

# Poster Abstracts – Monday, June 23, 2008

## #1 – Gold Room

COX-2 EXPRESSION AND NEOPLASTIC CONVERSION DURING 4NQO-INDUCED RAT TONGUE CARCINOGENESIS: IS THERE A SWITCH? D.A. Ribeiro, E.M. Minicucci and D.M.F. Salvadori. Federal University of Sao Paulo - UNIFESP, Santos and Sao Paulo State University - UNESP, Botucatu. This study was undertaken to investigate, by immunohistochemistry, the expression of cyclooxygenase-2 (COX-2) during 4-nitroquinoline 1-oxide (4NQO)-induced rat tongue carcinogenesis. Male Wistar rats were distributed into three groups of 10 animals each and treated with 50 ppm 4NQO solution through their drinking water for 4, 12, and 20 weeks. Ten animals were used as negative control. Although no histopathological abnormalities were induced in the epithelium after 4 weeks of carcinogen exposure, COX-2 was expressed in some cells of the normal™ oral epithelium in the superficial layer. In pre-neoplastic lesions at 12 weeks following carcinogen exposure, the levels of COX-2 were increased ( $p < 0.05$ ) when compared to negative control. In well-differentiated squamous cell carcinoma induced after 20 weeks of treatment with 4NQO, the same picture occurred when compared to negative control. Weak immunoreactivity for COX-2 was observed in the negative control group being restricted to basal layer of the oral epithelium. Taken together, our results support the idea that expression of COX-2 plays a crucial role during malignant transformation being closely related to neoplastic conversion of the oral mucosa cells.

## #2 – Gold Room

A NOVEL ORGANOTYPIC MODEL MIMICS TUMOR MICROENVIRONMENT. S. Nurmenniemi P. Nyberg P, M. Sutinen, J. Risteli and T. Salo. U of Oulu, Oulu, Finland. In this study an organotypic model based on human leiomyoma was characterized and established to create an environment for oral SCC invasion studies. Methods: Human tongue SCC cell lines were cultured on top of either collagen gels or myoma tissue discs. Organotypic culture media samples were collected every three days and analyzed by radioimmunoassay to detect degradation of collagens, and gelatine zymography to detect gelatinases. The tissue discs were studied by in situ hybridization and immunostaining. Results: We demonstrated that SCC proliferation and invasion were more efficient in the myoma than in the traditional collagen gel model. During SCC invasion, gelatinases and collagen degradation products of the myoma tissue could be quantitatively analyzed. Conclusions: Myoma tissue is a complex structure that mimics the tumor microenvironment better than the previously used organotypic cell culture models providing a novel tool for analyzing the effects of invasion inhibiting substances on carcinoma cells.

# Poster Abstracts – Monday, June 23, 2008

## #3 – Gold Room

A CLINICOPATHOLOGIC STUDY OF FIBROUS DYSPLASIAS IN MALAYSIANS (1967-2006). SH Lau, KH Ng, CH Siar. Institute for Medical Research. Kuala Lumpur University of Malaya, Kuala Lumpur, Malaysia. The aim was to evaluate the profile of fibrous dysplasia of the jaws in Malaysians. Archives (1967-2006) from the Unit of Stomatology, Cancer Research Centre, Institute for Medical Research, Kuala Lumpur, were retrieved and re-examined based on the World Health Organization Histological Typing of Odontogenic Tumours™ definition of fibrous dysplasia. Fibrous dysplasia ranked as the most common benign fibro-osseous lesions of the jaws. Eighty six cases were analysed. Demographic characteristics distinctive of fibrous dysplasia in Malaysians were a wide age range (3-67 years), a younger onset age (mean, 22.47 years), slight female preponderance (M:F = 1:1.2), peak incidence in the second decade (56.9%), and preference for the posterior segment of the maxilla (63.9%). A progressive painless swelling was the most common presenting complaint. The typical radiographic appearance was a ground-glass lesion that merged imperceptibly at the periphery with surrounding normal bone. Root resorption was rare. The most common pre-operative diagnosis was fibrous dysplasia. Most cases were treated conservatively for cosmetic reasons. Follow-up records were generally poor. Current findings suggest that fibrous dysplasia of the jaws in Malaysians is most prevalent among young Malaysian Malay males.

## #4 – Gold Room

COMPARATIVE CLINICOPATHOLOGICAL STUDY ON INTRAORAL SEBACEOUS ADENOMAS, SEBACEOUS HYPERPLASIAS AND NORMAL SEBACEOUS GLANDS. R. S. Azevedo, J. N. Santos Netto, O. P. Almeida, Á. M. M. A. Miranda, T. C. R. B. dos Santos, R. D. Coletta, M. A. Lopes, and F. R. Pires. State U. of Campinas, Piracicaba, Brazil; Estácio de Sá U., Rio de Janeiro, Brazil. Introduction: Sebaceous adenomas and sebaceous hyperplasias are uncommon on the oral cavity, and their clinical features, histopathological diagnostic criteria and proliferative activity remain not well understood. Objective: The aim of this study was to compare the clinicopathological features and immunohistochemical expression of a proliferative marker in 2 intraoral sebaceous adenomas, 6 intraoral sebaceous hyperplasias and 21 intraoral normal sebaceous glands. Findings: Clinically, sebaceous glands were characterized as multiple separated papules, while sebaceous hyperplasias as a single enlarged papules or plaques and sebaceous adenoma as well-defined nodules. Sebaceous adenomas presented an increased mean number and a decreased mean perimeter of lobules, and a greater mean number of germinative squamous cells. Sebaceous hyperplasias also presented increased mean number of lobules, but similar mean perimeter of lobules and mean number of germinative squamous cells than normal sebaceous glands. Ki-67 expression was seen only in the germinative squamous cells and counts were higher in sebaceous adenomas followed by sebaceous hyperplasias and normal sebaceous glands. Conclusions: Intraoral sebaceous adenomas presented features confirming a greater proliferative activity than normal intraoral sebaceous glands. Intraoral sebaceous hyperplasias presented intermediate features between sebaceous adenomas and normal sebaceous glands, reproducing the normal sebaceous unit architecture.

# Poster Abstracts – Monday, June 23, 2008

## #5 – Gold Room

**NECK MASSES: A RETROSPECTIVE STUDY OF 925 CASES.** S. Irani, Dept. of Oral Pathology, Faculty of Dentistry, University of Medical Sciences and Health Services, Hamadan, Iran. Objectives: Many head and neck diseases manifest as neck masses with a wide range of pathologies. Neck masses included congenital, inflammatory and neoplastic disease. In general, these masses are classified as developmental, inflammatory/infectious and neoplastic. Neck masses in children are likely to be congenital or inflammatory but in adults the most common masses are neoplastic. This retrospective study was conducted to analyze neck masses to better understanding of gender, age and location distributions and also pathology of these masses in 923 cases. Methods and Materials: The records of patients with neck masses between 1999-2006 were retrieved from the Department of Pathology of two educational hospitals in Tehran, Iran, and analyzed for age, gender, location and pathology reports. The masses were classified according to the type of lesion and also according to the location of the neck mass. Results: Over a period of 7 years, a total of 923 cases were found. The included patients were 435 (47%) males. The patient's ages ranged from 11 to 83 years. The mean age of patients was 37.5 years. The most prevalent masses were thyroid lesions included nonneoplastic (174 cases) and neoplastic (104 cases) lesions, followed by metastatic lesions (121 cases). Parathyroid lesions were the least (29 cases). According to the location of masses, midline and anterior neck was the most common location. Conclusion: These data shows that neoplastic lesions (including metastatic lesions) are the most common neck masses and midline and anterior neck is the most common location, so any mass in neck especially in midline and anterior neck must be considered neoplastic.

## #6 – Gold Room

**METASTASIS TO HEAD AND NECK AREA: A 7-YEAR RETROSPECTIVE STUDY IN IRAN** S. Irani, Dept. of Oral Pathology, Faculty of Dentistry, University of Medical Sciences and Health Services, Hamadan, Iran. Objectives: Metastases to head & neck area can occur either from local structures or from distant organs. The aim of this study was to review of clinical and histopathological features of metastases to head and neck area. Materials & Methods: For this purpose, a retrospective study was done, spanning the period 1999-2006 in two educational hospitals in Tehran, Iran. All clinical and pathological data were considered. To ensure the accuracy of the pathological examinations, all the paraffin embedded blocks re-examined. Results: A total of 151 patients (95 male, 56 female; mean age 48 years range 12-83 years) were found. The most common tumors were squamous cell carcinoma (41 cases) followed by papillary carcinoma (35 cases). Thyroid carcinoma accounts for approximately 30% of these metastases. The most common site for metastases was cervical lymph nodes (level II). Conclusion: In conclusion, asymmetric enlargement of cervical lymph nodes in an adult is almost always cancerous, usually due to metastasis from a primary lesion

# Poster Abstracts – Monday, June 23, 2008

## #7 – Gold Room

**ORTHOKERATINIZED ODONTOGENIC CYST: AN UNUSUAL HISTOPATHOLOGIC PRESENTATION**  
S. Irani, Dept. of Oral Pathology, Faculty of Dentistry, University of Medical Sciences and Health Services, Hamadan, Iran.†The Orthokeratinized odontogenic cyst (OOC) was first considered as a type of the odontogenic keratocyst (OKC), then was specified by Wright as a distinct from other odontogenic cysts, even the OKC.† Here, unusual histologic type of OOC is described. A 40 year–old man presented with a complaint of a swelling in the left mandible premolar-molar area. A panoramic radiograph revealed a radiolucency extending from left mandibular first molar to the left mandibular second premolar. Microscopic examination showed a cystic lesion lined by orthokeratinized stratified squamous epithelium of about 5-8 cells thick. The epithelium changes included lichenoid reaction, basal cell layer hyperplasia, and mild to moderate dysplasia due to inflammation. The first two patterns are unusual findings in OOC.

## #8 – Gold Room

**EXPRESSION OF MCM-2, KI-67 AND GEMININ IN BENIGN AND MALIGNANT SALIVARY GLAND TUMOURS.** P. Vargas 1,2, Y. Cheng 1, A. Barret 3, G Craig 1, P. Speight 1. 1-Department of Oral Pathology, School of Clinical Dentistry, University of Sheffield, Sheffield, UK. 2- Oral Pathology Section, School of Dentistry, UNICAMP, Piracicaba-SP-Brazil. 3-Department of Histopathology, Queen Victoria Hospital, East Grinstead, West Sussex, UK. Objectives: The aims of this study were to determine the expression of Mcm-2, Ki-67 and geminin in salivary gland (SG) tumours, and to evaluate their usefulness for diagnosis or for prediction of tumour behaviour. Tissue from 62 SG tumours was assembled in tissue microarray format. There were 13 adenoid cystic carcinomas (ACC), 10 carcinoma ex pleomorphic adenomas (CEPA), 10 mucoepidermoid carcinomas (MEC), 10 polymorphous low-grade adenocarcinomas (PLGA), 10 pleomorphic adenomas (PA) and 9 acinic cell carcinomas (AcCC). Clinicopathological data were collected retrospectively and immunohistochemical analyses of Mcm-2, Ki-67 and geminin were performed on all lesions. FINDINGS: Mcm-2 expression was higher than Ki-67 and geminin in all tumours studied. Mcm-2 LI was higher in ACC (28.2% + 19.2) than in CEPA, AcCC, MEC, PA and PLGA (5.3% + 4.1, P=0.001). Mcm-2 LI was higher in CEPA (20.4% + 5.0) than in PA (6.9% + 5.0, P=0.001). CONCLUSIONS: The findings suggest that Mcm-2 may be a sensitive proliferation marker in SG tumours and may be useful for differential diagnosis between PA and CEPA, and ACC and PLGA. Further studies are warranted to assess the value of Mcm-2 as a predictor of recurrence and survival.

# Poster Abstracts – Monday, June 23, 2008

## #9 – Gold Room

DOWN-REGULATION OF SYNDECAN-1 EXPRESSION DURING LIP CARCINOGENESIS. A. Martinez, ML Spencer, P. Grez, J. Borlando, IG. Rojas. U of Concepcion, Concepcion, Chile. The aim of this study was to assess epithelial expression of syndecan-1, a transmembrane heparan sulfate proteoglycan, in normal lip(NL), actinic cheilitis(AC), and cancer lip(SCC). Biopsies of NL(n=19),AC(n=23), and SCC(n=24)were processed for syndecan-1 detection by immunohistochemistry. A score was obtained for each sample (intensity and %) staining. Wilcoxon and Kruskal-Wallis tests were used for statistical analyses. Syndecan-1 expression was significantly reduced in AC and lip SCC as compared to NL(P<0.05), with a significant reduction in lip SCC as compared to AC(P<0.0001). In lip SCC, epithelial syndecan-1 expression at the tumor edges was increased when compared to the tumor itself (P<0.03, but was significantly reduced as compared to AC and NL(P<0.001). The results showed that epithelial syndecan-1 expression is reduced as lip carcinogenesis progresses (NL>AC>lip SCC) suggesting that this proteoglycan could be a useful marker of malignant transformation of the lip. Grant Conceit, Fondecyt 1050581

## #10 – Gold Room

ORAL ERYTHEMA MULTIFORME INDUCED BY PROGESTERONE ENDOGENOUS. E. Minicucci, A. Carrenho, F. Bombini, S. Weber, R. Ribeiro and D Ribeiro. Faculdade de Medicina – UNESP / Botucatu, São Paulo, Brazil. Autoimmune progesterone stomatitis and dermatitis are rare clinical condition associated with mucosal eruptions such erythema multiforme. Exacerbation is influenced by elevated progesterone levels during the luteus phase of menstruation. The patient described had recurrent cyclic lesions on the oral mucosa and lips that appeared just before regular menstruation and persisted until a few days after. This rare phenomenon is attributed to an autoimmune reaction of female sex progesterone. This patient has been treated with the medication suppresses ovulation and the pos-ovulation thar rise in endogenous progesterone levels, with disappearing of the oral lesions.

# Poster Abstracts – Monday, June 23, 2008

## #11 – Gold Room

THE ROLE OF p53 Protein And TP53 GENE DURING RAT ORAL CARCINOGENESIS INDUCED BY 4NQO. E. Minicucci, D. Ribeiro, G. Silva, J. Guimarães, D. Salvadori. Faculdade de Medicina – UNESP / Botucatu, São Paulo, Brazil. The medium-term tongue carcinogenesis assay is a useful model for studying oral squamous cell carcinomas phase by phase. The aim of the present study was to investigate the expressivity of p53, as well as mutations in exons 5-8 of TP53 gene during rat tongue carcinogenesis induced by 4-nitroquinoline 1-oxide (4NQO) using immunohistochemistry and DNA sequencing, respectively. A total of 30 male Wistar rats were treated with 4-nitroquinoline 1-oxide in drinking water for 4, 12, and 20 weeks. Ten animals were used as negative control. Statistically differences ( $p < 0.05$ ) were found in p53 expression 12 and 20 weeks after treatment, i.e., pre-neoplastic lesions and squamous cell carcinomas, respectively. A weak immunoreexpression was observed in the negative control and in normal™ oral mucosa following 4 weeks after exposure to 4NQO. Regarding DNA sequencing, no mutation was found in all of the exons evaluated at all experimental periods. Taken together, our results suggest that abnormal p53 expression was present in pre-neoplastic lesions and squamous cell carcinomas of the oral cavity. However, no mutations were detected during oral cancer progression.

## #12 – Gold Room

BASAL CELL ADENOMA OF THE UPPER LIP FROM MINOR SALIVARY GLAND ORIGIN. E. Minicucci, E. Campos, S. Weber, M. Domingues, D. Ribeiro. Faculdade de Medicina – UNESP / Botucatu, São Paulo, Brazil. Basal cell adenoma is an uncommon benign salivary gland neoplasm, presenting isomorphic basaloid cells with a prominent basal cell layer. Taking into account that basal cell adenomas represent 1% of all salivary gland tumors, being the majority of cases in the parotid glands, the goal of this paper is to report a case of basal cell adenoma of the upper lip arising from minor salivary gland.

# Poster Abstracts – Monday, June 23, 2008

## #13 – Gold Room

**INFRATEMPORAL FOSSA TUMOUR PRESENTING AS TRISMUS.** S. Yeoh, T. Yeoh, A. Nguyen. Westmead Hospital Specialist Dental Centre, Gosford Hospital, Australian Health Management, Sydney NSW Australia. Objective: Causes of trismus range from the relatively straight forward to the more complex and potentially sinister. Tumours of the nasopharynx, infratemporal fossa, parotid gland, oral cavity or jaw may cause trismus. Many patients seek dental attention for their limited mouth opening, so dentists must feel confident diagnosing and managing trismus and its etiology, or facilitating referral if necessary. Findings: This case report demonstrates an infratemporal fossa tumour in a 93 year old man, presenting with a six month history of progressive trismus. Investigations confirmed this as a recurrence of a cutaneous squamous cell carcinoma of the left nasolabial fold, managed with surgery and adjuvant radiotherapy three years prior. Conclusion: Potential causes of trismus are discussed, with emphasis placed on thorough history taking, examination and investigations in order to arrive at an accurate diagnosis. Early referral of patients with trismus of unknown etiology may positively affect prognosis.

## #14 – Gold Room

**ORAL SQUAMOUS CELL CARCINOMA: TIGHT JUNCTION CLAUDIN-7 DOWNREGULATION IS IMPLICATED IN ADVANCED STAGES OF THE DISEASE** C.M. Coutinho-Camillo<sup>2</sup>, M.E.C. Buim<sup>2</sup>, A.C. Carvalho<sup>2</sup>, R.C. Lessa<sup>2</sup>, C. Pereira<sup>2</sup>, A.L. Carvalho<sup>2</sup>, L.P. Kowalski<sup>2</sup>, F.A. Soares<sup>1, 2</sup>, S.V. Lourenço<sup>1</sup> <sup>1</sup>Department of General Pathology, Dental School, U. of São Paulo; <sup>2</sup>Hospital A.C. Camargo, São Paulo - Brazil. Claudins, a large family of essential tight junction (TJ) proteins are abnormally regulated in human carcinomas. These proteins may be potential targets for cancer detection and therapy. Previously, we detected altered claudins expression in oral squamous cell carcinoma (OSCC) and this was associated with their clinicopathological features. The present work analyzed immunohistochemical expression of claudin-7 in a Tissue Microarray (TMA) of 133 OSCC. We have also studied the expression of claudin-7 mRNA transcripts and methylation status of the claudin-7 promoter region. Results: Claudin-7 was almost absent in the majority of the cases (90.9%). Loss of claudin-7 was associated with advanced stages of OSCC (p=0.044) and was more frequent in moderately/poorly differentiated tumors (p=0.055). Loss of claudin-7 was also associated with tumor depth higher than 3mm (p=0.020). Disease-free survival was significantly shorter in claudin-7 negative patients (p=0.015). Down-regulation of claudin-7 transcripts was detected in 77.78% of the cases analyzed. As methylation is one of the mechanisms involved in downregulation of claudins, the methylation status of the promoter region of claudin-7 was investigated. We found that treatment of O28 cells (that did not express claudin-7 mRNA transcripts) with 5-Aza-2'-Deoxycytidine (5 Aza dC) led to the re-expression of claudin-7 mRNA transcript. Conclusion: Loss of claudin-7 expression might be associated with the tumorigenic process of OSCC and it is associated with poor prognosis. Furthermore, claudin-7 downregulation is probably due to hypermethylation.

# Poster Abstracts – Monday, June 23, 2008

## #15 – Gold Room

**TETRASPANIN-CD63 IN PRIMARY ORAL MUCOSAL MELANOMA: ANALYSIS IN A TISSUE MICROARRAY OF 35 CASES.** M.E.C. Buim<sup>1</sup>, S.B. Bologna<sup>2</sup>, C.M. Coutinho-Camillo<sup>1</sup>, J.Gonçalves-Filho<sup>2</sup>, F.A. Soares<sup>1</sup>, S.V. Lourenço<sup>2</sup> <sup>1</sup> Hospital A.C. Camargo, São Paulo; Department of Pathology, Dental School, U. of São Paulo - Brazil. Tetraspanins comprise a family of proteins with functional roles in a wide array of cellular processes and have been associated with biological behavior of solid tumors. CD63, a tetraspanin membrane protein, appears to be important in the regulation of skin melanoma progression, being present in early stages of the disease and downregulated in advanced stages. Little is known on the adhesion and molecular mechanisms of oral mucosal melanomas due to the rarity of the lesions. These melanomas are in general very aggressive and have poor prognosis. Modulation of CD63 may be involved with the aggressive behavior of oral mucosal melanomas, but no studies investigated this possibility. The present work analyzed expression of the tetraspanin CD63 in oral melanoma using immunohistochemistry. Tissue Microarray (TMA) of 35 cases of oral melanoma and 9 normal oral mucosa samples were evaluated morphologically and semi-quantitatively. Results were compared to clinical-pathological features and  $\chi^2$  test were used for statistical analysis. Expression of CD63 was observed in the cytoplasm of all melanocytes in normal oral mucosa. Downregulated/negative expression was observed in 23 of oral melanomas included in the TMA (66.0%) and this was statistically significant when compared with the normal controls ( $p < 0.001$ ). There was no correlation between expression of CD63 and clinical-pathological parameters analyzed, such race, age, sex, metastasis, recurrence, histological grade and size of tumor. Our results suggest altered CD63 expression is involved with the complex mechanisms of oral melanomas, and possibly contribute with other mechanisms that culminate with disease progression.

## #16 – Gold Room

**PROGNOSTIC SIGNIFICANCE OF TUMOR INFILTRATING CD57+ T CELLS IN PATIENTS WITH HEAD AND NECK SQUAMOUS CELL CARCINOMA.** C. A. C. Fraga, M. V. M. Oliveira, P. L. B. Domingos; A. L. S. Guimarães; A. C. C. Botelho; A. M. B. De-Paula. Montes Claros State Univ., Montes Claros. Natural cytotoxicity caused by mediated natural killer cells is believed to play an important role in host-cancer defense mechanisms. The aim of this study was to investigate the relationship between natural killer cell counts and clinicopathologic factors and prognosis in HNSCC. We quantified CD57+ T cell infiltration in 70 patients<sup>TM</sup> primary tumors with head and neck squamous cell carcinoma (HNSCC) by immunohistochemistry method. The lesions were staged according to the TNM classification and morphological staging (OMS and invasive front). The correlation between clinicopathologic parameters and mean NK count was examined by the Mann-Whitney test. Kaplan-Meier method was used to obtain survival curves. Results showed that NK cell count in peritumoral stroma was significantly related to the regulation of tumor progression, involving T classification ( $p=0,028$ ). NK cell infiltration in intratumoral stroma was negatively related to patients<sup>TM</sup> survival ( $p=0,025$ ; mean=791,4 and median=643,5 days). These data indicate that natural killer infiltration may contribute to the regulation of tumor progression and that the natural killer cell count can serve as a useful prognostic marker in HNSCC. Financial support: FAPEMIG.

