



American Academy of Oral  
& Maxillofacial Pathology

## Poster Program

**Tuesday – June 26, 2012**  
**8:30 am – 11:30 am**

# Poster Abstracts – Tuesday, June 26, 2012

## #1

**IMMUNOHISTOCHEMICAL CORRELATION OF MMP-2 AND TIMP-2 IN LEUKOPLAKIA WITH DYSPLASIA** R Radhakrishnan, D Bajracharya, B Shrestha, Asha Kamath, Manipal College of Dental Sciences, Manipal University, Manipal, India Aims: To study the expression of matrix metalloproteinase (MMP-2) and tissue inhibitors of matrix metalloproteinase-2 (TIMP-2) in oral leukoplakias with epithelial dysplasia in various histological grades and correlate the association between these proteolytic enzymes. Materials and Methods: A retrospective immunohistochemical study was carried out on 30 clinically and histologically proven cases of leukoplakia with dysplasia and 10 cases of normal buccal mucosa using antiMMP-2 and antiTIMP-2 monoclonal antibodies. Results: Mann Whitney U test, for comparing the expression of both MMP-2 and TIMP-2 in normal mucosa with dysplasia was highly significant ( $P < 0.001$ ). Kruskal Wallis test to compare the median score of MMP-2 and TIMP-2 in different grades of dysplasia showed statistical significance ( $P < 0.001$ ) and a Spearman's correlation between MMP-2 and TIMP-2 through different grades of dysplasia and cells observed showed positive correlation. Conclusion: Our results suggest that both MMP-2 and TIMP-2 have an important role in the progression of normal oral epithelium to dysplasia in the process of oral carcinogenesis. Concomitant increase in the expression of both MMP-2 and TIMP-2 suggested that the activation of MMP-2 is dependent on TIMP-2 acting as a cofactor. Changes in TIMP-2 levels are considered important because they directly affect the level of MMP-2 activity.

## #2

**WHOLE SLIDE IMAGING SYSTEM TO PROMOTE EDUCATION & RESEARCH IN THE AMERICAN ACADEMY OF ORAL & MAXILLOFACIAL PATHOLOGY** A. Kulkarni, Y Rawal, C. R. Handorf University of Tennessee Health Science Center Whole slide imaging systems emulate the pan and zoom of microscopes. Additionally, they confer the accessibility and versatility common to digital images. Digital microscopy is gaining momentum and is proving to be an efficient parallel to routine microscopy. It allows for remote multiple access, viewing multiple slides on the same screen, on screen annotations, image analysis, remote consultation, image capture, etc. A basic setup requires a slide scanner with robotic functionality including scanning at step up magnifications, software to manipulate and compress images, storage solutions to archive images and firewall protected servers to facilitate safe access to remote users. When used for educational purposes, this technology eliminates the need for physical glass slides. In addition to savings in processing and staining chemicals, the benefits are noticeable when the biopsied tissue is limited in quantity. Long-term storage of data is also easily facilitated. Digitization of slides opens up new channels for multi user collaboration and research.

# Poster Abstracts – Tuesday, June 26, 2012

## #3

**STUDY TO EVALUATE THE EFFICACY OF COMMUNICATION TRAINING IN ACCENT MODIFICATION FOR INTERNATIONAL HEALTH CARE PROFESSIONALS** NM Islam, PK Khurana Indiana University School of Dentistry Objective: The increasingly diverse nature of health care in the United States demands a critical need for clear, accurate, and appropriate communication in the scientific and medical setting to ensure patient safety. While International Medical Graduates (IMGs) bring all their knowledge and expertise, their pronunciation and intonation patterns often become a barrier in their ability to be understood. This breakdown in communication can affect physician-patient or physician-staff understanding and hence patient care. To address these communications problems an American English for Internationals course was developed to train non-native English-speaking medical professionals. Methods: The participants were IMGs and researchers. Instructors specialized in teaching accent reduction and clinical-skills evaluation direction were recruited for the training and research program. The course included 8-12 weekly classes of 90-120 minutes duration. Our study assessed the efficacy of the program and included a pre and post course self-evaluation by the participants, an audio-tape assessment and a videotape assessment by two independent observers from the Clinical Skills Evaluation Center. Results: Of the 80 enrolled, analysis of first 48 participants completing the program showed improved ability to clearly understand and pronounce words distinctly especially stress words or syllables accurately and use body language/facial expressions appropriately. The results suggest that programs directed at improving the communication skills of non-native English speakers can be successful through appropriate and focused training. Conclusion: The American English program for International medical graduates significantly improves verbal and body-language communication skills.

## #4

**SCLEROSING RHABDOMYOSARCOMA OF THE PTERYGOMAXILLARY FOSSA: CASE REPORT AND REVIEW OF THE LITERATURE** J Robinson, M Richardson, B Neville, T Day, Angela Chi Medical University of South Carolina, Charleston Sclerosing rhabdomyosarcoma (SRMS) is an unusual rhabdomyosarcoma variant, characterized by a prominent hyalinizing matrix and often pseudovascular growth pattern. Here we report a case arising in a 40-year old male. The tumor was centered in the pterygomaxillary fossa with extension into the lateral skull base, infratemporal fossa, masticator space, lateral pterygoid plate, buccal soft tissue, and mandible. Fine needle aspiration yielded a preliminary diagnosis of high-grade pleomorphic undifferentiated sarcoma, for which he received neoadjuvant chemotherapy with subsequent surgical resection. Microscopic examination showed a malignant spindle cell neoplasm with focal rhabdomyoblastic differentiation and a prominent osteoid-like, hyaline stroma. The tumor cells were diffusely positive for desmin and myogenin. Fluorescence in situ hybridization was negative for translocations involving the FOXO1a, EWSR1 and SS18 loci. 16 months status post primary resection, the patient is alive with multiple lung and bony metastases. Among the 26 cases of SRMS reported thus far (including the present case), there is a broad age range (3-79 years), with an average age at presentation of 36 years. The male-to-female ratio is 1:1. Reported sites of origin include the extremities (n=14), head and neck (n=9), sacral region (n=2), and abdomen (n=1). In 2 cases, osteoid-like, hyaline matrix led to misdiagnosis as osteosarcoma. Most cases have been treated by resection, often combined with radiation and/or chemotherapy. Out of 20 cases with follow-up information provided, 4 patients developed local recurrence, 5 patients developed regional or distant metastasis, and 3 patients died of disease. Cytogenetic and molecular studies suggest SRMS may represent a subtype of embryonal rhabdomyosarcoma.

