ABSTRACTS

Opening Ceremony

Abstract no.: 001

History of Scandinavian Ear, Nose and Throat praxis

Tomas Gejrot, Sweden

Abstract missing

S-I THE RETURN OF THE PICKLED ONION

Abstract no.: 002

Laryngopharyngeal reflux (LPR): a new paradigm of airway disease

Jamie Koufman, MD, FACS, Director, Center for Voice and Swallowing Disorders of Wake Forest University and Professor of Surgery (Otolaryngology), Wake Forest University Health Sciences, Medical Center Boulevard, Winston-Salem, NC 27157-1034, Tel (336) 716-3876 or 716-8877, *jkoufman@wfubmc.edu ; www.thevoicecenter.com*

LPR is ubiquitous. A prospective study of 113 patients with laryngeal disorders found that 50% had pH-documented LPR; and, in a community-based cohort of 'asymptomatic normals' (N = 100, mean age 60 years), 35% of the subjects reported one or more LPR symptoms, and on examination, 64% had one or more LPR findings. If one combines all of the clinical and normative data, it would be easy to conclude that as many as one-third or more of the American population over age 40 years has LPR.

What is the new paradigm of airway disease? In the coming years, research will show that reflux dominates the internal environment, and thus influences all airway diseases (but obviously, not all airway diseases in all patients). Peptic injury is associated with many important inflammatory and neoplastic conditions; see the table below. Furthermore, research is beginning to show that pepsin is an inflammatory catalyst for most aerodigestive cancers, including cancers of the laryngopharynx, esophagus, and lung. Based upon the available data, it is reasonable to postulate that one can get cancer of the aerodigestive tract without tobacco, but not without reflux.

References

Koufman JA. The Otolaryngologic manifestations of gastroesophageal reflux disease (GERD): A clinical investigation of 225 patients using ambulatory 24-hour pH monitoring and an experimental investigation of the role of acid and pepsin in the development of laryngeal injury. Laryngoscope 1991; 101 (Suppl. 53): 1-78.

Koufman JA, Amin M, Panetti M. Prevalence of reflux in 113 consecutive patients with laryngeal and voice disorders. Otolaryngol Head Neck Surg 2000; 123: 385-8.

Reulbach TR, Belafsky PC, Blalock PD, Koufman JA, Postma GN. Occult laryngeal pathology in a community-based cohort. Otolaryngol Head Neck Surg 2001; 124: 448-50.

Belafsky PC, Postma GN, Koufman KA. Laryngopharyngeal reflux symptoms improve before changes in physical findings. Laryngoscope 2001; 111: 979-81.

Tasker A, Dettmar PW, Panetti M, Koufman JA, Birchall JP, Pearson JP. Reflux of gastric juice and glue ear in children. Lancet 2002; 359: 493.

Koufman JA. Laryngopharyngeal reflux 2002: A new paradigm of airway disease. Ear, Nose Throat J 2002; (Supplement 2) 81: 2-6.

Table I. *Clinical Manifestations Reported to Be Related to LPR.*

Laryngeal
Subglottic and tracheal stenosis
Carcinoma of the larynx
Endotracheal intubation injury
Contact ulcers and granulomas
Posterior glottic stenosis
Paroxysmal laryngospasm
Paradoxical vocal fold movement
Vocal nodules
Polypoid degeneration
Laryngomalacia
Recurrent respiratory papillomas
Pachydermia laryngis
Recurrent leukoplakia
Pharyngeal
Globus pharyngeus
Chronic sore throat
Dysphagia
Zenker's diverticulum
Pulmonary
Asthma
Bronchiectasis
Chronic cough
Aspiration pneumonia
Chronic obstructive pulmonary disease
Miscellaneous
Sudden infant death syndrome
Chronic rhinitis and Sinusitis
Otitis media in children
Obstructive sleep apnea
Dental erosions

Johnston N, Bulmer D, Gill GA, Panetti M, Ross PE, Pearson JP, et al. Cell biology of laryngeal epithelial defenses in health and disease (Part II). Ann Otol Rhinol Laryngol 2003; 112: 481-91.

Johnston N, Knight J, Dettmar P, Lively M, Koufman JA. Pepsin and carbonic anhydrase isoenzyme III as diagnostic merkers for laryngopharyngeal reflux disease. Laryngoscope 2004; 114: 2129-34.

S-II NOSE AND ITS SURROUNDING CHAMBERS

Abstract no.: 003

The concept of Minimal Invasive Sinus Surgery

Reuben Setliff, USA

This presentation will address the concepts of Minimally Invasive Sinus Surgery as presented by its original proponent, Dr. Reuben Setliff. Dr. Setliff enjoys some notoriety in the field of sinus surgery, being the first to use powered instrumentation as well as the author of the first article in the medical literature addressing minimally invasive sinus surgery. He will address, by lecture and video demonstrations, the problem of sinus disease in children and adults, endoscopic surgical anatomy, a fail-safe approach to visualization of the maxillary and frontal sinus entries into the nasal cavity as well as the importance of mucosal preservation in minimizing the burden of postoperative care for both patient and surgeon. Included in the presentation will be the treatment of long-term refractory chronic sinusitis and a modification of his anatomical surgical model for sinus surgery which he has consistently used in more than 5000 operative cases, thus far without a major complication. Issues relating to minimizing the risks of endoscopic sinus surgery will also be addressed.

S-III BALANCE

Abstract no.: 004

Nils Gunnar Henriksson: In Memoriam

Måns Magnusson, Lund University Hospital, Sweden

Nils Gunnar Henriksson was born on the 7th of January 1920 and grew up in the town of Sundsvall. As a young medical Doctor at the department of Otorhinolaryngology in Lund, he was given the problem of recording and defining slow phase velocity eye movements in nystagmus. At the time electrical registration of eye movements was just described. NG Henriksson applied a simple derivation function to the recordings, which returned the slow phase velocity. This could be performed automatically during the recordings by filtering the electrical signal. He presented the results in his thesis in 1956 with Jongkees as examinator. Electronystagmography was spread over the world and Nils Henriksson went to Cesar Fernandez lab in Chicago for a post-doc period. There he observed that repeated caloric irrigation in cat reduced the responses. This was later use in describing the vestibular adaptation by Fernandez group.

Back in Lund Henriksson set up a vestibular lab. Were he engaged in different research projects. He investigated the elasticity of the membranous labyrinth, recorded lateropulsion during caloric irrigation and did the first recordings of postural control with force plates called the 'Electric Romberg test'. Later, and together with Ilmari Pyykkö recordings of voluntary eye movements were introduced as a clinical tool in Scandinavia.

Nils Gunnar Henriksson was a warm personality with a genuine interest in education both of students and colleagues. At least two generations of Scandinavian otolaryngologists heard him lecture and were inspired. In fact N G Henriksson always inspired his surrounding, and his impact on international research and clinical applications in otoneurology remains.

Abstract no.: 005

Update on Clinical Vestibular Physiology

Lloyd B. Minor, M.D. Andelot Professor and Chairman. Department of Otolaryngology-Head and Neck Surgery. The Johns Hopkins University School of Medicine

Advances in the diagnosis and treatment of vestibular disorders continue build at a rapid rate. Our understanding of the physiological processes that underlie vestibular function and of the consequences that disorders of the labyrinth can have on of these processes has led to many of these advances. This talk will focus on two vestibular disorders for which recent research has led to improvements in diagnosis and treatment.

Dehiscence of bone overlying the superior semicircular canal can result in sound- and/or pressure-induced vertigo and oscillopsia. The signs and symptoms of this disorder can be explained based upon the bone dehiscence of the superior canal creating a third mobile window into the inner ear. Patients with this disorder can also have an air-bone gap on audiometry in the absence of any middle ear pathology. The threshold for eliciting a response for a vestibular evoked myogenic potential is characteristically lower than normal in patients with superior canal dehiscence (SCD) syndrome. Surgical repair of the dehiscence with a plugging procedure can be beneficial for patients who are debilitated by the symptoms of SCD syndrome.

Meniere's disease remains a common cause of episodic vertigo and fluctuating sensorineural hearing loss. Intratympanic injection of gentamicin has been used to successfully control vertigo in patients for whom this symptom has been refractory to medical management. Recent studies have increased our understanding of the effects of gentamicin on vestibular function in the treated ear. Analyses of the three-dimensional angular VOR evoked by rapid head movements (head thrusts) indicate that vestibular function is reduced by the gentamicin treatment and that the level of reduction of the VOR is predictive of control of vertigo. This reduction in the VOR after gentamicin treatment is not as great as that seen after surgical ablation of vestibular function.

The clinical management of vestibular disorders remains a challenge. Basic and clinical research into vestibular processes holds strong promise for continued advances that benefit our patients.

S-IV CONTROVERSIES IN REFLUX

Abstract no.: 006

Too much acid or faulty defence?

Holbrook WP[1], Guðmundsson KG[2], Theodórs Á[2]
[1]University of Iceland, [2]University Hospital, Reykjavík, Iceland

Tooth erosion is the loss of tooth substance caused by acid that may be: a) gastric, as a result of reflux (intrinsic erosion); b) dietary (extrinsic), usually caused by acidic drinks; or c) environmental. Saliva offers the only defence against tooth erosion through the diluting effect of salivary flow or the neutralising effect of salivary buffers. Objectives: A standardised procedure was developed for examining patients with dental erosion. Subsequently, 249 patients were examined with the aim of determining the relationship of risk factors and protective to erosion. Methods: Erosion was scored separately for anterior and posterior teeth by one clinician and was graded as severe if it extended into dentine and mild if it was confined to enamel. Data were collected on: consumption of acidic drinks, salivary flow rate, pH, and buffer capacity. Gastro-intestinal investigations included 24-h monitoring of oesophageal pH, oesophageal manometry and gastroscopy. The presence of pathological reflux, hiatus hernia and Helicobacter sp was determined. Results: Severe molar erosion (24 subjects) was significantly associated with at least one of the parameters indicating gastro-oesophageal reflux disease (OR 1.58; $p<0.001$). Erosion of anterior teeth (severe =72 subjects) was also significantly associated with reflux (OR 1.33; $p<0.005$). Consumption of >0.5L acidic drink per day indicated a dietary risk for erosion. No association of dietary risk factors and molar erosion was seen but the association was significant for incisor erosion (OR 3.17; $p<0.001$), especially when severe. Salivary parameters were less clearly associated with erosion except for a low salivary buffer capacity that was associated with severe erosion of the anterior teeth (chi-square=6.57; $p<0.05$). Conclusions:

Tooth erosion is a multifactorial disease affecting anterior and posterior teeth but the known aetiological and protective factors interact in a complex manner, not yet fully understood, to produce the variable distribution and severity of erosion that is seen clinically.

Abstract no.: 007

Tooth erosion and GERD

Guðmundsson KG[1], Holbrook WP[2], Árnadóttir I[2], Jensdóttir Þ[2], Theodórs Á[1]. [1]University Hospital, Reykjavík, Iceland, [2]University of Iceland

Tooth erosion, defined as erosion of dental hard tissue by intrisic or extrinsic acid, mostly affects young males. Population studies on young Europeans indicate 1-2% prevalence of severe erosion and upwards of 15% of slight erosion. Results of 24 hour esophageal pH monitoring in erosion patients show that a majority of patients has acid esophageal reflux within normal limits.

Sixtythree erosion patients, mean age 27 years, 50 males and 13 females, underwent 24 hour acid reflux monitoring. Only 25 (40%) had pathological acid reflux, defined as >3.4% of time with abnormal esophageal acid exposure.

Another group og 23 patients with pathological acid reflux was investigatied for tooth erosion. Some erosion was found in 34,8% but that does not differ from erosion findings in a group of 57 students screened for erosion, neither in grade nor localization of erosion.

Abstract no.: 008

24 hour pH monitoring or impedance in evaluating Laryngo-Pharyngeal Reflux

Kjartan Örvar, Staff Gastroenterologist, St. Joseph´s Hospital, Hafnarfirði, Iceland

Extraesophageal symptoms of gastroesophageal reflux (GER) have recived much attention lately. Various ear-, nose- and throat symptoms have been connected with GER and refluxed acid suggested as the causative agent. The clinical approach to these patients has been the same as for the patient with 'classical acid reflux' with definite esophageal symptoms. The current 'gold standard' is still the ambulatory pH-metry where changes in acid content in the esophageal lumen are used to predict association with upper airways symptoms. However there are many problems with this approach and larygopharyngeal reflux (LER) may have somewhat different pathophysiology than GER. The possible role of non-acid reflux has been suggested as a causative factor in LER.

The multichannel intraluminal impedance (MII) is a new evolving technique for evaluating esophageal function where changes in resistance to alternating current between two metal electrodes can allow detection of bolus movement and intraluminal pressure. A combined pH- metry with MII will allow assessment of the acidity of the refluxed content and therefore both acid and non-acid reflux can be detected by this method.

A review of the current litterature on diagnosis of LER will be given in this lecture.

Abstract no.: 009

Does reflux cause apnea or vice versa?

Berg S, MD PhD, Dept. of ENT, University of Lund, Sweden

An accumulating body of research suggest a causal relationship between OSA and GER.

The predominating theory is that the transdiaphragmatic pressure increases in parallel with the growing intrathoracic pressure generated during obstructive apnea episodes leading to reflux.

However, in a smaller number of studies even an inverse relationship is indicated, suggesting that gastroesophageal reflux (GER)-initiated laryngeal chemoreflexes contribute to obstructive sleep apnea (OSA).

Abstract no.: 010

LPR Is Different from Classic GERD

Jamie Koufman, MD, FACS, Director, Center for Voice and Swallowing Disorders of Wake Forest University and Professor of Surgery (Otolaryngology), Wake Forest University Health Sciences, Medical Center Boulevard, Winston-Salem, NC 27157-1034, Tel (336) 716-3876 or 716-8877, *jkoufman@wfubmc.edu www.thevoicecenter.com*

LPR patients have head and neck symptoms but uncommonly have heartburn. Thus, LPR is often called 'silent reflux.' LPR patients are predominantly upright (daytime) refluxers with normal esophageal motility, and most do not have esophagitis, the diagnostic sine qua non of GERD. In a prospective study of 58 consecutive patients with pH-documented LPR who underwent transnasal esophagoscopy, only 12% had esophagitis and another 7% had Barrett's esophagus; the rest had normal esophagi.

The patterns, mechanisms, manifestations and treatment of LPR and GERD all differ significantly, and the gastroenterology model of reflux disease (GERD) does not apply to LPR. The table below summarizes the typical clinical differences between LPR and GERD. In addition, the upper airway epithelium is far more susceptible to reflux-related tissue injury than esophageal epithelium, and this variable may in large measure account for the fact that LPR and GERD are clinically so different.

Table I. *Summary of the Typical Clinical Differences Between GERD and LPR*

	GERD	LPR
Symptoms		
Heartburn and/or regurgitation	++++	+
Hoarseness, cough, dysphagia, globus	+	++++
Findings		
Esophagitis	++++	+
Laryngeal inflammation	+	++++
Test Results		
Erosive esophagitis or Barrett's	+++	+
Abnormal esophageal pH monitoring	++++	++
Abnormal pharyngeal pH monitoring	+	++++
Esophageal dysmotility	+++	+
Abnormal esophageal acid clearance	++++	+
Pattern of Reflux		
Supine (nocturnal) reflux	++++	+
Upright (daytime) reflux	+	++++
Both (Abnormal upright and supine reflux)	+	+++

	GERD	LPR
Response to Treatment		
Effectiveness of dietary and lifestyle modifications	++	+
Successful treatment with single-dose PPIs*	+++	+
Successful treatment with twice-daily PPIs	++++	+++

*PPIs = Proton pump inhibitors

References

Belafsky PC, Postma GN, Koufman KA. Laryngopharyngeal reflux symptoms improve before changes in physical findings. Laryngoscope 2001; 111: 979-81.

Koufman JA, Aviv JE, Casiano RR, Shaw GY. Position statement of the American Academy of Otolaryngology-Head and Neck Surgery on laryngopharyngeal reflux. Otolaryngol Head Neck Surg 2002, 127: 32-5.

Koufman JA, Belafsky PC, Daniel E, Bach KK, Postma GN. Prevalence of esophagitis in patients with pH-documented laryngopharyngeal reflux. Laryngoscope 2002; 112: 1606-9.

Koufman JA. Laryngopharyngeal reflux is different from classic gastroesophageal reflux disease. Ear, Nose Throat J 2002; (Supplement 2) 81: 7-9.

O-1 HEAD AND NECK TUMORS

Abstract no.: 011

Osteoradionecrosis during 25 years. The Gothenburg Experience

G. Granström, Department of Otolaryngology, Head & Neck Surgery and B. Fagerberg-Mohlin, Department of Oral & Maxillofacial Surgery, Göteborg University, Sweden

Introduction: Osteoradionecrosis (ORN) is a rare complication after treatment of head and neck cancer. Since 1980, we have used a structured programme for the handling of ORN, involving staging of the disease, minor surgery, hyperbaric oxygen therapy and reconstructive surgery.

Aim: To evaluate the functional outcome of patients treated for ORN during a 25-year period.

Method: A database was created where data regarding cancer, radiotherapy, chemotherapy and surgery were investigated. The locality of ORN, extension with X-ray as well as treatment options were recorded. Outcome of the treatment was evaluated and side-effects registered. Statistical comparison using the Wilcoxon-Rang test for non-parametric observations was performed.