# Poster Abstracts – Monday, June 23, 2008

## #17 – Gold Room

THE IMMUNOHISTOCHEMICAL COMPARATIVE EVALUATION OF CK13 AND CK18 EXPRESSION IN ODONTOGENIC CYSTS AND AMELOBLASTOMA. P. Deyhimi, M. Danesh. Isfahan U. of Medical Sciences, IRAN. Objective: Evaluating of cytokeratin contents of odontogenic cysts and tumors can be an important aspect in comparative study of these lesions. Aim of this study was to evaluate expression of CK13 and CK18 in 100 samples including of cases from each of radicular cyst, dentigerous cyst, OKC, unicystic ameloblastoma & solid ameloblastoma. Findings: CK13: All of odontogenic cysts and cystic part of unicystic ameloblastoma expressed CK13 in upper layers (Middle and superficial) more than deeper layers (basal and parabasal). In ameloblastomas, CK13 expression in stellate reticulum and acanthomatous component was more than preameloblasts. CK18: Expression of CK18 in upper layers (middle and superficial) was more than deeper layers (basal and parabasal) in radicular and dentigerous cysts. Results of immunoreactivity with CK18 in OKC were negative in 100% of cases. With statistical analysis such as Mann-Whitney, Wilcoxon and Chi square, ameloblastomas (unicystic and solid) did have not significant differences in expression of CK13 and CK18. Conclusion: Epitheliums of odontogenic cysts had different CK contents and expression of cytokeratins was not same in different layers of epithelium. In radicular and dentigerous cysts, CK18 and CK13 expression was increased from deep layers to superficial one while OKC was negative for CK18 perfectly. Based on our findings, it is concluded that although CK13 doesn't show any difference between these lesions but significant difference in CK18 expression at all 4 layers of epithelium in odontogenic cysts and ameloblastomas may indicate the different nature of these lesions. The same CK13 and CK18 expression pattern in unicystic and solid ameloblastomas exhibits the same biomolecular nature despite different gross and clinical features.

## #18 – Gold Room

RECURRENT GIANT ODONTOGENIC MYXOMA OF THE MANDIBLE. T. KAWAKAMI, K. NAKANO, P. CHELVANAYAGAM, K. BORN, C.H. SIAR, and K.H. NG. Hard Tissue Pathology Unit, Matsumoto Dental University Graduate School, Shiojiri, Japan; Khmer-Soviet Friendship Hospital, Phnom Penh, Cambodia; Department of Oral Pathology, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; and Formerly Unit of Stomatology, Institute for Medical Research, Kuala Lumpur, Malaysia. We experienced a case of recurrent giant odontogenic myxoma. A 40-year-old Cambodian female was admitted with the complaint of a painless swelling of her gingiva, which had been present for 15 years. The tumor gradually enlarged without pain over time, and the patient had received surgical treatment twice, but the swelling recurred. Examination showed a giant tumor, infant head-like size, involving her lower anterior region. Radiography revealed that resorption of the mandibular bone had occurred, and the area was composed of radiolucency with a so-called soap bubble appearance. A biopsy was made, under the clinical diagnosis of ameloblastoma. Histopathologically, the tumor was composed of randomly oriented stellate, spindle-shaped and/or round cells. The neoplastic cells had long, fine, anastomosing pale or eosinophilic cytoplasmic processes. The cells were dispersed in an abundant mucoid and/or myxoid matrices. Histochemistry showed the matrix substance was rich in acid mucopolysaccharides, positively stained alcian blue. We also examined the distribution of Notch1 intracellular domain (NICD) by immunohistochemistry, and there were almost no NICD positive cells, in comparison with many positive cells in the mesenchymal tissue of a case of ameloblastic fibroma in a 15-year-old Chinese female. In conclusion, the negative staining results suggest that the ectomesenchymal tumoral proliferating cells of this type of neoplasm are slightly different in the developmental stage from those of ameloblastic fibroma.

# Poster Abstracts – Monday, June 23, 2008

## #19 – Gold Room

IMMUNOHISTOCHEMICAL EXPRESSION OF p53 IN HEAD AND NECK SQUAMOUS CELL CARCINOMA IN YOUNG AND OLD PATIENTS. Guimaraes ALS. A. , C. M. V. M. Oliveira, C. A. C. Fraga, Abrantes S.O., Almeida C. A., A. M. B. De-Paula. Universidade Estadual de Montes Claros, Brazil. There are some reasons to believe in differences between the etiopathogenesis of the Head and neck squamous cell carcinoma (HNSCC) in younger and old patients. A shorter duration of exposure to environmental carcinogens could suggest that factors related to individuals are important to the prognostic of the HNSCC. The P53 gene has an important role in the development of OSCC in classic HNSCC patients. The purpose of this study was to evaluate the immunohistochemical expression of p53 in younger (<45 years) and the older (more than 45 years) groups. Immunopositivity of p53 was considered above >5% of total of tumor cells in invasive front of 106 patients with HNSCC (53 young and 53 old). (>5% of total of tumor cells. Our results showed a significantly higher immunolocalization of p53 in younger group ( $p=0,05$ ). Besides, OMS morphological gradation was strongly correlated to age ( $p=0,001$ ). Young people presented a lower differentiation index. The results show that the HNSCC behaves differently in young and old patients. However, leave unanswered the question of the molecular mechanism responsible in this group of patients and suggest that this group may be a suitable population for disease in which to study genetic susceptibility to head and neck carcinogenesis.

## #20 – Gold Room

EXPRESSION OF HEAT SHOCK PROTEIN (HSP) IN MOUSE PERIODONTAL LIGAMENT AFTER RECEIVING MECHANICAL STRESS. K. Nakano, T. Watanabe, R. Muraoka, and T. Kawakami. Hard Tissue Pathology Unit, Matsumoto Dental University Graduate School of Oral Medicine, Shiojiri, Japan. We examined the immunohistochemical profile change of the HSP70 in periodontal ligament cells after receiving mechanical stress during orthodontic treatment. An elastic module was inserted interproximally between the upper first and second molars on the right side of ddY mice. The same portion of the opposite left side was used as a control. After elastic insertion (0 ~ 24h), the maxillary bone with surrounding tissues was dissected and fixed in 4% paraformaldehyde fixative. The specimens were examined by histopathology and immunohistochemistry (IHC; HSP70 / Rabbit Polyclonal Antibody, Lab Vision Corp., Fremont, CA, USA). In experimental specimens, the extension and compression portions were observed on the opposite side of the root. In 24h specimens, the compression site of the periodontal ligament of the related tooth root was narrow due to tissue degeneration. Furthermore, specimens showed the presence of some osteoclasts. Expansion of blood vessels was seen in the area of the extension site. In experimental specimens, immunostaining of HSP70 was observed in the periodontal fibroblasts, cementoblasts and vascular endothelial cells of the extension site. Through all experimental groups, there were no IHC reactions in osteoblasts of periodontal ligament. In the dental pulp tissue, positive reactions were seen and were stronger than in control specimens. In control specimens, almost periodontal ligament cells showed a negative reaction, except for a few fibroblasts. In conclusion, we thought that the mechanical stress for orthodontic treatment might cause dynamic histological change occurred within a short time and expression of HSP70 in periodontal ligament tissue.

# Poster Abstracts – Monday, June 23, 2008

## #21 – Gold Room

EPIDERMAL CHORISTOMA OF THE ORAL CAVITY: REPORT OF TWO CASES OF AN EXTREMELY RARE ENTITY. A.C. Chi, T. Javed, I.L. Mapes, Medical U. of South Carolina, Charleston and Private Practice, Columbia, SC. The epidermal choristoma is a most unusual oral lesion, characterized by epidermis-like epithelium, melanin pigmentation, and skin adnexal structures including hair follicles, sebaceous glands, and/or sweat glands. Only one such case has been reported previously in the literature. Here we present two additional cases of epidermal choristoma; the first arose on the buccal mucosa of a 32-year-old male and the second on the dorsal tongue of a 56-year-old male. Microscopic examination showed stratified squamous epithelium with hyperorthokeratosis and hypergranulosis. Melanin pigment was present within the basal cell layer of the epithelium as well as within melanophages and as incontinent melanin pigment within the superficial lamina propria. Sebaceous glands and hair follicles were noted within the connective tissue. Because of their pigmented appearance, epidermal choristomas should be included in the clinical differential diagnosis of melanin-containing lesions of the oral cavity. In addition, this entity should be included in classification schemes for oral choristomas. We hypothesize that this rare developmental anomaly may arise from ectodermal remnants of embryogenesis. Epidermal choristomas exhibit benign behavior, and conservative excision with histopathologic examination to rule out early melanoma or other pigmented lesions is appropriate.

## #22 – Gold Room

ORAL ULCERS IN HIV-POSITIVE PATIENTS: AN IMMUNOHISTOCHEMICAL AND IN SITU HYBRIDIZATION STUDY. W. D. Azañero, O. P. Almeida, P. A. Vargas, and J. E. León. U. Cayetano Heredia, Lima, Perú, and State U. of Campinas, Piracicaba, São Paulo, Brazil. This study describes the histopathologic, immunohistochemical (IHC), and in situ hybridization (ISH) data of 25 cases of unspecific oral ulcers in HIV-positive patients. Histological analysis for H&E, Gomori-Grocott, and Ziehl-Neelsen stains; IHC analysis and ISH for CMV and EBER1/2 were performed. Twenty one patients were men and 4 were women (mean age, 34,6 years). The tongue was preferentially affected. Microscopically the lesions showed extensive necrosis, leukocytoclasia, vasculitis with luminal fibrin clots, and an intense inflammatory cellular infiltrate predominated by CD68+ macrophages, interspersed by CD8+ T-lymphocytes. Mast cells were also observed in all samples studied. CD4+ T-lymphocytes, CD20+ B-lymphocytes and VS38c+ plasma cells were practically absent. CMV and EBER1/2 were identified in 3 and 16 cases out of 25, respectively. These results indicate that CD68+ macrophages are the predominant inflammatory cells in unspecific oral ulceration. Presence of CD8+ T-lymphocytes indicates that these lymphocytes participate in the etiopathogenesis, possibly reflecting an abnormal immune response in the oral mucosa. CMV and EBV can be detected in these lesions, but their participation in the pathogenesis is still unclear.

# Poster Abstracts – Monday, June 23, 2008

## #23 – Gold Room

**ORAL CANCER PREVENTION & EARLY DETECTION: ASSESSMENT OF KNOWLEDGE, PRACTICE AND OPINION AMONG HEALTH CARE PRACTITIONERS IN SAUDI ARABIA.** L. Jaber, S. Shaban, D. Hariri. King Faisal U. Dammam, Saudi Arabia. Despite the crucial role that health care practitioners (HCPs) have in the prevention and in the early detection of oral cancer (OC), many studies have suggested that dentists and physicians do not adequately detect OC in the early stages. This has been attributed to their attitudes and knowledge. The present study was conducted in Saudi Arabia with the objective of assessing HCP<sup>TM</sup>s knowledge, practice and opinion vis-à-vis OC<sup>TM</sup>s risk factors, patient evaluation and training perspectives, respectively. A cross sectional survey was distributed among HCPs in 6 different settings in Saudi Arabia. Sixteen items representing a mixture of OC<sup>TM</sup>s risk and non-risk factors were measured. Only 20.9% of HCPs could distinguish =11 items correctly. When HCPs obtained the medical history of their patients, no more than 32.3% routinely assessed 10 important issues related to OC. With regard to HCP<sup>TM</sup>s training perspectives in OC<sup>TM</sup>s prevention and early detection, 45.1% thought that they had a low level of knowledge & training, 53.6% agreed that their knowledge about OC was not current. However, 82% of HCPs were comfortable with referring suspicious lesions to specialists. Conclusion: It appears that HCPs in Saudi Arabia do not adequately participate in the prevention and in the early detection of OC. It is suggested that continuous education strategies in Saudi Arabia should be reassessed, whereby necessary attention should be given to diagnostic concepts of OC.

## #24 – Gold Room

**CALCIUM GLUCARATE (CGT) EFFECT ON DMBA-INDUCED HAMSTER ORAL CANCER: AN HISTOMORPHOMETRIC STUDY.** C. Lajolo, M. Giuliani, M.G. Lacaita, A. Lucchese, A. Manni, G. Favia. Catholic University of Rome, Rome Italy; University of Bari, Bari Italy. Calcium Glucarate (CGT) showed interesting cancer chemoprevention activity in many experimental and clinical situations. The purpose of this study is to evaluate the in vivo efficacy of CGT in preventing 7,12-dimethylbenzanthracene (DMBA) induced oral carcinogenesis, as well as to study histo-morphometrical changes. 76 Syrian hamsters were used, divided into four groups: G1) untreated controls (16 animals); G2) CGT controls (16 animals); G3) DMBA treated animals (28 animals); G4) DMBA and CGT treated animals (16 animals). Hamsters were painted three times weekly in their left buccal pouch with a 0.5% solution of DMBA. A diet of 64 mmol of GCT/kg was administered. At week 9, 50% of the animals were sacrificed. The remaining animals were sacrificed at week 12. Pathology and histo-morphometry were performed on normal-looking and lesions. At week 9, 6 carcinomas were found in group 3 and 5 in group 4: cancers of group 4 were smaller in volume. At week 12, 12 carcinomas were detected in group 3 and 8 in group 4. Cancers of group 4, even if less numerous, were bigger in volume and presented larger nuclei. Data emerging from our study show that, under these experimental conditions, CGT performed a chemopreventive effect, lowering the number of cancers in a considerable way.

# Poster Abstracts – Monday, June 23, 2008

## #25 – Gold Room

**BONE HISTOMORPHOMETRY IN BISPHOSPHONATES-RELATED JAW OSTEONECROSIS.** G. Favia, G.P. Pilolli, A. Lucchese, C. Lajolo, M. Giuliani, E. Maiorano. University of Bari, Bari Italy; Catholic University of Rome, Rome Italy. Objectives: Histologic and histomorphometric analysis of 85 samples were performed on bone samples from bisphosphonates-treated patients and healthy controls. All samples underwent to light and confocal laser scanning microscopy. Findings: In affected samples, three different main areas were identified. The most peripheral showed active osteomyelitis with an inflammatory infiltrate. This area was characterized by a predominance of acellular necrotic debris, thin-walled and dilated blood vessels and scattered residual, intensely basophilic bone spiculae with prominent bone destruction and resorption, thus exhibiting scalloped borders. The osteoclast-like cells, smaller in size and with fewer nuclei than normal ones, were rarely present in necrotic areas. Middle area, with a predominance of solid bony structure showed wide acellular necrotic regions, large and scalloped haversian channels containing inflammatory infiltrate. Areas without infection were the most internal. Newly formed woven bone, mainly showing centrifugal spatial orientation, was easily detectable in this area. Comparing bone samples gathered from healthy areas of bisphosphonate treated patients and healthy controls, the histomorphometric analysis showed large amount of bone, increased trabecular thickness, inter-osteonic bone deposition and small and few Haversian channels in bisphosphonate samples. Moreover, lamellar bone was composed of bigger osteones containing larger osteocytes. Conclusions: Haversian channels appear to have a pivotal role in the pathogenetic process of this condition. Bone seems not be supported by adequate blood supply, leading to an ischemic suffering which manifests itself in case of increased metabolic requests.

## #26 – Gold Room

**BISPHOSPHONATE-RELATED OSTEONECROSIS OF THE JAWS: LONG TERM RESULTS OF SURGICAL THERAPY IN EARLY STAGES.** G. Favia, A. Lucchese, G.P. Pilolli, C. Lajolo, M. Giuliani, E. Maiorano. University of Bari, Bari Italy; Catholic University of Rome, Rome Italy. Objectives: Aim of this study is to describe long term results of surgical therapy in early stages in 87 patients with jaw bisphosphonate-related osteonecrosis. All patients were classified in three stages using Ruggiero et al. classification modified with a dimensional assessment in order to establish therapeutic guidelines. Findings: 68 and 19 patients assumed bisphosphonates for neoplastic and non-neoplastic diseases, respectively. Zoledronate (64 cases) was the most common drug and mandible (63,5%) was more affected than maxilla. Jaw osteonecrosis was usually triggered by previous surgical procedures (80%). All patients underwent to prolonged antibiotic therapy (for at least 3 weeks). Then 71 patients underwent surgical treatment without reconstruction. Osteonecrosis appeared to have a progressive behaviour in patients in which systemic condition discouraged surgery. Surgery consisted in a rim resection limited to the alveolar ridge for stage I, extended to the basal bone in stage II while stage III was evaluated case by case. A complete healing has been registered respectively in 90% (27/30 cases), 76,19% (16/21 cases) and 29,17% (7/24 cases) of the cases for each stage with a mean follow-up of 16 months. All relapses were reported within 5-6 months. Maxillary involvement and non-oncologic patients appeared to have a better prognosis than mandibular and oncologic ones. Conclusions: Although the prevalence of bisphosphonate-related osteonecrosis is low, it represents an important public-health issue. In contrast with the literature, our experience proved more predictable results in jaw osteonecrosis in early stages, helping to acquire possible guidelines.

# Poster Abstracts – Monday, June 23, 2008

## #27 – Gold Room

A RETROSPECTIVE ANALYSIS OF ORAL & MAXILLOFACIAL CANCER IN SAUDI ARABIA. L. Jaber, A. Al-Rubaish, H. Al-Idrissi, S. Bazarbashi, N. Al-Hamdan, R. Assiri, D. Ajarim, M. Al-Ahwal, A. Al-Zahrani, A. Tarawa, A. Andejani, A. Aba-Hussein, H. Trabulsi, H. Al-Ghamdi, H. Al-Eid. King Faisal U. Dammam, Saudi Arabia. The aim of the present study was to illustrate the profile of oral and maxillofacial cancer (OMC) in Saudi Arabia. The database obtained from the National Cancer Registry between 1994 and 2001, served as the main source for the study. The highest reported sites of OMC were the nasopharynx for males, with an age standardized rate (ASR) of 2.4/100,000 & the mouth for females with ASR of 1/100,000. The female predominance of OMC was found to be 1:1.7 in the hypopharynx; 1:1.2 in the mouth; and 1:1.2 in the tongue. However, male predominance was observed to be 1:9.5 in other oropharynx; 1:2.7 in the nasopharynx; 1:1.9 in the tonsil; 1:1.2 in the lip; and 1:1.1 in the salivary glands. Among all regions of Saudi Arabia, Jazan had the highest incidence rate for OMC with ASR of 5.4/100,000 for males, and 10.9/100,000 for females (female predominance 1:2). Furthermore, mouth cancer in Jazan was shown to be the highest reported site with ASR of 2.9/100,000 for males, and 6.2/100,000 for females (female predominance 1:2). It should be noted however that 71% of OMC in Saudi Arabia showed distant metastasis or regional involvement at the time of diagnosis, whereas 29% of tumors were considered to be localized. Despite the fact that the overall incidence rate of OMC in Saudi Arabia was found to be relatively low, the high incidence rate of mouth cancer in the Jazan area, especially in females, requires further investigation. Moreover, it is suggested that due to the late detection of OMC in Saudi Arabia, an effective health care program should be implemented.

## #28 – Gold Room

SH3BP2 MUTATION IN CHERUBISM. J. H. YOON, S. A. KIM, S. G. ANG. CHOSUN U. GWANGJU, and DONGGUK U. GYUNGJU, KOREA. Cherubism is a rare developmental lesion of the jaw that is generally inherited as an autosomal dominant trait. Recent studies have revealed point mutations in the SH3BP2 gene in cherubism patients. In this study, we examined a 6-year-old Korean boy and his family. We found a Pro418Arg mutation in the SH3BP2 gene of the patient and his mother. A father and his 30-month-old younger brother had no mutations. Immunohistochemically, the multinucleated giant cells proved positive for CD68 and tartrate-resistant acid phosphatase (TRAP). Numerous spindle-shaped stromal cells expressed a ligand for receptor activator of nuclear factor kB (RANKL), but not in multinucleated giant cells. These results provide evidence that RANKL plays a critical role in the differentiation of osteoclast precursor cells to multinucleated giant cells in cherubism. Additionally, genetic analysis may be a useful method for differentiation of cherubism.

# Poster Abstracts – Monday, June 23, 2008

## #29 – Gold Room

**PRIMARY INTRAOSSEOUS ODONTOGENIC CARCINOMA ARISING FROM ODONTOGENIC CYST.** J.H. YOON, S.G. AHN. CHOSUN U. GWANGJU, KOREA. Primary intraosseous odontogenic carcinoma (PIOC) is a carcinoma arising within the jaws, putatively developing from remnants of odontogenic epithelium. PIOC is a rare malignant odontogenic tumor, which has been classified into 2 types: PIOC arising from a previous odontogenic cyst and PIOC arising de novo. We describe a case of PIOC arising from odontogenic cyst affecting the left posterior mandible of 72-year-old Korean man. Clinical examination showed a symptom-free hard mass. There was no evidence of ulceration, and there was no pain or bleeding. The overlying mucosa was intact and no regional lymph nodes were palpable. Clinical and radiological studies for other distant primary sites were negative. Radiographically, the tumor showed multilocular radiolucency with a noncorticated, ill defined border surrounding an impacted third molar tooth. Histology exhibited sheets or islands of nonkeratinizing malignant epithelial cells with minimal clear cell component in continuity with benign or dysplastic cyst lining epithelium. Immunostaining for PCNA and p53 protein showed a higher percentage of positive cells and more intense staining in the carcinomatous tissues than in the benign and dysplastic lesions. Further direct sequencing of p53 gene is on-going now.

## #30 – Gold Room

**PHOTODYNAMIC ANTIMICROBIAL EFFECT WITH CHLORIN e6.** Y. H. Moon, S. G. AHN. J. H. YOON. CHOSUN U. GJU, KOREA. Recently, new antibacterial strategy has been demanded because of the increased occurrence of drug-resistant bacteria. Accordingly, photodynamic therapy has been attempted for clinical application against drug-resistant bacteria. Antimicrobial photodynamic therapy combines a nontoxic photosensitizer with harmless visible light to generate singlet oxygen and free radicals that kill microorganism. In this study, we investigated bactericidal effect of photodynamic therapy by using photosensitizer chlorin e6 to pathogenic bacteria including a gram-positive *Staphylococcus aureus* and gram-negative strains including *Pseudomonas aeruginosa*, *Escherichia coli*, and *Salmonella enterica* serovar Typhimurium. To examine antimicrobial effect of photodynamic therapy, we measured inhibition zone, colony forming units (CFU), and in situ viability of bacterial cells after illumination with an energy density (Diode pumped laser driver LD2030) of 20J/cm<sup>2</sup> in the presence of 10μM chlorin e6. We found the increase of inhibition zone on agar plates, the reduction of colony forming unit, and the rapid decrease of viable cell number of all bacterial species examined while those of control bacteria treated solely with either light or photosensitizer were unchanged. The susceptibility of *S. aureus* and *P. aeruginosa* was much higher than that of the other strains. These results show that photodynamic therapy using photosensitizer chlorin e6 is very effective to inhibit bacterial survival, suggesting that this system can be clinically applicable as an alternative antibacterial strategy to treat multiple drug-resistant bacteria.

# Poster Abstracts – Monday, June 23, 2008

## #31 – Gold Room

PHOTODYNAMIC THERAPY USING CHLORIN e6 IN RAT TUMOR MODEL. Y. H. Moon, S. M. KWON, S. G. AHN, J. H. YOON. CHOSUN U. GWANGJU, KOREA Photodynamic therapy (PDT) is a clinically approved and rapidly developing cancer treatment regimen. In the present study, we examined the effectiveness of chlorin e6-induced PDT both in vitro and in vivo using malignant tumor model of Sprague-Dawley (SD) rat. RK3E-ras cells were incubated with chlorin e6 (Ce6) for twenty four hour. Ce6-induced PDT was generated reactive oxygen species (ROS) and led to significant RK3E-ras cell growth, as assessed by MTT assay. PDT with Ce6 induced activation of apoptosis related proteins such as caspase-3/-7, cytochrome c, and PARP. In contrast, cell survival factor Bcl-2 was reduced following PDT. Subsequently, apoptotic pattern was clearly demonstrated by TUNEL assay and flow cytometry. The tumor treated with light dose of 100 J/cm<sup>2</sup> (wavelength of 664 nm) using Ce6 of 10 mg/kg had significant reduction in tumor size. PCNA immunohistochemistry and TUNEL assay revealed that the treated tumor caused significant inhibition of tumor cell proliferation and increased apoptosis. These data showed Ce6-induced PDT effectively arrested the tumor growth by inhibiting cell proliferation and inducing apoptosis. These findings provide the potential value of Ce6-induced PDT as an alternative candidate for anti-tumor therapy.

