



American Academy of Oral
& Maxillofacial Pathology

Essay Program

Monday - May 18, 2009
8:00 am – 12:30 pm

Mt. Royal/Hampstead/Cote Room

1 – 8:00 am

GENES THAT REGULATE HUMAN OSTEOCLASTOGENESIS ARE MODULATED BY ALENDRONATE *IN VIVO* AND *IN VITRO*. B. Eslami, S. Zhou, I.V. Eekeren, M.S. LeBoff, J. Glowacki. Harvard Medical School, Harvard School of Dental Medicine. Boston, MA.

Alendronate (AL) is believed to suppress bone resorption by blocking the mevalonate pathway and induction of apoptosis in functional osteoclasts. Osteoclastogenesis, a requirement for bone resorption, is regulated by several factors such as M-CSF, RANKL, and OPG. We hypothesized that, beside the known pathway, treatment with AL would alter osteoclastogenesis by modulating the expression of M-CSF, RANKL, and OPG. First, we compared bone marrow cultures from women who were taking AL (+AL) with age and gender-matched control group. Second, we treated marrow stromal cells from controls with different concentration of AL. We found significantly less osteoclast differentiation along with upregulation of M-CSF and OPG, and downregulation of RANKL in cultures from +AL subjects, compared with controls. Treatment of stromal cell cultures in vitro with AL showed significant RANKL inhibition and OPG stimulation while the M-CSF expression remained unaltered. These results demonstrate that AL modulates regulatory genes in osteoclastogenesis in addition to its known action to promote apoptosis of mature osteoclasts.

2 – 8:12 am

QUANTITATIVE MEASUREMENT OF CYTOCHROME P450 (CYP) 1A1 AND 1B1 EXPRESSION IN THE ORAL MUCOSA OF SMOKERS AND NONSMOKERS A. Chi, K. Appleton, J. Henriod, J. Krayer, N. Marlow, D. Bandyopadhyay, R. Sigmon, D. Kurtz. Medical U. of South Carolina. The relative expression of CYP isoforms is related to the generation of carcinogenic species. This balance in CYP metabolism is tissue-specific and an important determinant of tobacco-related squamous cell carcinoma (SCC) development. The major CYP isoforms responsible for tobacco carcinogen bioactivation in oral mucosa are CYP1A1 and CYP1B1, although information regarding the in vivo oral expression of CYP1B1 is limited. Objective: To compare the expression of CYP1A1 and CYP1B1 in the oral mucosa of smoking and nonsmoking individuals. Study Design: Quantitative RT-PCR was performed to measure CYP1A1 and CYP1B1 mRNA expression in normal oral mucosa of 19 smoking and 24 nonsmoking subjects. Results: A comparison of smokers and nonsmokers showed significantly greater induction of CYP1B1 than CYP1A1 ($p < 0.5$) [CYP1A1: smokers mean relative quantification (RQ) = 9 ± 1.6 , nonsmokers mean RQ = 0.03 ± 0.08] [CYP1B1: smokers mean RQ = 9.7 ± 7.6 , non-smokers mean RQ = 2.4 ± 3.1]. There was marked interindividual variation in CYP1A1 and CYP1B1 expression. Kruskal-Wallis ANOVA tests showed no significant differences in target gene expression according to age, ethnicity, or alcohol usage. Conclusions: This study represents the first investigation of oral CYP1A1 and CYP1B1 expression in a well-characterized patient group and demonstrates preferential induction of CYP1B1 over CYP1A in smokers. Interindividual variation in CYP1A1 and CYP1B1 expression may account in part for variation in tobacco-related oral SCC risk.

3 – 8:24 am

MALIGNANT (METASTASIZING) AMELOBLASTOMA (MAB) IN A 15-YEAR OLD BOY. R.A. Abdelsayed, M. Salgerio, M. Stevens, H. Ferguson and M. Reid-Nicholson. Medical College of Georgia, Augusta. Objectives: This case presents an adolescent boy with MAb which is a rare odontogenic neoplasm with microscopic features of fibenignfl ameloblastoma (AB), but with clinical evidence of regional lymph node metastasis. The clinical, histologic and FNA cytologic features will be presented. The cytology differential diagnosis and limitations of FNA utility will be discussed. Findings of Case: a 15-year-old boy presented with mandibular swelling and ipsilateral lymphadenopathy (LNP). X-ray film showed a multilocular radiolucency suggestive of AB. CT scans confirmed LNP. Although the nature of the LNP was uncertain, the possibility of metastatic disease was considered. An intraosseous biopsy confirmed a diagnosis of AB. An FNA of LNP revealed clumps of basaloid, epithelioid and stellate-shaped cells with basophilic nuclei surrounded by peripheral columnar cells with palisaded nuclei, consistent with ameloblast-like cells. A diagnosis of MAb was established, but the rest of metastatic work up was negative. Mandibular resection and unilateral cervical lymph node dissection were performed. The patient, one year later, is alive and well and has no evidence of disease. Conclusions: This is unusual case since the patient was an adolescent and presented with metastatic disease. This partly clinical as well as cytologic diagnosis was facilitated by cytologic features of AB in cervical lymph nodes adjacent to the intraosseous AB. While FNA cytology may be helpful in diagnosing AB, its features are by no means definitive as there are several benign and malignant cytologic mimics.

4 – 8:36 am

THE EFFECTS OF BISPHOSPHONATES ON GENE EXPRESSION IN OSTEOLASTS. A. Naidu, L. Opperman, P. Kramer, J. Wright. Texas AandM Health Science Center, Baylor College of Dentistry, Dallas. We previously demonstrated an increase in TGF- β 1, a marker of bone remodeling and differentiation in bisphosphonate treated osteoblasts. In the present study we used quantitative polymerase chain reaction (PCR) gene microarrays to evaluate gene expression in osteoblasts with emphasis on the TGF- β signal transduction pathway. Third passage primary rat calvarial osteoblasts were treated with differentiation medium with either 10-6M alendronate, 3 μ M zoledronate, or no medication for 72 hours. RNA was isolated from each of these samples and reverse transcription to cDNA was performed prior to assay. The expression of 84 different genes was evaluated for each treatment group. Decreased expression was seen in genes which affect bone turnover and osteoblast-osteoclast interaction, including BMP3, Interleukin-6, TGF- β 3, TGF- β receptor 1, Runx1, and Noggin. We plan to investigate further the interaction between these important factors and develop an animal model for bisphosphonate associated osteonecrosis.

5 – 8:48 am

SIALOBLASTOMA OF INTRAORAL MINOR SALIVARY GLAND ORIGIN: A CASE REPORT AND REVIEW OF THE LITERATURE. S. Hassan-Eljack, P. Freedman, R. Reich, M. Greco. New York Hospital Queens and Bellevue Hospital Center. New York, NY. Sialoblastoma is a rare, congenital low-grade malignant salivary gland neoplasm which resembles fetal salivary gland tissue. Only 24 cases have been reported in the English literature. We report a case of sialoblastoma in a newborn male that was not detected by prenatal sonography. This case is a rare example arising in the minor salivary glands of the buccal mucosa. The term sialoblastoma was first used by Taylor in 1988 and is the current name used by the WHO. Earlier terms used included embryoma, congenital carcinoma and hybrid basal-cell adenoma-adenoid cystic carcinoma. Multiple recurrences and metastases have been reported. Several authors have attempted to classify sialoblastoma into benign and malignant variants based on microscopic features such as cytologic atypia and necrosis. However, because of this tumor's unpredictable behavior, it is prudent to consider all sialoblastomas as malignant neoplasms.

6 – 9:00 am

EMERGING ROLE FOR CXCL13 AND B1 LYMPHOCYTES IN SJÖGREN'S SYNDROME. J.M. Kramer, N. Holodick, and T.L. Rothstein. Long Island Jewish Medical Center, New Hyde Park, NY, The Feinstein Institute for Medical Research, Manhasset, NY. Sjögren™s syndrome (SS) is an autoimmune disease that affects the lacrimal and salivary glands, and may be seen with other autoimmune diseases. CXCL13 is a potent chemoattractant for B cells, and is elevated in SS patients. A subset of B cells, termed B1, undergoes aberrant homing to peripheral tissue in response to CXCL13. We hypothesize that CXCL13 is upregulated in mouse models of SS, and recruits B1 cells to glandular tissue. We examined sera and salivary tissue from SS mouse models for CXCL13 expression by ELISA and real time PCR. In addition, salivary tissue was also examined for B1 cells by flow cytometry. Among several SS models, NOD/ShiltJ mice demonstrate salivary B1 cells and have elevated expression of CXCL13 in salivary tissue. Thus, preliminary studies suggest CXCL13 is upregulated in some SS models, and may recruit B1 cells to salivary tissue. These findings may lead to identification of innovative therapeutic targets for this debilitating disease.

7 – 9:12 am

ADENOSQUAMOUS CARCINOMA OF THE ORAL CAVITY. H. Chehal, D.M. Cohen, I. Bhattacharyya, U. Florida. Gainesville. Adenosquamous carcinoma (ASC) is an uncommon and a controversial neoplasm. It has been defined as a malignant tumor with histological features of both adenocarcinoma and squamous cell carcinoma in the WHO 1991 classification of tumors of the upper respiratory tract and ear. It is associated with an aggressive behavior and poor prognosis. A thorough search of the literature produced only less than 20 reported cases occurring in the oral cavity with most affecting middle aged to elderly males. We report two additional cases in the oral cavity. Both tumors were seen arising from the surface epithelium and showed dysplasia of the surface epithelium with a dual neoplastic nature with areas of typical squamous cell carcinoma intermixed with zones of glandular malignancy. Both lesions demonstrated the glandular neoplasm in the deeper aspects of the specimen and squamous carcinoma toward the superficial aspects. The patients were treated with combined surgery and chemotherapy. One of the patients died of disease following multiple recurrences. In addition, we review the published cases of ASC and highlight the diagnostic features. It is important to distinguish ASC from other oral adenocarcinomas and squamous cell carcinomas due to their potential for recurrences. We discuss the differential diagnosis and prognostic factors for oral ASC.

8 – 9:24 am

DYSKERIN PROTEOLYSIS OCCURS DURING GENOME MAINTENANCE. F. Alawi, P. Lin. U. of Pennsylvania, Philadelphia. Dyskerin is a conserved, multifunctional, nucleolar protein with putative roles in G1 and S phases. Here, we demonstrate that dyskerin is differentially expressed during cell cycle progression and its levels peak during G2/M in parallel with the upregulation of factors that have established roles in mitosis. Also, dyskerin localizes to the perichromosomal region and mitotic spindle during metaphase and anaphase in dividing oral keratinocytes. This led us to postulate that dyskerin may exert an important influence throughout all phases of the cell cycle. To this end, we observed that dyskerin was rapidly degraded following mitotic stress via a mechanism that was dependent upon ataxia telangiectasia mutated kinase activity, and after genotoxic stress by a proteasome-dependent mechanism. The preservation of genomic integrity is influenced by the timely inactivation of proteins that promote cell growth, proliferation, and/or survival. This leads us to propose that post-translational regulation of dyskerin may be critical for genome maintenance.