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## #5

**COMPARISON OF BLOOD AND LYMPHATIC MICROVESSEL DENSITY BETWEEN PLEOMORPHIC ADENOMA AND BASAL CELL ADENOMA** A B Soares, T R de Oliveira, A Altemani, N S de Araujo, V C de Araujo Department of Oral Pathology, São Leopoldo Mandic Institute and Research Center, Campinas, SP, Brazil. Background: Pleomorphic adenoma (PA) is the most common tumor of the salivary gland while basal cell adenoma (BCA), also benign, is an uncommon epithelial neoplasm. PA and BCA are classified as adenomas, composed of luminal and abluminal cells. Blood and lymphatic vessels have received increasing attention, especially in the field of neoplastic vascularization, mostly regarding tumor growth, invasion and metastases. The aim of this study was to compare the tumor blood and lymphatic vascular density of PA and BCA. Methods: Blood and lymphatic vessels of 11 cases of PA and 11 cases of BCA were analyzed by immunohistochemical technique using the antibodies for CD34, CD105, D2-40. Results: Comparing PA and BCA, the later presented higher blood and lymphatic vascular density, demonstrated by significant higher expression of CD105 and D2-40. Conclusion: This study showed that in spite of PA and BCA being considered part of the same spectrum of differentiation; these tumors are different in blood and lymphatic vascularization. Furthermore, this study suggest that the BCA, a benign tumor, can trigger the angiogenic switch.

## #6

**PREVALENCE OF HUMAN PAPILLOMAVIRUS IN CLINICALLY UNREMARKABLE ORAL MUCOSA IN AN ADULT POPULATION USING DIGENE HYBRID CAPTURE 2TM PLATFORM** J Doscher, J Kramer, K Thai, D Gao, F Ye, D Zhang, J Wu, J Fantasia Hospital of St. Raphael, New Haven, CT, The Feinstein Institute for Medical Research, Manhasset, NY Mount Sinai School of Medicine, New York, NY Hofstra North Shore-LIJ School of Medicine, New Hyde Park, NY The carcinogenic effects of high risk human papillomavirus (HPV) on cervical epithelium are well documented. These studies have prompted routine screening tests, such as Papanicolau (PAP) smears, for detection of dysplasia and carcinoma of the uterine cervix. Furthermore, identification of high risk HPV is a prognostic indicator for progression to dysplasia and carcinoma. HPV infection also contributes to oropharyngeal carcinoma (OPC), as high risk HPV is identified in an increasing number of individuals with OPC. However, the prevalence of HPV in the oral cavity proper is poorly characterized. Specific aim: To identify the prevalence of high and low risk HPV in clinically unremarkable oral mucosa in an adult population. Methods: One hundred adults (age range (yrs) = 18-70, median age = 37, mean age = 40, M/F = 47/53) were screened using a DNA collection device designed for uterine cervical screening. Collection consisted of a combined cytology sample from buccal mucosa, floor of mouth, and palate, avoiding oropharyngeal mucosa. Low risk (5 types) and high risk (13 types) HPV was detected using a Digene Hybrid Capture 2TM platform. DNA adequacy for all samples was confirmed, and sufficient cell collection was verified using a ThinPrepTM cytology preparation. Results: Two of the 100 samples tested positive for high risk HPV in the oral cavity (Males, ages 25 and 30). One of these individuals was also positive for low risk HPV (Male, age 25). Conclusion: This study indicates a small percentage of the study sample (2%) is positive for high risk HPV in the oral cavity, using the methodology described. The therapeutic implications of these findings are currently unknown.

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## #7

**DIAGNOSIS OF NON-HODGKINS LYMPHOMA OCCURRING IN THE ORAL CAVITY PROPER: A 10 YEAR SINGLE INSTITUTION EXPERIENCE.** E. Ko, E. Philipone, A. Yoon, B. Alobeid, D. Zegarelli Columbia University, New York, NY Despite being the second most common neoplasm of the head and neck, occurrence of lymphoma within the oral cavity is relatively rare, accounting for approximately 3.5% of oral malignancies. We present a review of biopsy specimens from the oral cavity proper which were diagnosed as Non-Hodgkins lymphoma by the hematopathology and oral pathology services at Columbia University Medical Center over the past decade. Our search identified 27 patients (13 males and 14 females) with diagnoses of Non-Hodgkins lymphoma occurring within the oral cavity proper. Mean age at time of biopsy was 65.4 years. Location of the lesions included tongue (n=5), gingiva (n=4), palate (n=4), vestibule (n=4), buccal mucosa (n=3), maxillary bone (n=3), mandibular bone (n=3), and floor of mouth (n=1). Based on the 2008 WHO classification, the most to least frequent rendered diagnoses were: diffuse large B-cell lymphoma (DLBCL), follicular lymphoma, extranodal marginal zone B-cell lymphoma of mucosal associated lymphoid tissue (MALT), plasmablastic lymphoma, chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL), and mantle cell lymphoma.