## #32 – Gold Room

ANTI-TUMOR ACTIVITY OF 5<sup>TM</sup>-NITRO-INDIRUBINOXIME IN SALIVARY GLAND ADENOCARCINOMA SGT CELL. J. Yun, S. A. Kim, J. H. Yoon, S. G. Ahn. CHOSUN U. GWANGJU, DONGGUK U. GYUNGSU, KOREA. 5<sup>TM</sup>-nitro-indirubinoxime (5<sup>TM</sup>-NIO) is a derivative of the bis-indole indirubin, an active compound of Danggui Longhui Wan that exhibits anti-leukemic activities. Previously, we have shown that 5<sup>TM</sup>-NIO has potent anti-tumor effect in various human cancer cells. Here we report that 5<sup>TM</sup>-NIO inhibits proliferation of salivary gland adenocarcinoma (SGT) cells, mainly through arresting the cells in the G1/S phase of the cell cycle. 5<sup>TM</sup>-NIO inhibited CDK4/6 activity by inhibiting the expression of cyclin D1/D3 and by inducing the CDKs inhibitor, p15INK4B and p21Waf1. In addition, we found that 5<sup>TM</sup>-NIO strongly induced apoptosis in SGT cells through the mitochondria-dependent caspase cascade. These observations suggest the therapeutic potential of 5<sup>TM</sup>-NIO for salivary gland adenocarcinoma

# Poster Abstracts – Monday, June 23, 2008

## #33 – Gold Room

EXPRESSION OF CYCLIN G2 IN AMELOBLASTOMA. Zhong M, Liu J, Li ZJ, Wei ZH, Wang Y. China Medical University, Shenyang, China. Objective: The expression of G2 in ameloblastoma (AB) and the biological characteristics were studied. Methods: S-P immunohistochemistry was used to identify the expression of cyclin G2 in 58 cases of AB (39 cases primary, 19 cases recurrent AB) in which 4 cases were malignant (2 cases metastasis and others intraosseous) and others benign. 8 cases of keratocystic odontogenic tumour (KCOT) and 7 cases of normal oral mucosa (NOM) were also detected. Western blotting was carried out for expression of protein (15 cases of AB, 3 cases of KCOT, and 2 cases of NOR). RT-PCR was used to analyse the mRNA in 9 cases of AB, 6 cases of KCOT and 2 cases of NOM. Results: S-P immunohistochemistry results indicated that 7 cases of NOM, 5 of 8 cases in KCOT and 20 of 58 cases in AB were heavily positive and others were weakly positive or negative. Only 1 in 4 malignant AB cases was heavily positive. The statistic analysis result among groups of NOM, malignant AB and benign were  $X^2=13.409$  and  $P=0.037$ . The expression of cyclin G2 protein varied with the different cell types. It was found that the expression was positive in keratinocytes cells while negative in primary embryonic cells. The expression of cyclin G2 protein was heavily positive in the plexiform pattern, the unicystic and the desmoplastic ameloblastoma. Western Blot revealed that a few cyclin G2 protein can be detected in 15 cases of benign AB and 3 cases of KCOT. RT-PCR showed that there were only one heavily positive case, 3 positive cases a weakly positive one, and others were negative in 9 cases of AB. Only one case was heavily positive, 3 cases were weakly positive, others were negative in KCOT. In 6 cases of NOM. one was weakly positive, others were heavily positive. Conclusion: Cyclin G2 maybe was an important inhibitive factor during the formation of AB.

## #34 – Gold Room

ROLE OF JAGGED-NOTCH SIGNALING IN MOUSE DEVELOPING MANDIBULAR CONDYLAR CARTILAGE. N. OKAFUJI, T. SHIMIZU, K. NAKANO, and T. KAWAKAMI. Department of Hard Tissue Research, Matsumoto Dental University Graduate School of Oral Medicine, Shiojiri and Matsumoto Dental University Hospital, Shiojiri, Japan. Objective: The purpose of this study was to investigate the expression pattern of Jagged-Notch signaling in mouse developing mandibular condylar cartilage as a type of secondary cartilage. Materials and Methods: Mandibular condylar cartilage of ddY mice were fixed from embryonic day 14 (E14) through just after birth (equivalence to E19). Samples were cut into serial sections through the central area of the mandibular condyle at the sagittal plane. Serial sections were examined using histopathological (HE and TB), immunohistochemical (IHC), and in situ hybridization (ISH) techniques. In the present study, we examined Notch and Jagged as the ligand. Results and Discussion: At E14, there were no development features of mandibular condylar. At the distal upper portion of developmental mandibular bone, mesenchymal cell proliferation and condensation without metacholomatic reaction to TB were seen. At E15, mandibular condylar cartilage was clearly evident as TB metacholomasia. In IHC specimens at E14, expression of NICD was observed in the nuclei of coagulating mesenchymal cells. After E15, NICD appeared in the nuclei and the cytoplasm of cells. Furthermore, Jagged1 was detected in nearly the same period and the portion. In ISH examination at E15, expression of Notch1 mRNA appeared in the cytoplasm of proliferating chondrocytes. From E15 to E19, Notch1 mRNA was detected through almost all cytoplasm in all layers. As a result of Jagged2 mRNA localization, the expression pattern was nearly the same as that of Notch1. These IHC and ISH results suggest that Jagged-Notch signaling plays an essential role for mandibular condylar cartilage morphogenesis and development.

# Poster Abstracts – Monday, June 23, 2008

## #35 – Gold Room

COMPARATIVE STUDY BETWEEN GASTRIC AND ORAL HELICOBACTER PYLORI. E. Sepúlveda, A. García, C. González, C. Briceño, F. Kawaguchi, L. Spencer, U. Brethauer. U. of Concepción, Concepción, Chile. In order to relate gastric and oral *Helicobacter pylori* (*H. pylori*), samples from 59 patients with digestive endoscopy indication were obtained from antrum and corpus through endoscopic biopsies. Oral samples were obtained from dental plaque and saliva swabs from the floor of the mouth and base of the tongue. Oral samples from patients with positive gastric cultures (n=21) were studied by culture, conventional PCR and Real Time PCR. All cultures from oral samples were negative. Only one sample of dental plaque was positive with conventional PCR. However, samples from all patients were positive with Real Time PCR (20/21 dental plaque, 21/21 saliva from the floor of the mouth, 20/21 from the base of the tongue). Quantification showed that there are  $1 \times 10^3$  less bacteria in oral than in gastric samples. The results suggest that there is a correlation between the presence of *H. pylori* in gastric and oral mucosa. Also, that Real Time PCR is the best technique to detect low number of bacteria in the oral cavity.

## #36 – Gold Room

GINGIVAL FIBROMATOSIS AND DENTAL ABNORMALITIES - A NEW SYNDROME. H Martelli-Junior, PR Bonan, SM Santos, LAN Santos, RD Coletta. State University of Montes Claros, Minas Gerais, Brazil; State University of Campinas, São Paulo, Brazil. This study reports one kindred affected by an undescribed syndrome characterized by gingival fibromatosis (GF) associated with dental abnormalities. To characterize the pattern of inheritance and the clinical features, 70 family members were examined. The family pedigree demonstrated multiple consanguineous first cousin marriages and an autosomal recessive trait of inheritance. Four members demonstrated mild GF in association with generalized thin hypoplastic amylogensis imperfecta, intrapulpal calcifications, delay on tooth eruption, and pericoronal radiolucencies involving unerupted teeth. One out of those 4 patients also demonstrated mental retardation (MR). MR as an isolated feature was observed in 6 members. Histological examination of the gingiva revealed a dense connective tissue containing myofibroblasts, islands of odontogenic epithelium and laminated and calcified psammomatous deposits that by scanning electronic microscopy resembling cementicle-like structures. Pericoronal lesions also showed calcified psammomatous deposits in association with islands of odontogenic epithelium. Enamel ultrastructure analysis revealed normal surface alternated by irregular and porous areas. We propose that these cases represent a new syndrome within the spectrum of those including GF.

# Poster Abstracts – Monday, June 23, 2008

## #37 – Gold Room

EVALUATION OF THE RISK FACTORS ASSOCIATED WITH NONSYNDROMIC ORAL CLEFTS. H Martelli-Junior, LM Barros, AB Freitas, PR Bonan, D.R.M.Barbosa, J Orsi, MS Swerts. State University of Montes Claros, Minas Gerais, Brazil; University of Alfenas, Minas Gerais, Brazil. The aim of this study was to describe the risk factors that might be associated with oral cleft analyzing the mother characteristic with case-control methodology. The case-control study was developed at the Center for Rehabilitation of Craniofacial Anomalies - Centrinho of Alfenas University - in Minas Gerais, Brazil from 2005 to 2006. Mothers (n=60) of child with a nonsyndromic oral cleft were recruited and matched with 51 mothers who had a child with non development alterations of the same age. The finding revealed that the only representative increased risk factor was stillborn condition with odds ratio = 7.67 (p=0.05). Adding illicit drugs did not present correlation with nonsyndromic oral clefts. It was possible to conclude that the main listed risk factors associated with oral cleft in the literature only stillborn history presented statistical significance.

## #38 – Gold Room

APERT SYNDROME: CASE REPORT. LMR Paranaíba, PR Bonan, H Martelli-Júnior, J Orsi, RT Miranda, RD Coletta. State University of Montes Claros, Minas Gerais, Brazil; State University of Campinas, São Paulo, Brazil, University of Alfenas, Minas Gerais, Brazil. Apert syndrome is one of the five craniosynostosis syndromes that share clinical features and are caused by allelic mutations in the fibroblast growth factor receptor 2 (FGFR2) gene. Here we report a case of Apert syndrome in a 5 year old female with particular emphasis on craniofacial and genetic features. The patient showed several craniofacial deformities, including severe brachycephaly, mildface hypoplasia, flat forehead, depression of the temporal bones, proptosis, hypertelorism, and short nose with a bulbous tip. Syndactylies of the hands and feet were also present. Intra-oral findings included arched palate with pseudocleft in the midline, upper lip with symmetric depression resembling pseudoclefts, severe malocclusion, and several decayed teeth. DNA sequence and restriction enzyme analysis showed a G to C transversion, resulting in a serine to tryptophan amino-acid substitution at position 252 (S252W). Identification of the clinical features in association with mutation analysis is important in the correct diagnosis of Apert syndrome, and helpful in distinguishing this syndrome from other clinically similar craniosynostosis syndromes.

# Poster Abstracts – Monday, June 23, 2008

## #39 – Gold Room

**SYNCHRONOUS ORAL AND FACIAL AMELANOTIC METASTASIS FROM PLANTAR MELANOMA.**  
PR Bonan, AL Laranjeira, H Martelli-Júnior, RD Coletta. State University of Montes Claros, Minas Gerais, Brazil; State University of Campinas, São Paulo, Brazil. Metastatic malignant melanoma in the oral cavity is very rare and is associated with a very poor prognosis. We present a case of a 42 year-old Caucasian woman with previous history of plantar melanoma treated 9 years ago exclusively by surgery. Six years after of surgical approach, local recurrence and metastatic lesions in the liver and inguinal and hypochondrial areas were discovered. She was submitted to DTIC, CDDP and BCNU quimiotherapy regimen without remission. After 2 years, facial and gingival lesions emerged. Clinical examination revealed a fixed, firm, painless swelling in left malar region and an asymptomatic sessile reddish tender nodule in the mandibular anterior gingiva. Cranial CT revealed an irregular hyperdense mass in the skin near to the nose, and periapical radiograph showed irregular bone destruction with vertical and horizontal loss. Fine needle aspiration and incisional biopsies were taken from the facial and gingival lesions respectively, revealing amelanotic tumor cells with elevated nuclear pleomorphism and strong immunoreactivity to S-100 and HMB-45 antibodies. The patient died 2 months after the diagnosis of the oral metastasis because of systemic tumor dissemination.

## #40 – Gold Room

**BISPHOSPHONATE RELATED OSTEONECROSIS OF THE JAWS - A TREATMENT CONUNDRUM**  
S Sukumar, S Yeoh Liverpool Hospital SSWAHS, NSW Australia. Bisphosphonate related osteonecrosis of the jaws (BRONJ) is a recognized complication of nitrogen-containing bisphosphonates. There is a consensus to avoid dental extractions in this patient cohort, with various peril-operative recommendations in the event of necessary extractions. This case report describes a 68 year old multiple myeloma patient with a history of three years of intravenous bisphosphonate therapy, requiring extraction of six grossly carious teeth. Almost complete re-epithelialization of sockets was evident at seven months post-extraction. However, in the subsequent six months, three areas of continuously enlarging non-suppurative, painless bone exposure became apparent - clinically suggestive of BRONJ. The risk of BRONJ appears to be related to the potency and duration of bisphosphonate therapy. Strategies for the treatment and prevention of ongoing progression of BRONJ are currently evolving. This case emphasizes the long term difficulties and uncertainties encountered in the management of this condition.

# Poster Abstracts – Monday, June 23, 2008

## #41 – Gold Room

MANAGEMENT OF A PATIENT WITH PEMPHIGUS VULGARIS WITH A HISTORY OF PREVIOUS EXPOSURE - B Karim, D, Fulcher, A Georgiou, M Schifter, University of Sydney - Westmead Hospital, Sydney NSW 2145 Australia. Pemphigus vulgaris is a serious immunological vesicullo-bullous disease with an incidence of 0.75-5 people per million per year. The management of pemphigus vulgaris involves the use of aggressive immunosuppressive agents each of which can have serious adverse complications. This case report describes a 53 year old male patient with pemphigus affecting the oral and genital mucosa whose re-treatment chest radiographs displayed evidence of calcific changes suggestive of previous tuberculosis infection. The patient was treated with isoniazid in conjunction with high-dose corticosteroids, with subsequent addition of azathioprine as a steroid sparing agent. The patient showed a good response with resolution of his oral and genital pemphigus lesions and no tuberculosis complications. This case highlights the importance of pre-therapy screening for tuberculosis in, at-risk™ populations, and the need for a multi-disciplinary approach in the management of pemphigus vulgaris.

## #42 – Gold Room

CLINICOPATHOLOGIC ANALYSIS OF 17 NIGERIAN CASES OF DESMOPLASTIC AMELOBLASTOMA. O. Effiom and O. Odukoya. U. Lagos, Nigeria. In order to add to knowledge on previously reported 90 cases of desmoplastic ameloblastoma (DA) in the scientific literature, this study aimed at analyzing 17 Nigerian cases of DA (from a pool of 573 histologically diagnosed odontogenic tumours, 330 of which were ameloblastomas) and speculate on the biologic profile of DA, using estimated growth rate as a parameter, and comparing same with that of solid multicystic ameloblastoma, recorded over the same period of 38 years (1969-2007). DA has predilection for mandible (81.2%) with the posterior mandible, being the most commonly affected mandibular site, contrary to scientific literature reports of predilection of DA for anterior maxilla. Two histological variants were observed i.e. simple DA and DA with osteoplasia, the former being predominant (88.0%). Estimated mean growth rate of DA, which was  $0.36 \pm 0.44$  cm/month was significantly less than  $0.71 \pm 1.16$  cm/month for solid multicystic ameloblastoma ( $p=0.000480$ ). It is speculated from this study that DA has tendency to be less biologically aggressive than solid multicystic ameloblastoma and occur with predilection for posterior mandible in Nigerians.

# Poster Abstracts – Monday, June 23, 2008

## #43 – Gold Room

CYTOGENETIC BIOMONITORING IN ORAL MUCOSA CELLS OF ADULTS SUBMITTED TO DENTAL X-RAY. D. A. Ribeiro and F. Angelieri. University of Sao Paulo, UNIFESP, Santos, SP, Brazil and Metodista School of Dentistry, UMESP, SP, Brazil. The aim of the present study was to evaluate DNA damage (micronucleus) and cellular death (pyknosis, karyolysis and karyorrhexis) in exfoliated buccal mucosa cells from healthy individuals (smokers and non-smokers) following dental X-ray exposure. A total of 39 healthy people submitted to panoramic dental radiographies were included being 9 smokers and 30 non-smokers. The results pointed out no significant statistically differences ( $p>0.05$ ) of micronucleated oral mucosa cells in people before and after dental X-ray exposure. On the other hand, X-ray was able to increase other nuclear alterations closely related to cytotoxicity such as karyorrhexis, pyknosis and karyolysis. It seems that cigarette smoke did not interfere with X-ray outcomes induced to buccal cells. In summary, these data indicate that dental panoramic radiography may not be a factor that induced chromosomal damage, but it is able to promote cytotoxicity. Since cellular death is considered to be a prime mechanism in non-genotoxic mechanisms of carcinogenesis, dental X-ray should be used only when necessary.

## #44 – Gold Room

CHONDROBLASTIC OSTEOSARCOMA OF MANDIBLE INITIALLY RESEMBLING LESION OF DENTAL PERIAPEX: A CASE REPORT. S. GONZALEZ, M. RODRIGUEZ, N. LOBOS. University of San Sebastian, University of Pedro de Valdivia, University of Chile, Chile. Osteosarcoma (OS) is a primary malignant tumor of bone or mesenchymal tissues that histopathologically shows osteoid formation. OS of the jaws is uncommon and the most common places of occurrence of this lesion are alveolar ridge and body in maxilla and mandible. The World Health Organization (WHO) lists several variants that differ in location, clinical behavior and level of cellular atypia. The conventional or classical OS is the most frequent variant, which develops in the medullary region of the bone and can be subdivided in osteoblastic and chondroblastic histological types, depending on the type of extracellular matrix produced by tumor cells. The 27-year-old female patient was referred to for examination of a volume increase in the lower left molar region. The patient had previously attended an odontological center reporting a slight volume increase in the described area. It had hard consistency, painless upon palpation, with no other manifestations. The periapical radiography suggested radicular reabsorption and diffuse bone rarefaction of the 3.1 periapex; the patient was followed up by endodontic treatment of the tooth with necrotic pulp. After 20 days, the patient returned to the clinic reporting no improvement. It could be noticed that there was fast progression of the disease, with clear facial asymmetry. The occlusal radiography image showed bone destruction and abnormal formation in the region, with ground glass appearance, masking details in the bone trabeculae. The external cortical view showed significant radiopacity similar to fisunrays, suggesting a diagnosis of osteosarcoma. The histopathological assessment confirmed the clinical suspicion of osteosarcoma.

# Poster Abstracts – Monday, June 23, 2008

## #45 – Gold Room

**CLEIDOCRANIAL DYSPLASIA: REPORT OF A FAMILY** M. RODRIGUEZ, A. CASTRO, G. GARCIA, D. ADORNO, B. URZUA. UNIVERSITY OF CHILE. Cleidocranial Dysplasia (CDD) is a rare syndrome usually caused by an autosomal dominant gene with high penetrance and variable degree of expressions. This condition is usually caused by a mutation of the Core Binding Factor-1 gene, located at chromosome 6p21. This gene encodes a protein necessary for the correct functioning of osteoblast cells, however, 40% of cases of CDD appear spontaneously with no apparent genetic cause. CDD Primarily affecting bones undergoing intramembranous ossification characterized by clavicular aplasia or hypoplasia, retarded cranial ossification, multiple impacted permanent teeth, supernumerary teeth, short stature, delayed closure of the sagittal fontanelles and a variety of other skeletal abnormalities. A family case of CDD was referred to Diagnosis Service of the University of Chile. A genealogical pattern was created and three generations of this family group were clinical and radiologically examined. Generalized dysplasia in bones, prolonged retention of primary teeth and delayed eruption of permanent, as well as supernumerary teeth was diagnosed. A molecular analysis that consists of the detection of a described mutation using PCR, will be performed in this family.

## #46 – Gold Room

**BISPHOSPHONATE-ASSOCIATED OSTEONECROSIS OF THE JAWS IN CANCER PATIENTS.** E. Silva-Guerra, A. Luz, A. Leite, P. Figueiredo, and N. Melo. Brasilia U. Brazil. The development of osteonecrosis of the jaws has been described as being associated with the use of bisphosphonates (BP). The aim of this study was to characterize bisphosphonate-associated osteonecrosis of the jaw in fourteen patients after treatment with BP for more than a year for neoplastic diseases with respect to demographic data, clinical aspects of the lesion, type and duration of BP therapy, and radiologic signs. The osteonecrosis were examined with both dental panoramic radiograph and multislice spiral computerized tomograph (CT). The results of treatment for osteonecrosis were qualified and statistical correlations between the variables were performed. The patients, four men and ten women, aged between 47 and 83 years (mean age 66.4 years), had been treated with zolendronate (8) or pamidronate (4) or both zolendronate and pamidronate (2) for metastases from breast cancer (8 cases), and prostate cancer (1 cases), osseous localization of multiple myeloma (4 cases), and lymphoma (1 cases). Bisphosphonate-associated osteonecrosis of the jaw (4 cases in the maxilla, 4 cases in the mandible and 2 cases in both maxilla and mandible) were related as an inciting or precipitating event, to tooth extraction (6 cases), edentulous areas with partial denture (6 cases), and peri-implantitis (2 cases). The panoramic radiograph proved positive for the diagnosis, but CT was far superior in detecting all the radiologic signs. The duration of therapy with BP was an important factor for osteonecrosis development. The therapy for osteonecrosis was effective in healing or in limiting the progression of bone necrosis.

# Poster Abstracts – Monday, June 23, 2008

## #47 – Gold Room

**AKT/TSC/mTOR ACTIVATION BY THE KAPOSI<sup>TM</sup>S SARCOMA-ASSOCIATED HERPESVIRUS G PROTEIN-COUPLED RECEPTOR: NOVEL THERAPEUTIC TARGETS FOR THE TREATMENT OF KAPOSI<sup>TM</sup>S SARCOMA.** R. Chaisuparat, J. Hu, B. Jham and S. Montaner. U of Maryland, Baltimore, Maryland. Kaposi<sup>TM</sup>s sarcoma (KS) is the most frequent neoplasm affecting the oral cavity in AIDS patients. The identification of the Kaposi<sup>TM</sup>s sarcoma associated herpesvirus (KSHV) as the viral etiologic agent for KS has provided an opportunity to uncover its molecular pathogenesis and to identify new therapeutic targets for KS. The expression of only one KSHV gene, vGPCR, is able to induce KS-like sarcomas in mice, suggesting that vGPCR may be the viral gene responsible for the development of KS. Here, we demonstrate that dysregulation of Akt/TSC2/mTOR by the KSHV vGPCR is essential for KS sarcomagenesis. In vitro, cells overexpressing vGPCR showed constitutive signaling of Akt/TSC/mTOR. Immunohistochemical analysis of vGPCR experimental and human KS tissues revealed high levels of phosphorylated Akt and S6 ribosomal protein. Of interest, the treatment of allografts established upon injection of endothelial cells overexpressing KSHV vGPCR with the specific mTOR inhibitor, rapamycin, blocked tumor growth, providing a molecular explanation of the efficacy of rapamycin in the regression of KS lesions in patients with iatrogenic KS. Moreover, a novel dual inhibitor of PI3Ka and mTOR, PI-103, was able to inhibit vGPCR tumorigenesis in vitro and in vivo. Exposure of vGPCR expressing cells to this compound blocked the phosphorylation of Akt, its downstream substrates, and mTOR suggesting that combinatorial inhibition of mTOR and p110a may represent an effective therapeutic alternative for KS patients. All together, these results suggest that specific inhibitors of Akt/TSC/mTOR represent valuable therapeutic alternatives for Kaposi<sup>TM</sup>s sarcoma.

