approach, are essential.

The utility of the FEES in the early diagnosis of dysphagia and nutrition decisions in post-stroke patients

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Introduction: Post-stroke dysphagia is one of the most frequent complications after cerebrovascular events, with aspiration pneumonia – stemming from swallowing difficulties – being a leading cause of mortality. Selecting appropriate nutrition for post-stroke patients (PSPs) is thus vital during hospitalization. Fiberoptic endoscopic evaluation of swallowing (FEES) is a key tool for diagnosing dysphagia and guiding feeding strategies. This study investigated the prevalence and etiology of dysphagia in PSPs and evaluated FEES's effectiveness in informing nutritional interventions to reduce complications. **Material and Methods:** A cross-sectional study was carried out in 29 adult PSPs admitted to the neurology unit of a tertiary care hospital. The FEES procedure involved sequential administration of three food bolus types – semisolid, liquid, and solid – and results were evaluated using Daniels' test and the Penetration-aspiration scale (PAS). The relationship between FEES findings and length of hospitalization was also examined. **Results:** The mean age was 67 years (range 26–83). Facial nerve palsy was noted in five patients, and hypoglossal nerve palsy in two. Based on FEES findings, patients were divided into three groups: residue in the vallecula and/or pyriform sinus (N = 12; 41.38%; PAS 8), penetration only (N = 7; 24.14%; PAS 2–4), and penetration with aspiration (N = 10; 34.38%; PAS 5–8). FEES was performed on average 2–7 days post-stroke. Fifteen individuals were using a nasogastric tube (NGT) during examination and initiated feeding rehabilitation afterward. Following FEES, additional nutritional decisions were made: in five cases the NGT was removed, and three patients were referred for PEG placement. Conclusion/Discussion: FEES assessment is essential for guiding nutritional recommendations in PSPs. A key priority is establishing a standardized feeding algorithm for these individuals and raising awareness of the importance of collaboration between stroke unit teams, laryngologists, and phoniatricians.

R-CPD (retrograde cricopharyngeus dysfunction), where do we stand in 2025

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R-CPD or Retrograde cricopharyngeus dysfunction as a diagnosis is gaining ground, but still disputed. The clinical picture is fairly typical, the disease burden on patients very real and the results of a usually one-off dosis of botulinum toxin into the cricopharyngeus muscle remarkable. Do we need an objective technical diagnostic test? How do we deal with the growing number of patients who recognize their problem? EMG guided injection in the office seems to be an acceptable alternative to an injection during an esophagoscopy under general anesthesia. This presentation aims to give an overview and an update on this issue.

Spectrum of dysphagia in lateral medullary syndrome and its management

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Introduction: Lateral medullary syndrome (LMS) occurs due to vascular event in the dorsolateral side of medulla oblangota. More than half of the patients with Lateral medullary syndrome experience swallowing difficulty. FEES and VFSS evaluation are needed to assess the cause of dysphagia in this condition. Difficulty in swallowing is treated according to the pathophysiology of dysphagia. It requires compensatory as well as rehabilitatory swallowing therapy. In some instances, it may also require interventional swallowing therapy in the form of botox injection or cricopharyngeal myotomy. **Aims:** 1. To assess the spectrum of dysphagia in lateral medullary syndrome; 2. To assess the various modalities of treatment and recovery of dysphagia in patients admitted with lateral medullary syndrome. **Materials and Methods:** All patients with dysphagia due to lateral medullary syndrome from January 2021 to December 2023 were taken into the study. Demographic profile, side of the lesion and diabetic status of these patients were assessed. Clinical swallowing evaluation was done in them followed by FEES and fluoroscopic assessment and swallowing therapy for 6 weeks. If no recovery after 6 weeks, active intervention was done. Recovery of the patients was analyzed

by assessing improvement in Functional oral intake scale. **Results:** Spontaneous recovery was seen in only 6 of the patients. Botox injection was given in 12 of the 13 patients who had complete cricopharyngeal dysmotility. Cricopharyngeal myotomy was done in 1 patient who had failed botox injection. Cricopharyngeal myectomy with hyoidopexy was done in another patient with failed botox injection who had absent hyolaryngeal elevation. **Conclusion:** Active intervention is done for dysphagia in LMS if there is no improvement in 6 weeks. Cricopharyngeal dysmotility was the most important cause of dysphagia in lateral medullary syndrome. Most patients could be resumed on oral feeds after giving botox injection in these patients.

RESEARCH FORUMS

VOICE AND LARYNGOLOGY

Auditory perceptual assessment (APA) of voice and speech disorders

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Auditory-perceptual assessment (APA) is a fundamental approach to evaluating voice and speech disorders. This method relies on clinicians' perceptual judgments to assess various aspects of voice and speech, including pitch, loudness, quality, resonance, prosody, and articulation. It plays a pivotal role in diagnosing conditions such as dysphonia, stuttering, nasality, and other communication impairments. Despite its subjectivity, auditory-perceptual assessment remains widely used due to its practicality, cost-effectiveness, and ability to capture the nuanced characteristics of voice and speech. Standardized rating scales, such as the GRBAS (Grade, Roughness, Breathiness, Asthenia, Strain), have been developed to enhance the reliability and validity of this approach. These scales guide clinicians in systematically evaluating voice and speech parameters and provide a framework for consistent documentation and communication among professionals. The aim of the presentation is to explore the different rating scales of APA protocols for voice and speech disorders with the participants. Voice and speech audio/video samples will be presented in order to orient the phoniatricians and speech pathologists with different voice and speech disorders.

Palliative treatment of advanced laryngeal cancers

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Introduction: Inoperable or metastatic laryngeal, head and neck squamous cell cancer (HNSCC) is known to be associated with a poor patient prognosis. Techniques for surgery, reconstruction, radiation therapy, chemotherapy, and targeted therapy have evolved, providing patients and providers with more options than ever. Patients with laryngeal cancer often still find themselves facing an incurable disease with significant morbidity. Many patients are ultimately forced to bear the burden of a multitude of symptoms that threaten their physical and psychological well-being. **Aim:** This article provides a current overview of how palliative care is focused on improving quality of life for people with laryngeal cancer and head and neck carcinoma. Palliative care aims to improve the quality of life (QoL) of patients and their carers facing the problems associated with life threatening illness. **Materials and Methods:** Literature review. **Results:** This can be achieved by the prevention and relief of suffering, ensuring comfort and dignity, by means of early identification, assessment and management of pain and other, physical, psychosocial and spiritual issues. Patients with laryngeal cancers, and head and neck cancer are a group in whom both specialist palliative and supportive care is especially appropriate whether the treatment intent is curative or not, since the disease and its treatments result in a huge burden of morbidity: short- and long-term – even lifelong for survivors. **Conclusion:** Different interventions are used to manage head and neck cancer patients with palliative intent, and these may be associated with significant morbidity. Survival time is variable, often several months; thus, any treatment must take into account morbidity in conjunction with the patient's wishes.

Strategies for vocal fold hydration and lubrication: exploring new advances in phonatory health

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Vocal fold hydration and lubrication play a critical role in maintaining optimal phonatory function and preventing vocal injuries. Recent studies have shifted focus from traditional systemic hydration methods to more localized techniques that enhance surface hydration and improve vocal fold pliability. This workshop explores innovative approaches to optimize vocal fold hydration and lubrication, with an emphasis on practical, evidence-based interventions. One such method is nasal hydration, where the use of a damp gauze is employed to introduce moisture into the vocal fold mucosa. This technique has been shown to significantly enhance the mucosal wave and improve voice quality after just 10 minutes of application. Recent developments also highlight the role of glycosaminoglycans (GAGs) like hyaluronic and galacturonic acids in enhancing moisture retention and improving vocal fold lubrication. These GAG molecules, when combined with hydration techniques, create a more sustained and durable effect on vocal fold health. Additionally, the workshop will delve into the use of endogenous lubricants, particularly saliva, and explore how stimulating its production can contribute to vocal fold lubrication. This approach addresses the impact of factors such as GERD and LPR, which can compromise vocal fold hydration and lubrication. Participants will engage in hands-on experiments to assess the effects of nasal hydration, GAG-based lubricants, and saliva stimulation techniques on vocal fold function. Real-time voice quality monitoring will allow attendees to observe the immediate impact of these interventions on both speaking and singing voices. The goal is to equip clinicians, educators, and researchers with the knowledge to incorporate these strategies into clinical practice and to stimulate further research into novel solutions for improving vocal health.

Therapeutic ultrasound in vocal nodule dysphonia

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Introduction: General purpose: To determine the efficacy of therapeutic ultrasound as a therapeutic technique in vocal nodule dysphonia. **Materials and Methods:** Only patients between 20 and 40 years old, singers, speakers and/or teachers, presenting dysphonia due to unilateral or bilateral vocal nodules were included. The material resources included: the therapeutic ultrasound apparatus (EST-SONIC brand). The present study was a double-blind controlled clinical trial, the allocation was randomized. Two groups were formed, a study group and a control group, each of ten patients, who underwent a phoniatric evaluation on the first day before the application of the therapeutic ultrasound. The technique used in the patients consisted of the following steps: 1. Patient in dorsal decubitus; 2. Hyperextension of the neck; 3. Previous application of water gel, at the level of the protruding angle of the thyroid cartilage; 4. Placement of the transducer of the therapeutic ultrasound device on both sides of the thyroid cartilage, with continuous emission for five minutes (2.5 minutes on each side of the thyroid cartilage), and with an intensity of 1.5 watts/ctms; 5. The same technique was applied to the placebo, until completing three sessions per week, in a period of one month; 6. The same technique was applied to the placebo of the control group, but without the intensity of 1.5 watts. **Results:** Therapeutic ultrasound in dysphonia due to vocal nodules according to age and sex. A total of twenty paired TMT / control / placebo patients participated in the study, who were assigned equally to the groups, 10 in GTMT and 10 in CG, with the predominant sex being entirely female and the median age corresponding to the 31 to 35 age group. **Conclusions:** The present study demonstrates that therapeutic ultrasound applied at a dose of 1.5 watts/ctms on alternate days, with continuous emission, is an effective treatment.

Advanced phonosurgical procedures at the University of Pécs – initial results and experiences of a Hungarian phonosurgeon

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Introduction: Dysphonia – irrespectively of the aetiology – may cause deterioration in quality of life not only among voice professionals. Despite speech therapy, several cases necessitate phonosurgical intervention for the improvement of voice. **Aims:** Our aim was to demonstrate our institute's phonosurgical armamentarium that has started nearly 5 years ago. **Materials and Methods:** Eighty patients with dysphonia had undergone phonosurgical procedures in our institute between April of 2019 and November of 2024. Aetiology of dysphonia included Reinke's oedema, vocal fold cyst, pseudocyst, polyp, vocal fold scar, sulcus vocalis, mucosal bridge, vocal fold atrophy, granulation tissue, unilateral vocal fold palsy and puberphonia. Both pre and periodical post-treatment laryngostroboscopy and voice assessment were carried out including, Voice handicap index-10, maximum phonation time, perception (Grade, Roughness, Breathiness, Asthenia, and Strain), acoustics (mean F0, jitter and/or shimmer) and voice range profile. **Results:** Overall ninety-eight phonosurgical interventions were performed including transoral laryngeal microsurgery with mucosal reconstruction under general anesthesia (71 cases), injection laryngoplasty with hyaluronic acid under local anesthesia (17 cases) and laryngeal framework surgery under local anesthesia (11 cases) in the investigated period. Voice quality improvement was achieved in all cases confirmed by the applied subjective and objective assessments. **Conclusion:** Phonosurgery coupled with appropriate approach and indication can offer efficient solution for treatment of numerous types of dysphonia, as we have experienced during the initial 5 years.

Voice mapping in clinical practice: tracking objective changes after injection laryngoplasty

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Introduction: Unilateral vocal cord paralysis compromises voice quality by reducing glottic closure, leading to air leakage during phonation. Injection laryngoplasty enhances closure and improves voice quality, but its effectiveness is often evaluated subjectively. Voice mapping, which utilizes fundamental frequency (fo) and sound pressure level (SPL) as independent variables, generates scalar maps of vocal parameters across the entire vocal range. **Aims:** This study investigates the potential of voice mapping as an objective tool to assess changes in glottic closure and voice quality following laryngoplasty. **Methods:** Eight patients with unilateral vocal cord paralysis (mean age 64.4 years) underwent injection laryngoplasty with hyaluronic acid or calcium hydroxyapatite at Karolinska University Hospital (Stockholm, Sweden). Voice recordings with the software FonaDyn (integrating acoustic and electroglottographic data) were collected pre- and post-procedure. Perceptual voice evaluations were conducted by three blinded clinicians. **Results:** With an appropriate periodicity threshold, it was possible to analyze voice maps even in severe dysphonia. Perceptual evaluation (ICC 0.6–0.8) showed reduced dysphonia severity post-treatment, with decreased breathiness and asthenia but increased roughness and vocal effort. Six of eight patients demonstrated improved glottic closure, with greater electroglottographic signal stability. **Conclusions:** Voice mapping objectively represents vocal changes after laryngoplasty, supporting its role in clinical assessment and therapeutic planning for vocal cord paralysis.

Echoes of a legend: Luciano Pavarotti, the unimitable Maestro of Do di Petto – physiological and phonetic perspectives

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Luciano Pavarotti, a celebrated tenor of the 20th century, is renowned for his powerful vocal abilities, particularly in executing high notes in the chest register, exemplified by his historic performance of nine "chest C" notes in the aria "Ah, mes amis, quel jour

de fête!" from "La figlia del reggimento". This study aims to examine the physiological and phonetic aspects of Pavarotti's vocal technique. A comprehensive literature review was conducted utilizing Scopus and Google Scholar, focusing on publications regarding Pavarotti's vocal methods, with careful screening for original research and sound anatomical insights. Findings highlight that Pavarotti's impressive vocal capabilities stemmed from a combination of anatomical structure, extensive training, and effective use of resonance, which permitted the execution of high notes with clarity and richness. The interplay between Pavarotti's technical mastery, interpretive approach, and advancements in recording technology, alongside how lifelong training mitigated vocal aging. As a consequence, Pavarotti's achievements are not solely attributable to anatomical predisposition but also to disciplined artistry, establishing an enduring standard in operatic performance that highlights the complexities of the vocal art form.

Clinical effects of absolute voice rest and hypofunctional whispering after phonosurgery: a prospective randomized controlled study

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Introduction: Benign vocal cord pathologies, such as polyps and Reinke's edema, impair voice quality. Postoperative voice rest is recommended, but its effectiveness is unclear. Some studies suggest shorter rest may suffice, and hypofunctional whispering is debated as an alternative. **Aims:** This study compares absolute voice rest and hypofunctional whispering in postoperative voice recovery. **Material and Methods:** This prospective, randomized study included patients aged 18–60 undergoing surgery for benign vocal cord lesions. Exclusion criteria were comorbidities, prior phonosurgery, malignancy, neck RT, tracheotomy, or office-based voice surgery. Patients were randomized into Whispering or Absolute rest groups, with blinded evaluators. A single surgeon performed all procedures. The whispering group received 10-minute postoperative training by speech therapists. All patients attended one preoperative and four postoperative therapy sessions. Follow-ups at 0, 1, and 3 months assessed CAPE-V, VHI-30, VRQOL, aerodynamic (MPT, S/Z Ratio), and acoustic (PRAAT: F0, jitter, shimmer, HNR, CPPS, AVQI) parameters. **Results:** The groups were homogeneously distributed. VHI-30 and VRQOL improved significantly in both groups ($P < 0.05$), with no difference between them ($P > 0.05$). MPT and S/Z ratio increased significantly postoperatively ($P < 0.05$), without intergroup differences ($P > 0.05$). CAPE-V showed significant improvement in all parameters, with roughness differing between groups ($P < 0.05$). CPPS increased, AVQI decreased ($P < 0.05$), while jitter, shimmer, and HNR showed no significant change ($P > 0.05$). **Conclusion:** Hypofunctional whispering is as safe as absolute voice rest and may provide a more comfortable recovery by allowing speech. No significant difference was found in voice outcomes, supporting more flexible voice rehabilitation strategies after phonosurgery.

Efficacy and Safety of Hyadex® for the treatment of unilateral vocal cord paralysis: a prospective observational study

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Introduction: Unilateral vocal cord paralysis (UVCP) is a common cause of dysphonia, frequently managed with vocal fold injection augmentation due to its minimally invasive nature. Recently, dextranomer/cross-linked hyaluronic acid (Hyadex®) has gained attention for its potential to improve glottic closure and voice quality in UVCP-related dysphonia. **Objective:** This study aimed to evaluate the efficacy and safety of Hyadex® in patients with a clinical diagnosis of UVCP. **Materials and Methods:** This prospective, single-center observational study was conducted between 2024 and 2025. A total of 138 patients with UVCP underwent Hyadex® injection augmentation under local anesthesia via a transcervical approach, with 146 injections performed (six patients received two injections, and one received three). Demographic data, etiology, complications, and both acoustic and perceptual voice analyses were assessed. Voice evaluations were conducted at two weeks ($N = 62$) and three months ($N = 31$). **Results:** The study included 138 patients (58 females, 80 males; mean: 48.8 years, range: 14–80). The most common UVCP etiologies were post-neck surgery (26%), idiopathic (15.2%), and post-lung surgery (15.2%). Significant improvements were observed in jitter, shimmer, noise-to-harmonic ratio (NHR), and harmonic-to-noise ratio (HNR) at two weeks ($P \leq 0.001$), with these gains persisting or increasing at three months. Fundamental frequency (F0) showed no significant change ($P = 0.356$). Perceptual voice analysis demonstrated significant improvements in overall grade of severity and breathiness ($P < 0.001$). Adverse events occurred

in 5.4% (N = 8) of injections, manifesting as inflammatory reactions (stridor, dyspnea). Six patients required hospitalization, one was managed conservatively, and one left voluntarily. Hospitalized patients received systemic steroids, PPI, and antihistamines. **Conclusion:** Hyadex® vocal fold injection augmentation demonstrated high efficacy in appropriately selected patients with UVCP and may serve as a first-line treatment. Significant improvements in both acoustic and perceptual voice parameters were observed, with a low rate of manageable complications.

Effects of hydration and a hyaluronic acid-containing lozenge on voice parameters in conjunction with a vocal loading test

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Introduction: This study examines the effects of water intake and a hyaluronic acid (HA) lozenge on acoustic measurements and vocal oscillation patterns following a vocal loading test (VLT). **Method:** Ten healthy participants (five females, five males) read a standardized text for 10 minutes at 80 dB(A), measured 30 cm from the mouth, under three conditions, each after fasting for 2 hours: a) drinking 0.7 liters of water; b) sucking an HA lozenge; and c) neither intervention before the VLT. The dysphonia severity index (DSI) was assessed before and after the reading task. Additionally, high-speed videolaryngoscopy (HSV), electroglottography, and audio signals during sustained phonation of the vowel /i/ before and after the VLT were analyzed. The glottal area waveform was derived from HSV footage. **Results:** DSI values decreased for both the H_2O and HA groups, but only reached statistical significance for the H_2O condition, while remaining stable for the control group. These DSI decreases were driven by increases in minimum sound pressure level intensity (Imin), with statistical significance only for the water intake intervention. Statistically nonsignificant changes were observed in periodicity and perturbation parameters across all conditions. No phase differences or aperiodicities were observed in the phonovibrograms. **Conclusions:** Hydration and HA lozenges did not significantly alter vocal fold biomechanics after a VLT. However, the decrease in DSI values with increased Imin suggests a reduced vocal capacity for the H_2O condition.

Effectiveness of vocal warm-up and cool-down exercises on voice after a vocal loading task: a randomized controlled trial study

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Introduction: Due to intensive vocal activities, professional voice users are at higher risk of developing vocal fatigue compared to non-professional users. Vocal warm-ups are widely recommended to enhance efficiency and prevent strain. In contrast, cool-down exercises, which could aid post-use, have received less attention. **Aim:** This study aims to evaluate the effects of vocal warm-up and cool-down exercises on acoustic parameters and subjective perceptions of vocal fatigue following a period of vocal loading. **Materials and Methods:** A randomized controlled trial with a pre-test / post-test design was utilized. Thirty-six participants were randomly assigned to three groups: a control group, a vocal warm-up exercises group, and a vocal warm-up and cool-down exercises group. Acoustic analyses were conducted using the MDVP and the ADSV along with Visual analog scale evaluations for subjective vocal fatigue, administered in both pre-test and post-test phases. The vocal loading task consisted of 40 minutes of continuous reading at an 80–85 dB sound pressure level. Groups 2 and 3 performed vocal warm-up exercises before loading, while group 3 also included cool-down exercises. Statistical analyses included paired sample t-tests and Wilcoxon tests for within-group comparisons, and two-way ANOVA for between-group comparisons. **Results:** The study revealed no significant differences in acoustic measurements between groups. However, reported vocal fatigue scores showed significant differences ($P < 0.05$). Participants in the cool-down exercise group reported significantly lower vocal fatigue scores compared to the other groups. While the cool-down group showed observable improvements in post-test acoustic measurements, these changes were not statistically significant. **Conclusion:** This study suggests that vocal cool-down exercises are more effective in reducing perception of vocal fatigue after intense vocal loading than solely warm-up exercises or no exercises at all. While acoustic

improvements for the cool-down group were not statistically significant, the reported reduction in vocal fatigue emphasizes the potential benefits of incorporating cool-down exercises.

