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**ABSTRACTS**

### Recovery of hearing loss after *Haemophilus influenzae*-induced meningitis: A Pediatric Case Report.

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#### Introduction and aim:

*Haemophilus influenzae* (Hi) is a gram-negative bacterium subdivided into six serotypes (a-f). It is associated with upper respiratory tract infections as well as invasive diseases such as meningitis. The introduction of the Hib vaccine has reduced the incidence of invasive Hib disease. However, serotype replacement has led to an increase in invasive Hi disease caused by other encapsulated serotypes (Hia-f).

Although rare, non-type b Hi is increasing as pathogen in pediatric bacterial meningitis. It may cause both transient and permanent post-meningitic hearing loss.

Hearing loss following such infections remains poorly described.

In this report, we present an unusual case of partial hearing recovery in a patient with non-type B *Haemophilus* meningitis-induced deafness.

#### Case report:

A 2-year-old girl presented to the emergency department with symptoms of high fever, irritability, and neck stiffness. A lumbar puncture confirmed the diagnosis of *Haemophilus* type a meningitis. The patient was promptly started on intravenous antibiotics, corticoids and supportive care. Despite aggressive treatment, she developed profound bilateral sensorineural hearing loss within days of diagnosis.

Following initial recovery from meningitis, audiometric evaluation confirmed severe bilateral hearing impairment. CT/MRI imaging showed signs of labyrinthitis and early ossification in the vestibular parts of the inner ears. Bilateral simultaneous cochlear implantation was planned. However, prior to surgery, partial hearing recovery was suspected in the left ear. Auditory Brainstem Response (ABR) testing confirmed thresholds of approximately 50dBHL in this ear. Therefore, cochlear implantation was performed only in the right ear, while the left ear was fitted with a hearing aid.

#### Conclusions:

This case demonstrates partial unilateral hearing recovery in a patient with Hi type a meningitis-induced bilateral deafness. It highlights the potential for spontaneous partial recovery in cases of non-type b meningitis-induced hearing loss, emphasizing the importance of regular follow-up and audiometric assessments. Rehabilitation strategies, including hearing aids and cochlear implants, should be considered on a case-by-case base, taking into account the possibility of spontaneous hearing improvement. A brief review of the literature, including differentiation with hearing loss following *Streptococcus pneumoniae* – induced meningitis, will be discussed.

# Cortical tracking of postural sways during standing balance

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## Introduction and Objectives

Maintaining an upright posture requires integrating sensory inputs from the visual, vestibular, and somatosensory-proprioceptive systems. The role of the cerebral cortex in monitoring and controlling postural sway remains unclear. This study investigates whether postural sway is encoded in ongoing cortical oscillations, forming corticokinematic coherence (CKC). By analyzing center-of-pressure (CoP) fluctuations and cortical activity via electroencephalography (EEG), the research aims to determine if CKC reflects cortical involvement in balance control, particularly under challenging conditions.

## Materials and Methods

Thirty-six healthy young adults performed balance tasks under four conditions: standing on a solid or foam surface, with eyes open or closed. EEG signals and CoP data were recorded using a force plate. The study analyzed CoP features, including velocity and position, and their coupling with cortical oscillations. CKC was assessed at 1–6 Hz, and time delays between cortical activity and CoP fluctuations were examined to distinguish afferent (sensory feedback) and efferent (motor control) contributions.

## Results

CKC was significantly present in conditions with reduced sensory information (foam surface, eyes closed). The highest coherence was observed for CoP velocity (vCoP) in the most challenging condition, suggesting that cortical areas actively monitor and regulate balance. The observed time delays indicated a closed-loop mechanism where the cortex monitors CoP velocity and controls its position. CKC magnitude correlated with increased instability under difficult conditions, confirming its behavioral relevance.

## Conclusions

The study demonstrates that human sensorimotor cortical areas contribute to standing balance control under challenging conditions. CKC serves as a neurophysiological marker of cortical involvement in balance regulation, reflecting both sensory feedback and motor output. These findings may provide insights into balance disorders and potential clinical applications for assessing postural control in neurological conditions.

# Endoscopic type 1 tympanoplasty: a retrospective risk factor analysis for surgical and hearing outcomes

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**Introduction and aim:** Endoscopic tympanoplasty is already widely used in otologic practice, yet standardized patient selection criteria remain lacking. This study aims to further analyze individual outcomes and establish well-defined clinical criteria to optimize patient selection for this surgical technique.

**Material and methods:** A retrospective analysis was conducted on 74 patients who had endoscopic type 1 tympanoplasty surgery performed by a single surgeon over a 3.5-year period. Potential risk factors (including age, perforation location, tympanometry of the contralateral ear, preoperative or intraoperative myringitis or acute otitis media (AOM), myringosclerosis, underlying conditions, revision surgery, early-stage cholesteatoma, smoking history, concomitant adenoidectomy, history of tympanostomy tubes, aeroallergies, nCPAP use and postoperative complications) were analyzed using Fisher's exact test, binary logistic regression and linear mixed models.

**Results:** At 6 months postoperatively, the graft success rate was 94.6%, with a significant mean hearing improvement of 10.71 dB in PTA ( $p < 0.001$ ) and 13 dB in ABG ( $p < 0.001$ ). Preoperative myringitis was the only significant risk factor for tympanic membrane non-closure ( $p = 0.03$ ). Intraoperative AOM ( $p = 0.008$ ) and postoperative complications ( $p = 0.022$ ) were associated with reduced PTA improvement. In contrast, hearing improvement was significantly better in patients who had a concomitant adenoidectomy ( $p = 0.036$  for PTA,  $p = 0.004$  for ABG) and in patients with myringosclerosis ( $p = 0.004$  for ABG).

**Conclusions:** Endoscopic tympanoplasty demonstrates a high surgical success rate. Preoperative myringitis was associated with an increased risk of graft failure, while intraoperative otitis media and postoperative complications negatively affected hearing improvement. Conversely, concomitant adenoidectomy and removal of myringosclerosis were found to be valuable additions for hearing gain in selected patients. Future research in larger cohorts should focus on refining patient selection criteria to optimize surgical outcomes and improve evidence-based decision-making.

# Time-series transcriptome analysis of the older adult mouse cochlea after noise-induced hearing loss reveals an acute immune response and recovery-associated pathways

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**Introduction and aims:** Noise-induced hearing loss (NIHL) affects approximately 5% of the global population, significantly impairing health-related quality of life, and is of particular interest in the aging population due to its association with an increased risk of cognitive decline. The pathophysiology of NIHL involves a complex interplay of damage to multiple cellular structures within the cochlea. While the pathophysiology of NIHL has been extensively studied in young mice, limited research exists on the molecular mechanisms underlying NIHL in older adult populations. This study provides the first insights into temporal differences in gene expression following noise exposure in older mice with an average age of 17 months.

**Material and methods:** We exposed mice to broadband noise of 115 dB sound pressure level (SPL) for two hours and conducted auditory testing before and after noise exposure to confirm the presence of NIHL. Cochleae were collected at 24 hours, 72 hours and 1 week post-exposure for RNA sequencing (RNA-seq).

**Results:** Pathway enrichment analysis using the Ingenuity Pathway Analysis (IPA) tool revealed distinct temporal patterns in the cochlear transcriptome. Acute inflammatory pathways were prominently activated at 24 hours following noise exposure, while pathways associated with collagen degradation, hormone signaling, potassium channel activity and GABA receptor activation peaked at 72 hours or 1 week after noise exposure.

**Conclusions:** These findings shed light on the age-specific molecular responses to acoustic trauma, largely consistent with previous experiments in younger mice, and highlight critical windows for cochlear damage and repair. Understanding these temporal patterns in older adults provides information for the development of targeted treatment strategies to mitigate NIHL and its associated risks.

**Keywords:** cochlea, sensorineural hearing loss, noise-induced hearing loss, noise exposure, mouse model, RNA sequencing, transcriptomics

## Otogenic and meningogenic pathways to hearing loss: a case series

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**Introduction:** Sensorineural hearing loss (SNHL) is a prevalent and serious complication of meningitis. It can arise from both direct cochlear invasion via the otogenic route (e.g., otitis media) and retrograde spread from the labyrinth through the meningogenic route. Early diagnosis of hearing loss is critical, particularly before cochlear ossification occurs. Over 50% of patient with meningitis experience SNHL. Otitis media is responsible for approximately one-third of meningitis cases. Otogenic meningitis typically leads to more severe cochlear changes, while meningogenic meningitis tends to cause greater vestibular damage. However, the critical need for early detection and intervention is often underestimated.