9 – 9:36 am

A COMPREHENSIVE LOOK AT ORAL PATHOLOGY CONSULTS IN AN US DENTAL SCHOOL. R. Kuklani, K. Magliocca, D.M. Cohen, I. Bhattacharyya, U. Florida. Gainesville. Introduction: Most oral and maxillofacial pathology (OMP) centers maintain and provide clinical consultation service. We undertook a study spanning 6 months accumulating data covering the utilization of OMP consults in the UF College of Dentistry. To the best of our knowledge, this is the first in-depth evaluation of the role of oral pathology consults in the comprehensive care model of patient management. Methods - Consults were recorded and formatted in a database. The intake form recorded the following parameters: patient demographics; clinics requesting consults; presumptive diagnosis; time taken; action plan and follow up. A total of 158 consults were logged. Results - Undergraduate clinics requested 48 % of the consults followed by 32% graduate clinics and 11% faculty practice. Most common reasons for consults included white lesions (21%), red/white lesions (19%) and gingival masses (7%). Times taken for consults were 20 minutes (28%) and 25 minutes (21%). A total of 34% were referred for biopsies, 15% required no further action and 17% were placed on follow-up. The majority of the consults were completed by residents (74%); 16% by OMP faculty and of these 6% required OMP faculty input. We will present various aspects of this study of oral pathology consult utilization including cost-benefit ratio, impact on dental student education and oral pathology residency program.

10 – 9:48 am

FULLERENE-BASED PDT FOR DYSPLASTIC AND MALIGNANT ORAL KERATINOCYTES. P. Pugalagiri, T. Wharton and Y.S.L. Cheng. Baylor College of Dentistry-Texas AandM U. Health Science Center, Dallas, and Lynntech Inc., College Station, Texas. Photodynamic therapy (PDT) is a minimally-invasive treatment that uses a photosensitizer (PS) and visible light to generate reactive oxygen species that kill cancer cells. We conducted a phase I clinical study to evaluate the photodynamic cytotoxicity of a new PS, covalently-modified fullerene (C60), on oral squamous cell carcinoma (OSCC) cells and dysplastic oral keratinocytes (DOK) in vitro. Cell viability after treating with various C60 derivative concentrations at light exposure of 15,000 ft-candles for 5 minutes was assessed and compared with toluidine blue O (TBO). The cell viability of DOK after PDT was 43.75, 16.52, 11.70% and the cell viability of OSCC cells after PDT was 89.35, 25.61 and 10.89% at C60 concentrations of 0.001, 0.01 and 0.1 mM, respectively. The new PS showed significantly higher killing effect than TBO on both DOK and OSCC at concentrations of 0.01 mM or higher. A Phase II evaluation is on the way.

11 – 10:00 am

ESTABLISHING DEFINITIVE HISTOLOGIC GUIDELINES FOR BISPHOSPHONATE RELATED OSTEONECROSIS OF THE JAWS. S. Fitzpatrick, I. Bhattacharyya, K. Magliocca, R. Kuklani, H. Chehal, D. Cohen. U. Florida, Gainesville. Most literature to date indicates that the histologic features of bisphosphonate related osteonecrosis (BRON) and osteomyelitis (OM) are indistinguishable. We however, have diagnosed over 60 cases of BRON based primarily on the histologic features. We therefore hypothesize that there is a constellation of histologic features common to BRON that help to identify and differentiate it from OM. Twenty-six archival cases of BRON from the UF Oral Pathology Biopsy Service associated with either oral or IV bisphosphonates were compared with an equal number of cases of OM. A set of diagnostic criteria was developed and used in this study and the predictive value of each feature was determined. Results- The following criteria were seen most consistently in cases of BRON when compared to OM: 1. filippingfl pattern of bone deposition at the margins of bony trabeculae and/or fimultilayeringfl; 2. lack of osteoclasts; 3. clusters of increased numbers of empty and enlarged lacunae; 4. lack of inflammation; 5. abnormal appearing osteoclasts. Conclusions- These five criteria along with the presence of actinomyces correlated strongly with the diagnosis of BRON and were reproducible.

12 – 10:12 am

Ki-67, p53, Bcl2 AND E-CADHERIN EXPRESSION IN SALIVARY GLAND TUMORS. D. Sundararajan, S. Arya, G. Gallagher, B. Burke, L. Haydt, A. De Las Morenas. Boston U, Boston, MA. Aim: To differentiate various salivary gland neoplasms using immunohistochemical markers. Design: Four types of salivary gland neoplasms, Pleomorphic adenoma (PA), Polymorphous Low Grade Adenocarcinoma (PLGA), Adenoid Cystic Carcinoma (ACC) and Adenocarcinoma, not otherwise specified (AdCa NOS) were selected. Each tumor group included biopsy tissue samples from 15 patients. Each tissue sample was stained with 4 immunohistochemical markers: Ki-67, p53, bcl2 and E-cadherin. The percentage of positively stained tumor cells was obtained by microscopic evaluation of five random fields of tumor cells at 40x magnification. An average percentage of positively stained tumor cells for each case was then determined. Result: Ki-67 staining in ACC and AdCa NOS was 2.2 to 2.7 times greater than in PLGA and PA ($p < 0.05$). p53 staining in ACC and AdCa NOS was 2.2 to 3.8 times greater than in PLGA and PA ($p < 0.05$). Bcl2 staining in ACC and PLGA was 4.1 to 14.0 times greater than in AdCa NOS and PA ($P < 0.05$). E-cadherin staining for the four tumor types was similar. Conclusion: Ki-67 and p53 staining of tumor cells was much higher in ACC and AdCa NOS when compared to PLGA and PA. Bcl2 staining of tumor cells was much higher in ACC and PLGA when compared to AdCa NOS and PA. E-cadherin staining did not contribute in differentiating the tumor types.

13 – 10:24 am

MALIGNANT CYSTIC TERATOID LESION OF THE MANDIBLE: AN UNUSUAL CASE.

K. Magliocca¹, D.M. Cohen,¹ I. E. Stone,¹ D. J. Summerlin,² C. E. Tomich,² I. Bhattacharyya.¹

¹U. Florida, Gainesville, ²Dermatopathology Laboratory, Indianapolis, IN. Teratomas are members of the germ cell tumor family. They may be solid or cystic and are usually seen in pediatric patients. Few cystic teratoid tumors have been reported in the head and neck. Malignant transformation of a teratomatous element is very uncommon, and bone involvement within the head and neck is exceedingly rare. A 12 year old female initially evaluated by an orthodontist for malocclusion, returned with a sudden onset swelling in the right mandible. A panoramic radiograph revealed a cystic lesion of the right mandibular body associated with unerupted tooth #22. Histopathology revealed a malignant squamous epithelial neoplasm interspersed with mucous cells and clear cells. The surrounding tissues displayed gastrointestinal epithelium with goblet cells and villous elements. Numerous lymphoid aggregates were also seen. Smaller cystic spaces lined by glandular epithelium were found throughout. All criteria for a malignant cystic extra-gonadal teratoma were not met, but the lesion unquestionably demonstrated derivatives of more than one germ layer at least one of which was malignant. The patient was referred to an oncologist for further evaluation and subsequent management. The radiographic and histopathologic findings, relevant differential diagnosis and prognostic factors for this highly unusual lesion will be presented.

14 – 10:36 am

THE PREVALENCE OF ANEUPLOID CELLS IN THE NORMAL LOOKING ORAL

MUCOSA OF SMOKERS AND NON-SMOKERS. T. Shani, A. Cabba, B.D. Issaschar, I.

Adam, N. Yarom, I. Kaplan, Amariglio, G. Rechavi, L. Trakhtenbrot, A. Hirshebrg. Tel-Aviv U,

Tel-Aviv, and The Chaim Sheba Medical Center, Israel. Objectives. We aimed to investigate the

prevalence of aneuploid cells (ACs) in samples obtained from normal looking mucosa of heavy

smokers (HS) and non-smoking (NS) subjects. Methods. The study group included 65 HS, and

40 NS subjects. Using a disposable brush, 2 samples were collected from the lateral border of

tongue and from the buccal mucosa. The samples were simultaneously analyzed for morphology

and fluorescent in-situ hybridization using chromosomes 2 and 8 centromeric probes. Results.

Using a cutoff value of 2%, 3 cases from NS group (7.5%), and 7 from the HS (10.7%) had over

2% ACs in the samples collected. Aneuploid cells were found mainly in the tongue in the HS

while in the NS subjects ACs were found in samples obtained from the buccal mucosa. None of

the patients developed a suspected premalignant lesion in the oral cavity in a follow-up period of

at least 24 months. Conclusions. ACs can be detected in normal looking mucosa in 10% of HS

and in 7.5% of NS. Detecting ACs in a brush sample can identify a subgroup of high risk patients

that may develop oral cancer.

15 – 10:48 am

DECREASED SALIVARY FLOW RATES ASSOCIATED WITH CHEMOTHERAPY IN CANCER PATIENTS. T. Davidowitz, S.M. Stemmer² and I. Kaplan². Hebrew U. and Haddassah, Jerusalem¹, Rabin Medical Center and Tel-Aviv U.², Israel. This study investigated early and delayed chemotherapy-induced effects on salivary flow. Patients with colon or breast cancer were evaluated before chemotherapy and at 1, 3 and 6 months. Resting and stimulated salivary flow rates were measured (spit method); Questionnaires evaluated subjective symptoms and function. The study population included 14 colon and 35 breast cancer patients, 34 females and 5 males, 28-70 years old (median 52). In comparison with pre-chemotherapy flow rates, both unstimulated and stimulated salivary flow rates decreased at 1 & 3 months, and remained low at 6. In the questionnaires, the proportion of complaint-free patients significantly decreased with time, and at 3 months, a positive correlation was demonstrated between patient's discomfort levels and stimulated salivary flow rates. **CONCLUSIONS:** Patients receiving chemotherapy should get counseling and supportive treatment to deal with the symptoms and potential oral/dental complications associated with the decrease in salivary flow during and after treatment. Further studies with a larger study group are needed to further investigate the implications of our findings.

16 – 11:00 am

DIAGNOSIS OF SECONDARY SYPHILIS FROM ORAL CAVITY LESIONS: REPORT OF TWO CASES. E. Gagari, C. Stefanaki, I. Stefanaki. U. of Athens Medical School (Athens, Greece). Syphilis is a sexually transmitted infectious disease that may give rise to oral lesions. We present two cases where the final diagnosis of secondary syphilis was prompted by the oral cavity evaluation. The first case is a 34 year old bisexual male that presented with painful red lesions covered with a white exudate on the soft palate as well as a painless macular rash of the hard palate. His medical history was significant for psoriasis of the palms and a genital rash that had been attributed to psoriasis. A serologic evaluation for syphilis proved positive. Antibiotic treatment led to complete resolution of the oral and penile lesions. The second case was a 31 year old bisexual man who presented with asymptomatic, exophytic, lesions of the dorsum of the tongue. A provisional diagnosis of condylomata lata was made. The patient also reported a macular rash of the skin of the trunk. Serologic tests for syphilis proved positive and the patient was given antibiotic treatment.