Results: Altogether 155 ORN in 132 patients was treated during this 25-year period. The most common site for ORN was the mandible, and stage 2 and 3 ORN were most prominent. ORN occurred most often after treatment of tonsil and floor of the mouth carcinoma. The combined treatment with HBO and reconstructive surgery could resolve the disease in 80% of patients.

Conclusion: A structured follow-up and planned treatment for ORN can relive the disease in the majority of patients.

Abstract no.: 012

Early tongue cancer: identifying high risque patients

A Westerborn, Dep of ORL-HNS, J Reizenstein, Dep of Oncology, M Karlsson, Dep of Pathology, G-B Adamsson, Center of Head & Neck Oncology, all from the Örebro University Hospital, Örebro, Sweden

Cancer of the oral tongue carries a bad prognosis with 30-40% local and regional recurrencies even with T1-T2 tumours. Many different therapies have been advocated without improving survival. Authors have tried to identify different factors influensing outcome but very few markers stand out having prognostic meaning. The only factors that seem to have pos correlation between tumour and outcome is TNM classification and histological factors such as tumour thickness and growth pattern. Unfortunately there is no general agreement on when the risque for recurrence increases.

Method: 1988-2001 we treated 137 tonguecancers. 83 patients were T1-T2 tumours with x N1-N2 patients. X were stage 1 and y were stage II. During these years we changed therapeutic regime going from preop radiotherapy to postop radiotherapy. Preop radiotherapy was performed in ----- patients. These surgical specimens have not been reevalutaed. Surgery was performed as primary treatment in 43 patients. We retrospectively studied the surgical specimen for tumour thickness and growth pattern in 43 patients with T1(24)and T2 (19) tumours and compared it with outcome and risque for recurrencies, both local end regional. We also looked at other clinical risquefactors and tried to evaluate which treatment regime has had the best results.

Results: Treatment consisted of primary surgery in 43 cases and preoperative or therapeutic external radiotherapy in 40 cases. Primary surgery was followed by no further treatment (23), brachytherapy (3) or external radiotherapy (17). 43 studied specimens. Tumour thicknes was x-y mm with a cutoff of x mm where the prognosis got worse. Growth pattern was called aggressive in y cases?

Conclusion: 43 T1-T2 were operated. 11 (26%) were treated for recurrencies. 2 year survival is 77%. As in previous studies there is a positive correlation between tumour thickness and recurrenmce even in T1 cancers. We also found positive.

Abstract no.: 013

Parotid gland metastasis of non-head and neck origin

Mrena R, Department of Otolaryngology – Head and Neck Surgery, Leivo I, Department of Pathology, Mäkitie AA, Department of Otolaryngology – Head and Neck Surgery, Helsinki University Central Hospital, Helsinki, Finland

Background: Metastatic tumors involving the parotid gland and arising from non-head and neck origin are rare. Immunohistochemistry has improved the differential diagnosis of these lesions. Current immunohistochemical markers allow the distinction between a number of potential primary tumors (e.g. prostate, colon, lung, kidney, breast).

Patients and methods: The clinical and histomorphological features of three renal cell carcinoma patients presenting with a parotid mass are presented. We review the literature of various non-head and neck malignancies metastasizing to the parotid gland and discuss their differential diagnosis.

Results: There were three females (mean age 66 years; range 58-76 years) with renal cell carcinoma (hypernephroma). In two out of three cases, a parotid mass was the first clinical manifestation. In one case, a nephrectomy had been performed nine years earlier to remove hypernephroma. Two of the three cases showed a highly vascular parotid lesion causing difficulty in interpretation of the fine needle aspirate. Immunohistochemical stainings for

vimentin, CD10 and PNRA were positive and cytokeratin7 negative suggesting renal cell origin of the tumor which was confirmed in ultrasonography.
Conclusions: Clinical and radiological evaluation and diagnosis by fine needle aspiration may prove difficult partly due to the vascular nature of parotid metastasis of renal cell carcinoma. Immunohistochemical characteristics are useful in identifying the primary tumor.

Abstract no.: 014
Effect of ultrasound guided interstitial laser photocoagulation on benign solitary solid cold thyroid nodules – 1 versus 3 treatments

Døssing H, Odense University hospital, Bennedbæk FN, Odense University hospital, Hegedüs L, Odense University hospital, Denmark

Aim: To evaluate the effect of interstitial laser photocoagulation (ILP) on thyroid nodule size and patients satisfaction in a prospective randomised study, comparing one ILP treatment with three ILP treatments.
Design: 30 euthyroid outpatients with a cytologically benign solitary solid and scintigraphically cold thyroid nodule causing local discomfort were assigned to one session of ILP (ILP-1) (n=15) or three monthly ILP sessions (ILP-3) (n=15) and followed for 6 months. ILP was performed under continuous ultrasound (US)-guidance and with an output power of 2.5-3.5 W. Thyroid nodule volume was assessed by US during follow-up. Pressure and cosmetic complaints before and at 6 months were evaluated on a visual analogue scale.
Results: In the ILP-1 group, thyroid nodule volume decreased from 10.1± 4.3 mL (mean ± SD) to 5.7± 3.2 mL (P= 0.0001), and in the ILP-3 group from 10.8± 5.5 mL to 4.6± 3.0 mL (P=0.001) during follow-up. The overall mean difference between the two groups was 13% (P=0.03). In both groups pressure symptoms and cosmetic complaints were significantly reduced. No major side effects were seen in either group.
Conclusion: ILP is a safe procedure and could become a non-surgical therapeutic option in selected patients with a benign solitary cold thyroid nodule.

Abstract no.: 015
Laser treatment of laryngeal cancer in Lund, Sweden

Rydell R, Phoniatrics, ENT, Lund, Sweden

In the period 1993-2002 a total of 122 patients with severe dysplasia, carcinoma in situ, suspected early invasion, cancer or salvage after radiotherapy failure have been treated with CO2 laser. The T-class was T1 for all but 5 T2:s.

The time of follow up was 9 to 2 years. All patients with severe dysplasia (11/11) or carcinoma in situ (14/14) were cured. One patient with suspected early invasion had residual cancer at follow up, one was given radiotherapy, one radiotherapy/laryngectomy and 2 patients had second primaries. In this group 12/13 (92 %) were locally free from disease and 10/13 (77 %) were cured. In the group with verified cancer 72/74 (97 %) were locally free from cancer, but 9 of the patients were given radiotherapy and one patient radiotherapy/ laryngectomy. Two patients had second primaries, 2 died of metastasis, 1 died of second primary and 1 of other cause. At latest follow up, 67/74 (91 %) were alive and healthy. Laryngectomy was performed on 3 of the patients where we tried salvage with laser after radiotherapy failure. One had a second primary and 1 died of other cause.

Abstract no.: 016
Surgical treatment of plunging ranula

Anna Hafstrom, Peter Wahlberg, Dept of Otorhinolaryngology, Head and Neck Surgery, Lund University Hospital, 221 85 Lund, Sweden

Background: Ranulas are cystic lesions in the floor of the mouth with origin from the sublingual gland. A plunging ranula manifests itself as a fluctuating non-tender swelling in the neck and has plunged below the mylohyoid muscle. A plunging ranula is a relatively rare disorder and until recently only about 100 cases were presented in the literature and different methods for best treatment have been recommended by different authors. Some advocate a marsupialization, others as a total removal of the sublingual gland. Different opinions have been presented whether an intra oral or cervical approach is the best, and if it is enough to evacuate the cystic contents.
Patients and methods: Six patients, 2 women, 4 men; mean age 27 (range 6-75 years), underwent surgery because of a plunging ranula from 1998 to 2004 in Lund, Sweden. Eight surgical procedures were performed. The patient workups, imaging studies including the pathognomonic 'tail -sign', differential diagnoses, treatment results and the risk of postoperative complications are compared with findings in the literature.
Conclusion: We recommend an intraoral removal of the sublingual gland as the best treatment modality for a plunging ranula since no recurrences and no substantial complications was found with this method.

S-V SLEEP DISORDERS

Abstract no.: 017
Operations on patients with OSAS

Sigurður Júlíusson, Department of Otolaryngology, Landspítali University Hospital, 105 Reykjavík, Iceland

Obstructive sleep apnea is a serious medical problem producing both physical and behavioral derangement. It is essential to provide a thorough workup and evaluation of all patients seeking care for sleep disordered breathing. Polysomnography is the standard for evaluation and assessment of the severity of OSA in every patient. CPAP therapy is the gold standard for treatment of patients with obstructive sleep apnea. Oral devices have been shown to be effective in about 50-70% of patients with OSA. Surgical intervention of OSA and snoring has the intention of reducing or by-passing the upper airway resistance and requires understanding of the pathophysiology and anatomical contribu-

tions to this widely variable disease. Majority of the patients have multilevel obstruction. The surgical techniques employed are quite varied and involves site-specific alterations of the upper airway to more directly address the disease process. Different techniques have been developed to widen the pharynx. A valuable contribution to the surgical arsenal has been tissue reduction using radiofrequency energy, which has been shown to be effective, minimally invasive and suitable for multilevel surgery. Nasal airway reconstruction may aid in the treatment of OSA, because increased nasal resistance and obstruction increases the negative pressure of the upper airway, leading to collapse of the velopharyngeal, base-of-tongue, and hypopharyngeal regions. Functional nasal passages is a prerequisite for successful CPAP therapy. The effectiveness of the different procedures to treat airway obstruction in OSA patients needs to be clarified. Evidence to compare procedures or combinations of procedures requires relatively large studies. Multi-centre studies of surgical treatments for sleep apnea would help to clarify the strengths and weaknesses of different approaches and determine the reproducibility of surgical outcomes in the hands of different surgical teams.

Abstract no.: 018

Treatment of Snoring and mild OSAS by Low frequency Radio waves

Tvinnereim M, Bergen Sleep Center & EuroSleep Ltd., Bergen, Norway

A variety of UvuloPalatoPharyngoPlasty(UPPP) procedures has been developed, for widening of the pharynx by removing or reducing the pharyngeal soft tissue volume to treat snoring and sleep apnea, Different success rates (30-80 %) are reported in the literature.

A fairly new bipolar series of low frequency radio wave instruments(Coblation), possessing the abilities of effective combinating low pain volumetric tissue reduction with excision possibilities, has recently been introduced.

100 otherwise healthy patients suffering from snoring and moderate sleep apnea(AHI<20) and also having their main level of obstruction (>50%) in the upper pharyngeal region, were selected. This was obtained by performing complete ENT examination including endoscopies as well as whole night monitoring, with recordings of pharyngeal and mid-esophageal pressure fluctuations (ApneaGraph). The whole group were treated by The Coblation Assisted Upper-airway Procedures(CAUP) selected for problems in the upper pharyngeal region.

One year follow up results have shown the classification and treatment to be utmost satisfactory, with proper results for almost 9 out of 10 patients. Unwanted side effects are hardly seen. Further results will be presented.

Conclusion: Classification of Snorers and OSAS-patients accompanied by stepwise treatment with bipolar low frequency radio wave equipment (CAUP) in local anaesthesia as an outpatient procedure, seems to give acceptable results.

Together with long time follow up, this offers a complete and logical line for reflected step by step treatment of Snoring and mild Obstructive Sleep Apnea.

The method will be further described and results presented.

Abstract no.: 019

Obstructive Sleep Apnea in Iceland - traditions and facts

Þórarinn Gíslason, Professor. Dept. of Allergy, Respiratory Medicine and Sleep. Landspítali University Hospital (E7), 105 Reykjavik, Iceland.
thorarig@landspitali.is

There has been increasing interest in Obstructive sleep apnea (OSA) Sleep related breathing disturbances has achived an increasing interest in the last two decades – even in Iceland. When published 18 years ago, that OSA was probably affecting at least 1.3% of the middle aged male population, these news where received by most Icelandic doctors as they where being told a fairy tale on elves or trolls – 'these guys might very well be out there, but I have not seen them' – especially the obstructive sleep apnea syndrome (OSAS). Simplified diagnostic technics, effective therapy together with scientific interest are also reflected by at least 100.000 cases of OSAS in the Nordic countries alone. Although the search term sleep apnea syndrome yields more than 11.000 publications on PubMed there is still not a general agreement as how to define obstructive sleep apnea syndrome (OSAS), although there is little argument as long as we are facing the typical OSAS patient: an overweight middle-aged man or woman, complaining about habitual snoring and daytime sleepiness and with hundreds of apnea episodes during sleep, associated with a reduction in blood oxygen saturation. Since autumn 1987 until December 2004 altogether 4611 patients with OSAS have been diagnosed in Iceland (total population 290.000), 1365 females and 3204 males. There is a gender difference at younger age with more males diagnosed but no longer a significant difference after 65 years. Among the total Icelandic male population 50-69 years altogether 6.4% of males has been diagnosed with OSAS and 2.8% of females. OSAS patients where often referred for uvulopalatopharyngealplastic (UPPP) until the mid nineties. There is still a lack of effective therapy although some 70-80% accept continuous positive airway pressure (CPAP). In December 2004 altogether 1.175 males where CPAP treated and 428 females (2.4% of the total male Icelandic population 50-69 years and 0.9% of females).

Epilog: OSA is today recognized as one of the most common chronic disorders – one that can be easily diagnosed and usually effectively treated. Cardiovascular co-morbidity is commonly encountered and OSAS is now characterized by sympathetic activation, insulin resistance and increased oxidative stress. There is an urgent need for better aimed treatment alternatives – whom to treat? and how?

Abstract no.: 020

OSAS and GERD

Søren Berg, MD PhD, ENT-dept. University Hospital of Lund, Sweden & Scansleep, Denmark

Association between gastro-oesophageal reflux (GER) and pulmonary disease has been recognized more than 30 years ago. More recently, there has been an increasing interest in the possible role of GER in such specific respiratory disease as asthma and sleep apnea. The latter association is particularly intriguing

since patients with GER and obstructive sleep apnea syndrome (OSAS) share similar contributing factors such as age and obesity, and some common aspect of pathogenesis. First, sleep itself can contribute to GER and facilitate it by a decrease in the lower esophageal sphincter tone and other pharmacological and gastric factors (GER). Secondly, episodes of upper airway obstruction during sleep are associated with large intrathoracic/esophageal negative pressures swings, which results in increased transdiaphragmatic pressure gradient, and may lead to regurgitation of the gastric acid into the esophagus. Such sleep-related GER could potentially cause respiratory dysfunction, bronchoconstriction, coughing, wheezing, laryngospasm and sleep disturbance. There are reports indicating that patients who snore, independently of whether or not they have sleep apnea, frequently have episodes of reflux defined as pH < 4.

If a significant association between OSAS and GER is found, traditional evaluation and treatment of patients with reflux may change by adding sleep investigations and considering therapeutic trials of continuous positive airway pressure (CPAP), particularly since beneficial effects of CPAP in patients with GER have already been reported.

S-VI HEARING AND GENETICS

Abstract no.: 021

Cochlear implants. What every ENT doctor should know

Anders Freijd, MD.PhD. Cochlear Implant Unit, Karolinska University Hospital/Huddinge, Stockholm, Sweden

The number of patients with cochlear implants (CI) is rapidly increasing. The estimated number worldwide is more than 100.000. Children are receiving CI younger age than before, often at less than one year.

The aim of this speech is

1. to give an overview of the current criteria for CI in children and adults,
2. a summary of results
3. guidelines to some clinical situations in patients with CI
4. differences between the CI brands
5. future development

Abstract no.: 022

Genetics in hearing loss

Claes Möller, Professor, Sahlgrenska University hospital, Göteborg, Sweden

Genetic research during the last decade has revealed new and exciting insights in the aetiology of hearing loss. The proportion of genetic hearing loss can today be estimated to be around 60-70 per cent of all hearing losses. This has been confirmed in congenital hearing loss, but there are reasons to believe that acquired hearing loss and aged related hearing loss to a substantial part can be caused by genetic deficiencies. It is today estimated that 300-400 different genetic aetiologies can cause hearing loss.

Congenital hearing loss is one of the most common severe deficiencies and the prevalence in most countries is around 2/1000 new-born. One genetic hearing loss (Connexin 26, GJB2) seems to be the most prevalent. In some countries Connexin 26 is the cause of around 25 per cent of all congenital hearing loss. A large proportion (30 per cent) of congenital hearing loss may be part of a syndrome. Some syndromes like Usher, Alport, branchio-oto-renal (BOR), Alström and others are fairy well characterised both clinically and genetically and the gene has been cloned in many syndromes. These new insights are providing new diagnostic tools, better prognosis and rehabilitation and hopefully treatment and cure. These new ethical questions need to be addressed. The current knowledge of genetics in hearing loss as well as some future aspects will be presented and discussed in this presentation.

Abstract no.: 023

Genetics of Common Disease

Hákon Hákonarson, deCode Genetics, Reykjavík, Iceland

deCODE has compiled the world's largest database of clinical and genetic information, together with comprehensive data on the family history and structure of the population of Iceland. The unique combination of these resources, when coupled to high-throughput gene expression studies, provides a competitive advantage in the race to uncover disease-causing variations of the human genome. The powerful combination of the proprietary genealogical database, innovative bioinformatics resources, when combined with ultra-high throughput genotyping, gene array and proteomics facilities, provides a focused strategy to pinpoint the genetic causes of common human diseases. This approach is designed to identify disease-causing genes that generate validated drug targets and genes responsible for differential drug response, thus enabling stratified clinical trials to target those patients who are most likely to respond. Enrichment of the study cohort with carriers of 'at-risk' variants in genes that reside within and/or influence the biological pathway targeted by the drug candidate, would be expected to lower the risk of drug failure, while both delivering faster and better results at lower costs. deCODE has pinpointed several disease-causing genes that that harbour at-risk variants that also influence drug response. In this regard, deCODE recently identified a variant of the 5-lipoxygenase activating protein gene (FLAP) that predisposes to myocardial infarction. The gene was mapped with a genome wide linkage scan and without any assumption about the biological pathways contributing to the pathogenesis of myocardial infarction deCODE has shown that in patients with the at-risk variant of the FLAP gene, the inhibitor of FLAP, DG-031 led to significant and dose-dependent suppression of biomarkers that are associated with increased risk of cardiovascular events.

