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Treatment Transformed
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### Scientific Program - ISHNOS 2015

**Thursday – 29 October 2015**

#### Session III: Advanced Larynx - Moderators: Dr. Appel, Dr. Guttman

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<td>15:25-15:40</td>
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<td>15:40-16:30</td>
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<td>Panelists: Prof. Bonner, Prof. Doweck, Prof. Feinmesser, Prof. van den Brekel</td>
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<td>16:30-17:00</td>
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<td>17:00-17:15</td>
<td>The Role of neoadjuvant treatment in advanced Periorbital BCC</td>
<td>Dr. Brisco</td>
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#### Session IV: Advanced Thyroid Cancer - Moderators: Prof. Feinmesser, Prof. Fliss

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<td>17:15-17:30</td>
<td>Changing Trends in Radioiodine Ablation-rhTSH versus Thyroid Hormone Withdrawal</td>
<td>Dr. Robenshtok</td>
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<td>17:30-17:45</td>
<td>Radiation for Advanced Thyroid; Fields and Indication</td>
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<td>Biological Treatment for Thyroid Cancer, Emerging role</td>
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<td>Panel: Thyroid Cancer - Moderator: Prof. Bachar</td>
<td>Panelists: Prof. Freeman, Dr. Hefetz-Khafif, Dr. Joshua, Dr. Meirovitz, Dr. Robenshtok</td>
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<td>The Greatest Hits of Beatles, 50-60’s.</td>
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<td>Time</td>
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<td>Larynx Cancer - Moderators: Dr. Bedrin, Dr. Niv</td>
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<td>Predictive Markers to Chemo-RT Outcomes</td>
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<td>09:40-10:00</td>
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<td>Minimizing Toxicity and Improving Outcome in Chemoradiation</td>
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<td>10:00-10:30</td>
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<td>Coffee Break &amp; Exhibition</td>
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<td>Prognostic Factors in Differentiated Thyroid Cancer Revisited</td>
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<td>X-ray Fluorescence-based Differentiation of Neck Tissues in a Bovine Model: Implications for Potential Intraoperative use</td>
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### Scientific Program - ISHNOS 2015

**Friday – 30 October 2015**

**Session VII: Salivary Gland Cancer**

**Moderators:** Dr. Mualem, Dr. Schindel

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<td>11:55-12:10</td>
<td><strong>Update Chemotherapy in Metastatic Salivary Gland Cancer</strong> - Dr. Urban</td>
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<td>12:10-12:55</td>
<td><strong>Panel Salivary Gland Tumor</strong> - Moderator: Prof. Talmi</td>
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<td></td>
<td><strong>Panelists:</strong> Prof. Fliss, Dr. Gluck, Dr. Ronen, Prof. Shpitzer</td>
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<tr>
<td>12:55-13:00</td>
<td>Closing remarks</td>
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<td>14:00-14:30</td>
<td><strong>The Approach to Central Compartment in Thyroid Cancer</strong> - Prof. Freeman</td>
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<td><strong>Conservative Open Laryngeal Surgeries</strong> - Prof. Piazza</td>
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<td>21:00-22:00</td>
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THE ISRAELI MEDICAL ASSOCIATION

THE ISRAELI SOCIETY OF HEAD AND NECK SURGERY AND ONCOLOGY
INVITED SPEAKERS
Invited Speakers

Prof. James A. Bonner
President, University of Alabama Health Services Foundation
Merle M. Salter Professor and Chairman
Department of Radiation Oncology
The University of Alabama at Birmingham, Alabama

James A. Bonner, MD, is the Merle M. Salter Professor and Chairman, Department of Radiation Oncology, the University of Alabama at Birmingham School of Medicine (UAB), Birmingham, Alabama. Following residency and chief residency appointments in the Radiation Oncology Department at the University of Michigan, Dr. Bonner joined the faculty at the Mayo Clinic, Rochester, Minnesota. He was a faculty member at the Mayo Clinic for 8 years prior to moving to the University of Alabama at Birmingham (UAB). While at the Mayo Clinic, the Mayo Fellows Association named him Teacher of the Year in Radiation Oncology in 1994 and 1996, and he was Co-Chair of the Lung Cancer Program of the Mayo-North Central Cancer Treatment Group (NCCTG) from 1994-1998. After moving to UAB, he has been a co-chair of the lung cancer program for the Eastern Oncology Cooperative group (2000-Present). At UAB, he co-chaired the Experimental Therapeutics section in the cancer center for 12 years (1998-2010). He is currently a Senior Advisor to the Cancer Center Director.

Dr. Bonner has had a long research interest in methods of enhancing radiosensitization such as combinations of chemotherapy or targeted therapy with radiotherapy. He was the principal investigator for the landmark trial of cetuximab and radiation in head and neck cancer (NEJM, 2006; Lancet Onc, 2011). His current laboratory interests are directed toward the development of single chain antibodies that target the epidermal growth factor receptor (EGFr) and can be delivered in a gene therapy approach. He is also interested in the therapeutic targeting of other proteins in EGFr signaling. He has been the principal investigator of several clinical protocols and has published more than 125 manuscripts. He is a fellow of the American Society for Radiation Oncology (ASTRO). He is a diplomat of the American Board of Radiology and the National Board of Medical Examiners.