## #48 – Gold Room

**SIGNIFICANCE OF CLINICAL & HISTOLOGICAL PARAMETERS ON SURVIVAL OF ORAL SQUAMOUS CELL CARCINOMA PATIENTS.** G Pitiyage, DK Dias, R Kumarasiri, A Ariyawardana, WM Tilakaratne. Queen Mary U of London UK Teaching Hospital Galle, SL, U of Peradeniya, SL. Oral squamous cell carcinoma (OSCC) accounts for the 6th most common cancer worldwide. Despite developments in diagnosis & therapy, prognosis for OSCC still remains unfavorable. To date TNM stage appears to be the most important clinical prognosticator & treatment determinant. Current retrospective study aimed to identify clinical & pathological parameters vital in the survival of OSCC patients in Sri Lanka. Archival materials of 240 patients were retrieved from the department of oral pathology, University of Peradeniya, SL. Histopathological parameters were recorded using Broder<sup>TM</sup>s grading system, Bryne<sup>TM</sup>s & Annoreth<sup>TM</sup>s classifications. Clinical & survival records were retrieved from the respective hospitals. Age, sex & clinical stage (clinical), Degree of differentiation, pattern of invasion, host response, tumour free margin, lymph node involvement and eosinophilic infiltrate (histological) were included & the relationship between the above & survival were studied. (Chi squared test) Age & sex had no association with 3 year survival. Clinical stage was statistically significantly associated with 3 year survival ( $p < 0.001$ ). Pattern of invasion ( $p < 0.001$ ), Host response ( $p = 0.003$ ), tumour free margin ( $p = 0.002$ ) degree of keratinization ( $p = 0.004$ ) & lymph node positivity ( $p < 0.001$ ) were all associated with 3 year survival. Survival analysis using Cox Regression model identified level of differentiation ( $p = 0.006$ ), excision margin ( $p = 0.015$ ) & stage of tumour as independent determinants of survival. This study reveals the prognostic significance of most clinical and histological parameters associated with OSCC. However, a larger sample of patients with long term follow up is necessary to draw conclusions on long term survival.

# Poster Abstracts – Monday, June 23, 2008

## #49 – Gold Room

THE ROLE OF HYPOXIA AND SEMAPHORIN 4D IN TUMOR-INDUCED ANGIOGENESIS. J. Basile, Q. Sun and N. Binmadi. U. Maryland, Baltimore. The growth and metastasis of all solid tumors requires induction of angiogenesis, making the development of anti-angiogenic agents an appealing research goal. Recent studies have identified hypoxia-inducible factor (HIF)-1 as an important transcription factor that promotes angiogenesis in many different tumors. We now know that the plexins and semaphorins, proteins involved in transmitting axonal guidance cues, may serve a similar function. For example, we have demonstrated that Plexin-B1 promotes a pro-angiogenic response in endothelial cells when bound by Semaphorin 4D (Sema4D), a protein over-expressed in head and neck squamous cell carcinomas (HNSCC) and other tumors. The objective of this study is to determine how Sema4D is upregulated in transformed cells. We show that Sema4D is induced in hypoxia by HIF-1-mediated pathways, and that it likely acts with other HIF-1-regulated factors to enhance tumor survival. These findings suggest that Sema4D might present a new target for anti-angiogenic therapy of oral cancer.

## #50 – Gold Room

MALIGNANT LYMPHOMA AND BENIGN LYMPHOEPITHELIAL LESION IN THE PAROTID GLANDS. A. Castro, G. García, D. Adorno, M. Rodriguez. University of Chile (Santiago, Chile) A 72-year-old Chilean woman was referred to Diagnosis Service of School Dentistry, University of Chile, with a firm left infraauricular swelling. The size of the tumor was 4x4cm, asymptomatic, two months of evolution. On palpation, no attachment to surrounding structures is apparent, and the enlargement is nontender and either nodular or diffuse distribution. There was nothing significant in her medical history. Ultrasonography (US) imaging showed a solid mass with heterogeneous internal echogenic pattern that had well-defined margins. Power Doppler sonography evidenced rich blood flow in the tumor mass. A left parotidectomy was performed and the histological findings informed a benign lymphoepithelial lesion of the parotid gland. Two years later the patient came back to our Service with the right parotid swelling, with the same clinical characteristics of the mass in the left side. The US showed a nodular lesion with bad-defined margins and computed tomography evidenced a solid nodular mass hyperdense, diffuse, with thickness of the subcutaneous space. In the National Cancer Institute (Santiago, Chile) was performed a right parotidectomy. The biopsy informed a MALT type malignant lymphoma. No recurrence has been seen for two years after the additional courses of COP and radiotherapy.

# Poster Abstracts – Monday, June 23, 2008

## #51 – Gold Room

EPIDEMIOLOGIC STUDY OF ORAL SQUAMOUS CELL CARCINOMA IN SISTAN VA BALUCHESTAN FROM 1995 TO 2006, IRAN. M. Ghanbariha, F. Shahsavari, P. Arefi, Medical Sciences U. Zahedan, and Medical Sciences U. Rasht. The aim of this study was to assess the prevalence and distribution of gender, age, sites, and histological differentiation of oral squamous cell carcinoma (OSCC) in Sistan & Baluchestan province, Iran. The total medical records of 3070 patients with a histopathologic diagnosis of malignant neoplasm were reviewed during the 11-years period from 1995 to 2006. The data suggested a steady increase in prevalence of OSCC during the last decades. Of 3070 patients with malignancy, 217 cases had oral malignancy. The most common oral malignant neoplasia was OSCC (n=178, 82%) and then verrucous carcinoma (n=14, 6.4%). During these years oral SCC was one the most common cancer of the body after esophagus malignancy. Peak incidence of OSCC in both sexes was in the seventh decade of life and male-to-female ratio was 1.1:1. The lip (22.8%) and mandibular gingiva (22.3%) were most commonly. The most common histological grading was well differentiated SCC (72.5%). Since OSCC is one of the most common cancers in Sistan va Baluchestan, we should pay more attention to the etiological factors. The high rate of OSCC in females may be due to rising prevalence of tobacco product consumption among females, so a more intensive program of prevention and early treatment is necessary.

## #52 – Gold Room

Rho/ROCK Signaling in Regulation of Adenoid Cystic Carcinoma Cell Progression. Ji-an Hu, Yining Li. Dept. of Oral Pathology, School of Stomatology, Zhejiang University, Hangzhou, China. Objective: This study was conducted to determine whether and how Rho/ROCK signaling regulates adenoid cystic carcinoma cell progression. Methods: Adenoid cystic carcinoma cell line (ACC-M) were cultured in the presence of Y27632 for more than 4 weeks. Western blot and real-time RT-PCR analyse, respectively. Results: Y27632 inhibit proliferation of ACC-M cells significantly by MTT assay. The activity of ACC-M was declined in these terms. Under the Y27632 conduct, protein and mRNA levels of cyclinD1 and cyclinD3 were significantly lower during the cell cycle progression ( $p < 0.05$ ). Intracellular mRNA or protein levels of cyclinE and protein levels of CDK2 were not significantly affected, but their nuclear translocation was delayed by ROCK inhibition ( $p < 0.05$ ). Conclusion: ROCK signaling is involved in cell cycle progression in ACC-M, Treatment of adenoid cystic carcinoma with rho inhibitor could be an important option for future clinical studies. Keywords: Adenoid cystic carcinoma; rho; progression

# Poster Abstracts – Monday, June 23, 2008

## #53 – Gold Room

INDUCTION OF CYP1A1 AND CYP1B1 BY BENZO[A]PYRENE IN HUMAN ORAL SQUAMOUS CELL CARCINOMA CELLS A. Chi, K. Appleton, D.T. Kurtz, Medical U. of South Carolina, Charleston.

Background: Chief among the carcinogens in tobacco smoke are the polycyclic aromatic hydrocarbons (PAHs), including benzo[a]pyrene (BP). Metabolic activation of PAHs by cytochrome p450 (CYP) enzymes leads to DNA adduct formation, which presumably leads to oral cancer development via interaction with genes essential for regulating key cell functions. CYP expression in the oral cavity is not well characterized. The major isoform involved in BP bioactivation is believed to be CYP1A1, with conflicting reports regarding CYP1B1. Objective: To determine whether there is significant induction of both CYP1A1 and CYP1B1 in tobacco-related oral carcinogenesis. Study design: The following oral SCC cell lines were exposed to 2 $\mu$ M BP: UMSCC-1, SCC-9, UMSCC-12, UMSCC-14A, UMSCC-22A, UPCI-SCC40, UPCI-SCC81. After 24 hrs, CYP1A1 and CYP1B1 expression was assessed by quantitative real time RT-PCR and Western blot. In addition, CYP1A1 and CYP1B1 expression by UMSCC-14A after 48 hours was measured for BP concentrations ranging from .001 $\mu$ M to 20 $\mu$ M. Results: Significant induction of both enzymes was found in all oral SCC cell lines examined, with CYP1A1 induction ranging from 2- to 79-fold (average 21-fold) and CYP1B1 induction ranging from 2- to 12-fold (average 6-fold). For UMSCC-14A, induction of CYP1A1 and CYP1B1 was detected at BP concentrations as low as .1 $\mu$ M and 1 $\mu$ M, respectively. Conclusions: Significant induction of both CYP1A1 and CYP1B1 is observed with exposure of oral SCC cells to BP. Additional studies of CYP1A1 and CYP1B1 expression in human oral tissues are needed to confirm these in vitro findings, which suggest a role for both isoforms in tobacco-related oral carcinogenesis.

## #54 – Gold Room

NEVOID BASAL CELL CARCINOMA SYNDROME-A CASE REPORT. Y-F Huang, Y-J Chen and H-W Yang, Chung Shan Medical University Hospital, Taichung, TAIWAN Nevoid basal cell carcinoma syndrome is an autosomal dominant inherited disease. The prevalence of the syndrome is estimated to be about 1 in 60,000. One of the major manifestations of these patients is multiple odontogenic keratocysts of the jaws, in addition to multiple nevus-like pigmentations which represent basal cell carcinoma. Other commonly seen clinical features include calcification of falx cerebri, bifid rib, and palmar/plantar pits. Many mutations in PTCH gene have been reported. Here we presented a case of Gorlin syndrome on a 15 year-old girl who initially presented with a well defined radiolucent lesion associated with an impacted #33 in July, 2006. During the course of examination, bifid of right 4th rib and calcified falx cerebri were noted. Lesion was enucleated and the histopathologic report showed an odontogenic keratocyst with an impaction of #33. Three months later, additional well defined radiolucent lesions were seen on panoramic radiograph associated with developing #38 and #48. Lesions were removed and histopathologic reports showed both lesions as odontogenic keratocysts, thus confirming the diagnosis of Nevoid basal cell carcinoma syndrome. Initial genetic search on mutations of PTCH showed 2 mutations. One is on exon 12 (c.1686 bp C->T) and the other one on intron 13 (g.91625bp C->G). No basal cell carcinoma was discovered, nor did recurrence of odontogenic keratocyst was identified. Patient is currently under close follow up.

# Poster Abstracts – Monday, June 23, 2008

## #55 – Gold Room

THE FREQUENCY OF LOSS OF HETEROZYGOSITY (LOH) OF SALIVARY BASAL CELL ADENOCARCINOMA AND ADENOID CYSTIC CARCINOMA. MH. Ryu, SW. Hong, KW. Kwon, JH. Gwon, DP. Hong, J. Kim. Namseoul U. Cheonahn, Yonsei U. Seoul, Soonchunhyang U. Bucheon, South Korea. Salivary basal cell adenoma, basal cell adenocarcinoma and adenoid cystic carcinoma are composed of a heterogenous group characterized by common developmental origin and various histopathologic appearances. The authors analyzed the pattern of loss of heterozygosity (LOH) in 4 basal cell adenomas, 4 basal cell adenocarcinomas and 41 adenoid cystic carcinomas during the period of 1992~2006 in order to investigate the tumorigenesis of these tumors. We separated the epithelial cells and fibroblasts of these tumors using Laser Capture Microdissection (LCM), respectively, and performed PCR reaction using 13 microsatellite markers. The results of gel electrophoresis revealed LOH in every salivary tumors. The highest frequency of LOH was observed at D21S1922 and D9S171 locus both in epithelial cells and fibroblasts. Thirty two percentage of salivary tumor showed LOH on chromosome 9p21 (D9S162, D9S168, D9S171, D9S286, D9S1748, and D9S1749) and interpreted as mutation of p16 protein coding region, suggesting that p16 and other microsatellite loci could work as tumor suppressor gene. Additionally stromal fibroblasts may play a role in tumorigenesis as well as epithelial cells. This work was supported by Korea Research Foundation Grant (KRF-2006-331-E00310).

## #56 – Gold Room

GENETIC ALTERATIONS IN ORAL SQUAMOUS CELL CARCINOMA BASED ON MULTISTEP PROCESS BY ARRAY COMPARATIVE GENOMIC HYBRIDIZATION. JD. Cha, KY. Kim, S. Li, GY. Lee, SY. Rha, J. Kim, and IH. Cha. Oral Cancer Research Institute, Dept. of Oral Pathology, Dept. of Oral & Maxillofacial Surgery, Yonsei U. College of Dentistry, and Yonsei Cancer Center, Yonsei U. College of Medicine, Seoul. Oral squamous cell carcinoma (OSCC) has been demanded to represent a multistep process driven by the accumulation of carcinogen-induced genetic changes. The aim of this study is to screen genetic alterations through whole genome-wide coverage as transforming to dysplasia and to invasive carcinoma from normal oral mucosa. Fresh tissues of cancer area, dysplastic transitional area and resection margin were analyzed by array-CGH using a commercially available 60-mer oligonucleotide microarray. Using hierarchical clustering analysis, we found that the cancer and dysplastic area were distinguished from normal based on genome-wide expression patterns. The highest frequencies of amplified genes were detected in PAIP1, IMP-3, CKS2, BMPR1A, BIRC2, ATBF1, CABLES1, and FLRT3 and deleted genes were detected in ZNFN1A2, XPC, CENTD1, FER, IL12B, IL15RA, CTSB, ARHGAP6, and UTY. Our data may contribute to study OSCC tumorigenesis. Acknowledgement: This study was supported by the Korea Research Foundation Grant funded by the Korean Government (MOEHRD), Basic research promotion fund (KRF-2005-005-05904).

# Poster Abstracts – Monday, June 23, 2008

## #57 – Gold Room

**BUCCAL PATHOLOGIES IN PATIENTS WITH DIABETES MELLITUS FROM THE ODONTOLOGY FACULTY OF THE UNIVERSITY AUTONOMOUS OF TLAXCALA** A. Lucero, R. Lechuga, MA Becerra, P. Limón, Universidad Autónoma de Tlaxcala Diabetes mellitus is a group of diseases characterized by hyperglycemia as the result of defects in the insulin secretion, action or both. Objective: to detect most frequent buccal pathologies on patients with diabetes mellitus for its correct dental treatment. Material and methods: we received patients from different parts of the estate from May to November 2006, we got the records clinical, glucose test; intra and extra oral exam with measure of the periodontal bags and CPO; they got educative and preventive explanations and they were transferred with general doctors from the faculty. Results: 40% of the patients fulfilled the inclusion criteria with a glucose average of 150 mg/dl and age average of 60 years old, from which ones 21 had decay (57%), 12 periodontal diseases (32%) and a small percentage (<5%) bruxism, geographic tongue and dental malformations. Conclusions: decay was the most frequent pathology on this study, in opposition to the investigations that show greater incidence of periodontal diseases which we can give preventive or corrective treatment to this patients in order to improve their quality of life.

## #58 – Gold Room

**CXCR-4 KNOCKDOWN BY SMALL INTERFERING RNA INHIBITS CELL PROLIFERATION AND INVASION OF ORAL SQUAMOUS CELL CARCINOMA CELLS.** SD Hong, JS Hong, HK Pai, KO Hong, JI Lee, SP Hong, Seong-Doo Hong. Seoul National U, Korea. Oral squamous cell carcinomas (OSCCs) are characterized by a high degree of local invasion and a high rate of metastases to cervical lymph nodes. Downregulation of CXCR-4 by siRNA inhibits invasion and growth of breast and colon cancer cells. However, there have been no reports on the downregulation of CXCR-4 by small interfering RNA (siRNA) in oral cancer cells. We generated two stable CXCR-4-knockdown clones (KBsi and KOSCC-25Bsi) from the KB and KOSCC-25B OSCC cell lines by lentiviral delivery. In vitro invasion and cell proliferation assays were used to investigate the effect of CXCR-4 downregulation on cell proliferation and invasiveness in KBsi and KOSCC-25Bsi. Immunohistochemistry was performed to evaluate the correlation between CXCR-4 expression and proliferation in 26 OSCC tissue samples. CXCR4-knockdown OSCC cells showed reduced invasiveness. The invasiveness of KBsi decreased to 29.5% of the vector-infected controls, and KOSCC-25Bsi decreased to 38.1% of the control vector-infected cells ( $P<0.05$ ). The CXCR4-knockdown OSCC cells grew significantly slower than the vector-infected control cells. KBsi and KOSCC-25Bsi cells proliferated at 69.5% and 71.7%, respectively, of the rate of control vector-infected cells ( $P<0.05$ ). CXCR-4-positive group had significantly higher PCNA labeling index than CXCR-4-negative group in OSCC tissue samples. These results suggest that the downregulation of CXCR-4 induces anti-proliferative and anti-invasive effects in OSCC and that CXCR-4 might be a useful target molecule for the treatment of OSCC.

# Poster Abstracts – Monday, June 23, 2008

## #59 – Gold Room

**PROGNOSTIC SIGNIFICANCE OF CXCR-4 EXPRESSION IN ORAL SQUAMOUS CELL CARCINOMA.** YA Cho, JI Lee, BAH Jin, MA Kim, SD Hong, SP Hong. Seoul National U, Korea. We investigated the prognostic significance of chemokine receptor CXCR-4 in patients with oral squamous cell carcinoma (OSCC) and its relationship to MMP-2, MMP-9, and Ki-67 expression. CXCR-4, MMP-2, MMP-9, and Ki-67 expression was assessed immunohistochemically in 74 OSCC patients. The results were analyzed in connection with clinicopathological factors. CXCR-4 expression was positive in 44 cases and significantly correlated with lymph node metastasis ( $p=0.024$ ), MMP-9 expression ( $p=0.013$ ), and Ki-67 expression ( $p=0.003$ ). Univariate analysis showed that CXCR-4 expression, MMP-9 expression, Ki-67 expression, tumor size, lymph node metastasis, clinical stage, and recurrence correlated with prognosis. Multivariate analysis indicated that CXCR-4 expression was an independent prognostic factor for poor survival in patients with OSCC. CXCR-4 expression is a significant prognostic indicator for poor survival in patients with OSCC and correlates with MMP-9 and Ki-67 expression. The inhibition of CXCR-4 represents a possible molecular approach to the treatment of OSCC.

## #60 – Gold Room

**METASTATIC CANCERS TO ORAL AND MAXILLOFACIAL REGION.** S.H.Han and J. Kim. Department of Oral Pathology, Oral Cancer Research Institute, Yonsei University College of Dentistry, Korea. Metastatic tumors in oral cavity are rare, whereas their prognoses are considered to be extremely poor. Unless recognizing its primary origin, the pathologic diagnoses for metastatic cancer have been troublesome for oral pathologists. This retrograde analysis was aimed at providing practical suggestion for the diagnoses of metastatic cancers to oral and maxillofacial region. We reviewed 22 patients diagnosed as metastatic cancers to oral cavity from 1991 to 2007. The patients were classified according to their clinical and histological findings. Immunohistochemical staining was performed for differential diagnosis. Histologically, 22 cases comprised 13 cases of adenocarcinoma, 5 cases of undifferentiated carcinoma, 3 cases of squamous cell carcinoma, and one papillary carcinoma. The lung was the most common site for primary tumor (5/22). The breast is the second common primary site (2/22), followed by prostate, kidney, stomach, esophagus, liver, rectum (1/22), respectively. Specific markers of metastatic cancers to provide the information for primary origin would be discussed. This study was supported by the Korea Research Foundation Grant funded by the Korean Government (MOEHRD), Basic research promotion fund (KRF-2005-005-05901).

# Poster Abstracts – Monday, June 23, 2008

## #61 – Gold Room

RECONSTITUTION OF ORAL SQUAMOUS CELL CARCINOMA BY THREE IMMORTALIZED CELL LINES. Y.J. Park, D.P. Hong, Y.S. Hwang, C.M. Cha, B.K. Oh\*, E.C Kim\*\*, J. Kim. Oral Cancer Research Institute, Department of Oral Pathology, Yonsei U., Brain Korea 21 Project, Yonsei Cancer Center\*, Wonkwang U.\*\*, Korea. To study carcinogenesis of oral squamous cell carcinoma (OSCC), it is important to establish an in vitro multistep carcinogenesis model. Cell immortalization is considered to be a prerequisite status for cancer transformation. Accordingly, we established three kinds of immortalized cells and reconstituted OSCC in vitro. HPV16 E6/E7-induced immortalized human oral keratinocyte (IHOK: provided by EC Kim) was serially transfected with retroviral constructs containing hcdk4 and hcdk4/hTERT. Cell cycle related proteins were analyzed and telomerase activities were examined. Organotypic culture showed invasive OSCC in all three immortalized cell lines. Interestingly, in vivo tumorigenicity was found only in two cell lines, hcdk4 transfected-IHOK and hcdk4/hTERT-transfected IHOK. Three-dimensional in vitro model reconstituted by immortalized cells may be useful for further studies to investigate oral carcinogenesis. This study was supported by the Korea Research Foundation Grant funded by the Korean Government (MOEHRD), Basic research promotion fund (KRF-2005-005-05901).

## #62 – Gold Room

PAPILLARY ONCOCYTIC CYSTADENOMA, A CASE REPORT. Meza-García G, Martínez-Martínez E, García-Álvarez E. Universidad Autónoma Benito Juárez de Oaxaca. Introduction: Papillary oncocytic cystadenoma is defined as a cystic adenoma in which the cystic space is filled with papillary projections and oncocytic changes, arising from undifferentiated epithelium of the intercalated ducts of the glands that include the minor salivary glands, the parotid glands, larynx, nasopharynx and the lachrymal gland. The most frequent locations for this tumor in the oral cavity are: hard palate, cheek, and posterior region of the tongue, however, papillary oncocytic cystadenoma arising from a minor salivary gland is rare. Case report: A 25 years old woman with an little painful, nodular submucosal lesion in the left cheek, red and blue colour; four year of evolution. The appearance was similar to mucocele, a it was the working clinical diagnosis. Was excised under local anesthesia and the biopsy was submitted in 10 percent buffered formalin, 2 sections were prepared and stained with hematoxylin-eosin. Microscopic examination showed a cyst filled with pale pink homogeneous material, lined by simple low cuboidal to columnar epithelium with focal thickenings, also containing microcyst and cribriform appearance projected into the cyst cavity, the epithelium consist of cell with eosinophilic cytoplasm, final diagnosis was papillary oncocytic cystadenoma from minor salivary gland. Our patient has been followed for 2 years and has not had a recurrence. Conclusion: papillary oncocytic cystadenoma is a very rare salivary gland neoplasm (1-4% from all salivary gland tumors) exist different theories about its pathogenesis; we recommend to use PCNA and Ki-67 for evaluate aggressive behavior.

# Poster Abstracts – Monday, June 23, 2008

## #63 – Gold Room

E-CADHERIN, BCL-2 AND P53 EXPRESSION DURING THE PROGRESSION OF ORAL SQUAMOUS CELL CARCINOMA AMONG PATIENTS IN MANIPAL, SOUTH INDIA - A TISSUE MICROARRAY APPROACH. Solomon MC, Radhakrishnan AR, Carnelio S, Manipal College of Dental Sciences, Manipal University, Manipal, South India. Purpose: To utilize TMA technology to analyse the expression of E-Cadherin, Bcl-2 and p53 during the progression of Oral Squamous Cell Carcinoma among patients in Manipal, South India. Methods: A total of 30 Paraffin embedded tissue specimens of histologically proven cases of Oral Squamous Cell carcinomas were retrieved from the archives of the Department of Oral Pathology, Manipal College of Dental Sciences, Manipal University. The tumor areas in the paraffin embedded tissue that were least differentiated were identified and mapped using the H&E stained slides as a template. Two cores from these areas were taken and tissue microarray blocks were constructed. Tissue microarray sections were immunohistochemically stained with monoclonal antibodies for E-Cadherin, Bcl-2 and p53 and their expression was scored and analysed. Results: Expression of E-cadherin was seen in 46% (13/30 cases) of OSCC, abnormal expression of Bcl-2 was seen 73% (22/30 cases) of OSCC and nuclear staining of p53 was seen in 76% (23/30 cases) of OSCC. And of the 23 cases that expressed p53, Bcl-2 was also expressed in 20 cases (87%) and E-cadherin was expressed in 6 cases (26%). Conclusion: Tissue microarray is an excellent technique to analyse molecular alterations in a good number of tumor specimens rapidly and simultaneously. The molecular profile of each patient provides a better understanding of the individual tumor behaviour and in turn, patients can benefit from personalized specific therapeutic strategies.