O-II NASAL AIRFLOW AND CHEMICAL SENSES

Abstract no.: 024

National quality register for Septoplasty-surgery in Sweden – a continuous improvement of the outcome through optimized patient information and a uniform standardized surgical process

Kumlien J, ENT-clinic Karolinska Solna, Bohlin L, ENT-clinic Umeå, S. Hellström Stockholm, Månsson I, FoU Gothenburg, Engstrand Lindesberg I, Weitz P, ENT-clinic Västerås, Kjellen G, ENT-clinic Kalmar, Carlborg B, ENT-clinic Malmö

The National Quality Register for ENT-healthcare in Sweden has been in use for 7 years. At present the register for septum surgery stores data from over 4000 patients and almost all Swedish ENT-clinics are contributing. Of major interest is that the register records, 6 months after surgery, the patient satisfaction, via a questionnaire, using a four-grade scale. The patients are grading their symptoms as 'completely gone', 'almost gone', 'no change' or 'worse'. 'Completely gone' and 'almost gone' are categorised as 'satisfied'. At an ENT- meeting in 2000, the delegates were engaged in a process identifying factors improving septoplasty surgery. At that time the register contained 711 patients and approximately 70% of the patients were satisfied with the outcome of the operation. However, the delegates assessed this result unacceptable and considered 90 % 'satisfied' patients as an appropriate standard. No specific factors which could influence the outcome of the septoplasty procedure were identified at that time, though a proper information about the operation to the patient was considered of importance. During the following years a standardized patient information form has been produced and is now accepted during a consensus meeting (fall 2004) of Swedish rhinologists. At the same time a manual for the whole chain of events, from symptoms, diagnostics to the surgical procedure and post-operative care was established. We believe that these two documents will induce a process in which both patients and the profession will gain a mutual understanding of the pros and cons regarding septoplasty, and unnecessary surgery minimized.

Through a continuous follow-up by the register the clinics can follow their own 'patients satisfaction' and thus introduce routines that will improve the results. As an example one of the ENT-clinics, by use of Register data, increased their patient satisfaction from initially 60% to 75% during a two-year period. At present 76% of the Swedish patients undergoing septoplasty are satisfied and the results have thus improved since 5 years ago. It will be interesting to see which results will be reached in future when the two documents described have been in use for some time.

Abstract no.: 025

Correspondence between three olfactory tests and suprathreshold odor intensity ratings

Koskinen S, Department of Food Technology, University of Helsinki, Vento SI, Jorvi Hospital, Helsinki University Central Hospital, Malmberg H, Department of Otorhinolaryngology, Helsinki University Central Hospital, Tuorila H, Department of Food Technology, University of Helsinki

The capability of three olfactory tests (European Test of Olfactory Capabilities Sniffin' Sticks and Cross-Cultural Smell Identification Test) to similarly classify subjects as normosmics, hyposmics, and anosmics as well as the relation between test performance and suprathreshold ortho- and retronasal odor intensity ratings were examined.

Forty-eight subjects (aged 15-84, mean 49.5 years) completed three olfactory tests, rated aqueous solutions of vanilla (0-0.31%) and lemon aroma (0-0.17%) for odor and flavor intensity. Thirty-eight had subjectively normal olfaction and ten subjects had case histories indicating anosmia. The tests were highly correlated and differentiated anosmic, hyposmic, and normosmic subjects. Some discrepancy was seen in the olfactory diagnoses given by the three tests on individual level. In principal component analysis (PCA), olfactory measurements were loaded on three components: 1) odor detection, discrimination and identification, 2) suprathreshold intensity ratings and 3) threshold for n-butanol. Age was associated with a decrease in olfactory test scores. The tests separated anosmics and normosmics highly significantly, and permitted an assessment of hyposmia if the limits suggested in this study are used. The suprathreshold odor intensity ratings reflected a different dimension of olfaction than the olfactory tests.

Abstract no.: 026

What happens to patients with nasal stuffiness and a pathological rhinomanometry left without surgery?

Thulesius H, Växjö Central Hospital. Jessen M, Växjö Central Hospital

Objective: We wanted to study the natural history of patients with nasal stuffiness and a pathological rhinomanometry.
It would seem obvious that these patients still suffer nasal stuffiness after several years. However, is it true?
Method: We recalled 27 patients (10 women and 17 men, mean age 53 years) complaining about nasal stuffiness between 1995-1997 and with a positive rhinomanometry but left without surgery for various reasons.

At baseline an ENT investigation including rhinomanometry, before and after decongestion was performed. All patients had a pathological high nasal airway resistance (NAR) after decongestion but did not undergo surgery. Exactly the same investigation with the same device and staff was performed at follow-up 8-9 years after baseline.
Results: At follow-up mean NAR (V2) for the narrower side went down from 46 to 31, and for the wider side from 19 to 16. Subjective nasal stuffiness was unchanged for 56%, reduced for 33%, and increased for 11% of the patients. These are preliminary results, and 13 more patients will be examined.
Conclusion: A decrease in mean nasal airway resistance (NAR) was seen while subjective nasal stuffiness remained unchanged for a majority of the patients. Reasons for the rhinomanometric changes will be discussed.

Abstract no.: 027

Screening and rehabilitation of olfaction after total laryngectomy in Swedish patients: Results from an intervention study using the Nasal Airflow- Inducing Maneuver (NAIM)

Finizia C, MD, PhD Department of Otolaryngology, Risberg Berlin Birgit,

SLP Division of Logopedics and Phoniatrics, Sahlgrenska University Hospital, Göteborg, Ylitalo Riitta, MD, PhD Karolinska Institute, Department of Logopedics and Phoniatrics B 69, Karolinska University Hospital Huddinge Stockholm, Sweden

Objective: To examine the olfactory function in Swedish laryngectomized patients and to assess the results of the NAIM odor-rehabilitation technique using the validated Scandinavian Odor-Identification Test (SOIT).
Methods: Twenty-four laryngectomized patients, 21 males and 3 females (mean age 68 years)
answered olfaction and gustation and quality of life questionnaires and were tested with SOIT before and after four NAIM rehabilitation sessions.
Results: 72% of the patients with anosmia or hyposmia at baseline improved during intervention with the NAIM technique according to SOIT results. Before treatment 10 patients were categorized as smellers while 14 patients were non-smellers i.e. having anosmia according to SOIT. Postinventory, the patients' with anosmia improved their olfaction significantly according to SOIT and their selfestimation of olfaction, gustation and quality of life improved.
Conclusion: The SOIT odor-differentiation test is an effective and simple test for the assessment of olfaction acuity after laryngectomy in Scandinavian patients. The NAIM rehabilitation method is easy to learn and gives rapid and excellent results in improved smell, taste and quality of life. We recommend that olfactory and gustatory rehabilitation according to the NAIM technique should be incorporated into routine rehabilitation program for laryngectomees in Scandinavia.

Abstract no.: 028

Autonomic nerves of the vomeronasal organ

R. Eccles, Cardiff School of Biosciences, L. Malm, Dept. of ORL, Malmö University Hospital, R. Uddman, Dept. of ORL, Malmö University Hospital

Electrical stimulation of the Vidian nerve causes a watery secretion from the vomeronasal organ (VO) in cats. Stimulation of sympathetic nerves causes rapid suction of secretion into the VO. The mechanism behind the latter reaction is a constriction of sinusoids situated between an outer wall of cartilage and an inner wall; a sac. Between the walls is erectile tissue. Similar to other erectile tissues there is an intense vasoactive intestinal peptide(VIP)-like immunoreactivity, demonstrated in cat and rat. The importance of VIP in reproduction will be discussed.

Abstract no.: 029

Severe nasal polyposis treated with sustained release systemic steroid. How safe is it?

Larsen K, Sct Joseph ENT-Clinic, Gram J, Endocrinological department, Central Hospital, Esbjerg, DK

In patients with severe nasal polyposis systemic steroid can be an adjunct to topical steroid and surgery in the treatment. Sustained release steroids given as injection has been one of the treatment modalities used in DK. When calculating equivalent daily doses of steroid given the injection dose seems fairly low and should not be supposed to involve serious problems when administered once or twice yearly. To verify this attitude we investigated 11 patients with severe recurrent nasal polyposis by the means of DXA-scanning to evaluate any degree of osteopenia or osteoporosis. It is a small group with especially severe symptomatic nasal polyposis. More than half of the patients had endoscopic sinus surgery , the remainder refused surgery. Despite surgery intensive medical treatment was needed. They had one or two injections of sustained release dexamethasone per year for at least three years.

The results showed that 9 patients had low Z-score and the T-score was low in 10 patients. There were 5 patients with osteoporosis and 3 with osteopenia using WHO- definitions. Although treatment with sustained release systemic steroid is very effective in the treatment of severe nasal polyposis it seems to have its costs when used for years even in relatively small amounts. Concomitant other risk factors should be borne in mind and inclusion of an endocrinologist in the treatment regime in such severe cases is advisable.

S-VII TREATMENT OF EARLY HEAD AND NECK CANCER (T1NO-T2NO)

Abstract no.: 030

Endoscopic surgical treatment of early laryngeal cancer – treatment of choice?

Remacle M, Department of ORL – Head & Neck Surgery, University hospital of Louvain at Mont-Godinne, Belgium

Endoscopic excision of laryngeal cancers existed long before laser came into use. An increasing number of reports in the literature suggest that the endoscopic laser management of TIS, T1 and some early T2 lesions is now a viable option. The comparison of laser management with established conventional methods is inevitable and necessary. The most important single requirement is wide exposure of the lesion and the surrounding 'normal tissue'. If adequate laryngeal exposure could not be obtained for whatever reason then the endoscopic excision, laser or non-laser, cannot be accomplished. Subglottic lesions are most difficult for endoscopic laser surgery. Surgery for malignant lesion involves complete removal of the tumour, confirmed by intraoperative frozen section assessment. Endoscopic surgery is indicated for T1a glottic cancers; selected T1b glottic cancers; selected T2 glottic cancers; and T1 or T2 supraglottic cancers without infrahyoid invasion of the epiglottis.

Based on the exhaustive literature review, our conviction is that it is appropriate to consider CO_2 laser-assisted endoscopy within a management strategy, where open reconstructive surgery is also a possible option.

Endoscopic laser surgery for laryngeal malignancy usually does not require routine tracheotomy. Hospitalisation following endoscopic laser surgery usually lasts 1 to 3 days. Voice quality following cordectomy depends on the extent of cordectomy. No consensus has yet been reached for comparison of voice quality following endoscopic treatment and after radiotherapy.

Abstract no.: 031
Surgical treatment for early cancer of the mobile tongue – is it sufficient?

Antti Mäkitie, Helsinki University Central Hospital, Finland

Abstract missing

Abstract no.: 032
Radiotherapy for early laryngeal and oral cavity cancers

Cai Grau, Professor, DMSc, Department of Oncology, Aarhus University Hospital, Aarhus, Denmark

The curative management of early (stage I-II) squamous cell carcinomas of the larynx and oral cavity is a matter of great debate, since both surgery and radiotherapy can result in good local control. The choice of treatment thus depends on the associated morbidity.

For oral cavity cancers, external radiotherapy is often associated with acute side effects like mucositis and pain, and also a significant risk of chronic xerostomia, dysphagia, or osteoradionecrosis. Primary surgery with sufficient reconstruction and dental rehabilitation seems to give less chronic side effects. Thus, the Danish Head and Neck Cancer Study Group (DAHANCA) recommends surgery alone for all T1-T2 node negative patients in our 'National guideline for management of oral cancer', which can be downloaded from *www.dshho.dk* or *www.dahanca.dk*. Postoperative radiotherapy is recommended in case of insufficient surgical margins. In addition to surgery and external radiotherapy, it should be mentioned that brachytherapy with radioactive implants may give tumor control with organ preservation and few chronic side effects. Good results in brachytherapy, however, are relying heavily on expertise in both patient selection and the actual treatment.

In contrast to oral cancer, early laryngeal cancer can be treated by radiotherapy with very few side effects and excellent local control. The recent DAHANCA 6&7 trial including over 900 larynx cancer patients, treated with accelerated radiotherapy, thus showed close to 90% larynx preservation for T1-T2 tumors. The surgical alternative, laser surgery, has often been suggested as a less costly and more patient-friendly alternative especially for glottic tumors. However, the published studies have shown that the voice quality is either less good after laser excision than after radiotherapy, or without significant difference. Since all of these studies are small, a large randomised trial with validated assays of voice quality, as well as socioeconomic endpoints, is warranted to settle this long standing discussion.

Abstract no.: 033
Prediction of survival in head and neck cancer

Robert De Baatenburg de Jong, The Netherlands

Abstract missing

Abstract no.: 034

Abstract withdrawn

S-VIII AIRWAY OBSTRUCTION, INGESTION AND INHALATION

Abstract no.: 035
Atopic diseases in the upper airway

Michael Clausen, MD

There is a worldwide concern about the increasing prevalence of asthma, allergic rhinitis, atopic eczema and food allergy in childhood. This increase in prevalence is global but mostly in affluent countries. These diseases can be substantial burden to those affected and impair theirs quality of life. They are also closely related to each other, as rhinitis and eczema are known risk factors for asthma and eczema can predict rhinitis. In some western countries, asthma and allergies are affecting up to one-third of children and is some of the major causes of morbidity. Allergic rhinitis often starts in childhood with increasing prevalence with age. It is the most common allergic disease and leading chronic condition in children. The most common seasonal allergens are tree, grass, weed pollens and outdoor mold spores. Dust mites and pets, like cats and dogs stands for common perennial allergens. Allergic rhinitis was reported by 17% 10-11 years old Icelandic school children and 11% reported pollen allergy in the year 2000. Positive skin prick test was found in 24.9% of the children. The most common allergen was grass 18.7% and cat 12.9%. This is similar what was found in Swedish children at same age. Sinusitis is a common problem though usually caused by infections. Sinusitis without rhinitis is rare. Allergic rhinitis and grass pollen sensitization has been postulated as independent risk factors for sinusitis in children. Otitis media with effusion is more common in atopic children. Finding of eosinophiles and Th2 mediators in the middle-ear effusions of atopic children suggests that allergy might play roll in the pathogeneses of otitis media with effusion. Food allergy can provoke upper airway respiratory symptoms. Most commonly rhinitis but also serious symptoms like laryngeal spasm. These symptoms typically occur in association with other clinical manifestations. The role of food allergy in recurrent otitis media with effusion has been proposed but is controversial.

Abstract no.: 036
Respiratory tract infections and wheezing

Sigurður Kristjánsson, Iceland

Background: Respiratory syncytial virus infections during infancy are considered to be a risk factor for developing asthma and possibly allergic sensitization. Also association between severe infant bronchiolitis due to respiratory syncytial virus (RSV) and subsequent wheezing is well-documented. High levels of urinary eosinophil protein X (U-EPX) have been related to active disease in asthmatic children.
Objective: In one study we have investigated cytokines, chemokines and Eosinophil Cationic Protein in nasopharyngeal secre-

tions in infants <7 months of age with RSV infection, other respiratory viral infections and healthy infants as controls. We have also in another study analyzed whether RSV bronchiolitis leads to an increase in U-EPX levels and whether wheezing is more common in children with high U-EPX values.

Results: Thirty-nine infants with RSV, 9 with influenza or parainfluenza virus infections and 50 controls with no history of prior infections were enrolled in the study. The levels of the Th2 cytokine IL-4 were significantly higher in RSV-infected infants <3 months of age compared with RSV infected infants >3 months. Both The inflammatory response in the nose in infants with iinfections with caused by RSVand with , influenza or parainfluenza virus were comparablesponse in the nose and the infants had similar levels of cytokines, chemokines and blood cell counts. The virus-infected infants hadsignificantly Compared with the controls, the virus infected infants had significantly higher levels of levels of interleukin-IL-4, MIP-1ßmacrophage inflammatory protein-1beta, IL-5 and ECP in the nasopharyngeal secretionssecretions compared with the control groupThe levels of the Th2 cytokine IL-4 were significantly higher in RSV-infected infants <3 months of age compared with infants >3 months. In the other study seventeen infants requiring in-ward care for verified RSV respiratory tract infection were followed and compared with age-matched controls. At inclusion as well as at the 30-month follow-up, U-EPX was comparable in the RSV group. However, at follow-up 3 months after inclusion, the RSV group had significantly increased levels of U-EPX compared with inclusion (median 167.8; range 46.2-470.7 vs 122.8; 43.7-266.0 µg/mmol creatinine; P = 0.023) and also significantly increased compared with the 3-month old controls (167.8 vs 93.0; 19.0-204.0 µg/mmol creatinine; P = 0.0095). Subjects that experienced wheezing had significantly higher U-EPX values both at inclusion and at the 30-month follow-up.