17 – 11:12 am

IDENTIFYING TREATABLE ETIOLOGIES FOR ISCHEMIC JAW DISEASE. C. Glueck, R. McMahon, J. Bouquot, N. Khan, S. Khanal, P. Wang; U. Cincinnati (Jewish Hospital); Oral Surgery Group, Chesterton Indiana; U. Texas Dental Branch at Houston. We used new technologies to assess for thrombophilia, hypofibrinolysis, and polymorphisms associated with reduced nitric oxide (NO) synthesis in patients with biopsy-proven ischemic jawbone disease. PCR assays for mutant genes included: G1691A Factor V; G20210A Prothrombin; C677T-A1298C MTHFR; 4G4G plasminogen activator inhibitor-1; eNOS T-786C; stromelysin 5A6A. Serologic tests included: resistance to activated protein C (RAPC); proteins C; S (free S); antithrombin III; homocysteine; anticardiolipin antibody IgG and IgM; lupus anticoagulant; Factor VIII; Factor XI; plasminogen activator inhibitor activity; lipoprotein(a). Results: in 17 jaw ischemia patients were compared to 51-68 gender/age matched controls, depending on the test. Results: Cases differed significantly from controls for: thrombophilic V Leiden mutation: 3/17 vs 0/66, FisherTMs $p = .0074$, risk ratio=26.1, 95% CI 1.4-482. RAPC was significantly more common in cases than controls: 5/17 vs 3/61, $p = .011$, risk ratio = 5.98, 95% CI 1.6-22.5. The distribution of the eNOS T786C genotype was shifted towards heterozygosity and homozygosity in 15 cases vs 45 controls, Mantel-Haenszel $X^2 = 8.26$, $p = .004$. Homozygosity for the T786C eNOS polymorphism (3/15) was more common than in controls (0/45), $p = .013$. The mutant eNOS T786C allele was more common in cases than in controls 13/30 vs 16/90, $X^2 = 8.02$, $p = .0046$. The distribution of the stromelysin 5A6A genotype was shifted towards heterozygosity and homozygosity in 15 cases vs 45 controls, Mantel Haenszel $X^2 = 4.12$, $p = .042$. There were no other significant case-control differences.

18 – 11:24 am

SLPI EXPRESSION AND TUMOR INVASION IN ORAL SQUAMOUS CELL CARCINOMA. N.G. Nikitakis, J. Wen, R. Chaisuparat, T. Wu, G. Warburton and S.M. Wahl. Oral Infection and Immunity Branch, NIDCR, NIH, Bethesda, MD, U. of Maryland, Baltimore and U. of Athens, Greece. Differential expression of secretory leukocyte protease inhibitor (SLPI) may impact on tumor progression. SLPI directly inhibits elastase and other serine proteases, and may also regulate matrix metalloproteinases, plasminogen activation and plasmin downstream targets to influence invasion. In this study, we examined tissues from human oral squamous cell carcinoma (OSCC) from 24 patients who did or did not progress to regional lymph node metastasis for SLPI expression in parallel with proteases (plasmin and elastase) associated with tumor progression. By immunohistochemical analysis, significantly decreased expression of SLPI was detected in OSCC compared to normal oral epithelial tissues ($p = 0.001$). Furthermore, a statistically significant inverse correlation between SLPI and histological parameters associated with tumor progression, including stage of invasion ($p = 0.02$), pattern of invasion ($p = 0.04$), invasive cell grade ($p = 0.001$) and composite histological tumor score ($p = 0.001$) was evident. In contrast, elevated plasmin and elastase levels were typically associated with lower SLPI expression and were positively correlated with histological parameters of tumor invasion. Our data suggest that SLPI may possess anti-tumor activity by virtue of its ability to interfere with requisite proteolytic steps underlying tumor cell invasion and provide insight into potential diagnostic and intervention strategies for OSCC.

19 – 11:36 am

SIMULTANEOUS OCCURRENCE OF BENIGN AND MALIGNANT TUMORS IN CONTRALATERAL MAJOR SALIVARY GLANDS: REPORT OF TWO CASES. N. Papadogeorgakis, N.G. Nikitakis, E. Kalfarentzos, C. Perisanidis, P. Papadopoulos, C. Alexandridis. Evangelismos General Hospital, U. of Athens, Greece. Simultaneous occurrence of two major salivary gland tumors of different histological subtype is an unusual event. Especially, the coexistence of a benign with a malignant tumor in contralateral salivary glands is exceedingly rare. Two additional cases of simultaneous, contralateral, major salivary gland tumors are presented. In the first case, a 47-year-old female was diagnosed with an adenoid cystic carcinoma of the right sublingual gland and a pleomorphic adenoma of the left parotid. Both tumors were surgically removed and postoperative radiation therapy was administered for the adenoid cystic carcinoma. The second patient, a 68-year-old female, presented with clinical signs of relapse of a pleomorphic adenoma of the left parotid, which was surgically removed 4 years ago, and a simultaneous tumor of the contralateral parotid. Bilateral superficial parotidectomies were performed and histopathological examination revealed the presence of a pleomorphic adenoma of the right parotid along with a left parotid carcinoma-ex-pleomorphic adenoma, the malignant component of which was an adenocarcinoma not otherwise specified confined within the mass of the recurrent pleomorphic adenoma. These cases raise awareness of the rare possibility of simultaneous occurrence of tumors of different histological subtypes and diverse, benign or malignant, behavior in contralateral major salivary glands.

20 – 11:48 am

DETECTION OF HPV 16 AND 18 AND CORRELATION WITH COX-2 EXPRESSION IN ORAL PRECANCEROUS LESIONS. N.G. Nikitakis, P. Boziari, G. Rassidakis, D. Vlachodimitropoulos, S. Gutkind, A. Sklavounou. U. of Athens, Greece and NIDCR, NIH, Bethesda, MD, USA. The role of Human Papillomaviruses (HPV) in oral carcinogenesis has been recently under intense investigation; however, the frequency of high-risk HPV subtypes present in oral precancerous lesions and their participation in the aberration of specific molecular pathways involved in tumorigenesis need to be further elucidated. The purpose of this study was to assess the presence of high-risk HPV subtypes 16 and 18 in oral leukoplakias in correlation with the expression of cyclooxygenase-2 (COX-2), a potential molecular target for oral cancer chemoprevention. Thirty-eight oral precancerous lesions (11 hyperplasias and 27 dysplasias of various degrees) were analyzed by in situ hybridization with probes against HPV 16 and 18 as well by COX-2 immunohistochemistry. HPV 16 and 18 were detected with higher frequency in dysplasias (61.9%) compared to hyperplasias (36%); nonetheless, severe dysplasias showed diminished HPV levels compared to mild and moderate dysplasias. Assessment of COX-2 percentage of positive cells (0-3), intensity of staining (0-3) and total score (0-6) showed higher levels of expression in dysplasias (total score: 4.56) compared to hyperplasias (total score: 3.63); mild and moderate dysplasias demonstrated higher COX-2 expression compared to severe dysplasias. A statistically significant positive correlation between COX-2 expression and detection of HPV 16 and 18 was noticed. Our data suggest that the higher detection rate of HPV 16 and 18 in oral dysplasias compared to hyperplasias correlates with a similar pattern of COX-2 upregulation, possibly indicating a causal relationship.

21 – 12:00 pm

NOVEL TARGET FOR THE TREATMENT OF AMELOBLASTOMA: THE SONIC HEDGEHOG PATHWAY. P. DeVilliers and M.B. MacDougall. U. of Alabama at Birmingham. Gene expression profile analysis in ameloblastoma has shown evidence of the sonic hedgehog (SHH) signaling pathway and upregulation of Ptch. The steroidal alkaloid Cyclopamine inhibits the sonic hedgehog pathway activation in breast and prostate cancer cells, reducing viability of the tumor cells, with promising therapeutic potential. Objective: to target the sonic hedgehog pathway in ameloblastoma cells and their response to cyclopamine, using an ameloblastoma cell line developed by our laboratory. Materials and Methods: 5000 cells were plated per well, in a 96 well plate and grown 96 hours prior to using MTT cell proliferation viability assay. Cells were treated with Cyclopamine, Tometidine (control) and sonic hedgehog (SHH). Results: Cyclopamine arrested the growth of ameloblastoma cells at an increasing rate, in a dose dependent manner, by inhibiting the sonic hedgehog signaling pathway. Conclusion: It is possible to suppress tumor growth and to induce apoptosis of ameloblastoma cells by targeting the sonic hedgehog pathway.

22 – 12:12 pm

MULTIFOCAL LOCALIZATION OF ORAL SQUAMOUS CELL CARCINOMA IN ORAL LICHEN PLANUS. REPORT OF A CASE D.Z. Antoniadis, C., Spyrides, A.K. Markopoulos, C. Kalekou. Aristotle U. Thessaloniki, Greece. Field cancerization describes the tendency of patients with premalignant and malignant lesions to develop multiple carcinomas of the upper aerodigestive tract. We present a case of a 76 year old male who was diagnosed with oral lichen planus 26 years ago. Until 1995 he was examined two times per year. From there on he did not appear in our clinic. In June, 2007 he revisited our clinic complaining for a tenderness on the left side of his tongue. A 4X5 cm ulcer on the left posterior side of his tongue, a hyperplastic lesion on the right side of the tongue and a papillomatous mass in the right lower alveolar ridge at the premolar area were revealed. Histopathologic examination in all cases showed the presence of invasive squamous cell carcinoma with moderate differentiation. MRI examination showed a 4th focus in the base of his tongue. Treatment included radiation therapy/chemotherapy. One and a half years later there was recurrence of the lesions and two months after the therapy the patient died. It is discussed if field cancerization should be extended and include OLP lesions.



American Academy of Oral
& Maxillofacial Pathology

Poster Program

Tuesday - May 19, 2009
8:00 am – 11:30 am

Fontaine B Room

1

PALM OIL-DERIVED POLYHYDROXYALKANOATES (PHA) AS BONE SUBSTITUTE. 1CH Siar, 2SPL Koh, 2IKP Tan, 1NIH Abdul Rahim, 1ST Ong. 1Fac. of Dent. & 2Fac. of Science, U. of Malaya, Kuala Lumpur, Malaysia. Problem: One major challenge in bone reconstructive surgery is bone repair. Current approaches use autografts, allografts or biomaterials as bone substitutes to augment these osseous defects. Naturally-occurring polymers, namely polyhydroxyalkanoates (PHA), have gained considerable research interest because of their wide potential industrial & medical applications. However little is known of its use as bone substitutes in the jaws. Objective: To investigate the biocompatibility & bone regenerative properties of palm oil-derived PHA in bone by using the rabbit mandible as an experimental model. Materials/methods: 12 New Zealand White rabbits of weight between 2.8 to 4 kg were used. Full thickness defects (10mm x 5mm) were created, 1 on each side of the mandible. One defect contained PHA sheet (19mm x 27mm) while the other was left empty as control. PHA was produced from the isolation of the bacteria *Pseudomonas putida* using saponified palm kernel oil as carbon source. Three rabbits each were sacrificed at 3, 6, 9 & 12 weeks. The defects & surrounding tissues were harvested & sections prepared using the Exakt Cutting-Grinding System for histomorphometry. Host tissue response to PHA, quantity & quality of new bone formed were evaluated. Results: No adverse host tissue reaction was observed. Chronic inflammation, foreign body giant cell reaction & osteoclastic activity were absent. Residual PHA was evident at 12 weeks. Overall mean new bone volume score was significantly higher for PHA-filled defect (1.69±1.02 %) than for control (0.71±0.71%) ($p < 0.05$). Conclusions: Present findings suggest that PHA is biocompatible in bone & possesses bone regenerative properties. [Malaysia eScience Grant: 12-02-03-2074].