## #64 – Gold Room

CYTOMETRIC ANALYSIS OF ORAL SCRAPINGS OF PATIENTS WITH ORAL LICHENOID DISEASE. J.M. Aguirre\*, A. Acha-Sagredo\*, M.J. Rodríguez\*, X. Marichalar\*, J.V. Bagan\*\*. \*Units of Bucal Medicine and Oral & Maxillofacial Pathology. University of the Basque Country/EHU. Leioa. Vizcaya. \*\*Stomatology Service. University General Hospital. University of Valencia. Valencia. Spain. Cytometry is a useful technique to characterize alterations in the DNA content. In the past few years, its application in oral premalignant lesions and prognostic meaning has been a controversial issue. In this work we present the results of a cytometric analysis of oral scrapings of patients with oral lichenoid disease (OLD). Material and methods: We have analysed 33 cytological samples of patients with OLD (56.4 mean age, 19 women and 14 men). Clinically the lesions correspond to 15 typical and 18 atypical lichenoid lesions. Scrapings were stained with the stoichiometric DNA Feulgen-Thionin stain (Clear2CTM) and scanned using automated image cytometer ClearCyteTM (Perceptronix. Vancouver. Canada). Descriptive statistical analyses were carried out with the results. Results: The mean number of cells analysed was 2859 (381-8769). All the cases showed a predominant normal DNA content (diploid) population, with a DNA index (DI) between 0.85-1.15. We detected 13 cases with more than 1,5% of the cells with a DI > 1.15, 7 (53,8%) corresponding to OLD with atrophic-erosive lesions. Conclusions: The cytometric analysis of oral scrapings is an easy methodology which may be helpful in the follow-up of patients with oral lichenoid disease. However, more research needs to be done to determine its prognostic value. Grant supports: Carlos III Health Institute - FIS (PI051400) and Department of Education, Universities and Research, Government of the Basque Country (IT-192-07).

# Poster Abstracts – Monday, June 23, 2008

## #65 – Gold Room

EXPRESSION OF SYNDECAN-1 AND KI-67 INDEX IN HUMAN AMELOBLASTOMAS. A COMPARATIVE STUDY. R. Bologna-Molina, A. Mosqueda-Taylor, E. Lopez-Corella, O.P. Almeida, D. Carrasco-Daza, P. Damián-Matsumura. U. Autonoma Metropolitana, Instituto Nacional de Pediatría, México City and Faculty of Dentistry, U. Estadual de Campinas, Brazil. The aim of this study was to examine and compare the pattern of syndecan-1 expression and the cellular proliferating activity in solid/multicystic ameloblastoma (SA) unicystic ameloblastoma (UA) desmoplastic ameloblastomas (DA), peripheral ameloblastomas (PA), and ameloblastic carcinomas (AC) in order to determine if there is a correlation with their biological behavior. Immunohistochemical studies were performed for Syndecan-1 (clone MI15) and Ki-67 (clone MIB-1) in 81 SMA, 49 UA, 4 DA, 3 PA and 2 AC. Expression of syndecan-1 correlated with histological subtype and malignancy as there was a lower expression in AC (22.5%) as compared to SA (39.3%) PA (47.5%) UA (50.6%) and DA (77.5%) ( $p < 0.05$ ). These findings correlated inversely with Ki-67 expression in DA (1.5%) and PA (6.4%) ( $p < 0.05$ ) and in AC (41.2%) ( $p < 0.05$ ), but SA (13.1%) and UA (15.4%) did not show this inverse relation. Our results showed that reduction of syndecan-1 and higher Ki-67 index are related to higher aggressiveness and malignant behavior and suggest that syndecan-1 may be a helpful tool to study the biological behavior of epithelial odontogenic neoplasms.

## #66 – Gold Room

PATTERN OF SALIVARY GLAND TUMOR ON A CHINESE POPULATION. A RETROSPECTIVE STUDY OF 5016 CASES. Zhen Tian, Lei Li, Jiang Li. School of Medicine, Shanghai Jiao Tong University, P.R. China. Objectives: The aim of this study was to investigate the pattern of salivary gland tumors on a east Chinese population. Materials: Total of cases were diagnosed as salivary gland tumors post-operation in the department of Pathology during 1985-2004. The distribution of gender, age of patients and location of tumors was analyzed. Results: Of all 5016 cases of salivary gland tumors, there were 3300 (65.8%) benign tumors and 1716 (34.2%) of malignant ones. The most common benign salivary tumor was pleomorphic adenoma (71.03%), followed by Warthin's tumor (17.7%). The most common malignant tumor was adenoid cystic carcinoma (30.42%), followed by mucoepidermoid carcinoma (29.49%). Parotid gland (1517 cases) was the most common site of involvement, in which the benign tumors were predominant, followed by palate. Most of tumors from sublingual gland (97.50%) and some minor salivary glands such as tongue (94.26%), gingiva (97.92%) site were predominantly malignant. Of benign tumors, the ratio of male-to-female was 1.03:1, while of malignancies, the ratio was 0.97:1. Noticeably Warthin's tumor showed a distinct predilection for males (91.44%). In respect the more common occurrence of benign and malignant salivary gland tumors was found in the patients with age 30 to 69 and 40 to 69. Mucoepidermoid carcinoma and acinic cell carcinoma were the most common malignant salivary gland tumor occurred in young people. Conclusions: Most of epidemiological characteristics showed by this study were similar to studies worldwide expect that adenoid cystic carcinoma was the most common malignant tumor in east Chinese population, while mucoepidermoid carcinoma was the most frequent in many other areas and countries.

# Poster Abstracts – Monday, June 23, 2008

## #67 – Gold Room

ENHANCING CYTOKINE PRODUCTION IN IMMUNE CELLS BY ARECA NUT EXTRACTS MIGHT BE VIA OXIDATIVE STRESS. L. Chang, H. Wan, Y. Kuo, and S. Hung. National Yang-Ming U. and City Hospital, Taipei. Areca chewing, a popular habit in several Asian countries, is highly associated with many oral diseases. To understand the effects of areca on immune functions, this study investigated the production of TNF- $\alpha$  and IL-1 $\beta$  in human peripheral blood mononuclear cells (PBMC) by ripe areca nut extracts (rANE) or tender areca nut extracts (tANE). Expression of cytokines in PBMC by rANE or tANE was examined using the enzyme-linked immunosorbent assay. In addition, intranuclear expression of NF- $\kappa$ B was detected using Western blotting analysis. Statistically difference was analyzed using the Mann-Whitney test. The results demonstrated that treatment with either rANE or tANE for 4 hours significantly enhanced the production of TNF- $\alpha$  (7.7-fold by rANE,  $P < 0.01$ ; 4.2-fold by tANE,  $P < 0.01$ ) and IL-1 $\beta$  (62.9-fold by rANE,  $P < 0.01$ ; 20.1-fold by tANE,  $P < 0.01$ ) in PBMC. The increased secretion of TNF- $\alpha$  and IL-1 $\beta$  in ANE-treated cells was strongly attenuated by PDTTC (50  $\mu$ M) or curcumin (20 and 50  $\mu$ M), suggesting that oxidative stress might be involved. Intranuclear expression of NF- $\kappa$ B (p65) was also increased by rANE or tANE. In conclusion, the increased expression of inflammatory cytokines, TNF- $\alpha$  and IL-1 $\beta$ , by areca-stimulated immune cells may play an important role in creating a sustained oral inflammatory milieu in areca chewers, hence promote disease progression. Moreover, oxidative stress might be a critical event in this areca-associated immune modulation.

## #68 – Gold Room

VEGF-C EXPRESSION DOES NOT PREDICT OCCULT NODAL METASTASIS IN OSCC. S.E.S. Faustino, D.T. Oliveira, S. Nonogaki, G. Landman, A.L. Carvalho, L.P. Kowalski. Bauru School of Dentistry/U. of São Paulo, Bauru. Strong vascular endothelial growth factor-C (VEGF-C) expression has been correlated to occurrence of lymph-node metastases in patients with oral squamous cell carcinoma (OSCC). The incidence of occult lymph-node metastasis remains a decisive factor in the prognosis of patients with early OSCC. The aim of this study was to evaluate VEGF-C immunoexpression (streptavidin-biotin-peroxidase complex technique) as a predictor of occult lymph-node metastasis in OSCC. Eighty-seven patients with primary OSCC arising in the tongue or floor of mouth, clinically T1N0M0 or T2N0M0, with (pN+) and without (pN0) occult lymph-node metastases were analyzed for VEGF-C expression by malignant cells. All patients were treated at the Department of Head and Neck Surgery and Otorhinolaryngology of Cancer Hospital A. C. Camargo, São Paulo, from 1968 to 2001. Occult lymph-node metastases (pN+) were detected in 21.9% of the 64 patients who were submitted to elective neck dissection. No statistically significant difference was found between OSCC with and without occult lymph-node metastasis in regard to VEGF-C immunoexpression by malignant cells and clinicopathologic features. Independently of VEGF-C expression, lymph-node metastasis (pN+) was the most significant prognostic factor for overall survival of patients with OSCC ( $p = 0.030$ ). These findings indicate that isolated VEGF-C expression by malignant cells is not of predictive value for occult lymph-node metastasis in the early stages of OSCC. The authors thank FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo, grant #2005/04577-4 and #2007/04907-0) for supporting this study

# Poster Abstracts – Monday, June 23, 2008

## #69 – Gold Room

**PATHOGENESIS OF ROUND-SHAPED DYSKERATOSIS IN ORAL CARCINOMA IN-SITU.** K. Al-Eryani, S. Maruyama, J. Cheng, T. Saku. Niigata University, Niigata, Japan. **BACK GROUND:** Round-shaped dyskeratotic foci (RSK) appear in the central zone of carcinoma in-situ (CIS) of the oral mucosa. However, no much attention has been paid to RSK, even its presence in CIS. This study was aimed to elucidate its histopathogenetic mechanism of RSK to seek for its significance in the differential diagnosis of oral CIS. **METHODS:** Fifty surgical specimens diagnosed as oral CIS were examined by immunohistochemistry for various kinds of cytokeratin (CK) species and squamous differentiation markers, such as involucrin. Type IV collagen and CD31 were used for demonstrating intraepithelial blood vessels (IEBVs), while hemoglobin (Hb) and Glycophorin (Gp) were used for demonstrating blood contents. CD163, CD68, and Heme oxygenase-1 (HO-1) were also immunolocalized to demonstrate erythrophagocytosis and oxygen stress. **Results:** RSK, which was not always connected to the epithelial surface, was specifically immunopositive for CK10 and CK17. CK10+ or CK17+ were observed in the basal cells around round-shaped and narrowed connective tissue papillae containing capillary blood vessels, which were designated as IEBVs. RSKs were basically located beside IEBVs, which often contained some red cells or red cell-derived Hb and Gp in the center. Hb+ or Gp+ CIS cells were neither positive for CD163 nor CD68 but positive for HO-1. **DISCUSSION:** RSK was shown to be induced by unusual process of keratinization, which started from the basal cell layer. This was closely associated with erythrophagia of CIS Cells after extravasation from collapsed IEBVs, which might be generated by aggressive and expansive growth of CIS. Their erythrophagia was not via CD163 as seen in macrophages but induce Ho-1 stress, which might lead to such a special type of keratinization.

## #70 – Gold Room

**PRELIMINARY EVALUATION OF ROCHE'S LINEAR ARRAY HPV GENOTYPING TEST.** J. Wu, T. Feng, F. Hsieh, S. Jiang, J. Hui, J. Coolbaugh, F. Ye, R. Sperling, D. Zhang. Mount Sinai School of Medicine, New York, NY. The Human Papillomavirus (HPV) is an oncogenic virus involved in more than 85% of cervical cancer development. More than 40 anogenital HPV genotypes have been identified based on L1 sequence variations; only 13 high risk genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68) were commonly identified in cervical lesions. Among these HPV high risk (HR) types, HPV16 accounts for more than 50% of cervical lesions signifying differing virulence among various HPV types. Furthermore, with the advent of the HPV vaccine, distinguishing specific HPV types in cervical specimens may become a clinically relevant tool to appropriately guide patient management. Recently, Roche developed a LINEAR ARRAY HPV Genotyping Test (PCR-LA). The goal of this study was to determine the analytical performance of PCR-LA assay compared to a home-brew PCR (HB-PCR), utilizing MY09 and MY11 consensus primers as well as Digene™s Hybrid Capture 2 (HC2) assay. One hundred forty-one cervical samples collected in PreservCyt liquid media were tested demonstrated that 117 and 78 were positive for HR HPV by PCR-LA and HC2, respectively. Thirty nine samples were negative for HR HPV by HC2, but positive for HR HPV by the PCR-LA assay. Among 77 samples positive for HR HPV by PCR-LA, 8 were negative by HC2, further confirming the Roche PCR-LA assay is more sensitive than Digene™s HC2. Additionally, 11 samples positive by hc2 were negative by PCR-LA for HR HPV (but positive for low risk HPV types), substantiating reported literature documenting low-risk HPV types cross reactivity with Digene™s hc2 assay. In conclusion, Roche PCR-LA is a sensitive and specific assay for genotyping HPV in cervical specimens.

# Poster Abstracts – Monday, June 23, 2008

## #71 – Gold Room

**HISTOPATHOLOGICAL PARAMETERS OF WORST PATTERN OF INVASION, LYMPHOCYTIC INFILTRATE AND PERINEURAL INVASION ARE ASSOCIATED WITH RECURRENCE AND OVERALL SURVIVAL IN PATIENTS WITH TONGUE CARCINOMA.** M. Vered, A. Dobriyan, R. Yahalom, L. Bedrin, Y. Talmi, B. Shalmon, I. Allon, A. Buchner, D. Dayan. Tel Aviv U. and The Chaim Sheba Medical Center, Tel Hashomer, Israel. Objective: To establish an association between the scoring of histopathological parameters of worst pattern of invasion (WPOI), lymphocytic infiltrate (LI) and perineural invasion (PI), as defined by Brandwein-Gensler et al. (Am J Surg Pathol 2005; 29:167-78) and clinical outcomes (recurrence and survival) in patients with tongue carcinoma. Methods: All sections of tongue resection specimens from 51 patients with well documented clinical data were examined and scored for each of the histopathological parameters according to the 0, 1 and 3 scale as established by Brandwein-Gensler et al. The total score of each case was the sum of scores allocated to each parameter, ranging from a minimum value of 0 to a maximum of 9. Patients with total scores 0 to 3 were classified as low-to-intermediate histopathological grade and patients with a total score >4 were classified as high grade. Kaplan-Meier survival analysis with Log Rank test were used for statistical significance. Findings: A significant association was found between a high histopathological grade and a high frequency of recurrence ( $p < 0.001$ ) and a higher incidence of death ( $p = 0.01$ ). Conclusion: The total score of histopathological parameters of WPOI, LI and PI can serve as a reliable predictive parameter, in addition to the existing clinical staging system for patients' outcomes in cases of tongue carcinoma.

## #72 – Gold Room

**Oral Plasmablastic Lymphoma In A HIV Negative Patient.** N. Said -Al -Naief, T. Eichelberger, V. Reddy, and Y. Ren. University of Alabama, Birmingham, AL. Objectives: The clinicopathological features of plasmablastic lymphoma (PBL) of the gingiva with mandibular involvement in a 45 year old HIV negative female and the differentiation aspects from Plasmablastic Myeloma are discussed. Findings: A 45 year old female, who was referred to the OMFS. by her GP. for evaluation of 1 m. history of large L. mandibular vestibule swelling, associated with numbness of her L. lower lip mucosa and with significant mandibular involvement & pathological fracture. Histomorphologic examination revealed a poorly differentiated high grade neoplasm which reacted positively with CD79, 138, showed lambda restriction and high Ki-67 index, and stained negatively for Cytokeratins, Synaptophysin, Chromogranin, S-100, EMA, LCA, CD20, CD15, CD56, MPO, CD30, CD3, nTDT-, CD10-, Bcl-6-, and EBV LMP-1. The patient was also tested negative for HIV and further workup did not demonstrate any para-protein present. CT scan showed multiple lytic vertebral lesions, solitary RL lobe pulmonary nodule & R. paratracheal adenopathy. Genetic studies and bone marrow examination were unremarkable. She received three cycles of Hyper-CVAD with complications of febrile neutropenia, bacteremia, and mucositis. Currently, she is alive with disease and guarded prognosis. Conclusion; PBL is an aggressive disease that primarily involves young (HIV+) males with marked predilection for oral cavity and jaw involvement. It is commonly associated with EBV infection and demonstrates immunoblastic or centroblastic tumor cells which are typically CD20 -, CD138 + and show a high MIB1 index. The tumor must be differentiated from multiple myeloma especially when involvement of the jaw is encountered at initial discovery and since both PBL and Plasmablastic myeloma share similar morphology and immunophenotypic characteristics.

# Poster Abstracts – Monday, June 23, 2008

## #73 – Gold Room

TUBERCULOSIS OF THE HEAD AND NECK: A REVIEW OF 20 CASES. L. Lin, W. Wang, J.Chen, Y. Chen. Kaohsiung medical U. Kaohsiung, Taiwan. The aim of this study was to retrospectively review the clinical features of patients diagnosed with Tuberculosis (TB) of the head and neck (H&N) during the past 16 years. Methods: Thirteen male and 7 female patients with TB of the H&N were histologically identified following surgical biopsy in our department between 1991 and 2007. The medical charts were reviewed. Results: The age distribution was broad, with eleven patients (55%) aged above 50 years old and 4 (20%) less than 10 years old. Thirteen patients had oral lesions and 2 had multiple lesions. The most common oral location was the buccal mucosa and/or vestibule (5 cases), followed by the alveolar mucosa, palate, lip and tongue. The predominant clinical manifestation was ulceration. Seven patients had cervical TB. Two patients were found to have coexistent metastatic squamous cell carcinoma. Four patients were identified with active pulmonary lesions and one patient with evidence of old pulmonary TB on the 14 chest x-ray available. Conclusion: TB of the H&N may not be as rare as once thought. We emphasize the importance of early diagnosis in such lesions, especially in slow to heal wounds and undiagnosed neck lumps.

## #74 – Gold Room

A COMPARISON OF TREATMENT MODALITIES IN BURNING MOUTH SYNDROME. K. Barker, M. Batstone, N Savage. U. Queensland and Royal Brisbane and Women's Hospital, Brisbane. The objectives were to compare the efficacy of clonazepam and diazepam in relieving symptoms of BMS and review the predictability by correlating efficacy with psychological status. 194 BMS patients completed a questionnaire on their response to diazepam or clonazepam. A second group (n=30) completed an anxiety and depression assessment form to correlate treatment success with psychological status. 71.4% treated with clonazepam reported partial/complete symptom resolution. 55.1% treated with diazepam reported improvement but not full resolution of symptoms. There was no correlation between underlying anxiety or depression and the efficacy of either medication. CONCLUSIONS: A greater percentage of patients taking clonazepam reported greater clinical effectiveness compared to diazepam. There was no correlation between underlying psychopathology and treatment success with benzodiazepines suggesting the lack of a relationship between psychopathology and the factors causing the continuation of the pain syndrome.

# Poster Abstracts – Monday, June 23, 2008

## #75 – Gold Room

**COX2 HIGH EXPRESSION IN THE ORAL SQUAMOUS EPITHELIUM RELATE TO KERATINOCYTE DIFFERENTIATION BUT NOT FOR CELL PROLIFERATION.** Komiyama K, Matsumoto N, Nagai K, Sawada A, Oki H. Nihon U., School of Dentistry, Tokyo, Japan. COX2 high expression was identified in many malignancies including oral cancer. However, precise mechanism of COX-2 expression in the oral cancer is still obscured. We examined an expression of COX2 and Ki67 by immunohistochemistry in the epithelial dysplasia (30 cases), OSCC (20 cases), and normal epithelium (10 cases), which focused on construction of the epithelium and keratinocyte differentiation. All tissues were fixed in 10 % neutral buffered formalin and embedded in the paraffin. To clarify the role of COX2 expression, the histone deacetylation inhibitor treated to human oral cancer cells (HSC3 and HSC4) in vitro, and performed the MMT and PGE2 assay. Immunostaining results showed the minimum level or no expression of COX-2 in the normal epithelium. The dysplasia showed vary in COX2 expression level, which strongly correlated to the keratinocyte differentiation. In OSCC, high expression cells found in the well-differentiated type but not in the low grade differentiated type. Ki-67 staining was contrast to the COX-2. The COX2 expression is closely correlated to the cell cycle arrest and the PGE2 synthesis in vitro. These results indicated that the COX2 is a marker for the keratinocyte differentiation in oral epithelial lesions including OSCC, where resulted in thickened oral epithelium and tumor volume growing.

## #76 – Gold Room

**SURVIVAL OF SALIVARY PLEOMORPHIC ADENOMA CELLS IN HYPOXIC CONDITION.** S. Maruyama. J Cheng. T. Saku. Division of Oral Pathology, Niigata U. Graduate School of medical and Dental Sciences, Niigata, Japan. Background: Salivary pleomorphic adenoma is histopathologically characterized by its colorful stroma with myxoid appearances, which are poorly vascularized. Hence, pleomorphic adenoma cells embedded in such stromata are supposed to be able to survive in hypoxic conditions. To understand the hypoxia-dependent manner of cellular proliferation, we determined both protein and gene expression levels of hypoxia-inducible factor 1a (HIF-1a), vascular endothelial growth factor (VEGF), and von-Hippel-Lindau (vHL) and p53 genes, both of which degrade HIF-1a. Methods: Total cellular RNAs and proteins were extracted from SM-AP cells, which have been derived from a human parotid pleomorphic adenoma, cultivated in aerobic or hypoxic (5% CO<sub>2</sub>/1% O<sub>2</sub> or 200-500 mM CoCl<sub>2</sub>) conditions. The mRNA samples were further purified and subjected for RT-PCR, and the cell lysates were used for western blotting. Cultured cells were fixed with 4% paraformaldehyde for immunofluorescence for HIF-1a and VEGF. Exons 5-7 of the p53 gene were PCR amplified for sequencing to examine mutation events. Results: SM-AP cells under hypoxia showed more enhanced gene expression levels for VEGF but did not for those for HIF-1a. In contrast, HIF-1a protein levels of SM-AP cells were kept higher in hypoxic conditions than in aerobic ones. SM-AP cells were shown to have lower expression levels for vHL gene and shared a common deletion of the last base G of codon 249 (AGG to AG\_) of the p53 gene. Conclusion: The results indicate that pleomorphic adenoma cells are able to proliferate in the hypoxic condition because of accumulated HIF-1a protein probably due to the lowered vHL levels.