**Case series:** A literature review was performed using the Embase and Cochrane databases to investigate the relationship between meningitis and SNHL. Additionally, four cases from the University Hospitals of Antwerp were included as supplementary reference material.

**Results:** Four cases of cochlear implantation (CI) following meningitis, labyrinthitis, or mastoiditis were evaluated, with a median age of 5.21 years. These patients presented with severe unilateral hearing loss, which was determined to be the result of the infections they had experienced. The decision to proceed with CI was based on the severity of the hearing loss, the risk of cochlear ossification associated with delaying the procedure, and the availability of reimbursement for unilateral hearing loss in children for CI. In all four cases, the CI procedures were successfully carried out within three months of diagnosis.

**Conclusion:** This case series underscores the importance of early audiological screening for patients with meningitis, especially those with otogenic involvement. Delayed diagnosis and intervention can lead to irreversible hearing damage due to cochlear ossification. Implementing a standardized protocol for early hearing assessments and prompt treatment could significantly improve patient outcomes. These findings highlight the need for increased awareness and proactive management strategies in hospital settings.

# **Efficacy of bilayer SIS grafts in myringoplasty for tympanic membrane perforations: A retrospective case series**

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## **Introduction & Aim:**

Tympanic membrane perforations can lead to multiple morbidity. Porcine small intestinal submucosa (SIS) is an acellular, biological extracellular matrix that has been found effective in repairing tympanic membrane (TM) perforations. Its use in myringoplasty is minimally invasive and can facilitate a quick return to school or professional activities.

## **Materials & Methods:**

A retrospective case series was conducted, reviewing thirty-one adult and pediatric patients who underwent myringoplasty with a bilayer SIS graft featuring lateral and medial flanges, shaped like a butterfly. The surgeries were performed endaurally, either with an endoscope or a microscope.

The main outcome measure was the rate of tympanic membrane closure. We also analyzed the causes of procedure failure.

## **Results:**

Thirty-one patients were retrospectively reviewed. They were operated on in our ENT department.

Their tympanic membrane perforations had three main causes: transtympanic ventilators, recurrent ear infections or previous tympanic membrane surgeries.

Most of the patients had unilateral surgery, and only three had bilateral surgery.

One patient lost to follow-up. Eighteen patients achieved tympanic membrane closure, while eight experienced failure, with persistent perforations. Among these eight failures, six were due to repeated ear infections.

This technique has proven effective for residual perforations following secondary ear surgery, including cases with postauricular or endaural incisions, with a success rate of six out of seven in secondary surgeries. It was also successful for patients with persistent tympanic membrane perforations after grommet extrusion, with only one failure out of eleven successful cases.

## **Conclusions:**

In conclusion, the use of bilayer SIS grafts in myringoplasty for tympanic membrane perforations demonstrates promising results, with a high rate of closure and minimal invasiveness.

# **Cochlear implant failures and reimplantations at the Antwerp University Hospital: lessons learned from a retrospective analysis of 1.313 cochlear implantations**

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**Introduction:** As the number of cochlear implantations is increasing and devices are aging, the amount of revision cochlear implant surgery is becoming more frequent. The aim of this study is to present an institutional experience of cochlear reimplantations, its etiologies as well as diagnostic and surgical challenges.

**Materials and methods:** We retrospectively reviewed patients who underwent revision cochlear implant surgery at the Antwerp University Hospital (UZA) between August 1993 and August 2022.

**Results:** A total of 1.313 cochlear implantations were performed at the UZA over a period of 29 years. There have been 60 cochlear reimplantations in our center, six of which received their first implant in another medical center than UZA. Therefore, the institutional failure rate is 4.3% (54/1253). Reimplantation in children (< 10 years old) accounted for 28% (17/60) of the cohort. Device-related failure was the most prevalent etiology and amounted to 70% (42/60) of the reimplantations; 26.7% (16/60) were medical related failures. One case was registered as an inconclusive failure (1.7%) and 1 case was an elective upgrade (1.7%). The mean duration to failure was 11.0 years (ranging 0.8-22.7 years).

**Conclusions:** The number of reimplantations is expected to grow in the coming years due to the increasing number of patients that have been implanted in the last decades. Device-related failure was the most prevalent reason for reimplantation in the present study.



# Investigating Pendred Syndrome: a comprehensive analysis of otological malformations

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## **Introduction**

Pendred syndrome is a recessive genetic disorder characterized by congenital sensorineural hearing loss and goiter. It is often associated with inner ear malformations such as incomplete partition type 2 (IP2) and enlarged vestibular aqueducts (EVA). However, recent observations suggest that incomplete partition type 1 (IP1) may also be linked to this syndrome. This study aims to analyze imaging data to explore the presence of IP1 and other underrecognized malformations.

## **Material and methods**

This retrospective, observational, monocentric study at Hôpital Robert Debré in Paris analyzes imaging, genetic, audiological, and cochlear implantation data of 25 patients diagnosed with Pendred syndrome from January 2010 to December 2024. Data sources include hospital records, genetic reports, audiometry tests, radiological imaging (CT/MRI), and cochlear implantation outcomes. Statistical analyses are pending.

## **Results**

Preliminary results indicate that two cases of IP1 have been identified. IP2 and EVA remain the most frequent malformations. The severity of cochleo-vestibular anomalies appears to correlate with audiological deficits. All patients show SLC26A4 mutations. Vestibular dysfunction is present in a large proportion of cases. Cochlear implantation outcomes are being analyzed, focusing on intraoperative complications such as pulsatile perilymph leaks (gusher) or gentle flow (oozing). One patient with IP1 did not present these phenomena, suggesting the presence of septa not visible on MRI, potentially preserving partial cochlear partitioning, while another patient with IP1 experienced a gusher. Among our preliminary data, none of the IP2 cases exhibited a gusher, but data collection is still ongoing.

## **Conclusions**

Our preliminary findings suggest that IP1 may be a previously unrecognized feature of Pendred syndrome. The variability of inner ear malformations underscores the need for systematic imaging assessment in these patients. Identifying these anomalies may have significant implications for diagnosis, surgical planning, and rehabilitation strategies, particularly regarding cochlear implantation. Future studies will continue to expand the cohort and further investigate the clinical impact of these malformations, particularly the role of subtle septal structures not visible on current imaging techniques.

# Outcomes of tympanoplasty with an autologous two-piece perichondrium-cartilage graft in a tertiary care setting

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**Introduction and Aims:** This study evaluates the anatomical and functional outcomes of type 1 tympanoplasty using an autologous two-piece perichondrium-cartilage (CP) graft in pediatric and adult patients with simple tympanic membrane perforations.

**Materials and Methods:** A retrospective review of 74 patients (59 children, 15 adults) undergoing reinforced myringoplasty by a single surgeon (IF) was conducted, using the same technique. Preoperative and postoperative audiological outcomes, perforation size, prognostic factors, and complications were analyzed. Success was defined as an intact tympanic membrane and an air-bone gap (ABG) <20 dB at 12 months postoperatively.

**Results:** Tympanic membrane closure was achieved in 93.2% of patients, with 93.1% attaining an ABG <20 dBHL. The combined success rate was 86.3%, with no significant differences between children and adults. Larger perforations (>50%) had significantly lower closure rates (55.6% vs. >97%,  $p < 0.002$ ). Complications occurred in 45% of cases, but were mostly minor and manageable. Children who underwent adenoidectomy had significantly higher success rates ( $p = 0.04$ ).

**Conclusion:** Tympanoplasty with a CP graft provides high success rates in both children and adults. The procedure is performed in patients aged five and older, with patient cooperation taken into account. In children, simultaneous adenoidectomy is recommended to optimize outcomes. Larger perforations were associated with reduced success, while age had no significant impact.

## **Grisel Syndrome (C1/C2 subluxation) : case report of a rare complication of ENT intervention**

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### ***Introduction and aim:***

Grisel syndrome is a rare non-traumatic atlantoaxial subluxation, often secondary to ENT viral infection and/or ENT surgery. There is considerable clinical variability, with, in 15% of cases, spinal cord compression leading to neurological disorders or acute respiratory failure. It should be distinguished from other causes of subluxation, i.e. traumatic, infectious, syndromic or chronic inflammatory.

### ***Case Report:***

We report a post-tympanoplasty case of COVID-19, marked by multiple recurrences.