2

SWEET'S SYNDROME. V. Woo, R. Retoma, M. Tareen, E. Herschaft, S. Husain. U. of Nevada, Las Vegas, and Columbia U., New York. Sweet's syndrome (SS) is an etiologically diverse condition characterized by skin eruptions with associated pyrexia and leukocytosis. The skin lesions appear abruptly and can range from plaques to frank ulcerations that exhibit asymmetric involvement of the extremities and face. Oral and ocular lesions have also been described. While most cases are preceded by a history of infection or drug exposure, SS can also occur as a paraneoplastic syndrome related most often to a hematologic malignancy. Our patient is a 73 year-old male with a recent diagnosis of myelodysplastic syndrome who developed persistent fever, scleritis and skin lesions. Intraorally, necrotic ulcers were identified on the dorsal tongue. Microscopic examination of the cutaneous and tongue biopsies revealed dense, neutrophilic infiltration without vasculitis, supportive of SS. The patient's skin and oral lesions improved dramatically with prednisone therapy; however, progression of his MDS accompanied by reemergence of the skin lesions was observed 1 year later. Thus, recognizing the manifestations of SS is important as they may herald a previously undiagnosed malignancy or tumor relapse.

3

STAT-3 EXPRESSION IN ORAL SQUAMOUS CELL CARCINOMA. C. Furuse, L.C. Cé, M.C.L.J. Monteiro, N.S. Araújo and V.C. Araújo. São Leopoldo Mandic Institute and Research Center, Campinas-SP, Brazil. This study investigated, by immunohistochemistry, STAT-3 in squamous cell carcinoma (SCC) and its relationship with the histological malignancy degree. Five normal mucosa and 22 SCC were used comprising 7 cases of the tongue (4 well and 3 poorly differentiated) and 15 of the lower lip (11 well and 4 poorly differentiated). In normal mucosa, STAT-3 was observed in the cytoplasm of the basal and parabasal cells, and P-STAT-3 was expressed in the nucleus of all the cells (except in keratin layer) being strongly stained in the basal and parabasal cells. In SCC, STAT-3 was observed in the cytoplasm of all neoplastic cells, except in the keratin pearls, and also in rare nucleus. P-STAT-3 was expressed in the nucleus of neoplastic cells, however in some areas, with variable extension among the cases, it was negative. STAT-3 showed disregulation in SCC, and no difference in the STAT-3 and P-STAT-3 expressions were observed concerning histological malignancy degree and the site of the lesion.

4

PRIMARY LARGE B-CELL LYMPHOMA OF THE ORAL CAVITY IN IMMUNOCOMPETENT PATIENTS: REPORT OF TWO CASES. J. Shireman and I. Velez. Nova Southeastern U. College of Dental Medicine, Fort Lauderdale, Florida. Primary lymphoma of the jaw is a rare condition which is often misdiagnosed. Lymphoma arising within the medullary cavity of a single bone without visceral or lymph node involvement for at least six months after diagnosis is known as primary intraosseous lymphoma (PIL). Primary intraosseous lymphoma constitutes 3.1% of malignant bone tumors and 5% of extranodal lymphomas. The most common lymphoma within bone is non-Hodgkin's large B-cell type. Clinically, the manifestation is usually similar to an odontogenic tumor, cyst or infection. Radiographically, it appears as a radiolucent area that may mimic endodontic lesion, periodontal pathology or odontogenic cyst or tumor. Specially, the initial presentation is often misdiagnosed and followed by multiple extractions and/or root canal treatments. We are reporting 2 cases of primary intraosseous large B-cell lymphoma of the jaws, in immunocompetent patients, with clinical and radiographic diagnosis of an odontogenic lesion and final diagnosis obtained with immunohistochemistry. Treatment and prognosis is discussed.

5

NEUROBLASTOMA OF MANDIBLE. CASE REPORT AND REVIEW OF LITERATURE. K.C. Chan, J.E. Fantasia, M.C. Edelman and J. Kameron. Long Island Jewish Medical Center, New York. Neuroblastoma is the most common neoplasm of infancy. The etiopathogenesis of neuroblastoma is currently unknown. Neuroblastomas are derived from precursor cells of the postganglionic sympathetic nervous system and most commonly presents as an abdominal mass affecting the adrenal gland. The median age at diagnosis is 18 months. Clinical presentation for each case is variable. Metastasis to the oral and maxillofacial region has been documented, with 29 cases published in the English language literature since 1933. We report a case of a 7 month old infant male who presented with a rapidly expanding mandibular swelling. Immunohistochemical and molecular analyses of mandibular lesional tissue confirmed the diagnosis of an undifferentiated neuroblastoma with N-MYC gene amplification. Imaging studies located a massive primary tumor in the adrenal gland. A hypothetical model of the genetic origin of neuroblastoma, including its relationship to pathology classification and prognosis, is presented.

6

WINGLESS-TYPE PROTEIN-1 (WNT-1) IN AMELOBLASTOMA. C.H. Siar, K.S. Chuah and K.H. Ng. U. of Malaya and Inst. for Med. Research, Kuala Lumpur, MALAYSIA. Objective: To determine Wnt-1 immunoexpression pattern in ameloblastoma. Materials and methods: Thirty-seven cases of ameloblastoma were subjected to immunohistochemistry with rabbit anti-Wnt-1 polyclonal antibody (Genetex Inc., USA). Results: Wnt-1 was detected in 34 (92%) cases of ameloblastoma. Moderate to strong Wnt-1 staining was observed in all primary conventional ameloblastoma (n = 15/15) and 71% (n=5/7) recurrent tumors. Conversely, this expression pattern was observed in all cases of recurrent unicystic ameloblastoma (n=5/5) and 71% (n=5/7) primary lesions. Wnt-1 showed preferential expression in pre-ameloblasts more than in stellate reticulum-like cells. Keratinizing and granular cells stained more strongly for Wnt-1 compared to their surrounding stellate reticulum-like cells. Conclusion: Present findings suggest that Wnt-1 may play differential roles in the cytodifferentiation and proliferation of the various neoplastic components of primary conventional and unicystic ameloblastomas, and their recurrent tumors.

7

SOPHIE'S ROOTS: FIRST REPORT OF BILATERAL GHOST ROOTS IN PRIMARY MOLARS. S. Liamidi, J. Bouquot, U. Texas Dental Branch at Houston. A two year old boy with a history of hydrocephaly (treated via shunt placement), meningitis (treated via antibiotics) and esophageal atresia presented with normal primary dentition with the exception of bilateral mandibular first molars with normal radiographic crowns and only a ghost outline of the root structures. The clinical appearance of the crowns was normal and root shape was normal, but only a thin layer of dentin was seen under a very thin cementum layer in on tooth; the other tooth showed a ground glass dentin structure. His parents and two older sisters did not show a similar dental deformity. The teeth were not moveable and there was no mucosal or gingival abnormality noted. This appears to be the first report of such an unusual root anomaly. The radiographic appearance is most similar to regional odontodysplasia (ghost teeth) but not like any reported case of that entity. The radiographic appearance is not similar to Type I dentin dysplasia (short root disease), Type III dentinogenesis imperfecta (shell teeth) or any other reported dental abnormality. It is not know yet whether or not the permanent dentition will have a similar alteration. There appears to be no knowable etiology and the problem does not appear to be inherited. The diagnostic names of Sophie™s roots or ghost roots are suggested by the second author.

8

ODONTOGENIC MYXOSARCOMA: FOURTH REPORTED CASE WITH REVIEW OF THE LITERATURE. J. Bouquot, J. Cottam, N. Demian, J. Hicks. U. Texas Dental Branch at Houston; Texas Children's Hospital, Baylor College of Medicine, Houston. The extremely rare malignant variant of odontogenic myxoma, the odontogenic myxosarcoma, is very aggressive, invading extensively into surrounding bone and soft tissue. No odontogenic myxosarcoma has yet produced a diagnosed metastatic lesion but one has caused the demise of the patient via frontal lobe invasion. We present the fourth case of odontogenic myxosarcoma. The lesion, in a 47 year-old man, had so expanded and perforated the maxilla that hemimaxillectomy was required for treatment. Lesional cells had filled the adjacent maxillary sinus, invaded the nasal sinus and nasopharyngeal region, destroyed a portion of the suborbital bone and almost reached the skull base. Tumor near the skull base could not be completely removed. The lesion was markedly cellular, with large spindle cells, mild nuclear atypia, enlarged nuclei and mitotic figures. It also had regions without these changes, which led to an initial misdiagnosis of benign odontogenic myxoma. Immunostaining confirmed that tumor cells expressed vimentin diffusely, as well as focal SMA and focal MSA, but lacked S100 expression. Electron microscopy showed widely spaced cells with a mesenchymal character and scant cytoplasm. The tumor cells had adherent basal lamina material. The stroma was composed of ground substance with scant scattered collagen fibers. At 2 years of follow-up our patient remains free of evidence of recurrence or renewed growth.

APONEUROTIC FIBROMA WITH BONE ISLANDS EXHIBITING HEMATOPOIESIS. A CASE REPORT INVOLVING THE MANDIBULAR RAMUS. J.C. Doscher, M. Ruvinsky, B. Bass, E. Gabalski, and J.E. Fantasia. Long Island Jewish Medical Center, New Hyde Park, NY. Aponeurotic fibroma (AF) was originally described by Keasbey in 1953 as juvenile aponeurotic fibroma, most commonly occurring in the distal extremities. Initially described in a pediatric and adolescent population, AF is now recognized to occur over a wide age range. AF is a slow growing, solitary, painless, nodule, often adherent to tendon, fascia, or periosteum. The lesion is not associated with loss of function and often is unnoticed for months or years. A variant of aponeurotic fibroma, termed calcifying aponeurotic fibroma is recognized. A 62 year old female presented with a firm lobulated mass, portions of which were fixed to the left mandibular ascending ramus. There was by history a report of a small submucosal nodule in the area 12 years prior to the current diagnostic biopsy. A computed tomography scan demonstrated a 4.8 x 2.0 cm mass with calcifications involving the mandibular ramus. Gross examination of the lesion depicted a dense, firm, gray lobulated mass. On cut surface the lesions was bright white and had a swirled appearance with a focally gritty consistency. Histologic examination of the biopsy and resection specimens revealed a nodular mass composed of moderately cellular dense fibrous connective tissue arranged in bundles, with multiple bone islands many of which exhibited hematopoietic marrow. The surgical approach, histologic features, growth characteristics, and clinical course of this rare entity are presented.

CENTRAL ODONTOGENIC FIBROMA, WHO TYPE: REPORT OF A SERIES OF NINE CASES. J.C. Whitt, B.F. Barker and C.L. Dunlap. U. of Missouri Kansas City, Kansas City. The central odontogenic fibroma, WHO type is an uncommon odontogenic tumor arising from odontogenic ectomesenchyme that presents over a wide age range, typically as a well-circumscribed, unilocular, radiolucent lesion. We report a series of nine cases that arose in patients ranging in age from 17 to 43 years with an average age of 33 years. The lesions ranged in size from 1 cm to over 6 cm. Seven of the nine lesions were located anterior to the first permanent molar and two arose in the mandibular third molar area. They were approximately equally distributed between the mandible and maxilla (4:5) and were frequently associated with the roots of erupted teeth. Histologically, the tumor stroma exhibited a range of appearances from cellular, collagenous lesions to those with a less collagenous, more myxoid composition. Common to all was the presence of nests and cords of odontogenic epithelium distributed throughout the stroma. Rarely, amorphous, eosinophilic globules were present in the stroma in proximity to the epithelium.