# Poster Abstracts – Monday, June 23, 2008

## #77 – Gold Room

'UNEXPECTED' CARCINOMA IN LASER EXCISION SPECIMENS - EVIDENCE TO SUPPORT INTERVENTIONAL THERAPY IN ORAL PRECANCER. P J Thomson, M L Goodson, O Hamadah. Oral & MaxilloFacial Surgery, Newcastle University, UK. Oral precancer management is controversial, polarized between interventional surgical excision and conservative/medical therapies. We have previously demonstrated the efficacy of laser excision in diagnosis and treatment. In this study, a retrospective review of new patients presenting over a 5 year period (2003-07) with single dysplastic oral precancerous lesions was carried out. All patients had initial incisional biopsies confirming dysplasia, were counseled on risk factors and underwent laser excision of precancers. 158 lesions were excised and analysed histologically, comparing excisional with incisional biopsies. In 11 cases (7%) invasive SCC was identified unexpectedly, but all had been completely excised. The clinico-pathological features of these cases did not reveal pre-operative clues to the diagnosis. Laser excision offers effective treatment of oral precancers and is a reliable diagnostic tool identifying malignant change at the earliest possible stage.

## #78 – Gold Room

KERATIN EXPRESSION PROFILE OF ORAL SQUAMOUS CELL CARCINOMA. K. Sakamoto, N. Okada and A. Yamaguchi Tokyo Medical and Dental U., Tokyo, Japan Keratins comprise a diverse group of intermediate filament proteins that are expressed in cells of epithelial origin. Expression profiles of keratin paralogues vary among different epithelial cell types, reflecting the state of their differentiation. In epithelial neoplasms such as squamous cell carcinoma (SCC) or adenocarcinoma, keratin expression pattern often changes from that of their original cells, which appears due to dysregulation of differentiation pathway and could be informative in pathological diagnosis. Studies on non-oral SCC have revealed several members of keratins whose expression is correlated with an onset of neoplasm. However, since oral epithelium is different from those squamous epithelia such as skin or uterine cervix, detailed analysis on keratin expression of oral mucosa both at a normal and a disease state is required. We are trying to define a thorough profile of keratin expression in normal oral mucosa and oral SCCs, by two-dimensional electrophoresis and immunohistochemistry using specific anti-keratin antibodies. We show keratin expression profiles of the tongue, gingiva, palate and oral floor, and compare them with that of oral SCCs. Several keratin paralogues exhibited specific upregulation or downregulation in SCCs. Our data suggests that the keratin expression profile can be used as an efficient marker for neoplastic transformation of oral epithelial cells.

# Poster Abstracts – Monday, June 23, 2008

## #79 – Gold Room

LASER SURGERY vs. CONSERVATIVE MANAGEMENT FOR ORAL PRECANCER. M L Goodson, O Hamadah, P J Thomson. Oral & MaxilloFacial Surgery, Newcastle University, UK. Oral precancer management is largely governed by clinician choice and expertise, with no internationally accepted guidelines or evidence base. We have previously shown the efficacy of interventional laser surgery as both a diagnostic and treatment tool. In the absence of substantive RCTs, this retrospective cohort study reviewed 122 new patients presenting with single, histologically confirmed dysplastic lesions; 96 underwent laser excision of lesions whilst 28 were managed conservatively. There were no significant differences in gender/age in the 2 groups, but clinical appearance did affect treatment choice ( $p=0.024$ ). Site did not significantly alter management, but increased severity of dysplasia in incisional biopsies directed patients towards laser surgery ( $p<0.005$ ). Smokers and regular alcohol consumers were more likely to be treated by laser. Clinical outcomes in the 2 groups will be presented to compare the influence of treatment choice on disease progression.

## #80 – Gold Room

HYALINIZING CLEAR CELL CARCINOMA: CASE SERIES AND SYSTEMATIC REVIEW OF THE LITERATURE. A. Solar, R. Jordan, U. California San Francisco Hyalinizing clear cell carcinoma (HCCC) is a rare malignant salivary gland tumor that was only recently characterized as a distinct entity. Because of its histologic similarity to several other primary and metastatic tumors and its reported favorable clinical outcome following local resection it is important to recognize the diagnostic features of this unusual tumor. Here we present 8 new fully characterized cases of HCCC and systematically reviewed 44 other cases of HCCC reported in the English language literature from 1980 to 2008. Historical cases were reviewed and available data regarding morphology, special stains, demographics, clinical presentation, radiographic findings, management and outcomes were extracted. Data from our current series was then compared with the earlier published literature. To the best of our knowledge, this is the largest reviewed series of HCCC totaling 52 cases. Our findings including key histological features, clinical presentation and outcome are generally consistent with those of the previously reported cases. On the other hand, we found that 25% of the cases reported in the literature had metastatic carcinoma to regional lymph nodes. There are no morphologic findings that can predict this behavior. We conclude that HCCC is less indolent than previously considered and for that reason it is recommend that wide local excision of HCCC be always pair with local lymph node dissection

# Poster Abstracts – Monday, June 23, 2008

## #81 – Gold Room

CLINICOPATHOLOGICAL ASPECTS OF GINGIVAL CYST OF ADULT: REPORT OF A MULTICENTRIC SERIES OF FOURTEEN CASES. P. Aguirre\*, R. Carlos\*\*\*, A. Mosqueda\*\*\*\*, E. Contreras\*\*\*, J.M. Aguirre\*\*. \*Hospital Gregorio Marañón. Madrid. \*\*Universidad del País Vasco EHU. Leioa, España. \*\*\*Centro Clínico de Cabeza y Cuello. Guatemala. \*\*\*\*Universidad Autónoma Metropolitana Xochimilco, Mexico. Gingival cyst of adult (GCA) is an infrequent odontogenic lesion localized within the gingival fibrous tissue in people usually over 40 years. In this study we present a series of 14 cases and analyzed the main clinical and histopathological aspects of this lesion. Material & Methods: We studied 14 cases of GCA (8 females and 6 males), with a mean age of 56.7 years (range 31 to 75). We analyzed the most relevant clinicopathological data and performed descriptive statistical analyses of the collected data. Results: GCA occurred more frequently in the lower gingiva (69.2%) One case was multiple (6 nodules). Evolution time before diagnosis varied, and 9 had more than 1 year. Clinical presentation was as a cystic lesion in 6 cases and as a tumoral nodule in 8 cases. Superficial bone erosion was found in 5 cases. Histologically all the cases were unicystic; Variable amounts of clear cells were seen in 9 cases and epithelial plaques were evident in 8. Treatment in all patients was surgical excision and there was no recurrence in any case. Conclusion: GCA represents a very interesting odontogenic lesion with particular and consistent clinicopathological aspects. Grant support: Department of Education, Universities and Research, Government of the Basque Country (IT-192-07).

## #82 – Gold Room

STROMAL MYOFIBROBLASTS ARE STRONGLY PREDICTIVE OF OVERALL SURVIVAL IN PATIENTS WITH TONGUE CANCER. I.O. Bello, M. Vered, A. Dobriyan, R. Yahalom, D. Dayan, Y. Soini, T. Salo. U. of Oulu, Finland, Tel Aviv U., Tel Hashomer Medical Center, Israel. Objective: to assess the association between carcinoma-related stromal myofibroblasts (MF) and survival in patients with mobile tongue carcinoma. Methods: Formalin-fixed, paraffin-embedded sections of tongue specimens from 127 patients with well documented clinical data were stained with a-SMA. Cases were classified according to the density of the MF, MF-rich (abundant) and MF-low (focal-sparse), and assessed in regard with overall survival using Mantel-Cox log rank test and Kaplan Meier survival plots, further verified with Cox proportional hazard model. Findings: We found that MF-rich tumors were associated with a poorer prognosis than MF-low tumors. Significant statistical association was found between the MF density and the overall survival between the two groups ( $p = 0.003$ ). Cox multivariate model incorporating the age at diagnosis, tumor stage and gender also showed that MF-rich tumors and increased age are significantly associated with decreased survival ( $P < 0.05$ , H.R.  $> 1$ , low 95% CI  $> 1$ ) while gender and tumor stage were not ( $P > 0.05$ , H.R.  $< 1$ , low 95% CI  $< 1$ ). Conclusions: The density of stromal MF can serve as a reliable histopathologic predictive parameter for overall survival in cases of tongue carcinoma. Its significant association with survival prevailed that of the routinely used clinical stage of the tumor.

# Poster Abstracts – Monday, June 23, 2008

## #83 – Gold Room

**A RETROSPECTIVE ANALYSIS OF THE HISTOLOGICAL PROGRESSION OF RECURRING LEUKOPLAKIAS.** S. Kemp, S. Kabani. Boston University. A retrospective study was undertaken to evaluate the progression of oral leukoplakia on which at least two biopsies from the same anatomic location were performed over time. Only lesions from high-risk areas in which there was a minimum one-year duration between biopsies were included in the study. Patients with a previous history of oral cancer were excluded. Fifty patients qualified from an oral biopsy service of ~45,000 specimens over a 9-year period. The original biopsy for the cases was interpreted as either hyperkeratosis (n=14), mild dysplasia (n=18), moderate dysplasia (n=15) or severe dysplasia (n=3). Results: Thirty-one of the patients (62%) showed the recurrence to be the same diagnosis or one grade lower in comparison to the original biopsy. Nineteen of the patients (38%) showed a histological progression of at least one grade. Of these nineteen, 7 progressed two grades or more and 5 of the 7 progressed to carcinoma (n=4) or CIS(n=1). The average time between biopsies in the cases that progressed to carcinoma was 3 years, which was similar to the remaining cases. Conclusion: The observations reinforce the notion that a leukoplakia, even with surgical treatment, may potentially progress over time and therefore requires continual follow-up. This analysis will be ongoing to potentially increase the number of patients and extend the follow-up period on existing patients.

## #84 – Gold Room

**SEGMENTAL ODONTOMAXILLARY DYSPLASIA: REPORT OF A SERIES OF FIVE CASES WITH LONG TERM FOLLOW-UP.** J. Whitt, C. Dunlap, B. Barker. University of Missouri Kansas City, Kansas City, MO. We report a series of five cases of segmental odontomaxillary dysplasia (SOMD) with follow-up periods ranging from 8 to 21 years. SOMD is a sporadic, mesoectodermal dysplasia. Its features include enlargement of the soft tissue and/or bone of one hemimaxilla. Subsequent growth of the affected area is proportional to that of the unaffected hemimaxilla. Dense bone, which often exhibits a radiographic vertical orientation of the trabecular bone pattern, is typically associated with delayed eruption of the teeth. Computed tomographic imaging demonstrated extensive involvement of the maxillary bone, including the lateral wall and floor of the maxillary sinus and the hard palate. The affected bone presents no impediment to either orthodontic tooth movement or to the successful osteointegration of dental implants. The cause of SOMD is unknown; the clues to the cause of this unusual phenotypic expression are buried in the intricacies of developmental biology within the first branchial arch.

# Poster Abstracts – Monday, June 23, 2008

## #85 – Gold Room

DIFFERENTIAL DISTRIBUTION MODES OF PERLECAN RECEPTORS, DYSTROGRYCAN AND INTEGRIN  $\beta 1$ , IN AMELOBLASTOMAS. H. Ida-Yonemochi, MS. Ahsan, and T. Saku. Surgical Pathology Section, Niigata U. Hospital, Niigata, and Division of Oral Pathology, Dept. of Tissue Regeneration and Reconstruction, Niigata U. Graduate School of Medical and Dental Sciences, Niigata, Japan. Tumor cell nests of ameloblastoma are characterized by the stellate reticulum-like structure in which the enlarged intercellular space is rich in extracellular matrix molecules, especially proteoglycans. We have already reported that perlecan, a basement membrane type heparan sulfate proteoglycan, was accumulated within the intercellular spaces of the stellate reticulum of tooth germs as well as ameloblastomas, that was suggested to be responsible for cellular growth. Based on this background, to elucidate which type of perlecan receptors were functioning within the ameloblastoma foci, we studied the immunolocalization of dystroglycan and integrin  $\beta 1$ , perlecan receptors, in comparison with that of their ligand in surgical tissue sections of ameloblastoma. Perlecan was immunolocalized within the stellate reticulum-like ameloblastoma nests in addition to the basement membranes of tumor cell nests and stromal connective tissues. In the follicular type, dystroglycan was uniformly localized on the stellate reticulum-like cells, while integrin  $\beta 1$  was restricted only to the basal cell zone, which faced to stromal perlecan. In the plexiform-type, dystroglycan was enhanced in the periphery of tumor cell nests, especially in their invading front. Integrin  $\beta 1$  was also immunolocalized to the basal cell zone, which were considered to be a proliferation center. The results indicated that perlecan might control not only for proliferation but also differentiation of tumor cells by using respective corresponding receptor types.

## #86 – Gold Room

IMMUNOHISTOCHEMICAL STUDY OF RELAXIN IN SALIVARY GLAND TUMORS. T. Utsunomiya, R. Ito, M. Yamaguchi, and H. Yamamoto. Nihon U., Chiba, Japan. Relaxin (RLX) is a polypeptide hormone (molecular weight: 6kDa) and generally known as an antifibrotic factor of pelvic suture in the state of delivery. RLX is also expressed in the mammary gland tissue and tumors. RLX is identified in the ductal cells in the mammary neoplasms suggesting that RLX is related to its tumorigenesis and development although salivary gland tumors have not been fully understood. Therefore, we examined the immunohistochemical analysis of RLX in salivary gland tumors in order to understand the distribution and localization using polyclonal primary antibody for human RLX. Five cases of pleomorphic adenoma and 3 cases each of Warthin tumor, mucoepidermoid carcinoma and adenoid cystic carcinoma diagnosed in Department of Oral Pathology, Nihon University School of Dentistry at Matsudo were analyzed in the present study. Positive immunoreactivity for RLX was identified in the ductal tumor cells of pleomorphic adenoma, Warthin tumor, mucoepidermoid carcinoma and adenoid cystic carcinoma. In addition, the positive reactivity was found not only in the ductal cells but also in the neoplastic myoepithelial cells in pleomorphic adenoma. These results suggest that RLK is associated with tumorigenesis of ductal cell proliferation. Further, in pleomorphic adenoma RLX may also have a relationship with formation of characteristic, polymorphous feature.

# Poster Abstracts – Monday, June 23, 2008

## #87 – Gold Room

APPLICABILITY OF THE BETHESDA CLASSIFICATION SYSTEM IN ORAL LESIONS. L. Vianna, E. Silva Guerra, N. Melo, N. Alves, M. Morais. University of Brasilia, Brazil The aim of the present study was to verify the applicability of the Bethesda™s System in the morphologic characterization of the cytological smears of squamous lesions in the oral cavity, in order to assess the role of papillomavirus in the etiology of some of these lesions. The sample included 41 patients followed-up in the Oral Medicine Unit of the University Hospital of Brasilia, Brazil, that presented lesions with clinically malignity suspicious, benign lesions of probable viral™s etiology or because they were in attendance after treatment of oral cancer. Amplification of the primers MY09/MY11 in gene L1 was done with the polymerase chain reaction (PCR) to research papillomavirus (HPV) was made in 26 patients. The comparative analysis among the cytological diagnosis using the Bethesda™s criterions and the histological showed that there was agreement among them, but comparison between the morphologic features and the results of the polymerase chain reaction, did not show any correlation. The results suggest that the Bethesda Classification can be applied to cytologic smears from the oral cavity. However, further molecular studies are necessary in order to confirm the viral infection of the squamous cells.

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## #88 – Pavilion Room

ODONTOGENIC TUMORS IN RIO DE JANEIRO, BRAZIL: A MULTICENTRIC CLINICOPATHOLOGICAL STUDY. F. Pires, R. Azevedo, M. Cabral, T. dos Santos, O. Almeida. State U. of Rio de Janeiro, Federal U. of Rio de Janeiro, Estácio de Sá U., State U. of Campinas. Odontogenic tumors represent one of the most heterogeneous groups of diseases in Oral Pathology. Some studies support the possibility of geographical and racial variations in their frequency, and some tumors are considered highly uncommon, reinforcing the need of clinicopathological studies on large series of these tumors worldwide. The aim of this study was to retrospectively review all odontogenic tumors from the files of four laboratories in the city of Rio de Janeiro, Brazil. Socio-demographic and clinicopathological data were obtained from the patients records in each individual institution. Five-µm H&E stained slides were evaluated for all cases and all diagnosis were reviewed according to the latest WHO classification on odontogenic tumors (Barnes et al, 2005). A total of 683 odontogenic tumors were selected from the files of the four institutions. Keratocystic odontogenic tumor represented the largest group (236 cases, 35%), followed by ameloblastomas (206 cases, 30%), odontomas (91 cases, 13%), calcifying odontogenic cystic tumor and dentinogenic ghost cell tumor (45 cases as a group, 7%), odontogenic myxoma (38 cases, 6%), odontogenic fibroma (18 cases, 3%), adenomatoid odontogenic tumor (15 cases, 2%), ameloblastic fibro-odontoma (10 cases, 1%), squamous odontogenic tumor (6 cases, <1%), ameloblastic fibroma (5 cases, <1%), cementoblastoma (5 cases, <1%), calcifying epithelial odontogenic tumor (5 cases, <1%) and odontogenic carcinoma (3 cases, <1%). These results were similar to other studies on the literature, but contrary to others, especially when comparing the prevalence of ameloblastomas and odontomas, reinforcing the possibility of true regional variations.

# Poster Abstracts – Monday, June 23, 2008

## #89 – Pavilion Room

THE ACETALDEHYDE DEHYDROGENASE (ADH) GENES OF CANDIDA ALBICANS M. Bakri, A. Holmes, R. Cannon and A. Rich. U. Otago, New Zealand. The presence of *Candida albicans* in oral leukoplakias may be implicated in the progression of leukoplakia to oral squamous cell carcinoma. Acetaldehyde, a known carcinogen, is produced during in vitro growth of *C. albicans* and production in vivo may be involved in this progression. The aim of this research was to identify and characterize the *C. albicans* genes involved in acetaldehyde metabolism in order to undertake further analysis of their activities in vivo. Expression of mRNAs from three *C. albicans* genes, annotated in the *C. albicans* genome database as ADH-like genes (which mediate ethanol/acetaldehyde interconversion) was detected by Northern blot analysis of yeast cells grown in both complex and minimal media. The three *C. albicans* ADH genes were cloned and expressed in *Saccharomyces cerevisiae* using the integrative his-tag vector pABC3-His. Polypeptide expression was confirmed by Western blot analysis. Cell extracts of these recombinant strains were used to investigate Adh-mediated ethanol utilization by spectrophotometric assay of NAD reduction. Extracts from a CaAdh1p expressing strain but not from a CaAdh2p expressing strain, or an empty vector control strain, possessed NAD-reducing activity. In conclusion, the *C. albicans* ADH1 gene is expressed in a range of growth conditions and catalyses the conversion of ethanol to acetaldehyde under laboratory conditions. Ms Bakri is the recipient of a postgraduate scholarship from U. Malaya and this work is supported by the New Zealand Dental Association Research Foundation.

## #90 – Pavilion Room

ACTIVATION OF AKT/TSC2/MTOR CONTRIBUTES TO THE KAPOSI'S SARCOMA-ASSOCIATED HERPESVIRUS GPCR-INDUCED DIRECT AND PARACRINE NEOPLASIA. B.C. Jham, R. Chaisuparat, J. Hu, and S. Montaner. U. Maryland, Baltimore. Objective: Kaposi's sarcoma (KS) is a multifocal neoplasm that affects the skin, oral mucosa, lymph nodes and visceral organs. The etiologic agent for KS, the KS-associated herpesvirus (KSHV or HHV-8), encodes an arsenal of putative oncogenes that harbor transforming potential. We have previously shown that expression of one KSHV gene, the G protein-coupled receptor (vGPCR), is sufficient to induce KS-like tumors in mice, through both direct and paracrine mechanisms, implicating vGPCR in the initiation of KS lesions. From all the different signal transduction pathways induced by this viral receptor, the activation of Akt has been shown to play a critical role in vGPCR tumorigenesis. However, the relative contribution of the direct and paracrine Akt activation as well as the Akt effectors required for vGPCR to trigger KS initiation remains unclear. Findings: Here we show that vGPCR regulates the Akt/TSC/mTOR signaling route and that the activation of this signaling pathway occurs both in vGPCR expressing cells and upon exposure of endothelial cells to vGPCR conditioned media. Treatment of endothelial cells with individual cytokines, chemokines or angiogenic factors secreted in response to vGPCR expression also induced the phosphorylation of S6 ribosomal protein, a substrate of mTOR. These results suggest that vGPCR can activate mTOR through direct and paracrine mechanisms. Of interest, the mTOR inhibitor, rapamycin, or the dual PI3K/mTOR inhibitor, PI-103, can both inhibit vGPCR tumorigenesis in vitro and in vGPCR allografts established in nude mice. Conclusion: These results suggest that drugs targeting the direct and paracrine activation of Akt/TSC/mTOR by vGPCR may represent an effective mechanism-based therapy for the treatment of patients with KS.

# Poster Abstracts – Monday, June 23, 2008

## #91 – Pavilion Room

**ODONTOGENIC FIBROMA ASSOCIATED WITH EXTERNAL TOOTH ROOT RESORPTION.** N. Firth and A. Rich U. Otago, New Zealand. Background: Varying interpretations of the definition of central odontogenic fibroma have led to lack of understanding of this rare odontogenic neoplasm. The purpose of this paper is to present clinical, radiographic and histopathological features of two cases of odontogenic fibroma associated with external tooth root resorption. Case 1: A 40 year old female with right maxillary enlargement had a multilocular radiolucency in the right maxilla extending from the central incisor to first molar. All teeth except the lateral incisor responded positively to vitality testing. Both premolars were mobile with radiographic evidence of external root resorption. The teeth were extracted together with the soft tissue in the region and the diagnosis of odontogenic fibroma with external root resorption was made. Case 2: A 47 year old male with maxillary expansion had a unilocular radiolucency involving the left maxilla with root resorption of the canine tooth. The tooth and associated soft tissue were removed and the diagnosis of odontogenic fibroma with external root resorption was made. Conclusion: Odontogenic fibromas, although rare, should be included in the differential diagnosis of uni-or multilocular radiolucent lesions associated with external root resorption.

## #92 – Pavilion Room

**PROLIFERATIVE ACTIVITY OF ODONTOGENIC FIBROMA.** S. Hata, H. Okada, H. Yamamoto, Y. Akimoto. Nihon University School of Dentistry at Matsudo. Odontogenic fibroma (OF) is a rare jawbone tumor which is characterized by varying amount of inactive-looking odontogenic epithelium embedded in a fibrous proliferation of fibroblast-like cells and stroma. In addition, there have been some reports which studied its histopathological features. However, the histogenesis and nature is still controversial. The purpose of this study is to examine the proliferative activity and the differentiation of fibroblast-like cell and to determine its biological behavior. Three cases of OF were immunohistochemically stained with Ki-67, topoisomerase II $\alpha$ , vimentin, smooth muscle actin and S-100 protein. The average cell positive rate (LI) for proliferative markers was calculated. For the control, 5 cases of odontogenic myxoma (OM), 2 cases of ameloblastic fibroma (AF), 2 cases of ameloblastic fibro-odontoma (AFO) and 1 case of ameloblastic fibrosarcoma (AFS) were also evaluated. The Ki-67 LIs of OF, OM, AF, AFO and AFS were 2.8, 3.9, 2.0, 2.3 and 9.3, while the topoisomerase II LIs of them were 3.1, 3.2, 3.0, 4.1 and 8.1, respectively. Thus, the LI of OF was lower than that of OM, suggesting this data was consistent with clinical feature of OF such as low recurrence. OF showed similar results with OM and AF to vimentin and S-100 protein, but OF and AF had fewer smooth muscle actin positive fibroblast-like cell. This data indicated that OF and OM belong to the same category but differed in amount of myofibroblasts. Furthermore, OF and AF had similar component of mature fibrous stroma, suggesting the differences of epithelial cell.