Management of the exudative lesions of the Reinke's space – our updated experience

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Objectives: The authors from the voice department, present the management of the benign vocal fold lesions that affects the Reinke's space: nodules, polyps and Reinke's edema. The lesions share common histologic features, but the endoscopic appearance is strong dependent of the presence and duration of certain causative factors. **Methods:** In this retrospective study, we accessed the medical records of 114 patients who had undergone medical treatment and microsurgery of the vocal folds under general anesthesia, during a period of 40 months in the voice rehabilitation department. There are also underlined some particular cases, regarding the grade of dysphonia and the volume of the tumor that impacts the airway. **Results and Conclusions:** The aim of the treatment is to restore the voice, removing the suspicion of malignancy and to avoid medico-legal issues especially at the voice professionals.

Impact of nonselective reinnervation on posterior cricoarytenoid muscle tone

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Introduction: Injury to the vagal or recurrent laryngeal nerve results in a flaccid vocal fold and breathy dysphonia. Management options for unilateral vocal fold palsy include injection augmentation, type 1 medialisation thyroplasty, arytenoid adduction, and non-selective reinnervation (NSR) alone or combined with static procedures. While NSR enhances the tone and bulk of the vocal cords, it does not restore the movement. Despite existing research, the effect of NSR on arytenoid tone has not been studied, which relates to the function of the posterior cricoarytenoid muscle. **Aim:** To study the impact of NSR on arytenoid tone related to the posterior cricoarytenoid muscle. **Materials and Methods:** This retrospective study analyzed 35 unilateral vocal fold palsy patients who underwent non-selective reinnervation between 2021 and 2022. Laryngoscopy videos evaluated arytenoid tone, classified into three grades: Grade 1: Arytenoid prolapse across the midline; Grade 2: Prolapse to the lateral margin of opposite vocal fold; Grade 3: Prolapse beyond the lateral margin of opposite vocal fold. Voice function was assessed through maximum phonation duration (MPD) and the Voice handicap index (VHI), a ten-question survey on voice-related disability. Preoperative and postoperative data were compared for improvements in arytenoid tone, MPD, and VHI scores. **Results:** Most patients were aged 51–60 (29.3%), with a mean age of 43.3 years and nearly equal gender distribution. Idiopathic vocal cord palsy was the most common cause, followed by post-thyroidectomy palsy; other causes included neurological events, tumors, and spinal surgery. 81% improved arytenoid tone postoperatively, while 19% had no change. Statistical analysis revealed significant improvements in MPD and VHI scores with a p-value ($P < 0.001$). **Conclusion:** This study shows that NSR provides promising long-term improvements in voice quality for individuals with vocal fold palsy. Our findings reveal significant postoperative enhancements in arytenoid tone and improved MPD and VHI scores.

Pirfenidone injection to prevent vocal fold scar in a canine model: a pilot study

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Introduction: Postoperative vocal fold (VF) scarring remains a challenging issue in laser cordectomy. Pirfenidone (PFD) is an FDA--approved antifibrotic agent. However, its potential in preventing VF scarring after laser cordectomy has not been extensively

studied. **Aims:** This study aimed to evaluate the safety and preventive effect of PFD injection for postoperative VF scarring in a canine model. **Materials and Methods:** To assess toxicity, various concentrations (0.5, 1.0, 2.5, 5.0, and 10.0 mg/mL) of PFD, along with saline were injected into each VFs of three dogs. Larynges were removed for histologic evaluation at 2 weeks. In the efficacy test, three dogs were assigned to different concentrations of PFD: saline, 1.0 mg/mL-PFD, and 2.5 mg/mL-PFD. Saline, 1.0 and 2.5 mg/mL PFD were injected on unilateral VFs, followed by laser cordectomy type III. Contralateral VFs were left untreated. Wound status was examined under direct laryngoscopy at 4 and 8 weeks. At 8 weeks, larynges were excised for vibratory evaluation with a high-speed camera and histologic examinations including H&E staining and immunohistochemistry for collagen type I (COL1) and alpha-smooth muscle actin (α-SMA). **Results:** In the toxicity test, VFs injected with 2.5 mg/mL PFD or less, exhibited complete epithelial healing, while those injected with 5 mg/mL PFD or more had epithelium detachment from lamina propria. In the efficacy test, laryngoscopy at the 8th week revealed that VF mucosa was healed in all the groups. High-speed evaluation demonstrated higher mucosal wave amplitudes in PFD groups. In H&E staining, less fibrotic change was shown in PFD groups. Expression levels of COL1 and α-SMA were lower in the PFD groups than in the control group. **Conclusion:** PFD injection into VF has the potential to prevent postoperative scarring after laser cordectomy.

Real-time light-guided vocal fold injection with hyaluronic acid for unilateral vocal fold paralysis: single-center experience in 378 consecutive cases

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Introduction: Accurate localization of the needle tip is challenging in the cricothyroid (CT) approach due to its invisibility. To address this, real-time light-guided vocal fold injection (RL-VFI) was developed for enhanced precision under simultaneous light guidance. Recently, the RL-VFI device was approved for clinical use in the United States and South Korea. **Aims:** This single-center study evaluated the real-world application of RL-VFI with hyaluronic acid (HA) for the treatment of unilateral vocal fold paralysis (UVFP), assessing its feasibility, safety, and technical aspects. **Materials and Methods:** This IRB-approved, single center, retrospective cohort study included 378 consecutive RL-VFI procedures with HA performed on 257 patients with UVFP between October 2020 and February 2024. Adverse events were monitored during the procedure and for 4 weeks postoperatively. Voice handicap index-10, GRBAS scale, aerodynamic study, and acoustic analysis were used to evaluate voice improvement after 4 weeks with the baseline values. **Results:** Vocal fold paralysis primarily affected on the left side (83.3%) and was mainly caused by surgery (63.4%) and metastasis (26.1%). In all cases, HA was injected at the intended point in the paralyzed vocal fold under light guidance, with no instances of superficial injection or penetration of the free margin of the vocal folds. The mean procedure time was 114.0 ± 105.1 seconds for the initial injection and 87.9 ± 88.1 seconds for the additional injection. No acute and delayed severe adverse events were reported. Pre- and post-operative voice analyses were completed in 180 cases, demonstrating significant improvements in glottic gap and voice parameters, including voice handicap index, GRBAS scale, maximum phonation time, mean expiratory airflow, fundamental frequency, jitter, shimmer, and noise-to-harmonics ratio after RL-VFI. **Conclusions:** The RL-VFI device effectively confirms needle tip localization and ensures accurate injection on the intended point during the CT approach. RL-VFI with HA is feasible and safe for treating patients with UVFP.

Vocal fold electromyography in patients with endoscopic features of unilateral laryngeal paralysis

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Introduction: Laryngeal electromyography (LEMG) provides information about the electrophysiological status of the muscles and innervation of the larynx. Integration of this information with clinical data from other laryngeal assessment modalities (endoscopy, perceptual and acoustic analysis, voice self-report) provides a multidimensional picture of dysphonia, which is of particular importance in patients with vocal fold (VF) immobility and glottal insufficiency. **Aim:** The aim of this study was to evaluate LEMG recordings in patients with unilateral VF immobilisation and features of VF atrophy and glottal insufficiency.

Materials and Methods: From the available material of 74 recordings of patients referred for LEMG due to unilateral laryngeal paralysis, recordings of 17 patients with endoscopic features suggestive of complete laryngeal muscle denervation were selected. LEMG testing during rest and voluntary activity during free phonation of the vowel /e/ [ɛ] was evaluated qualitatively and quantitatively in the immobile and mobile VF thyroarytenoid muscle. **Results:** In all patients, the LEMG recording of the immobile VF was significantly different from that of the mobile VF. Despite endoscopic features of paralysis, only 2 patients recorded no activity fulfilling neurophysiological conditions of paralysis. In 88%, electromyographic activity of the thyroarytenoid muscle was found despite immobilisation and atrophy of the fold. In these patients, a neurogenic type of recording was found, with numerous high-amplitude units. On the basis of the results, quantitative features of the LEMG recording indicative of paralysis and residual activity of the thyroarytenoid muscle were determined. **Conclusions:** Qualitative and quantitative analysis of LEMG recordings provides detailed information about the innervation and muscular status of the VF. The LEMG recordings of the mobile and immobile VF differ significantly. Endoscopic examination is not definitive for the diagnosis of total laryngeal denervation.

Accuracy and clinical findings of saliva digestive biomarkers in laryngopharyngeal reflux disease

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Background: Salivary pepsin has served as the primary diagnostic biomarker for laryngopharyngeal reflux disease (LPRD). To date, the diagnostic accuracy of other digestive enzymes in saliva remains largely unexplored. The aim was to evaluate the diagnostic performance of multiple digestive enzyme biomarkers in detecting and characterizing LPRD. **Methods:** Patients with LPRD at the 24-hour hypopharyngeal-esophageal multichannel intraluminal impedance-pH testing (HEMII-pH) were consecutively recruited from January 2020 to May 2024 from two European Hospitals. The control group consisted of adults without symptoms. Prospective clinical data collection included demographics, gastrointestinal endoscopy, HEMII-pH, reflux symptom score (RSS), and reflux sign assessment (RSA) findings. At baseline, pepsin, elastase, cholesterol, bile acids, trypsin, pancreatic and gastric lipase were measured in saliva samples of LPRD patients and asymptomatic individuals. Sensitivity, specificity, positive and negative predictive values, and diagnostic accuracy (receiver operating characteristic (ROC) curve and area under the curve (AUC)) were evaluated. **Results:** One hundred and twenty-three patients and forty-eight asymptomatic individuals were prospectively recruited. Patients exhibited significantly elevated salivary pH and elastase levels, but decreased cholesterol compared to controls. Salivary cholesterol demonstrated superior diagnostic performance (AUC 0.989), with a 2.05 mg/dL threshold yielding excellent sensitivity (100%), specificity (94.3%), and predictive values. Elastase showed moderate-to-high diagnostic performance (AUC 0.811; threshold > 49.2 µg/ml). Combined RSS > 13 and salivary pH demonstrated robust diagnostic accuracy (SE 88.8%; SP 97.1%). Cholesterol positively correlated with 3-month RSS (r = 0.538). **Conclusion:** Salivary cholesterol, elastase, and the salivary pH emerge as promising diagnostic biomarkers for LPRD, demonstrating superior accuracy to other digestive enzymes and potential value in predicting treatment outcomes.

Expanding the capacity of general practitioners in Sub-Saharan Africa with artificial intelligence: a humanitarian outreach experience

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Background: The aim of the study was to evaluate POE, a multi-modal large language model platform, for diagnostic accuracy, clinical consistency, and usefulness as an adjunctive tool for otolaryngological care in resource-limited rural Kenyan settings. **Methods:** Consecutive patients with otolaryngological conditions were prospectively evaluated by both a board-certified otolaryngologist and primary care practitioner (PCP) at a rural Kenyan facility from December 2024 to January 2025. Clinical data and portable micro-otoscopic images were submitted to POE's interface following PCP assessment. The otolaryngologist compared POE outputs with PCP assessments with the Artificial intelligence performance instrument (AIPI) to evaluate diagnostic, management, and therapeutic concordance. **Results:** The primary diagnoses generated by POE demonstrated concordance with otolaryngologist findings in 50 cases (79.4%), while management recommendations aligned in 61 cases (96.8%). Differential

diagnoses were judged as plausible and correct in 46 cases (73.0%). Among the discordant cases (N = 17), POE correctly included the confirmed diagnosis within its differential considerations in 16 outputs. POE demonstrated superior diagnostic accuracy compared to PCPs (79.4% [50/63] vs. 50.8% [32/63]; P = 0.001) in establishing primary diagnoses. Among cases where PCPs failed to establish the diagnosis, POE successfully identified the primary diagnosis in 61.3% (19/31). Cases with PCP-established diagnoses (N = 32) demonstrated higher AIPI diagnostic subscores compared to undiagnosed cases (N = 31). When provided with clinical examination images, POE correctly identified the condition as either primary (N = 7/14; 50.0%) or potential (N = 5/14; 35.7%) diagnoses. **Conclusion:** The implementation of integrated LLM platforms in low- and middle-income countries demonstrates usefulness as clinical decision support tools, augmenting PCP diagnostic and therapeutic capabilities.

Voice problems and transient vocal fold paresis after vagal nerve stimulation in epilepsy – a case study

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Introduction: Vagus nerve stimulation is a form of therapy aimed at reducing seizures in patients with drug-resistant epilepsy. One of the main side effects of vagus nerve stimulation is a change in voice. Primary vagus nerve stimulation is usually well tolerated. **Aim:** To present a patient with transient vocal fold paresis after vagus nerve stimulator implantation. **Material and Methods:** A 36-year-old male, non-smoker, with drug-resistant epilepsy. A few days after implantation, he noticed changes in his voice. **Results:** Examination revealed a dysphonic voice, a healthy larynx but paresis of the left vocal fold. X-ray of the neck and chest was normal with a visible shadow of the pacing system electrodes along the neck of the anterior chest wall on the left side. CT scan of the neck and chest – no features of haematoma, soft tissue oedema on examination. **Conclusions:** It is known that stimulation can induce adduction contraction of the ipsilateral vocal fold or vestibular fold. However, paresis of the left vocal fold was observed several days after surgery without any postoperative complications. The problem of neuropathy of the vagus nerve causing vocal fold paralysis, vagus nerve compression associated with VNS, and different innervation of the vagus nerve is presented.

Digital PROMS for patients receiving laryngeal botulinum toxin injections for laryngeal dystonia

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Introduction: Laryngeal dystonia is a rare chronic condition most commonly treated with injections of botulinum toxin every three months. Paper-based outcome forms are often used to monitor the patient's perceived response to treatment. Forms are not always completed, are often filled in at the last minute and require scanning into digital health records. ISLA Care is an NHS approved media sharing platform, created for sharing of images from dermatology patients and expanded to include forms and questionnaires. **Aims:** To further adapt the ISLA platform to replace paper-based PROMS and include voice recordings. **Material and Methods:** A pilot study using a patient focus group was conducted. It was then offered to all patients attending the clinic with laryngeal dystonia. A text message is sent to patients on a weekly basis with a click-link to complete a simple online outcome form where they rate their voices from 1–5 (poor to good). They then record their voices using their mobile phones by reading a set text which is then saved as a .wav file. The submitted data are stored within ISLA and is accessible and linked to their NHS digital health record. Graphs of weekly can be displayed and shown to patients. The voice can be played back and an auditory perceptual evaluation performed. **Results:** 72 patients have signed up to date with a median (range) number of submissions 85 (2–487). Barriers to participation include no smart phone, difficulty with digital technology. Patients report easy and easier to use functionality. Being able to listen to the voice samples and changes over time help clinicians plan treatment adjustments. Reviewing data remains challenging and long-term compliance needs to be assessed. **Conclusions:** Digital PROMS using a text--initiated prompt allows better insight into patients' response to treatment and is more convenient for, and acceptable to patients.

Objective assessment of voice quality and quality of life in relation to Derkay staging system results in patients with recurrent respiratory papilloma (RRP) treated surgically with CO_2 laser and Cidofovir injection

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Introduction: RRP is a rare disease that may cause voice disorders and airway obstruction. Low-oncogenic HPV 6 and 11 are responsible for over 90% of RRP cases. The biggest problem in the treatment of this disease is the very high tendency to recurrence, requiring re-operations. The aim of the study was to objectively assess the voice quality and quality of life of patients with RRP during and after CO_2 laser surgery and Cidofovir laryngeal injection. **Material and Methods:** The material included 21 patients with RRP treated surgically with CO_2 laser and Cidofovir injection. The average number of operations in the treatment cycle was 8. All patients underwent laryngovideostroboscopy, acoustic assessment of the voice and the patient's subjective assessment of the voice using the Voice handicap index questionnaire. The advancement of papillomatous lesions in the larynx was assessed clinically and anatomically based on the grading system developed by Derkay et al. The analysis of data was made before the first surgery, in the middle of the treatment cycle, before the last surgery and on the first follow up visit. **Results:** After treatment a decrease in scores was observed in both the clinical (from 0.9 to 0.58; $P = 0.055$) and anatomical (from 7.29 to 1.11; $P < 0.001$) Derkay system in subsequent stages of the treatment cycle and after the end of therapy. During the evaluated period of time, a statistically significant reduction in the VHI value in the physical (from 16,71 to 8,61), functional (from 13,1 to 6,78) subscales and the total score (from 42,05 to 23,17) were observed. Among the assessed objective acoustic parameters of the voice, we noticed a statistically significant improvement for Jitt. **Conclusions:** Surgical CO_2 laser treatment with cidofovir injection provide objective and subjective improvement in the voice quality and quality of life of patients with RRP.

Are there other registers in the falsetto of countertenors?

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Introduction: Transition of the male singing voice from the modal (M1) to the falsetto (M2) register has been well studied both acoustically and physiologically. Registers within the modal voice were also studied for male and female voices. The falsetto register has been regarded a relatively uniform register. However, professional countertenors have expressed that they too must manage register transitions in their falsetto voice. **Aims:** The aim of the study is to answer the question of whether there are other registers within the trained falsetto voice of countertenors, and if so, what characterizes them physiologically and acoustically. This question has been addressed in a joint research project of phoniatricians, acousticians, and voice researchers. **Material and Methods:** Twenty-seven professional countertenors were examined during various vocal exercises such as ascending and descending scales with soft, medium and loud tones on different vowels or glissandi. Vocal range profiling with spectral Voice profiler software, high-speed glottography, ingressive phonation, spectral cluster analysis, electroglottography, impedance measurements, perceptual analysis by the examiners, and self-assessment of the singers through questionnaires were conducted to obtain as much information as possible to answer the research question. **Results:** The most valuable information was obtained from the acoustic analysis using vocal range profiles. The majority of countertenor singers showed spectral and level transitions within M2 suggesting (sub)register transitions, characterized by a spectral peaking followed by a steep drop in level when with raising pitch, subsequently H4, H3 and H2, stop contributing to the overall spectral power. Most singers seemed to have two transitions, some only one, mostly in their lower M2 range. A few singers covered their

falsetto register without any evident discontinuity. **Conclusion:** This qualitative and quantitative study suggests the existence of (sub)registers in the falsetto voice of professional countertenors that seem to be caused by acoustic rather than laryngeal adjustments.

Awareness of human papillomavirus exposure risk and vaccination among laryngeal surgeons: a survey study

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Introduction: Recurrent respiratory papillomatosis poses occupational risks of human papillomavirus (HPV) exposure. The risk of HPV exposure has been documented in other specialties (dermatology, gynaecology), and consistent use of safety measures (masks, smoke extractors) as well as prophylactic HPV vaccination have been advocated. Nevertheless, the awareness of this risk among laryngeal surgeons remains uncertain. **Aims:** To explore the awareness of occupational HPV exposure risks and HPV vaccination practices among laryngeal surgeons treating RRP. **Materials and Methods:** A 21-item survey was electronically distributed to members of the European Laryngological Society and the Union of the European Phoniatricians (May–July 2024). **Results:** Out of 158 participants, 79.1% (125) were based in Europe. Of them, 67.7% (107) treated RRP exclusively in theatres, 29.8% (47) in both theatres and office settings, and 2.5% (4) exclusively in-office. Over half of respondents (53.2%; 84) expressed concerns about HPV transmission during RRP surgeries, with perceived occupational risk rated as mild-to-moderate by 80.4% (127). The use of protective measures (surgical masks, FFP3 masks, cloth masks, face shields, smoke evacuators, suction systems, HEPA filters) varied significantly among participants. The majority of respondents (65.8%; 104) were not vaccinated against HPV, though 76.0% (79) of unvaccinated participants expressed willingness to consider vaccination. Barriers to vaccination included time constraints (36.0%; 9), perceived lack of demonstrated efficacy (32.0%, 8), concerns regarding vaccine safety (20.0%; 5), and cost (16.0%; 4). Only 5.7% (9) indicated their employer provided financial support. **Conclusion:** Our survey reveals gaps in awareness and preventive practices among laryngologists regarding occupational exposure to HPV. Enhancing education, expanding vaccine access, standardizing safety protocols, and strengthening institutional support are essential for mitigating occupational risks in RRP management. Additionally, further research on HPV-related occupational risks within in-office practice is advocated.

A comprehensive treatment for benign laryngeal neoplasms: our experience

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Introduction: Our study examines the effectiveness of rehabilitation therapy performed in addition to phonosurgery benign vocal fold lesions. Relevance of the topic is justified by the lack of established protocols for an early postoperative management of patients with a certain pathology of the vocal apparatus, which would improve the results of an operation, prevent additional trauma to the vocal folds and restore voice in a short period of time. **Aims:** To confirm the effectiveness of using a low-frequency stationary pulsed magnetic field in combination with inhaled corticosteroid therapy in the postoperative period for a quick voice recovery. **Materials and Methods:** 95 patients with unilateral polypous vocal fold neoplasm (no more than 5 mm) on the vocal fold were selected for the study. The patients were divided into 2 groups: the 1st main group and the 2nd control group. The main group included 50 patients. Since the first day after surgery, they had been supplemented with a standard inhalation treatment regimen by exposure to a low-frequency stationary pulsed magnetic field with frequency of 100 Hz, intensity of 6 MT in mode 3, 15 minutes lasting, 2-times a day, during 4 days. The control group of 45 patients underwent

a standard inhaled corticosteroid therapy for 7 days. **Results:** Videolaryngostroboscopy indices, % jitter, % shimmer, NHR, Maximum phonation time (c) (PRAAT), VHI-30 significantly improved in group 1 on day 5–7 ($P < 0.05$) compared with group 2. **Conclusion:** The parameters of a pulsed magnetic field used in the study allowed to optimize the volume of rehabilitation measures and achieve a bright, sonorous, plastic voice in a shorter time. Comprehensive voice rehabilitation after phonosurgery is necessary in the early postoperative period, especially for patients of vocal and speech professions, to restore a high-quality voice formation.