## #8

**PIGMENTED (HEMOSIDEROTIC) GRANULAR CELL AMELOBLASTOMA: A CASE REPORT AND REVIEW OF THE LITERATURE** J. Wollenberg, A. Grandhi, P. Pruden, R. Reich, P. Freedman New York Hospital Queens, New York Thalassemia is a heterogenous group of inherited disorders of hemoglobin synthesis. Thalassemia patients demonstrate secondary hemochromatosis due to a multitude of factors, which include ineffective erythropoiesis with increased breakdown of red blood cells, repeated blood transfusions, or increased absorption of iron from the gastrointestinal tract. Hemochromatosis is characterized by deposition of excess iron in the form of ferritin and hemosiderin in the parenchymal tissues. In the literature, oral manifestations of hemochromatosis included rapid periodontal destruction leading to tooth mobility, blue-grey mucosal pigmentation and deposition in salivary glands leading to xerostomia. Ameloblastoma is a benign, locally aggressive odontogenic epithelial tumor. Histologically, ameloblastomas can demonstrate variable patterns including, but not limited to, follicular, plexiform, and granular cell. Many case reports have been cited in the literature exhibiting melanin pigmentation in odontogenic lesions. The current case is that of a 72-year old male with a medical history of Thalassemia trait, anemia and previous blood transfusions. The patient's family history is significant for brother dying as a child of Thalassemia. The patient presented to the oral surgeon's office with a 2 cm radiolucency in the anterior mandible. Histopathologic examination of the biopsy specimen demonstrated features of a granular cell ameloblastoma with extensive intracytoplasmic pigmentation of the granular cells. Iron stain confirmed the presence of hemosiderin. In view of the patient's history, the presence of hemosiderin represented the first known manifestation of hemochromatosis secondary to Thalassemia trait.

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## #9

**COMPARISON OF CLINICAL AND HISTOPATHOLOGICAL CHARACTERISTICS BETWEEN IV AND PO BISPHOSPHONATE USERS IN ACTINOMYCES-ASSOCIATED OSTEONECROSIS OF THE JAWS** K Anavi-Lev, Y Anavi, G Chaushul, Kaplan The Hebrew University Hadassah School of Dental Medicine, Jerusalem, Rabin Medical Center, Petah Tiqva & Tel-Aviv University Israel. The study was a 10-year retrospective analysis of archived cases with ONJ. Actinomyces colonies were identified using H&E, Gram and PAS stains. Only colonies with adjacent tissue reaction were analyzed. Actinomyces density was calculated by dividing the total number of colonies by tissue surface, actinomyces relative surface was calculated by dividing total bacterial colony surface by tissue surface. Results: A total of 52 patients were included, 37 (71.1%) in IV and 15 (28.9%) in PO group. The average BP treatment period was 28 months for IV and 58 for PO BP. Actinomyces relative surface was significantly increased in the PO group, with no significant differences in actinomyces density. Duration of antibiotic treatment and time for healing exhibited no significant differences between groups. The incidence of diabetes mellitus was significantly increased in PO (60%) Vs IV (22%) groups, both were high compared to 10% expected incidence in Israeli elderly population. Corticosteroid intake was recorded in 25% of patients, with no significant differences between groups. Conclusions: Actinomyces colonization is common in both IV and PO BP. It may play an important role in disease evolution and duration but without significant differences between PO and IV groups. Both corticosteroid treatment and diabetes mellitus in BP treated patients are co-factors in the development of ONJ.

## #10

**CARCINOMA CUNICULATUM: A POTENTIALLY UNDERDIAGNOSED ENTITY IN THE ABSENCE OF CLINICAL CORRELATION** R Padilla, V Murrah UNC School of Dentistry Carcinoma cuniculatum (CC) is a rare variant of squamous cell carcinoma described by Aird in 1954 in the sole of the foot. Multiple other cases have been described in other anatomic locations since then. However, less than 30 cases of CC of the upper aerodigestive tract have been reported. The most common locations within the mouth are the alveolar mucosa/gingiva, and hard palate. Clinically the lesions present as indurated erythroleukoplakias with a cobblestone-like surface. Histologically the neoplasm is characterized by a predominantly endophytic proliferation of keratinocytes with minimal atypia. The tumor "burrows" into the supporting connective tissues creating branching crypt-like structures filled with keratin. Sometimes this lesion has been described histologically as resembling an inverted Schneiderian papilloma. The lesions usually exhibit an indolent clinical course and complete surgical removal is considered appropriate treatment. We present 6 additional cases of CC from the attached gingiva and vestibular/buccal mucosa. The average age at presentation was 66.5 yrs. All of our cases except one were treated conservatively: one required an en-bloc resection to achieve clear margins. In multiple cases of this study, treatment delays resulted from under-interpretation of small or superficial biopsies. Patients subsequently went on to obtain definitive diagnoses only after clinical correlation revealed an appearance inconsistent with a benign process. Therefore, since a pathognomonic microscopic appearance is often not seen in these cases, the caveat is given that appropriate clinical-pathologic correlations are required to achieve an accurate diagnosis of CC.

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## #11

**IMMUNOPHENOTYPING OF ORAL AMYLOIDOSIS AND CORRELATE WITH SYSTEMIC MANIFESTATIONS** N. Binmadi, C. Intapa, T. Meiller, M. Scheper King Abdulaziz University Jeddah, Saudi Arabia University of Maryland Amyloidosis is a rare localized or systemic disorder with extracellular deposition of fibrillar proteins into soft tissues and organs. It can be inherited or acquired, neoplastic, infectious, degenerative or associated with aging. More than 25 distinct biochemical forms of amyloid have been identified. These types have similar tertiary-pleated sheet structure, but different chemical compositions. It is recognized that the type of amyloid is important because the pathogenesis and treatment strategies are different. Amyloid was first described by Virchow in the 19th century, however its etiology and pathogenesis have remained obscure. There are 1,275 - 3,200 new cases of primary systemic amyloidosis annually in the United States and AL amyloidosis and familial transthyretin-associated (ATTR) are the most common forms. Amyloid can be deposited in oral cavity, most often in the tongue. When the diagnosis of amyloidosis of the oral mucosa is made, further investigations are critical to evaluate the function of the organs most frequently involved, such as liver, kidney, and heart; and to exclude an underlying plasma cell dyscrasia. The aim of the present retrospective study was to diagnose a serious systemic condition as early as possible by typing the oral amyloid deposits. This study was conducted in two phases. First, ten oral biopsy specimens from Oral Pathology Department of University of Maryland were collected, that were conclusive for a diagnosis of amyloidosis based on histology and congo red stain. These were then assessed for the type of amyloid present using immunohistochemical staining with a routine antibody panel (AL, AA, ATTR, Ab2M). Next data was obtained to correlate the IHC findings with clinical parameters and follow up of the patient's medical status.