Conclusion: Infections with RSV as well as with influenza and parainfluenza virus during early infancy preferentially promote a Th2-like response in the nose with local production of IL-4, IL-5 and MIP-1ßMIP-1beta, and the infiltration and activation of eosinophils. RSV bronchiolitis severe enough to require in-ward care produces a significant, but transient increase in U-EPX. Furthermore, a high U-EPX at baseline appears to increase the risk of future wheezing.

Abstract no.: 037

Genetic studies of asthma

Hákon Hákonarson, deCode Genetics, Reykjavík, Iceland

Asthma is a complex genetic disorder with a heterogeneous phenotype attributed to the interactions among many genes and the environment. Numerous loci and candidate genes have been reported to show linkage and association of asthma and the asthma-associated phenotypes, atopy, elevated immunoglobulin E (IgE) levels, and bronchial hyperresponsiveness to alleles of microsatellite markers and single nucleotide polymorphisms within specific cytokine/chemokine, and IgE regulating genes. Although many studies reporting these observations are compelling, only a few genes conferring significant risk have been mapped. In addition, despite significant progress made in the field of asthma genetics in the past decade, the clinical implications of the genetic variations within the numerous candidate asthma genes, which have been found to associate with the expression of the asthmatic phenotype, remain largely undetermined. It is encouraging, however, that in the past couple of years, the scientific community has been favourably impacted by postgenomic discoveries, with the recent cloning of two asthma genes, ADAM 33 and PHF11, and this has generated new information that is benefiting others. The presentation will cover these recent observations, including the isolation of a gene mapped by deCODE which was found to have variants that increase the risk of asthma by a factor of two. The presentation describes the key approaches that are used to study the genetics of asthma and the pathobiology underlying this complex disorder. It also includes examples of studies addressing gene-gene interactions and how linkage disequilibrium blocks and haplotypes are used as functional units to pinpoint mutations and capture relative risk of mutated genes in complex diseases such as asthma.

O-III BALANCE AND OTONEUROLOGY

Abstract no.: 038

The AGES Reykjavík study. Balance and hearing evaluation

Petersen H[1], Siggeirsdóttir K[2], Pyykkö I[3], Toppila E[3], Eiríksdóttir G[2], Launer L[4], Harris T[4], Hoffman H[5], Gorritz M[5], Themann C[5], Jónsson P[1], Sverrisdóttir JE[2], Guðnason V[2]
[1]Landspítali University Hospital Reykjavik Iceland, [2]Icelandic Heart Association, Iceland, [3]Tampere University Hospital Finland, [4]National Institute on Aging, [5]National Institute on Deafness and Communication Disorders, USA

The AGES Reykjavík study is based on the Reykjavik study, which started in 1967 and comprises health information of more than 20.000 individuals who at present are older than 69 years. The study, which is collaboration between National Institute of Ageing (NIA) in the US and the Icelandic Heart Association started in the year 2001 and is estimated to continue through the year 2006.

A total sample of 8000 subjects is expected to be examined. The AGES Reykjavik study includes several aspects of human aging. The ageing of CNS and its postural control parts is thoroughly studied. Beside cognitive tests and MRI of the CNS, the focus is on following balance research:

1. Questionnaire regarding brain, inner ear and balance problems.
2. Motor functions test as timed up and go and 6 meter walk.
3. Strength in the lower extremities.
4. Posturography (force) platform, where four main tests are performed: a) chair stand b) quiet stands with open and closed eyes c) target hunting d) step test.
5. Hearing evaluation (PTA, impedens audiometry).

The results are as follows: The reaction time for both men and women decrease as well as the stabilization time in the chair test with increased age. Hearing thresholds in all frequencies tested

decreases with increased age in both ears. All data available is now under thorough investigation schedule, which can be coupled with all other fields of data, harvested in the AGES Reykjavík study.

The AGES Reykjavík study is one of the largest epidemiology studies in to ageing carried out.

Abstract no.: 039

In vivo visualization of endolymphatic hydrops in man

Pyykkö I, Zou J, Daspidar P, Bjelke B
Department of Otolaryngology, University Hospital of Tampere

The recent magnetic resonance imaging (MRI) technique has made it possible to examine the cochlear compartments by using Gd- DTPA-BMA contrast agent. As the Gd- DTPA-BMA does not enter into the endolymph but loads the perilymph the technique provides possibilities to visualize the different cochlear compartments and the tightness of the endolymphatic compartment. The purpose of the study was to evaluate possible changes of the cochlea in Meniere's disease using MRI in man. The contrast agent was injected in the middle ear cavity 2 h before MRI.

In all subject after 2 hours Gd could be traced in the basal turn of the cochlea as well as in the vestibulum. The fine structure of the three partitions of the basal turn of the cochlea was visualized with MRI in three subjects as Gd appeared mainly in scala tympani and vestibuli. In one subject the scala media was filled with Gd. After 12 hours in one subject the Gd had reached the apex whereas in most subjects the Gd-DTPA-BMA filled the second turn.

Endolymphatic space and hydrops can be visualized by using Gd in man and it is possible to quantify the tightness of the scala media.

Abstract no.: 040

Inner ear conductive hearing loss: audio-vestibular and radiological findings

Karlberg M, Annertz M, Einarsson EJ, Johansson L, Magnusson M
Lund University Hospital

Inner ear conductive hearing loss is defined as a consistent conductive hearing impairment without signs of tympanic or middle ear problems. The underlying pathology has previously been hard to explain. Recent progress in vestibular testing and radiology has made it possible to define a patient population with inner ear conductive hearing loss due to an abnormal 'third window' to the inner ear.

The patients have a combination of the following findings: low-frequency conductive hearing loss (250-1000 Hz), bone conduction hyperacusis at 250 and 500 Hz (0 to -10 dB), positive Weber if a tuning fork is placed on the ankle!, normal auditory reflexes and normal vestibular evoked myogenic potentials (VEMPs, a test of saccular function) despite the conductive hearing loss, auditory reflexes and exceptional low VEMP thresholds on the affected ear.

Temporal bone CT findings include: superior semicircular canal dehiscence, large vestibular aqueduct and Mondini-like cochlear dysplasia.

Conductive hearing loss patients with the above combination of audio-vestibular findings should be examined with high-resolution temporal bone CT scans, as this might spare the patients from having unnecessary middle ear surgery.

Abstract no.: 041

Long term outcome of facial palsy in neuroborreliosis

Dan Bagger-Sjöbäck, Sten Remahl, Margareta Ericsson
Department of Otolaryngology, Karolinska Hospital, Stockholm, Sweden

Facial palsy is commonly occurring as a result of a borrelia infection. Thus, in children with manifest borreliosis facial palsy has been found in about half of the patients. The prognosis has so far been considered favourable with total regression of facial symptoms after three months in a majority of cases. This issue has, however, to some degree, been challenged by the results of a survey performed in all children in the greater Stockholm area, treated for neuroborreliosis during three years in the mid nineties. Thirteen percent of the questioned children responded that they had some residual symptoms of their facial palsy, three to five years after the borrelia infection. These 13 children were called in and investigated with a clinical examination as well as with neurophysiological methods i.e. EMG and electroneuronography, in order to assess their facial function. Eleven children in the surveyed group that had responded that their facial palsy was totally cured were called in as controls. When examined clinically, nine of the thirteen children with claimed residual symptoms were graded as House-Brackmann grade II of facial palsy whereas four were seen to have normal function. In the control group two of the eleven children had some slight degree of residual palsy (HBII). The electrophysiological results indicated that about half of the children in the residual palsy group had abnormal values, which interestingly also was the case in the control group. In conclusion, it has been shown that children with previous neuroborreliosis and facial palsy in a small percentage retain clinical and electrophysiological signs of a slight facial palsy.

Abstract no.: 042

Value of imaging studies in vertiginous children: a retrospective study in a Helsinki University ENT clinic

Niemensivu R, Pyykkö I, Kentala E
Helsinki and Tampere University Hospital, Finland

Background: The diagnostic work-up in vertiginous children is challenging. The most common reasons for dizziness in children are benign paroxysmal vertigo (BPV) and migraine-associated dizziness. A retrospective chart review carried out in a tertiary referral center in the Helsinki University Central Hospital ENT clinic to determine the value of imaging studies in evaluation of vertiginous children during a 1-year period.
Subjects: 1300 children aged from 0 to 17 years, underwent either computer tomography (CT) or magnetic resonance imaging (MRI) examination during the study year.

Methods: Patients were identified from the hospital radiology department's database. All referrals to CT or MRI during the study year were analyzed. The number of examinations done due to vertigo was calculated and positive diagnostic findings are reported. Possible clinical signs predicting deviant CT or MRI finding were identified. The data was stored in the database and the SPSS program applied for statistical analysis.
Results: Benign paroxysmal vertigo, migraine-associated dizziness, vestibular neuronitis, and otitis media-related dizziness are major causes for vertigo in children. Diagnosis in vertiginous children is based on a careful history including family history and neurological and otorhinolaryngologic evaluations. Imaging studies are often done to exclude central causes for vertigo. The number of studies done for vertigo in children is reported and related to the annual number of vertiginous children visiting the hospital. The possible predictors for deviant findings are listed and discussed.
Conclusions: There are seldom positive findings in CT or MRI in vertiginous children.

Abstract no.: 043
Effect of visual and postural perturbation in VR-posturography

Toppila E[1], Pyykkö I[1], Forsman P[2], Tossavainen T[3], Starck J[2]
[1]Department of Otolaryngology, University of Tampere, [2]Finnish Institute of Occupational Health – Department of Physics, [3]University of Tampere, Department of computer science.

With virtual reality (VR) technique the balance can be tested with unconventional visual and postural perturbations. The advantage is that the testing situation becomes more realistic and capable of revealing valuables information about the performance of postural system. It is possible to use visual stimuluation, postural stimulation or combined visual and postural stimulation. The combined stimulus consists of 30 s period with visual and postural perturbations are in phase and 30 s period when the perturbations are 180 degrees of phase. The transition from one phase to the second one occurred at a zero crossing of stimuli. 45 healthy controls and 106 patients with Meniere's disease were tested on the VR-platform. For both groups the sway velocity during the off-phase perturbation decreased in average by 10%. Among Meniere patients the relative change distribution (skewness = 0.54) was different from the distribution of controls (skewness = -0.94). This indicates that the Meniere patients have a different tendency of changing strategy than control when the perturbation changes. The visual dependence varies in among Meniere patients that may explain the periodic visual visual dominance that may lead to falls.

S-IX ALL EARS

Abstract no.: 044
Otitis Media – flexible approach based on pathogenesis

Michael M. Paparella, M.D. Director, Otology/Neurotology Fellowship, Minnesota Ear, Head & Neck Clinic, Director, Otopathology Laboratory, Clinical Professor and Chairman Emeritus, Department of Otolaryngology, University of Minnesota, International Hearing Foundation

To a significant degree our surgical approach to the various forms of otitis media is based on our understanding of pathogenesis. Pathogenesis includes etiology at the outset, which through mechanisms and processes leads to a pathological state which, when accompanied by symptoms, allows the patient to present him or her self to the physicians for consideration of treatment. The common fundamental of most forms of otitis media in terms of individuals, has to be with genetic factors that can lead to eustachian tubal dysfunction.

As we have published in numerous articles, the otitis medias with effusion (OME) are represented by three types, acute perilymph otitis media (POM), serous otitis media (SOM) and mucoid otitis media (MOM). It is the mucoid form of otitis media (MOM) which along with other factors, can lead to chronic otitis media. The otitis medial with effusions are characterized by intractable liquid pathology whereas once along the continuum when mucoid otitis media becomes chronic otitis media the disease is characterized by intractable tissue pathology characterized by the presence of 1) cholesteatoma, 2) granulation tissue and/or 3) cholesterol granulation tissue. In addition, we find genetic factors leads to a variety of obstructive condition. In addition to the well established and understood fact that most forms of chronic otitis media, particularly those starting in childhood, have hypo pneumatization of the mastoid air cell system, we have found that most patients with chronic otitis media also have obstructive sites in hypoplastic middle ear, in the external auditory canal as well as in the mastoid, all of which play a role in developing and treating chronic otitis media.

As part of this continuum we have published and also find in many patients that chronic otitis media characterized by intractable tissue pathology can often occur beneath an intact tympanic membrane which belies the belief that chronic otitis media as defined in all textbooks must have a perforation and a history of ottorhea. Another important consideration in chronic otitis media is the importance of middle ear/inner ear interaction. Again, in numerous publication s from our laboratories and others it is clear that otitis media in its various forms particularly when silent otitis media is present, can lead to inner ear manifestations including not only sensorineural hearing loss, but in some instances dizziness and vertigo in the absence of a classical cholesteatoma fistula. Techniques based on concepts of pathogenesis will be discussed and presented.

Abstract no.: 045
Natural treatment of acute otitis media

Kristinsson KG, Magnúsdóttir AB, Petersen H, Landspítali University Hospital, and Hermansson A, Lund University Hospital

With increasing resistance to antimicrobial agents, physicians and the public are looking for alternative treatments for acute otitis media. Such alternatives could significantly reduce antimicrobial consumption, especially by children. Although homeopathy has been used with some positive effects in the past, no studies have so far demonstrated a statistically significant effect. Antimicrobials cannot pass or diffuse through intact tympanic membranes, and therefore treatment through the ear canal is not advised. A recent study performed in Iceland may change this paradigm.

Essential oils are volatile and can have good antimicrobial

activity. We compared the effects of Ocimum basilicum and essential oil components (thymol, carvacrol and salicylaldehyde) to placebo, placed in the ear canal of rats with experimental otitis media caused by pneumococci or Haemophilus influenzae. The progress was monitored by otomicroscopy and middle ear cultures. The treatment cured 56-81% of the rats infected with H. influenzae and 6-75% infected with pneumococci as opposed to 5.6-6% for the placebo group.

Essential oils or their components placed in the ear canal can provide effective treatment of acute otitis media. If toxicity studies confirm the safety of microbicidal essential oil components for the ear, a significant advance can be made in the treatment of acute otitis media.

Abstract no.: 046

Primary Stapes Surgery 'A Personal Learning Curve'

Oates J, FRCS, Consultant Otologist, Queen's Hospital, Burton on Trent and Birmingham Heartlands Hospital, UK

The presentation will focus on the vein grafting technique for stapes surgery. Appropriate surgical instrumentation, use of the KTP or Argon laser probe and technical considerations will be discussed. It will describe the step by step technique to confirm the diagnosis and perform safe and efficient stapes surgery for Otosclerosis. Simple but essential practical tips and tricks employed to maximise results, which can be applied elsewhere in ossicular surgery, will be described reinforced by illustration with multimedia presentation using a combination of high resolution photos and video. Personal experience will be detailed with particular emphasis on the 'learning curve', failures and lessons learned.

S-X THE SURGERY OF LARYNX

Abstract no.: 047

Use of CO_2 laser acublade for endoscopic microsurgery of pharyngo-laryngeal benign lesions

Remacle M, Department of ORL – Head & Neck surgery, University hospital of Louvain at Mont-Godinne. Belgium

From its inception, CO_2 laser was created for surgery. CO_2 laser is still the surgical workhorse when tissue incision or vaporization with minimum concomitant collateral damage is required.

Scanner applications now range from vaporization to incision.

By means of a computer-guided system of rotating mirrors, the scanner allows the beam to sweep a given surface with extreme rapidity. This feature makes it a very effective tool when macroscopic vaporization is required. A 'shaving' effect a few microns deep is achieved during each beam sweep with very little in-depth thermal penetration.

The Acublade® is a scanner software modification that allows the beam to travel across the target as a straight or curved incision line instead of 'shaving' a given surface. Various lengths (range: 0.5-3.5mm) and penetration depths (range: 0.2-2mm) are programmable. The operator can, at all times, modify the parameters proposed by the laser.

Because the sweeping speed was constant, the energy distribution was uniform along the entire length of the line. This ensured a more even incision and an improved hemostasis in comparison with the results achieved using the manually guided beam.

Microscopic examination of the incision edges revealed that the Acublade® causes less charring than a manually guided beam. The coagulation thickness at the resection margin is clearly smaller than that obtained with the Acuspot® alone. This finding was observed with the phonomicrosurgical procedures, where coagulation thickness averaged 50µ.

The Acublade® reduces the operating time, at least for relatively long procedures in continuous mode and where laser is practically the sole instrument employed. It is more difficult to demonstrate the time gain for phonomicrosurgery where operative maneuvers (such as exploration and palpation) and intraoperative inspection of the surgical steps represent most of the time spent.

We did not observe any Acublade®-induced intraoperative or postoperative complication.

Abstract no.: 048

Pitfalls in medialization thyroplasty

Hans Mahieu, Amsterdam, The Netherlands

Laryngeal Framework Surgery (LFS) is functional surgery per definition, aimed at improvement of voice. It should therefore be performed under local anaesthesia, enabling monitoring of the voice as well as endoscopic evaluation of vocal fold position during phonation.

The most common cause of failure is inadequate monitoring or misinterpretation of the monitored parameters. Most often under-correction occurs, either because of reluctance to perform additional arytenoid adduction, or because of failed recognition of a sub-optimal position of the contra-lateral vocal fold, requiring contra-lateral medialization thyroplasty.

When in doubt concerning undercorrection: perform additional arytenoid adduction. The combination of medialization thyroplasty and arytenoid adduction is most effective to correct larger glottic gaps. Also the possibility of correction of vocal fold tension, e.g. by means of additional crico-thyroid approximation is often neglected.

The second most common cause of failure is inadequate design of the cartilage window in medialization thyroplasty. Especially posteriorly there may be a tendency for too high design of the window, medializing the ventricular fold in stead of the vocal fold. In a posteriorly too low designed window is medialization is restricted by the cricoid cartilage. Both situations can be recognized endoscopically as failing medialization of the vocal fold.