Health justice and transgender voice care-updates

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Introduction: Transgender health justice is a crucial aspect of achieving equitable healthcare for all individuals, regardless of their gender identity. Despite significant progress in recent years, transgender individuals continue to face numerous challenges in accessing appropriate and respectful healthcare services, particularly in the United States. These challenges include discrimination, lack of provider knowledge, and limited availability of gender-affirming care. Transgender patients in the United States face proposed laws to limit transgender care. In Europe, a 2024 report identified several barriers to healthcare parity for LGBTI individuals. Many countries in the Asia Pacific region lack national guidelines on transgender healthcare. Globally, the major barriers to care are widespread stigma and discrimination, lack of knowledgeable healthcare providers, and limited access to professionals with experience in gender affirming care which reflects a general lack of awareness regarding transgender health needs and the best practices and policies. **Aims:** This study aims to discuss barriers to achieving equitable healthcare for LGBTQiA patients, with particular reference to transvoice surgery. It applies the Wesp model of intersectionality research for transgender health justice and reviews specific cases for illustration. **Materials:** De-identified medical records were reviewed for this study. **Methods:** A chart review was conducted to gather relevant data including information about barriers to care. **Results:** The study identified several significant barriers faced by transgender patients, including intimate partner violence, vulnerability of sex workers, HIV disease, housing insecurity, employment discrimination, and negative healthcare experiences. **Conclusion:** Transgender patients often experience multiple barriers to equitable access and a welcoming environment when receiving healthcare. These barriers are multiplied and amplified for transwomen of color, notably in the United States, but global statistics provide evidence of this trend. Addressing these barriers through informed policy changes and increased provider education is essential for achieving true health justice for transgender individuals.

Outcomes of non-selective laryngeal reinnervation and its impact on arytenoid position

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Introduction: Non-selective laryngeal reinnervation is an effective treatment for unilateral vocal fold paralysis. The procedure involves creating an anastomosis between the ansa cervicalis and the recurrent laryngeal nerve (RLN), reinnervating both abductor and adductor muscles. This improves muscle tone and stabilizes the arytenoid. **Aims:** Our objective is to evaluate the impact of this procedure on arytenoid position. **Methods:** We conducted a retrospective review of patients who underwent non-selective laryngeal reinnervation between 2014 and 2024 by a single surgeon. Outcome measures included GRBAS, maximum phonation time (MPT), voice handicap index (VHI), and stroboscopy, with a focus on arytenoid position. **Results:** Fifty-five patients underwent unilateral ansa-RLN reinnervation. Significant improvements were observed in GRBAS, MPT, and VHI scores. Arytenoid position improved fully in some patients, while others showed partial stabilization. Overall, results were promising. **Conclusion:** Unilateral non-selective laryngeal reinnervation provides reliable improvements in voice quality and muscle function. The effects on arytenoid position are encouraging, suggesting potential benefits for long-term vocal fold stability. Further studies are needed to assess long-term outcomes.

Efficacy of total selective reinnervation in bilateral vocal cord palsy

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BVCP is mainly treated with static surgical procedures which improve airway at the expense of voice. For improving the airway without compromising the voice a dynamic procedure is needed like Total selective reinnervation. Here we are analysing our experience with 8 cases of total selective reinnervation. **Aim:** To assess the efficacy of total selective reinnervation in cases of bilateral vocal cord palsy. **Objective:** 1. To assess improvement in airway post total selective reinnervation; 2. To assess improvement in voice post total selective reinnervation; 3. To assess involvement of swallowing function in total selective reinnervation. **Methods:** A prospective study of bilateral vocal cord palsy who underwent total selective reinnervation during 7 years period. All patients had a minimum follow up period of 12 months. All the 8 cases were seen within 2 years of their complaint. EUA was done in all cases to rule out cricoarytenoid joint fixity. Preop assessment of voice quality was done with dyspnoea index and VHI. Glottic space was assessed with endoscopy. A repeat assessment was done at 6 and 12 months postop and the results were compared. **Result:** In immediate postop period patient had worsened voice quality. Voice improvement and lower VHI noted in all patients by 12 months. Regarding airway; 6 patients were decannulated in 2 weeks time, 1 patient was decannulated after 4 months and the youngest one after 1 year. By 6 months time all patients had improvement of dyspnoea index by 1. However between 8 and 12 months 4 patients had worsening of dyspnoea index requiring static procedures. The immediate swallowing dysfunction improved in a period of 2 weeks. **Conclusion:** Total selective reinnervation improved the voice in all cases and it dint have any adverse effect on swallowing, however the long-term effect in improving the airway was ambiguous.

Comparison and quantification of vocal tract efficiency strategies across different voice qualities in four professional singers

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Understanding vocal efficiency across voice qualities is crucial for vocal health, benefiting both singers and speaking professionals like teachers. Efficient voice production can be described as achieving high sound pressure levels with minimal energy expenditure and biomechanical strain, relying among others on the interaction between the voice source and vocal tract (VT) acoustics. Fleischer et al. (2022) introduced a measure that quantifies acoustic sound intensity within the human glottis depending on different VT configurations and thus determines the energy required to excite the respective VT in a single-subject study. This study aims to generalize these findings to a broader sample of male and female voices. Four still Voice Training®-trained singers (2♂, 2♀) phonated [a:] in six voice qualities (Belting, Twang, Opera, Sob, Falsetto, Speech) at ♀415 Hz/♂207 Hz. Using 3D-MRI and finite-element modeling, the volume velocity transfer function (VVTF) was calculated. Combined with audio recordings, particle velocity and acoustic pressure at the glottis were used to derive calculated sound intensity at the glottis. VT configurations grouped into three patterns: Belting/Twang (megaphone shape), Speech/Falsetto (neutral), and Sob/Opera (hourglass shape). These patterns align with distinct VVTF profiles, such as Opera clustering R3–R5 resonances and Belting/Twang shifting VVTF above 0 dB. Sob required high Sound intensity to excite its VT, indicating lower efficiency mostly compared to Belting and Opera. Twang, Speech, and Falsetto showed variability consistent with VVTF differences in efficiency strategies. Despite the small sample size, consistent VT configurations, resonance properties, and efficiency across six voice qualities suggest voice efficiency strategies are trainable. Variances likely reflect more practiced styles. Further research is needed to examine how anatomy influences ease and preference for specific qualities. A single efficiency metric could improve understanding, encourage conscious use of less efficient qualities, and, with acoustic amplification, help prevent voice disorders. Future studies will assess the effects of different vowels and pitches.

Dynamic 3D vocal fold MRI enables *in vivo* quantification of voice production mechanisms

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Introduction: Voice research traditionally uses superficial 2D endoscopic views of the vocal folds (VF) to assess VF oscillation – this technique cannot provide depth information of the complex 3D oscillation dynamics. Computational and *ex vivo* studies underscore the significance of vertical VF thickness and medial surface shape in shaping glottal closure patterns. **Aims:** This study provides the first *in vivo* assessment of the 3D VF dynamics, including vertical and horizontal displacement and VF contact area, using dynamic 3D VF MRI. **Material and Methods:** A trained singer performed phonation under six voice production mechanisms involving variations in VF thickness and degree of adduction ("Thick," "Thin," "Stiff"), ventricular fold (FVF) ab-/adduction, and aryepiglottic sphincter (AES) constriction. During singing, MR data were acquired on a 3T MRI system with zero echo time sequences and compared to open quotient (OQ) values from high-speed imaging and electroglottography (EGG) recorded in a separate session. **Results:** VF contact area and displacement varied across phonation types. "Stiff" had the smallest contact area, while "Thick & FVF constrict" had the largest, aligning with OQ values. VF contact curves showed distinct geometric patterns: leftward skewing for "Thick," a central maximum for "Thin," and rightward skewing for "Stiff." Vertical VF motion often exceeded horizontal motion, with minimal displacement in "Thick & FVF constrict" and maximal displacement in "Thick" (horizontal) and "Thick & FVF retract"/ "Stiff" (vertical). **Conclusions:** Dynamic 3D VF MRI provides absolute measurements of VF contact area and VF displacement, enabling differentiation of voice production mechanisms. Vertical motion, often overlooked in endoscopic views, plays a critical role. These findings highlight the need for 3D quantification in understanding VF function and dysfunction. Future efforts will focus on automated analyses, larger sample sizes, and applications to patients with voice disorders.

Nanofat as a long-term tissue option for injection laryngoplasty in glottic insufficiency

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Introduction: Glottic insufficiency, caused by incomplete vocal fold closure, results in dysphonia and reduced quality of life. Unilateral vocal fold palsy (UVFP), commonly due to neural impairment, is a frequent etiology. Videolaryngostroboscopy is essential for differential diagnosis. Injection laryngoplasty with autologous fat is a well-established treatment due to its biocompatibility and durability. Advances in nano-fat processing enhance its regenerative potential, making it a promising option. **Aims:** This study aimed to evaluate the efficacy of injection laryngoplasty using autologous nano-fat in patients with glottic insufficiency. **Materials:** This study evaluated the efficacy of injection laryngoplasty using autologous nano-fat in UVFP patients. Adipose tissue was processed into nano-fat to increase stromal vascular fractions and growth factors before being injected into the affected vocal fold. Vocal function outcomes were assessed using acoustic and aerodynamic parameters and quality-of-life measures. **Results:** A total of 27 patients with glottic insufficiency underwent nano-fat injection, showing significant vocal function improvement. The most common cause was vagal or recurrent laryngeal nerve paresis, with a median of 2 ml of nano-fat applied per side. VAS scores improved from 8.56 to 2.03; with near-complete glottic closure confirmed on videolaryngostroboscopy. Reoperation was required in 22% of cases, primarily due to material resorption or persistent insufficiency. Long-term improvement was observed in 78% of patients, supporting nano-fat's effectiveness in restoring vocal function. **Conclusion:** Injection laryngoplasty with autologous nano-fat is a promising, minimally invasive treatment for glottic insufficiency. Its regenerative potential and precise application reduce resorption and improve vocal outcomes. Further refinement of techniques may enhance long-term efficacy and establish nano-fat as a standard treatment for UVFP.
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Angiolytic laser cordotomy for bilateral vocal cord paralysis

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Introduction: Angiolytic laser has emerged as a promising technique in laryngeal surgery due to its precision and reduced intraoperative bleeding. This study evaluates the effectiveness, safety, and clinical outcomes of the angiolytic laser cordotomy compared to non-angiolytic modalities. **Aim:** To compare the clinical outcomes of angiolytic laser cordotomy and non-angiolytic techniques. **Materials and Methods:** A retrospective analysis was conducted. In the angiolytic laser group, the 445 nm Blue Laser B-TECH PRO was used, while microcautery and cold knife were used in the non-angiolytic group. Twenty-five cordotomy operations were performed in 2019–2024. In the angiolytic laser group, 11 patients underwent 11 operations, while in the non-angiolytic group, 10 patients underwent 14 operations. The outcomes assessed included postoperative discharge times, revision surgery requirement, hospital readmissions within first 7 days and first 30 days. **Results:** Average postoperative discharge time was 1.5 days and 2.78 days in angiolytic laser group and in non-angiolytic modalities group respectively. One patient (10%) was required revision surgery in angiolytic laser group. In non-angiolytic group 3 patients required revision surgery 6-times (42.8%). Within the first 7 days 1 (10%) and 2 (14.2%) patients in the angiolytic laser group and non-angiolytic group required hospital readmissions, respectively. Within the first 30 days 2 (20%) and 3 (21.4%) patients in the angiolytic laser group and non-angiolytic group required hospital readmissions, respectively. **Conclusion:** Angiolytic laser provides a significantly more bloodless surgical field compared to other modalities. Advantages of angiolytic laser, such as faster discharge, reduced need for revision surgeries and lower complication rates, makes it a preferable choice. However, there is a potential risk of granulation tissue formation due to laser use. Angiolytic laser shows significant potential as a reliable and effective modality for laryngeal surgeries

E-POSTER SESSIONS

AUDIOLOGY AND HEARING

Predictive value of early ABR testing in children with language/communication pathology

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Introduction: The connection between pathology of hearing and speech language pathology is widely known, but recognizing the sounds of speech and acquiring language involves neural structures far beyond the peripheral sensory organ of hearing. Auditory brainstem response (ABR) is an electrophysiological measure of a part of the hearing pathway that can give us some insight of the hearing function on a brainstem level. **Aims:** The aim of the study was to estimate the predictive value of ABR latencies testing in connection to language and communication pathology. **Materials and Methods:** The participants of the study were 50 very young children with nonspecific but clinically noticed language / communication delay, aged between 2 and 3,6 years. Only children with TG type A and normal peripheral hearing measured by ASSR were involved in the study. Supraliminal ABR testing was performed in usual conditions during sleep, and absolute and inter peak latencies of the waves I, III and V were observed. At the age of 4–5 years, children were tested with standardized language tests, tests of psychomotor development, and were examined by child psychiatrist and pediatric neurologist if needed. According to the findings, they were subdivided in several groups: 1. children with DLD; 2. children with psychomotor retardation; 3. children with autism spectrum disorder (ASD); and 4. children without significant language pathology. Statistical analysis examined the connection between prolongation of ABR latencies and type of pathology. **Results:** Preliminary results show that the prolongation of ABR latencies is mostly seen in group of children with ASD, less in DLD, and very rare in children with psychomotor retardation.

Endoscopic ear surgery – Why not be afraid and our initial experiences

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Introduction: Endoscopic ear surgery (EES) is a minimally invasive approach for treating middle ear pathologies, offering an alternative to classic microscopic surgery. We present our initial experiences and a series of cases using this method. **Materials and Methods:** We present a group of 11 patients who underwent transcanal endoscopic ear surgery for ear pathology, all performed during 2023 and 2024. The majority of cases involved chronic tympanic membrane perforation. **Results:** We performed 40 ear surgeries during 2023 and 2024, including 15 myringoplasties, 15 cholesteatoma surgeries, and 10 canalplasties. Of the myringoplasty surgeries, 66% (10) were performed using the total endoscopic approach, while 33% (5) were performed using the microscopic approach. EES myringoplasty was primarily used for dorsal tympanic membrane perforation (70%), and no cases required conversion to a microscopic approach. The microscopic approach was chosen primarily for anterior perforations (60%) or total perforations (40%). Only one endoscopic surgery was a second-look procedure. We encountered one complication: graft movement, which required revision surgery. **Conclusion:** Endoscopic ear surgery is a modern approach to treating middle ear pathologies, either as a totally endoscopic procedure or as an endoscopically assisted microscopic surgery, with favorable outcomes for patients. A thorough preoperative examination and careful patient selection are crucial for the success of this approach.

Malingering of one-sided hearing loss – a case report and review of audiological methods

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We present a case of 19-year-old patient malingering gradual unilateral hearing loss. We also review audiological methods applicable to detect such simulation.

Hearing screening in adults over 50 in the Czech Republic: preliminary data from a pilot study

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Introduction: Hearing impairment of some degree is a prevalent condition among older adults, affecting an estimated 65% of individuals above 60 years of age, according to the World Health Organization, and often leading to social isolation and cognitive decline. An effective nationwide screening program could significantly increase the chances of early detection, enabling timely interventions to prevent further deterioration of hearing. **Aims:** To assess the feasibility and effectiveness of different hearing screening methods in adults aged 50+, identify the most effective methods for use in primary care, and provide insights for developing a national screening program in the Czech Republic. **Materials and Methods:** This two-centered single-arm quasi-experimental study aims to enroll 330 participants aged 50 years or older. Screening is conducted in two steps, first by general practitioners using three methods: 1. an abbreviated version of the Hearing handicap inventory for adults (HHIA) questionnaire; 2. a whispered voice test; and 3. screening pure-tone audiometry at 35 dB at four frequencies (500; 1,000; 2,000; 4,000 Hz). In second step, participants undergo confirmatory testing by ENT specialists, including otoscopy, tympanometry and pure-tone audiometry, which serve as the reference standard. **Results:** Preliminary analysis will evaluate the feasibility of integrating these methods into primary care and their effectiveness in detecting hearing loss. Expected findings include concordance rates between screening tools and the reference standard, aiding in determining optimal methods. **Conclusion:** This study investigates integrating hearing screening into primary care for adults aged 50+. Preliminary data will inform the development of a standardized screening program, enhancing early detection and management of hearing loss in the aging population of the Czech Republic.
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The effect of balance belt on sensory organization test in individuals without balance disorders

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Introduction: The vestibular system integrates visual, proprioceptive, and vestibular inputs to maintain postural stability. Balance disorders disrupt daily activities, necessitating rehabilitation methods like vibrotactile feedback. The BalanceBelt is a wearable device designed to enhance balance through vibrotactile stimulation. This study evaluates the BalanceBelt's effect on sensory organization in individuals without balance disorders. **Aims:** This study aims to determine if the BalanceBelt enhances somatosensory input and improves balance control in healthy individuals. Postural stability was assessed across different Sensory Organization Test (SOT) conditions with and without the BalanceBelt. **Materials and Methods:** Thirty healthy participants (19–29 years) underwent the SOT twice: once without and once with the BalanceBelt. The BalanceBelt (Elitac Wearables, Netherlands) provided vibrotactile stimulation. The NeuroCom system assessed postural stability across six conditions. Wilcoxon Signed-Rank Test analyzed equilibrium scores. **Results:** Significant improvements were found in conditions C3 and C4 ($P < 0.05$) and in the SOM1 score ($P < 0.05$) with the BalanceBelt, suggesting enhanced somatosensory input. No significant differences were noted in composite equilibrium scores or other conditions ($P > 0.05$). **Conclusion:** The BalanceBelt enhances somatosensory input in specific postural conditions but does not significantly improve overall balance in individuals without balance disorders. Future research should explore its application in vestibular rehabilitation for patients with balance impairments. The BalanceBelt offers potential as a non-invasive tool for postural control in bilateral vestibular dysfunction.

Impact of endolymphatic sac decompression on hearing function in patients with Menière's disease

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Introduction: Menière's disease (MM) is a paroxysmal vestibular disorder caused by idiopathic endolymphatic hydrops. Treatment is symptomatic, with medication as first-line therapy. When conservative treatment fails, surgical options such as endolymphatic sac decompression (ELSD) are considered for intractable vertigo. ELSD is an effective stabilising surgical option, though it carries the risk of postoperative auditory-vestibular dysfunction. **Aims:** This study aims to evaluate the impact of ELSD on hearing. **Materials and Methods:** We retrospectively analyzed 37 patients (25 women, 12 men; mean age 50) who underwent ELSD for intractable vertigo due to definitive MM at our institution between 2019 and 2023. A total of 38 decompressions were performed, including one bilateral procedure. Hearing was assessed using pure-tone audiometry. Pure tone average (PTA) was calculated from frequencies of 500; 1,000; 2,000; and 4,000 Hz for both bone and air conduction. Hearing changes were evaluated by comparing preoperative and 12-month postoperative audiometry, with a ≥ 5 dB change in PTA considered significant. The emergence of a low-frequency air-bone gap (LFABG; ≥10 dB at 250; 500; 1,000 Hz) was also analyzed. Hearing difficulties were evaluated using the Hearing handicap inventory (HHI). **Results:** Postoperatively, bone conduction thresholds deteriorated in 53.1% of patients, remained unchanged in 28.1%, and improved in 18.8%. Low-frequency thresholds generally improved, while those at 2,000, and 4,000 Hz worsened. The mean PTA for bone conduction increased from 30.7 to 39.3 dB postoperatively, while air conduction PTA increased from 36 to 49.2 dB. LFABG developed in 53%. HHI scores showed no significant changes between preoperative and postoperative assessments, remaining within the moderate deficit range. **Conclusion:** ELSD is effective in stabilising vertigo in MM. Postoperative complications are rare. Even though it carries the risk of worsening bone and air conduction thresholds, ELSD offers minimal morbidity with better preservation of auditory and vestibular function compared to ablation techniques.

Levels of peripheral myelin protein and vitamin D in the blood serum of patients with type 2 diabetes and hearing impairments

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Introduction: Patients with diabetes mellitus often experience micro- and macrovascular complications requiring early diagnosis and treatment. Metabolic dysfunction and disorders of the hemostatic system are key factors in the development of complications in type 2 diabetes mellitus, including degenerative changes in nerve fibers. Hearing impairments, such as sensorineural hearing loss (SNHL), are commonly observed in diabetes. Changes in metabolism and vitamin deficiencies also contribute to the development of SNHL. An important aspect of treatment is timely identification of demyelinating processes and assessment of vitamin D levels in blood serum. **Aim:** The aim of the study was to examine the levels of peripheral myelin protein 22 (PMP 22) and vitamin D in patients with type 2 diabetes and hearing impairment. **Materials and Methods:** 43 patients with type 2 DM (21 men, 22 women, aged 56.28 ± 4.54 years) with degree I–II sensorineural disorders, 15 individuals with SNHL (8 men, 7 women, aged 59.33 ± 2.65 years) without diabetes, and 15 controls were examined. The patients were divided into two groups: the 1st group (N = 21) with or without isolated microvascular complications of type 2 DM, and the 2nd group (N = 22) with neuro-, nephro-, and retinopathy. All patients underwent laboratory tests, clinical and instrumental assessments of auditory function. The obtained data were analyzed statistically. **Results:** The analysis revealed that in both groups with type 2 DM and SNHL, PMP22 levels were significantly higher than in the controls, especially in those with microvascular complications. Vitamin D levels were significantly lower in both groups with type 2 DM and SNHL compared to controls, with a more pronounced decrease in the group with complications. **Conclusion:** Our findings suggest that demyelinating processes and vitamin D deficiency may play a crucial role in sensorineural hearing loss in type 2 diabetes patients.