A 10-year-old girl with no previous medical history presented with persistent neck pain and left torticollis despite physiotherapy and osteopathy. A cervical CT scan revealed a rotatory C1-C2 subluxation without spinal cord compression.

External cervical traction for 21 days was ineffective, and reduction was performed under general anesthesia. A recurrence required a halo-vest, followed by new subluxations at the C0-C1 and C1-C2 levels, necessitating a halo-vest adaptation.

### ***Conclusions:***

This case illustrates a rarely described recurrent form of Grisel syndrome after otological surgery. It highlights the importance of an early check-up of postoperative torticollis by cervical vertebrae CT scan. Close monitoring and a multidisciplinary approach are essential to optimize management.

# Excision of a PIK3CA mutated laryngeal venous malformation by TransOral Robotic Surgery

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## Introduction and aim:

Venous malformations (VMs) are the most common low-flow vascular malformations in the head and neck region. They can occur anywhere in the head and neck region, and rarely even occur endolaryngeal. MRI is crucial in diagnosis and evaluation of VMs, and remains the gold standard imaging modality. Due to next-generation sequencing, TEK and PIK3CA mutations were recently identified as somatic mutations in VMs, and may provide an opportunity to identify selected targeted therapies in addition to already existing modalities such as surgery and sclerotherapy. The mainstay of therapy for localized VMs remains surgery. In this case report, we describe the excision of a PIK3CA mutated laryngeal venous malformation by TransOral Robotic Surgery (TORS).

## Case report:

A 57-year old male, with no past medical history, presented for an elective surgical procedure when the anesthesiologist noticed a laryngeal mass of approximately 30 mm in width, located on the right aryepiglottic fold, in close proximity to the arytenoid. A biopsy was taken and suggested a lymphatic malformation. MRI showed a sharply demarcated nodular mass, with benign features, whereas CT demonstrated peripheral calcifications. Transoral robotic surgery (TORS) was performed to remove the lesion. Anatomopathological examination showed morphological and immunohistochemical image of a benign vascular proliferation with calcification and phlebolith formation, compatible with a venous malformation. Additional molecular DNA Next-generation sequencing revealed the presence of a PIK3CA H1047R pathogenic variant. Postoperative clinical evaluation as well as angiography one month and MRI six months after surgery did not show any residual lesion. The patient reported that his breathing improved markedly.

## Conclusion:

Laryngeal VMs are extremely rare, and require a multidisciplinary approach, involving an interventional radiologist, otolaryngologist/head and neck surgeon, pathologist and when needed also a plastic surgeon. Multiple treatment modalities exist, but when focal and accessible, local excision, either with Transoral Laser Microsurgery (TLM) or TORS, can offer excellent outcomes.

## **Heroin-induced laryngeal necrosis – a case report**

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### **Introduction and aim:**

Nasal and palatal necrosis resulting from intranasal cocaine abuse is well-documented in literature. However, similar presentations associated with heroin abuse are less common, and the exact mechanisms by which heroin affects underlying tissues remain poorly understood.

### **Case report:**

A 48-year-old man with a 20-year history of smoking heroin presented to the emergency department with progressively worsening dysphonia and dyspnea. Laryngoscopy showed irregular black debris on both true vocal cords extending to the subglottis.

Contrast-enhanced computed tomography scan revealed irregular contours of both true vocal cords, accompanied by a mass in the right subglottic region (16 x 11 x 23 mm). Extensive debridement of necrotic mucosa was performed in the operating room. Biopsy showed purulent necrotic tissue. Following debridement, the patient reported a significant improvement in breathing. The patient was followed up every three months over the course of a year. Although he continued to use heroin during this time, both his symptoms and the clinical findings on laryngoscopy remained stable. Diagnosis was noted as heroin-induced laryngeal necrosis.

### **Conclusions:**

Substance abuse, including heroin inhalation, should be considered in the otorhinolaryngologist's differential diagnosis for dysphonia and dyspnea when necrotic laryngeal tissue is observed during laryngoscopy. This report underscores the importance of a thorough airway evaluation in affected patients. Biopsy and debridement are crucial for both diagnosis and symptom management.

# Combined endoscopic endonasal and transorbital removal of a penetrating orbital foreign body extending to the sellar floor: a case report

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**Introduction:** Penetrating orbital trauma with intracranial extension is rare and poses significant surgical challenges, particularly when vital structures such as the optic nerve and pituitary gland are involved. We present a case of a patient with an intra-orbital wooden foreign body of 7 cm extending to the sellar floor, removed by a combination of endoscopic endonasal and transorbital approach.

**Case Report:** A 53-year-old male presented with orbital apex syndrome, consisting of ophthalmoplegia, ptosis, and vision loss, two weeks after falling in the woods. Imaging revealed a residual wooden foreign body traversing the orbital apex and splitting at the sellar floor, with no vascular injury. Given the deep intracranial extension, an endoscopic endonasal skull base approach was performed for release, with a transorbital approach for removal. The sella turcica was opened using the drill, allowing careful extraction of the foreign body. Sellar decompression was performed, and pituitary contusion was noted intraoperatively.

**Results:** The procedure was successfully completed without major complications. Postoperatively, the patient demonstrated partial improvement in ophthalmoplegia, and further recovery is being monitored.

**Conclusion:** This case highlights the feasibility of an endoscopic endonasal and transorbital approach for the removal of deeply penetrating orbital foreign bodies. A minimally invasive transsphenoidal technique allowed safe extraction while preserving critical neurovascular structures.

# Outpatient cochlear implantation in adults and children: insights from a retrospective review on 282 consecutive cases since its introduction

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**Introduction and aim:** Otologic surgery has evolved into day case surgery due to improvements in surgical technique, anaesthesia, and postoperative surveillance. The primary aim of this study was to evaluate the safety and readmission rate on one hand and to discuss potential barriers associated with outpatient cochlear implantation (CI) surgery in adults and children at a tertiary referral center for CI.

**Material and methods:** A retrospective review was conducted on a consecutive series of patients undergoing CI since the introduction of outpatient surgery in January 2020 (up to May 2023) at the Antwerp University Hospital (UZA). Demographic details recorded included patient age at implantation, etiology of hearing loss, and CI surgery complexity. Additional data included postoperative adverse events requiring an unscheduled overnight stay or 14-day readmission, hospital length of stay, surgery start time, and anticipation of postoperative vertigo.

**Results:** A total of 282 cases were identified, including 207 adults and 75 children. Out of these, 97 cases were performed as outpatient procedures. Unilateral CI, was the most common type of surgery (78,7%, n=222) and typically suitable for outpatient admission. In children, hearing loss was mostly genetic (49%), while idiopathic causes were most common in adults (58.5%). Vertigo risk was identified in 46 cases (16.3%). The 14-day readmission rate after day-case surgery was 1.8%.

**Conclusion:** Performing CI as an outpatient procedure is feasible and safe in a carefully selected patient population. Our findings imply that the pre-existing criteria for patient eligibility for day-case CI surgery should be supplemented by factors such as patient preference, risk of postoperative vertigo, complexity of surgery and the etiology of the deafness.

# **Scala tympani versus Scala vestibuli cochlear implantation in incomplete partition type III malformation: a case report**

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## **Introduction and aim :**

An incomplete partition type III (IP-III) malformation is an inner ear malformation that is characterized by an incomplete separation of the modiolus of the cochlea from the internal auditory canal (IAC). Cochlear implantation (CI) is accepted as the most effective treatment for patients with severe to profound sensorineural hearing loss. There is an increased risk for gusher and a misalignment towards the IAC during electrode insertion. The aim is compare the outcome between scala tympani and scala vestibuli CI in this patient with an IP-III malformation.

## **Case report :**

The patient, a 3-year-old with severe sensorineural hearing loss was referred to our clinic for bilateral cochlear implantation. Audiological testing consisted of Conditioned Play Audiometry (CPA), Visual Reinforcement Audiometry (VRA) and Brain Stem Evoked Audiometry (BERA). Data-logging was used to monitor the average hours per day the patient wore their CI. Language development disorders, including lexical skills, morphosyntax, non-verbal abilities, phonology, attention and memory were assessed using the Exalang 3/6 test battery. Genetic testing and imaging (cone-beam (CB) CT and MRI) was performed before surgery. Following a comprehensive discussion of the case within the cochlear implant team, preparations were made to first implant the right ear and after a successful rehabilitation, the left ear. A 19 mm flexible electrode array featuring a seal designed to be used in patients with a malformed cochlea and cases where gusher is expected, was used in the right ear (Form 19, Med-EL, Innsbruck, Austria). A longer 24 mm electrode array of the same type was used in the left ear (Form 24, Med-EL, Innsbruck, Austria).