After serving in many University leadership roles, Dr. Bonner was elected to be President of The University of Alabama Health Services Foundation (UAHSF); a $500 million per year 501c corporation. He served as President-Elect from 06/11 – 09/12 and currently is President.
Prof. Jeremy L. Freeman was born in Hamilton, Ontario and grew up in Toronto.

He attended medical school at the University of Toronto, graduating with highest honors. He completed his otolaryngology residency at the University of Toronto.

After receiving his Fellowship from the Royal College of Surgeons of Canada in 1978, he spent two further years of advanced training, one as a Gordon Richards Fellow at the Princess Margaret Hospital in Toronto in Radiation and Medical Oncology and a second year as a McLaughlin Fellow, training in Head and Neck Oncology at the Royal Marsden Hospital in London, UK.

He was the first fellow of the Advanced Training Council sponsored by the two head and neck societies.

A Full Professor, he occupies the Temmy Latner/Dynacare Chair in Head and Neck Oncology at the University of Toronto, Faculty of Medicine. He is Otolaryngologist-in-Chief at the Mount Sinai Hospital. He has an active practice focusing on head and neck oncology with a primary interest in endocrine surgery of the head and neck.

He has given over 500 scholarly presentations, has been invited as a visiting professor and surgeon internationally, and has published over 250 articles in the scientific literature. He has been involved in a number of administrative roles in the American Head and Neck Society and is also on the editorial board of a number of high impact journals focusing on head and neck oncology.

He has spare time to spend exercising, playing basketball, fly-fishing, traveling, collecting oriental rugs and vintage militaria, studying history and watching old movies. He is married to Elayne Bonnie Freeman, a graphic designer, and is the proud father of Lauren, Professor of Philosophy at the University of Louisville, Louisville, Kentucky and Allison, a fine arts graduate from Yale University and living in New York City.
Cesare Piazza, MD is Assistant Professor of the Department of Otorhinolaryngology – Head and Neck Surgery at the University of Brescia, Italy.

He received his MD degree at the University of Pavia and he completed his residency program in Otolaryngology in Brescia.

His clinical and research activities are focused on head and neck oncology, with special emphasis to laryngeal, tracheal, oral, and reconstructive surgery. Dr. Piazza is an active member of the European Laryngological Society since 2000 and part of its Scientific Council since September 2010. He is member of the European Board of Examination for Otorhinolaryngology – Head and Neck Surgery since November 2011.

He authored or co-authored 66 papers in peer-reviewed journals as well as 63 book chapters. He delivered 382 proffered papers and invited lectures in national and international Congresses and Courses.

He serves as Editor of the Current Opinion in Otolaryngology & Head and Neck Surgery journal for the Head and Neck Oncology issue since 2010 and is member of its Editorial Board since 2013.
Invited Speakers

Prof. Michiel W. M. van den Brekel
Chairman, Otolaryngology - Head and Neck Surgery, Antoni van Leeuwenhoek – Netherlands Cancer Institute, Amsterdam, the Netherlands

Biographical Sketch:
Michiel van den Brekel is Otolaryngologist-Head and Neck Surgeon at the Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital in Amsterdam since 2000. He received his Ph.D. at the Free University of Amsterdam in 1992 on assessment of lymph node metastases in the neck. He did a clinical research fellowship in the Netherlands Cancer Institute and the University of Toronto (Mount Sinai). He has published over 150 articles in peer-reviewed journals and co-authored 15 book chapters. He has been a Visiting Professor at Memorial Sloan-Kettering Cancer Institute in New York, MD Anderson Cancer Center in Houston and several other institutes in the world. His research is primarily focused on imaging and biology of head and neck cancer, developing prognostic markers, and in all rehabilitation aspects after treatment and especially total laryngectomy. Since September 2009 he is chairman of the department, and since December 2011 Professor at the University of Amsterdam for ‘Oncology-related voice and speech disorders’. Education & Fellowships:

* 1980-1987 Medicine at the Catholic University in Leuven (Belgium)
  - Doctoral, cum laude
  - Medical Degree, cum laude
* 1987: ECFMG degree (American Medical Degree)
* 1988-1990: Researcher for the Dutch Cancer Society in the Free University Hospital in Amsterdam (project: IKA 88-19: detection of lymph node metastases in the neck)
* 1990-1994 resident in training for otolaryngology at the Free University Hospital in Amsterdam, the Netherlands (Chairman: Prof. Dr. G.B. Snow)
* 1995-1996 clinical-research fellow of the Dutch Cancer Society
  - Until July 1995 at the NKI-AVL, Amsterdam, the Netherlands
  - From July 1995 until August 1996 at the Mount Sinai Hospital and the Hospital for Sick Children in Toronto, Canada
  - After August 1996 at the Academic Hospital Free University in Amsterdam
  - In October 1996 2 months in Kiel, Germany (Prof. Rudert)
Awards & Honors:

* European Federation of Otorhinolaryngological Societies Scientific award 1992
* Dutch ENT-Duphar year award 1993 for the thesis "Assessment of lymph node metastases in the neck, A radiological and histopathological study"
* Poster prize Dutch Society of ORL and Cervicofacial Surgery 1996: Assessment of tumor invasion of the mandible; a comparison of different imaging techniques
* 17 and 18 November 2004 visiting Professor at the University of Toronto
* October 2007: Lifetime Honorary Member of the Indian Foundation for head and Neck Oncology
* 19-21 December 2007: visiting professor at Memorial Sloan Kettering Cancer Center
* 2007- Scientific Advisory Board of the Polish Journal of Otolaryngology
* 2009- Associate editor of the Internacional Archives of Otolaryngology (Brazil, open Access)
* 2009- Member of editorial board of Journal of Oncology (open access)
* 2009- Member of editorial board of Oral Oncology
* 2010- Honorary Member of the Israeli Society of Head and Neck Surgery and Oncology
* 2014 Editorial Board of ISRN Radiology

2015 Member of the scientific advisory board 5th IAOO World Congress Sao Paulo, Brazil
ABSTRACTS
Abstracts

OCTO & NANOGENERIANS HEAD AND NECK ONCOLOGY PATIENTS

Authors: D. Sagiv\textsuperscript{1}, L. Bedrin\textsuperscript{1,3}, Y. Talmi\textsuperscript{1,3}, A. Dobriyan\textsuperscript{2,3}, R. Yahalom\textsuperscript{2,3}, E. E. Alon\textsuperscript{1,3}.

\textsuperscript{1} Department of Otolaryngology Head and Neck Surgery, the Sheba Medical Center, Tel-Hashomer, Israel
\textsuperscript{2} Department of Oral and Maxillofacial Surgery, the Sheba Medical Center, Tel-Hashomer, Israel
\textsuperscript{3} Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel.

Background: Life expectancy in Israel has risen in almost 6 years during the last 25 years. The geriatric group is the fastest growing segment of the population.

Objectives. Patient data of head and neck oncologic patients over 80 years old (oldest-old) were retrospectively reviewed.

Methods: The study group included all patients who were admitted for treatment of an oncologic disease in the Otolaryngology – Head and Neck Surgery (OTOHNS) and Oral and Maxillofacial Surgery (OMFS) departments in the Chaim Sheba Medical Center during a 5-years period (2009-2013). A matched number of patients aged 60-79 years old served as controls. Demographic data, diagnosis, underlying disorders, surgical intervention and complications were retrieved from patients' charts.

Results: Study cohort included 110 patients (131 admissions), aged 80-95 years. Mean length of stay was 6.14 days with no significant difference between the two age groups. 37 of 38 patients admitted in the OMFS department, had an oral cavity malignancy (97%). Skin (35.2%), larynx (22%) and thyroid (13.2%) cancer were the most common malignancies among the oldest-old patients admitted in the OTOHNS department compared with thyroid (20.2%), larynx (18%) and salivary gland (16.9%) malignancies in the control group.

Conclusions: Major head and neck surgery for skin cancer has become the most common cause of hospitalization in the OTOHNS department for the oldest-old patients. Potentially, more proactive outpatient screening and early intervention may decrease the number of patients requiring major surgery for these treatable malignancies. Age alone should not be a factor in the treatment of head and neck malignancies. No difference in the length of stay between the two groups may suggest a similar post-operative course.
Abstracts

LARYNGEAL CARCINOMA IN THE ELDERLY PATIENT

Amitai Nimrod, Alkan Uri, Stern Sagit, Hamzany Yaniv, Popovtzer Aron

Department of Otorhinolaryngology & Head and Neck Surgery, Rabin Medical Center, Petach Tikva, and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

Background: In the last few years there is an increase in laryngeal cancer in elderly population. Historically these patients have been treated in a palliative fashion. Lately it has been suggested that they should be treated as regular patients. In order to solve this dilemma we reviewed our experience.

Methods: We reviewed Rabin medical center’s oncological medical database for all patients ≥ 80 years diagnosed with malignancy of the larynx between the years 1992-2012. Information pertaining demographics, staging, treatment modality and long-term follow up were extracted from the medical records.

Results: Sixty six patients over the age of 80 were newly diagnosed with primary malignancy of the larynx between the years 1992-2012. Average age of diagnosis was 85 years, 95% were male and 81.5% were smokers. The primary site at presentation was glottic in 60 patients (91%), supraglottic in 5 patients (8%) and subglottic in 1 patient (1%).

The vast majority (73%) of patients presented with early local disease [T1 or T2] (48/66), while only 2 patients (3%) presented with node positive disease (3%). Forty eight patients (74%) were treated non-surgically (radiation or chemo-radiation), in all cases in a curative fashion as far as radiation, however only 15% of the advanced patient received chemotherapy. The remaining patients (26%) were treated surgically. Fourteen While 14 patients had disease recurrence only and 4 patients died due to the disease, 3 of them due to treatment complication and one due to distant metastasis. Median overall survival was 3 years and 9 months, while two year survival was 73% and five year survival was 45%.