Preoperative frequency allocation accuracy in Cochlear implantation: the impact of Cochlear duct length on electrode positioning

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Introduction: Accurate preoperative frequency allocation prediction is crucial for optimal cochlear implant outcomes. **Aims:** To evaluate the accuracy of preoperative frequency allocation predictions and their relationship with cochlear duct length (CDL) in cochlear implantation. **Materials and Methods:** This retrospective observational study analyzed 50 implanted ears. Preoperative frequency allocations for 12 electrodes were estimated using OTOPLAN software and compared with postoperative measurements. CDL was measured for each patient. Frequency-to-place mismatch and angular insertion depth (AID) were calculated and analyzed in relation to CDL using paired t-tests and Spearman's correlation. **Results:** Mean CDL was 35.6 mm (SD 1.68 mm). Significant differences were found between preoperative and postoperative frequency allocations for electrodes C11 to C1 (all $P < 0.001$). The mean preoperative AID estimation (576°, SD 57.3°) significantly overestimated the postoperative measurement (531°, SD 94.2°F; $P = 0.002$). Frequency-to-place mismatch ranged from 4374 Hz (C12) to 112 Hz (C1), showing a consistent overestimation of frequencies. A moderate negative correlation was observed between CDL and frequency-to-place mismatch (Spearman's rho = –0.5315; $P = 0.0754$), suggesting that longer cochleae tend to have smaller mismatches, although not statistically significant at the 0.05 level. **Conclusion:** Preoperative frequency allocation predictions using OTOPLAN consistently overestimate postoperative measurements, with the degree of mismatch potentially influenced by CDL. This study highlights the importance of considering individual cochlear anatomy in preoperative planning for cochlear implantation. Further research is needed to refine prediction models and improve the accuracy of preoperative frequency allocation estimates.

AirPods Pro 2 as a game changer in hearing rehabilitation? A pilot study on mild to moderate hearing loss and tinnitus

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Introduction: Conventional hearing aids remain the gold standard for hearing rehabilitation, but consumer devices like AirPods Pro 2, featuring built-in audiometry and adaptive transparency, may offer a viable alternative for individuals with mild to moderate hearing loss or tinnitus. **Aims:** This study evaluates the effectiveness of AirPods Pro 2 compared to conventional hearing aids, focusing on speech intelligibility, tinnitus relief, and user comfort. **Materials and Methods:** A pilot study is being conducted on adult patients with mild to moderate sensorineural hearing loss and/or tinnitus. Each participant undergoes a comprehensive audiometric assessment, followed by a comparative trial using AirPods Pro 2 and a professionally fitted hearing aid deemed optimal for their condition. The primary outcome measures include speech-in-noise performance, tinnitus relief (measured via subjective scales), and user-reported comfort and satisfaction. **Results:** Preliminary findings suggest that AirPods Pro 2 improve speech intelligibility in quiet and moderate noise. Some patients report tinnitus relief with adaptive transparency mode. While hearing aids generally perform better in complex environments, AirPods Pro 2 present a promising alternative. **Conclusion:** Our findings suggest that consumer-grade devices like AirPods Pro 2 should be considered in hearing rehabilitation strategies, particularly for individuals with mild to moderate hearing loss who seek an affordable and user-friendly option. Further research is needed to refine their clinical application and determine their long-term benefits compared to conventional hearing aids.

Speech understanding with ISS masking in patients with single-sided Cochlear implantation

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Introduction and Aims: In our group, we tested 47 patients after unilateral cochlear implantation without using a hearing aid on the non-implanted ear and 1 patient after bilateral cochlear implantation. For testing, we used Slovak speech audiometry SSA

at an intensity level of 60 dB with an ISS signal at an intensity level of 50 dB. During testing, the patient had to repeat a decade of SSA words from a distance of 0.5 m, first from the side without the implant, then from the side with the implant. The aim was to confirm the fact that speech understanding in background speech noise is better on the side of the cochlear implant. **Materials and Methods:** Number of patients was 48, men 22, women 26, average age was 46.5, minimum 18, maximum 78 years. Sides of implantation – right side 30, left 17, both sides 1 patient. Average age at the time of surgery was 36.52 years, minimum 1.5, and maximum 77 years. Number of years since KI was on average 10.02 years, minimum 0.25, and maximum 28 years. Implant type was Medel-33, Nucleus-15. Cause of hearing impairment was unknown in 28 patients, genetics impairment 10, after meningitis 3, after noise exposure 4, after fracture of the osis temp.1, after application of STM 1, after stroke 1. **Results:** The number of repeated words from the side with a speech processor was on average 84%, minimum 40%, and maximum 100%. From the side without a speech processor was on average 63%, minimum 30%, and maximum 90%. In patient with two speech processors the number of repeated words from the right side was 100%, from the left side 90%. **Conclusion:** All patients after unilateral cochlear implantation achieved a better result when repeating words from the side of the cochlear implant.

Vestibular profile of patients with hearing loss caused by pathogenic variants of the *STRC* gene

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The second most frequent cause of non-syndromic autosomal recessive hearing loss (AR-NSHL) worldwide is a biallelic pathogenic alteration of the *STRC* (stereocilin) gene, also named DFNB16. The type and severity of hearing impairment in DFNB16 patients were studied thoroughly, while information on a detailed examination of their vestibular function is still lacking. Our aim was to characterize the vestibular status of patients with biallelic pathogenic variants in *STRC* by performing a complete up-to-date test battery. Eight AR-NSHL patients, aged 6–37 (mean age ± SEM 16.13 ± 8.67), underwent standard audiological testing and otoneurologic investigation including videonystagmography (VNG) with caloric stimulation, video head-impulse test (vHIT), and cervical vestibular evoked myogenic potentials (cVEMPs). Subjects were divided into three groups (group 1, 2, 3) according to the type of diagnosed *STRC* gene variant. The grade of the hearing loss was calculated as PTA (mean PTA ± SEM 41.88 dB ± 5.49). The vHIT displayed nearly normal bilateral gain and mostly the absence of saccades in all examined groups. Cervical VEMPs in response to AC and BC stimuli showed prolonged latencies of waves P1 and N1 bilaterally in group 1, although latencies in group 2 and 3 were within normal range. The results of VNG indicated normal vestibular and central oculomotor function. Biallelic pathogenic variants in *STRC* gene influence inner ear's cochlear and vestibular function. Vestibular dysfunction in DFNB16 patients was detected by detailed evaluation, despite none of the DFNB16 subjects in our study reported subjective symptoms.

SmartNav in cochlear implantation under local anesthesia

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Cochlear implantation is an effective and safe method of rehabilitation for severe hearing loss, regardless of the age of the patient. Particularly in older patients, the risks associated with general anaesthesia are increasing and we must consider whether they are acceptable in the pursuit of improved quality of life. In recent years, cochlear implantation has been increasingly performed under local anaesthesia (LA) or in combination with analgosedation (AS). SmartNav is a new technology that enables continuous monitoring of electrode array insertion in Cochlear implants, determination of angular depth of insertion, performance of

transimpedance matrix (TIM) and exclusion of tip-fold over, measurement of impedances and standard neural response telemetry (NRT). In the present cohort, we used it in senior patients operated with a combination of LA and AS. Between January and April 2024, we performed the study at the Department of Otorhinolaryngology Head and Neck Surgery, 1st Faculty of Medicine, Charles University, University Hospital Motol, Prague and performed CI under the combination of LA and AS in a total of 11 patients in whom electrode array insertion was monitored by SmartNav. The average age of the patients was 76.2 years, all were male, and we operated four times on the left and seven times on the right ear. All patients had progressive hearing loss in adulthood. Full insertion of the CI622 electrode array was achieved in all patients. The average angular depth of insertion was 332 degrees, the average insertion velocity was 0.32 mm/s. TIM excluded tip-fold over in all patients, which was subsequently confirmed by postoperative X-ray. In 5 of the 6 patients, the procedure could be completed under AS/LA, in one patient the procedure had to be converted and completed under general anesthesia, using a laryngeal mask. Cochlear implantation under LA/AS is a safe method to minimize the risks associated with general anesthesia. All SmartNav system features could be used during surgery, with the exception of NRT. In the presented miniseries, there was 100% concordance of the TIM excluding tip-fold over and postoperative X-ray. The SmartNav system is an effective and safe tool even for procedures performed in LA or AS.
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Sound therapy and tinnitus retraining therapy in patients with chronic subjective tinnitus

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Introduction: The work examines the impact of chronic subjective tinnitus on the personal and professional lives of patients, focusing on its effect on their mental health (anxiety, depression, difficulty coping with stress and emotions) speech comprehension disorders and sleep quality. The increasing prevalence of tinnitus patients highlights the importance of a multifactorial therapeutic approach, in which sound therapy using TRT (Tinnitus retraining therapy) plays a crucial role. **Aims:** To present the effect of sound therapy (pink noise) within the framework of TRT using TCI (Tinnitus control instruments) – a noise generator – on improving the quality of life of patients with chronic subjective tinnitus. **Material and Methods:** A cohort of 106 patients with chronic subjective tinnitus was selected. Patients underwent neurological examination, including brain MRI. Before the application of TCI (always binaurally), the following parameters were assessed: hearing threshold, tinnitus frequency characteristic and intensity, uncomfortable loudness level threshold and speech audiometry in a free-field setting. Patients completed the THI (Tinnitus handicap inventory) questionnaire. Pink noise in the TCI was adjusted to match the frequency characteristics of the patients' tinnitus, with an intensity lower than the perceived tinnitus. Comprehensive audiometric examinations and THI questionnaires were evaluated after 12 and 24 months. **Results:** Both the pitch and intensity of tinnitus decreased over 12 months. The number of points in the THI questionnaires gradually reduced after 12 and 24 months of treatment. These results correlate with a reduction in negative impacts on patient ,s lives, including improved sleep quality. **Discussion and Conclusion:** Our findings demonstrate that TRT, within the framework of CBT (Cognitive behavioral therapy) has a significant role in the treatment of tinnitus.

Permanent conductive hearing loss in children: etiology, typical audiograms and treatment

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Introduction and Aims: Permanent conductive hearing loss (CHL) in children often presents alongside comorbidities, complicating timely diagnosis. This study aims to explore the etiology, audiologic profiles, and treatment of affected children. **Materials and Methods:** Data from 1,043 children with CHL were collected from the German Registry for Hearing Loss in Children. Analysis considered reported comorbidities, risk factors, degree of hearing loss according to WHO 2021, audiogram types, treatment, and age at diagnosis. Audiogram classification (N = 789 ears) was conducted using shape-similarity and minimum variance to map standard audiograms. **Results:** CHL was reported in 6% of children in the registry, with bilateral CHL in 52% of affected

children. Comorbidities in CHL (CHL+) in contrast to isolated CHL were observed in 85% of the cases, predominantly craniofacial malformations (79%). Risk factors were reported in 22%, with need of ventilation (4.3%), parental consanguinity (4.2%), prematurity (3.8%), and hypoxia (3.5%) being the most common risk factors. Audiogram analysis revealed pantonal hearing loss in half of the cases as well as low-frequency and tent-shaped losses being more prevalent than high-frequency loss. Degrees of hearing loss ranged from mild (13%) to severe (19%). Median diagnostic age for CHL+ children was 0.7 years (IQR 0.2–4.1 years), while isolated CHL was diagnosed later, at a median of 5.5 years (IQR 2.8–6.11 years). Air-conduction hearing aids were the most common type of treatment (79%) while bone-conduction aids were reported in 4.4% of the cases. **Conclusion:** In comparison to isolated cases, CHL was more commonly associated with comorbidities and these children were diagnosed earlier. Air-conduction hearing aids were the primary treatment. Pantonal balanced audiograms dominated, while high-frequency loss was rare. Thus, early frequency-specific bone-conduction threshold assessments (e.g., BERA) are further recommended, especially for atypical audiograms.

E-POSTER SESSIONS

SPEECH AND LANGUAGE

What affects the maximum phonation time in patients with tracheoesophageal and esophageal speech?

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Introduction: There are three types of alaryngeal speech: tracheoesophageal speech (TES) with voice prosthesis, esophageal speech (ES) and speech with electrolarynx. **Aims:** To analyze the influence of different factors on the maximum phonation time (MPT) in patients with TES and ES following total laryngectomy (TL). **Materials and Methods:** Study included 41 patients with TES after secondary Provox® voice prosthesis insertion and 43 patients with successfully achieved ES following TL performed on Clinic for ENT and head and neck surgery, University Clinical centre of Vojvodina, Novi Sad, Serbia. MPT after six months of rehabilitation was measured in both groups and compared. The influence of different factors (age, gender, community life, level of education, hearing status, level of depression, anxiety and cognitive functions, type of surgery, intraoperative tumor and nodal status, complications following total laryngectomy, postoperative radiotherapy, urgent tracheostomy performed before total laryngectomy, number of comorbidities, cigarette smoking and alcohol consumption), on the value of MPT in both groups of patients was analyzed. **Results:** The mean MPT in patients with TES was statistically significantly higher than in patients with ES (8.782 s vs. 1.875 s). Mean MPT in patients with voice prosthesis was statistically significantly higher in patients < 60 years of age, with < 2 comorbidities, without complications following TL, with normal hearing or with mild and moderate hearing loss and with higher cognitive functions. Mean MPT in patients with ES was statistically significantly higher in patients with < 2 comorbidities, lower nodal status intraoperatively and in patients that did not require urgent tracheostomy before TL. **Conclusion:** The mean MPT in patients with secondary inserted voice prosthesis is statistically significantly higher than in patients with ES. It is differently affected by the examined factors in both groups of patients, with number of comorbidities < 2 being the common positive influencing factor.

Speech rehabilitation in tracheotomized children

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Tracheotomy is a surgical procedure in which an opening is made in the anterior wall of the cervical trachea, kept open by inserting a tracheal cannula to allow the patient to breathe through a new airway entry into the lower respiratory tract. The most common indications for pediatric tracheotomy include upper airway obstruction, prolonged ventilation, aspiration, secretion management, lower airway collapse, neurological impairments, and congenital heart and lung diseases. Early tracheotomy reduces or disables vocalization, diminishes auditory and oral-motor feedback, reduces oral pressure, weakens and complicates swallowing and coughing, and limits early social verbal interactions. Also, tracheotomized children often have significantly poorer, if not entirely deprived, productive and receptive language and speech skills compared to their peers. A speaking valve is a one-way valve that allows inhalation through the tracheostomy while closing upon exhalation, directing airflow through the vocal, oral, and nasal tracts. The role of the speaking valve is to push air through the dead space above the trachea into the upper airway, enhance respiratory effort, and increase sensation during secretion clearance. The aim of this paper is to raise awareness of the necessity of timely and proper implementation of a speaking valve in tracheotomized children by presenting a protocol for the selection and application of the speaking valve, conducted by an otorhinolaryngologist and a speech therapist. The protocol implementation process begins in a clinical setting and continues at home, depending on the success of the child's adaptation to the new respiratory conditions.

Consequences of developmental language disorder in adulthood – a questionnaire study

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Introduction: Developmental language disorder (DLD) is one of the most prevalent developmental disorders. This diagnosis is characterized by persistently low language abilities with significant functional impact. Awareness of DLD is insufficient not only among the general public but also among healthcare professionals. The prevalence of DLD is estimated to be around 3.5–7.6%. **Aims:** This study aims to investigate the significant long-term consequences of DLD in adulthood. **Materials and Methods:** We selected a cohort of young adults born in 2003. These patients were monitored at the Department of Phoniatrics, 1st Faculty of Medicine, Charles University and General Faculty Hospital in Prague with a diagnosis of DLD, without other severe diseases or cognitive deficits. We contacted the patients to conduct an anonymized telephone questionnaire. The questionnaire focused on demographic data, comorbidities, educational history, challenges in learning foreign languages, workforce integration, persistent difficulties in reading and writing, duration of speech therapy interventions, independence, financial literacy, and social interactions, including relationship-building and experiences with bullying. **Results:** In the cohort of patients with DLD included in the study (N = 65), 75% were male and 25% female. The most common comorbidities were attention disorders (with or without hyperactivity) and depression. Regular follow-up with a clinical speech therapist lasted, on average, until the age of 12. A total of 30% of patients achieved a high school diploma. The most frequent challenges faced by patients with DLD included learning foreign languages, obtaining a driver's license, communication with strangers, and establishing new social relationships. Up to 80% of patients reported experiencing bullying in elementary school, either from peers or teachers. **Conclusion:** Our study demonstrates that DLD has long-term health implications that can persist into adulthood. The outcomes in various aspects of life are heterogeneous. However, like young children, adults with DLD continue to face numerous challenges.

Effective strategies for vocal endurance in professional singers

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In addition to artistic quality and talent, vocal stamina is important for the vocal professional. Whether we are talking about the voice during musical tours, workshops, theatre performances, media activities, voice over, vocal endurance is an important underlying factor in these activities. Hoarseness, vocal asthenia or hypertensions are some of the symptoms commonly experienced by professional singers. How quickly and efficiently you deal with these problems will help you to perform and avoid developing unhealthy vocal habits, techniques and compulsive vocal behaviours. How you prepare, maintain and rehabilitate your voice for such a profession depends on how you understand the needs of your vocal instrument. Breathing, vocal hygiene, vocal training and the basics of laryngeal function can help you increase your vocal endurance by using the right technique for the current state of your voice. Specific vocal exercises will be presented that focus on working specific muscles for vocal endurance. Vocal "accidents" are normal in the life of the vocal professional and it is also normal to know how and who to turn to in these situations. We will therefore combine the information provided by speech therapists with the musical and vocal concepts of singing teachers in order to implement various strategies that are the cornerstones of the vocal endurance of the professional singer. The plan of methods and techniques of vocal replenishment is in full development. It is important to know how to personalise your vocal technique, when to use it and what treatment to apply in order to have a resilient and quality voice. The optimal use of the voice motivates the voice professional in his work.

Acquired speech dyspraxia – coexisting and dominant motor speech disorder

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Introduction: Acquired Apraxia of speech (AOS), etiologically related to lesions of the secondary motor cortex, the premotor association areas, is manifested by disorders of oral speech segmentation that culminate in spontaneous. The coexistence of AOS with another neurogenic communication disorder is a diagnostic problem and the dominance of AOS after the retreat of aphasia or dysarthria symptomatology is uncommon. The case studies of persons after stroke under the care of the Phoniatric Clinic of the 1st Medical Faculty and General University Hospital in Prague, bring this specific situation and its longitudinal evolution closer. **Methodology and Material:** A comparative qualitative procedure is used to compare the development of two persons over a span of two years, during 2023 and 2024. The first person – male (born 1957), status after stroke 09/2021 – after a significant decline in aphasia and dysphagia symptoms, AOS manifestations predominate. The second person – female (born 1955), status after repeated strokes 04/2018 and 04/2021 after a decline in aphasia and dysarthria symptoms, AOS manifestations predominate. **Results:** A qualitative analysis of the frequency of strategies used in the beginning of the verbal form of spontaneous speech points to the key role of focusing the therapy of people with AOS on the area of compensatory strategies and stimulation in this area. Compensatory and therapeutic strategies of tactile, visual and phonetic focus are used most often in combination. **Conclusion:** AOS requires the development of specific diagnostic and therapeutic approaches and in the Speech Dyspraxia Centre of the Phoniatric Clinic, we are now modifying the diagnostic focus, inspired by the concepts of the latest version of the ABA-2 test (Apraxia Battery for Adults, B Dabul 2000). The aim is to further refine the differential diagnosis and subsequent development of a targeted rehabilitation programme for people with AOS.

Linking the auditory and visual forms of the speech segment in the process of influencing articulation and speech intelligibility in children with specific language impairment

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Introduction: The intensive form of rehabilitation program in the day hospital of the Phoniatric Clinic of the 1st Medical Faculty of Charles University and the General University Hospital in Prague is aimed at comprehensive educational, diagnostic and therapeutic multidisciplinary care for these children. In our research study, the program was enriched with a targeted set of procedures aimed at developing the compensation of children's labile and deficient phonological and articulatory abilities by visual means, with intensive involvement of the development of partial lexical elements and phoneme to grapheme conversion. **Material and Methods:** The presented study includes the processing of a cohort of 30 children (average age 6.5 years) and includes diagnostic and educational procedures focused on the presence of neurodevelopmental disorders, motor speech stimulation and perceptual phonological education and their evaluation. The investigation took place between 09/2024 and 12/2024 with the participation of a qualified early childhood teacher and a qualified clinical speech and language therapist. **Results:** The development of articulatory abilities of children with neurodevelopmental speech communication disorders is demonstrably influenced by the processes of linking the auditory and visual forms of the speech segment, the phoneme-grapheme link. It is possible to support the extension of the program of these procedures to other phonemes that are important in the development of speech intelligibility in the Czech language. The parameter of good quality audiovisual recordings is essential for this extension and should be included in the follow-up part of the research investigation. **Conclusion:** The involvement of early developmental education in the basics of reading and writing with appropriate visual stimuli, compensates for the labile auditory phonological development of these children. Its integration with a program of articulation development and speech intelligibility is promising and requires further follow-up in research and clinical and educational practice.