## **Conclusion :**

Scala vestibuli CI was as good an alternative to scala tympani CI in this case of IP III malformation.



## **Uncommon middle ear masses: a report of two cases**

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### **Introduction and aim:**

Middle ear masses are relatively rare and encompass a broad differential diagnosis. Among them, middle ear neuroendocrine tumors are particularly uncommon, comprising less than 2% of all middle ear tumors. These cases highlight the diagnostic challenges in evaluating middle ear masses and the importance of a structured, multidisciplinary approach.

### **Case report:**

The first case involves a patient presenting with hearing loss and fullness in the left ear. Otoscopy revealed a soft mass in the middle ear with a corresponding conductive hearing loss on audiometry. CT and MRI showed a protein-rich lesion exerting mass effect, without ossicular chain erosion nor increased vascularity.

The second case concerned a patient referred for a coincidental finding of a fluorescent pink mass behind the tympanic membrane, without otologic symptoms. Two years prior, she experienced pain during custom earplug fitting, with normal otoscopic examination afterwards. Audiometry revealed hearing still within normal ranges. CT showed a nodular middle ear mass with possible disruption of the ossicular chain and in close proximity to the tympanic segment of the facial nerve. MRI findings were non-pathognomonic.

### **Results:**

Both cases were discussed in a multidisciplinary consultation and consequently, a middle ear exploration was performed. In the first case, endoscopic middle ear inspection revealed a tumor adherent to the middle ear mucosa and ossicular chain. Histopathology showed a trabecular growth pattern with focal solid and glandular features. Immunohistochemistry for pan-keratin and chromogranin confirmed the diagnosis of a middle ear neuroendocrine tumor. The tumor was fully resected via canal wall-up mastoidectomy, sacrificing the stapes arch, incus and malleus handle.

In the second case, performed via an endaural approach, a pink silicone mass firmly adherent to the ossicular chain was visualized, preventing a safe excision. Biopsies confirmed foreign tissue. In consultation with the patient, it was decided not to remove the mass, as she remained asymptomatic and resection could result in significant hearing loss and damage to the facial nerve.

### **Conclusions:**

As both the otoscopic examination and radiographic features of middle ear masses often lack specificity, a representative biopsy for both histological and immunohistochemical analysis is needed for a definite diagnosis.

## The MO-meatocanalplasty: a modification of the M-meatoplasty

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**Introduction and aim:** The meatoplasty of the external auditory canal is a frequently performed otologic procedure in recurrent otitis externa, eczema, or frequent accumulation of cerumen due to a narrow meatus of the external ear canal. Numerous surgical techniques have been described, with the M-meatoplasty described by Mirck being widely used for addressing the external meatus. The aim of this study is to explore an alternative approach to improving outcomes for patients with narrowing in the postero- and/or anterosuperior quadrants of the lateral meatus.

**Material and methods:** The surgical procedure can be performed under local or general anesthesia using an operating microscope. Initially, a 2% xylocaine with epinephrine solution is used to infiltrate the cavum concha and external meatus. A semilunar incision is made along the external meatus, extending into the concha, followed by a V-shaped incision to create three triangular flaps. These flaps are dissected from the cartilage, and sutures are placed to evert them. The semilunar incision is extended superiorly to create a curve running medially and towards the anterosuperior part of the bony external auditory canal. This incision can be modified depending on the need for a bony canalplasty and/or the need for addressing anterior collapse of the external auditory canal. Conchal cartilage and tissue are excised using a Beaver blade and monopolar electrocoagulation. The skin is thinned to cover the bone. Triangular flaps are used to cover any exposed bone and are glued into place. The post-surgical care involves packing the canal and local antibiotic-steroid treatment until full healing.

**Results:** The MO-meatocanalplasty successfully addresses cases where the narrowing is most prominent in the postero- and/or anterosuperior quadrants.

**Conclusion:** The MO-meatocanalplasty is a useful modification of the widely used M-meatoplasty for the narrow meatus and external auditory bony canal while avoiding a retro-auricular approach.

# **Chondro-osseous respiratory epithelial adenomatoid hamartoma (COREAH) in the sino-nasal tract: case report and review of the literature**

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## **Introduction and aim:**

Hamartomas are benign tumors composed of a disorganized mass of mature specialized cells or tissues that are native to the site where they develop. Sinonasal hamartomas are rare, with chondro-osseous respiratory epithelial adenomatoid hamartoma (COREAH) being an particularly uncommon subtype first described in 1995. This report presents the 21st documented case, further expanding the limited literature on COREAH. The aim is to highlight its clinical, histopathological, and radiological features to improve recognition and diagnosis.

## **Case report:**

A 54-year-old female patient presented with bilateral nasal obstruction and chronic headaches. Flexible nasoendoscopic examination revealed a yellow fleshy polypoid mass in the left sphenoidal recess. A CT scan of the paranasal sinuses showed complete opacification of the left sphenoidal sinus extending into a polypoid formation with a calcified core. Endoscopic resection was recommended but the patient declined. Eight years later, she returned to the ENT clinic with persistent symptoms. A new CT scan demonstrated progression of the lesion. The patient then agreed to undergo complete polypectomy. Histopathological examination was notable for a polypoid lesion, superficially lined by respiratory-type epithelium, and containing within the stroma small glands and bony trabeculae. These features are consistent with COREAH.

## **Conclusions:**

COREAHs are the least common subtype of hamartoma found in the sinonasal tract. They share similarities with respiratory epithelial adenomatoid hamartoma (REAH) but are characterized by the presence of a mesenchymal component: cartilage and/or osseous trabeculae, leading to the detection of calcification on imaging. As a benign slowly progressing tumor, it is crucial to differentiate COREAH from other serious nasal masses to ensure the most appropriate management. The treatment of choice is the complete surgical resection of the mass. A regular long-term follow up is recommended to monitor for recurrence.

# **Subglottic stenosis in children with Down Syndrome : a case report and review of airway management guidelines**

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## **Introduction and aim :**

Down syndrome is the most common chromosomal anomaly in children, with a prevalence of 1 in 770 births. Because of this high frequency, all ENT doctors will encounter these children in their daily practice and will be likely to operate on them during their careers.

Multiple studies have shown a higher rate of subglottic stenosis in children with Down syndrome (6%) compared to the general population (0.63%), which can be either congenital or acquired due to prolonged or inadequate intubation.

## **Case report :**

R.F. underwent surgery at 5 months of age for the closure of an interventricular communication. During the procedure, he was intubated with a 3.5 size endotracheal tube and remained intubated for 48 hours post-operatively. His first extubation was unsuccessful, requiring re-intubation for an additional 72 hours. He was then successfully weaned from mechanical ventilation with the assistance of continuous positive airway pressure therapy.

When he was 17 months old, he was scheduled for an adenotonsillectomy due to an obstructive syndrome confirmed by abnormal nocturnal oximetry. After two unsuccessful intubation attempts (first with a 3.5-sized tube and then with a 3-sized tube), an emergency endoscopy was performed, revealing a grade II subglottic stenosis which was subsequently dilated. (see pictures)

## **Results :**

Studies have shown that children with Down syndrome require the use of an endotracheal tube two sizes smaller than those typically used. R.F. was intubated with a 3.5-sized tube during his first surgery, when a 2.5-sized tube should have been used, likely contributing to the subglottic stenosis we later discovered. (see tables)

## **Conclusion :**

This case report highlights an issue that is unfortunately too common in the care of children with Down syndrome. As ENT surgeons, we will inevitably be called upon to perform surgeries on a significant number of children throughout our careers. It is therefore our responsibility to collaborate closely with anesthesiologists to ensure the best possible care for our patients, including discussing the appropriate tube size beforehand. By proactively addressing these challenges, we can help prevent complications and improve patient outcomes.

## **The effect of the vomer flap for early hard palate closure on septal morphology: a 3D analysis**

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### ***Introduction and aim:***

Since 2012-2013 vomeral flap surgery is used for early hard palate closure in unilateral cleft lip and palate (UCLP) patients instead of the von Langenbeck technique (late closure), which was used until then. Our aim is to examine whether the use of a vomeral flap to close the hard palate in an early stage affects the septal morphology in comparison to late palate closure using the von Langenbeck technique.

### ***Material and methods:***

A cross-sectional retrospective study was conducted using patients born with unilateral cleft lip and palate between 2005 and 2017 in university hospital of Leuven, with a CBCT scan performed prior to bot-in-gnatho surgery, who either underwent early vomerine flap closure surgery (n = 18) or late surgical repair using Von Langenbeck technique (n = 20).