Conclusion: Elderly patient population exhibited similar disease characteristics and outcome as younger patients. Most patients withstood aggressive oncological treatments which were once thought unsuitable for this age group. Management of malignancies of the head and neck in this age group should be tailored specifically to physiological and functional status of each patient regardless of their chronological age.
**LARYNGEAL CANCER IN YOUNG ADULTS- IS IT A DIFFERENT DISEASE?**

Yuval Nachalon\(^1,3\), Ohad Cohen\(^1,3\) Uri Alkan\(^1,3\) Jacob Shvero\(^1,3\), Dror Limon\(^2,3\) and Aron Popovtzer\(^2,3\)

1 Department of Otorhinolaryngology - Head and Neck Surgery and 2 Davidoff Cancer Center, Rabin Medical Center, Beilinson Campus, Petach Tikva; 3 Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv; Israel

**Background:**
Laryngeal cancer which usually develops in the 6th-7th decade of life and is mainly attributed to Tobacco and alcohol use, It is quite rare in young adults. Therefore the behavior and the optimal treatment in this unique group is unclear.

**Methods:**
A retrospective chart review of all patients under 40 years of age who were treated in a tertiary referral center for SCC of the larynx between 1960 and 2013. A comparison between patients who were treated before and after the Veteran’s study (VS) was published.

**Results:**
Twenty-nine patients, 21:8 male female ratio, were detected. Mean age at diagnosis was 35 +/-5 years. Only one patient reported of alcohol consumption and 59% were smokers. Mean pack years was 32 +/- 14.4 and had no significant effect on survival (p=0.3). The stage at presentation was T1 (38 %), T2 (17 %), T3 (28%), and 17% were T4. 69% had Glottic tumors and 31% supraglottic. Tumor grade was reported in 14 patients, 50% had G2 histology. 41% of patients underwent surgery, 72% were radiated and chemotherapy was administrated in 35% of patients. Overall survival (OS) for the entire cohort was 30.8 +/- 4.6 years. A comparison between patients treated before and after the VS demonstrated a higher 2 years laryngectomy free survival (LFS) rate, 60% and 78% respectively (p=0.009). The 2 years disease free survival rate was 93% for patients who were treated before the VS and 71% for patients who were treated after (p=0.001), however there was no significant change in OS (p=0.41).

**Conclusion:**
The characteristics and behavior of laryngeal carcinoma in young adults is similar to adults despite low prevalence of classic risk factors such as smoking and alcohol consumption. Higher rates of LFS was noted in patients treated after the VS with no significant difference in survival compared to patients who were treated prior to that study, Suggesting that the organ preservation concept should be applied.
THE ROLE OF SEPARATE MARGINS OBTAINING IN ENDOSCOPIC LASER SURGERY FOR EARLY GLOTTIC CANCER

Liron Yosef, MD a, Hagit Shoffel-Havukuk, MD a,b; Yonatan Lahav, MD a,b; Erez Shmuel Davidi, MD a; Yaara Haimovich, BSc a; Moshe Hain, MD a; Doron Halperin, MD a,b;

a The department of Otolaryngology Head and Neck surgery, Kaplan Medical Center, Rehovot.
b The Hebrew University, Hadassah Medical School, Jerusalem, Israel.

Objective: To further delineate the role of routinely obtaining separate surgical margins on local recurrence and outcome, in patients with early glottic squamous cell carcinoma (SCC) undergoing endoscopic laser resection.

Design and Setting: A retrospective case control study.

Subjects and Methods: 102 early glottic cancer patients staged Tis-T2, who underwent endoscopic laser surgery with curative intent as first treatment. Separate margins (from the surgical bed) were obtained following complete tumor resection in 64 patients (63%). In 38 patients (37%) no margins were obtained. Hazard Ratio (HR) for local recurrence, repeated endoscopic interventions and local control by endoscopic treatment alone were measured.

Results: Margin obtaining showed reduced risk for recurrence, adjusted HR=0.439 (P=0.096). Margin obtaining also showed reduced risk for repeated endoscopic interventions, adjusted HR=0.611 (P=0.109). There was no difference in local control by endoscopic treatment alone.

The patients with obtained margins were further divided based on margins' status: 39 (61%) had negative margins, and 25 (39%) had positive margins. Compared with negative margins, patients with positive margins showed increased risk for recurrence, adjusted HR=8.492 (P=0.008). When margins were not obtained, the risk for local recurrence was increased compared to negative margins (adjusted HR=7.875, P=0.008), and with no significant difference compared to what was observed when obtained margins were positive (adjusted HR=0.927, P=0.88).

Conclusions: Obtaining surgical margins in transoral laser microsurgery for early glottic carcinoma showed reduced local recurrence rate, however with no difference in local control by endoscopic treatment alone.
EFFECT OF TUMOR LOCATION ON RECURRENCE OF T1 GLOTTIC SQUAMOUS CELL CARCINOMA: MEDIAL VS. SUPERIOR ASPECT OF THE VOCAL CORDS

Uri Alkan1, Yuval Nachalon1, Aron Popovtzer2, Jacob Shvero1
1Department of Otorhinolaryngology - Head and Neck Surgery, 2Davidoff Cancer center, Rabin Medical Center, Petach Tikva, and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

Background:
The clinical behavior of T1 glottic squamous cell carcinoma (SCC) may vary by its location in the vocal cords.

Objectives:
To evaluate the clinical behavior of T1 glottic SCCs by anatomic site of occurrence and its relationship to prognosis.