11

A NOVEL IN-VITRO MODEL FOR BISPHOSPHONATE INDUCED OSTEONECROSIS OF THE JAW. M.A. Scheper, R. Chaisuparat, K.J. Cullen, T.F. Meiller. U. of Maryland, Baltimore. The purpose of this ongoing study is to develop an in vitro model to investigate the effects bisphosphonate (BP) has on soft tissue, as a contributing mechanism in the pathogenesis of BON. Using the bone model of Dentine Discs (DD) as a direct carrier of BP, co-cultures of human gingival fibroblasts and oral epithelial cell lines were exposed to different concentrations (0.5-5 μ M) of zoledronic acid (ZA). These DD were treated for 24 hours in different concentrations of ZA (0.5-5 μ M), washed in PBS and placed in co-culture with our cell lines. This model was either allowed to proliferate or chelated. Direct effects were determined using fluorescent imaging. Apoptotic effects were determined by live/dead stain, TUNEL and Annexin V studies. The effect on cell proliferation was determined by MTS assay. A dose response effect was seen on imaging, and effects on apoptosis and cell proliferation were observed with increasing ZA concentrations from DD, after calcium cleavage and release of ZA from the DD with a variety of chelating agents. Apoptotic effects were confirmed by extracting media from uncleaved and cleaved cell culture models with DD, and applied to fresh cell cultures alone. The combined results from this study demonstrate that low concentrations of ZA, released from bone rapidly and directly affect the oral mucosal tissues through the induction of apoptosis and inhibition of cell proliferation. These findings provide an in vitro model for a soft tissue mechanism in the initiation and/or progression of Bisphosphonate induced osteonecrosis.

12

ORAL VERRUCIFORM XANTHOMA ASSOCIATED WITH CHRONIC GRAFT VERSUS HOST DISEASE: A REPORT OF TWO CASES. Zainab, B. Eslami, N.S. Treister, S. Woo, Harvard School of Dental Medicine, Boston, MA. Verruciform Xanthoma (VX) is an uncommon benign lesion that is inflammatory in nature and that affects the mucosa and less commonly, the skin. We report two patients with VX who concurrently had chronic graft-vs-host disease (cGVHD) following hematopoietic stem cell transplantation (HSCT). The first case is that of a 45 year-old Caucasian male who had undergone HSCT 22 months earlier for acute lymphoblastic leukemia. He developed a non-tender, sharply-demarcated, 1 cm papillary lesion on the left buccal mucosa in the setting of cGVHD. The second case is that of a 13 year-old African American female who had undergone HSCT four years prior for aplastic anemia. She presented with a non-tender, pedunculated 1.2 cm papillary mass on the right posterior lateral border of the tongue, also in the setting of cGVHD. In both the cases, the histopathology revealed a papillary proliferation of stratified squamous epithelium associated with hyperparakeratosis; numerous foamy macrophages were present in the connective tissue papillae typical for VX. VX is a not uncommon reactive lesion of the oral cavity often occurring on the palate and gingival margin. The putative etio-pathogenesis of VX is proliferation of macrophages that engulf products of damaged epithelial cell. As such, VX may occur in association with other conditions where there is epithelial damage such as oral lichen planus, cGVHD, pemphigus vulgaris and dystrophic epidermolysis bullosa.

13

SIGNAL TRANSDUCER AND ACTIVATOR OF TRANSCRIPTION 3 (STAT3) EXPRESSION AND ACTIVATION IN PRE MALIGNANT LESIONS. M.C.L.J. Monteiro, C. Furuse, L.Cê, V.C. Araújo. São Leopoldo Mandic, Campinas-SP, Brazil. The present study evaluates the signal transducer and activator of transcription 3 (STAT3) expression and activation in pre malignant lesions and the relationship of this protein with the degree of epithelial dysplasia. Ten cases of hyperkeratosis and fourteen cases of hyperkeratosis with dysplasia graded as mild, moderate and severe were analyzed. Immunohistochemistry for STAT3 and phospho STAT3 (P STAT3) was performed using the biotin-streptavidin-peroxidase method and the sections were evaluated by three examiners. In the hyperkeratosis, STAT3 was expressed in the cytoplasm of the epithelial layers, except in superficial layer. In the hyperkeratosis with mild and moderate dysplasia, STAT3 has shown cytoplasmatic expression in all epithelial layers. In the hyperkeratosis with severe dysplasia also demonstrate cytoplasmatic expression, but in the inferior layers, some epithelial cells exhibited loss of expression. In the hyperkeratosis, PSTAT3 exhibited nuclear expression in all epithelial layers, with some rare cells exhibited loss of expression. In the intense dysplasia, more epithelial cells exhibited loss of PSTAT3 expression.

14

PROGNOSTIC SIGNIFICANCE OF GLUCOSE TRANSPORTER PROTEIN 1 EXPRESSION IN MUCOEPIDERMOID CARCINOMA OF SALIVARY GLAND. A. Demasi, A. Costa, A. Altemani, C. Furuse, N. Araújo, and V. Araújo. São Leopoldo Mandic Research Center and State U. of Campinas, Campinas, Brazil. Unrestricted cell growth during tumorigenesis has been linked to metabolic switch, implying hypoxic stimulation of glycolysis for cellular ATP supply. To study the metabolic status of salivary gland mucoepidermoid carcinoma (MEC) samples, we investigated by immunohistochemistry the expression of glucose transporter 1 (Glut-1), mitochondrial antigen and peroxiredoxin I (Prxl). Our results showed that while mitochondrial antigen and Prxl were always expressed, independently of the histological grade, Glut-1 expression significantly increased as the tumors became more aggressive, suggesting its utilization as prognostic marker. These findings may represent adaptive strategies of MEC cells to the unstable oxygen availability tumor environment, in which Glut-1 favors energy production under low oxygen concentration and Prxl protects the cells against reactive oxygen species generated owing to hypoxia-reoxygenation cycling.

15

MUCORMYCOSIS WITH PALATAL PERFORATION AND RINOCEREBRAL INVOLVEMENT. M.C.L.J. Monteiro, F. Merly, L.C. Moreira, A.B. Moleri, M.B. Jordão, P.C.P. Capistrano, W. Cortezzi. UNIGRANRIO UNIVERSITY-Rio de Janeiro-RJ, Brazil. Mucormycosis is a rare opportunistic infection typically described in diabetic patients with a ketoacidotic status, as well as neutropenic patients. The infection is caused by a group of saprophytic fungi of the class zygomycetes, being the most frequent ones the *Rhizomucor*, *Rhizopus* and *Mucor*. The infection begins in the nose and paranasal sinuses due to inhalation of fungal spores. The infection can spread to orbital and intracranial structures either by direct invasion or through the blood vessels. The fungus invades the arteries leading to thrombosis that subsequently causes necrosis of hard and soft tissues. We report a case of maxillary necrosis and rinocerebral involvement by mucormycosis in a diabetic patient to emphasize early diagnosis of this potentially fatal fungal infection. Even though the frequency of presentation is very low, given its rapid evolution and severe consequences which include a high mortality rate, it is very important to be aware of the main features of the disease and treat it promptly.

16

ORAL PATHOLOGY: IN SPITE OF HIGH TECHNOLOGY ON DIAGNOSIS THE MORBIDITY CAN BE REDUCED BY THE MOST SIMPLIFIED TECHNIQUES. L.H. Grando Padilha. Specialties Odontological Center - CEO, Caçador, State of Santa Catarina, Brazil. The present study reports the enhance of quality and life expectancy of population with the most simplified techniques like the presence of a Stomatologist inserting on a group of 500,000 people. Readers correctly diagnosing the morbidity was reduced by the specific anamnesis, clinical examination and conduct of biopsy so we detected early a several pre-malignant and malignant lesions. Although the rating of our current techniques none specialized oral examination have been done until two years ago. The presence of a stomatologist has changing hardly citizens' life of neighboring cities that look for our specialized services at CEO and it let us glad for save lifes. In this study we'll show epidemiologically this morbidity reduction despite of the few number of specialist dentist in Stomatologist in Brazil.

17

ASC INDUCTION BY VIRAL CPG-DNA IN THE RAW264.7 CELL LINE. R. Kuklani, M. Bulosan, S. Cha, U. Florida, Gainesville. Objective: Sjögren's Syndrome (SjS) is characterized by lymphocytic infiltration in the exocrine glands. Our previous study using a mouse model indicated activated inflammasomes in macrophages, a complex of proteins involved in caspase-1 activation for cytokine secretion, is critical for chronic inflammation in the glands. The aim of the study is to investigate if herpes simplex virus (HSV)-derived CpG-DNA can induce ASC (apoptosis-associated speck-like protein containing a caspase recruitment domain), the key adaptor molecule in the inflammasome, in mouse macrophage RAW 264.7 cells. Methods: RAW264.7 cells were stimulated for 24-hours with CpG-DNA (pCpG, 3 μ M) and negative-CpG-DNA (nCpG, 3 μ M). Non-stimulated cells and LPS-stimulated cells as a negative and a positive control, respectively. ASC induction was analyzed by In-Cell Western and Immunocytochemistry. Results: pCpG stimulation caused higher ASC expression in RAW264.7 when compared to the nCpG or non-stimulated cell (2.4 fold increase, $p < 0.01$). Immunostaining data further confirmed ASC induction by pCpG. Conclusions: Our current study indicates that viral CpG-DNA can up-regulate ASC in RAW 264.7 potentially via TLR-9, implying that chronic viral stimulation in the target tissue could be accountable for chronic inflammation in the SjS salivary glands. To verify the role of TLR-9 mediated CpG-DNA stimulation of ASC, inhibition of TLR-9 by siRNA is currently being investigated. (Supported by NIH/NIDCR grants U24DE016509 and R21DE016705).

18

HEMIFACIAL ATROPHY (PARRY-ROMBERG SYNDROME). A CASE REPORT. D.Z. Antoniades, A.K. Markopoulos, Aristotle U. Thessaloniki, Greece. Parry-Romberg syndrome is a rare disorder characterized by slow and progressive of the skin and soft tissues of the face. We report a case of a 9-year-old girl who was referred by her dentist in our clinic for evaluation of an asymmetry of her face. Clinical examination revealed muscle atrophy and absence of subcutaneous fat in her left cheek. The facial movement was preserved and neurological examination was normal. There was no evidence of any joint deformity and no constitutional symptoms suggestive of collagen diseases. Panorex showed atrophy of the left maxilla and mandible. Her mother also reported that her daughter at the ages from 2-6 years was suffering from seizures accompanied with fever. Blood tests, antinuclear antibodies and complement levels were normal. A diagnosis of hemifacial atrophy was then established.