Septal morphology of each patient was observed using CBCT by two independent observers. Mimics medical software (Materialise, Leuven) was used to determine septal deviation (mm) using lines and planes (anterior and posterior nasal spine (ANS-PNS), lowest point of os nasale) to define the most deviated point of the septum at 4 different levels (P1-P4); at fixed levels ANS, mid-septum, PNS as well as the most deviated point determined by observer.

### ***Results:***

An ANCOVA analysis was conducted using SPSS for the different points P1-P4 comparing the different types of surgery. No significant effect on septal deviation for P1, P2, P3 and P4 could be examined regarding type of surgery ( $p > 0.05$ ) when adjusting for the covariates (age, biological gender, left/right UCLP, age of surgery). Prior to these results inter- and intraobserver variability was checked using intraclass correlation coefficients with obtaining good agreement.

### ***Conclusion:***

We can conclude that using vomeral flap surgery for early cleft palate closure has no significant effect on the septal morphology compared to the earlier used von Langenbeck technique.

# Application of postoperative nasal retainers in primary cleft cheilorhinoplasty: a review providing practical tips and tricks

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## **Introduction and aim:**

Nowadays, primary cleft lip repair is simultaneously performed with rhinoplasty. Postoperative stenosis and relapse of the nose are one of the major complications of this surgery. In order to tackle these issues, nasal stents can be placed following the surgical correction. Several studies describe the value of postoperative nasal stents in maintaining postoperative nasal morphology and facilitating nasal breathing. Nonetheless, data of their practical use is lacking. Detailed information about the type of retainer, duration of usage, follow-up, device fixation and complications, is currently unknown.

We conducted a review to summarize the practical information regarding the use of postoperative nostril retainers in primary cleft cheilorhinoplasty.

## **Material and methods:**

Literature search was conducted in the following 3 databases (EMBASE, MEDLINE and Cochrane Library CENTRAL). Primary evidence that described postoperative nasal stenting in primary cleft lip and nose repair was included. In total 19 articles were included.

## **Results:**

Our results reveal that the prefabricated silicone stent has been studied most often and was left in place for an average duration of 6 months. Changing its size upon follow-up is recommended in a minority of cases. Approximately one third of the included articles described various types of custom-made stents with differing duration of use. It appears that stent-retention is by far the most challenging issue, as splint loss and skin irritation from adhesive tapes are the most frequently reported complications.

## **Conclusions:**

To conclude, despite the lack of consensus on its use, several studies describe the value of postoperative nasal stents in maintaining nasal morphology after primary cleft cheilorhinoplasty. Practical information on its use is presented for the health care provider. Future prospective studies are needed to obtain high level evidence regarding its use.

## One-year mortality and morbidity in ENT emergencies

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### Introduction and Aim:

Emergency presentations in otolaryngology are common, with various conditions leading to hospital admissions and healthcare consumption. While some reports suggest that epistaxis among other ENT emergencies may be linked with increased mortality, the role of underlying frailty or healthcare utilization remains unclear. This study aimed to evaluate the one-year mortality rate of patients admitted with different ENT-related emergencies, excluding those with a history of cancer.

### Materials and Methods:

This cohort study included all patients admitted with ENT emergencies between January 1, 2023, and December 31, 2023. Patients with a history of cancer were excluded. Demographic information and frailty indicators were gathered retrospectively, while morbidity and mortality outcomes were monitored prospectively at 30 days and one year following admission. Secondary analyses explored factors contributing to reduced survival.

### Results:

A total of 1,789 patients were included in the analysis. The overall one-year mortality rate was 2.7%, with no significant difference observed between subjects with epistaxis (3.2%) compared to others (2.0%,  $p=0.1245$ ). Mortality was strongly associated with general frailty, particularly older age ( $p<0.0001$ ) and a history of frequent hospitalizations ( $p<0.0001$ ).

### Conclusions:

Among patients admitted for ENT-related emergencies (excluding cancer), the one-year mortality rate was 2.7%. Although epistaxis was the most common cause of ENT emergencies, it did not correlate with a higher mortality risk compared to other conditions. Advanced age and a history of frequent hospitalizations were the strongest predictors of mortality. These findings could aid in risk stratification at the time of admission, allowing for more tailored patient management and support.

# Allergen induced IgA production in lung Tertiary Lymphoid Organs (TLO) is instructed by the TLO niche

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**Introduction and aim:** Allergic airway diseases (AAD) are chronic airway diseases characterised by airway remodelling and mucus production, driven by increased type 2 cytokines (IL-5, IL-13 and IL-4) and elevated serum immunoglobulin (Ig) E. As a highly exposed physical barrier to inhaled allergens, it is still unclear how protective humoral responses are established in the airway mucosa. Upon chronic antigen exposure, de novo lymph node like structures (called tertiary lymphoid organs or TLO) are formed in the lung. Additionally, increased mucosal IgA levels have been found in broncho-alveolar lavage (BAL) fluid of allergic patients. Whether these TLO are the hubs generating mucosal IgA, and what the mechanisms are which underly this local production, are poorly understood.

**Materials and methods:** To elucidate to which extent allergen-induced TLO contribute to mucosal IgA in AAD and which factors aid in generating these responses, we have established a murine model of house dust mite (HDM) induced allergic asthma (AA) model.

**Results:** Upon prolonged HDM exposure, tertiary lymphoid organs (TLO) are formed in the lung mucosa, consisting of mature germinal center (GC) responses. These mucosal GCs are skewed towards IgA production, suppressing HDM-induced allergic inflammation. Using state of the art single cell RNA-, CITE- and BCR sequencing, we reveal lung TLO as highly specialised site to generate lung plasma cells. We find lung stromal cells in the adventitial cuff to support these mucosal IgA responses and plasma cell survival through an IL-1 dependent mechanism. Taken together, we provide novel insights into the establishment of mucosal B cell responses in AAD and define a role for TLO as local IgA production hubs.

**Conclusion:** Prolonged allergen exposure reprograms lung stromal cells to support B cell survival and IgA production, thereby modulating allergic airway inflammation.



# Impact of real-world confounders on the accuracy of an AI model to support read out of skin prick automated test results

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**Introduction:** Skin prick test (SPT) is the gold standard for identifying allergic sensitization in individuals with a suspected airborne allergy. A novel device, Skin Prick Automated Test (SPAT), previously showed reduced variability and less inconsistent test results compared to manual SPT (1,2). Additionally, an artificial intelligence (AI)-assisted readout method showed high accuracy in supporting physicians to interpret skin reactions following SPAT (3).

**Objective:** In the current study, we evaluated the impact of real-world confounders on the accuracy of the AI model.

**Methods:** The images of the forearm of a validation cohort consisting of 217 patients undergoing SPAT (2604 wheals) were analysed for skin tone, presence of hair, scar tissue, tattoos, hyperpigmentation and imaging artefacts. The individual typology angle (ITA) was used to measure apparent skin tone. Other confounders were qualitatively assessed by visual inspection of the images.

**Results:** Darker skin tone (ITA <25) was observed in 16.1% of patients. Clear presence of hair, scar tissue, tattoos, hyperpigmentation and imaging artefacts were observed in respectively 19.4, 3.7, 4.1, 25.3 and 6.0% of patients. In patients with a darker skin tone (ITA -50 to <-25, -25 to <0, ITA 0 to 25) accuracy was decreased to respectively 88.9%, 95.0% and 91.7% compared to other ITA categories (96.4-96.6%). In patients with tattoo marks in between the prick locations (1.8% of patients), accuracy dropped to 85.4% (compared to 95.7-98.3%). For the other confounders, accuracy remained >90% irrespective of the presence or absence of the confounding variable.

**Conclusion:** The SPAT AI-assisted readout method showed high accuracy in most patients irrespective of presence of hair, hyperpigmentation or scar tissue. Darker skin tone and the presence of tattoo marks were observed in some patients and impacted the performance of the AI model. Enrichment of these patient populations in the AI training cohort is needed to further optimize the AI model.

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## On the path to remission in CRSwNP in Belgium

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### Introduction

Biologics have revolutionized the management of chronic rhinosinusitis with nasal polyps (CRSwNP). However, data on real-world efficacy (RWE), therapeutic response (TRE) and long-term disease control remains limited. This study evaluates RWE, TRE, and disease control in patients treated with mepolizumab or omalizumab over one year in 10 Belgian rhinology centers.