Methods:
In a retrospective study, clinical, treatment, and outcome data were collected for 104 patients with T1N0M0 glottic SCC who were treated and followed at a tertiary medical center in 1995-2013. Findings were compared between those with a tumor on the medial (n=60, 57.7%) or superior (n=44, 42.3%) aspect of the cords.

Results:
Mean follow-up time was 4.15 years. No between-group differences were found in demographic or risk factors. In a multivariate analysis we found a significant association of superior (vs medial) tumor location with anterior commissure involvement (p<0.001); higher rates of recurrence (p=0.037) coupled with shorter time to recurrence (p<0.001) as well as significant association of anterior commissure involvement with disease recurrence (p=0.0012). No significant difference in recurrence rate between patients who underwent TOLS and those treated with radiation was found.

Conclusions:
T1 SCCs on the superior aspect of the vocal cords have a poorer prognosis than medial tumors. This difference is presumably due to the earlier detection, better visualization, and different biological behavior pattern of medial tumors. Patients with superior vocal fold tumors should be closely monitored for recurrence.
BENCHMARK VALUES OF THE MINIMAL CLINICALLY IMPORTANT DIFFERENCE IN QUALITY OF LIFE SCORES OF PATIENTS WITH LARYNGEAL CANCER

Shorook Na'ara¹,³; Moran Amit¹,³; Tomer Charas ²; Salem Billan², Jacob T. Cohen¹, and Ziv Gil¹,³

¹Department of Otolaryngology Head and Neck Surgery, and ² The Radiology Institute, ³ The Clinical Research Institute at Rambam, Rambam Medical Center, Rappaport Faculty of Medicine and Research Institute, The Technion, Israel Institute of Technology, Haifa, Israel.

Background:
Organ preservation regimes for primary laryngeal cancer are used for treatment of early and late disease. Despite the popularization of these regimes, there is a lack of understanding of the true clinical significance of quality of life (QOL) changes in this population after treatment.

Objectives:
To assess the clinical significance of change in QOL and set the minimal clinically important difference (MCID) scores for the most commonly used head and neck cancer questionnaires.

Methods:
A meta-analysis of the EORTC QLQ-C30/H&N35 scale scores of laryngeal cancer patients published between 1975 and 2014, using the PRISMA guidelines.

Results: The final study group included 13 studies with 983 patients. Global QOL scores performed 6 months after treatment showed normalization in general domains. Specific domains were assessed using a heat map analysis. The ratio between the difference in QOL scores and the MCID revealed clinically important improvement in all modalities (surgery, radiotherapy and chemoradiation) except for surgery followed by adjuvant radiotherapy.

Conclusions:
Our findings provide benchmark values of MCID for QOL of patients treated for laryngeal cancer. The data demonstrates normalization in general cancer measures and H&N associated domains at 6 months after treatment.
Abstracts

CHANGES IN POST- LARYNGECTOMY SPEECH REHABILITATION TRENDS

Erenthal Pnina, Guy Edna, Shtraifler Liat, Schindel Doron
Speech and Hearing Institute, ENT department, Kaplan Medical Centre, Rehovot, Israel

Objective:
To describe the evolution of speech rehabilitation of laryngectomees at Kaplan medical center.

Method:
A retrospective chart review was completed of 124 laryngectomees attending our center during the years 1995-2014.

Results:
Speech rehabilitation methods evolved from esophageal speech and artificial larynx to tracheoesophageal voice restoration using a voice prosthesis. Initially, patients underwent secondary fistulization and in 2001 we began performing primary fistulization. Prostheses were fitted post-operatively and as of 2002 fitting was also performed during primary and/or secondary fistulization.

921 prostheses were fitted since 2001. Mean device lifespan was 153 days. Despite a wide interpersonal variability range, a consistency in device lifespan was generally found for each patient, as well as in personal indication for replacement. Main indications for replacement were leakage through the prosthesis (58%) and hypertrophy and/or infection of the fistula (7.8%). The most popular size of the prosthesis was 8 mm (37%). Success rate, defined by the ability to speak fluently using a tracheoesophageal voice was 84%.

Since 2006 prostheses are included in the Israeli health national coverage plan. Compared to previous years, fitting of indwelling prostheses had significantly increased. No significant difference in device lifespan was found.

Conclusions:
The main speech rehabilitation method in practice in our center now is tracheoesophageal voice restoration, mainly with an indwelling voice prosthesis fitted during primary fistulization and replaced with another indwelling prosthesis as needed.
Abstracts

SUPERIORITY OF ULTRASONOGRAPHY OVER CONTRAST-ENHANCED COMPUTED TOMOGRAPHY IN DETECTION OF SUBMANDIBULAR GLAND MASSES
(A RETROSPECTIVE ANALYSIS OF 20 PATIENTS)

Awfa Abu-Nimer¹, Daniel London², Oded Nahlieli¹

¹ Department of Oral and Maxillofacial Surgery, The Barzilai University Medical Center, Ashkelon, Israel
² Radiology Department, The Barzilai University Medical Center, Ashkelon, Israel

Abstract

BACKGROUND: Tumors of the submandibular gland (SMG) are rare and account for only 10% of all salivary gland tumors. In about half of these cases malignant pathologies would be diagnosed. Routinely, it is accepted to conduct either an ultrasound scan (US) or contrast-enhanced computed tomography scan (CECT) for initial evaluation of such cases, or even both. Sometimes magnetic resonance imaging (MRI) is performed later. Surgical intervention of the gland resection is usually performed.