Symptomatology of developmental speech dyspraxia in children with specific language impairment

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Introduction: Developmental (childhood) speech apraxia (CAS) is a severe neurodevelopmental disorder that often complicates preschool and school education for children with developmental deficits. More severe manifestations of CAS, which often coexist with other neurodevelopmental deficits (e. g., SLI – Specific language impairment). The pre-school preparatory year programme, which is implemented by the primary and special school in Prague together with the Phoniatric Clinic of the 1st Medical Faculty of Charles University and the General University Hospital in Prague is designed for children with neurodevelopmental disorders. **Material and Methods:** The presented research study captures a set of 60 children who are in the program of a children's day hospital for children with neurodevelopmental communication disorders, who are in deferment of compulsory schooling, with an average age of 6.5 years, in the time period of 12 months of 2024. The Czech experimental version of the screening examination was used, based on the content and creation of diagnostic markers in the test "Dynamic evaluation of motor speech skill" (DEMSS) (Strand E McCauley R 2019), developed for the Czech language. **Results:** The results obtained show a representation of CAS symptomatology in the range corresponding to the English language studies (2–3%) and a more strongly represented group with suspicion of coexistence of SLI and CAS (10%), which points to the need to address the diagnostic differentiation at the level of severe phonological disorder – developmental speech dyspraxia. **Conclusion:** Differential diagnosis of CAS requires specific targeting, revealing diagnostic markers of this disorder, especially inconsistency of motor speech segments, lability of vowel sounds, and deviations in prosody and cadence of speech. The development of specific diagnostics in this area in the Czech language will be the next task of the continuous research focus of the future continual research study.

Selective mutism – the pilot study to map the correlation between the Selective mutism questionnaires DSM and the SMQ

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Introduction: Selective mutism (SM) is considered an uncommon psychiatric disorder characterized by an inability to communicate verbally in a variety of social situations, although it is possible in other settings. In the Czech environment, an assessment tool for evaluating the severity of SM has so far been lacking. The Selective mutism questionnaire (DSM) was developed as a standard for SM. Because of the need to validate this assessment tool, in a pilot study we compared the DSM with the internationally recognized and most widely used SMQ. **Aims:** The main aim of the pilot study was to map the correlation between the DSM and the SMQ and to describe the structure of SM severity in the research sample in order to have a validated assessment tool for SM severity in the Czech environment. Secondary objectives were to validate other research parameters. **Materials and Methods:** As part of the validation of the DSM, 48 probands with SM have been included in the study so far. As part of the pilot study, we completed the DSM and SMQ questionnaires with all probands and compared the scores obtained. The obtained data were analyzed using descriptive statistical methods. **Results:** There is a strong correlation between the questionnaires used (SMQ and DSM) and the structure of the SM severity score is normally distributed. Thus, it can be assumed that the DSM is a valid tool for diagnosing SM in this respect. **Conclusion:** The results support the use of DSM questionnaires to assess the severity of SM and to evaluate potential treatment effects in future studies. So far, the pilot study predicts that the DSM is a reliable and valid tool for screening and clinical evaluation of SM in Czech-speaking children.

Diagnostic markers valid for Czech preschool children with developmental language disorder

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Assessment of neurodevelopmental disorders related speech and language withing both the clinical a counselling services in the Czech Republic lacks precision at the level of differentiation from other developmental language related disorders. Mainly as a result of the lack of systematic research in this area targeting Czech speaking samples. The goal of our study was to identify which diagnostic tasks can accurately distinguish developmental language disorder (DLD) from unaffected Czech-speaking preschool children or from children with other disorders. A set of 11 diagnostic tests focusing on phonological, lexical and grammatical skills, short-term phonological memory, rapid automatic naming, and verbal and non-verbal intellectual skills was used to assess a group of children with DLD (DLD, N = 50) and age-matched control group (AC, N = 50) and a language control group (LC, N = 50). LC children were paired with DLD children based on performance on the verbal subtest of the WISC III. Developmental profiles of language skills for all groups were constructed. Our data show that the DLD group performs low compared to the control research groups on the sentence repetition task and the specific morphology task, while in other tasks the differences in performance between the groups are not significant, and in some tasks the DLD group performs better than the language control. The study elucidates reliable diagnostic tests for the identification of DLD based on the detection of cognitive level deficits underlying DLD. The results of the study may unify the view of experts on the basis of DLD and thus the diagnostic process.

E-POSTER SESSIONS

SWALLOWING

Transnasal oesophagoscopy in a tertiary care setting: a retrospective evaluation of clinical efficacy, cost-effectiveness, and diagnostic value

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Transnasal oesophagoscopy (TNO) is an increasingly recognised, minimally-invasive diagnostic technique that enables real-time evaluation of oesophageal and upper aerodigestive tract pathologies without the need for sedation. Compared to conventional oral endoscopy, TNO reduces procedural risks, optimises resource utilisation, and enhances throughput. This study evaluates the indications, diagnostic yield, and procedural success rate of TNO in a tertiary outpatient setting. Additionally, we assess referral patterns, patient demographics, post-procedural discharge rates, and the overall cost-effectiveness of this approach. A retrospective analysis was conducted on TNO patients at our centre between 2023 and 2025. Data collection included patient demographics, smoking status, referral source, clinical indication, endoscopic findings, and outcomes. The procedural completion rate, diagnostic utility, and cost-saving implications relative to sedated endoscopy were analyzed. Of the 76 TNO procedures performed, 12 (15.8%) were abandoned, while 3 (3.9%) were successfully converted to oral endoscopy. The primary referral indications included oropharyngeal reflux (35.6%) and dysphagia (30.3%). A significant proportion of patients (34.2%) exhibited normal endoscopic findings. Diagnosed conditions included gastro-oesophageal reflux disease (18.4%), structural abnormalities (polyps, vocal cord lesions, ectopic gastric mucosa) (11.8%), and hiatus hernia (10.5%). Referrals mainly originated from local ENT specialists, supplemented by tertiary and primary care referrals. Notably, 78.9% of patients were discharged without the need for further investigation or specialist follow-up. The cost-effectiveness of TNO is its ability to provide rapid, office-based diagnostic assessments, reducing the need for hospital-based sedated endoscopy. Our findings reaffirm the value of TNO as a first--line investigative tool for evaluating upper aerodigestive tract and oesophageal symptoms. Its minimally-invasive nature, high diagnostic yield, and ability to rapidly exclude pathology contribute to significant cost savings by reducing the need for sedated endoscopy, imaging, and prolonged follow-up. As such, TNO should be considered the preferred modality for selected patients with upper GI symptoms in outpatient and tertiary settings.

Feeding and swallowing disorder associated to esophageal atresia

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Introduction: Esophageal atresia (EA) is a congenital defect where the upper esophagus is not connected to the lower esophagus. Feeding and swallowing disorders (SD) are common in infants and children after esophageal atresia repair (approximately 80%). Despite the high prevalence of SD in EA, there are limited studies in the literature. Delayed oral feeding due to either structural or functional anomalies, may cause delayed development of deglutition functions. **Aims:** Describe the feeding and oropharyngeal swallowing disorders associated in children with esophageal atresia treated in our Dysphagia unit. **Materials and Method:** Retrospective revision (January 2023 – June 2024) of EA Phoniatric Clinic history from our Dysphagia unit. Data collection: gender, age, atresia classification, impaction or stenosis detected, reason for consultation, malformation association, instrumental diagnostic test performed (GT – gastroesophageal transit, manometry, phmetry, videofluoroscopy, FEES – fiberendoscopic evaluation of swallowing) and principal results from them, intake observation, FOIS classification, evolution. **Results:** 5 children, mean age 2,3 years, 60% women, 80% III type (1 case long gap), 80% stenosis post-surgical repair and food impaction episode. 80% another malformation association. Reason for consultation: difficulties in feeding progression (100% cases). Anomalies are found in most instrumental test performed: 80% difficult esophageal transit, 90% contractibility decreased, 60% gastroesophageal reflux, 60% oropharyngeal swallowing phase problems in videofluoroscopy, FEES and intake observation.

Discussion: The esophageal motility problems are the most common and the most challenging struggle with no definitive treatment in EA patients. Despite those findings, we observed oropharyngeal disfunctions associated to esophageal problems that they could worsen feeding difficulties. Perhaps EA type is related to oropharyngeal dysphagia developments, future research is needed.

Lingual ultrasound evaluation in amyotrophic lateral sclerosis

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Introduction: Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disease affecting upper and lower motor neurons of unknown cause. Consequently, muscle control is lost with the development of musculature weakness, atrophy and paralysis. Among them, the tongue atrophies associate speaking and swallowing difficulties. Ultrasound is a tool of recent application in the evaluation of swallowing and its use in the analysis of the tongue could be very useful. **Aim:** Describe tongue ultrasound characteristics in patients with ALS and their relationship with the disease evolution, as well as with the presence of dysphagia and malnutrition. **Material and Method:** Retrospective review of the medical records of ALS patients evaluated by our Multidisciplinary unit. Data included: age, sex, type of ALS, time since diagnosis, presence of oropharyngeal dysphagia, Functional oral intake scale (FOIS), nutritional status (measured with MNA), tongue thickness measured with ultrasound, presence of gastrostomy (PEG) and time since placement. **Results:** 20 patients, men 60%, average age: 66 years. Condition duration was over two years: 55%, and the most common presentation was spinal (60%). Oropharyngeal dysphagia: 65%, with malnutrition: 20% (10% PEG and 50% had made diet modifications). Average tongue thickness: 4.61 cm (0.72 cm genioglossus). We observed an inverse correlation between age and tongue thickness, with total tongue thickness directly correlated with genioglossus measurement. We observed a moderate correlation among feeding level, dysphagia presence and tongue thickness. There was no correlation with the type of ALS or with the duration of the condition. **Conclusions:** Ultrasonography is a simple and portable method that allows the lingual evaluation of the ALS patient in any context, facilitating decision making in the case of suspicion and/or presence of oropharyngeal dysphagia. Smaller lingual thicknesses are observed in cases of greater disease involvement that correlates with their ability to feed.

The key timing of pharyngeal reflux in patients with laryngopharyngeal reflux

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Objective: To analyze the incidence of pharyngeal reflux in laryngopharyngeal reflux patients over a 24-hour period and find out the key timing of pharyngeal reflux. **Methods:** We reviewed 69 patients who visited our clinic with LPR-related symptoms and were proven to have pharyngeal reflux via 24-hour multichannel intraluminal impedance-pH (24-hr MII-pH) monitoring. Quantitative analysis was conducted for the LPR profiles, such as the acidity of reflux, nighttime reflux, and positional reflux. The time series of pharyngeal reflux episodes and mealtimes were analyzed over a 24-hour period. Also, we recruited 26 normal controls. We compared the timing of pharyngeal reflux between LPR patients and asymptomatic controls. **Results:** The quantitative analysis revealed that pharyngeal reflux occurred 4.88 ± 4.59-times over 24 hours. Weakly acidic pharyngeal reflux was more abundant than acidic or weakly alkaline reflux. Pharyngeal reflux occurred mainly during daytime in the upright position. The most frequent timing of pharyngeal reflux episodes was within 2 hours after meals. Additionally, there was no significant difference of the timing of post-prandial reflux between LPR patients and asymptomatic controls. **Conclusion:** The key timing of pharyngeal reflux in patients with LPR was post-prandial 2 hours.

Dysphagia in post-SARS-CoV-2 patients: clinical manifestations during the pandemic versus manifestations in post-pandemic cases, a study 2022/2025

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Introduction: The SARS-CoV-2 pandemic of 2020–2022 generated oropharyngeal dysphagia syndromes among its multiple consequences. The frequency and severity statistics of these cases were proportionally higher during the pandemic stage, but now that the infection occurs with a lower prevalence and incidence in the population, the sequelae of dysphagia also seem to have decreased. Is this a subjective assessment or did the reduction in virulence and the expansion of vaccination really reduce the impact on swallowing? **Aims:** To establish the prevalence of swallowing disorders using the EAT10 questionnaire and other instruments in patients who suffered proven SARS-CoV-2 infection. To describe the characteristics of the dysphagic disorder in these patients through clinical examination and FEES. **Materials and Methods:** Study of two cross-sectional stages, one in 2022 and another in 2024–2025 with 100 patients distributed in two groups (pandemic group and post-pandemic group) analyzed with EAT-10, Functional oral intake score and FEES. The results obtained were processed using statistical analysis measures to compare the two groups in terms of significance of the differences. **Results:** It is found that there are significant differences in the presentation of dysphagic manifestations of post-SARS-CoV-2 infection patients during the pandemic and today. **Conclusion:** Factors that influence individual and collective immunity could have played an important role in reducing the impact of SARS--CoV-2 on dysphagic symptoms. However, there are other factors of interest, specific to the affected population, such as age, sex, comorbidity, which can be determining factors, independently of the immunological protection factors. This demonstrates the need to continually closely monitor possible dysphagia syndromes in patients with SARS-CoV-2 infection.

Effects of injection laryngoplasty for aspiration and swallowing timing measures in unilateral vocal fold paralysis

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Introduction: Injection laryngoplasty is a common surgical treatment for unilateral vocal fold paralysis (UVFP). UVFP can affect voice, airway protection, and quality of life. While the effects of injection laryngoplasty on voice in UVFP are well documented, its impact on swallowing remains unclear. **Aims:** This study aims to better understand the effect of injection laryngoplasty on swallowing function in UVFP. **Materials and Methods:** A retrospective chart review was conducted on 14 patients with UVFP, who completed swallowing evaluations before and after injection laryngoplasty. Clinical swallowing evaluations were analyzed, comparing penetration-aspiration (PA) scores and swallowing timing measures in video fluoroscopic swallowing studies pre- and post-injection. Swallowing was assessed with different consistencies, including small and large liquid barium, yogurt, soft blended diet, and normal regular diet. **Results:** The PA score for yogurt significantly improved between pre- and post-injection ($Z = -2.375$; $P = 0.018$). While swallowing function showed improvement in small liquid, yogurt, and SBD post-injection, these changes were not statistically significant. Timing measures did not differ significantly after injection laryngoplasty. Out of fourteen patients, eleven exhibited improved swallowing function following the injection, whereas three showed no change. **Conclusion:** Injection laryngoplasty is an effective option for treating swallowing impairment caused by UVFP. However, the results indicated that swallowing function may be affected by factors beyond the vocal fold, such as pharyngeal muscle weakness, pressure changes, and decreased sensation.

E-POSTER SESSIONS

VOICE AND LARYNGOLOGY

Injection laryngoplasty using polydimethylsiloxane for the treatment of unilateral vocal fold paralysis: efficacy and safety

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Introduction: Polydimethylsiloxane, commercially available in the form of the VOX® implant system is a non-resorbable abiotic material used for the treatment of unilateral vocal fold paralysis (UVFP) in patients with longstanding dysphonia by permanently augmenting the paralysed or atrophic vocal fold until medialisation is achieved. **Aims:** Assessment of the efficacy and safety of VOX® injection laryngoplasty on the short- and long-term using objective and subjective measures of voice quality, and incidence of postoperative complications. **Methods:** 20 patients who underwent VOX® injection laryngoplasty between 2015 and 2024 by a single surgeon were retrieved for this retrospective study. Voice quality was evaluated pre- and post-operatively using the Voice handicap index (VHI10) andGRBAS scores. Age ranged from 18 to 87 at the time of procedure (median age = 53 years). Median follow-up time was 43 months (IQR = 44). 19 patients underwent the injection using direct laryngoscopy under general anesthesia in the operation theater, and one patient underwent the procedure in the outpatient clinic using flexible fiberoptic laryngoscopy under local anesthesia. **Results:** Of the 20 patients, 17 (85%) showed statistically significant improvement in both VHI10 and GRBAS scores, and the results were sustained at the time of the follow-up interview. 3 patients (15%) reported minimal improvement in voice quality. 4 patients (20%) attended voice therapy sessions for a mean duration of 7 weeks. 19 patients (95%) reported no complications, while one patient (5%) experienced an anterior superficial neck abscess at the site of injection, which was successfully treated with incision and drainage in addition to oral antibiotic therapy. One patient underwent reinjection two months after the first procedure, yielding satisfactory results. **Conclusion:** VOX® injection laryngoplasty is a safe and effective treatment modality for the short and long-term treatment of UVFP, and can be successfully performed without serious complications under local or general anaesthesia.

Voice outcomes post total thyroidectomy with continuous intraoperative nerve monitoring

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Introduction: Total thyroidectomy carries a risk of recurrent laryngeal nerve (RLN) injury, which can lead to significant voice impairment. Continuous intraoperative nerve monitoring (CIONM) has been introduced to improve RLN preservation, but its impact on post-thyroidectomy voice outcomes remains under investigation. **Aims:** This study aims to compare the Voice handicap index-10 (VHI10) post total thyroidectomy in patients operated with and without CIONM. **Methods:** A prospective analysis was conducted on patients who underwent total thyroidectomy by a single surgeon without (group 1, N = 98) or with CIONM (group 2, N = 46). Postoperative voice outcomes were assessed using the VHI-10 at 1 and 12 months. VHI10 > 11 was considered abnormal. **Results:** In group 1, N = 15 (15.3%) of patients had VHI10 > 11 at 1 month, while N = 6 (6.1%) had VHI10 > 11 at 12 months. In group 2, N = 9 (19.5%) of patients had VHI10 > 11 at 1 month, while N = 2 (4.3%) had VHI10 > 11 at 12 months. t-test showed no significant difference in the two groups studied. **Conclusion:** CIONM in total thyroidectomy showed no significant difference in VHI10 outcomes at 1 and 12 months when compared to patients who had no CIONM. Routine use of CIONM during total thyroidectomy has not proven beneficial for better voice outcomes. The value of the routine use of CIONM in thyroid surgery is to predict nerve injury and voice quality changes during the patient's recovery period with potential benefit and better voice outcomes on long-term follow-up.

Translation and validation of voice handicap index in Punjabi language

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Introduction: Voice handicap index (VHI) is considered to be the most relevant patient friendly and versatile tool to assess voice related quality of life. The VHI is a patient-based self-assessment tool and is considered the most relevant and accessible tool available at present to assess the voice related quality of life. The tool VHI consists of total 30 items equally distributed having 10 items each having three domains such as functional, physical, and emotional. No such tool is available in Punjabi language, a language spoken by many people in Punjab state of country India. Therefore, this study focuses on development of VHI in Punjabi language and considered its own kind to meet the language-oriented need in the voice clinic. **Aim and Objectives:** To translate and validate the voice handicap index (VHI) into the Punjabi language, and to evaluate its clinical validity. **Methods:** Thirty adult individuals proficient in speaking, reading writing Punjabi language will be considered as participants for the present study. VHI was translated in Punjabi language by a native Punjabi speaker and the translated questionnaire was given to three other native Punjabi speaker to validate. Later, the translated version of VHI was implemented on the two groups of participants to evaluate voice handicapness. For the clinical validity assessment, the scores obtained in the individuals with voice problem group were compared with those found in asymptomatic using SPSS software for appropriate statistical analysis. **Result and Conclusion:** The use of native language-specific implies much broader ways in consideration to assessment and management process in handling patients with care and sensitivity towards language. The present study shall be a reliable tool to the Punjabi speaking population and for the clinician to understand the patient's perception of voice disorder and the degree of functional, physical and emotional handicap in patient.

Tracheoesophageal voice prosthesis outcomes: is there a risk factor for complication and satisfactory fonation?

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Objectives: Total laryngectomy is still the treatment of choice in locally advanced laryngeal tumors not eligible for organ preservation protocols. Loss of speech capacity has been reported as one of the most critical factors that affect the patient's quality of life. Tracheoesophageal speech using a voice prosthesis is considered the gold standard for voice rehabilitation for these patients. This study aims to identify voice prosthesis effectivity and complication rate according to therapy preceding laryngectomy, adjuvant treatment, and type of surgical reconstruction. **Methods:** We performed a retrospective analysis of patients who underwent total laryngectomy between January 2020 and December 2023 at the Department of Otorhinolaryngology and Head and Neck Surgery, 1st Medical Faculty, Charles University and University Hospital Motol, Prague. **Results:** Of the 92 patients who underwent total laryngectomy, 70 (76%) had primary voice prosthesis insertion. Usable speech could be produced by 84,5% of patients after primary and 80% of patients after salvage laryngectomy. We considered a healing complication following: leakage around the prosthesis, voice prosthesis extrusion, and granulation. Such complication was registered in 14% of primary laryngectomy cases and 40% of patients who underwent salvage procedures. There was no significant relationship between primary voice prosthesis insertion and healing complication rate both in primary and salvage laryngectomy patients. Also, the rate of complications associated with voice prosthesis, was not significantly dependent on the timing of the total laryngectomy or the type of reconstruction. **Conclusions:** Tracheoesophageal puncture with primary voice prosthesis insertion is a safe and effective voice rehabilitation method regardless of the preceding therapy and type of reconstruction following total laryngectomy.

FBFS method (Floor barre for singers method)

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Introduction: The method is aimed at adapting the attitude of the body in space and the different stresses to which the subject is subjected, whether they come from external sources or are related to the need for movement or even to an emotional activation. The goal is to gradually develop awareness with a coherent path for the research and consolidation of the head

register (M2) and mixed register (M1) and for the resolution of voice problems. **Materials and Methods:** The key element of the method is the relationship between four elements: Voice: Floor barre concepts (matwork/pilates/yoga); Chakras: Theory of psychosomatic blocks formulated by Wilhelm Reich. **Aims:** The innovative Fan Technique® inseparably binds these four ingredients. The pedagogical thought of the FBFS method is mainly based on body perception, on balancing emotions, on unlocking the emotional and muscular armor. The goal is to gradually develop awareness with a coherent path for the research and consolidation of the head register (M2) and mixed register (M1) and for the resolution of voice problems. **Conclusion:** Knowledge of the method is essential not only for the training of the professional singer, but also in the educational-didactic and therapeutic fields: The Fan Technique® is in fact useful for re-education in the speech therapy field, also in the field of social and cultural educator thanks to the connections between the concepts of mind-body-voice and some aspects of clinical psychology. It also provides a new vision of the discipline of singing and its study, simultaneously encouraging the discovery of a particular and very personal sensitivity, which stimulates creativity and expression and a considerable growth of one's personality.