## #12

**POSTTRANSPLANT LYMPHOPROLIFERATIVE DISORDER PRESENTING AS AN ORAL ULCERATION IN A RENAL TRANSPLANT RECIPIENT: DIAGNOSIS AND TREATMENT CHALLENGES** J O'Donnell, S Sheikh-Fayyaz, R Kelsch, J Fantasia Hofstra North Shore-LIJ School of Medicine, New Hyde Park NY **BACKGROUND:** Posttransplant lymphoproliferative disorders (PTLDs) represent a spectrum of lymphoid proliferations following transplantation. Most PTLDs are caused by Epstein Barr virus (EBV) infected lymphoid cells. PTLDs result from impaired cytotoxic T-cell response due to induced immunosuppression of the solid organ transplant recipient. Additionally, EBV related PTLDs can occur secondary to myeloablative regimens in the case of stem cell and bone marrow transplant. The WHO classifies PTLDs into four main groups; early lesions, polymorphic PTLDs, monomorphic PTLDs, and classical Hodgkins lymphoma-type PTLDs. **OBSERVATIONS:** A 69 year-old woman presented with a rapidly evolving crateriform 2 cm ulcer of the right anterior maxillary gingiva extending onto the palate. She had a renal transplantation ten years ago; her medications included prednisone, mycophenolate mofetil, azathioprine, and tacrolimus. Biopsy of the palatal lesion revealed a submucosal lymphocytic infiltrate with few Hodgkins- like cells. A diagnosis of EBV associated B-cell monomorphic PTLD was rendered based on the following immunophenotypic analysis: positive staining for CD79a, partial CD20, PAX5, CD30, dim BCL6, MUM1, with positive EBV, EBER (ISH) and Ki-67 60-70%; negative staining for CD33, CD15, CD34, CD138, CD4, CD117, CD99, EMA, TdT, MPO, Alk-1. Mucosal ulceration resolved upon discontinuing mycophenolate mofetil, and azathioprine and a reducing in the prednisone dose. **CONCLUSIONS:** This case presentation describes an EBV associated monomorphic B-cell PTLD presenting as an oral ulcer and highlights the importance of recognizing PTLD for clinical purposes.

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## #13

**SYNCHRONOUS MULTIFOCAL ORAL MELANOACANTHOSIS: A CASE REPORT AND REVIEW OF THE LITERATURE** B. Martin, C. Allen Ohio State University, Columbus Oral  
melanoacanthosis (OMA) is an uncommon melanocytic process found most often in black females in the third or fourth decade of life. OMA is regarded as a benign reactive process, based on a tendency to present in areas affected by trauma, regression after biopsy, and the histopathologic finding of increased vascularity and chronic inflammation. The exact cause, however, is unknown. A 44-year-old African-American woman was referred by her primary care physician for evaluation of multiple “spots” involving her maxillary and mandibular labial mucosa. The patient reported the sudden onset of these lesions approximately two months earlier, accompanied by an itching sensation. Several variably sized, homogenous, dark brown macules were observed in a background of otherwise unremarkable oral mucosa. A clinical diagnosis of OMA was rendered. Biopsy from the lower left labial mucosa revealed normally maturing oral keratinocytes exhibiting intercellular edema and dendritic melanocytes within the spinous layer. The dendritic melanocytes were confirmed with immunohistochemical studies using antibodies directed against S-100 and HMB-45, thereby confirming the clinical diagnosis. No melanocytic hyperplasia was present, but a light population of chronic inflammatory cells was seen in the underlying connective tissue. Two months post-biopsy, the melanoacanthosis exhibited no significant clinical change in size or color.

## #14

**DIAGNOSTIC APPROACHES IN UNSUSPECTED ORAL LESIONS OF SYPHILIS**  
C. Siquiera, F. Silveira, J. Lago, S. Sousa University of São Paulo, São Paulo, Brazil  
Background: Awareness of the increased prevalence of syphilis is essential for early diagnosis, treatment and prevention of disease spreading. While serological studies are the primary tool used to confirm the diagnosis of secondary syphilis, biopsy of unsuspected oral lesions are not uncommon in oral pathology routine laboratory. In these cases histopathologic characteristics are likely to indicate the possibility of syphilis. Objective: The aim of the present study was to test the efficacy of immunohistochemistry in the detection of *T. pallidum* in oral biopsies presenting histological aspects compatible with syphilis. Thirteen cases recently seen, were retrieved and submitted to immunohistochemical reaction with polyclonal antibody to *Treponema pallidum* (Biocare Medica). Clinically the cases had been provisionally diagnosed by the clinicians as histoplasmosis (1 case), viral infection (2 cases), lymphoma (2 cases), ulcer (1 case) pemphigus, pemphigoid (2 cases), erosive lichen planus (1 case), SCC, oral leukoplakia (2 cases) and sarcoma (2 cases). Results: All 13 cases were positive for the antibody anti-*T. pallidum* in the lower layers of the epithelium, and in an intercellular distribution. Thus, a histologic diagnosis of secondary syphilis was established. In all the cases serological examination confirmed the disease. Histologic characteristics that prompted a suspicion of syphilis were especially the presence of plasmacytic infiltrate in a perivascular manner, and also diffuse or lichenoid, epithelial neutrophilic exocytosis, hyperplasia or atrophy and ulcer. The spirochetes were found especially next to those areas of neutrophilic exocytosis Conclusion: The study shows the contribution that stomatologists and pathologists can give in diagnosing syphilis.