OBJECTIVE: To compare and evaluate the detection accuracy of US and CECT in patients with SMG Masses.

PATIENTS AND METHODS: Records of 20 patients with SMG masses who were treated in our department between the years 2011-2015 have been studied retrospectively. Each of them has already undergone both discussed modalities as well as complete sialadenectomy with final conclusive pathological report. Data were based on analyzing their radiological reports.

RESULTS: Twelve patients (60%) had benign pathology, while the remaining eight patients (40%) had malignancies. The accuracy of US in detection of SMG masses can approach 100%; meanwhile this of CECT was 65%. The fact that SMG mass usually appears isodense with the glandular parenchyma in CECT scan decreased the tumor detection, especially when it was less than 1.3 cm in greatest dimension (as measured in the corresponding US scan). In some cases, SMG enlargement was the only suspected diagnostic parameter of tumor existence in CECT, without particular tumor detection.

CONCLUSION: Ultrasound is the imaging modality of choice for initial evaluation of submandibular gland masses. A larger sample is needed to confirm the results.
MALIGNANT TUMORS OF THE MINOR SALIVARY GLANDS: A RETROSPECTIVE ANALYSIS OF 26 CASES TREATED AT THE SHEBA MEDICAL CENTER

Authors: Meir Debebcco, Tal Yoffe, Alex Dobriyan, Marilena Vered, Lev Bedrin, Eran E Alon, Iris Gluck, Ran Yahalom
Sheba Medical Center, Tel-Hashomer, Ramat Gan

Background: Minor salivary gland carcinomas (MSGC) constitute 2–3% of all malignant neoplasms of the upper aerodigestive tract. MSGC exhibit considerable diversity requiring distinctive surgical and adjuvant therapies.

Objectives: To review the outcome of patients with MSGC treated at Sheba Medical Center during the years 2004-2015.

Methods: A retrospective review of patient files. We recorded patient gender, age, type, site, grade, treatment, reconstruction, surgical margins and outcome.

Results: Gender: Patient cohort was comprised of 11 females and 15 males. Age: Mean age at diagnosis was 50.3±12.8 years. Histological type: Mucoepidermoid carcinoma (MEC) was found in 11(42.3%) patients, Polymorphous-low-grade-adenocarcinoma (PLGA) and Adenoid cystic carcinoma (ACC) in 4(15.4 %) patients each, Acinic cell carcinoma and Adenocarcinoma in 2(7.7%) patients each, Clear cell carcinoma, Hyalinizing clear cell carcinoma and epithelial-myoepithelial carcinoma in the rest. Location: palate 19(73%) patients, buccal mucosa 4(15.4%) patients, floor of mouth and lower lip in the rest. Treatment: 24(92.3%) patients underwent surgical resection, of them 13(50%) were reconstructed with an obturator, 2(7.7%) with Radial forearm free vascular graft (RaFF) and 10(38.4%) left for secondary healing. One patient was in-operable and received radiation treatment only. Margins: 23(88.5%) patients showed clean margins, 2(7.7%) patients had a positive margin. Patient outcome: 2 patients died of the disease, 1 patient is alive with disease and 23 patients have no evidence of disease.

Conclusions: MEC was the most common malignant tumor. The palate was the main site of MSGC. Our patient cohort exhibits good control of MSGC via local resection.
THE SIGNIFICANCE OF CLOSE MARGINS ON OUTCOME OF PATIENTS
WITH ADENOID CYSTIC CARCINOMA OF THE HEAD AND NECK:
AN INTERNATIONAL COLLABORATIVE STUDY

Moran Amit\textsuperscript{1,2}, Shorook Na'ara \textsuperscript{1,2}, Leonor Trejo-leider \textsuperscript{3}, Ramer Naomi\textsuperscript{4}, Ramer Ilana\textsuperscript{4}, Agbetoba Abib\textsuperscript{5}, Brett Miles\textsuperscript{5}, Xinjie Yang\textsuperscript{6}, Delin Lei\textsuperscript{6}; Bjoerndal Kristine\textsuperscript{7}, Godballe Christian\textsuperscript{7}, Mücke Thomas\textsuperscript{8}, Wolff Klaus-Dietrich\textsuperscript{8}, André M. Eckardt\textsuperscript{9}, Copelli Chiara\textsuperscript{10}, Enrico Sesenna\textsuperscript{10}; Snehal Patel\textsuperscript{11} Ganly Ian\textsuperscript{11} and Ziv Gil\textsuperscript{1,2}