The third most common cause of failure is anterior dislocation or over-correction of the cartilage window, which is recognized by a strained and pressed phonation and anterior bulging of the vocal fold. This can be corrected by attaching a suture to the anterior part of the cartilage window for anterior fixation in the correct position.

Severe complication are rare, but airway obstruction

necessitating tracheotomy can occur, especially in patients under anticoagulant therapy. Therefore drainage and observation for at least one night is advocated in all but the simplest (crico-thyroid approximation as isolated procedure) LFS procedures.

Abstract no.: 049

Surgical treatment of sulcus vocalis

Roland Rydell, Phoniatrics/ENT, Lund, Sweden

Sulcus vocalis is a form of advanced vocal fold pathology. It is frequently difficult to detect with indirect laryngoscopy and often the diagnosis is not evident until microlaryngoscopy is performed. Sometimes a typical voice deviation may lead to the suspicion of a sulcus vocalis.

Long term voice therapy is the first treatment, but surgery may be indicated after intensive discussion with the patient. I Lund we have experience with three different methods. Excision of the sulcus sack according to Dr. Bouchayer, slicing mucosa according to Pontes and Behlau and dissection of the sulcus at the ligament border have been used.

In a pilot study the outcome of the 3 different methods will be compared.

Abstract no.: 050

Management of external laryngeal trauma

Richard Kuylenstierna, Sweden

Abstract missing

O-IV THE TROUBLESOME MIDDLE EAR

Abstract no.: 051

Treatment of Acute Otitis Media in Sweden today.

Hermansson AK, Jonsson P. Department of Oto-rhino-laryngology, University of Lund, Lund, Sweden

Background: In 2000 new Guidelines for treatment of Acute purulent Otitis Media (AOM) in children were issued in Sweden. In these guidelines recommendations were given for diagnostic methods and criteria, treatment and follow up. Until these new guidelines were given the recommendation in Sweden was that all AOM should be treated with antibiotics. Now the possibility to abstain from treatment was given in certain instances.
Objective: To study if these new guidelines have been accepted and if they have changed the treatment pattern. At the same time the type of antibiotics prescribed and the diagnostic methods used was recorded as well as the microbiology.
Methods: All children with AOM seen during the six 'winter months' in 2001/2002 at the outpatient clinics of the ENT-department and Paediatric department at the University Hospital in Lund and at two Outpatient-clinics were recorded retrospectively. In all, 474 patients were included. When the treatment recommendations of the new guidelines were applied a total of 167 patients fulfilled the requirements for 'non-treatment'. Type of treatment, treatment failures, microbiology, age, sex and number of previous infections were recorded.
Results: The recommendations concerning type of antibiotics, length of treatment and check-up were closely followed. A total of 15 patients (9%) were not treated at the first visit.
Conclusions: New guidelines should be monitored and it is important to discuss how to present them to physicians and patients. The treatment policy and the microbiology closely resemble the earlier results in Sweden.

Abstract no.: 052

Adenotonsillectomy and ventilation tube insertion in Norway: a national study

Karevold G, Kværner KJ, ENT-department, Akershus University Hospital, University of Oslo, Norway

Background: Adenotonsillectomies and ventilation tube insertion are the most common operative procedures in children. Considerable variation in surgery rates has been shown. The range of surgical combinations in the treatment of secretory otitis media is an example of the variability in surgical approaches.
Objectives: To compare regional and national rates of adenotonsillectomy, tympanotomy and ventilation tube insertion, and combinations of these, in children less than 16 years of age using the Nomesco Classification of Surgical Procedures.
Methods: National Norwegian data on outpatient and inpatient otolaryngologic surgical procedures in 2003 were used to estimate rates of adenotonsillar surgery and ventilation tube insertion and combinations of these in Norway.
Results: In Norway, approximately 1% of all national surgery was childhood otolaryngologic surgery. Large regional variation in surgery rates and procedural combinations were shown. Regional comparisons will be presented and discussed in terms of existing guidelines and national priorities.
Conclusion: Considerable variation in surgery rates was found.

Abstract no.: 053

Five-year follow-up of transmyringeal ventilation tube treatment

Knutsson J, von Unge M, Dept of Otorhinolaryngology, Västerås Central Hospital, Sweden

There are several different types of transmyringeal ventilation tubes with various shapes, sizes and materials. Little is known about the differences as for the time to extrusion, percentage of retained tubes and persistent perforations.

We retrospectively reviewed the charts of 156 tympanic membranes for five years following the insertion of single-flanged straight ventilation tubes.

The mean time to extrusion was 16 months, which is equivalent to other types of tubes. 17 percent of the tubes were removed due to being retained too long. The number of retained tubes that called for an operative removal was much higher than reported for other kinds of tubes. Six tympanic membranes had a persistent perforation, which seems to be higher than reported for other

tubes, but the number of tympanic membranes included this far is too low for drawing any conclusions.

At five years postoperatively 30 percent of the ears still showed signs of Eustachian tube dysfunction.

These results are preliminary and are based on 156 ears only. At the meeting we will report a five-year follow-up of all ears treated with ventilation tubes inserted at Västerås central hospital in paediatric patients during 1998 and 1999.

Abstract no.: 054

Acute Intratemporal and Intracranial Complications of Otitis Media in Adults in Helsinki Hospital District

Leskinen K MD, Jero J MD, Department of Otolaryngology, Helsinki University Central Hospital, Helsinki, Finland

Objective: To establish the clinical picture, diagnostic procedures, current treatment and outcome of adult patients with acute intratemporal (ITC) and intracranial (ICC) complications of otitis media (OM).
Study Design: A retrospective chart review with a sent questionnaire.
Patients: Adult patients treated for acute ITC and ICC of OM over the past 10 years (1990-2000) in the study hospital.
Results: Thirty patients aged 16 to 75 years were treated. Seventy-three percent (22/30) of the complications were intratemporal and 27% (8/30) were intracranial. Mastoiditis was complicated by subperiosteal abscess, labyrinthitis and facial paresis in 14% (3/22), 18% (4/22) and 27% (6/22), respectively. Fifty percent (4/8) of the ICC cases were intracranial abscesses, 38% (3/8) were meningitis and 12% (1/8) were sinus thrombosis. The ear disease behind the acute complication was acute otitis media (AOM), chronic otitis media (COM) and COM with cholesteatoma in 70% (21/30), 17% (5/30) and 13% (4/30), respectively. Streptococcus pneumoniae and Streptococcus pyogenes were the bacteria most often found in the culture. Mastoidectomy was performed on 60% (18/30) of the patients. Permanent hearing loss occured in 30% (9/30) of the patients. One patient died for otogenic meningitis.
Conclusions: Severe complications of OM are rare in Finland. Operative treatment was performed on patients with intracranial complications and intratemporal abscesses. Complications of OM are still associated with great morbidity, and their early recognition forms the basis for effective treatment.

Abstract no.: 055

Association of clinical signs and symptoms with pneumococcal acute otitis media in children

Palmu A, Tampere School of Public Health, University of Tampere, Kilpi T, National Public Health Institute, Karma P, Department of Otorhinolaryngology, Helsinki University Central Hospital, Helsinki, Finland

The purpose of this study was to assess the possible differences in signs and symptoms of acute otitis media (AOM) between the major otitis pathogens and between different pneumococcal serotypes.

Altogether 831 children of the control group in the Finnish Otitis Media Vaccine Trial were prospectively followed from 2-24 months of age in special study clinics. AOM was confirmed by myringotomy and middle ear fluid aspirated for bacteriological analyses. Clinical symptoms and signs were recorded using structured questionnaires and case report forms.

During the follow-up, pneumococcus was culturable in 29.4% of 1819 AOM events. Pneumococcal AOM was associated with fever and earache more often than the events caused by other bacteria. Among the 479 serotyped pneumococci, the most common were 23F (21.7%), 19F (14.0%), 6B (12.9%) and 6A (10.0%); the serotype coverage of the currently available 7-valent conjugate vaccine was 61.2%. There were no major differences in the clinical presentation of AOM caused by different serotypes or groups.

So, the clinical presentation of AOM may become milder, if the role of pneumococcus as a causative agent will decrease (e.g. by vaccination). However, the potential changes in the serotype distribution do not alter the clinical picture of pneumococcal AOM.

Abstract no.: 056

Prediction of upper respiratory tract bacteria responsible for acute otitis media in children

Margaretha Foglé-Hansson[1], Ann Hermansson[2], Peter White[2]
Dept of otorhinlaryngology, Head and Neck surgery, [1]County Hospital, Skövde, [2]University Hospital in Lund, Sweden

Background: The bacteria causing AOM (acute otitis media) are Streptococcus pneumoniae, Haemophilus influenzae (NTHi), Moraxella catarrhalis and Streptococcus pyogenes. The aim of this study was to see if it might be possible to decide the causative bacterium by otomicroscopical appearance of the tympanic membrane.
Material and methods: Children suffering from AOM were included in this prospective study. The tympanic membrane was photographed, a prediction of the causative bacterium was made, a tympanocentesis performed and effusion taken for bacterial culturing. A nasopharyngeal specimen was also taken for bacterial culturing. Two different groups of bacteria were distinguished. S. pneumoniae constituted one group as opposed to H. influenzae (NTHi) and M. catarrhalis in the other.
Results: A total of 72 children were included in the study (38 boys and 34 girls, mean age 29 months). A correct prediction was made in 44/57, a false prediction in 13/57 (p=0.001). Cultures with no growth (5/72) and cultures with multiple growths (10/72) were not predictable.
Conclusion: Otomicroscopy performed by a skilled examinator is an effective tool! A more thorough clinical examination of the tympanic membrane in AOM might be an effective way to select patients for antibiotic treatment without risking a rising number of complications.

Abstract no.: 057

Increased incidence of acute mastoiditis in Icelandic children

Finnbogadóttir AF[1], Petersen H[1,2], Laxdal Þ[1,3], Guðnason Þ[1,3], Haraldsson Á[1,3]
[1]University of Iceland, Reykjavík, [2]Department of Ear, Nose, and Throat, Landspítali University Hospital, Reykjavík, [3]Children's Hospital, Landspítali University Hospital, Reykjavík

Background: Inappropriate antibiotic use exposes patients to potential adverse events and increases the prevalence of antibiotic resistant bacteria. During the past years studies have indicated that restricted use of antibiotics for acute otitis media may be associated with increased incidence of mastoiditis. The main aim of our study was to evaluate the epidemiology and treatment of mastoiditis in Iceland the past 20 years and its correlation with national antibiotic consumption in children.
Methods: Patients diagnosed with mastoiditis and admitted to the largest Otorhinolaryngology and Pediatric departments in Iceland during 1984-2002 were included. National information on antibiotic consumption of children (Defined Daily Dosage; DDD) during 1989-2002 was correlated with the yearly incidence of mastoiditis. Further information on diagnosis and treatment were obtained from the hospital charts of children admitted 1999-2002.
Results: Eighty four patients were diagnosed with mastoiditis during 1984-2002 and 52 of those were children (62%). Median age of the children was 2 years and 8 months and 58% were boys. Twenty eight children were diagnosed in 1999-2002, median age 2 years and 2 months. Fifteen children (54%) visited their general practitioner within a week before admission and were diagnosed as having acute otitis media. Antibiotics were prescribed in 73% of visits. There was a significant negative correlation between antibiotic consumption of children and incidence of mastoiditis during the years 1989-2002 ($r = -0,71$ og $p = 0,04$).
Conclusions: Following changes in treatment guidelines for various upper respiratory infections in children the antibiotic consumption af children decreased. At the same time the incidence of mastoiditis in children increased. Guidelines on appropriate antibiotic prescribing for children should emphasize increased awareness of possible serious complications, especially in young children.

O-V OTOLOGY

Abstract no.: 058

Residual cholesteatoma and recurrences, a study of 446 consecutively operated patients during 16-years

Anders Kinnefors
Dept of otosurgery, Uppsala University hospital, Uppsala, Sweden

Preservation of the posterior bony canal is still one of the most discussed subjects in cholesteatoma surgery today. In addition is obliteration of the mastoid cavity necessary or not.

We started in May 1983 to document every surgical procedure in cholesteatoma using a computer-based system. In this registry also patients with reconstructed radical cavities were included.

The first registration is made when the patient is to be operated. It includes audiometry, some relevant sick history, and actual local status of the ear and finally the surgical procedure. Than we have a control after 1, 3, 6 and finally 9 years postoperatively.

As the material includes all my operated patients during this period, the technique differs a little. I take down the posterior wall as a rule and obliterate every case if possibly. So far (February 2005) about 320 patients is followed for 6 years and about 275 for 9 years out of 446.

During this period I have reoperated 6 patients for a residual cholestatoma. If you look on the recurrent cholesteatomas they are more frequent. Most of them (80-90%) occurs into the obliterated cavity without any extension to the middle ear. One other peculiar thing is also that this retraction pocket almost never gives any suppuration, even if it is severely retinating. In the 6 year control (320 operated ears) 15 patients are reoperated for a recurrent cholesteatoma. Only one patient for a retraction to the middle ear.

After 9 years (275 ears) 12 are operated, one with extension to middle ear (the same patient as in the 6-year control). In this last 9-year control there were 8 patients more with a less severe retraction pocket to the middle ear, which not were needed to operate. Maybe in the future 1-2 will need an operation?

Abstract no.: 059

Cholsteatoma Surgery and Total Reconstruction. The Uppsala Concept

Lennart Edfedt
Dept of Otosurgery, Uppsala University Hospital, 751 85 Uppsala, Sweden

Techniques used in cholesteatoma surgery vary extensively in surgical centres worldwide. Different canal wall up/down strategies with various outcome are presented. Many authors have published papers with unacceptable large number of residual cholestatoma. Problems usually arise due to limited overview of important anatomical enclaves such as the tympanic sinus and facial recesses with sub-optimal eradication of keratin/matrix. Many still perform radical cavities sometimes due to difficulties to completely remove keratin, which may be diffcult or even impossible. 'Canal wall down/no reconstruction technique' offers many advantages such as good surgical overview of important anatomical landmarks with a low risk for residual disease needing surgical revision. It is easy to learn and less time-consuming. Disadvantages are self-retaining cavitites often with recurrent infections. In addition, water non-resistency and suboptimal hearing results is less favourable for the patient. Modern ear surgery introduced new techniques leading to preserved anatomy, water resistency and most often good hearing results. The so-called 'total reconstruction concept' used in Uppsala combines the advantages of both techniques. For optimal overview a radical cavity and removal of the posterior bony canal to the level of the facial canal (sceletonized) is performed. A meatoplasty is always made. Following meticulous keratin removal the canal wall is reconstructed with conchal or tragal cartilage and the mastoid cavity obliterated with crushed bone chips, musculo/periosteal flap and fibrin glue. Middle ear is reconstructed with temporal fascia and autologous

bone is used for the ossicular chain. Duration of surgery is usually around 4-5 hours. All procedures are documented in a computer-based follow-up program 1, 3, 6 and 9 years after surgery. The surgical technique will be demonstrated using video. Surgical results from over 450 patients will also be presented (Kinnefors et al.).

Abstract no.: 060

Changes in epidemiology and natural course of otosclerosis

Bretlau P, Dept. of Oto-laryngology, Head&Neck Surgery, Rigshospitalet, Copenhagen

The incidense of histologic otosclerosis and the course of clinical otosclerosis seems to change. Based upon human temporal bone examination the histologic incidense is lower than previously published data. Vaccination against measles, fluorisation of the drinking water and delivery later-on in life could be an explanation.

Data from the health authorities of the total number and the type of operation for otosclerosis in Denmark in the period 1977-86, 1987-96 and 1997-2003 were calcutated together with data from our last 241 cases operated for otosclerosis.

The results shows a nearly totally shift from stapedectomies to stapedotomies (small fenester) from the beginning of the 1980ths as the favorite technique and a reduction of the number og operations over time from 10.1 per 100.000 inhabitants in 1977 to 5.6 per 100.000 in 2003. In the same period a fewer cases showed clinical bilateral involved temporal bones. The clinical manifestation is postponed probably because women prefer delivery later-on in life.

Conclusion: there seem to be a change in the epidemiology in otosclerosis with a decline in clinical otosclerosis scheduled for operation and also in clinical manifestation of the disease.

Abstract no.: 061

Success and complication rates in otoscleros surgery

Karin Ågren M.D.,Ph.D, Dept of Otosurgery, Uppsala University Hospital, 751 85 Uppsala, Sweden

Stapedotomy (small fenestra technique) has become a routine technique in otosclerosis surgery in many surgical centres today mostly due to a reduced risk for sensorineural hearing loss. Stapedectomy, still used, may offer somewhat better audiological results in the low frequency area. The aims of the present study was to compare hearing results, complication rate and subjective results using a self-evaluation questionnaire one year following stapedotomy surgery. 140 patients were included with a mean age of 43 years. Stapedotomy was performed using a 0.6 mm diamond or a 0.5mm cutting sceeter drill and a Fish 0.4 mm teflon piston-wire prosthesis was used. Pre- and postoperative air-bone gap, air-conduction gain and post-operative bone-conduction change were assessed. Results from questionnaire and audiologic assessments were compared. In 90 % hearing results were reported as succesfull. In 6 % there was no difference and in 4% hearing was evaluated as less satisfying. This latter group will be presented and discussed in more detail.