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## #15

**CLINICAL PRESENTATION OF GINGIVAL SQUAMOUS CELL CARCINOMA: A STUDY OF 519 CASES** A Neuman S Fitzpatrick I Bhattacharyya D Cohen Introduction: Squamous cell carcinoma (SCCA) arising on the gingiva accounts for up to 25% of all oral SCCA. Gingival SCCA present with varied clinical appearances which could pose problems in clinical diagnosis and delay treatment. Aim: To more fully clinically characterize such lesions in order to identify predictable clinical parameters. Methods & Materials: University of Florida's archived cases contained 519 of such lesions from 1994-2011. Data was accumulated, concentrating on the clinical presentations including age, gender, location, duration, appearance, clinical differential diagnosis, etc. Results: The average age of patients was 72.3 years, with 95% older than 50 and 1% younger than 30. There was a nearly 1:1 male: female ratio. Of the 365 that reported such data, the lesion had been present for 2 months or more in 72%. The most common location was the mandible (69%), with the posterior mandible predominating. The chief clinical presentation was an erythematous and/or exophytic mass, followed by erythroleukoplakia, leukoplakia, papillary, and ulcerated descriptors. Thirty eight patients reported pain. Only 64% of clinicians considered some form of malignancy in their clinical diagnosis. The most common benign lesions considered were reactive lesions, periodontal disease, benign papillary lesions, infectious lesions, lichen planus, or hyperkeratosis. Extraction, prior biopsy, periodontal treatment, and medication were the most common pre-biopsy treatment. Conclusions: Gingival SCCA has a wide range of clinical appearance and most often presents as an erythematous patch or mass in older patients. It can mimic benign lesions creating delay in diagnosis and treatment. Gingival lesions assumed benign but recalcitrant to treatment should be viewed with suspicion.

## #16

**STAFNE DEFECT OF THE ASCENDING RAMUS OF THE MANDIBLE: A RARE INCIDENTAL CONE BEAM COMPUTED TOMOGRAPHY FINDING** N. Odingo, D. Colosi, D. Trochesset State University of New York at Stony Brook, Stony Brook The Stafne defect was first described in 1942. EC Stafne reported a series of asymptomatic radiolucent lesions located near the angle of the mandible. In subsequent reports of similar lesions, the condition was shown to represent a focal concavity of the cortical bone on the lingual surface of the mandible. The concavity is thought to result from or be associated with growth of the submandibular gland. Similar defects have been described in the region apical to the premolar teeth, associated with the sublingual gland, and very rarely, on the medial surface of the ascending ramus, associated with the parotid gland. We report an incidental finding of this latter occurrence in a 52-year-old female who presented for routine dental treatment. Cone beam computed tomography (CBCT) was completed as a component of treatment planning for placement of dental implants. CBCT findings included a well-corticated osseous defect of the lateral aspect of the right mandibular ramus. A panoramic radiograph acquired 12 months earlier revealed a similar defect at the same location, of about the same dimensions. A focused clinical history and examination revealed no symptoms or signs related to the right ascending ramus. A new panoramic radiograph was recommended for comparison. This new image showed no appreciable change in dimensions. The finding was interpreted as a Stafne defect of the right mandibular ramus. The etiology of the Stafne defect is unknown but it has been postulated to be a developmental anomaly, arising in patients aged as young as 11 years and as old as 30 years. The defects may continue to enlarge slowly. Treatment is not necessary for those arising in the posterior mandible, but close follow-up may be warranted for defects of the ramus of the mandible.

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## #17

**RARE INTRAORAL SPITZ NEVUS- A CASE REPORT** C.-C. Li, V. L. Noonan, T. J. Harrist, R. J. Tannyhill, III, S.-B. Woo Harvard School of Dental Medicine, Boston, MA Boston University Goldman School of Dental Medicine, Boston, MA StrataDx, Lexington, MA Spitz nevus is very uncommon and accounts for only approximately 1% of all melanocytic nevi of the skin in children. Clinically, Spitz nevus presents as a solitary, asymptomatic, rapidly growing, symmetrical, dome-shaped, non-pigmented papule or nodule. It most frequently occurs on the skin of the head and neck region or extremities. Spitz nevi behave in a benign fashion and do not recur when completely excised; however, cytologic atypia or pleomorphism which is common in Spitz nevi may cause them to be misdiagnosed as melanoma. Here we report a case of an intra-oral Spitz nevus. An eleven-year-old male presented with a symmetrical, dome-shaped papule on the left buccal mucosa, measuring 0.5x 0.3x 0.2 cm<sup>3</sup>. Histopathological examination showed an unencapsulated but discrete proliferation of benign epithelioid and spindle-shaped nevus cells with minimal cytological atypia but without downward maturation, arranged in sheets and nests within the lamina propria. Melanin was present mostly within the superficial nests. A collarette was present around the lesion. Nevo-melanocytic cells were focally present in nests within the basal cell layer. The nevus cells were both S100 and MART-1 positive. HMB-45 positive cells were superficially located. Less than 5% of the nuclei were positive for Ki-67 and these were limited to the superficial dermal component. Complete excision and follow up evaluations are suggested for Spitz nevus. The prognosis is usually good, and the recurrence rate is low

## #18

**SEMAPHORIN 4D AND PLEXIN-B1 PROMOTE PERINEURAL INVASION THROUGH RHOA AND ROK-MEDIATED PATHWAYS** N. Binmadi, H Zhou, P Proia, YH.Yang, YL Lin, A De Paula, A Guimarães, F Poswar, D Sundararajan, J Basile King Abdulaziz University, Jeddah. Saudi Arabia Perineural invasion (PNI) is a tropism of tumor cells for nerve bundles located in the surrounding stroma. It is a pathological feature observed in certain tumors, referred to as neurotropic malignancies, which severely limits the ability to establish local control of disease and results in pain, recurrent growth, and distant metastases. Despite the importance of PNI as a prognostic indicator, its biological mechanisms are poorly understood. The semaphorins and their receptors, the plexins, compose a family of proteins originally shown to be important in nerve cell adhesion, axon migration, and proper central nervous system development. Emerging evidence has demonstrated that these factors are expressed in tissues outside of the nervous system and represent a widespread signal transduction system that is involved in the regulation of motility and adhesion in different cell types. We believe that the plexins and semaphorins, which are strongly expressed in both axons and many carcinomas, play a role in PNI. In this study, we show that Plexin-B1 is over-expressed in tissues and cell lines from neurotropic malignancies and is attracted to nerves that express its ligand, Semaphorin 4D, in a Rho/Rho kinase (ROK)-dependent manner. We also demonstrate that nerves are attracted to tumors through this same system of proteins, suggesting that both Plexin-B1 and Semaphorin 4D are important in the promotion of PNI.