\textsuperscript{1} Department of Otolaryngology Head and Neck Surgery, The Clinical Research Institute at Rambam, Rambam Medical Center, Rappaport Faculty of Medicine and Research Institute, The Technion, Israel Institute of Technology, Haifa, Israel,
\textsuperscript{2} The Clinical Research Institute at Rambam, Rambam Medical Center, Rappaport Faculty of Medicine and Research Institute, The Technion, Israel Institute of Technology, Haifa, Israel,
\textsuperscript{3} Department of Pathology Tel Aviv Medical Center, Tel Aviv, Israel,
\textsuperscript{4} Department of Pathology and \textsuperscript{5} Department of otolaryngology, The Mount Sinai School of Medicine, New York, NY,
\textsuperscript{6} Department of Oral and Maxillofacial Surgery, School of Stomatology, the Fourth Military Medical University, P. R. China,
\textsuperscript{7} Department of Otolaryngology Head and Neck Surgery, Odense University Hospital Denmark,
\textsuperscript{8} Department of Oral and Maxillofacial Surgery, Technische Universität München, Germany,
\textsuperscript{9} Department of Cranio-Maxillofacial Surgery, Hannover Medical School, Hannover, Germany,
\textsuperscript{10} Maxillo-Facial Surgery, University-Hospital of Parma, Italy,
\textsuperscript{11} Head and Neck Surgery Service, Memorial Sloan Kettering Cancer Center, NY, NY, USA
Background:

The mainstay of treatment in adenoid cystic carcinoma (ACC) of the head and neck is surgical resection with negative margins. While negative margin is defined as ≥5mm of normal tissue, the clinical significance of close margins in ACC remains undefined. This study aims to characterize the impact of close margin on the outcome of patients with ACC of the head and neck.

Methods:

Univariate and multivariate models were used to evaluate the clinical and pathologic data in an international collaborative study.

Results:

A total of 507 patients with ACC of the head and neck were analyzed. Of those, 151 (30%) patients had ACC of a major salivary gland, 241 (48%) had ACC of the oral cavity and 108 (22%) had ACC of the paranasal sinuses. Negative margins were detected in 253 (50%) and positive margins in 162 (32%). Close margins were found in 92 patients (18%), with a similar distribution among patients with major salivary gland, oral cavity and paranasal sinuses (15-22%).

On multivariate analysis, positive & close margin status had a HR's of 2.67 (95%CI 1.3-5.6, p=.01) and 2.5 (95%CI 1.16-6.05, p=.01) relative to patients with negative margin status.

Conclusions:

In patients with head and neck ACC, close margins should be considered as an adverse pathological feature similar to positive margins.
CELLULAR SENESCENCE DRIVES RADIATION-INDUCED LOSS OF SALIVARY GLAND FUNCTION

Jonathan Cohen, MD\textsuperscript{1}; Revital Adar, \textsuperscript{2}
Ron Eliashar, MD\textsuperscript{1}; Jonathan Axelrod, PhD\textsuperscript{2}
\textsuperscript{1}Department of Otolaryngology/Head and Neck Surgery; 
\textsuperscript{2}Goldyne-Savad Institute of Gene Therapy; 
Hadassah University Hospital, Jerusalem, Israel

Background: Head and neck cancer patients treated by irradiation, commonly suffer the devastating side effect of a dry-mouth syndrome, resulting from irreversible loss of salivary gland function via mechanisms which are not well understood. One of the mechanisms proposed is senescence, a state of stable proliferative arrest which cells undergo in response to a variety of detrimental stimuli, including DNA-damaging agents and oxidative stress. This mechanism was shown in a murine model.

Objectives: To test if irradiation influences the expression of senescence-associated secretory phenotype genes, by examining irradiated glands for evidence of persistent DNA damage, one of the hallmarks of cellular senescence.

Methods: Immunostaining for H2AX, DcR2 and 53BP1 was performed on sub-mandibular salivary gland samples resected from three patients following radiotherapy. Comparison was made to salivary gland samples from four non-irradiated patients.

Results: H2AX and 53BP1, containing cytoplasmic chromatin fragments, were observed in glands obtained from irradiated patients, but not in non-irradiated glands. Immunostaining also revealed robust DcR2 expression in the ductal cell compartment of all three irradiated salivary glands, but in only 1 of 4 non-irradiated glands (P<0.05, using a two-tailed Chi\textsuperscript{2} test).

Conclusions: These results indicate that cellular senescence may be a fundamental mechanism driving radiation-induced damage and may suggest novel strategies for its prevention.
HYPERBARIC OXYGEN THERAPY FOR MAXILLARY BONE RADIATION INDUCED INJURY

Gavriel Haim, Eviatar Ephraim, Abu Eta Rani

Department of Otolaryngology Head and Neck Surgery, Assaf Harofeh Medical Center, Zerifin 70300, Israel, affiliated to the Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

**Background:** Although hyperbaric oxygen is used to treat chronic radiation tissue injury, clinical evidence supporting its use in maxillary bone osteoradionecrosis is lacking. We herein report collected patients' outcomes from a single center's large experience using hyperbaric oxygen to treat maxillary bone osteoradionecrosis.

**Methods:** From 1999 to 2015, a total of 21 patients received treatment for maxillary bone osteoradionecrosis at our center. The medical records were retrospectively reviewed for the following variables: age, gender, comorbidities, tumor stage and site, previous surgery, previous radiotherapy or chemoradiation therapy, HBOT data, response to treatment and further management.

**Results:** A positive outcome from hyperbaric treatment occurred in 85.7% of patients with osteoradionecrosis and was proven radiologically in 14 patients (77.7%). In 5 patients reconstructive surgery was further required.