### Material and Methods

307 patients from 10 medical centres in Belgium were prescribed a biologic for the indication of severe uncontrolled CRSwNP for 12 months. Primary outcomes included nasal congestion score (NCS), nasal polyp score (NPS), VAS-scores, SNOT-22 and ACQ-5. Secondary outcomes were TRE and disease control and remission based on the 2024 EUFOREA/EPOS criteria.

### Results:

307 patients were included at baseline, with a mean SNOT-22 score of  $48.5 \pm 20.2$  and a mean NP-score of  $4.3 \pm 1.8$ . 79% of patients had comorbid asthma and 53% had a disease duration of more than 10 years. 242 (79%) patients received mepolizumab and 65 (21%) patients omalizumab. Overall, 41%, 44% and 15% showed an excellent, moderate or no/poor response to their biological, respectively. In clinical practice, 77% continued their biological after 6 months, with 40% reaching control in this patient group. Between 6 months and 1-year, 18% of patients switched or stopped their biological. By one year (n=127), 46% had achieved control, and 17% met the criteria of being on the path to remission.

### Conclusions:

This real-world study demonstrates that almost 50% of patients treated with the mepolizumab or omalizumab for one year achieve disease control, with nearly 1/5 being on the path to remission. Long-term data will clarify whether sustained treatment results in real remission.

# Middle turbinate medialization by suture conchopexy: a preventive measure to reduce the need for revision frontal sinus surgery

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**Introduction and Aim :** Revision endoscopic sinus surgery (rESS) is indicated in cases of disease recurrence following primary surgery. The frontal sinus, with its complex drainage pathways, is a significant technical challenge in ESS and presents a greater revision risk. Middle turbinate lateralization (MTL), a common ESS complication, obstructs the osteomeatal complex (OMC), impairing mucociliary clearance and postoperative access. This increases disease recurrence risk, particularly after frontal sinus surgery where maintaining a stable frontal recess opening is critical for long-term chronic rhinosinusitis control. Various medialization techniques have been described to prevent MTL and sustain OMC and frontal recess patency. This presentation aims to evaluate the effectiveness of middle turbinate medialization in reducing the need for revision frontal sinus surgery, with a focus on suture conchopexy.

**Material and methods :** A narrative PubMed review assessed MTL as a contributing factor to endoscopic frontal sinus surgery failure and compared various medialization techniques to evaluate the benefits of suture conchopexy. Outcome measures included MTL rates, synechia formation, olfactory preservation, symptom recurrence and revision surgery rates.

**Results :** MTL is a frequent finding in revision frontal sinus surgery, occurring in 38.5–78% of cases. Suture conchopexy prevents MTL with a 95% success rate. Though comparative studies are limited, literature suggests several advantages over alternative techniques, such as middle turbinate preservation (a key anatomical landmark for revision procedures), minimal synechia formation, olfactory function preservation and reduced patient discomfort. The long-term impact on symptom recurrence or need of revision surgery remains unclear due to the retrospective nature of existing studies and the absence of long-term data.

**Conclusions :** Suture conchopexy effectively prevents middle turbinate lateralization, supporting osteomeatal complex and frontal recess patency after primary endoscopic sinus surgery. Further research is required to establish its long-term benefits and superiority over other medialization methods in reducing symptom recurrence and revision surgery rates.

# Feasibility and efficacy of transdermal skin contour sutures: a retrospective propensity score matched study

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## ***Introduction and aim***

Achieving optimal contour and projection of the nasal tip is one of the most challenging aspects of rhinoplasty. The skin-soft tissue envelope (STE) plays a pivotal role in determining the final outcome, as its thickness and elasticity significantly impact the predictability of postoperative results. Avoiding dead space in the lower third of the nose is essential to ensure consistent outcomes. Recently, transcutaneous skin contour sutures (TSCS) have been proposed to enhance the precision of tip definition and contouring, particularly in patients with thick STE. To mitigate risks such as skin necrosis or scarring associated with traditional TSCS techniques, we modified the approach by placing the knot of the transdermal contour suture on the internal nasal surface.

## ***Material and methods***

A retrospective, propensity-score matched analysis was conducted on 159 patients who underwent rhinoplasty. After matching, two cohorts of 120 patients were retained: 60 patients underwent rhinoplasty with TSCS, while the control cohort of 60 patients underwent rhinoplasty without TSCS. Patient-reported outcome measures (PROMs) were utilized to evaluate functional and aesthetic outcomes.

## ***Results***

Our study found significant improvements in mean preoperative scores for all PROMs in both cohorts. Postoperative assessments revealed that while the overall healing trajectories were not significantly different, TSCS offered notable early benefits in nasal contour and patient satisfaction, especially during the first 3 to 6 months postoperatively.

## ***Conclusions***

The modified TSCS technique shows significant early postoperative benefits, particularly in the first 3 to 6 months. However, the overall healing trajectories over 12 months of follow-up were similar between both groups. This suggests that while TSCS has a short-term impact, the natural healing processes in both groups likely converge over time, leading to a diminishing of observable differences. Future research should focus on identifying patient subgroups that experience the greatest benefits from TSCS.

## **Sinonasal melanoma: description of five cases and literature review**

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### **Introduction:**

Mucosal melanoma (MM) accounts for between 0.3% and 2% of all melanomas. Approximately 55% of MM cases are located in the nasal cavities and sinuses.

Unlike cutaneous melanoma, sun exposure is not a risk factor. This may explain why the incidence of MM has not increased over the years.

It is a disease with a poor prognosis, with a 5-year survival rate of less than 20% due to insidious symptoms often leading to delayed diagnosis.

Metastases are found in 23% of MM cases, compared to 5% in cutaneous melanoma.

### **Case Report:**

We describe five patients with sinonasal melanoma treated at a single institution. The cases analysis revealed that each patient experienced distinct outcomes, underlining the variability in disease progression and its challenging management.

Clinically, these patients present chronic nasal obstruction, epistaxis, anosmia, nasal mass, nasal pain and rhinorrhea. The diagnostic assessment requires a nasofibroscope, in addition to a CT scan, and MRI when available. Lesions may present as either pigmented or non-pigmented. Treatment is primarily surgical, involving wide resection of the lesion. Endoscopic surgery is gaining preference in clinical practice. The different surgical approaches appear to have little impact on the final prognosis. A complete resection does not always prevent metastases. Postoperative radiotherapy may be considered for local control.

Chemotherapy is reserved for palliative care or disseminated disease. Immunotherapy is discussed but not always recommended, as it offers limited benefits, unlike in cutaneous melanoma.

### **Conclusion:**

Sinonasal melanoma has distinct characteristics compared to cutaneous melanoma.

The evolution of the disease varies greatly among patients. We describe here five patients with very different clinical outcomes.

The disease management is primarily surgical, often combined with radiotherapy, while the indications for chemotherapy and immunotherapy are discussed.

## Subglottic rupture in neonates: a small case series

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### Introduction and Aim:

Subglottic and tracheal tears are rare but life-threatening complications of difficult deliveries. Neonates at risk often present with macrosomia and other signs of a challenging birth, most commonly brachial plexus injury. Reports in the literature are scarce, and outcomes vary. The optimal initial management remains uncertain.

### Case Report:

We describe two cases of male newborns who developed subglottic ruptures shortly after birth. Both patients experienced shoulder dystocia, and one was macrosomic. A timely and accurate diagnosis led to successful treatment in both cases. The patient initially presented with subcutaneous emphysema, respiratory distress, pneumothorax, and pneumomediastinum. Diagnosis was confirmed via computed tomography (CT), and both neonates were managed conservatively through intubation under laryngoscopic guidance, antibiotic therapy, and close monitoring. No open surgical intervention was required.

### Conclusion:

Shoulder dystocia during delivery can rarely lead to tracheal tears. In these cases, conservative management proved to be an effective initial treatment. Early recognition and diagnosis are crucial for the survival of affected neonates. CT imaging appears to be a reliable diagnostic tool, while blind intubation without endoscopic guidance may worsen the condition.

# **Introduction of intracapsular coblation technique for tonsillectomy in children: a retrospective study of our 1-year experience**

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## **Introduction and aim**

Complications in tonsillectomy are frequent and carry physical, emotional and financial burden especially when occurring in children. To reduce these, intracapsular tonsillectomy with Coblation was introduced. Major complication rates were retrospectively studied first year after implementing intracapsular tonsillectomy at the AZ Delta hospital, Belgium.