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## #19

**ARCHITECTURAL CHANGES IN ORAL LEUKOPLAKIA ARE AS IMPORTANT AS EVIDENCE OF CYTOLOGIC ATYPIA/DYSPLASIA: A STUDY OF TEN PATIENTS.** S Almazrooa, SB Woo Harvard School of Dental Medicine, Boston, MA The current classification systems for assessing the presence and severity of oral epithelial dysplasia rely mostly on the cytological features of dysplasia with architectural features of dysplasia limited to irregular epithelial stratification, loss of polarity of basal cells, drop-shaped rete ridges, increased number of mitotic figures, abnormal superficial mitoses, premature keratinization of single cells (dyskeratosis) and keratin pearls within rete pegs. The purpose of this study is to determine whether other architectural features alone with minimal or only mild cytologic evidence of atypia/dysplasia is sufficient for a diagnosis of dysplasia, correlating the histopathology with the clinical appearance and behavior of such leukoplakias. We present ten patients where the original diagnosis had ruled out a dysplasia and correlate the histopathology with clinical findings. The architectural features that we considered were bulky epithelial proliferation, often endophytic and exophytic; papillomatosis, sharp demarcation of keratinization, skip lesions, and hyperkeratosis with atrophy without inflammation. In all ten cases, some of these criteria were met and clinically many of these lesions represented proliferative or verrucous leukoplakia. We propose that these architectural features are as important as the conventional ones in evaluation of leukoplakias and that correlation with clinical findings is essential in arriving at an accurate diagnosis, and in facilitating treatment planning.

## #20

**ORAL ULCERATION CAUSED BY CONCURRENT HERPES SIMPLEX, CYTOMEGALOVIRUS AND EPSTEIN-BARR VIRUS INFECTION IN AN IMMUNOCOMPROMISED PATIENT** G Mainville, C Allen The Ohio State University, Columbus Background: In immunocompromised patients, oral ulcerations are common and have a wide spectrum of causes, including human herpes viruses. Coinfection by three different herpes group viruses simultaneously has rarely been reported. Objective: To document an oral ulcer that was simultaneously infected by herpes simplex (HSV), cytomegalovirus (CMV) and Epstein-Barr virus (EBV) in a renal and pancreatic transplant recipient. Findings: A 46-year-old female, hospitalized for CMV colitis, presented with a dorsal tongue ulcer of 3 months duration. Examination revealed a second ulcer of unknown duration on the hard palate. Their clinical appearance was nonspecific. Histopathologic and immunohistochemical evaluation of the tongue ulcer showed keratinocytes exhibiting herpetic viral cytopathic effect. CMV-related nuclear and cytologic alterations were seen in endothelial cells subjacent to the ulcer. In situ hybridization studies using probes directed against EBV showed intense nuclear reactivity among many large atypical mononuclear cells within the superficial lamina propria. Antibodies directed against VZV were negative, although antibodies directed against HSV and EBV were positive in the cells described above. Further hematologic testing showed no evidence of EBV-induced B-cell lymphoproliferative disorder. Conclusion: HSV, CMV and EBV have each been recognized to cause oral ulcers in the context of defective cellular immunity. This appears to be the first well-documented report of their concomitant presence in an immunocompromised patient's oral ulcer. Although the pathogenesis of coinfecting ulcers remains unknown, this could suggest a synergistic effect.

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## #21

**LOCALIZED SPONGIOTIC GINGIVAL HYPERPLASIA IN ADULTS** D Mora, A Curran, R Padilla University of North Carolina, Chapel Hill In 2007, Darling et al first reported a benign reactive condition in 24 patients aged 5 to 28. This lesion clinically resembles pyogenic granuloma and microscopically, is characterized by hyperplastic stratified squamous epithelium with marked spongiosis and exocytosis of neutrophils. The underlying connective tissue demonstrates increased vascularity and chronic inflammation but no granulation tissue. They termed this lesion juvenile spongiotic gingivitis. Subsequently, Kessler et al. reported 52 additional cases (mean age= 11.8) and proposed the name localized juvenile spongiotic gingival hyperplasia (LJSGH). Recently, in our lab we have observed this lesion in adults. Therefore the University of North Carolina and the Oral and Maxillofacial Pathology Laboratory, conducted a retrospective study from June 2005 to December 2011 on all cases of pyogenic granuloma, inflammatory papillary hyperplasia and inflammatory fibrous hyperplasia in adults over age 21 to determine the incidence of LJSGH in the adult population. Of the 804 cases that qualified for review, 10.1% (81) met the histopathologic criteria established by Darling and Kessler for LJSGH. There was no histopathologic difference between the cases reported in pediatric patients and our adult cases. Our findings suggest this lesion is present in both pediatric and adult populations. Based on clinical and histopathologic similarities between adult and pediatric cases, we propose modification of the name to localized spongiotic gingival hyperplasia (LSGH) and that the lesion be recognized as in both populations. Currently, no etiology for LSGH has been confirmed. However, the presence of koilocytes in 44.4% of cases in our study warrants investigation of HPV as a possible etiologic agent.

## #22

**MICROCYSTIC ADENOCARCINOMA OF THE TONGUE** M Romañach, B de Andrade, R Carlos, O de Almeida Federal University of Rio de Janeiro, Brazil, University of Campinas, Piracicaba, Brazil Centro Clínico de Cabeza y Cuello/Hospital Herrera Llerandi, Guatemala City Microcystic adenocarcinoma has been recently described in the literature as a salivary gland tumor that shares microscopic features with the so-called microcystic adnexal carcinoma of the skin. Interestingly, some authors have claimed that this entity should be better diagnosed as a microcystic variant of the polymorphous low-grade adenocarcinoma. Regardless of some nomenclature controversy, we present a single case of microcystic adenocarcinoma affecting the tongue of a 92-year-old female patient. The lesion was first noted 3 months before the first consult and clinical examination revealed a 4 x 3 cm painful ulcer on the anterior dorsal tongue, with a tender consistency and limited motion. Microscopically, the tumor presented a distinct formation of double-lined small ductal structures, distributed in the superficial and deep connective tissue. The sub-epithelial ducts tended to be bigger and perpendicular to the surface epithelium, while the deeper ones presented as infiltrative small ducts in the highly sclerosing stroma, where perineural invasion was also evident. We did not find unequivocal features of polymorphous low-grade adenocarcinoma. By immunohistochemistry, the tumor ductal cells were positive for CK AE1/AE3, CK 34BE12, CK7, CK18, CK19 and epithelial membrane antigen, while only the outer ductal cells were positive for CK5, D2-40, p63, smooth muscle actin, and calponin. Ki-67 labeling was of 5%. The final diagnosis was of microcystic adenocarcinoma of the tongue. The patient denied any treatment attempt and she is alive 6 months after the diagnosis.