The voice triangle as an effective diagnostic method for vocal pathologies

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The voice is a key instrument in human communication, and its correct functioning depends on the harmonic interaction between three fundamental components: the vocal cords, the nose and the ear. **Objective:** To demonstrate the effectiveness of the "voice triangle" as a comprehensive diagnostic method to identify pathologies that affect vocal production. 200 voice-over candidates (70 women and 130 men) were evaluated, aged between 18 and 32 years. **Materials and Methods:** Using medical equipment specialized in that area of study: a nasopharyngolaryngoscope to examine the vocal cords, a 0° rigid endoscope to analyze the nasal cavity and ears, and other supplies such as 0.025% nasal oxymetazoline solution, nasal specula, bayonets and Frazier suction cannulas. In addition, rhinomanometry tests were performed to assess nasal obstruction and tonal and vocal audiometry to measure hearing function. **Results:** Results showed that 70% of participants were not fit to take the speech course due to various alterations detected by this comprehensive method. Regarding nasal structures, 50% presented: 25% septal deviation, turbinate hypertrophy and nasal polyps 20% and 5% nasal spurs, which made it difficult to properly project the voice. On the other hand, 8% showed hearing problems, including conductive and neurosensory hearing loss, affecting volume control and vocal modulation. Finally, 12% presented vocal pathologies such as glottic hiatus and outlines of vocal nodules, indicating misuse or overuse of the vocal cords. **Conclusion:** The "voice triangle" method has proven to be an effective tool for identifying pathologies that affect vocal quality. This comprehensive approach allows for the detection of alterations in the three key areas involved in voice production, facilitating early interventions and improving the vocal health of future singers.

Primary vocal fold mucosa repair and Reinke's space reconstruction during transoral laryngeal microsurgery – What can be done if secondary healing is not an option?

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Introduction: Aim of phonosurgery is to treat benign vocal fold pathology and improve voice quality at the same time. Nevertheless, most surgeons prefer secondary healing of the vocal fold mucosa. The following phrases can be regularly heard: "...these defects heal very well spontaneously…", "re-epithelization will do its own job…". **Aims:** To emphasize the importance of primary vocal fold mucosa repair and Reinke's space reconstruction during transoral laryngeal microsurgery. **Material and Methods:** Between April 2019 and October 2024, 71 phonosurgical procedures were performed under general anesthesia due to benign vocal fold lesions including vocal fold polyps, cysts, pseudocysts, vocal fold sulcus, scars, mucosal bridge, Reinke's edemas and granulomas. Mucosal defect was reconstructed in all cases either with microsuture or tissue sealant. Pre- and postsurgical laryngostroboscopy and voice assessment (VHI-10, MPT, GRBAS, mean F0, jitter, shimmer, voice range profile) were carried out. **Results:** All lesions were treated successfully using microflap technique. Mucosal defects were primarily closed with microsuture (33 cases) or with tissue sealant (34 cases). Lack of Reinke's space (2 cases of vocal sulcus) required

reconstruction with autologous tragal perichondrium implantation and lipotransfer from earlobe. A unique case of extensive vocal fold scarring necessitated autologous buccal mucosal graft transplantation for alignment of irregular contour of the injured vocal fold. Mobilization of bipedicled mucosal flap from the Morgagni sac were utilized in 2 cases to cover the exposed free edge of the vocal fold. All the measured parameters improved. Based on laryngostroboscopy, mucosal wave disturbances and glottic insufficiencies also resolved following ceasing of postprocedural edema/irritation. **Conclusion:** Vocal fold mucosa repair with microsuture or tissue sealant during transoral laryngeal microsurgery is a considerable step for minimizing postoperative mucosal scarring and consecutive vocal fold mucosa rigidity. Structural vocal fold abnormalities seriously affecting the Reinke's space (e.g. vocal fold sulcus, scars) requires more complex microsurgical management including autologous tissue transfer.

Voice and stomatognathic system

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The term voice comes from the Latin "vox" and originally it referred to "any sonority (sound or noise) that comes out of the mouth". However, over time, it acquired a deeper meaning, since "what comes out of the mouth", the product of the vocal folds, is much more than just a sound or noise. Voice means word, language, singing… it has an informative and communicative value. The larynx is an organ in the middle of the neck, at the crossroads of the upper aero-digestive tracts and it is involved in breathing, swallowing and phonation. It has a unique role as aero-digestive carrefour and it is in a special position in the neck, "hanging" from the hyoid bone and in close connection with the other cranio-facial structures through the pre-laryngeal cervical muscles. The simple morphological description of the cranio-cervico-facial system is not sufficient to adequately represent its structural complexity. We need to observe all the anatomical components and their close dynamic connection to adequately interpret their function. Phono-articulation, in fact, is achieved through an extremely complex system which includes not only larynx, but also the supraglottic structures of the vocal tract, the pulmonary system, the nervous system and the musculoskeletal system. The stomatognathic system is a very complex anatomical and functional system, that includes the muscular, skeletal and nervous structures involved in chewing, swallowing and phonation and it is mechanically and functionally connected to the other body districts through the myofascial chains that determine the global posture. So, stomatognathic system and posture play a key role in this mechanical model of connections. Occlusal alterations, wrong lingual posture and dysfunctional swallowing can cause asymmetries in the postural chains, with consequent voice alterations. Therefore, a multidisciplinary and interdisciplinary approach to Voice disorders is essential to obtain optimal and long-lasting results.

Transnasal endoscopy an office based diagnostic & therapeutic intervention: a retrospective evaluation

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Aims: Transnasal endoscopy (TNE) is a minimally invasive technique for diagnosing and managing upper aerodigestive tract disorders in an outpatient setting, eliminating the need for general anaesthesia and reducing waiting times. This study evaluates the indications, interventions, and outcomes of our tertiary TNE clinic while assessing referral patterns, patient demographics, and discharge outcomes. **Materials and Methods:** A retrospective review of patients attending our TNE service (2023–2025) was conducted. Data on demographics, smoking status, referral source, procedural indications, findings, and outcomes were analyzed to assess clinical efficacy and resource utilisation. **Results:** Among 76 TNE procedures, 12 (15.8%) were abandoned due to fasting non-compliance or anatomical limitations, and 3 (3.9%) were converted to oral endoscopy. Nineteen patients underwent TNE-guided biopsy of the oropharynx, larynx, or hypopharynx, facilitating histopathological diagnosis without general anaesthesia. Ten patients underwent endoscopic dilatation for cricopharyngeal or post-laryngectomy strictures, with one case abandoned due to discomfort. Tracheobronchoscopy under local anaesthetic was performed in 11 patients to assess subglottic stenosis. Botulinum toxin injections were administered in 13 sessions for spasmodic dysphonia, palatal myoclonus,

and salivary gland hypersecretion. Blue laser therapy was performed seven times in six patients for laryngeal papillomatosis. Referrals primarily originated from ENT specialists, with contributions from national tertiary centres and primary care. Most patients were discharged without further intervention, highlighting TNE's diagnostic efficiency. **Conclusions:** Our tertiary TNE clinic provides a safe, effective, and resource-efficient alternative for diagnosing and treating laryngeal, tracheal, and oesophageal disorders. By reducing reliance on general anaesthesia and inpatient care, TNE optimises healthcare resources while improving patient accessibility. Its high diagnostic accuracy, procedural success rate, and cost-effectiveness reinforce its role as a front-line investigative and therapeutic tool in outpatient settings.

Anxiety and depression in patients with subglottic stenosis

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Introduction: Patients suffering with chronic diseases have been shown to have increased healthcare utilization and higher rates of anxiety and depression. These associations have been explored in other aspects of laryngology, but have yet to be explored in subglottic stenosis (SGS). **Aims:** 1. To determine the prevalence of depression and anxiety in adult patients with subglottic stenosis; 2. To identify risk factors for the development of depression and anxiety in the SGS population. **Methods:** This is a retrospective chart review of all adults diagnosed with SGS at a tertiary care academic otolaryngology clinic over a 10--year period. Data collection focused on demographics, disease etiology, disease duration, surgical history, tracheostomy status, medication use, dyspnea index score and psychiatric history, including past diagnoses of anxiety or depression. **Results:** 246 of 568 patients with SGS met inclusion criteria. The average age of the study population was 55 years, with a BMI of 32 and an average SGS diagnosis duration of 5.7 years. Intubation-related injury was the most common cause of SGS. 31.3% of patients had a concurrent diagnosis of depression. Patients with anxiety or depression were significantly older than those without ($P = 0.01$). Those patients with anxiety were significantly older than those without anxiety ($P = 0.02$). Patients' intubation related SGS had a significantly higher incidence of depression than patients with SGS of other etiologies ($P = 0.03$). Depression was significantly associated with open surgical procedures compared to endoscopic procedures ($P = 0.02$). Patients with a history of tracheostomy were significantly more likely to also have a history of depression than those who had never had a tracheostomy ($P < 0.00$). **Conclusion:** This study found that anxiety and depression rates in SGS patients were significantly higher than the national average, with key factors including open procedures, intubation-related causes, age, and disease duration.

The impact of socioeconomic status on management of pediatric subglottic stenosis and outcomes

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Introduction: There is currently a paucity of literature detailing the socioeconomic implications on management and outcomes of pediatric subglottic stenosis. **Aims:** To ascertain whether disparities of social determinants of health have a discernible impact on management of subglottic stenosis through endoscopic vs open procedures. **Methods:** This is a multi- institutional, academic center, retrospective chart review examining pediatric patients evaluated between May 2012 to May 2022 with the diagnosis of subglottic stenosis, acquired or congenital. Patients were stratified into low and high socioeconomic status (SES), which served as independent variables, using principal component analysis of several social determinants. Interventions reviewed included endoscopic treatment, open airway surgery, and presence of tracheostomy. Outcome measurements included decannulation, time to decannulation, and death. Chi squared analysis was performed on dichotomous variables and student T test was performed for continuous variables. **Results:** The groups were similar in demographics: gender, age, ethnicity, and surprisingly, and proportion with college degree. Cotton Meyer grade was significantly higher in low SES compared to high SES ($P = 0.04$). Patients of low SES were significantly more likely to die ($P < 0.001$). Low SES patients were more likely to have an acquired rather than a congenital subglottic stenosis as compared to their high SES counterparts ($P = 0.02$). Low SES patients were also more likely to undergo endoscopic intervention ($P = 0.03$). There was no statistically significant difference in tracheostomy status or decannulation success between the two groups. **Conclusion:** There were statistically significant findings between low and high SES groups. Overall, patients of low SES appeared to have greater severity of subglottic stenosis, with greater number of endoscopic interventions, and greater mortality. The study which collected data from an area with marginalized patients with poor health literacy, demonstrates that sociodemographic factors contribute to disparate intervention and outcomes in pediatric patients with subglottic stenosis.

"Use it or lose it" – the "ISTP – six voice care exercises by Evemarie Haupt"

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Introducion: The flexible vocal function is fundamental for expression in communication. A healthy voice contributes significantly to everyday participation and therefore to good quality of life (ICF). Maintaining the flexibility of the vocal fold muscles and vocal fold mucosa is essential to preserve the ability to shape the voice throughout life. **Aims:** The aim of "ISTP, integrative voice therapy and voice pedagogy" by Evemarie Haupt, is to promote patients in their vocal performance in all phases of life by enabling them to help themselves and to train their voice. The "ISTP – six voice care exercises" are didactically structured according to the "ISTP – voice function circle" and lead to a reliable physiological voice-support. **Methods:** The "ISTP – six voice care exercises" are based on the ISTP concept of "Voice is balance" and the "ISTP – voice function circle" considering the ICF. They will be taught theoretically and practically in the workshop. **Results:** Thanks to the holistic structure of the exercises, the "ISTP – six voice care exercises" can be easily integrated into everyday life for regular care of the speaking and singing voice. Using them can help to improve the ability to express oneself and thus the "quality of life". The integration of the exercises into daily routine has a positive long--term effect on the patient's voice even after therapy has ended. Through practical exercise experiences in the workshop, the participants will be able to use the acquired knowledge and skills in their everyday work. **Conclusion:** "Use it or lose it" – with the "ISTP – six voice care exercises" patients can remain or regain a balanced and flexible voice in all phases of their life.

Microlaryngeal management of a rare laryngeal pathology: isolated necrobiotic xanthogranuloma

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Case: A 45-year-old male patient presented to our clinic with progressive dysphonia and respiratory difficulty. Laryngostroboscopic examination revealed a large submucosal mass originating from the left aryepiglottic fold and obstructing over 90% of the

laryngeal lumen at the supraglottic level, the vocal folds were not visible. An MRI was performed, revealing a large submucosal mass measuring approximately 30 × 42 mm, extending from the left supraglottis to the glottic level. The patient was scheduled for surgery to remove the mass via microlaryngoscopy, the mass, containing a yellow, thick, gelatinous substance, was completely excised from the surrounding tissues using a CO_2 laser and monopolar electrocautery. The postoperative period was uneventful, with the patient experiencing minor pain during swallowing, aspiration, and hoarseness but no major complaints. The patient was discharged two days later. Symptoms persisted for up to two weeks, during which an appropriate diet was followed. Histopathological examination revealed hallmark features of necrobiotic xanthogranuloma (NXG), including extensive xanthogranulomatous inflammation with necrobiosis and cholesterol clefts within the laryngeal tissue. Immunohistochemical analysis supported the diagnosis. At the fifth-month postoperative follow-up, the laryngeal lumen was clear, the lumen remained fully open. A CT scan at this period showed similar findings. **Discussion:** NXG is a rare, chronic, and often progressive inflammatory disorder primarily affecting the skin, characterized by yellowish plaques or nodules. Systemic involvement, including ocular, cardiovascular, and gastrointestinal manifestations, has been documented; however, laryngeal involvement remains exceedingly rare. Our report presents a case of necrobiotic xanthogranuloma of the larynx, a pathology scarcely described in medical literature. This case underscores the need for awareness of NXG as a potential but rare cause of laryngeal pathology, which can mimic other inflammatory or neoplastic lesions. This clinical case demonstrates that microscopic excision of such masses in the larynx is possible, regardless of their size.

Acute epiglottitis in patients with the common cold

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Objective: Acute epiglottitis is a potentially life-threatening condition characterized by rapid inflammation of the epiglottis, leading to airway obstruction. While it is typically associated with bacterial infections such as *Haemophilus influenzae type B* (Hib), viral upper respiratory tract infections, including the common cold, may weaken local immune defences, predisposing patients to secondary bacterial infections or exacerbating inflammation. This article presents a series of patients with acute epiglottitis who initially experienced symptoms of an upper respiratory tract infection. We discuss the clinical presentation, diagnosis, and management of these cases. **Methods:** Between October and December 2024, we identified 12 patients (aged 32–56 years) who presented to an ENT clinic with severe sore throat, odynophagia, and fever. The clinical picture was consistent with acute epiglottitis. Patients exhibited symptoms such as sudden high fever, severe sore throat, dysphagia, drooling, and a muffled voice. Two patients developed stridor, indicating impending airway obstruction. In fact, severe sore throat radiating to the ear persisted despite overall clinical improvement. The pharynx examination was normal in all cases and the diagnosis of acute epiglottitis was made after fibreoptic laryngoscopy. Treatment involved airway stabilization, antibiotic therapy, and corticosteroids to reduce inflammation. **Conclusion:** Although rare, acute epiglottitis can develop in patients with a common cold. Recognizing worsening symptoms is crucial, as severe sore throat may indicate epiglottic involvement. Prompt examination using a fiberscope or indirect laryngoscopy is essential to prevent complications, ensuring timely and effective intervention to protect the airway and overall health.

Long-term recurrent laryngeal papillomatosis: effects on voice quality – a 10-year center-based analysis

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Background: Recurrent laryngeal papillomatosis (RLP) is caused by the human papillomavirus (HPV) primarly subtype 6 and 11. Since papilloma infections typically affect the vocal folds, the main symptom is hoarseness. Treatment is based on the removal of lesions using either a CO_2 laser or cold steel instruments. Due to pathology of the disease, repeated surgical interventions for recurrent lesions may increase the risk of permanent impairments in the vibratory cycle of the vocal folds. This study aimed to investigate changes in voice quality in patients with long-term recurrent laryngeal papillomatosis (RLP). **Materials and Methods:** The study period covered clinical visits to the Clinic for Audiology and Phoniatrics at Charité Universitätsmedizin Berlin from 2013 to 2023. All patients underwent regular pre- and postoperative acoustic speech and singing voice analysis, acoustic-

-perceptual voice assessment, and video stroboscopic laryngoscopy. The acoustic analysis of voice quality included parameters such as fundamental frequency (F0), jitter, shimmer, and the harmonics-to-noise ratio (HNR). **Results:** Long-term follow-up acoustic analysis showed no clear correlation between the number of recurrences requiring microsurgical papilloma removal and relevant variations in fundamental frequency (F0), jitter, shimmer, or harmonics-to-noise ratio (HNR). **Discussion:** A high recurrence rate with frequent microsurgical interventions increases the likelihood of a higher degree of hoarseness, including roughness and breathiness. The underlying cause is morphologically induced vibratory changes in both vocal folds due to microstructural alterations. The risk of such changes rises with the number of microsurgical papilloma removals. **Conclusion:** In addition to the established laser surgical treatment of recurrent laryngeal papillomatosis, alternative treatment approaches should be explored to reduce repetitive microsurgical papilloma removals and improve the basis for maintaining high voice quality. The indication for intralesional application of bevacizumab (a humanized monoclonal antibody against vascular endothelial growth factor) and its potential to reduce surgical frequency could be one such approach.

Effectiveness of inpatient voice rehabilitation

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Introduction: In Germany, people with severe voice problems have the option of inpatient voice rehabilitation, especially if the disorder jeopardises their professional activity. It was shown that patients were significantly more likely to be able to attend work after a rehabilitation. **Aims:** We investigated the extent to which subjective complaints caused by a voice disorder can be influenced by inpatient voice rehabilitation. **Materials and Methods:** We prospectively recorded the subjective concerns of 172 female and 57 male patients with severe voice disorders who were admitted for inpatient voice rehabilitation. These were patients who had to fulfil high vocal demands at work and did not experience sufficient relief through outpatient voice therapy. The Voice handicap index (VHI) and the German version of the Vocal tract discomfort scale (VTD-S) were assessed at the beginning and end of 3-week rehabilitation. **Results:** Both the results of the VHI and those of the VTD scale improved significantly after the intervention. The total score of the VHI decreased from $\bar{x} = 23.66$; to $\bar{x} = 18.75$. The median was thus in the range of a high--grade subjective handicap at the beginning of therapy and in the range of a medium-grade subjective handicap at the end of rehabilitation. The VTD scale score improved from $\bar{x} = 35.78$ to $\bar{x} = 27.92$. Almost half of the patients were in the normal range post--therapy. **Conclusion:** Inpatient intensive voice rehabilitation can achieve an improvement in the subjective assessment of voice handicap and the accompanying symptoms of dysphonia such as discomfort in the vocal tract.

Voice analysis as a tool for monitoring and evaluating the treatment of laryngeal dystonia: initial findings

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Introduction: Laryngeal dystonia (LD) is a neurological disorder characterized by abnormal, repetitive movements of various groups of laryngeal muscles. Symptoms include a strained, breathy voice and voice breaks. Some laryngeal dystonias can also impair breathing and swallowing. They are characterized by an exacerbation of difficulties in psychologically stressful situations and so-called task specificity, which means selective impairment of voice during speech, but not during singing and vegetative vocalization (laughter, cough). **Aim:** The aim of this poster is to present initial findings on the use of voice analysis as a tool for monitoring and evaluating the treatment of laryngeal dystonia. **Methods:** The study included patients diagnosed with laryngeal dystonia who underwent various forms of treatment (e. g., botulinum toxin, myoneurectomy). Voice recordings were obtained before the start of treatment and at regular intervals during postoperative management. Voice analysis was performed using special software that allowed the extraction of quantitative parameters such as frequency, intensity, jitter, shimmer, and others. In addition, auditory-perceptual, aerodynamic parameters and subjective patient voice assessment were evaluated. **Results:** Preliminary results suggest that voice analysis is a sensitive method for detecting changes in voice parameters in patients with LD. Voice analysis can therefore be a useful tool for monitoring the effectiveness of laryngeal dystonia treatment. **Conclusion:** Voice

analysis appears to be a promising method for the objective evaluation of laryngeal dystonia treatment. Further research with a larger number of patients is needed to confirm these initial findings and to better understand the relationship between changes in voice parameters and the clinical condition of patients with LD.