## **Material and methods**

Comparing extracapsular tonsillectomies (ECT) with intracapsular tonsillectomies (ICT) in children <12 years old. Influence of population characteristics (gender, age, reason of surgery) and surgery type (ICT vs ECT) on postoperative haemorrhage and readmission to the hospital using descriptive statistics and logistic regression analysis.

## **Results**

708 children ≤12 years old were included [302 ICT; 406 ECT]. There was no significant influence of age, gender or operation technique (3,7% ECT; 3.3% ICT) considering risk of postoperative bleeding. Chance on readmission to the hospital was higher when performing ECT (6,7%) compared to ICT (4,0%), but did not reach significancy levels ( $p=0,083$ ). Children with recurrent infections are more likely, compared to children operated because of obstructive and OSAS-like symptoms, to have postoperative haemorrhage (4,8% vs 2,2%;  $p=0,048$ ) and readmission (7,1% vs 3,9%;  $p=0,046$ ). Revision surgery for postoperative haemorrhage was more frequent when performing ICT (2,3%) compared to ECT (1,5%).

## **Conclusions**

In the first year after introducing intracapsular tonsillectomy with Coblation, postoperative bleeding rates were similar in both groups. There were less readmissions of children receiving ICT compared to ECT.

# Short and long-term polysomnographic characteristics in children with Down syndrome after adenotonsillectomy for OSAS

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## Introduction and aim:

The study aimed to evaluate short- and long-term polysomnographic parameters in children with Down's syndrome (DS) and obstructive sleep apnea syndrome (OSAS) submitted to surgical therapy. Secondly, this study also aimed to describe how congenital comorbidities and body mass index (BMI) percentile/Z-score influence sleep patterns.

## Material and methods:

Longitudinal retrospective-cohort study of children with Down syndrome and respiratory sleep disorders. Patients with habitual snoring that underwent polysomnographic exams and surgical therapy were included. We excluded patients >18 years old by the time of the surgery and who presented diagnostic polysomnography with total sleep time (TST) <180 min, ending in a group of 25 children. The post-therapy parameters were divided in short- (<18 months) and long-term (>18 months) results.

## Results:

The analysis addressing 25 patients showed a decrease in the obstructive apnea-hypopnea index (OAHl) for especially patients that start highest at the pre-surgery, compared to both the short-term (difference = -24.804,  $p < 0.001$ ) and long-term post-surgery (difference = -15.367,  $p = 0.01$ ). However, there is also evidence that there is a difference between the short- and long-term post-surgery groups (difference = 9.437,  $p < 0.001$ ). Out of these 25 children, 28% in a short-term and 44% in a long-term post-surgery remained with residual OSAS. Children with laryngomalacia present the highest OAHl mean pre-surgery ( $56.7 \pm 13.8$ ), followed by atrial septal defect (ASD) ( $44.7 \pm 23.9$ ) and atrioventricular septal defect (AVSD) of the heart ( $19.5 \pm 12.2$ ). The association among comorbidities and OAHl showed no statistical significance. The preoperative BMI was  $18.8 \pm 5.9$ , short-term post-surgery  $19.64 \pm 7.21$ , and long-term  $23.29 \pm 9.50$ .

## Conclusions:

Adeno/tonsillectomy for children with DS and OSAS brings a significant lowering on OAHl in a short- and long-term post-surgical follow-up, although long-term OAHl is significantly higher than the short-term. An extended polysomnographic post-surgical follow-up should be recommended for this population.

**Keywords:** Adenoidectomy; Down syndrome; Pediatrics; Polysomnography; Sleep apnea; Tonsillectomy



# **Anatomy of the intra-laryngeal end of the inferior laryngeal nerve**

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## **Introduction :**

Ultra-selective reinnervation of the larynx is more and more described in two pathologies: adductors spasmodic dysphonia with denervation/reinnervation by ansa cervicalis, and laryngeal paresis. The ultra selective reinnervation is also useful for musculo-nervous flaps. Moreover, thyroplasty has shown better results with reinnervation.

## **Objective :**

Determine the anatomical position of the terminal adductor branch of the inferior laryngeal nerve in a thyroplasty surgery.

## **Materials et methods :**

10 larynx were harvested from bodies of donators (according to the Belgian law) and 20 laryngeal nerves have been studied. The terminal adductor branch of the inferior laryngeal nerve has been exposed by two different approaches: dissection of inferior laryngeal nerve until the paraglottic space and visualisation of this paraglottic space after realisation of a thyroplasty window as described in the Montgomery technique. The anatomic position between the nerve and the thyroplasty window have been specifically studied.

## **Results :**

The adductor branch of the inferior laryngeal nerve is located at the postero-inferior part of the thyroplasty window. However, an anatomic inter-individual variability has been shown, depending on side of the sample but also on the gender.

## **Conclusion :**

The surgical approach to the terminal adductor branch of the inferior laryngeal nerve is possible and constitutes a new therapeutic option for reinnervation of neuro-laryngeal pathologies.

# Glottal stop production in controls and patients with unilateral vocal fold paresis/paralysis using natural speech

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## Introduction and aim:

Glottal stops occur between a word ending in a vowel and the following word beginning with a stressed vowel. Glottal stop production (GSP) involves rapidly turning vocal fold vibration off and on, with acoustic markers (offset/onset intensity difference and slope) differing in laboratory [i] and [isi] repetitions between unilateral vocal fold paresis/paralysis (UVFP) and normal controls (NC). This study aimed to determine if these differences and diagnostic accuracies also exist in more representative speech. A secondary aim was to evaluate intra- and inter-rater variability of semi-automatically determined acoustic GSP measures. A tertiary aim was to assess how well listeners differentiate UVFP and NC speakers.

## Material and methods:

Sixty-five UVFP and nine NC subjects were recorded while saying “We eat eggs every Easter”. Using a customized Praat script, two clinicians measured averaged intensity differences and slopes for offsets (maximum voicing intensity to minimum glottal stop intensity) and onsets (minimum glottal stop intensity to maximum voicing intensity). Both clinicians classified all recordings as UVFP or NC. Twenty percent of the samples were reanalyzed to assess intra-rater variability. The Mann-Whitney U test determined significance of difference in measurements between UVFP and NC. ROC-analysis and Youden’s Index assessed diagnostic accuracy. Intraclass correlation coefficients (ICC) determined inter- and intra-rater reliability. LR+ and LR- evaluated auditory classification accuracy.

## Results:

Besides offset slope (dB/s) for rater 1 and 2, no measure differed significantly between UVFP and NC. ROC-analysis showed an Area Under The Curve ranging between 0,670 and 0,727, and a Youden’s Index between 0,340 and 0,559. This indicates a rather poor to fair diagnostic accuracy. The LR+ was 4.297 for rater 1 and infinite for rater 2, with LR- of 0.588 and 0.662, respectively. ICC showed excellent intra-rater and good inter-rater reliability.

## Conclusions:

Compared to laboratory *i* and *isi* repetitions, natural speech does not elicit sufficient GSP differences for UVFP diagnosis. Perceptual differentiation showed a high LR+ and a low LR-, indicating a strong specificity. The results suggest that more training is necessary.

# Primary versus second primary cT1-T2 oral squamous cell carcinoma: comparing the outcomes

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**Introduction and aim:** Head and neck cancer (HNC) is the third most common cancer worldwide, with oral squamous cell carcinoma (OSCC) having the highest incidence. Despite early diagnosis in 50% of cases, recurrence and poor survival remain concerns. This study compares survival outcomes between primary and second primary cT1-T2 OSCC.

**Materials and Methods:** A single-center historical cohort study included 60 patients treated for cT1-T2 OSCC between 2010 and 2022. Patient demographics, tumor characteristics, and treatment modalities were collected. Treatment followed ESMO guidelines, primarily involving surgery with or without postoperative radiotherapy. Kaplan-Meier analysis and Cox proportional hazards models assessed overall survival (OS), disease-specific survival (DSS), disease-free survival (DFS), and recurrence-free survival (RFS).

**Results:** The 2- and 5-year OS rates were 85% and 64.9%, while DSS rates were 91.4% and 87.3%, respectively. Median OS was 7.4 years. Patients with primary tumors had significantly better OS (HR = 0.409,  $p = 0.038$ ) and DFS (HR = 0.399,  $p = 0.036$ ) than those with second primary tumors. Female patients had a 74.7% lower risk of death, and males had significantly shorter DFS ( $p = 0.024$ ). Advancing tumor stage increased disease-specific mortality risk (HR = 1.737,  $p = 0.043$ ). Multiple lymph node involvement correlated with worse OS (HR = 2.884,  $p = 0.031$ ) and DFS (HR = 3.971,  $p = 0.006$ ). Gross extranodal extension (ENE) was significantly associated with poorer OS ( $p = 0.048$ ) and showed a borderline association with DFS ( $p = 0.050$ ).