Abstract no.: 062

Experience with the nitinol smart piston in stapes surgery

Bretlau P, Sørensen MS
Rigshospitalet, Copenhagen

Several different stapesprostheses have been developed and used since John Shea made the first stapedectomy in 1956. For a succesful hearing result in stapes operations the crimping procedure of the piston to incus is a crucial one. In trying to minimalize inner ear trauma during stapedotomies a new piston has been developed.

Closure of the piston around the long proces of the incus is based upon a non-touch t echnique by heating the piston with Argon or CO_2 lasers or by bipolar cautery. The material is nitinol, a nickel-titaneum alloy and fluoroplastic.

In 44 consequetive cases of stapedotomies this new device has been used and the results are compared with the classic crimping technique using a forceps. No difference in closing the air-bone gab was registred comparing the two techniques and there were no cases of inner ear hearing loss.

Conclusion: this new prosthesis makes the crimping procedure during stapedotomies easier and less traumatic to the inner ear. The advantages and disadvantages using this new prosthesis will be discussed.

Abstract no.: 063

Preoperative imaging before cochlear implant. Discrepancy between CT and MRI findings

Mantoni M, Dirksen K-L, Hedegaard-Jensen J. Department of Radiology and ENT, Gentofte University Hospital, Copenhagen

During the years 1999 to 2004 a total of 183 cochlear implantations have been performed at the Gentofte University Hospital.

Preoperative imaging before cochlear implantation in our institution is high resolution CT scanning of the temporal bone, in the last two years supplemented in selected cases by MRI.

We identified 29 anomalies of the inner ear at CT.

Most common anomalies were Mondini abnormalities and Mondini variants. MRI with three dimensional FT-CISS image and MIP surface reconstruction was performed in some of these patients, and surprisingly sometimes revealed a normal membranous labyrinth. To our knowledge this phenomenon has not been reported previously.

Five patients with deafness after meningitis also had the CT study supplemented by MRI. The CT scan was normal while the 3D-MIP MRI showed subtle fibrous obliteration of the cochlea.

Illustrative cases will be presented and the results will be discussed,

Abstract no.: 064

Characterization of the fiber structures of the tympanic membrane

von Unge M, Västerås Central Hospital, Bagger-Sjöbäck D, Karolinska University Hospital, Knutsson J, Västerås Central Hospital

Background: Retraction of the tympanic membrane is one impor-

tant feature in development of cholesteatoma. We have previously shown that inflammation may cause a loss of stiffness in the tympanic membrane, which in a long-term, negative middle ear pressure situation may cause retractions.

Aim: To map the load bearing fibers in the normal situation and to monitor how they may change during inflammation. The patterns of the four most common collagen fiber types are assessed with immunohistochemistry.

Preliminary results from normal rat ear: staining was more intense for collagen types II and IV than for types I and III in the pars tensa and in the fibrous annulus. Staining was more intense for types I and II than for types III and IV in the suspending bony ear canal. Staining for types III was the most intense in the attachment of the fibrous annulus.

Discussion: This is the first study in a series of investigations aiming to shed light upon the mechanisms behind the patophysiology of cholesteatoma - perhaps the most important enigma of middle ear pathology. The first preliminary results of the mapping of the important stiffness bearing fiber structures of the tympanic membrane are presented.

S-XI THE SOUNDS OF LARYNX

Abstract no.: 065

Metacholine-test in evaluation of possible non-specific hyper reactivity in vocal tract

Lucyna Schalén, Viveka Lyberg Åhlander, Lars Malm, Roland Rydell, Department of Logopedics, Phoniatrics and Audiology, Clinical Sciences, Lund University, Lund, Sweden

The aim of the present study was to detect possible allergic disposition in patients complaining over hoarseness due to presence of irritant factors in their working- or living environment.

Subjects and methods: eleven adult patients and eleven age- and gender matched controls were tested. Standard allergy tests were negative. Metacholine solution in increasing doses (3,6,12 mg) or NaCl (three times) were sniffed on two separate occasions, with patient not knowing which substance was given. Subjective complaints, results of exam of nose and throat, nasal secretion, perceptual analysis of voice recordings and videolaryngostroboscopy were analysed before and after each sniffing.

Results: 9/11 patients reported sore throat, nasal- or breathing obstruction, 6/11 reported hoarseness as well after Metacholine as NaCl, and 2/11 became aphonic already after NaCl. All controls reported slightly increased secretion in upper airway after Metacholine and 9/11 also after NaCl, none among controls reported hoarseness. Grade of hoarseness, as perceived by a listener group, was somewhat higher in patients than in controls already before testing. Voice pressure increased significantly with increasing dose of Metacholine; however the similair change occurred also after repeated sniffing of NaCl. There were no detectable differences between patients and controls on videolaryngoscopy recordings after Metacholine and NaCl sniffing.

Conclusion: Sniffing of either NaCl or Metacholine may normally cause slight increase in nasal secretion. In some persons repeated sniffing of both substances may cause also additional respiratory and vocal symptoms, perceived objectively as increased voice pressure. It remains to investigate whether those symptoms express a real mucosal hyper reactivity or if they rather signify a protective reaction to fluid penetrating the upper airway.

Abstract no.: 066

Is lateralization thyroplasty an alternative for Botox treatment in adductor spasmodic dysphonia?

Hans Mahieu, Amsterdam, The Netherlands

Although botulinum toxin is still considered the golden standard for the treatment of adductor spasmodic dysphonia (ADSD), increasing numbers of patients are requesting an alternative to the life-long repeated botulinum toxin injections. Some are young patients who are appalled by the prospect of the life-long repeated injections, others experience a decreased response to the injections and most find it difficult to accept the periodic voice changes accompanying the initial paresis and the inevitable recurrence of spasmodicity after some months.

Lateralization thyroplasty, consisting of a lateralization of both thyroid ala following a vertical midline cartilage incision and consequently an anterior lateralization of both vocal folds, permanently prevents the occurrence of spasmodically 'pressed' phonation and sudden 'voice stops'. As all laryngeal framework surgeries these procedures are performed in local anaesthesia, in order to enable voice monitoring and to determine the optimal degree of lateralization. The aim of the procedure is to enable phonation with less effort, not to obtain a normal voice. The resulting voice will have a certain degree of breathiness as a result of the intentionally created anterior incomplete glottis closure. Patients have to realise that the voice will never be as good as during the optimal period in the botulinum toxine cycle, but the result will be permanent and it will certainly obtain the goal of reducing the effort to speak.

Experience world wide is rapidly increasing and the results in my personal series of 10 cases, the first case with a follow-up of more than 4 years, is very promising, although careful patient selection and counselling is essential, because of the breathy voice quality.

In those patients suffering ADSD, who experience psychological or voice problems, or ineffectiveness of botulinum toxin, lateralization thyroplasty can present a very good alternative.

Abstract no.: 067

Digital High Speed recordings in the clinic

Roland Rydell, Phoniatrics/ENT, Lund, Sweden

A complete phoniatric or laryngologic evaluation of a voice patient involves not only laryngoscopy but also control of the vibratory function. This has earlier only been possible by use of the stroboscope. High speed filming, due to cost and complexity, has been a research tool only. With the development of digital high speed systems based on ordinary PC's, the stroboscope has been challenged as the gold standard for judgement of vocal fold vibration.

With the high speed camera system developed in Erlangen, Germany, we have found that visual judgements of vibration and mucosal waves are fast and easy to perform. It is also possible to make kymograms and motion analysis in the clinical setting.

Abstract no.: 068

Transcutaneous autologous fat injection for unilateral vocal fold paralysis

Alkestrand B, ENT department, Hospital of Helsingborg

Unilateral vocal fold paralysis is not an uncommon condition. For many years it has been a therapeutic challenge.

There are three main therapeutic goals:

1. A less breathy voice.
2. An adequate expectoration.
3. Less aspiration to the bronchial tree.

Autologous fat is a near-ideal substance for vocal fold augmentation. It is readily available and easily harvested from the abdomen. It is a natural substance with the similar consistency to surrounding tissue and with no foreign-body reaction. Further more it is easy to inject and will give rise to a smooth free margin of the vocal cord. Mainly it is injected deep into the thyroarytenoid muscle of the paralyzed vocal cord, but can also be deposited more superficially in order to correct minor deformity.

The transcutaneus injection technique has several advantages: the procedure can be in an outpatient setting under local anaesthesia, simultaneous videolaryngostroboscopy while the patient is phonating enables the assessment of adequate injection volume.

The technique will be described in detail, including photo- and videodocumentation. Pros and contras concerning autologous fat / the transcutaneous technique – and results – will be discussed.

Abstract no.: 069

Laryngeal reinnervation after bilateral paralysis

Søren Fex

Established neuro-physiological facts to consider at re-innervation: It is the nerve which decides the muscle function, never the reverse. An innervated muscle fiber does not accept innervation by another nerve. After a damage to a nerve resulting in degeneration an ensuing regeneration will be random.

As at vocal fold immobility respiratory difficulties are the most important, after securing denervation, posticus muscle activity has been effected by implanting the phrenic nerve in the muscle, thus causing abduction at inspiration. This was first made on cats but nowadays also on humans with satisfactory results.

Abstract no.: 070

Vocal fold nodules; surgical vs non-surgical interventions

Mette Pedersen, MD, FRCS, Dr. Med. Sci. ear-, nose- and throat specialist, consultant phoniatrician, The Medical Centre, Østergade 18, Copehagen, Denmark *m.f.pedersen@dadlnet.dk*

Introduction: There is no evidence of any kind of treatment that has an effect on vocal nodules. The problem is that untill now no high quality prospective randomised blinded studies have been carried out, as shown in a Cochrane review by Pedersen and McGlashan in 2000(1). No evidence based results of speech therapy and/or surgery was found.

Methods and results: Two prospective pilot studies of vocal nodules were made based on the Cochrane review. In one study Voice-Related-Quality-Of-Life (VRQOL) was shown to be better after voice related treatment of infections, allergy and reflux, a small improvement was also seen after high quality medical voice hygiene advice. In the other (case-control) study, voice related medical treatment in Zagreb was compared with medical treatment in Copenhagen to show eventual geographical differences of the medical approach of treatment of related infections, allergy and reflux. GRBAS perception test and the Multi-Dimensional-Voice-Program as well as VRQOL were better after treatment in both places compared to controls.

Conclusion: It is necessary to re-evaluate the whole area of treatment of benign voice disorders because new measurement – and medical treatment – possibilities have been developed.

Reference

1. Pedersen M, McGlashan J. Surgical versus non-surgical interventions for vocal cord nodules, the Cochrane library, Oxford 2000.

Abstract no.: 071

Voice therapy and surgery for the MtoF transsexual

Jamie Koufman, MD, FACS, Director, Center for Voice and Swallowing Disorders of Wake Forest University and Professor of Surgery (Otolaryngology), Wake Forest University Health Sciences, Medical Center Boulevard, Winston-Salem, NC 27157-1034, Tel (336) 716-3876 or 716-8877, *jkoufman@wfubmc.edu www.thevoicecenter.com*

This presentation reviews female voice and speech characteristics and provides the participant with an approach to voice therapy. In addition, voice feminization surgical procedures are presented and discussed. The workshop outline:

- Voice is a very difficult issue for many transsexual women
- Common laryngeal and voice problems that affect transsexuals
- Significant differences between the natal male and female voices
- Anatomy and physiology of the larynx and voice: How the voice works
- Voice feminization surgical procedures: Surgery, yea or nay?
- Voice therapy: The elements of effective voice feminization
- Perils of the tracheal shave procedure
- New therapeutic options already on the horizon

S-XII THE FUTURE OF NORDIC OTORHINOLARYNGOLOGY

Abstract no.: 072

European Academy of Otorhinolaryngology – Head and Neck Surgery

Grénman R, Department of Otorhinolaryngology – Head and Neck Surgery, Turku University Central Hospital, Turku, Finland

The European National Societies of Otorhinolaryngology – head

and neck surgery founded the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) with the purpose 'to promote, to coordinate and to unify the advancement of ORL in Europe', which met for the first time in Paris 1988. With the establishment of EEC and later the European Union, it was necessary to 'harmonize and improve the quality of training of medical specialists in Europe'. Therefore in 1958 UEMS (European Union of Medical Specialists) was founded and in 1962 the ORL-HNS specialist section was formed. Different parts of our specialty found it useful to establish subspecialist organizations within ORL-HNS and thus organizations such as the European Rhinological Society (ERS) 1993, the European Laryngological Society (ELS) 1995, the European Association of Otology and Neurootology (EAONO) 1995, and the European Head and Neck Society (EHNS) 2005 were founded. With this background a need developed to coordinate the activities of these various organizations related to ORL-HNS which took its form in European Academy of Otorhinolaryngology – Head and Neck Surgery (EAORL-HNS). It was founded to bring together all European subspecialty organizations in collaboration with EUFOS and UEMS in order to provide harmonization and rationalization of courses, congresses, instruction sessions and teaching programs within Europe for affordable prices. As the world gets smaller and the importance of systematic specialist training and continued medical education increases, it is important for Europe to have an active organization for international collaboration. A meeting every fourth year on the European level is not anymore enough.

Abstract no.: 073

Follow-up evaluation of Finnish undergraduate education in otorhinolaryngology

Kentala E, Mattila PS, Nieminen J
Helsinki University Central Hospital, Finland

Background: Most course evaluations in medical schools are done immediately after the course, too early for students to assess its clinical relevance.
Objectives: To investigate how well the teaching objectives of an undergraduate otorhinolaryngology course meet the professional needs of MDs during their first years of work experience.
Methods: For all five Medical Schools in Finland, 907 MDs receiving their degrees in 1997, 1999 or 2001, received postal questionnaires on the coverage of diverse learning objectives in otorhinolaryngology. They were also asked to identify the three most valuable things they had learned and to specify topics inadequately covered. Data was stored to database and analyzed with SPSS statistical program.
Results: Of the 350 MDs replying (38%), most felt that coverage to be adequate. The most valuable content learned was related to everyday patient care, for example treating children with otitis media. Some advanced topics had been covered too thoroughly, while other more common ones (for example dry mouth and audiology) lacked sufficient coverage. Qualitative data on learning objectives is presented.
Conclusions: The follow-up evaluation helped us to identify key concepts that should be better taught to medical students, allowing us to develop courses and define the core curriculum in otorhinolaryngology.

Abstract no.: 074

Resident otolaryngologists' experience of medical errors differs from attending

Kentala E, Shah RK, Roberson DW, Healy GBH

Background: It is known that medical errors are an important public health problem. It is not known whether residents' experience of medical errors is similar or different from attending physicians, or physicians in non-teaching hospitals.
Objectives: The aim of the study is to define and categorize errors met in otolaryngology and to compare errors experienced by (1) Otolaryngologists in non-academic settings, (2) attending Otolaryngologists in an academic institution, and (3) resident Otolaryngologists in the same institution.
Methods: This study was carried out at Helsinki University Hospital. In the first phase two hundred otolaryngologists working in Finland were mailed surveys inquiring about the incidence and type of errors in the last six months. In the second phase residents and attending at the Helsinki University hospital carried a 'safety journal' and recorded errors daily. The residents were asked to write down a harm (potential / realized) or error that they saw and if they wanted, a potential solution to the harm.
Results: Fifty-eight otolaryngologists replied and 21% reported an error. Six residents and two faculty members kept the safety journal for a month. The most common error categorizations were surgical (knowledge/skill deficits), administrative, medication related, misdiagnosis or operating on wrong patient/surgery not needed.
Conclusions: Understanding the types of errors in different types of otolaryngology practices will be important for building a safe learning environment for residents and patients.

O-VI FROM EAR TO NOSE AND ALLERGY

Abstract no.: 075

Middle ear pressure regulation

Brattmo M, Tideholm B, Carlborg B, Dept of Oto-rhino-laryngology,
Malmö university hospital, Lund university

Middle ear (ME) pressure regulation can be studied with continuous measurement during daily activity and sleep in combination with tests of equilibration ability of the Eustachian tube. The pressure is measured directly through a tympanic membrane perforation and the ME seals off from the atmosphere with a hearing protector connected to a pressure transducer. Healthy ears had a mean ME pressure just below the atmospheric pressure during daytime while the pressure rose during sleep. Patients with chronic central perforation had a considerable negative mean ME pressure during daytime as well as a poor ability to equilibrate pressure through the Eustachian tube. An impaired ME pressure regulation capacity could be a reason for the inability of the perforation to heal or a consequence of the long exposure of

the ME to the atmosphere. To elucidate this question further we have measured healthy subjects with inserted ventilation tubes. The results showed that 10/18 subjects had a poor ME pressure regulation like patients with chronic perforation, while the other 8 subjects had a sufficient regulation capacity like the healthy ears without ventilation tubes. The results support the theory that opening the ME to the atmosphere deteriorate the ME pressure regulation capacity.

Abstract no.: 076

Otitis media in South Vietnam, prevalence and incidence in a rural community

Balle VH, Gentofte University Hospital, Dang SH
Pediatric Hospital # 1, Ho Chi Minh City, Vietnam

Objectives: Hearing impairment is a serious condition also in developing countries.The present study was intended to otitis media and during this improve patient treatment. procure epidemiological data of otitis media in South Vietnam and to train health personnel in diagnosing and treating
Methods: From existing vaccination lists every sixth person less than sixteen years of age in Can Giuoc area got an invitation letter to participate in the investigation.The candidates were examined by a team of ENT doctors using head lamp with lup glasses. Pathology of the tympanic membrane was registered on a flow sheet and entered inte SPSS software system.Chi square and Phi coeffecient were used.
Results: 2472 children age one through fifteen years of age were examined in spring and fall 2000.The cumulated point prevalence for acute otitis media was found to be 1,4% with a maximum of 6,6% at age 2.In the age group less than six years it was 2,8%. Chronic otitis media was found to have a cumulated prevalence of 1,2%.
Conclusion: It is concluded,that the Vietnamese Health System is able to detect and diagnose otitis media.Prevalence of chronic otitis media is lower than in a similar study completed 6 years earlier,probably due to improved standard of living and better health care.The study demonstrates,that also developing countries can provide adequate earcare if given proper training.