19

GORHAM'S DISEASE: A RARE CAUSE OF MASSIVE BONE DESTRUCTION. S.E. Perschbacher*, K.A. Perschbacher*, M.J. Pharoah*, G. Bradley*, L. Lee+ *Faculty of Dentistry, U. of Toronto,+Princess Margaret Hospital, Toronto, Canada. Case Report: The case of a 59-year-old male with progressive loosening of the teeth in the left maxilla is presented. Examination revealed severe mobility of the entire posterior left maxilla. Plain radiographs and computed tomography revealed ill-defined destruction of the left maxilla without evidence of an associated neoplasm. A provisional diagnosis of GorhamTMs disease was made and confirmed histopathologically. The patient has been treated with a course of radiation therapy with no significant response. Bisphosphonate therapy has also failed. This case is unique because there are no previous reports in the literature of GorhamTMs disease occurring in the maxilla alone, without mandibular involvement.

20

MALIGNANT SALIVARY GLAND TUMORS (MST) AND COX-2: A HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL ANALYSIS WITH IMPLICATIONS ON HISTOGENESIS. S. Akrish, O. Ben-Izhak , M. Peled, R.M. Nagler. Rambam Medical Center, Haifa, Israel. Cyclooxygenase-2 (cox-2) was analyzed on a series (n=54) of MST with the aim of determining the morphological MST subtypes capable of cox-2 overexpression and correlating its expression with histogenesis. Strong cox-2 overexpression was noted in all MST of proposed excretory duct origin. Primary squamous cell carcinoma (Scca) was the exception. Negative expression was noted in all tumors of proposed intercalated duct origin. Strong cox-2 overexpression was noted in the epidermoid cells of MEC, abluminal duct cells surrounding the duct-like structures and ductal cells of AdC nos and salivary duct carcinoma . Myoepithelial and acinar cells were unreactive. Although preliminary, the results of our study support the concept that MST of proposed excretory duct origin share a common histogenesis. Negligible cox-2 expression in primary Scca may provide a useful tool for diagnosing the often histologically indistinguishable cases of high grade MEC. Follow up studies on a larger series of MST are warranted.

21

PERIVASCULAR EPITHELIOID CELL TUMOR (PECOMA) OF THE LOWER LIP: REPORT OF A CASE AND REVIEW OF THE LITERATURE. B. Accurso, C. Allen, S. Mallery, J. Kalmar. Ohio State U., Columbus. Perivascular epithelioid cell tumors (PEComas) consist of a group of mesenchymal tumors that includes angiomyolipoma, lymphangiomyomatosis, and clear cell papillary renal cell carcinoma of the lung. PEComas have been described in a variety of anatomic sites, however, only one previous case involving the oral cavity has been reported. We present a case of a 58-year old male with a two-year history of a painless mass of the lower lip. The tumor was composed of a well-circumscribed proliferation of ovoid cells with ample, finely granular eosinophilic cytoplasm. Immunohistochemical studies demonstrated strong positivity for calponin and SMA, moderate positivity for CD68, focal positivity for CD10 and Melan-A, and faint positivity for S-100; stains for HMB-45 were negative. The lesion was completely excised at the initial biopsy and there has been no evidence of recurrence in 9 months of follow-up. While the majority of PEComas have behaved in a benign fashion, malignant examples have been described.

22

EXTRAMAMMARY PAGET'S DISEASE OF THE BUCCAL MUCOSA: A CASE REPORT AND REVIEW OF THE LITERATURE. K. McNamara, J. Kalmar, C. Allen. The Ohio State U., Columbus. Mammary Paget's disease is a neoplastic condition of the nipple characterized by intraepithelial infiltration of neoplastic cells, almost always associated with underlying ductal carcinoma of the breast. Extramammary Paget's disease (EPD) exhibits similar epithelial changes and generally affects cutaneous sites with a high density of apocrine glands, however, an underlying carcinoma is often not identified. Rare mucosal involvement of EPD has been reported. We report an 86-year-old male who presented with erythroleukoplakia of the right buccal mucosa with extension to lip vermilion at the right commissure. Incisional biopsy revealed large, amphophilic, ovoid cells with mild nuclear pleomorphism scattered throughout the surface epithelium. Immunohistochemical studies showed uniform positivity of these cells to antibodies directed against CK7 and CAM5.2. Lesional cells were negative for high molecular weight cytokeratins and S100. Following the diagnosis of EPD, excision of the oral mucosal lesion and partial upper and lower lip resection was performed with flap reconstruction. Microscopic examination of the surgical resection revealed an underlying minor salivary gland ductal carcinoma in-situ. To our knowledge, this is the third reported case of EPD of the oral mucosa.

23

SUBCORNEAL ACANTHOLYSIS: FIRST REPORTED CASES. J. Bouquot, B. Collins; U. of Texas at Houston, U. of Pittsburgh, Pennsylvania. An unreported mucosal sloughing lesion presents as a single thin, chronic, asymptomatic, noninflamed white hyperkeratotic oral mucosal plaque which can be easily scraped off, often daily, to leave a clinically normal mucosa without erythema, hemorrhage or ulceration. These are in individuals without obvious autoimmunity and without habits or histories compatible with a hypersensitivity reaction or trauma. Results: 9 patients presented over a 33 year period with chronically sloughing hyperkeratotic plaques of the buccal (n=2), vestibular (n = 1), oral floor (n = 3) and labial (n = 3) mucosae. 6 patients were female; ages ranged from 12 - 65 years (mean: 31 years). Lesional duration ranged from 3 months to more than 7 years without change. The sloughed keratin had to be removed daily in 5 patients. At no time were there symptoms or clinical signs of inflammation. No family members had a similar condition and no etiologic factors could be found. Biopsy showed clean, concise clefting of an excessively thickened orthokeratin layer, without intercellular lysis or inflammatory cells, and without other histologic changes to the squamous epithelium. No immunohistochemistry reactivity to IgG, IgA, Ig M or fibrinogen was seen. Underlying stroma was unremarkable. Unsuccessful treatments included: antifungals, antibiotics, corticosteroids, vitamin A. Conclusion: Subcorneal acantholysis (SA) is the suggested diagnostic term for this apparently innocuous and idiopathic new entity.

24

PSEUDOEPITHELIOMATOUS HYPERPLASIA MAY MIMIC SQUAMOUS CARCINOMA IN BISPHOSPHONATE-ASSOCIATED OSTEONECROSIS OF THE JAWS. J. Bouquot, D. Gnepp. U. of Texas at Houston, Brown U., Providence, Rhode Island. The problem: Three cases were received by the authors for confirmation of squamous cell carcinoma at the margins of chronically exposed acute osteomyelitis in the jaws of patients diagnosed with bisphosphonate associated osteonecrosis of the jaws (BONJ). None of the epithelial proliferations were similar to the primary malignancy; all showed such an exuberant proliferation of squamous epithelium that it partially surrounded bony sequestra in several areas and appeared to be "invading" the granulation tissues; the diagnoses were changed to pseudoepitheliomatous hyperplasia in BONJ. Methods: An additional 15 consecutive cases of BONJ were evaluated for this phenomenon. Results: The BONJ patients ranged in ages from 48-82 years (avg. = 64 years); 9 were females; all has histories of chronic alveolar bone exposure following tooth extraction; all were taking either Aredia or Zometa. Four of the 15 (26.7%) showed extreme hyperplasia of the alveolar epithelium, presumably creeping in from the wound edges. No dysplastic cells were identified and no epithelial necrosis was present. The epithelial partially surrounded nonviable bone fragments in 2 of the 4 (50%) positive cases. Conclusions: Since the consequence of a mistaken diagnosis is significant surgery, we suggest that the term pseudoepitheliomatous hyperplasia be specifically added as a secondary diagnosis in appropriate cases of BONJ, so as to avoid confusion. We also suggest follow-up investigations in order to confirm the innocuous nature of this epithelium.

25

LYMPHOID HYPERPLASIA OF THE HARD PALATE: A RARE CASE SIMULATING MARGINAL ZONE LYMPHOMA. M.A. Copete, M. MacLennan, J.F. DeCoteau, and E.E. Torlakovic. U. of Saskatchewan, Saskatoon, SK, Canada. Follicular lymphoid hyperplasia of the palate is a rare benign process of unknown cause with only 20 cases published in the literature. We describe an additional patient, an 80-year old Caucasian female who presented with a slightly darkened soft tissue swelling in the posterior left hard palate. Dense, predominately CD20+ lymphoid infiltrate formed secondary follicles with irregular outlines of germinal centers. Follicles were surrounded by marginal zones and there was follicular colonization by plasmacytoid lymphocytes and plasma cells. Despite clinical and histological features mimicking marginal zone lymphoma, the IGH gene rearrangement demonstrated polyclonal amplification and plasma cells were polytypic by immunohistochemistry. Demonstration of polyclonality is critical for correct diagnosis of this entity. The follow up was uneventful.

26

CAN FV IMPROVE SURGICAL MANAGEMENT OF HIGH-RISK ORAL LESIONS? C.F. Poh, K.C. Lee, J.S. Durham, D.W. Anderson, M.P. Rosin, L. Zhang. The U. of British Columbia, Vancouver; Cancer Agency, Vancouver; Simon Fraser U., Burnaby, BC, Canada. Recurrence following excision of high-grade dysplasia, carcinoma in situ, or squamous cell carcinoma (High-risk lesions, HRLs) implies that the presence of subclinical changes were not apparent at surgery. Fluorescence visualization (FV) has shown its value in identifying clinically not apparent HRLs. The objective of this study is to assess the efficacy of FV-guided surgery. Method: During 2004-2008, 163 patients with HRLs were treated surgically for intent of cure and had a follow-up period of at least 6 months. Among these patients, 87 had the surgery done under FV guidance (FV group) while the other 76 were treated with conventional surgery procedure (control group). Recurrence was defined as the presence of biopsy proven HRLs at follow-up. Time to recurrence curve was estimated by the Kaplan-Meier method, and the relative risks were determined using Cox regression analysis. Results: There is no significant difference between FV and control groups in demographics and the degree of diagnosis. When the recurrence is defined as the presence of HRLs, FV group has significant longer mean time for recurrence than control group. The control group showed 13 times higher risk for recurrence than those in FV group. Conclusion: The data have strongly supported that the use of FV in the operating room can improve the outcome.

27

ORAL MANIFESTATIONS OF T-LARGE GRANULAR LYMPHOCYTE LEUKEMIA: A CASE REPORT. I.E. Arvanitidou, N.G. Nikitakis, A. Sklavounou. U. of Athens, Greece. T-large granular lymphocyte (T-LGL) leukemia is a rare, often indolent, chronic lymphoproliferative disorder of mature T cells (CD3+). Severe neutropenia is a common feature in patients with T-LGL leukemia and may cause infections, thus representing a major cause of morbidity. Immunosuppressive therapy with low-dose regimens of methotrexate, cyclophosphamide, or cyclosporine A may also cause significant side effects. Oral manifestations of leukemia may include diffuse or localized swellings due to leukemic infiltration, petechial or gingival bleeding, neutropenic ulcers and susceptibility to infections; side effects of chemotherapeutic agents may also affect the oral mucosa. We present a case of a 65-year-old female with a two month history of diagnosed T-LGL leukemia, who presented with painful oral lesions. The patient was under treatment with methotrexate, granulocyte colony-stimulating factor (G-CSF) and erythropoietin. Clinical examination revealed a 2.0x1.5cm ulceration with raised borders on the ventral tongue along with a smaller ulceration on the soft palate; these lesions were attributed to neutropenia and/or methotrexate intake. In addition, the patient's gingiva were diffusely swollen and erythematous with necrotic foci, consistent with necrotizing ulcerative gingivitis. Treatment with antibiotics, topical steroids and antiseptics resulted in rapid resolution of the oral lesions. Although rare, T-LGL leukemia should be included in the list of lymphoproliferative disorders which may present with oral manifestations as a result of the disease and its treatment complications.