# Poster Abstracts – Monday, June 23, 2008

## #93 – Pavilion Room

**IFITM1 PROMOTES INVASION OF ORAL CANCER** T. Takata, Y. Kudo, H. Hatano, I. Ogawa, and M. Miyauchi. Hiroshima Univ., Hiroshima. Oral cancer shows persistent invasion that frequently leads to local recurrence and distant lymphatic metastasis. However, molecular mechanisms associated with invasion of oral cancer remain poorly understood. By comparing the gene expression profiles between parent and a highly invasive clone of oral cancer, we identified interferon-induced transmembrane protein 1 (IFITM1) as a candidate gene for promoting the invasion of oral cancer (Cancer Res 66:6928, 2006). Here we examined its role in the invasion of oral cancer. **Materials and Methods.** First, we examined IFITM1 expression in oral cancer cell lines and cases by RT-PCR and immunohistochemistry. Then, IFITM1 overexpressing and knockdown cells were generated, and the invasiveness of these cells was examined by in vitro invasion assay. Furthermore, gene expression profiling of oral cancer cells overexpressing IFITM1 versus control cells was examined by microarray. **Results:** Oral cancer cells expressed IFITM1 mRNA at higher levels, while normal cells did not. Immunohistochemical expression of IFITM1 was observed at the invasive front of early invasive oral cancer, and higher expression of IFITM1 was found in frankly invasive oral cancer. In vitro studies showed that IFITM1 overexpression promoted and IFITM1 knockdown suppressed the invasion of oral cancer cells. Gene expression profiling of oral cancer cells overexpressing IFITM1 versus control cells revealed that several genes including matrix metalloproteinase were up-regulated in IFITM1 overexpressing cells. **Conclusion:** Our findings suggest that IFITM1 plays an important role for the invasion of oral cancer progression, and that IFITM1 can be a therapeutic target for oral cancer.

## #94 – Pavilion Room

**A HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL STUDY OF GLANDULAR ODONTOGENIC CYST.** M. Yokoyama, H. Okada, and H. Yamamoto. Nihon U, Matsudo. Glandular odontogenic cyst (GOC) is a relatively rare cyst which is defined as arising from the tooth-bearing areas of the jaws and characterized by an epithelial lining with cuboidal or columnar cells both at the surface and lining crypts or cyst-like spaces within the thickness of the epithelium. There have been not so many reports about GOC, therefore, the histogenesis and nature are still unknown. In this study, we compared the cytokeratin 19 profile and proliferative activity of 2 cases of GOC to these of 4 cases of lateral periodontal cyst (LPC) and dentigerous cyst (DC) each. Immunohistochemically, CK19 showed positive reaction to the epithelium layer of all lesions including the duct-like part of GOC. On GOC, the average positive rate (LI) of Proliferating Cell Nuclear Antigen, Topoisomerase IIa and Ki-67 Antigen was 7.2, 3.2 and 11.6, respectively. The LI was higher than that of LPC (5.4, 3.0 and 6.3) and DC (6.8, 1.7 and 2.5). These results indicate that GOC is odontogenic in nature and the high recurrence rate might be depended on its high growth potential.

# Poster Abstracts – Monday, June 23, 2008

## #95 – Pavilion Room

Intracellular reactive oxygen species (ROS) control by 635nm irradiation. InAe Kim1, WonBong Lim1, OkJoon Kim1, JaeWoong Won1, JiEun Kim2, SungGa Lee1, JinAn Jeong2, HongRan Choi1 | Department of Oral Pathology, 2nd stage of brain Korea 21 for School of Dentistry, Dental Science Research Institute, Chonnam National University, Bug-Gu, Gwangju, 500-757, Korea 2 K&C Welbeing Co. 116-11 NamDong, Dong-Gu, Gwangju, Korea Low level light irradiation is applied to improve a various pathologic state by scavenging intracellular reactive oxygen species (ROS) through photo-detachment/dissociation process. ROS is characterized to be unstable to cause oxidative damage on intracellular molecules including protein, lipid and DNA, resulted in various degenerative disorders. The purpose of present study is to investigate whether a specific wavelength of visible light irradiation control the intracellular ROS generation and irradiation has a role as an endogenous antioxidant. 635nm irradiation partly inhibits the cell death induced by H<sub>2</sub>O<sub>2</sub>. Cell viability is increased by irradiation in time dependent manner. Intracellular ROS level was elevated by H<sub>2</sub>O<sub>2</sub> treatment, and its level was reduced by 635nm irradiation. For mRNA expression of endogenous antioxidants, 635nm irradiation could not affect the increased expression level such as Mn SOD, GPx by H<sub>2</sub>O<sub>2</sub> in general. Taken together, 635nm light irradiation removed the intracellular ROS, directly, so that oxidative stress was reduced. So, it can be useful to prevent the cell damage by oxidative stress.

## #96 – Pavilion Room

ANALYSIS OF KI-67, MCM-2 AND MCM-5 EXPRESSION IN PROLIFERATIVE VERRUCOUS LEUKOPLAKIA. M. A. Lopes, A. F. Gouvea, J. Jorge, P. A. Vargas, O. P Almeida. University of Campinas-UNICAMP. The aim of this study was to evaluate the clinico-pathological findings and ki-67, p53, Mcm2 and Mcm5 immunohistochemical expression in 12 patients with proliferative verrucous leukoplakia. All were women, with age above 50 years, 91.7% were non smoker and 100% were non-drinker. Alveolar ridge, tongue and buccal mucosa were the most affected sites. Four patients developed SCC. The immunohistochemical finds showed variable expression for each antibody. Hyperkeratosis and acanthosis showed weak positivity for p53 and ki-67 and moderate for Mcm2 and Mcm5. Mild dysplasia cases showed weak positivity for p53, moderate for ki-67 and Mcm5, and strong for Mcm2; moderate dysplasia exhibited weak p53, Mcm2 and Mcm5 expression and moderated ki-67 immunopositivity; SCC showed weak ki-67 and Mcm5 positivity, moderate expression of Mcm2 and strong immunopositivity for ki-67 and p53. The majority of the cases did not showed a regular pattern of increasing immunohistochemical expression according to higher grades of epithelial dysplasia. On the other hand, some cases with mild dysplasia presented strong expression of Ki-67, Mcm2 and Mcm5, which could indicate higher risk for malignant transformation.

# Poster Abstracts – Monday, June 23, 2008

## #97 – Pavilion Room

MORPHOLOGICAL ANALYSIS AND CHEMICAL CONTENT OF RADIATION CARIES. M.A. Lopes, A.R. Silva, M.F. Goes, R. D. Coletta, F.A. Abreu. University of Campinas-UNICAMP. Considering the lack of studies that had evaluated the radiation caries, the objective of this study was to analyze the morphology and the mineral content of the radiation caries using thirty and six teeth affected by radiation caries. These teeth were analyzed by polarized light microscopy and its ultra-structure by scanning electron microscopy. In addition, the mineral content was quantified with aid of the microanalysis based on the energy dispersive x-ray. The radiation caries presented the same histological and ultra-structural profile and the same demineralization pattern that the ones described in the conventional caries, with presence of demineralized dentin, sclerotic dentin, translucent zone, dentin dead tracts, reactionary dentin and intratubular dentin deposition. Reduction of the content of Ca and P in the demineralized dentin of radiation caries and Ca/P reason were similar to the expected values for non-irradiated demineralized dentin. In conclusion, this study observed evidence that the radiation caries develops the same morphological and demineralization pattern of the conventional caries and the irradiated teeth preserves the capability of reparative dentin production in response to the caries progression.

## #98 – Pavilion Room

HISTOPATHOLOGICAL FEATURES AND FAS AND ERBB-2 EXPRESSION IN ORAL SQUAMOUS CELL CARCINOMA WITH EARLY LOCAL RECURRENCE. M.A. Lopes, L.S.S. Pinto, E. Graner, L.P. Kowalski. University of Campinas-UNICAMP and A.C. Camargo Cancer Hospital . The purpose of this study was to evaluate the correlation among clinical, histopathological and immunohistochemical features in oral SCC with early local recurrence. Sixty-nine cases of oral SCC without previous treatment for head and neck tumors were selected, being: 23 cases with early local recurrence and 46 cases without recurrence. Clinical data were obtained from the medical records, histopathological features were assessed according to Anneroth's and Bryne's histological grading of malignancy and immunohistochemical reactions for FAS and ErbB-2 were performed. Lower FAS and more cytoplasmic ErbB-2 expression were statistically correlated to local recurrence ( $p=0.0038$  and  $p=0.0068$ , respectively). The parameters keratinization ( $p<0.0001$ ), mode of invasion ( $p<0.0001$ ) and lymphoplasmacytic infiltration ( $p<0.0001$ ) according to Anneroth's histological grading were related to overall survival. More FAS expression was also associated with better overall survival ( $p=0.0002$ ). According to our results, we conclude that local recurrence and worse survival were associated with less differentiated tumors, with less FAS and membrane ErbB-2 expression and more intracytoplasmic expression of ErbB-2.

# Poster Abstracts – Monday, June 23, 2008

## #99 – Pavilion Room

SUBMANDIBULAR AND SUBLINGUAL GLANDS INVOLVEMENT IN ADVANCED AIDS. HISTOPATHOLOGICAL, IMMUNOHISTOCHEMICAL, AND IN SITU HYBRIDIZATION STUDY. P. Vargas, J. León, and O. Almeida. State University of Campinas, Piracicaba, São Paulo, Brazil. This study describes the histopathological, immunohistochemical (IHC), and in situ hybridization (ISH) features found in the submandibular (n=103) and sublingual (n=92) glands of patients who died with AIDS. The mean age and CD4 cell count of the patients of the submandibular and sublingual glands were 36,62 years and 74,37 cells mL<sup>-1</sup>, and 35,93 years and 78,75 cells mL<sup>-1</sup>, respectively. There were no histological alterations in 51 and 54 cases of the submandibular and sublingual glands, respectively. The infection conditions were the most common in the submandibular gland (n=35), followed by chronic non-specific sialadenitis in both glands (n=25). Mycobacteriosis, CMV, cryptococcosis, and only 1 case of NHL were detected. The p24-HIV and EBER1/2 were expressed in few cases affecting macrophages and lymphocytes, respectively. Chronic non-specific sialadenitis revealed CD8<sup>+</sup> T-lymphocytes predominance, while the granulomatous and diffuse macrophagic sialadenitis showed great amount of CD68<sup>+</sup> macrophages surrounded by numerous CD8<sup>+</sup> T-lymphocytes. These results indicate that both submandibular and sublingual glands were affected mainly by chronic non-specific sialadenitis and infectious diseases.

## #100 – Pavilion Room

TOXIC EPIDERMAL NECROLYSIS AND FENITOIN - A CASE REPORT. E. Minicucci, L. Abbade, T. Satto, A. Tamega, M. Marques and S. Marques. Faculdade de Medicina - UNESP / Botucatu, SP, Brazil. Toxic epidermal necrolysis (TEN) or Lyell Syndrome is an unpredictable, rare and serious drug reaction with incidence of 2 cases for million per year, with an average reported mortality of 25%-35%. Drug induced TEN is associated with various antibiotics, anticonvulsants and other drugs. TEN is heralded by abrupt onset of fever; systemic toxicity; a generalized dusky, erythematous rash, bullae, separation of large sheets of epidermis from dermis, purulent conjunctivitis and mucositis of the mouth and genital area. Mucositis generally precedes skin lesions by a few days. We describe TEN in a 20 years-old patient associated with fenitoin for treatment of encephalic trauma that the lesions beginning in oral mucosa.

# Poster Abstracts – Monday, June 23, 2008

## #101 – Pavilion Room

**SIALOBLASTOMA: ONE CASE REPORT.** Y. GAO. Peking U. School and Hospital of Stomatology, Beijing. Objective: Sialoblastoma is a rare, potentially aggressive tumor, often occurring in major salivary gland such as parotid or submandibular gland. Here we report a case of sialoblastoma of Chinese baby with malignant histopathological features. Findings: An 18 month old girl was presented with left parotid mass for more than 1 month, with a rapid growth in recent days. There were no other symptoms. CT examination showed multinodular mass in left parotid. No other concomitant tumors were found. Grossly, the tumor was multinodular, 3.0×2.5×2cm in size, pale yellow on section. Microscopically, the tumor was composed of basaloid epithelial cells, with scanty cytoplasm, round to oval nuclei, small nucleoli, and relatively fine chromatin. Nuclear mitosis was frequently seen. The tumor cells arranged to round tumor nests or strands. Small apoptotic foci were often noted. There was also focal necrosis. Some tumor nest infiltrated the normal gland tissues. Immunohistochemical staining demonstrated positive reaction of the tumor cells for cytokeratin AE1/AE3, negative reaction for S100, NSE, SMA and synapsin 1. AE1/AE3 immuno-staining revealed a ductal differentiation pattern in the central part of tumor nests or strands. Conclusions: the histopathological features of the sialoblastoma indicate that the tumor is invasive and may be malignant in nature.

## #102 – Pavilion Room

**PD-L2+ B1 LYMPHOCYTES IN AUTOIMMUNE DISEASE: POSSIBLE ROLE IN SJÖGREN<sup>TM</sup>S SYNDROME.** J.M. Kramer<sup>1</sup>, J.R. Tumang<sup>2</sup>, and T.L. Rothstein<sup>2</sup>. <sup>1</sup>Long Island Jewish Medical Center, New Hyde Park, NY. <sup>2</sup>Center for Oncology and Cell Biology, The Feinstein Institute for Medical Research, Manhasset, NY. Autoimmune diseases, such as Sjögren<sup>TM</sup>s syndrome (SS), are a debilitating group of immune dyscrasias that exhibit specific organ or systemic involvement. Accordingly, SS may be limited to the salivary and lacrimal glands (primary SS), or may be accompanied by other autoimmune diseases such as rheumatoid arthritis and systemic lupus erythematosus (secondary SS). Emerging data indicate a subset of B cells, termed B1; have a significant role in human disease and mouse models of autoimmunity. A subpopulation of B1 cells express the B7 family member programmed death-ligand 2 (PD-L2, B7-DC, CD273). PD-L2+ B1 cell-derived antibodies preferentially stain HEp-2 cells on indirect immunofluorescence. Hypothesis: PD-L2+ B1 cells contribute more potently to autoimmunity than PD-L2- B1 cells by producing elevated levels of autoantibodies. Thus, we sought to determine in more detail the specificity of the autoantibodies that characterize the PD-L2+ B1 cell population, particularly those associated with SS. Experimental Design: BALB/c B1 cells were sorted into PD-L2+ and PD-L2- populations, and following LPS stimulation, ELISAs were performed on culture fluids to assess relative levels of secreted autoantibody. Results: PD-L2+ B1 cells produced significantly more anti-ANA, anti-Ro/SSA, and anti-La/SSB autoantibody than did PD-L2- B1 cells. Conclusion: These data suggest that autoantibody production in SS, and perhaps other autoimmune diseases, derives from a distinct subset of B cells. Elucidation of this pathophysiological mechanism, if confirmed, may lead to the development of more effective therapeutics that targets a specific subset of B cells.

# Poster Abstracts – Monday, June 23, 2008

## #103 – Pavilion Room

**SILICONE GRANULOMA SIMULATING A LOW-GRADE LIPOSARCOMA.** A.S. Almeida, E.S. Gonçalves, A.G.B. Gonçalves and D.T. Oliveira. U. São Paulo, Brazil. Nowadays, the liquid, gel or solid forms of silicone are extensively used in perioral, periocular and cheek areas of middle-aged women for cosmetic and rejuvenation purposes. We present a case of a seventy-one-years-old woman that was referred to dentist for oral rehabilitation treatment. Panoramic radiography revealed the presence of a well-circumscribed radiolucent lesion located in mandibular symphysis region suggestive of odontogenic cyst or tumor. The lesion was completely intraosseous, asymptomatic and the patient denied previous surgical intervention. Intraoral examination showed superior maxillary edentulous and few teeth in anterior mandibular region with fixed partial prosthesis. A biopsy specimen was taken from the lesion and submitted to the Bauru School of Dentistry Oral Pathology Biopsy Service of the University of São Paulo. Histopathological examination showed numerous cells mimicking lipoblasts with clear vacuoles in the cytoplasm and displacing a single peripheral nucleus interspersed under the epithelial layer and between muscle fibers. The biopsy was interpreted as low-grade liposarcoma. After the diagnostic we asked the patient if she had been submitted to aesthetic surgical procedures. Then, she confirmed a silicone implant twenty-five-years ago for chin augmentation. The biopsy was re-examined with additional immunohistochemical studies that revealed positive anti-CD68, confirming the macrophage derivation. The diagnosis established was tissue reaction to silicone. This case reinforce that clinical and histopathological correlations are of critical assistance in making the correct pre-operative diagnosis avoiding unnecessary traumatic surgical intervention. The authors thank CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico, grant #131847/2007-4) for financial support.

## #104 – Pavilion Room

**MAXILLARY SINUS SQUAMOUS CELL CARCINOMA INVOLVING HARD AND SOFT PALATE.** A.S. Almeida, E.R. Dendena, N.V. Ribeiro Jr, A.A.C. Pereira, J.A.C. Hanemann, D.T. Oliveira. U. São Paulo, Federal U. Alfenas - Alfenas Minas Gerais, Bom Pastor Hospital - Varginha Minas Gerais, Brazil. Squamous cell carcinoma of the paranasal sinuses and nasal cavity are rare, representing less than 1% of all head and neck cancers. The patients prognosis with this type of cancer is poor We present a case of a fifty-five year-old man that two months ago complained about a rapidly growing mass that had appeared in the hard palate, which did not allow him to wear the denture. Intraoral examination revealed a swelling presenting ulcerated areas, involving hard and soft palate. Radiographic images and computerized tomography showed complete involvement of the right maxillary sinus. The clinical diagnosis was malignant tumor based in extensive bone destruction. Then, incisional biopsy of the lesion was performed and submitted to histopathological analysis. Microscopic features showed an aggressive neoplasm composed by islands of cohesive malignant epithelial cells with high atypia and absent of keratin pearls. The diagnosis established was maxillary sinus squamous cell carcinoma and the patient underwent radical maxillectomy with postoperative adjuvant radiotherapy and chemotherapy. Patient™ s follow-up showed lung metastasis after two years and he died of disease at 36 months from diagnosis. The authors thank CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico - grant #131847/2007-4) for financial support.

# Poster Abstracts – Monday, June 23, 2008

## #105 – Pavilion Room

VEGF-C EXPRESSION AND LYMPHATIC MICROVESSEL DENSITY IN EARLY STAGES OF THE ORAL SQUAMOUS CELL CARCINOMA: RELATIONSHIPS WITH LYMPH NODE METASTASES D.T. Oliveira, S.E.S. Faustino, S. Nonogaki, G. Landman, A.L. Carvalho, L.P. Kowalski. Bauru School of Dentistry/U. of São Paulo. The aim of this study was to evaluate vascular endothelial growth factor C (VEGF-C) expression and lymphatic microvessel density (LVD) in oral squamous cell carcinoma (OSCC) and to verify its correlation with the occurrence of occult lymph nodes metastases and with the patients<sup>TM</sup> prognoses. Eighty-seven patients with primary OSCC arising in the tongue or floor of mouth, clinically T1N0M0 or T2N0M0, with (pN+) and without (pN0) occult lymph-node metastases, treated in the Cancer Hospital A. C. Camargo, São Paulo, Brazil, from 1968 to 2001, were analysed. The immunohistochemical study was performed on paraffin sections of OSCC with monoclonal anti-human podoplanin antibody and polyclonal anti-human VEGF-C antibody. The correlation among the LVD in the OSCC and VEGF-C expression; clinical and microscopic variables and occurrence of occult lymph node metastases were obtained by chi-square test. The 5 and 10-year survival rates were calculated by the Kaplan-Meier method and compared by log-rank test. Occult lymph-node metastases were detected in 22% of the 64 patients who were submitted to elective neck dissection. No statistically significant difference was found between LVD in OSCC with and without occult lymph-node metastasis in regard to clinicopathologic features. Lymph-node metastasis (pN+) was the most significant prognostic factor for overall survival of patients with OSCC (p= 0.030). These findings reinforce that VEGF-C expression by malignant cells does not influence LVD and they are not of predictive value for occult lymph-node metastasis in the early stages of OSCC. The authors thank FAPESP (grants #2005/04577-4, #2007/04907-0) for supporting this study.

## #106 – Pavilion Room

QUANTITATIVE ANALYSIS OF LANGERHANS CELLS IN ORAL CHRONIC GRAFT-VERSUS-HOST DISEASE. E. S. L. Orti-Raduan, A. J. F. Nunes, D. T. Oliveira, V. S. Lara, L. A. A. Taveira, U. of São Paulo, Bauru, and Amaral Carvalho Hospital, Jaú, Brazil. The Langerhans cells are scattered throughout the epithelium of skin and mucosa and have been associated with the graft-versus-host-disease (GVHD), which is the highest cause of morbidity and mortality in patients who underwent bone marrow transplant. The aim of this study was to quantify the Langerhans cells in the oral cGVHD. Microscopic sections from biopsies carried out in the buccal mucosa of 40 patients who underwent allogenic bone marrow transplant and developed (20) or not (20) oral GVHDc (Groups 1 and 2, respectively) were utilized. For the control Group, free surgical margins of 20 biopsies of non inflammatory lesions in the buccal mucosa (Group 3) were used. The sections were studied in routine coloration and immunostained for CD1a. Group 1 (with cGVHD) presented a greater number of Langerhans cells/mm<sup>2</sup> ( $50.6 \pm 37.2$ ) as compared to the other Groups ( $23.11 \pm 19.7$  - Group 2;  $16.6 \pm 17.3$  - Group 3). Our results suggest a greater recruitment of Langerhans cells in patients transplanted with cGVHD, probably as a result of cytokines secreted by the inflammatory cells. The authors thank CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) for supporting this study.

# Poster Abstracts – Monday, June 23, 2008

## #107 – Pavilion Room

**ONCOCYTOMA AND ONCOCYTIC CARCINOMA OF THE SALIVARY GLANDS: A CLINICOPATHOLOGIC AND IMMUNOHISTOCHEMICAL STUDY OF 32 CHINESE PATIENTS.** C.X. Zhou, and Y. Gao. Peking U., Beijing. Oncocytoma and oncocytic carcinoma of salivary gland origin are rare tumors, composed exclusively of oncocytes, and the latter has malignant oncocytes and infiltrative qualities. To fully characterize the clinicopathologic, immunohistochemical and prognostic features of this tumor group, we report 22 oncocytomas and 10 oncocytic carcinomas. There was no difference in the patient age and tumor site between oncocytoma and oncocytic carcinoma, with most cases occurring in the parotid gland and a median age of 59.6 years. Most oncocytomas displayed an encapsulated nodular growth pattern, except for 5 multinodular ones, while oncocytic carcinomas were all unencapsulated masses. The tumor cells were arranged in solid sheets or duck-like structures. Typical oncocytes were observed in all cases, but one oncocytoma was found with a predominance of clear cell component. PTAH staining illustrated dark-blue cytoplasmic mitochondria granules. Electron microscopy demonstrated numerous mitochondria in the cytoplasm of the tumor cells. All the tumors showed immunoreactivity for CK, EMA and CEA, but negative for SMA or S-100. Ki-67(MIB-1) monoclonal antibody was found to stain the cell membrane of the oncocytoma cells, and the frequency of MIB-1 positive cells with nuclear staining was higher in oncocytic carcinomas than in oncocytomas. No recurrence and metastasis was found in oncocytomas, while the recurrence rate was 60% in oncocytic carcinoma, with 3 cases died of distant metastasis. In summary, oncocytoma and oncocytic carcinoma are rare tumors, the features of which resemble other salivary gland tumors and clinical diagnosis is often challenging. Histopathological diagnosis is more reliable with helpful PTAH staining, and MIB-1 immunostaining may be considered for diagnostic purpose.