Abstract no.: 077

Hearing sequele of acute mastoiditis

Valgerður Rós Sigurðardóttir[1], Friðrik Guðbrandsson[1,2], Ingibjörg Hinriksdóttir[1,3], Ásgeir Haraldsson[1,4], Þórólfur Guðnason[1,4], Hannes Petersen[1,2]
[1]Læknadeild Háskóla Íslands, [2]Háls-, nef- og eyrnadeild Landspítala, [3]Heyrnar- og talmeinastöð Íslands, [4]Barnaspítali Hringsins

Introduction: Acute mastoiditis is an acute inflammatory disease of the mastoid process and a rare but serious complication of otitis media. Its incidence among Icelandic children increased significantly in the years 1984-2002, concurrent with a change in prescriptive patterns for AOM. The purpose of this study was to evaluate the clinical course of patients hospitalised with mastoiditis during the period and to investigate possible auditory consequences.
Subjects and methods: The clinical records of all patients admitted with a diagnosis of mastoiditis between 1984 and 2003 were reviewed. 54 patients fulfilled the following inclusion criteria: signs of AOM on otoscopy and unilateral local inflammatory findings over the mastoid process (pain, redness, and/or protrusion of the auricle) or signs of acute otitis media on otoscopy combined with roentgenographic findings of unilateral mastoiditis. The pure-tone thresholds of 31 patients at 0,25-8 kHz were determined for both ears, the contralateral normal ear acting as control.
Results: The 54 selected patients ranged in age from 3 months to 78 years, median 5,6 years. Eighteen children were younger than 2 years old. The review of the clinical records showed that 20 patients had no prior history of OM. Twenty-two patients had a history of recurrent AOM. Twelve patients had been diagnosed with AOM in the past, but not recurrently. Twenty-five patients had received antibiotic treatment for AOM in the last 10 days preceding diagnosis. Eight children had been diagnosed with AOM without receiving treatment in the 10 days preceding admission, 4 of them were younger than 2 years old. Thirty-nine patients presented with local inflammatory findings over the mastoid process evident on physical examination, while 15 were diagnosed with CT. The most frequently isolated pathogens were s. pneumoniae (19%), p. aeruginosa (19%), s. aureus (19%) and s. pyogenes (11%). Antibiotic treatment with or without myringotomy provided sufficient therapy in 68% of cases. Eighteen percent of patients suffered an extra- or intracranial complication during admission. Pure-tone audiometry demonstrated elevated thresholds (mean 7,58±5,84 dB HL (P=0,0063)) at 8 kHz on the ears with a history of mastoiditis compared to the contralateral normal ears. The pure-tone average (0,25-4kHz) was elevated by a mean of 2,94±3,45 dB HL (P=0,0458) on diseased ears compared to normal ears. When patients with histories of recurrent AOM were excluded, thresholds were similarly elevated, but the difference between ears was not statistically significant (mean PTA difference 2,73±5,47 dB HL, P=0,16, mean difference at 8 kHz; 5,94±8,77 dB HL, P=0,085).
Conclusions: Many cases of mastoiditis develop as a complication of a first episode of AOM. Antibiotic therapy for AOM is not always sufficient to prevent mastoiditis. However, we conclude that children younger than 2 years old should be treated for AOM as they are more prone to developing mastoiditis than older children with AOM. The audiometric findings provide some evidence that an episode of acute mastoiditis could lead to a permanent sensorineural hearing loss.

Abstract no.: 078

Intracranial complications of sinusitis

Stenkvist Asplund M[1], Bodestedt Å[2], Åström G[2], Salci K[3], Friberg U[1]
Departments of [1]Otorhinolaryngology, Head & Neck Surgery, [2]Radiology, [3]Neurosurgery, University Hospital, Uppsala, Sweden

Six young males, aged 14-31 years, were admitted to Uppsala University Hospital, Sweden, between November 2001 and June 2004 with sinogenic intracranial complications. Symptoms were fever (5 patients), headache, predominantly frontal (6 patients), vomiting (5 patients), scalp swelling (4 patients), and disturbances in consciousness (2 patients). Focal neurology included hemiparesis (2 patients), aphasia (1 patient) and seizures (1 patient). CT/

MRI revealed epidural abscesses (3 patients), posttraumatic frontal lobe abscess (1 patient) and subdural empyema (2 patients), one with osteomyelitis and Pott´s puffy tumour. Treatment included sinus trephination (5 patients), neurosurgery (3 patients) with removal of infected bone and subperiostal abscess in one patient, and antibiotics. Streptococcus milleri was cultured in the subdural empyema patients, Staphylococcus aureus and albus in two of the epidural abscess patients, and pneumococcus in the posttraumatic frontal lobe abscess patient. Epidural abscess patients recovered uneventfully, whereas minimal right-sided weakness and mild seizures were sequelae in one subdural empyema patient. Adolescents, especially males, are at risk for sinogenic intracranial complications, probably because of increased blood flow in the diploic veins. Early sinus trephination to obtain microbiologic cultures for guidance in determining antibiotic therapy and to eradicate the primary source of infection is important in these patients.

Abstract no.: 079

Foreign body bodies causing and prolonging hospitalisation in children 0-14 age: early results from the ESFBI Study

Gregori D[1], Snidero S[2], Morra B[3], Passali D[4], Corradetti R[2]
[1]Dept. of Public Health and Microbiology, [2]Dept. of Statistics and Applied Mathematics, University of Torino, Italy, [3]Dept. of Otorhinolaryngology, Hospital 'San Giovanni Battista', Torino, Italy, [4]Dept. of Otorhinolaryngology, University of Siena, Italy

Foreign bodies injuries are one of the leading cause of hospitalisation in children. The data of the ESFBI Study was the collection of European data about injuries due to foreign objects in children aged 0-14.

1852 cases of FB injuries of years 2000-2002 were collected in 17 European Countries and analyzed to under stand the impact of foreign bodies injuries on hospital management with particular reference to a prolonged length of stay, as defined by lasting al least three days. Most common removal technique used was endoscopies (68.1%), surgical intervention (3.6%) and other techniques (28.3%). A median LOS of 2 days (1,2 first and third quartile) was observed, with 24.5% of the children having a LOS of at least 3 days, with great variability among participating countries.

Organic foreign bodies are posing the higher risk for both being injured and having a longer length of stay. Among inorganic foreign bodies, coins are showing a higher incidence of injuries but a smaller severity as compared to nuts (OR of prolonged stay 0.29 - 0.15-0.57 CI).

Choking remains a major burden for children, and it still represent a significant challenge for the health care system in terms of life threatening and resources utilization.

Abstract no.: 080

Alcohol-induced upper airway symptoms: prevalence and co-morbidity

Andersson M, Greiff L, Nihlen U
Departments of Otorhinolaryngology and Respiratory Medicine, University hospital, Lund, Sweden

Little is known about effects of alcohol intake on the upper, nasal airways. The present aim was to examine the prevalence of alcohol-induced nasal symptoms (ANS) and to explore associations between ANS and other respiratory diseases. A postal questionnaire focused on respiratory diseases and symptoms was sent to 11933 randomly selected adult individuals. Subjects with ANS, n=316 (3.4%) received a second questionnaire focusing on this condition. 9316 (78%) subjects answered the first and 228 (72%) the second questionnaire. Two thirds of the subjects with ANS were women. Red wine and white wine were the most frequent triggers of ANS, reported by 83% and 31% of the subjects, respectively. Nasal blockage was the most prominent symptom, but also sneezing, nasal discharge, as well as lower airway symptoms occurred after intake of alcoholic drinks. Self reported physician's diagnoses of asthma, chronic bronchitis/emphysema, chronic obstructive pulmonary disease (COPD), as well as allergic rhinitis were more common in subjects with ANS compared with the general population ($p<0.001$ for all comparisons). In conclusion, ANS are common and are about twice as frequent in women than in men. ANS seem to be associated with important respiratory diseases such as asthma, chronic bronchitis, COPD, and allergic rhinitis.

Abstract no.: 081

Early life atopic eczema and the risk of allergic diseases and otitis media in children

Bentdal YE[1], Nafstad P[2,3], Kvaerner KJ[1]
[1]Akershus University Hospital, ENT-department, University of Oslo, Norway, [2]Department of General Practice and Community Medicine, University of Oslo, [3]Division of Epidemiology, Norwegian Institute of Public Health

Background: Clinical experience indicates that children with early life atopic eczema have an increased risk of developing allergic diseases later in life. It is not clear whether there is a similar association between early life atopic eczema and the risk of respiratory infections during childhood.
Objective: To assess the association between early life atopic eczema (0-6 months), allergic diseases and otitis media at 10 years of age.
Methods: A population based study of 3754 children born in Oslo in 1992/93, of which 2540 were followed from birth to 10 years. The current analyses are based on data from parental reported questionnaires with information on physician diagnosed atopic eczema at 6 months. Physician diagnosed lifetime asthma, allergic rhinoconjunctivitis, atopic eczema and the presence of allergy symptoms and otitis media the past year were collected at 10 years.
Results: At 6 months 16% of the children were reported to have experienced atopic eczema. Early life atopic eczema increased the risk of doctor-diagnosed asthma (odds ratio-OR: 3,6, 95% confidence interval: 2,5-5,2), allergic rhinoconjunctivits (OR: 3,5, 95% CI: 2,7-4,6) and atopic eczema (OR: 3,0, 95% CI: 2,2-4,0) at 10 years of age. A similar pattern was not found for the association between atopic eczema at 6 months and the risk of otitis media at 10 years (OR: 1,3, 95% CI: 0,90-2,1).
Conclusions: While there was a threefold increased risk of having asthma, allergic rhinoconjuntivits and atopic eczema at 10 years of

age in children with atopic eczema at 6 months, early life atopic eczema did not increase the risk of otitis media at age 10.

Abstract no.: 082

Digital analysis of skin colours after histamine skin prick test

Malm L, Dept. of ORL. Malmö University Hospital, Holm O, Dept. of Ophthalmology, Malmö University Hospital

The colours of the skin after a histamine skin prick test (SPT) were analysed with a digital image processing technique that increases the colour differences. Histamine SPT was performed on the volar side of the forearm of six students in the same way as in routine SPTs (10 mg/ml). Photographs were taken under standardized conditions with a non-digital camera every second minute until the 30th minute. The wheal (oedema) and the flare were easily seen by the naked eye both directly on the skin and on the photographs. Analysing the photographs with the digital technique (named LYYN) suggested zones of skin blood flow differences, not seen by the naked eye. Pharmacological aspects will be discussed.

S-XIII OUTPATIENT SURGERY IN OTORHINOLARYNGOLOGY

Abstract no.: 083

Subject Use of Coblation in ENT: Tonsils, Adenoids, Lingual Tonsils, Turbinates, UVPP and oral cancer.

Michael S. Timms FRCS Ed, FRCS Eng. Consultant ENT Surgeon, Blackburn, England

Aims: To demonstrate by video footage and verbal description, our initial experience with the use of Coblation and the Evac 70 wand, for the removal, of ENT soft tissue pathology in the above applications.

Method: A review of our large case series of tonsillectomies will be presented.

Using the above wand, designed for tonsil excision we have found that more radical traditional operations can be performed. Rather than shrinking turbinates by submucosal approach, a full turbinectomy down to bone can be performed with this wand with more dramatic results for airway improvement.

Similarly, footage of video will demonstrate a classical UVPP rather than the normal use of radiofrequency simply to carry out submucosal shrinkage, again with more reliable results in reduction of snoring.

We have developed radiofrequency adenoidectomy to the point where it is now a regular, rapid and reliable method of adenoid removal.

A case of lingual tonsil lymphoma with airway obstruction will be shown being eradicated prior to chemotherapy, using the same technology. This method is suitable for removal of all cases of enlarged lingual tonsils.

Finally, excision of a carcinoma of the lateral border of tongue will be shown and discussed.

Conclusions: After adopting and developing Coblation tonsillectomy as our routine method we have found that the same technology and versatile handpiece can be used with advantages for a wide range of ENT procedures, worthy of further study.

Abstract no.: 084

Tonsillotomy versus Tonsillectomy – advantages and risks

Hultcrantz E, Linköpings universitet, Ericsson E, Linköpings universitet, Graf J, Universitetssjukhuset i Linköping, Markström A, Andningsdispensären, Danderyd, Linder A, Akademiska sjukhuset, Uppsala

This presentation will compare the effects of partial resection of tonsils (TT) with regular tonsillectomy (TE) with respect to postoperative morbidity and long-term effects in three randomized studies.

The first study from Uppsala, consisted of 41 children with obstructive symptoms with no history of throat infections, randomized to TE or to TT performed with CO_2 laser [1]. A six year follow-up has recently shown equally good results for obstructive problems and no increased tendency for infections in the TT group [2].

The second study is from Linköping. Children, 5-15 years, with a history of snoring and a few to several tonsillitis were randomized to either TE (43) or TT (49) with RF-surgery. Surgitrone®, Ellman Int 1,7mHz was used. A video will be shown.

The TT group recorded less pain from the second hour and were back in school, pain-free three days earlier than the TE group. They used less analgesics than the TE group and did not loose weight postoperatively. The TE group lost a mean of 660g in 10 days [3].

One year follow-up showed the same positive effect on snoring for both groups, as well as the same number of infections. The TE group remembered their pain as a trauma.

The third investigation is ongoing: 60 patients between 16-25 years are randomized to TE or TT with RF. The patients can leave the hospital six hrs after surgery and their sick-leave is 'open', which allows them to go back to school or work before the one-week check-up. Preliminary results will be presented.

Conclusion: Removing the protruding parts of the tonsils seems to have as good effect on symptoms as a complete TE and can be done as outpatient surgery. With less postoperative morbidity, a health economic gain is achived. The Surgitrone® is easier to use and less costly than CO2-laser. Long-term follow-ups are necessary.

References

1. Hultcrantz E, Linder A, Markstrom A. *www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10628543*. Tonsillectomy or Tonsillotomy?-a randomized study comparing postoperative pain and long-term effects. Int J Pediatr Otorhinolaryngol 1999; 51(3): 171-6.
2. Hultcrantz E, Linder A, Markstrom A. *www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10628543* 2005. Long-term effects of Tonsillotomy (Partial tonsillectomy) compared to Tonsillectomy. Int J Pediatr Otorhinolaryngol. In press.
3. Hultcrantz E, Ericsson E. Pediatric tonsillotomy with the radiofrequency technique: less morbidity and pain. Laryngoscope 2004; 114(5): 871-7.

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Abstract no.: 085

Turbinate surgery by submucosal reduction techniques, as outpatient treatment under local anesthesia

Tvinnereim M, Bergen Sleep Center & EuroSleep Ltd., Bergen, Norway

Chronic nasal obstruction is a frequent symptom, thus being the complaint of a large number of patients in an otolaryngologic practise.

Although much attention is drawn to the septum and functioning of the nasal valve areas, the inferior turbinates represent intriguing structures often causing nasal stenosis.

They consist of a bony framework holding a stroma filled with arteriovenous channels into the middle of the nasal passage. Regulation is by the autonomic nervous system, and the function is to cause nasal obstruction with subsequent slowing of the nasal airflow.

In the outpatient setting objective assessment combined with application of decongestive vasoactive agent gives the diagnosis, and a trial of medical treatment (local corticosteroids, antihistamines, decongestants) are most often recommended before surgical intervention.

A wide variety of treatment strategies, from mucosal and stromal ablation to partial or subtotal turbinate excision has been advocated. Although most are effective in improving nasal airway passage, some leave the nose released from the regulating capacity.

In a review of the 13 most used treatments for this purpose through the last 130 years, Hol and Hiuzing concluded with intraturbinal reduction being the methods of choice.

These include chemical, electrical and diathermy coagulation, and among the most recently developed mucosal sparing techniques; microdebriding volume reduction and radiofrequency techniques with or without ionized field ablation.

These methods, their advantages as well as disadvantages, will be described and discussed also regarding the use in an outpatient setting being performed under local anesthesia.

Abstract no.: 086

The effect of Gabapentin on postoperative pain after tonsillectomy in adults

Søren Mikkelsen[1], Karen Lisa Hilsted[2], Pia Juul Andersen[1], Thomas Enggaard[1], Morten Hansen[1], Dorthe G Jørgensen[2], Jørgen Henriksen[2], Niels Christian Hjortsø[2,] Jørgen B. Dahl[1]
[1]Odense Universitets Hospital, [2]KAS Glostrup

It is well know that patients suffer from pain after tonsillectomy and that the treatment of these may be difficult. The pain typically reaches its maximum the 3th. and 4th. day after the operation but they may continue for two weeks. Several previously studies have shown that treatment of postoperative pain may present difficulties.

We would like to present the results of our study witch includes 75 patients. The patients were randomized in to two groups and were given either gabapentin or placebo. All patients were given a COX 2 inhibitor (Vioxx). We used a visual analog scale (VAS) and measured the postoperative pain two and four hours after the operation and the following five days. The patients were asked to fill out a booklet for the first five days after the operation in witch they used VAS to scored pain-level, ability to work, use of painkillers, sleep-quality and side-effects.