Comparison of voice parameters before and after thyroid surgery – first results

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Introduction: Palsy of the recurrent laryngeal nerve is one of the most feared complications of thyroid surgery. Less frequently diagnosed is the palsy of the superior laryngeal nerve manifested only by vocal range limitation. The presented work is part of a study dealing with patients with surgery without postoperative complications. **Aims:** The aim of the study is to analyze the voice changes in patients after thyroid surgery at the Department of Otorhinolaryngology and Head and Neck Surgery, Faculty of Medicine, Charles University and University Hospital in Pilsen. **Materials and Methods:** The retrospective monocentric study included 54 patients between September 2024 and January 2025 who met inclusion criteria. The cohort was predominantly female (51; 94.4%) compared to male (3; 5.6%). All patients underwent voice range profile examination and multidimensional voice program analysis on the day of admission, 7 days and one month after surgery and the results were subsequently analyzed. **Results:** Analysis of the voice range profile in patients before and after thyroid surgery showed no clinically significant differences in the dynamic or frequency range of the voice. Multidimensional voice program analysis in the key parameters shimmer, jitter and soft phonation index showed surprising results, with the observed parameters being paradoxically more stable in the postoperative patients, thus indicating better voice function. **Conclusion:** In our cohort, uncomplicated thyroid surgery did not result in clinically significant changes in the dynamic and frequency range of the voice. Paradoxically, key parameters of multidimensional voice program analysis were more stable in the study sample during examination in the postoperative period.
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Validation of the Czech version of the Voice handicap index 10 (VHI-CZ 10)

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Introduction: Comprehensive assessment of a voice disorder should include patient self-assessment. The Voice handicap index 30 (VHI 30) and its abbreviated version, the Voice handicap index 10 (VHI 10), are the most commonly used self-assessment questionnaires to assess the quality of life in people with voice disorders. Unlike the VHI 30, the Czech version of VHI 10 has not yet been validated. **Aims:** The aim of the study is to validate the Czech version of the Voice handicap index 10 (VHI-CZ 10). **Materials and Methods:** Prospective study. Parallel group design. The study included 200 adults. In the pilot study, the intelligibility of the VHI-CZ 10 was tested on 30 adults (15 healthy subjects, 15 dysphonic patients). The next study included 102 adult dysphonic patients, divided into three groups based on the etiology of the voice disorder (neurogenic, functional, and structural), of which 35 patients were used for test-retest analysis. The control group consisted of 68 healthy subjects. All subjects completed the VHI-CZ 10 and were examined with videolaryngostroboscopy. Internal consistency (Cronbach's alpha), test-retest reliability (ICC – intra-class correlation coefficient), and construct validity were analyzed. **Results:** The internal consistency of the VHI-CZ 10 was excellent (Cronbach $\alpha = 0.966$) and the test-retest reliability was also excellent (ICC = 0.96; $P < 0.001$). The correlation between the self-assessed severity of the voice disorder and the VHI-CZ 10 score was strong (Spearman's $\rho = 0.762$; $P < 0.001$). Differences in the VHI-CZ 10 scores between dysphonic and non-dysphonic patients were statistically significant (Mann-Whitney U test; $P < 0.001$).

Correlations between VHI-CZ 30 and VHI-CZ 10 were very strong (total score Spearman's ρ = 0.971; subscales 0.915–0.957; P < 0.001). **Conclusion:** The VHI-CZ 10 is a valid self-assessment tool for dysphonic patients, for measuring their perception of voice disability and vocal behavior.

Effectiveness of voice exercises based on forced glottal attack in treating the unilateral vocal fold paralysis

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Introduction: Voice and swallowing disorders caused by unilateral vocal fold paralysis (UVFP)and it's result of inability to achieve a complete glottal closure can have a major effect on the patients' quality of life and performance in many everyday activities. Voice quality can range from mild hoarseness and breathiness to total aphonia and significantly reduced length of utterances. Even though surgical treatment has often been used as the primary solution, many recent articles and studies have shown the effectiveness of vocal exercise in improvement of voice quality and dysphagia symptoms. **Aims:** This study examined the effect of vocal exercises, that are based on forced glottal attack combined with breathing exercises, on voice quality for patients with unilateral vocal fold paralysis. **Materials and Methods:** Patients who were diagnosed with UVFP were included in voice therapy that started one to 6 months after the first symptoms. Patients were included in voice therapy for four to six months. Ten patients met the criteria of being evaluated at the beginning of the therapy, and then 2 and 6 months after the beginning of the therapy. Objective acoustic voice analysis was measured with Dysphonia severity index using LingWaves program. **Results:** Voice exercises forcing glottal attack conducted together with breathing exercises had positive effect on instrumental and perceptual voice quality measured with LingWaves program. Maximal phonation time, jitter and shimmer are the variables with the most significant improvement observed. Interindividual variability was high and studies with larger number of participants are needed to confirm or to disprove these results. **Conclusions:** Voice therapy based on forced glottal attack and breathing exercises showed the efficiency in treating voice disorders in patients with UVFP.

Comparison of voice quality before and after endoscopic vocal cord augmentation using cartilage

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Introduction: Endoscopic vocal cord augmentation using cartilage is an effective medialisation technique. **Aims:** Subjective and objective measurement of voice parameters in patients with glottic insufficiency for various reasons, with varying degrees of dysphonia before endoscopic augmentation of the vocal cord with cartilage, after a month, after a year and several years after surgery. **Materials and Methods:** From August 2012 to June 2024, 42 patients (15 men and 27 women) in age from 27 to 80 years (mean age 55.3 years) underwent endoscopic augmentation of the vocal cords using cartilage from the auricle. The length of glottic insufficiency before surgery in the patients ranged from 3 to 276 months and the mean length of glottic insufficiency was 40.45 months. Patients were evaluated after a month, a year, and some up to 12 years after surgery. We used auditory voice assessment using a GRBAS scale, we performed a videolaryngostroboscopic and strobokymographic examination, acoustic methods of voice examination – jitter, shimmer and NHR, aerodynamic examinations – examination of maximum phonation time (MPT) and subjective assessment of the voice by the patient based on the voice handicap index (VHI) before and after surgery. Statistical analysis was performed in the program IBM SPSS STATISTICS. **Results:** We verified statistical significance of differences in monitored parameters with a paired T-test. We found a statistically significant improvement in voice (P less than 0.05) in patients in all observed parameters after one month, after a year and after 12 years. **Conclusion:** Autologous ear cartilage is safe, effective, body-specific material for vocal cord augmentation, it is not absorbed over time, so it has long-lasting effectiveness.

Myosin light chain kinase 2 and myomesin 2 are related with the stiffness of vocal fold lamina propria in aging rat and human

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Introduction: Vocal fold fibroblast plays an important role in the production of extracellular matrix of vocal folds. Myofibroblasts increase in the aging vocal fold lamina propria with an increased alpha-smooth muscle actin (α-SMA). In myofibroblast, various sarcomeric genes are expressed in addition to α-SMA. However, there are no studies of sarcomeric genes with myofibroblast differentiation in the aging vocal fold. **Aims:** This study aimed to analyze the changes and functions of sarcomeric genes related to myofibroblast differentiation in aging vocal folds through next generation sequencing (NGS) analysis. **Materials and Methods:** Young (6-month old, 22 rats) and old (22-month old, 22 rats) male Sprague-Dawley rats were used. NGS was performed for the harvested lamina propria of the vocal folds in each group. NGS data were analyzed by the functional annotation using gene ontology and network pathway and network analysis method. After identifying increased sarcomeric gene expression in aging vocal folds, we evaluated their expression in normal human vocal fold lamina propria removed after surgery for various vocal fold lesions. Additionally, we investigated their effects on fibroblast senescence, proliferation ability, myofibroblast differentiation, contraction ability, and stiffness. **Results:** Among the four sarcomeric genes obtained through network cluster analysis of NGS results, the expression of myosin light chain kinase 2 (Mylk2) and myomesin 2 (Myom2) were significantly increased in lamina propria of old rats compared to young rats. The increases of *Mylk2* and *Myom2* genes were associated with cellular senescence, but not with proliferative ability of fibroblast. However, the expression of *Mylk2* and *Myom2* genes increased with myofibroblast differentiation. Inhibition of *Mylk2* and *Myom2* affects cellular contraction and migration, which leads to reduced stiffness. **Conclusion:** Our results suggest that *Mylk2* and *Myom2* are novel biomarkers of the vocal fold myofibroblast and related with the regulation of vocal fold stiffness in aging rat and human.

Investigating patient discomfort and tolerance: a comparison of 24-hour multichannel intraluminal impedance pH monitoring with other examinations

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Introduction: Laryngopharyngeal reflux (LPR) involves the backflow of stomach contents into the throat, causing irritation. While the 24-hr multichannel intraluminal impedance pH monitoring (24-hr MII) is the diagnostic gold standard, its invasive nature limits use. **Aims:** To investigate patient pain, discomfort, tolerance and complication during the 24-hr MII compared to other diagnostic methods. **Materials and Methods:** Prospective study involved patients undergoing 24-hr MII. The control group included patients undergoing ultrasound-guided fine-needle aspiration (FNA) and flexible fiberscope with Müller maneuver. Patient experience was measured using self-reported questionnaires at three points: pre-procedure, immediately after procedure, and post-procedure. Anxiety, pain, discomfort, tolerance and other assessments were assessed using Visual analog scale (VAS) scores. Physicians recorded patient demographics, examination completion, and complications. After treatment, we conducted Decision regret scale survey among patients who underwent 24-hr MII. **Results:** A total of 170 patients participated: 55 in the 24-hr MII, 50 in the FNA, and 65 in the flexible fiberscope with Müller maneuver. Anxiety levels pre-examination revealed no significant differences between 24-hr MII and other tests. Immediately after and post-examination, there was no significant difference in the degree of pain between 24-hr MII and other tests. However, discomfort and intolerable level were significantly higher VAS score in 24-hr MII compared to the two tests. The proportion of participants unwilling to undergo the examination again was higher for 24-hr MII compared to the other two tests. But patients tended to have a positive perception of the 24-hr MII after treatment. Conclusion: 24-hr MII revealed similar levels of pain compared to FNA and flexible fiberscope with Müller maneuver, but more uncomfortable and less tolerable. Therefore, it is crucial to provide sufficient explanation about the necessity of the examination and obtain patient consent.

The role of voice therapy in voice mutation disorder: six case studies

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The period of voice mutation during puberty is known, being characterized by acoustic changes and vocal instabilities more pronounced in men than in women. Although voice change occurs at different times and speeds depending on the person, when these vocal instabilities exceed normal limits, concerned individuals realize that they need help and call a specialist. In the present study, 6 male persons 12–24 years old, in different stages of the mutation, are presented. During the evaluation, the following were performed: anamnesis, videolaryngostroboscopic examination (VLS), voice recordings, voice handicap index (VHI), GRBAS scale, pain scale. Each of these patients received emotional support and voice therapy. At the end of the treatment, voice recordings and the GRBAS scale confirmed the visible improvement of voice parameters in all 6 cases. Also, laryngeal discomfort decreased in 4 of the subjects, and VHI decreased considerably in the other two. In conclusion, although the treatment of choice in voice mutation disorder is psychotherapy, the present case studies demonstrate the important role of voice therapy through both its direct approaches and its indirect strategies.

Office based procedures in the larynx – my experience

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Introduction: Office-based procedures in the larynx play a significant role in contemporary laryngology. **Methods and Material:** In the context of a one-day surgery department, a total of 2,900 surgical procedures were performed between March 2014 and January 2025. Of these, 240 focused on the larynx area, 45 of which were performed under local anaesthesia via a transoral approach. The most prevalent indication was the presence of a polyp on the vocal cords, with less common indications including laryngeal papilloma, granuloma, vocal cord hypotrophy, vocal cord immobility, hyperkeratosis, vascular lesion, and spasmodic dysphonia. The selection of patients was based on various criteria, including irritability (gag reflex), cooperation, mental resilience, time, economic and safety considerations, health condition, and local findings in the larynx. The patients had venous access and a loaded pulse oximeter during the surgery. A combination of lidocaine spray 10% and tetracaine solution 1% was used to numb the pharynx and larynx. The utilisation of optical devices and special instruments for transoral access is also imperative. **Results:** The study revealed that in all 45 patients, the procedure was performed without complications. The presentation will showcase some interesting cases of patients who have undergone an office-based procedure in the larynx. **Conclusion:** Office- -based procedures are advantageous surgical methods in ENT. However, the utilisation of these methods is contingent upon the availability of appropriate devices and instruments, the expertise of the operating surgeon, effective patient cooperation, the support of an adept operating team, and the identification of suitable cases of laryngeal pathology.

Long-term efficiency of vocal aptitude tests and voice training in student teachers

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Objective: Teachers are subject to exceptionally high vocal stress throughout their lives and have an increased prevalence of voice disorders. The aim of this study was to evaluate the long-term efficiency of voice training in student teachers during their lifelong career as a teacher. In addition, we investigated the relationship between vocal aptitude tests and teachers' vocal health. **Methods:** In a multicentre case-control study, 202 teachers (median age: 48 years, 165 women, 37 men) were examined. The examination consisted of a standardised anamnesis, analysis of the voice, laryngostroboscopy and audiometry. Subjects were attributed to the case group if at least two of the following criteria were met: pathological videolaryngostroboscopic findings, pathological analysis of the voice, subjective vocal complaints. **Results:** 65/202 teachers were categorised as cases. Comparing the groups, cases were older (P = 0.001), worked more often in primary schools (P = 0.008) and had more problems with reflux (P = 0.002). 63.8% of the controls had completed a vocal aptitude test before starting their studies, compared to 47.6% of the

cases (P = 0.031). A multivariate analysis showed an OR of 1.6 for developing dysphonia if neither voice training nor a vocal aptitude test has taken place during the course of study. **Conclusion:** Many risk factors associated with dysphonia in teachers are often difficult or impossible to change. Vocal aptitude tests and voice training during the studies represent a primary prevention of occupational dysphonia in the teaching profession.

Voice outcome and quality of life after early glottic carcinoma

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Introduction: Many patients with early glottic cancer, after treatment remain with voice impairment that perturb their daily life activities. **Aim:** The aim of this report was to evaluate the importance of voice therapy in patients with early glottic carcinoma after the surgical treatment. **Materials and Methods:** A prospective study included 15 patients with early glottic carcinoma treated by transoral cordectomy. The patients started voice therapy in one month after the surgical treatment. Initially and after completing the therapy the impact on quality of life was evaluated through EORTC Head and Neck Questionnaire (EORTC H&N 35) and the voice outcome through Voice handicap index score videolaryngostroboscopy, laryngeal fibroscopy and auditory perceptual voice quality analysis through GRBAS rating scale. Patients underwent vocal function exercises, resonant voice therapy and semi occluded vocal tract exercises in different combinations. **Results:** Statistical analysis showed voice improvement after voice therapy, subjectively on VHI score, clinically on videolaryngostroboscopy or laryngeal fibroscopy, GRBAS rating scale and also the quality of life improved on EORTC H&N 35 score. Patients who performed vocal function exercises, resonant voice therapy and semi occluded vocal tract exercises had a better voice outcome in comparison with those who performed vocal function exercises and resonant voice therapy. **Conclusions:** Voice therapy is effective in patients with voice impairments after early glottic carcinoma's treatment. It was noticed an improvement in voice and also in the quality of life.

Mapping the intralaryngeal course of recurrent laryngeal nerve – a case series

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Introduction: Neurolaryngology is a fast-developing field with a lot of new surgical procedures, which require a detailed knowledge of intralaryngeal anatomy of the laryngeal nerves. **Aims:** The aim of this study was to find out the intra laryngeal course and branching pattern of recurrent laryngeal nerve. **Materials and Methods:** The study was conducted in 15 cadaver specimens obtained from the Department of Anatomy in a Government Medical College in India. The intra laryngeal course of 30 recurrent laryngeal nerves was dissected out bilaterally and the branching pattern was noted. **Results:** In the 30 hemi larynx specimens dissected, the recurrent laryngeal nerve entered the larynx posterior to the cricothyroid joint. In 28 specimens (93.3%), the main trunk of recurrent laryngeal nerve had an intralaryngeal division whereas in two specimens (6.7%) there was an extralaryngeal division. In 24 specimens, 2 branches from the recurrent laryngeal nerve were found to be innervating the PCA (80%). In the rest 6 specimens, single branch pattern was found (20%). In 2 specimens, the posterior cricoarytenoid was found to have innervation from the superior laryngeal nerve. The interarytenoid was found to get innervations from the internal branch of superior laryngeal nerve in 27 specimens studied (90%). The branch to thyroarytenoid was the most sturdy and consistent of all the branches of the recurrent laryngeal nerve. Galen's anastomosis was found in 13.3% of specimens. **Conclusion:** In our study, the entry point of recurrent laryngeal nerve was highly constant. Intralaryngeal division of recurrent laryngeal nerve was found to be more common than extra laryngeal division. Multiple pedicle innervation to posterior cricoarytenoid was more common. In 2 specimens, the posterior cricoarytenoid was found to have innervation from the internal laryngeal nerve. We found that in 90% of specimens, internal laryngeal nerve gave branches to interarytenoid.

Laryngeal findings in patients undergoing experimental vagal nerve stimulation for heart failure: a case series

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Introduction: Vagal nerve stimulation (VNS) represents modality with broad applications across various medical disciplines. Initially developed for the treatment of refractory epilepsy, VNS is now utilized for managing depression, and other neuropsychiatric disorders. Its applications have been extended to cardiovascular diseases, including refractory heart failure. Despite its growing application, the impact of VNS on laryngeal function and voice production remains underexplored. **Aim:** To present unique laryngeal findings and explore the potential implications of VNS in a case series of three patients with experimental VNS for heart failure. **Materials and Methods:** Three male patients aged 73 to 86 years with advanced heart failure were enrolled in case study investigating the effects of VNS on larynx. These patients underwent right sided VNS implantation between 2020 and 2022 at the Dept. of Cardiology, University Hospital Královské Vinohrady. During the follow-up period, all participants underwent complex examination at the Dept. of Otorhinolaryngology, University Hospital Královské Vinohrady, Prague. Detailed videolaryngoscopic, acoustic and functional voice assessments to further characterize and quantify the observed vocal changes were performed. **Results:** Two of three patients reported varying degree of dysphonia. A laryngeal finding, characterized by a clicking motion in the posterior part of the larynx, predominantly originating from the left posterior region, was identified. This phenomenon was observed to occur periodically, lasting 10–15 seconds approximately every minute, irrespective of the phonatory or respiratory state. The findings suggest a potential link between the altered neuromuscular coordination of the larynx and vagal modulation induced by VNS. **Conclusion:** These results provide valuable insights into the complex interaction between VNS and laryngeal innervation. Further investigation is warranted to elucidate the clinical significance and potential implications for optimizing VNS therapies in both cardiac and non-cardiac conditions.

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Partial deafness dysphonia in adults – is it gender related?

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The purpose of the study was to assess whether changes in acoustic structure of voice in partial deafness (PD) patients present gender differences. The study group included 30 adults, 15 females and 15 males with post lingual partial deafness. Control group was composed of 20 normal hearing women and 20 normal hearing men. The study showed, that PD patients present voice dysfunctions described by the presence of abnormalities in acoustic voice parameters, compared to control groups. Of all 15 MDVP parameters measured in females, 12 parameters presented changes of statistical importance: F0, Jita, PPQ, sPPQ, vF0, ShdB, Shim%, APQ, sAPQ, vAm, NHR and VTI. Remaining 3 parameters, namely SPI, DUV and NUV, were also changed vs control group, however statistical importance was not achieved. Compared to control group only F0 and SPI were decreased, all other parameters presented increases in PD females. In males 14 parameters presented changes of statistical importance: Jita, PPQ, sPPQ, vF0, ShdB, Shim%, APQ, sAPQ, vAm, NHR, VTI, SPI, DUV and NUV. The only parameter change which did not achieve statistical importance was F0. Compared to control group all parameters were increased in PD males. Directions of changes in acoustic voice parameters were mostly the same in females and males, showing increases which achieve statistical importance in most of the parameters; differences were noted only referring to fundamental frequency F0 and soft phonation index (decrease in females vs increase in males). However, SPI change in PD females did not achieve statistical importance. The study showed that in PD females and males, majority of acoustic parameters (13 of 17) present increases compared to control groups. Voice abnormalities in PD females and males appeared to show a great degree of similarity in terms of the values range and direction of changes.

Bilateral vocal cord polyp

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The vocal polyps are unilateral pediculated mass originated from mucosa of true vocal cord. In this study, we have reported the bilateral vocal cord polyps. Voice Handicap Index-10 (VHI-10) and acoustic voice analyses were performed in 24 years of age a male patient with bilateral vocal cord polyps operated with endolaryngeal microsurgery with endoscopic approach and the results were compared. It has been demonstrated that the physiology of the larynx can be protected with a successful surgical excision and the phonatuary functions of the vocal cords can be returned to normal. Additional post-operative voice therapy improved patients' quality of voice.

Primary ciliary dyskinesia and its ENT manifestations

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To evaluate the clinical condition of patients diagnosed with primary ciliary dyskinesia (PCD) from an otorhinolaryngological perspective, assess the occurrence of symptoms in the upper respiratory tract, and review previous care, including surgical interventions. **Methods:** A retrospective analysis was conducted on medical records of patients diagnosed with PCD at the Children's Faculty Hospital in Bratislava from 2007 to July 2016. Clinical symptoms, ENT examination findings, and diagnostic approaches were evaluated. Additionally, the quality of life of patients was assessed using the SF-36 questionnaire. **Results:** Most patients presented with chronic rhinitis, sinusitis, and recurrent otitis media. Chronic respiratory symptoms persisted despite treatment, emphasizing the need for specialized diagnostic centers. Situs inversus, a common finding in primary ciliary dyskinesia, was observed in 6 patients within the cohort. SF-36 outcomes indicated reduced quality of life, significantly impacted by persistent ENT-related complications. **Conclusion:** Early diagnosis and tailored management of PCD are crucial to improving patient outcomes. This study highlights the vital role of otorhinolaryngologists in early detection and comprehensive care of PCD patients. Improved diagnostic protocols and multidisciplinary approaches are recommended.