28

ROLE OF SEMAPHORIN 4D AND PLEXIN-B1 IN PERINEURAL INVASION OF ADENOID CYSTIC CARCINOMA. N. O. Binmadi, Q. Sun and J. R. Basile. U. of Maryland, Baltimore. Adenoid Cystic Carcinoma (ACC) is a common salivary gland neoplasm that accounts for 10% of all salivary gland malignancies. Clinically, it is characterized by slow and insidious growth, a high local recurrence and metastatic rate and limited response to systemic chemotherapy and conventional radiotherapy, resulting in poor long-term survival rate. A prominent clinical feature noted in ACC is pain, which is a result of perineural invasion (PNI) of tumor cells into the nerve sheath, an important prognostic factor in ACC and other head and neck cancers. The molecular alterations that underlie the PNI are poorly characterized. Plexins are a large family of transmembrane receptors that bind the Semaphorins, proteins that are important in nerve cell adhesion, axon migration and central nervous system development. In previous studies, it has been shown that Plexin-B1 (PB1) promotes tumor growth and angiogenesis when bound by its ligand, Semaphorin 4D (Sema4D), which is expressed in head and neck squamous cell carcinomas (HNSCC). The aim of the present study is to determine the significance of Sema4D and Plexin-B1 protein expression in ACC, with particular emphasis on its role in perineural invasion.

29

A SYSTEMS BIOLOGY APPROACH ON ORAL EPITHELIAL RESPONSES TO PERIODONTAL PATHOGENS. P.B. Narayanan, M.N. Islam, R.K. Kollipara, S.B. Janardhanam & M. Srinivasan. Indiana U. School of Informatics & Indiana U. School of Dentistry, Indianapolis. Periodontitis, affects ~20% in the US. The most widely implicated species in periodontitis are *Actinobacillus actinomycetemcomitans* (Aa), *Porphyromonas gingivalis* (Pg), and *Fusobacterium nucleatum*(Fn). We employ a systems biology approach with bioinformatic, genetic and biochemical methods to study differential responses of oral epithelial cells to specific pathogens. Using public domain microarray data, we compared gene expression profiles of cells infected with 4 different bacteria viz., Aa, Pg, Fn and *Streptococcus gordonii* (Sg). Various subsets of genes were differentially expressed (two-tailed T test) in these strains and clustered into 3 GO classifications: apoptosis, detection of external stimuli and cytokine activity. We have confirmed gene expression of some TLR genes (real time PCR) and cytokine genes (ELISA). Interestingly, apoptosis related genes were upregulated in cells stimulated with an oral commensal strain (Sg), but downregulated in cells exposed to pathogens (Pg/Aa). Also, many pro-inflammatory cytokines were upregulated in cells stimulated with Pg/Aa as compared to cells stimulated with Sg. In sum, our studies suggest that select periodontal pathogens enhance the survival of infected cells that secrete cytokines and mediate pathology.

30

MANAGEMENT ISSUES RELATED TO GNATHIC OSTEOSARCOMA. R. Padilla, V. Murrah. U. of North Carolina. We report 7 new cases of gnathic osteosarcoma (GO) in patients from 7 to 63 years, 2 maxillary and 5 mandibular. Six displayed cortical expansion and one diastema development. Three presented with pain. Lack of pain in the others resulted in delay in consultation, biopsy, and definitive diagnosis. Furthermore, cases of shallow biopsies resulted in non-diagnostic specimens, requiring rebiopsy for final diagnosis, further delaying definitive treatment. Shallow initial biopsy diagnoses included pyogenic granuloma and peripheral and central ossifying fibroma. Six cases were low-grade osteoblastic and one high-grade chondroblastic. The caveat is given that GO should always be in the differential of expansile gingival lesions involving bone. Biopsies should include medullary bone to prevent sampling error. The caveat is also given that radiographic findings may initially be equivocal, which in multiple cases delayed diagnosis. Therefore, close clinical and radiographic follow-up of presumed reactive exophytic lesions of the jaws constitutes prudent management.

THE ANTIDIABETIC METFORMIN IMPAIRS CELL GROWTH IN HEAD AND NECK CARCINOMA CELLS. R.H. Younis, X. Wang and A. Schneider. U. of Maryland, Baltimore, U.S.A. The emergence of key deregulated signaling pathways in head and neck squamous cell carcinoma (HNSCC) is providing insight into factors that can be molecularly targeted. Compelling evidence points to the mammalian target of rapamycin (mTOR) network as frequently hyperactivated in HNSCC. Oncogenic mTOR activity promotes cell growth, proliferation, survival and angiogenesis. Recently, metformin, a biguanide used as first-line treatment in type 2 diabetes has been shown to exert antitumoral effects in part by its inhibition of mTOR activity following the activation of the energy sensor AMP-activated protein kinase (AMPK). Objectives: To elucidate molecular mechanisms of metformin action in HNSCC cells. Methods: Representative HNSCC cell lines were exposed to metformin at different doses and times to assess cell viability. The effects on the mTOR pathway were examined through RT-PCR, RNA interference and western blot analyses. Results: In response to metformin HNSCC cells showed a significant reduction in cell viability in a dose and time dependent manner. An early cellular energy-depleting response was evident by decreased ATP levels and AMPK activation. Interestingly, metformin inhibited mTOR activity within 16h paralleling the upregulation of the stress-induced protein REDD1, a known negative mTOR regulator. Conclusion: Our initial observations suggest that metformin reduces HNSCC cell viability by negatively regulating the mTOR pathway through a potential AMPK/REDD1 signaling axis.

ODONTOGENIC KERATOCYST OF THE MAXILLA WITH RESPIRATORY EPITHELIUM: A CASE REPORT AND REVIEW OF THE LITERATURE. S. Merkourea, S. Krithinakis, K. Choupis, K.I. Tosios, N.G. Nikitakis, A. Sklavounou. U. of Athens, Greece. Odontogenic keratocyst, recently renamed by WHO as keratocystic odontogenic tumor, is a cystic lesion characteristically covered by a thin, squamous epithelial lining exhibiting a corrugated parakeratotic surface and a prominent basal cell layer; deviations from the typical histopathological features, apart from secondary inflammatory changes, are rare. Here, we describe a case of an odontogenic keratocyst that occupied the maxillary sinus and was partly covered by respiratory epithelium. The patient, a 38-year-old male, presented with pain and swelling of the left maxilla. He was a scuba diver and his medical history was significant for chronic sinusitis. A panoramic radiograph showed a radiolucent lesion in the posterior maxilla, and computed tomography imaging revealed a cystic lesion occupying the maxillary sinus, and destroying the sinus floor and the mesial wall of the sinus cavity. Radiopaque foci, consistent with aspergillomas, were also noticed. An incisional biopsy revealed typical features of odontogenic keratocyst. Following complete surgical curettage, microscopic examination revealed that the typical parakeratinized epithelium of the odontogenic keratocyst showed transition to ciliated, columnar epithelium. Masses of fungal hyphae were also present and the patient received systemic antifungal treatment. A review of the literature disclosed only four additional cases of respiratory epithelial metaplasia in odontogenic keratocysts. The origin of respiratory epithelium in odontogenic keratocysts is discussed.

ADENOID SQUAMOUS CELL CARCINOMA OF THE MAXILLA: CASE REPORT AND REVIEW OF THE LITERATURE. E. Papadopoulou, K.I. Tosios, N.G. Nikitakis, A. Sklavounou. U. of Athens, Greece. Adenoid squamous cell carcinoma (ASCC) is a subtype of SCC typified microscopically by cystic degeneration of the neoplastic epithelium, producing a prominent alveolar pattern and pseudoglandular structures with acantholytic cells. It occurs most commonly on the lips and is associated with a poor prognosis. We report a case of ASCC in the maxilla and review the pertinent literature. A 72-year-old woman presented with a chief complaint of burning mouth and xerostomia of 2 months duration. Clinical examination revealed an ulcerated and elevated mass on the edentulous left maxillary ridge, covered by a partial denture. The lesion had a rough surface and was rather hard on palpation. An incisional biopsy was performed and histopathologic examination rendered the diagnosis of ASCC. The patient was referred to a specialized maxillofacial surgery center for staging and treatment. Although she underwent partial maxillectomy followed by radiotherapy, she was hospitalized with generalized lymphadenopathy at the latest 10-month follow-up appointment. A review of the literature disclosed only 6 published cases of intra-oral ASCC, also highlighting its characteristic histological features and aggressive nature.

ORAL ASPECTS OF CYSTINOSIS - REVIEW OF LITERATURE AND A CASE OF SEVERE ENAMEL HYPOPLASIA. A. Gupta, A. Ojha, R. Thaler, F. Wong, and J. Ojha. U. of Detroit-Mercy, Detroit, MI. Cystinosis is defined as an inherited autosomal recessive lysosomal storage disorder caused by defective transport of the amino acid cystine leading to deposition of cystine crystals in many systems in the body especially the kidneys and the eyes. The prominent clinical features of cystinosis include glare, photophobia, decreased corneal sensation, severe growth retardation, Vit D resistant rickets and renal tubular damage eventually leading to acute renal failure. Patients with cystinosis can present with a wide spectrum of oral manifestations affecting both the hard and soft tissues of the mouth, although it has rarely been described in the literature. A thorough review of the English language literature revealed only three previously reported cases of intraoral manifestations associated with cystinosis. Oral lesions seen in cystinosis patients are delayed dental calcification age, delayed eruption of deciduous and permanent teeth, interdental bone loss, bell shaped roots, enlarged pulp chambers, periapical radiolucencies, loss of lamina dura and enamel hypoplasia. We present a rare case of severe generalized enamel hypoplasia in a 19 year old female patient with cystinosis. The patient presented with severe gingivitis and pronounced pits and roughness of the enamel. We also summarize the etiologic, clinical, and therapeutic aspects of this rare disease entity and the oral lesions associated with it.