**Conclusion:** This study confirms second primary malignancies as a key prognostic factor for survival in OSCC. Male sex, advanced TNM stage, gross ENE, multiple lymph node involvement, and active smoking status were linked to poorer outcomes. Larger studies with multivariate analysis comparing primary and non-primary tumors are needed to validate these findings.

# **Oncological and functional outcomes after total laryngopharyngectomy with free jejunal flap reconstruction for advanced hypopharyngeal squamous cell carcinoma**

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## **Introduction and Aim**

Hypopharyngeal squamous cell carcinoma (HSCC) is mostly diagnosed at an advanced stage, and characterized by poor prognosis. While primary (chemo)radiotherapy is frequently preferred for early and intermediate stage disease, total laryngopharyngectomy (TLP) remains the gold standard for the primary treatment of locally advanced (cT4) tumors and for salvage treatment of residual and recurrent HSCC. However, reconstruction of the upper digestive tract is challenging, requiring a conduit that restores anatomical continuity and function. This study evaluates the oncological and functional outcomes of TLP with free jejunal flap (FJF) reconstruction for advanced HSCC.

## **Material and Methods**

A retrospective study was conducted at University Hospitals Leuven, including patients who underwent TLP with FJF interposition between 2000 and 2023. Inclusion criteria were histopathologically confirmed HSCC requiring TLP with FJF, both in primary and salvage settings. Data on patient demographics, tumor characteristics, and functional and oncological outcomes were analyzed.

## **Results**

The cohort included 22 patients (81.8% male, 18.2% female) with a mean follow-up of 24.9 months. Primary TLP was performed in 9 (40.9%) patients and salvage TLP in 13 (59.1%). All primary tumors were stage IV. In the salvage group, 7 (31.8%) were staged IVa, 1 (4.6%) IVb, and 5 (22.7%) stage III. Successful FJF reconstruction was achieved in 95.5%; with only 1 flap failure (4.5%) requiring reconstruction by gastric pull-up. Pharyngocutaneous fistula was observed in 13 patients (59.1%); 9 (40.9%) were managed conservatively and 4 (18.2%) required surgical intervention. The in-hospital mortality rate was 0%. Two- and five-year overall survival (OS) was 52.3% and 26.9%, respectively. Disease-specific survival (DSS) was 52.3% and 41.1%. Disease-free survival (DFS) was 33.9% and 19.4%. Locoregional recurrence-free survival (LRFS) was 52.7% and 27.1%. Complete oral intake was achieved in 68.2%. Speech rehabilitation was achieved in 54.6%, either by Provox<sup>®</sup> (58.3%) or electrolarynx (41.6%).

## **Conclusions**

FJF reconstruction following TLP is a reliable technique, achieving a high rate of successful reconstruction with acceptable functional outcomes. However, long-term survival remains poor, reflecting the aggressive nature of advanced HSCC.

# **Modified total laryngectomy with strap-flap technique in a patient with bovine aortic arch anomaly: a case report and literature review**

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## **Introduction and aim:**

Total laryngectomy is an essential surgical intervention in the management of advanced laryngeal carcinoma. However, anatomical variations such as the bovine arch can complicate this procedure. The atypical branching pattern of the bovine arch may position major vessels closer to the tracheostomy site, increasing the risk of tracheo-arterial fistulization.

## **Case Report:**

We present the case of a 71-year-old woman with bovine arch anatomy who underwent total laryngectomy. Preoperative assessment revealed an aberrant right common carotid artery (RCCA) located close to the tracheostomy site. Intraoperatively, the “strap-flap technique” was employed, positioning the strap muscles between the RCCA and the trachea to minimize friction and reduce the risk of tracheo-arterial fistula formation.

## **Result:**

The laryngectomy was performed successfully without any bleeding complications.

## **Conclusion:**

Preoperative assessment of aortic arch anatomy is essential for guiding surgical planning. Surgical modifications, such as the use of strap muscles or pectoralis muscle flaps, are crucial in preventing postoperative complications.

# Pharyngeal stenosis following coblation adenotonsillectomy: a severe complication

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## Introduction and aim

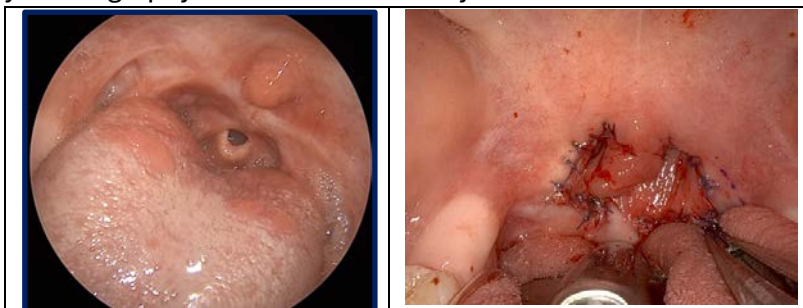
Coblation adenotonsillectomy is a commonly performed technique, valued for its reduced postoperative pain and faster recovery. However, while complications are uncommon, they can sometimes be severe and challenging to diagnose. This case report presents an unusual instance of airway obstruction due to pharyngeal fibrosis and circumferential stenosis following surgery. By detailing the diagnostic approach and surgical management, this report emphasizes the need for heightened awareness of rare postoperative complications and the importance of timely intervention to ensure favorable outcomes.

## Case report

This case describes a 5-year-old boy who underwent coblation adenotonsillectomy because of moderate OSA (OAHl 6.6/h). Despite initial post-operative improvement in OSA, the patient experienced progressive symptoms postoperatively, including rhinolalia and obstructive daytime breathing. Although initially no complication was acknowledged, a new polysomnography confirmed worsening of OSA (OAHl of 16.8/h). Clinical examination showed extensive stenosis, with only an eight-millimeter-wide nasopharyngeal passage, accounting for his symptoms. Surgical reconstruction, including scar resection and pharyngeal flap reconstruction resulted in substantial clinical improvement one month post-operatively. A polysomnography four months post-operatively was performed, with results expected by 23<sup>rd</sup> of February. *(to be implemented by 15<sup>th</sup> of March)*

## Conclusions

This case underscores the importance of recognizing and managing rare but severe complications following coblation adenotonsillectomy. While the procedure is generally well-tolerated, this complication can lead to important morbidity. Early identification of these complications through clinical evaluation and polysomnography is essential for timely intervention.



## **Case report : Severe positional rhinolalia and ataxia indicative of Miller Fisher syndrome and pharyngo-cervico-brachial Guillain-Barré**

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### **Introduction and aim :**

We report the singular case of a patient presenting with severe rhinolalia, characterized by onset in the upright position and attenuation, or even disappearance, in decubitus position, associated with ataxia. These manifestations were part of a Miller Fischer syndrome, a variant of Guillain-Barré (brutal ataxia, areflexia and cranial nerves impairment) , concomitant with a pharyngo-cervico-brachial form of Guillain-Barré syndrome, following an infection by Chlamydia pneumoniae.

### **Case Report :**

This case report concerns a 67-year-old patient with no previous history who presented a sudden onset of balance problems accompanied by dysphonia in the context of a lower respiratory tract infection. The dysphonia was clinically surprising in that it increased when the patient was standing upright and decreased, or even disappeared, when the patient was supine. The clinical examination revealed areflexia and loss of vibration sensitivity in all 4 limbs, resulting in proprioceptive ataxia. Rhinolalia due to velopalatine insufficiency, which was more pronounced in the standing position, was also noted. The various investigations revealed an atypical Miller Fischer syndrome concomitant with Guillain-Barré syndrome in its pharyngo-cervico-brachial form. In fact, GT1a and GQ1b autoantibodies and an active infection by Chlamydia pneumoniae were detected biologically. Treatment with IV immunoglobulin for 5 days led to progressive resolution of the clinical situation.

### **Conclusions :**

We describe the case of a 67-year-old man with two atypical forms of Guillain-Barré syndrome. The first was an unusual Miller-Fisher syndrome presenting with proprioceptive ataxia, revealed by GQ1b autoantibodies. The second was a pharyngo-cervico-brachial form characterised by severe positional open rhinolalia revealed by the demonstration of GT1a autoantibodies.