## #108 – Pavilion Room

**LOW EXPRESSION OF ACETYL-HISTONE H3 AT LYSINE 9, 18 SITE (LYS9, LYS18) INFLUENCES THE CARCINOGENESIS OF SALIVARY ADENOID CYSTIC CARCINOMA.** J Li, RR Zhou, Z Tian, CY Zhang, YH Hu, L Li. College of Stomatology, Shanghai Jiaotong University, Shanghai, China. Objective: To investigate the role of histone acetylation in the carcinogenesis of salivary adenoid cystic carcinoma (ACC) and its relationship with p16INK4a promoter methylation. Findings: We detected the protein expression levels of acetyl-histone H3 at lys9 site (lys9) and lys18 site (lys18) by immunohistochemistry from 60 specimens of ACC and 49 specimens of normal salivary glands which had been detected for p16INK4a DNA promoter methylation and protein expression in our previous work. We also investigated the relationship between lys9, lys18 expression and p16INK4a promoter methylation and protein expression in ACC. We found that the expression of lys9 and lys18 in ACC was notably lower than that in normal salivary glands and the lys9 expression was stronger than that of lys18 in normal salivary glands and the low lys9 expression correlated with p16INK4a promoter methylation. No correlation was observed between the lys9, lys18 and p16INK4a protein expression. There was no correlation between lys9, lys18 expression and the patients<sup>TM</sup> sex, age, ACC tumor location, histologically grade, TNM stage, perineural invasion or other clinicopathological factors. Conclusions These results suggest that hypoacetylation of histone H3 at lys9, 18 sites may correlate with the development of ACC and the histone acetylation levels between different modificatory sites may have a discrepancy in normal salivary glands. The DNA promoter hypermethylation and histone deacetylation may have a synergistic effect in altering p16INK4a gene expression, but the inactivation of p16INK4a may result from the collective contribution of many mechanisms.

# Poster Abstracts – Monday, June 23, 2008

## #109 – Pavilion Room

**A HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL STUDY OF ECTOPIC BONE FORMATION IN EPULIS OSTEOPLASTICA.** H. Tajima, T. Utsunomiya, H. Yamamoto, and Y. Akimoto. Nihon U., Chiba, Japan. Epulis, which is a relatively common polypoid lesion of the gingiva, has some subtypes such as osteoplastica (EO), fibrosa (EF), granulomatosa, etc. EO shows a unique histopathological feature of ectopic bone formation. Although epulis is thought to be reactive proliferation by various stimulation with mechanical and injury in the limited region, the detail mechanism of pathogenesis and ectopic bone formation in EO are unclear. The present study examined histopathological and immunohistochemical analyses in order to elucidate the ability of bone formation in EO (n=8) using several markers of bone formation such as bone morphogenetic protein (BMP)-2, -4 and -6, and osteocalcin (OCN) and compared to EF of control specimen (n=8). EO consisted of massive, trabecular or woven bone formation surrounding by proliferation of fibroblasts and blood vessels with minimum of inflammatory cell infiltration under the mucosal squamous epithelium. Scanty or less of osteoblastic lining was observed around the bone. EF was composed of proliferation of fibroblasts, collagen fibers and blood vessels with minimum inflammatory cell infiltration, but no evidence of bone formation was found. Immunohistochemically, EF of control specimen showed positive reactivities for BMP-2, -4 and -6 in the fibroblasts, but negative for OCN. Compared to EF, EO exhibited positive reactivities not only for BMP-2, -4 and -6 in the fibroblasts and vascular endothelial cells around the bone but also for OCN in the bone matrix. These findings suggest that the proliferating fibroblasts in EO differentiate into bone matrix-producing cells, nevertheless non-similar with typical morphology of osteoblast.

## #110 – Pavilion Room

**LOW PREVALENCE OF HIGH RISK HUMAN PAPILLOMAVIRUS (HR-HPV) IN MEXICAN HIV/AIDS PATIENTS WITH HPV-RELATED ORAL LESIONS (HPV-OL).** G. Anaya-Saavedra, V. Ramírez-Amador, M. Guerrero-Tenorio, I. González-Ramírez, M. Guido-Jiménez, A. García-Carrancá. Universidad Autónoma Metropolitana, Universidad Nacional Autónoma de México, Instituto Nacional de Cancerología. Mexico City. Objective. To establish the prevalence HR-HPV types in a group of patients with HIV/AIDS with HPV-OL. Methods. A consecutive sample of 18 HIV-positive males (median age: 33 years), with HPV-OL, attending a referral center in Mexico City (CEC), was included. An excisional biopsy, included in a cellular preservation solution, was taken. HPV-DNA was identified through universal consensus primers (MY09/11+, GP5/6+), by a PCR reaction. PCR products were subsequently sequenced directly. Results. The most common affected site was labial mucosa (7/39%), followed by tongue (5/28%), palate, and gingiva (2/11%, each one). HPV-DNA was identified in 10 lesions, 8 (44%) were low risk HPV-types (LR-HPV) (6, 11, 13, 32 and 74) and 2 (11%) high risk HPV-types (16 and 31). The histological diagnosis was HPV-related lesion in 5 samples (3 LR-HPV[6, 13 and 32], 2 HR-HPV[16, 31]), papilloma in 4 (LR-HPV[11, 13, 74]), and multifocal epithelial hyperplasia in one (LR-HPV[32]). The patient positive to HPV-16, subsequently developed multiple lesions, one of them, corresponded to verrucous carcinoma. Six (60%) of the ten patients with amplifiable HPV-DNA were under HAART therapy, with a median time of 588 (Q1-Q3, 468-821) days. Conclusion. HPV-related oral lesions in HIV/AIDS patients were mostly associated with low risk HPV-types, while in a small number of these lesions were identified HR-HPV types.

# Poster Abstracts – Monday, June 23, 2008

## #111 – Pavilion Room

**CORNIFIED CELL ENVELOPE OF CULTURED NORMAL HUMAN ORAL KERATINOCYTE** Chong Heon Lee, Gyeong Ju Park Dept. of Oral Pathology, Dental College, Dankook University. Cornified cell envelope(CE) of human skin which have a role in the barrier function to protect the underlying tissue in dry condition. Human oral keratinocytes is in wet condition as saliva containing many proteases, growth factors, and many kinds of bacteria. Protective barrier of oral epithelium would be different from that of skin epithelium barrier. Surface cell study of normal oral mucosa and oral mucosal lesions was restricted to examine the morphologic features by SEM and TEM. There is no reported about in vitro study on CE of normal human oral keratinocytes. The purpose of this study was to examine the morphology, and to analysis the amino acid component in CE of cultured human normal oral keratinocyte. It will be helpful to study oral mucosal diseases through amino acid component analysis of CE. Both group showed large areas of stratification, more compact, with irregular border and tightly apposed cells in 1.2mM. Cornified cell envelope exhibited a fairly regular pattern of microridges. Anastomotic ridges forming pit and microridges were arranged mostly in parallel rows with frequent branches. During the terminal differentiation in cultured NHEK and NHOK, insoluble cornified cell envelope formation was increased. Cultured NHEK showed Gln/Glu (Involuvrin), Gly (Loricrin), and Serine in descending order, while cultured NHOK showed Pro (SPR), Gln/Glu (Involucrin), and Gly (Loricrin) in descending order. It suggested that although during the terminal differentiation in cultured NHEK and NHOK, insoluble cornified cell envelope formation was increased, major amino acid component of cultured NHEK(Gln/Glu) was different from that of cultured NHOK(pro). Key words : Cornified Cell Envelope, Cultured NHOK, Protein analysis, SEM

## #112 – Pavilion Room

**HGF AND NHOK SHOWING DIFFERENT GROWTH BY CHITOSAN-PVP HYDROGEL** Gyeong Ju Park, Chong Heon Lee Dept. of Oral Pathology, Dental College, Dankook University Many researchers are interested in wound healing. Synthetic epidermal substitutes with cultured epithelial cells seem to be an attractive strategy since keratinocytes have been demonstrated to modulate fibroblast growth and collagen synthesis. Recently, a biocompatible synthesized chitosan-PVP (polyvinyl pyrrolidone) hydrogels demonstrated in vitro biocompatibility for biomedical applications. However, there is no report on this hydrogel's ability to modulate human gingival fibroblast growth. The purpose of this study were to investigate different growth modulation between human gingival fibroblast (HGF) and normal human oral keratinocyte (NHOK) by chitosan-PVP hydrogel, and to apply this biocompatible synthetic polymer to oral and maxillofacial wound healing. We have synthesized a hydrogel from chitosan-PVP and examined its effect on HGF growth modulation in vitro. Non-toxic and biocompatible hydrogel with HGFs and epithelial cells was tested by MTT assay. HGF showed a higher growth proliferation than that of NHOK after cell seeding. In MTT assay, 30% hydrogel leach out products showed a higher cellular viability in NHOK than that of any other products. In MTT assay, 30% hydrogel leach out products showed relatively lower cellular viability of HGF. In growth profile, NHOK showed about 7 folds higher than HGF after 1 day, while about 2 folds higher after 5 days. And also NHOK showed above about 70% cellular viability from 1 to 7 days. It suggested that Chitosan-PVP hydrogel would inhibit relatively the growth of HGF and stimulate the growth of NHOK. This phenomenon may prove to be of use in wound management of oral and maxillofacial area as epithelial substitutes. Key words: Different Growth, HGF, NHOK, Chitosan-PVP hydrogel

# Poster Abstracts – Monday, June 23, 2008

## #113 – Pavilion Room

IN VIVO ELECTROPORATION ENHANCES THE DNA VACCINE POTENCY AGAINST HAMSTER ORAL PAPILLOMAVIRUS-ASSOCIATED ORAL CANCER. H. Maeda, Y. Sugita, K. Kubo, E. Sato, Y. Suzumura, M. Jinno, K. Takayama, Y. Honda, and A. Komori. Aichi-Gakuin University, Nagoya, Japan. In a previous investigation, we developed a highly reproducible carcinogenesis model by combining DMBA application with physical wounding of the hamster lingual mucosa. Using this animal model, we demonstrated the presence of a novel hamster oral papillomavirus (HOPV). In this study, we used this HOPV hamster model to compare the anti-tumor effectiveness of different procedures of DNA vaccine delivery, intramuscular injection alone or with electroporation (EP). Forty hamsters were divided equally into four groups. These groups were designated as N (no treatment), V (Vaccination without EP), E (EP without vaccination), VE (vaccination followed by EP). The animals in N group were injected intramuscularly with vector only, while those in V group were injected with DNA plasmids encoding the E6 gene. The animals of VE group were injected DNA plasmids followed by EP, while those in E group were only injected vector followed by EP. Three weeks after the initial DNA injection, all animals were boosted with the same plasmids they had received initially. The lingual tips of hamsters were painted three times a week with DMBA for 8 weeks. The middle portion of the lingual tip was then excised under anesthesia. Thereafter, the tips were painted daily with DMBA until the animals were sacrificed. The all hamsters of N and E groups showed lingual carcinoma. Some delays in cancer development in the hamsters of V and VE groups were observed. In particular, in VE group, 8 hamsters showed no lesions. These results suggested that immunization with E6 DNA vaccines followed by EP in vivo delayed carcinoma development of papillomavirus-associated oral cancer, and it is therefore in vivo EP is a potent method for DNA vaccine delivery.

## #114 – Pavilion Room

AMBIGUOUS CERVICAL MASS CAUSED BY CAT-SCRATCH DISEASE IN PATIENT WITH TUBERCULOSIS. S. Mukae, N. Matsumoto, Y. Amano, D. Omagari, and K. Komiyama. NIHON U., Tokyo. Cat scratch disease (CSD) is well known, though recently its occurrence is rare. The disease is a zoonosis caused by *Bartonella henselae* and usually transmitted through cat scratches, bites, or licks. We present a unique case of CSD in a 76-year-old female who came to us with neck swelling. Because of a history of tuberculosis, the patient had undergone a crevicular lymph node biopsy, though the previous medical records could not be obtained, thus our clinical diagnosis was made cautiously. At the initial examination, a solid mass with tenderness was found in the right submandibular area, which was shown as a well-circumscribed cystic mass in CT scan images. A fine needle aspiration biopsy was performed to clarify the tumor, which revealed granulation tissue with numerous neutrophils and scant histiocyte infiltration, which led to a diagnosis of chronic suppurative lymphadenitis. The patient was given antibiotics and the mass slightly reduced in size. However, it did not disappear and we could not rule out a salivary gland tumor, thus the lesion was completely excised. Histological analysis of the excised mass showed multiple epithelioid granulomas randomly distributed in a lymph node, with inflammatory cells extending into the capsule. The granuloma contained a central abscess surrounded by histiocytes and foreign body type giant cells, which led to our final diagnosis of a CSD. Staining was performed to identify the pathogenic microbes, but no conclusive findings could be obtained. In a follow-up interview, the patient noted that her face had been scratched by a cat 2 months previously. She was disease free at 9 months after surgery.

# Poster Abstracts – Monday, June 23, 2008

## #115 – Pavilion Room

**MICROSTRUCTURE OF ACID-ETCHED TITANIUM-TISSUE INTERFACE** K. Kubo, W. Yoshida, Y. Sugita, E. Sato, Y. Suzumura, A. Wada, Y. Otsubo and H. Maeda Aichi-Gakuin University, Nagoya, JAPAN  
This study presents the first observation of the interface between acid-etched titanium and cultured osteoblastic tissue at micro- and ultra-structural levels. Rat bone marrow stromal cells were cultured on the thin titanium disk for 14 days. The cultured tissue was examined by SEM and EDS elemental mapping. SEM images show that the osteoblastic culture on the acid-etched titanium disk has a fibrous network covering small globular structures suggestive of the calcium-binding proteins, such as osteopontin and osteocalcin. Micro-scale surface roughness of titanium, with average peak-to-valley of 0.8  $\mu\text{m}$ , was recognized in the cross-sectional images. Backscattered electron images discriminated the electron contrast of the tissue from titanium, indicating that the biological tissue ranging 5-15  $\mu\text{m}$  in thickness was formed on the titanium surface. EDS line scan from the outer surface of tissue to the titanium interface revealed that elemental peaks of Ca and P existed in an identical level of vicinity, while the element of oxygen was distributed widely in the tissue with its peak at 3  $\mu\text{m}$  from the titanium surface. EDS area mapping confirmed a uniform Ca spread within the 2  $\mu\text{m}$  range of tissue. We have succeeded cross-sectional imaging of the acid-etched titanium and cultured mineralized tissue interface. Micro-scale surface roughness of titanium, with average peak-to-valley of 0.8  $\mu\text{m}$ , was recognized in the cross-sectional images. The interface at day 14 of culture was characterized by the intense localization of calcium.

## #116 – Pavilion Room

**PROGNOSTIC SIGNIFICANCE OF HUMAN LEUKOCYTE ANTIGEN CLASS I EXPRESSION IN GINGIVAL SQUAMOUS CELL CARCINOMA.** M. Kishino, M. Yuki, S. Sato, S. Murakami, Y. Ogawa and S. Toyosawa. Osaka U. Suita. Loss or down-regulation of human leukocyte antigen (HLA) class I molecules from the cell surface is thought to be one of the mechanism that allows tumor cells to escape immune surveillance. In this study, association of HLA class I expression with clinico-pathological findings of gingival squamous cell carcinoma was examined. Fifty-three formalin-fixed paraffin-embedded specimens of gingival squamous cell carcinomas were stained by immunohistochemistry using the anti-pan HLA class I monoclonal antibody (EMR8-5). Tumor-infiltrating T lymphocytes were also examined using the anti-CD3 (PS1), the anti-CD4 (4B12) and the anti-CD8 (1A5) monoclonal antibodies. Expression of HLA class I was strongly positive in twenty-four tumors, weakly positive in twenty-one tumors and negative in eight tumors. Down-regulation of HLA class I was significantly correlated with pathologic stage ( $P=0.015$ ). The density of infiltrating CD8+ T lymphocytes in HLA class I-negative tumors was significantly decreased compared to that in HLA class I strongly positive tumors ( $P<0.001$ ). Patients with HLA class I-positive tumors showed significantly better overall survival than those with HLA class I-negative tumors ( $P<0.05$ ). These results suggest that down-regulation of HLA class I expression in gingival squamous cell carcinoma is a marker of poor prognosis, and the HLA class I-restricted cytotoxic (CD8+) T lymphocyte pathway may play an important role in immune surveillance of patients with gingival squamous cell carcinoma.

# Poster Abstracts – Monday, June 23, 2008

## #117 – Pavilion Room

**MICROSCOPIC EXAMINATION OF PARTIAL PULPOTOMIZED HUMAN TEETH CAPPED WITH EMDOGAIN GEL.** S. Kintarak, T. Kiatwateeratana, A. Thearmontree. Prince of Songkla U., Hat Yai, Thailand. Partial pulpotomy and direct pulp capping are effective procedures for vital pulp therapy to preserve tooth vitality and function. Emdogain (EMD) is a porcine enamel matrix derivative reported to have the capacity to stimulate cell proliferation of osteoblasts and odontoblasts. The purpose of this study was to determine the capacity to induce reparative dentine formation of EMD gel compared to calcium hydroxide. Partial pulpotomy was made in 13 pairs of contralateral caries-free premolars scheduled for extraction due to orthodontic treatment. The pulp wound was randomly capped with either EMD gel or a mix of calcium hydroxide and sterile saline. After 6 months, the teeth were extracted and processed for light microscopic examination. Ten from 13 of calcium hydroxide-treated teeth showed dentine bridge formation with normal pulp tissue. EMD gel-treated teeth showed persistent chronic inflammatory response with no evidence of dentine bridge formation. Only few scattered calcified tissues could be evident. In conclusion, the results showed that EMD gel was not able to induce reparative dentine formation in pulpotomized human teeth. Calcium hydroxide remains the material of choice for the vital pulp therapy.

## #118 – Pavilion Room

**ORAL SPINDLE CELL CARCINOMA WITH SPINDLE CELL METASTASIS: REPORT A CASE AND LITERATURE REVIEW.** J. Chang, Y. Wang, C. Chiang. National Taiwan U Hospital, Taipei, Taiwan. Spindle cell carcinoma is a rare variant of squamous cell carcinoma (SCC) with the microscopic appearance of a malignant sarcomatoid neoplasm and an overlying surface SCC or epithelial dysplasia. Metastasis usually contain SCC alone or both SCC and spindle cell component, and rarely, only the spindle cell component. Here we report a case of spindle cell carcinoma in the left lateral border of tongue with solely spindle cell neck lymph node metastasis. Histopathological evaluation and immunohistochemical study were performed using a panel of markers including cytokeratin cocktail (AE1/AE3), high molecular weight cytokeratin (34 $\beta$ E12), EMA, and vimentin. The carcinomatous component of this tumor revealed well to moderately-differentiated SCC and was immunoreactive to AE1/AE3 and 34 $\beta$ E12. The spindle cell component revealed focal osteosarcomatous differentiation and most of the spindle cells were negative for any kind of cytokeratin and EMA. Only spindle cells directly deriving from surface epithelium show AE1/AE3 and 34 $\beta$ E12 immunopositivity. One of the neck lymph nodes was involved by pleomorphic, spindle cells. These metastatic spindle cells are negative for any cytokeratin and EMA.

# Poster Abstracts – Monday, June 23, 2008

## #119 – Pavilion Room

**BAICALEIN AS A POSSIBLE CHEMOPREVENTIVE AGENT FOR ORAL CANCER.** H. Chang, H. Chen, Y. Huang, Y. Cheng\*, and Y. Cheng. China Medical University, Taichung, Taiwan. \*Baylor College of Dentistry-TAMHSC, Dallas, Texas, USA. Objective: Baicalein (5,6,7-trihydroxyflavone) is a bioactive flavone isolated from the root of *Scutellaria baicalensis* Georgi (Huang Qin). It has been used as an anti-inflammatory agent in Chinese herb medicine. Recently, Baicalein was found to have anti-proliferative and apoptotic effects on prostate, lung and breast cancer cells. The objective of this study is to investigate the possible anti-proliferative and apoptotic effects of Baicalein on oral cancer cells. Study Design: An oral squamous carcinoma cell line HSC-3 was used. Baicalein at concentrations of 14, 28 and 56mg/ml were incubated with HSC-3 cells for 48 and 72 hours followed by MTT assays to assess the cytotoxicity. PCNA expression, the marker of cell proliferation was investigated via immunocytochemistry on Baicalein-treated HSC-3 cells. Cells treated with 28 mg/ml of Baicalein were analyzed at 24, 48 and 72 hours for cell cycle phases by flow cytometry. Findings: Baicalein inhibited HSC-3 cell growth in a dose-dependent manner. The survival rate by Baicalein at concentrations of 28 and 56 mg/ml was significantly decreased ( $P < 0.05$ ), accompanied with decreased PCNA expression in HSC-3 cells. Cell cycle analysis showed that an increased percentage of cells in S-phase and a decreased percentage of cells in G2/M phase after incubation with 28 mg/ml of Baicalein for 48 hrs. In addition, the proportion of apoptotic cells was significantly increased after 72 hours of Baicalein incubation ( $p < 0.05$ ). Conclusions: Baicalein showed anti-proliferative and apoptotic effects on oral cancer cells. The results of this study suggest that Baicalein may be a candidate chemopreventive agent for oral cancer.

## #120 – Pavilion Room

**CLINICAL SCORE FOR ORAL LICHEN PLANUS.** M. Siponen, T. Salo. Oulu U., Oulu, Finland. Oral lichen planus (OLP) is a chronic autoimmune disease with unknown etiology. Its treatment is directed against alleviation of symptoms through controlling the chronic inflammatory response in the oral mucosa. Several different medications with anti-inflammatory abilities have been used for the treatment of OLP. However, there is lack of strong evidence for the superiority of any interventions in the treatment of symptomatic OLP. There is a need for placebo-controlled, randomized, methodologically sound clinical trials with standardized outcome measures. Few methods for reliably recording the disease severity in a clinical setting have been proposed. We present a clinical scoring system for recording the disease severity in OLP modified from one previously published scoring system. Based on our clinical and research experience this clinical score for OLP is easy and quick to use, reproducible and detects the changes in disease severity thus providing a useful tool for clinicians as well as researchers treating oral lichen planus patients.

# Poster Abstracts – Monday, June 23, 2008

## #121 – Pavilion Room

PREVALENCE OF ORAL MUCOSAL CONDITIONS AND LESIONS IN A NORTHERN TAIWANESE POPULATION. M.L. Chiang, Y.J. Hsieh, and C.P. Chiang. Chang Gung Memorial Hospital, Chang Gung U., Taipei, Taiwan and National Taiwan U. Hospital, National Taiwan U., Taipei, Taiwan. The aim of this study was to evaluate the prevalence of oral mucosal conditions and lesions in a northern Taiwanese population. The study group comprised of 2076 consecutive patients (922 men and 1154 women) receiving dental examination and treatment in the Department of General Dentistry, Chang Gung Memorial Hospital starting from 2003 to 2007. The ages ranged from 4 to 91 (mean,  $45.77 \pm 20.218$ ) years. The most frequently observed oral mucosal condition was Fordyce™s granules (82.94%), followed by the buccal exostosis (34.06%), torus palatinus (24.13%), torus mandibularis (21.29%). The tongue lesions observed in the descending order were as follows: lingual varices (16.04%), geographic tongue (1.43%), fissured tongue (1.43%), ankyloglossia (0.52%), atrophic glossitis (0.29%), and median rhomboid glossitis (0.29%). The strong association has been found between fissured tongue and geographic tongue in other studies. However, this close association did not show in this study. The prevalence of the oral mucosa lesions in the descending order was recurrent aphthous ulcer (4.58%), burning mouth syndrome (2.17%), lichen planus (1.40%), frictional hyperkeratosis (0.34%), leukoplakia (0.19%), and erythroleukoplakia (0.05%). The current study showed a wide spectrum of oral mucosal conditions and lesions in a northern Taiwanese population.