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## #23

**ACTIVIN A INHIBITS APOPTOSIS AND INDUCES ACQUISITION OF EMT PHENOTYPES IN NORMAL KERATINOCYTES** A Bufalino P Rodrigues D Bastos B Andrade F Mariano E Graner R Coletta University of Campinas, Piracicaba, São Paulo, Brazil Oral squamous cell carcinomas (OSCCs) have a highly variable clinical course, and because it is often diagnosed only after it has reached an advanced stage, the overall survival rate is less than 50% in 5 years. As survival for patients with OSCCs varies considerably, better prognostic markers are of utmost importance. Activin A, a member of transforming growth factor superfamily, has been shown to be overexpressed in various cancers, where it controls cell proliferation, differentiation and apoptosis. The purpose of this study was to investigate the effects of activin A in the modulation of the key events associated with oral tumorigenesis, including proliferation, apoptosis and epithelial-to-mesenchymal transition (EMT). To assess the effects of activin A, the normal epithelial cell line HaCAT was cultured in medium containing 0-100 ng/ml of recombinant activin A. Our results demonstrated that activin A promotes a significant and dose-dependent decreased of apoptosis and cell death, without influence on cell proliferation, as revealed by growth curves, cell cycle analysis and bromodeoxyuridine-labeling (BrdU) index. Additionally, activin A treatment stimulated significantly the expression of vimentin and N-cadherin, while reduced E-cadherin and catenin expression. These findings demonstrate that activin A modulates apoptosis and acquisition of EMT phenotypes, contributing to oral tumorigenesis.

## #24

**MULTI-SPECTRAL FLUORESCENCE AND REFLECTANCE: IMAGE ANALYSIS AND QUANTIFICATION OF HUMAN PAPILOMAVIRUS ORAL LESIONS** A. Zuluaga M. Nichols C. Flaitz Remicalm LLC, Houston, TX Bering Omega Dental Clinic, Houston, TX U. of Texas School of Dentistry, Houston The rise in oral human papillomavirus (HPV) incidence underscores the importance of early detection and monitoring of HPV-induced lesions. This feasibility study assessed the value of multi-spectral optics using an imaging program for detecting HPV lesions. Clinical images were obtained with IRB approval, using white light reflectance, violet-excited autofluorescence (AF) (405nm), and narrowband (NB) green reflectance (575nm) from 31 consecutive, biopsy-proven HPV cases in HIV-positive patients. Using an open source imaging program, Fiji (<http://fiji.sc/>), representative affected and normal mucosa from each patient were outlined and captured in every image. After quantification of absolute intensity (average) and intensity heterogeneity (standard deviation), parameters for each color (red, green, blue) in regions of interest were documented. Paired t-test analysis was performed to determine whether statistically significant differences existed between lesion and normal areas ( $p < .05$ ). Paired t-test analysis was also performed to determine if differences in lesional appearance were noted under 3 illumination conditions. Results showed that 75% (8/12) of parameters calculated in white light images, 92% (11/12) in violet images, and 83% (5/6) in green images were significantly different. Also, 67% (10/15) of intensity-based parameters and 87% (13/15) of heterogeneity-based parameters were significantly different. Violet images displayed significantly larger lesion areas than white or green images. Findings suggest that quantification of clinical images can be used to enhance detection of HPV oral disease with lesion heterogeneity playing an important role. Furthermore, AF and NB provide additional differentiation over white light images, alone. (Sponsored by Trimira)

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## #25

### EXPRESSION OF MCM-2, KI-67 AND GEMININ IN ORAL NEVI AND MELANOMA

B de Andrade, M Romañach, R Carlos, W Delgado-Azañero, A Mosqueda-Taylor, O de Almeida  
University Campinas, Piracicaba, Brazil, Federal University of Rio de Janeiro, Brazil, Centro Clínico de Cabeza y Cuello/Hospital Herrera Llerandi, Guatemala City, Guatemala, Universidad Peruana Cayetano Heredia, Lima, Peru, Universidad Autónoma Metropolitana, Xochimilco, México

Evaluation of cell cycle using antibodies against nuclear proteins involved in regulating DNA replication, has gained special interest in the effort to predict biological behavior of benign and malignant tumors. The aim of this study was to analyze the expression of Mcm-2, Ki-67 and geminin in oral nevi and melanomas. Expression of these cell proliferation markers was evaluated by immunohistochemistry in 51 oral melanocytic lesions, including 38 intramucosal nevi and 13 primary oral melanomas. Mcm-2, Ki-67 and geminin were rarely expressed in intramucosal nevi, in contrast to oral melanomas, which showed high levels of these cell proliferation markers, particularly Mcm-2, indicating it is a more sensitive marker in primary oral melanomas than Ki-67 and geminin. These results indicate that these markers may be involved in the pathogenesis of oral melanomas, and could be eventually useful as an additional diagnostic tool for differential diagnosis of oral benign and malignant melanocytic lesions.