35

KAPOSIFORM HEMANGIOENDOTHELIOMA (KHE) OF THE HEAD AND NECK IN A NEWBORN. C.M. Flaitz, J. Hicks, U Tx Dental Branch at Houston. Background: KHE is a rare deep-seated, locally aggressive vascular proliferation that occurs in subcutaneous and visceral sites, most often in neonates, infants and children <2yrs of age. Most common sites are upper extremities and retroperitoneum. Life-threatening platelet sequestration may occur, leading to thrombocytopenia purpura (Kasabach-Merritt phenomenon). Case Report: A full-term male neonate was delivered due to fetal decelerations and high-output cardiac failure. A HandN mass was identified at 20wks gestation by ultrasound. At birth, the 7.5cm mass extended from mastoid to base of the neck, and was fed by the carotid artery. After unsuccessful steroid therapy, the mass was resected at 3wks of age. Histopathology: Nodules and fascicles of ovoid to spindled cells with slit-like vascular spaces comprised the mass, along with occasional thin-walled vessels and lymphatic channels. Immunocytochemical results: Positive for endothelial markers CD31, CD34 and lymphatic markers D2-40, VEGFR-3, LYVE-1; Negative for Glut1, HHV-8. Platelet microthrombi were present. Conclusion: Differential diagnosis for KHE includes: infantile hemangiomas, congenital hemangiomas (rapidly involuting and non-involuting subtypes), vascular malformations, tufted angioma, and vascularized spindle cell sarcomas (infantile fibrosarcoma, rhabdomyosarcoma, Kaposi's sarcoma). Infantile hemangioma is positive for Glut-1. KHE is positive for D2-40 and negative for Glut1. Congenital hemangiomas are negative for Glut1 and D2-40. Kaposi sarcoma is positive for HHV-8 while KHE is negative. Infantile fibrosarcoma lacks vascular markers, and has a tumor-defining translocation [t(12;15)]. Rhabdomyosarcoma expresses desmin and myogenin. KHE requires complete surgical excision. When KHE is unresectable, alternative treatment may be with steroids, interferon and/or vincristine.

36

BCL10 and NF-KAPPA EXPRESSION PATTERNS IN MALT LYMPHOMAS (MALT-L) OF THE SALIVARY GLANDS. K.A. Alexander, V. Reddy and N. Said-Al-Naief. U. of Alabama at Birmingham. MALT -L involve various extranodal mucosal lymphoid tissues, typically in the setting of Sjogren's syndrome. Several genetic alterations have been implicated in its pathogenesis but a final common pathway is yet to be determined. Studies suggest that MALT-L, collectively, demonstrate aberrant expression of BCL10, which acts to upregulate B lymphocyte proliferation via activation of nuclear factor kappa B (NFKB) signaling and that the expression pattern in gastric MALT-L correlates with the underlying translocation which may predict treatment response. The expression pattern of BCL10 and NFKB has not been fully elucidated in salivary MALT-L. We examined tissues from 11 patients with biopsy-proven salivary MALT-L from 1996 through 2004 via IHC staining to further explore these expression patterns. Benign lymphocytes demonstrated a purely cytoplasmic staining pattern for BCL-10 and NFKB. However, 4 patients demonstrated aberrant staining patterns. The significance of alternative staining patterns is unclear but does not appear to correlate with transformation to diffuse large B cell-Lymphoma. However, 3/4 patients with aberrant BCL-10 staining had underlying autoimmune disease, suggesting a correlation between nuclear/perinuclear localization of BCL-10 and autoimmunity in salivary MALT lymphomas.

37

THE CEMENTAL TEAR: SEVEN NEW IN VIVO CASES. J Bouquot, P Bohluli, S Makins, U. of Texas Dental Branch at Houston. The cemental tear, first reported in 1992, with 13 in vivo cases reported thus far, clinically mimics root fracture or an endodontic/periodontal infection, requiring extraction. The tear occurs at the cemento-dentin junction, a layer with significantly fewer collagen fibrils than the adjacent layers. Occlusal trauma, especially in endodontically treated or periodontally involved teeth, is a suggested etiology but it is considered an extraction artifact by some. We report 7 additional cases of cemental tears, 4 of which had no contact with the surface at the time of diagnosis and 6 of which were associated with viable teeth without obvious pulpal disease. The tears were found in 4 males and 3 females, ages 60-87 years of age (average: 71 years). Four lesions were along a maxillary incisor root while 1 was associated with a mandibular molar and 2 with a maxillary premolar. Four produced moderately well demarcated radiolucencies of the middle one-third of the roots, while 2 lesions were more apical, producing a fiwrap-aroundfl radiolucency. The final lesion produced a widened PDL from the apex to crestal bone. Teeth associated with 4 of the lesions were unsuccessfully treated endodontically. Three lesions were painful and none produced tooth movement or cortical expansion. Histopathology of all cases demonstrated an almost clean tear at the level of the cemento-dentin junction with no attached dentin and with chronic inflammation of adjacent soft tissues. It is important to recognize this entity in order to avoid expensive endodontic or periodontal therapy.

38

ROSAI-DORFMAN DISEASE OF THE MAXILLA. J. Ojha, R. McIlwain and N. Said-Al-Naief. Detroit Mercy School of Dentistry, U. Oral and Facial Surgery, Huntsville AL and U. of Alabama at Birmingham. Rosai-Dorfman Disease (RDD) is a benign, usually self-limited disease of unknown etiology commonly presenting as prominent painless lymphadenopathy (SHML), fever, weight loss, night sweats, tonsillitis, rhinorrhea, and selective other manifestations. Extranodal involvement is seen in up to 43% of patients. In the head and neck, occurrence in soft tissues, paranasal sinuses, nasal cavity, major salivary glands, larynx, pharynx, tonsils, thyroid gland, ear have been described, with less than 8% of all cases involving the craniofacial bones, including a handful of cases reported in the maxilla and mandible. We describe a case of RDD in a 47 year old female who resented with a fleshy exophytic soft tissue mass overlaying a 2.5 cm lytic lesion which eroded the maxillary tuberosity and buccal and lingual plates distal to tooth #15. The tooth was asymptomatic but slightly mobile. Histomorphological examination, confirmed with immunohistochemistry staining, revealed features diagnostic of RDD. Thorough evaluation did not demonstrate any manifestations of the disease in the head and neck region or elsewhere. The clinicopathological features and differential diagnosis of primary maxillary RDD with review of literature is presented.

39

NEAR INFRARED PHOTOBIO-MODULATION OF 294 ALVEOLAR SITES OF LOW BONE DENSITY (LBD) SUGGESTS SIGNIFICANT IMPROVEMENT IN DENSITY. J. Bouquot, P. Brawn; U. Texas Dental Branch at Houston; Nanaimo, British Columbia, Canada. LBD and ischemically damaged, desiccated bone are contraindications for implants. Radiographs do not easily identify such bone, but quantitative ultrasound (QUS) does, with <3% false positives. Near-infrared light emitting diode (NIR-LED) fitherapyfl has been shown in cultured cells and animal models to stimulate bone healing and production. Our hypothesis: NIR-LED therapy would improve alveolar bone health prior to implant placement. Methods and materials: 294 edentulous QUS-positive alveolar sites of LBD in 68 patients received LED therapy (OsseoPulse; 15 minutes daily for 3 months). Before and after QUS scans were graded blindly by independent observers (scale: 0 = normal bone, 4 = most severe), after calibration, and compared using matched pair analysis. Results: After NID-LED photomodulation the average grade improved from 2.43 to 1.33 (44.3% improvement), with 42% of sites returning to completely normal bone and 18.4% returning to grade 1 (very mild LBD). The mean difference (improvement of bone quality) of -1.11 was very statistically significant (matched pair analysis: Std error 0.06914; t-Ratio -15.9896; DF 293; prob [t] less than 0.0001; 95% confidence interval 0.558-1.242). Conclusion: NID-LED therapy seems to hold good potential for improving alveolar bone prior to implant placement, but long-term improvement must be evaluated, as must actual implant stability.

40

ANGIOSARCOMA OF THE MANDIBLE- A CASE REPORT AND REVIEW OF LITERATURE. H.M. Dashti, H. Chehal, D.M. Cohen, M. Mitchell, I. Bhattacharyya. U. Florida. Gainesville. Angiosarcoma is a rare malignant neoplasm of mesenchymal origin. It is characterized by endothelial cell differentiation. In the head and neck area, they usually arise in the scalp of elderly individuals. Primary angiosarcomas of the oral cavity are very rare. Primary oral and salivary gland lesions mostly involve the tongue, parotid gland and lips of adults. We report an extremely rare case of primary intraosseous angiosarcoma in a 79 year old male arising in the left mandible and perforating the cortical plates. Intraosseous angiosarcoma tends to affect the young as well as elderly with a male preponderance. The clinical behavior and prognosis of skeletal angiosarcoma is poor. It is considered a highly aggressive tumor with very poor 5 year survival rates. Antibodies directed against CD31 have proven to be specific and sensitive markers of endothelial cell differentiation and is expressed on both vascular and lymphatic endothelium. Angiosarcomas typically exhibit a higher percentage of CD 31 positivity than factor VIII-related antibodies. In our case, virtually 100% of the atypical endothelial cells stained positively with CD31. An HHV8 stain was done to rule out Kaposi™s sarcoma. Differential diagnosis, prognostic factors and clinical features of known cases of intra-oral angiosarcomas will be presented. This is only the second reported case of intra-bony angiosarcoma in the jaws in the English literature.

41

UNCLASSIFIED CYSTS OF THE JAWS: A RETROSPECTIVE STUDY. N. Narayana and J. Casey. U. Nebraska Medical Center College of Dentistry, Lincoln. PURPOSE: To define the clinical and microscopic characteristics of odontogenic cysts which were not precisely classified in the pathology reports and to determine the frequency of this phenomenon. MATERIAL AND METHODS: The files of the College of Dentistry Biopsy Service were searched using the terms odontogenic cysts of undetermined origin, inflamed cyst of undetermined origin, odontogenic cyst not otherwise specified and 448 (OPG code) used for unclassified cysts. We also conducted a search of classified cysts of the jaws to evaluate the frequency of cysts of all subtypes. RESULTS: The unclassified cysts comprised 2.8% of the total odontogenic cyst diagnoses. On reevaluation, 50% (1.4%) of the unclassified cysts could be assigned to a more specific category while the remaining lesions could not, primarily due to a lack of clinical data. CONCLUSION: It is evident that the majority of the unclassified cysts can be classified into specific subtypes by obtaining additional clinical history, especially that of tooth vitality testing and association with unerupted teeth. Even with additional history, however, there remain some cysts which are difficult to precisely classify, especially those requiring distinction between inflamed developmental and true inflammatory cysts. This study emphasizes the importance of obtaining the complete clinical history as the first step in the evaluation of difficult-to-classify cysts of the jaws.

42

PRIMARY TUBERCULOUS CERVICAL LYMPHADENITIS. A CASE REPORT. D.Z. Antoniadou, E. Deligianni, A.K. Markopoulos, A. Kolokotronis, C. Kalekou Aristotle U. Thessaloniki, Greece. Cervical tuberculous lymphadenitis is an infectious granulomatous disease that requires a precise diagnosis. We report the case of a 71 year old man who was referred for evaluation of a painless submandibular mass of 10 months duration. Clinically he presented an enlarged and fixed cervical lymph node. Anti-CMV, anti HIV (I and II) and anti-EBV were negative, tuberculin test was positive. A chest X-ray had normal findings and CT scan of the head and neck showed the enlarged lymph node. Ziehl-Neelsen stain of aspirated lymph node material showed acid-resistant bacteria. Seventeen days later M.tuberculosis was observed. Polymerase chain reaction was then performed and established a diagnosis of tuberculous cervical lymphadenitis. Since clinical and laboratory examination did not reveal other primary focus of the disease this case was characterized as primary tuberculous lymphadenitis. The patient was referred to a tuberculosis clinic where he received the appropriate antibiotic therapy for two months. Three weeks after the initiation of the treatment the lymph node swelling receded.