The study is just finished and the results of the study will be presented at the congress.

S-XIV VOICE THERAPY

Abstract no.: 087

'Speech therapist treatment of gender change'

Christina Askman, Sweden

Aspects to consider in communication therapy with transgender patients are the patients' conditions, expectations, and needs. In therapy, the speech therapist works with traditional voice therapy, including vocal hygiene, as well as with changes to different aspects of the voice, articulation, and non-verbal behavior. Comments are given on prognosis and outcome.

Abstract no.: 088

RoS-index – a Swedish Adjustment of Voice Handicap Index. An instrument for quantitative measurement of patients' subjective voice and throat symptoms

Viveka Lyberg Åhlander, Lucyna Schalén, Dep. of Logopedics, Phoniatrics and Audiology, University Hospital, S-221 85 Lund, Sweden. Phone: +46 46 17 17 56/ +46 46 222 31 55; *viveka.lyberg_ahlander@logopedi.lu.se*

In 1996 Jacobson et al developed the now well-known Voice Handicap Index, an instrument for describing and quantifying patients' subjective voice related symptoms. The VHI has thereafter been translated to several languages. We found, however, that some patients, although complaining of voice disturbances, appear to have problems related to the throat rather than to the larynx. We thus found it to be of interest to record these symptoms parallel with the VHI and added a 'throat-scale', designed as the original VHI subscales; ten questions within each subscale designed to quantify patient' self-assessment of various aspects of voice handicap. The 'throat-scale' consists of questions about throat-related complaints, not included in the VHI protocol, symptoms mainly related to supraglottal parts of the vocal tract. As in the VHI the patients were asked to rate occurrence of their symptoms as either 0= never occurring, 1=once in a while, 2=sometimes, 3=most of the time, 4= all the time. The protocol, 'RoS-index', was tested for reliability and validity in four groups of patients with voice disorders: phonastenia (N=20), functional dysphonia (N=20), benign lesion of vocal fold (N=41) and unilateral vocal fold paresis (N=20). As reference we used two groups of patients without primary voice disorders i.e. those with benign goitre (N=41) as well as out patients in the orthopaedic clinic with no voice complaints or diseases within the throat region (N=20). Ratings with grades 3 or 4 were considered as clinically relevant, since these described more persisting symptoms. The reporting of the higher grades also varied distinctly between the groups. Results from the testing and applying of the scales will be discussed.

Abstract no.: 089

Benefits of teaching voice amplification as related to subjective laryngeal symptoms and perceived voice quality in teachers

Valdís Jónsdóttir, Iceland

Loud speaking due to noisy working conditions is a common cause for teachers' voice disorders. One way to diminish the vocal load of teaching is to make use of technical equipment. This Icelandic study explores: (1) if the use of amplification in classrooms would diminish the teachers' experienced symptoms of vocal fatigue; and (2) whether there is a possible change in perceptual voice quality during a teacher's working day. Thirty-three teachers, from grade school to university level, voluntarily served as subjects. They used amplifiers while teaching for one week at least. After that, they filled out a questionnaire concerning their symptoms and experiences. The results showed that the majority of teachers found amplification beneficial. They found it easier to talk and experienced less fatigue. The few disadvantages were technical. For a perceptual analysis, three females and two males (mean age 51 years) with long teaching experience and three or more dysphonic symptoms during the term, had their speech recorded while teaching, with and without amplification. In the clinical examination, no pathological changes were found in the vocal folds. In both studies, the quality of the voices was esteemed better when amplification was used.

S-XV LIVE SURGERY

S-XVI WHAT'S REALLY THE NOSE FOR? THE VOMERONASALORGAN AND OLFACTION

Abstract no.: 090

Jacobson's organ in the Nordic countries

Malm L, Uddman R, Dept. of ORL, Malmö University Hospital, University of Lund

'Smell is the sense of memory and desire' (Rousseau 1712-1778)). The sense of desire is in most mammals localized to a small structure at the base of the vomer, the vomeronasal organ (VNO). This structure was discovered by the Danish anatomist, Ludvig Jacobson, who in 1811 described the structure in no less than 16 different mammalian species. He had several suggestions as to the function. Not the least did he suggest it to be a chemical sense organ. In Sweden, the anatomist Gustaf Retzius, at the end of the 19th century, corroborated earlier studies and further strengthened the suggestion that the VNO was a sense organ. Ivar Broman, Professor of Anatomy in Lund, published at the celebration of the 250 years jubilee of the Lund University, a monograph titled 'Das Organon Vomero-Nasale Jacobsoni - ein Wassergeruchsorgan'. He had studied a great number of mammalian species and confirmed that the VNO was present in the animals but not in man. This shows that only man among the mammals needs the whole CNS to experience desire.

Abstract no.: 091

The structure and function of VNO in mammals

Kjell B. Døving
IMBV, University of Oslo, Oslo, Norway

The vomeronasal organ is a chemosensory organ, also called 'organ of Jacobson' as it was discovered by the Danish anatomist L. Jacobson. In 1813 he described the organ as follows: 'It is located in the foremost part of the nasal cavity, in close contact with the nasal cartilage (septum), on the above-mentioned palatal elongations of the intermaxillary bone. It is so carefully concealed that it has avoided discovery by the very discerning eyes of several anatomists.' The long vomeronasal organ is enclosed in a cartilaginous capsule. The sensory epithelium covers one side of the organ's lumen; the other side is occupied by the so-called mushroom body, with a cavernous structure. The anterior part of the lumen opens to the nasopalatine duct. Via this duct, fluid can enter the lumen from the nose or the mouth. The primary sensory neurones end in the accessory olfactory bulb. The entry of chemosignalling fluids is often associated with a particular behaviour, flehmen. Horses lift their heads, wrinkle their nose, lift their upper lips and stop breathing for a moment and then give a neigh.

Functional studies have shown that the organ mediates information about the social and sexual status of other conspecifics; indicating that the vomeronasal organ mediates information carried by pheromones. For example it has been shown that an intact vomeronasal organ is essential for successful reproductive behaviour in sexually naïve animals. Substances carried in the urine from dominant males can accelerate maturation of juvenile females and suppress maturation of juvenile males. In the presentation the anatomical and functional properties of the vomeronasal system that gives these biological effects will be discussed.

Abstract no.: 092

The olfactory sense and the VNO in man

Trotier D[1], Eloit C[1], Bensimon JL[2], Pernollet JC[3], Briand L[3], Døving KB[4]
[1]Neurobiologie Sensorielle, NOPA, INRA, F 78352 Jouy-en-Josas, France, [2]ENT, Hôpital Lariboisière, F 75010 Paris, France, [3]Biochimie Olfaction et Goût, NOPA, INRA, F 78352 Jouy-en-Josas, France, [4]Dpt of Biology, University of Oslo, Box 1051, N-0316, Norway

In humans, the vomeronasal organ is non-functional. Although our endoscopic observations revealed the existence of vomeronasal cavities at the base of the septum in many subjects, our immunohistological observations failed to reveal the presence of vomeronasal sensory neurones. In addition, other studies have failed to demonstrate vomeronasal receptor proteins VR1, vomeronasal transduction channels TRP2 or accessory olfactory bulbs; all features characteristic of a functional vomeronasal system.

Humans rely only on their olfactory system to analyse odorants and the olfactory sensory epithelium is restricted to a narrow passage at the upper part of each nasal cavity, namely the olfactory cleft. Patients with an impaired sense of smell verified in detection and recognition tests, had an obstructive pathology specifically located to the olfactory clefts as revealed by CT scans. Open olfactory clefts are essential for a normal olfactory function.

Little is known about the microenvironment of the sensory epithelium of the olfactory clefts. We found by mass spectrometry coupled with Edman sequencing, that only the mucus taken in the olfactory clefts contain odorant-binding proteins (OBP). These low-molecular weight soluble proteins have a hydrophobic ß barrel pocket where hydrophobic odorant molecules can be carried. We cloned one of the human OBP isoform (hOBP-2A). By measuring the displacement of several fluorescent probes trapped in the lipocalin pocket, we show that the protein is able to bind numerous odorants of diverse chemical structures, with a high affinity for aldehydes and large fatty acids. OBP are thought to participate in perireceptor events of odor detection by carrying, deactivating, selecting hydrophobic odorant molecules and, possibly, by interacting with the receptor proteins of the sensory neurones. Our discovery of human OBPs opens new perspectives about human olfactory perception and emphasizes the role of the olfactory cleft for odorant perception.

The olfactory bulbs are essential structures of the olfactory pathway. We have shown that the human olfactory bulbs can be observed using RMI, thus opening the possibility of examining more precisely their appearance in normal as well as in pathological (e.g. following a brain trauma) subjects.

From the olfactory bulbs, the information is sent to various brain areas. RMI and CT scans following brain trauma, coupled with measurement of olfactory performances, are useful to determine which brain regions are critical for processing olfactory information.

Our investigations illustrate that many aspects of the human olfactory system should be studied in more detail as pathology of the olfactory sense might have different origins.

Abstract no.: 093

Clinical considerations on olfaction

Brämerson A, Bende M
ENT department, Skövde, Sweden

Olfactory disorders can have a significant impact on our lives and it is therefore understandable that people with olfactory disorders seek medical service. We have focused on diagnostic methods for anosmia and hyposmia and will present our clinical experiences since 10 years.

These patients do have an impaired quality of life, which can be measured by different questionnaires and we have used the Nothingham Health Profile for that purpose.

Olfactory dysfunctions are not only seen among ENT patients. By a population-based study, an impaired sense of smell has been found in a general population with a prevalence of 19 %, with increasing with age. Diabetes and nasal polyps are risk factors for olfactory dysfunction.

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O-VII INNER EAR AND HEARING

Abstract no.: 095

Bone Anchored Hearing Aid (BAHA) in children, Before, Now & Next

Priwin C, Karolinska University Hospital, Granström G, Sahlgrenska University Hospital, Hultcrantz M, Karolinska University Hospital, Jönsson R, Sahlgrenska University Hospital

Introduction: The bone-anchored hearing aid (BAHA) concept is today widely established for both adults and children. The BAHA concept is suitable for patients with recurrent ear infections or ear malformations who cannot use ordinary hearing aids which operate altogether or partly in the ear canal.

Aim: The study evaluates how children with unilateral or bilateral conductive hearing loss can be rehabilitated for best hearing result.

Method: 36 children are grouped:

1. normal hearing
2. unilateral hearing loss unaided
3. unilateral hearing loss with unilateral BAHA
4. bilateral hearing loss with unilateral BAHA
5. bilateral hearing loss with bilateral BAHA
6. uni- or bilateral hearing loss with conventional bone conductor

Hearing tests are preformed, including baseline audiometry, tone thresholds in free field, speech in noise and directional hearing. Hearing function questionnaires are evaluated.

Results: Preliminary results show improved ability to hear speech in noise and obtaining directional hearing when children with unilateral hearing loss are fitted with a unilateral BAHA or when children with bilateral hearing loss are fitted with bilateral BAHAs.

Conclusion: In future unilateral BAHA should be considered in children with unilateral conductive hearing loss and children with bilateral conductive hearing loss should be offered bilateral BAHAs.

Abstract no.: 096

Can the damaged inner ear be replaced?

N. Petri Olivius[1], Zhengqing Hu[1], Charoensri Thonabulsombat[1], Mats Ulfendahl[1], Dan Bagger-Sjöbäck[1], Josef M. Miller[2]
[1]Department of Clinical Neuroscience and Institute for Hearing and Communication Research, Karolinska institutet, Karolinska hospital, PO Box SE-171 76 Stockholm, Sweden, [2]Kresge Hearing Research Institute, Ann Arbor, Mi., USA

Progress in techniques and strategies for tissue engineering has

initiated successful results in allografting and xenografting in many human organ systems. It is now possible to replace a large number of organs or tissues by using organic or non-organic materials. In the inner ear the cochlear prosthesis (CI) has initiated a new era of inner ear treatment as the damaged hair cells can now be bypassed. The function of the CI is however dependant of the integrity of the spiral ganglion cells (SGCs). Recent studies have illustrated that fetal dorsal root ganglion neurons (DRGs) implanted into the inner ear can survive and send axons towards the SGCs. Further, these axons have a tendency to approach the CNS. Stem cells implanted into the inner ear have migrated towards the cochlear nucleus, which can be stimulated by exogenous factors.

These findings demonstrate the feasibility of a new strategy to repair or replace the inner ear. Further, the future outcome of these experiments may lead to a replacement of the auditory nerve. If so, tissues implanted into the inner ear may regain auditory function in e.g. acoustic neuroma patients where the auditory nerve has been severed by the disease or its treatment.

Abstract no.: 097

Expression of TNF-α and VEGF in injured Guinea Pig Cochlea

E Toppila, J Zou, I Pyykkö
Department of Otolaryngology, University Hospital of Tampere

Transcranial vibration was applied for seven animals at frequency of 250 Hz for 15 minutes, and 5 animals were used as controls to investigate molecular mechanism linked to surgery-induced hearing loss in animal model. Compound action potential (CAP) was measured. Expression of tumour necrosis factor alpha (TNF-α) and its receptors (TNF R1, TNF R2), vascular endothelium growth factor (VEGF) and its receptors (VEGF R1, VEGF R2) were analysed. Vibration caused expression of TNF-α, TNF R1 and TNF R2 in the cochlea and the expression of TNF R2 was stronger than that of TNF R1. Vibration also induced VEGF and VEGF R2 expression in the cochlea. The average immediate hearing loss was 62 dB and after three days still 48 dB. Human cadaver experiments were conducted with drilling of the temporal bone with cutting and diamond drills of different size (1-6 mm). Responses were evaluated by measuring the skull vibration Noise level was measured at the external ear canal. Diamond burs caused less vibration and noise than cutting burs, but the difference was less than is generally believed. The drill revolution determined the hazardousness of the vibration. Temporal bone drilling causes high cochlear share forces, leading easily to damages of hearing.

Abstract no.: 098

Brain maps of promontorial stimulation in normal hearing

Vejby Mortensen M, Madsen S, Gjedde A
Aarhus University Hospital

Electrical stimulation with a transtympanic electrode on the promontory of the middle ear commonly is used to assess auditory nerve function prior to cochlear implantation in deaf adults. The promontorial test includes gap detection and temporal difference limen (TDL), a measure of discriminatory processing of sound duration. In a series of studies of objective predictive measures of outcome in cochlear implantation, we used positron emission tomography (PET) to map cortical activity in normally hearing subjects undergoing promontorial stimulation. We tested the hypothesis that the ability to discriminate short duration differences is correlated positively with activity in the right posterior temporal region. The stimulus was perceived differently by the subjects, suggesting variable stimulation of multiple sensory modalities, but this had no effect on brain activity. TDL raised blood flow in the posterior middle temporal gyri. This area is active during duration discrimination in different sensory modalities and in the perception of words containing manipulated phonemes. We conclude that recruitment of this part of the right hemisphere is important for comprehension of speech containing mostly temporal cues. The study also shows that stimulus-induced activation reflects the goal of the task rather than the nature of the stimulus.

Abstract no.: 099

Brain maps of promontory stimulation in cochlear implant candidates

Vejby Mortensen M, Madsen S, Gjedde A
Aarhus University Hospital

Prediction of outcome is a challenge to the field of cochlear implantation (CI). In previous studies, measures of gap detection and duration discrimination in the promontory test were shown to predict the extent of open-set speech perception accomplished after CI. Previous neuroimaging of normal hearing revealed a region in the right posterior temporal lobe that is crucial to duration discrimination and known to be active in CI-users capable of excellent speech perception. The present study tested the hypothesis that this area is recruited only by postlingually deaf CI candidates who are able to make subtle temporal discriminations in the promontory test. Fourteen postlingually deaf adult CI-candidates were stimulated in the ear chosen for implantation and altered cerebral activity was recorded with positron emission tomography as incremental 15-O-labelled water uptake. On stimulation with tone bursts, we found bilateral activity close to the primary auditory cortex in all subjects. In contrast, group-specific differences of brain activity emerged in the temporal tasks and the findings suggest that the ability to discriminate small duration differences, important for speech perception, can be evaluated preoperatively.

Abstract no.: 100

Endolymphatic hydrops and diplacusis – a case report

Brännström J, Malmö University Hospital, Grenner J
Lund University Hospital

Endolymphatic hydrops causes increased pressure in the endolymphatic sac, affecting the mechanical properties of the basilar

membrane. A conspicuous feature of endolymphatic hydrops (and Ménière's disease) is the presence of marked binaural diplacusis. Diplacusis is the altered pitch perception of a fixed pure tone presented alternatively in each ear. The normal value is about 1-5%.

We measured Fowler's test and diplacusis at 250 and 1000 Hz using portable equipment and randomized maximum likelihood sequential procedure. A normal hearing subject (woman, age 51) was first measured during 22 symptom-free days and was considered having normal diplacusis, as stated above, on average, though with a few uncharacteristic fluctuations. The same subject developed endolymphatic hydrops with tinnitus, fluctuant low frequency hearing loss and pressure in the affected ear 3 months after this first test period. The subject was measured again during 14 days and now displayed diplacusis intermittently in the range of -14% to 23%. In musical terms, this corresponds to more than three semitones. Only the results of the 250 Hz test tone displayed fluctuations in diplacusis which seem to agree well with previous modelling of pressure effects on the cochlea.