Voice rehabilitation after thyroidectomy: clinical approaches and outcomes

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Thyroidectomy, performed for both malignant and benign thyroid conditions, often presents a significant postoperative challenge in preserving voice function due to the proximity of the thyroid gland to key structures like the larynx and recurrent laryngeal nerves. **Aims:** To propose a comprehensive approach aimed at optimizing voice recovery, addressing psychosocial aspects of voice changes, and improving patients' quality of life. **Materials and Methods:** This article discusses a multifaceted approach to voice rehabilitation following thyroidectomy, based on clinical experience in phoniatrics. From January 2024 to January 2025, 38 patients with vocal cord paresis following thyroidectomy were examined. Diagnostic evaluation of patients before and after treatment was performed using videolaryngostroboscopy and voice recordings. **Results:** 21 patients underwent conservative treatment: physiotherapy using amplipulse, pharmacological therapy, inhalations with medications and voice therapy for 7–10 days. 15 patients experienced restoration of voice function after the treatment course. Six patients with improved voice function were advised to continue voice therapy for up to 1 month. After one month, voice function was fully restored. In 17 patients, injection laryngoplasty was performed 2–4-times within a year. Patients in follow-up reported improvement in voice function. Key rehabilitation strategies, including both conservative and active voice therapy techniques, tailored to the individual needs of the patient, are presented. Special attention is given to the role of physiotherapy and voice therapy, the importance of early intervention, and the use of nerve stimulation with amplipulse and specialized voice exercises. The use of medical interventions, such as pharmacological treatments and, when necessary, injection laryngoplasty, is also discussed. **Conclusions:** An early, individualized approach to voice rehabilitation allows for faster recovery of voice function, improves patients' quality of life, and facilitates the rapid restoration of professional working capacity.

Determinants of speech intelligibility in laryngectomized patients with voice prostheses

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Total laryngectomy with voice prosthesis remains the standard of care for advanced laryngeal cancers, yet postoperative voice outcomes vary significantly. This study aims to comprehensively evaluate speech intelligibility – defined as the clarity of the patient's voice as perceived by listeners – and to identify clinical and demographic determinants that may predict superior outcomes. Patients undergoing laryngectomy with voice prosthesis at our center were prospectively enrolled. Although data from additional centers may be incorporated in the final analysis, the current study focuses on our institutional cohort. Postoperative assessments included validated questionnaires addressing both quality of life and voice-specific parameters. Recordings were conducted in a standardized clinical setting using a cardioid microphone placed at a fixed distance. Patients were instructed to articulate phonetically balanced words and phrases in Italian, which were later evaluated by a panel comprising both experts and non-experts to assess intelligibility subjectively. Objective voice analysis was performed on recordings of a sustained vowel (/a/) and two Italian CAPE-V validated sentences. These samples were processed using VoxPlot software to quantify acoustic parameters such as shimmer, jitter, and signal-to-noise ratio (SNR). Additionally, a clinician-administered questionnaire provided further insight into various dimensions of voice quality. Our investigation seeks to correlate subjective intelligibility scores with objective acoustic metrics and to determine the influence of factors such as lesion site, lesion type, and patient age on voice outcomes. Preliminary analyses suggest meaningful associations that could guide tailored rehabilitative strategies. Ultimately, the integration of subjective and objective measures in this study is expected to enhance our understanding of postoperative voice rehabilitation and to inform best practices in patient management.

Neuroendocrine tumor of the larynx: a case report

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Introduction: Neuroendocrine tumors (NETs) of the larynx are rare, accounting for less than 1% of laryngeal malignancies. These tumors can vary in differentiation, from well-differentiated, low-grade neoplasms to aggressive carcinomas. Diagnosis is challenging, as initial symptoms often mimic benign conditions. Early recognition is essential due to the distinct management and prognosis compared to other laryngeal pathologies. **Case Presentation:** A 54-year-old female presented to the otorhinolaryngology department with a three-month history of a sensation of pressure in the throat, without pain or other symptoms. Laryngoscopy revealed a lesion on the right aryepiglottic fold, with vascular changes in narrow-band imaging (NBI) resembling inflammatory alterations. The patient was scheduled for microlaryngoscopy. Initial findings suggested a benign cyst, but histopathological examination unexpectedly identified a moderately differentiated neuroendocrine tumor (NET). A reoperation with margin extension was subsequently performed. Staging investigations excluded regional or distant metastases, and postoperative recovery was uneventful. **Conclusion:** This case highlights the importance of considering neuroendocrine tumors in the differential diagnosis of laryngeal lesions, even when the initial presentation resembles benign conditions. Early histopathological assessment is crucial for accurate diagnosis and appropriate management. Enhanced awareness among otorhinolaryngologists can expedite diagnosis and improve patient outcomes.

Case report: myoneurectomy in a patient with adductor spasmodic dysphonia

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Background: A patient was referred to our clinic by a phoniatrician after experiencing two years of dysphonia, characterized by a strangled and breathy voice. Initial treatments included relaxation techniques and proton pump inhibitors for chronic laryngitis, attributed to smoking and gastroesophageal reflux disease. Occupational exposure to solvents may have further exacerbated

the condition. The dysphonia was classified as adductor spasmodic dysphonia (ASD). **Methods:** Following consultation, the patient received botulinum toxin injections into the bilateral thyroarytenoid muscles. The treatment was administered three times over intervals of 8 and 10 months. Despite of the initial improvement in phonation and voice quality, the patient began experiencing dyspnea on exertion and globus sensation six months after the final injection. Consequently, transoral laser myoneurectomy of the bilateral thyroarytenoid muscles was performed. **Results:** Following the procedure, the patient experienced significant improvement in voice quality and reported high satisfaction with the outcomes. **Conclusion:** Botulinum toxin injections are effective in managing adductor spasmodic dysphonia, although their effects are temporary, typically lasting only a few months. Transoral laser myoneurectomy, offers a viable long-term solution, providing sustained improvement in vocal function.

Occupational HPV exposure and protective vaccination: insights from a scoping review

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Introduction: Managing HPV-related lesions can pose the occupational risk of human papillomavirus exposure, with various surgical specialties increasingly advocating for protective HPV vaccination among clinical staff. With the high prevalence of recurrent respiratory papillomatosis requiring regular ablative surgery and the growing adoption of in-office laser treatments, laryngologists are particularly at risk. **Aims:** To assess current perspectives on occupational HPV exposure risks and the potential protective role of vaccination for laryngeal surgeons. **Materials and Methods:** A systematic search of the literature on occupational HPV exposure and vaccination attitudes was conducted. English-language, human studies of all research formats discussing occupational exposure to HPV or healthcare professionals' outlook on vaccination were included. Data on demographics, concern levels on HPV exposure, and attitudes towards vaccination were analyzed. Concern levels were defined by degree of concern on a four-point scale with the following categories: "N/A", "significant concern", "moderate concern", "unconcerned". Outlook on vaccination was defined on a four-point scale with the following categories: "N/A", "advocates for vaccination", "considers vaccination", and "vaccination unnecessary". **Results:** Of 50 articles included, 47 (94%) acknowledged occupational HPV exposure risks, with 22 (44%) expressing significant concern and 15 (30%) reporting moderate concern. 14 articles (28%) recommended protective vaccination for the operators, 12 (24%) advocated for it, and 4 (8%) considered it. Only 1 (2%) deemed vaccination unnecessary. Laryngology-specific concerns were only reported in 5 articles (10%), whereas the majority were from specialties such as gynaecology (20%), dermatology (18%) and general surgery (8%). Articles emerged predominantly from the USA (40%) and the UK (20%). **Conclusion:** HPV exposure is widely recognized as an occupational risk across surgical specialties, including Laryngology, particularly with the management of RRP. Nearly one-third of articles advocate vaccination for operators. Further research is critical to quantify risks and assess the protective role of vaccination.

The use of rhythmic electrical stimulation in the treatment of movement disorders of the vocal folds

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Introduction: Voice disorders often stem from dysfunctions in the movement of the vocal folds, which can result from various causes, including impaired coordination of their activity. One promising treatment method for these disorders is electrical stimulation of the laryngeal muscles. **Aims:** Improvement of the treatment of movement disorders of the vocal folds with the use of rhythmic electrical stimulation. **Materials and Methods:** The treatment was carried out on 23 patients with movement disorders of the vocal folds due to various etiologies, including post-surgical changes following thyroid gland operations, traumatic injuries to the laryngeal nerve, and infections. The treatment regimen included voice therapy, medications, and

rhythmic electrical stimulation sessions. Laryngostroboscopy (using Storz equipment), acoustic voice analysis (using Praat and Lar programs), and electroencephalography were conducted as part of the diagnostic and monitoring processes. **Results:** All patients with movement disorders of the vocal folds received drug therapy, which was taking into account to the condition of the larynx and the bioelectric activity of the brain. Medications included stimulants, nootropics, and sedatives. Voice exercises were prescribed on an individual basis. Electrical stimulation was performed using a special device with individually selected intensity and stimulus frequency, based on the results of acoustic voice analysis. During stimulation, functional loads on the vocal folds were used, which were selected individually taking into account both the necessary physiological load and the emotional perception of the material by the patient. Following comprehensive treatment, all patients demonstrated improved coordination and motor activity of the vocal folds, as well as enhanced voice quality. **Conclusion:** The use of rhythmic electrical stimulation, with individually selected stimulus parameters based on acoustic voice analysis, combined with medication and voice therapy, significantly improves the effectiveness of treatment for movement disorders of the vocal folds of various origins.

Successful surgical treatment of advanced juvenile-onset recurrent respiratory papillomatosis using optical image enhancement – a case report

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Introduction: Therapy of juvenile-onset recurrent respiratory papillomatosis is challenging. Despite vaccination, surgical intervention still plays an important role. Therefore, refinement in surgical technique and intraoperative visualization is inevitable. **Aims:** To present the successful surgical therapy of a 2-year-old pediatric patient with advanced laryngeal, pharyngeal, esophageal papillomatosis utilizing intraoperative optical image enhancement beside CO_2 laser vaporisation. **Materials and Methods:** The 2-year-old girl was incidentally noted with mesopharyngeal papilloma and associating hoarseness suggesting laryngeal papillomatosis. Due to COVID-19 pandemia and lack of compliance of the child's guardian, the scheduled endolaryngeal procedure shifted in time. Six months later the child was presented with aphonia and mild inspiratory stridor urging surgical solution. Therefore, endolaryngeal intervention was performed under totally intravenous anesthesia. During the procedure, precise evaluation of the extension of papillomatosis was carried out with rigid endoscopy completed with optical image enhancement. It was followed by meticulous CO_2 vaporisation of the lesions located to the larynx, hypopharynx and upper segment of the esophagus. The procedure was continuously controlled by image enhancement endoscopy. One year following the first surgery, a repeated intervention was necessary due to recurrence resulting in dysphonia. Between the procedures, the child was given nine component vaccination scheme against human papilloma virus. **Results:** The initially detected advanced respiratory, pharyngeal, esophageal papillomatosis remarkably regressed due to the two endolaryngeal procedures and adjuvant vaccination. **Conclusion:** Rigid endoscopy with optical image enhancement can be a valuable additional tool for intraoperative evaluation of papillomatosis affecting the upper aerodigestive system. Application of this imaging technique facilitates more comprehensive CO_2 laser vaporisation. Along with adjuvant vaccination, it may contribute to more efficient therapy of advanced respiratory papillomatosis.

Clinical efficacy of enhanced contact endoscopy in detection of malignant and premalignant laryngeal lesions

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Introduction: Enhanced contact endoscopy (ECE) is a non-invasive technique used for assessment of superficial vascular changes of mucosal lesions in high magnification. **Aims:** The aim of our study was to evaluate the clinical efficacy of ECE in an intraoperative settlement. **Methods:** Structured assessment of laryngeal mucosal lesions using enhanced endoscopy (NBI and ECE) was

performed in a prospective clinical trial. Lesions were classified according to the European Laryngological Society Classification into non-suspicious and suspicious. Evaluations of endoscopic methods (NBI and ECE) were correlated with histopathology, histopathology being the gold standard. Sensitivity, specificity, accuracy, positive predictive value, negative predictive value, AUC, diagnostic odds ratio, Kappa, incremental yield and Youden's index for NBI and ECE were calculated. **Results:** A total of 110 patients with 136 lesions were enrolled, 50 benign non-neoplastic lesions, 8 squamous cell papillomas, 45 dysplasias, 33 squamous cell invasive cancers. Compared to NBI, ECE demonstrated higher sensitivity (91.0 vs. 83.1%) and accuracy (90.4 vs. 86.8%). NBI achieved higher specificity (91.8 vs. 89.7%). PPV and NPV for ECE were 92.2 and 88.1%, whereas for NBI 93.1 and 80.4%. ECE showed greater overall diagnostic performance, with a diagnostic odds ratio (DOR) of 88.3 vs 55.2 and Kappa index of 0.805 vs 0.736. **Conclusions:** ECE enhances diagnostic sensitivity and accuracy and represents a valuable addition to laryngeal cancer diagnostics.

The effectiveness of voice therapy in female with mutational falsetto: a case report

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Introduction: During adolescence, natural growth changes in the larynx lead to a shift in voice pitch – about one octave lower in males and about 2 to 3 semitones lower in females. This process is called mutational change. When the voice fails to transition from the higher pitch of pre-puberty to the lower pitch of adulthood, it is termed mutational falsetto. This article shares the speech therapist provided a 35-year-old female mutational falsetto with a complete voice therapy intervention and the changes in the patient's voice after the treatment. **Aims:** This study explores the effectiveness of voice therapy in female with mutational falsetto. Although typically noticed in men, it is often overlooked in women. Patients may experience throat discomfort, hoarseness and altered pitch, tight throat when speaking, difficulty speaking for long periods of time, difficulty in social interaction, and require voice therapy. **Materials and Methods:** The subject is a 35-year-old female who experienced voice discomfort for a year. Clinical evaluation, including physiological and functional voice assessments, identified mutational falsetto. The primary intervention used was voice therapy. **Results:** The first therapy session successfully elicited a normal low pitch. Two weeks later, after a second session, the patient could maintain a normal pitch most of the time, though some pitch instability remained. After two months, follow-up showed the patient could consistently use an appropriate pitch in daily life. **Conclusion:** In the female case in this article, she used an inappropriate high pitch, no one thought it was wrong, but it caused voice problems and was in need of voice therapy. After treatment and follow-up, she was able to speak with an appropriate pitch, and the discomfort in his throat was improved. The voice therapy was very successful.

Improving the method of surgical voice rehabilitation of patients after laryngectomy

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Introduction: Laryngectomy for laryngeal cancer leads to profound disability of the patient – complete loss of voice. An effective method of voice rehabilitation after laryngectomy is surgical – as tracheoesophageal shunt (TES) and tracheopharyngeal shunt (TPS). **Aims:** Improving the method of surgical rehabilitation by the method of tracheoesophageal shunt with prosthetics (TESBP) in patients after laryngectomy. **Materials and Methods:** Surgical rehabilitation by the TESBP method was performed on 74 patients with cancer of the larynx and laryngeal part of the pharynx, who underwent laryngectomy. **Results:** The developed method of forming a stable tracheostomy allows not to use a tracheostomy tube from the first day of the postoperative period, forming a stable tracheostomy of the correct shape and reducing the likelihood of complications. The method of TESHP has been improved by changing the design. The proposed instrument is a tube, the front end of which is cut at an angle according to the type of the Bruninx bronchoesophagoscope, the tube is curved at different radii. Due to the diameter, it is possible to pass the tube in a narrowed pharynx, reducing its trauma; the bend of the tube is more physiological, partially repeating the course of the pharynx, which reduces the need for significant extension of the head, the pressure of the tube on the incisors and soft tissues; the front end of the tube protrudes and is easily palpated through the wall of the esophagus and trachea. **Conclusion:** The proposed method of forming a tracheostomy makes it possible to form a stable stoma of the correct shape in patients after laryngectomy,

which is a favorable basis for further vocal and respiratory rehabilitation. The improved method of TESHP by changing the design of the esophageal tube ensures minimal tissue trauma, reduces the time of surgical intervention, and expands the possibilities of patient rehabilitation.

Laser surgery versus radiotherapy in early glottic carcinoma

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Objective: A therapeutic decision in the treatment of early glottic carcinoma with radiotherapy (RT) or transoral (TOS) surgery is still an open issue. **Subjects and Methods:** The study was conducted on a series of 120 cases of early glottic carcinoma (T1, T2) treated with transoral microscopic laser surgery or RT. The oncologic results and voice quality were evaluated. **Results:** A total of 36 patients received RT and 94 patients were treated by laser cordectomy (30 vs. 70%; P = 0.01). No difference in local control or disease-free interval was found. There was statistical significance favoring patients treated with TOS when it comes larynx preservation, mostly in T2 glottic tumours. Self-assessment of voice quality showed no statistically significant differences. Patients treated with RT had longer maximum phonation time. **Conclusions:** Transoral laser surgery in early glottic cancer is oncologically safe procedure that has similar oncological results with RT, with lower risk of total laryngectomy.

Optimizing voice analysis for pathology detection: challenges in data processing

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Introduction: For over a decade, our team has been engaged in voice analysis, aiming to enhance the accuracy and objectivity of voice disorder assessment. We developed a dedicated software and hardware system to collect and process voice recordings, ensuring precise and controlled data acquisition. These recordings provide a basis for future machine learning applications to improve automated evaluation. This study conducts a statistical analysis of acoustic features in both healthy and pathological

voices to identify the most relevant markers for diagnostic purposes. **Aims:** The primary aim of this study was to evaluate the effectiveness of statistical voice analysis in differentiating pathological voices from healthy ones, with a focus on optimizing acoustic feature extraction for clinical application. **Methods:** Patients underwent voice analysis alongside a comprehensive laryngological examination. The study included 90 patients divided into two groups: one with no dysphonia and the other with dysphonia of various etiologies. The effects of dysphonia on acoustic parameters, including fundamental frequency, jitter, shimmer, and harmony-to-noise ratio, were analyzed statistically. **Results:** We initially tested our models using the Saarbrücken voice database, but processed recordings did not achieve the high success rates reported in the literature. Applying the same methodology to our dataset yielded more promising results, aligning with published findings. Our approach demonstrated high accuracy in distinguishing pathological voices, highlighting its clinical potential. **Conclusion:** Recording patient voices combined with statistical analysis presents a valuable tool for objective voice disorder assessment. We introduce a computationally efficient and clinically applicable voice analysis method with a specialized data processing pipeline. These findings support its potential for routine clinical use. Further refinements in preprocessing and feature extraction are needed to improve diagnostic accuracy.

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Influence of superior laryngeal nerve palsy on objective voice parameters and on voice handicap index after total thyroidectomy

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Introduction: Total thyroidectomy (TT) is one of the most common surgical endocrine surgeries. Voice impairment after TT can occur not only in patients with recurrent laryngeal nerve (RLN) transient paralysis, but also in cases of normal vocal cord mobility. One of the causes may be superior laryngeal nerve paresis (SLN). **Aim:** To compare voice limits using a speech range profile (SRP) in patients before and one month after TT and to investigate the influence of impaired voice quality and prosodic speech factors after TT on the personal life of patients. **Materials and methods:** A retrospective study, in the period 2020–2024, included 38 patients aged 22–80 years. We compared two groups of patients: group I (N = 24) (without SLN paresis) and group II (N = 38) (with postoperative SLN paresis). Patients underwent video flexible laryngocopy, SRP, and Voice handicap index--30 (VHI-30). **Results:** In group I, the mean values of F_{max} (maximum frequency) and I_{max} (maximum intensity) decreased in women and VHI-30 increased (P = 0.001). In group II after TT in women, the mean Fo, F_{max} and I_{max} values decreased, and the frequency range of the voice was reduced from 6 to 4 semitones. The dynamic range of the voice was reduced by 3,99 dB in women and 2,1 dB in men. VHI-30 increased (P = 0.001). **Conclusion:** The study documented a worsening of the mean values of SRP, VHI-30, and voice parameters of patients in group II. Voice disorders also occurred in group I without SLN paresis. Non-paretic causes can also contribute to voice damage after TT. SRP and VHI-30 are suitable tools for comparing voice status in two groups of patients, including those with dysphonia and at the same time mobile vocal cords. SLN paresis can be easily overlooked during a routine laryngoscopic examination.

Analysis of difficulty in exposure during micro laryngoscopy surgery caused by curled epiglottis

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Aims: Difficulty in exposure is a common obstacle to performing microlaryngoscopy surgery, and difficulty in inserting the laryngoscope and exposing the surgical site caused by epiglottic curl is one of the reasons for difficulty in exposure, which is not uncommon during surgery. This study observed the difficulty of exposure caused by curled epiglottis during micro laryngoscopy surgery, and determined the proportion of patients with exposure difficulty caused by curled epiglottis. **Materials and Methods:** A retrospective analysis was conducted on patients who underwent microlaryngoscopy surgery in the Department of Otolaryngology Head and Neck Surgery at Department of Otolaryngology Head and Neck Surgery, First Central Hospital from October 2024 to January 2025. The proportion of patients with difficulty in exposure due to curled epiglottis was recorded. **Results:** This study was a single center study that included 412 patients who underwent micro laryngoscopy surgery. The surgical

types included micro laryngoscopy for vocal cord polyp resection, vocal cord cyst resection, biopsy, and CO_2 laser surgery. According to statistics, the proportion is 29.33% that patients with difficulty in exposure due to curled epiglottis. There is no significant correlation with the age of the patient. There is no significant difference between genders. It is related to the length of the patient's neck, the position of the larynx, and whether the head can smoothly tilt back. **Conclusion:** Difficulty in exposure caused by curled epiglottis during micro laryngoscopy surgery is a common, with a high proportion. The specific situation still requires multicenter researches.

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