**Conclusions:** Controversy exists regarding the management of osteoradionecrosis of the maxillo facial skeleton. Our large, single-center experience strongly support the efficacy of hyperbaric oxygen treatment for maxillary bone osteoradionecrosis.
PROGNOSTIC FACTORS IN DIFFERENTIATED THYROID CANCER REVISITED

Authors: Eran Glikson¹, Eran Alon¹, ², Lev Bedrin¹, Yoav P. Talmi¹, ².

¹ Department of Otolaryngology, Head and Neck Surgery, the Sheba Medical Center, Tel-Hashomer, Israel.
² Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel.

Background: Differentiated thyroid cancer (DTC) presents more than 90% of all thyroid cancers with a 10-year survival rate greater than 90%.

The commonly used, risk stratification systems for DTC include: AGES (Age, histologic Grade, Extent of tumor, Size) AMES (Metastasis) and MACIS (Completeness of resection, local Invasion).

Several new factors that may be involved in DTC risk stratification have emerged in recent studies, with other "traditional" factors being challenged.

Objectives: To present recent updates in the literature on new potential prognostic factors for DTC.

Methods: A literature review of publications regarding DTC prognostic factors or risk stratification published in the last 5 years.

Results: Several new factors with potential prognostic implications for DTC have been shown including: Family history, Lymph node involvement parameters, F-FDG uptake, Multifocal disease, Thyroid stimulating hormone, Thyroglobulin level and several molecular markers including BRAF.

Increasing age is associated with poorer outcome in DTC however recent studies suggest that the cutoff point of 45 may be inaccurate.

Furthermore, a number of studies have shown contradicting results regarding male gender as a negative prognostic factor, thus questioning its prognostic significance.

Conclusions: A number of new factors with potential prognostic implications for DTC have emerged. However, their role and possible inclusion in new staging systems is yet to be determined.
Abstracts

X-RAY FLUORESCENCE-BASED DIFFERENTIATION OF NECK TISSUES IN A BOVINE MODEL: IMPLICATIONS FOR POTENTIAL INTRAOPERATIVE USE

G. Lahav a, S. Shilstein b, *, S. Shchemelinin b, S. Ikher a, D. Halperin a, R. Chechik b, A. Breskin b

a: Departments of otolaryngology and pathology, Kaplan Medical Center
b: Department of Particle Physics and Astrophysics, Weizmann Institute of Science, Rehovot, Israel
(Published in Physica Medica, 2015)

Abstract:

This study explores the possibility of using X-ray fluorescence (XRF)-based trace-element analysis for differentiation of various bovine neck tissues. It is motivated by the requirement for an intra-operative in-vivo method for identifying parathyroid glands, particularly beneficial in surgery in the central neck-compartment.

Using a dedicated X-ray spectral analysis, we examined ex-vivo XRF spectra from various histologically verified fresh neck tissues from cow, which was chosen as the animal model; these tissues included fat, muscle, thyroid, parathyroid, lymph nodes, thymus and salivary gland.

The data for six trace elements K, Fe, Zn, Br, Rb and I, provided the basis for tissue identification by using multiparameter analysis of the recorded XRF spectra. It is shown that the combination of XRF signals from these elements is sufficient for a reliable tissue differentiation.

The average total abundance of these trace elements was evaluated in each tissue type, including parathyroid and salivary gland for the first time. It is shown that some tissues can unequivocally be identified on the basis of the abundance of a single element, for example, iodine and zinc for the identification of thyroid gland and muscle, respectively.
THE INFLUENCE OF TREATMENT MODALITY ON SECOND PRIMARY TUMORS OF THE HEAD AND NECK

Gal Ben Arie¹, Tali Shafat ², Olga Belochitski ¹,³, Ben-Zion Joshua ¹,⁴

1- Ben Gurion University of the Negev, Faculty of Health Sciences-Medical School, Beer-Sheva, Israel
2- Clinical Research Center, Soroka University Medical Center, Beer-Sheva, Israel
3- Department of Oncology Soroka University Medical center, Beer-Sheva, Israel
4- Department of Otolaryngology and Head and neck Surgery Soroka University Medical center, Beer-Sheva, Israel

Background: High incidence of second primary tumors (SPT) in patients who suffer from head and neck tumors is thought to occur from pre-malignant lesions that are already present during the primary tumor diagnosis.

Objective: To assess whether treatment modality might influence the occurrence of SPT.

Methods: We analyzed data from 292 patients with head and neck carcinoma who were treated with at least one modality. Outcomes considered were incidence and location of SPT. We used all-cause mortality as a competing risk event.

Results: SPT developed in 31 patients (16.8%) (median follow-up time 4.64 years). 35% of the group of patients who developed SPT were treated with surgery alone whereas in the group of patients who didn't developed SPT only 21% were treated in this way (p=0.080). However on multivariate analysis treatment modality did not affect the occurrence of SPT. Most of the patients who had their index tumor in the oral cavity or orohypopharynx, developed the SPT in the same location, whereas patients with index tumor in the larynx, tend to develop their SPT in the lungs and bronchi (p=0.001).

Conclusions: Treatment modality for head and neck cancer does not seem to affect SPT occurrence.
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Special Thanks to the Israel Cancer Association for their support.