## #26

### ANALYSIS OF ANTIBODIES IN SJOGREN'S SYNDROME: SOURCE AND SECRETION

J. Kramer T. Rothstein The Feinstein Institute for Medical Research, North Shore-LIJ Health System, Manhasset, NY Sjögren's Syndrome (SS) is a debilitating autoimmune disease. In addition to xerostomia, patients may develop serious systemic disease manifestations. While B cells have been shown to play an important role in SS disease pathogenesis, it is not known whether autoantibodies originate from glandular tissue predominately. HYPOTHESIS: Activated B cells from SS mice secrete more immunoglobulin (Ig) than B cells isolated from healthy controls. Further, we propose that this may lead to increased Ig levels in the sera of SS animals. METHODS: To determine the most significant source(s) of Ig production in SS, we isolated B cells from a mouse model of SS with advanced disease (n=5) along with age and sex matched controls (n=5). To examine Ig secretion, we used sort purified B cells from spleen, cervical lymph nodes, submandibular gland tissue, and bone marrow. Cells were stimulated with lipopolysaccharide (LPS) for 3 days, and ELISPOT assays were performed. Total serum IgM and IgG was measured by ELISA. RESULTS: Preliminary data suggest activated B cells isolated from the spleen and cervical lymph nodes from SS mice secrete twice as much IgM and IgG in response to LPS than control B cells. In addition, total serum IgM is higher in control animals, while SS mice have higher serum IgG. CONCLUSIONS: Activated B cells isolated from the spleen and cervical lymph nodes of SS mice secrete higher levels of IgM and IgG than control B cells. Moreover, SS mice have higher serum IgG titers than control animals. Such studies suggest that both basal and stimulated B cell activity is increased in SS mice, and this hyperactivity is not restricted to salivary tissue. Thus, B cell dysfunction in SS extends to primary and secondary lymphoid organs, and likely contributes to SS pathogenesis.

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## #27

**A LOW GRADE MYOFIBROBLASTIC SARCOMA OF THE ALVEOLAR RIDGE.** B. Aldape, B. Cruz Legorreta, R. Lopez UNAM, Mexico City The low grade myofibroblastic sarcoma is an heterogeneous neoplasm, with a biological spectrum from a benign to malignant neoplasm. Misdiagnosis as benign lesion can be made. Identifying neoplastic myofibroblasts is important for diagnosis as a myofibroblastic neoplasm. The currently accepted markers for identifying myofibroblasts are muscle-specific actin (MSA), smooth muscle actin (SMA), desmin, and calponin. Case presentation: A 74 year old woman presented with a normal colored 1 cm. growth in the right alveolar ridge of the first lower molar area. The lesion was asymptomatic, had been present for one year, and showed saucerization of the underlying bone on radiograph. Gross examination revealed a smooth, firm, brown nodule measuring 1.5 x1.5x1.0 cm, Microscopic examination with H&E stain showed a spindle myofibroblastic proliferation, with pushing margins and compression of the surrounding tissue, with mitotic activity. Immunohistochemical studies were performed which revealed: Actin (focal +), Ki 67 10%, H-Caldesmon (-), S-100(-), this result supported the diagnosis of low grade myofibroblastic sarcoma. Conclusion The LGMS is a rare tumor in this location. To establish the diagnosis its important to obtain immunohistochemical markers, as well as ultrastructural (EM) studies to support the myofibroblastic differentiation. These are being performed. The differential diagnosis includes leiomyosarcoma and fibrosarcoma The cytogenetic and molecular genetic studies indicate that sarcomas can be divided into two genetic groups. The focal inflammatory infiltration can help to aid the differential diagnosis. The LGMS contain more poorly developed myofibroblasts and tends to be more uniform in appearance with a higher cellularity.

## #28

**MALIGNANT EPITHELIOID HEMANGIOENDOTHELIOMA DETECTED ON PANORAMIC RADIOGRAPH** V. Woo, A. Rusinoski, A. Miyai ,E. Herschaft, B. Lawenda University of Nevada, Las Vegas Epithelioid hemangioendothelioma (EH) is a rare vascular neoplasm composed of epithelioid endothelial cells embedded in a distinct myxohyaline stroma. The majority of cases arise within or adjacent to blood vessels of the liver, lungs and extremities. Head and neck involvement is seldom seen. EHs typically present as painful masses that may be associated with edema and thrombophlebitis owing to their vascular origin. Ossification is an uncommon finding that is mostly observed in deeply situated tumors. On histopathologic examination, approximately 1/3 of cases show nuclear atypia, mitotic activity, marked spindling of cells or necrosis that warrant a malignant designation. We describe an unusual case of malignant EH in a 53-year-old female that was first detected on dental radiographs. A routine screening panoramic film revealed a mixed lesion with speckled internal characteristics in the right carotid artery region. On clinical examination, a firm mass was noted anterior to the sternocleidomastoid muscle, evident only on palpation. Following appropriate diagnostic tests, she underwent resection and a modified radical neck dissection. Microscopic examination showed the classic features of EH with formation of metaplastic bone. Increased mitotic activity and significant necrosis were seen. Metastasis was identified in one node. Immunohistochemical analysis showed positive staining for CD31 and CD34. Due to the close proximity of the tumor to the carotid artery, the patient was treated with adjuvant radiation therapy and chemotherapy and remains disease-free six months post-surgery. Though unusual, vascular neoplasia is a diagnostic consideration for mixed radiolucent-radiopaque lesions presenting in the head and neck soft tissues.

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## #29

**ECTOMESENCHYMAL CHONDROMYXOID TUMOR OF THE ORAL CAVITY: REPORT OF THREE CASES** MA Copete, MR Darling, TD Daley, University of Saskatchewan, Saskatoon, SK, University of Western Ontario, London Ectomesenchymal chondromyxoid tumor (EMCT) is a rare neoplasm first described by Smith et. al. in 1995. Most tumors present as asymptomatic, slow growing submucosal nodules, particularly in the anterior tongue and infrequently in the posterior tongue. EMCT is histopathologically characterized by a well circumscribed, but unencapsulated, lobular proliferation of round, polygonal, ovoid or fusiform cells, which are present in a myxoid to chondromyxoid stroma that may show areas of hyalinization. The immunohistochemical profile reveals positivity of the lesional cells with variable reactivity patterns for antibodies directed against glial fibrillary acidic protein (GFAP), cytokeratins, S-100 protein and CD-57 in most tumors. Additionally, other reported markers for vimentin, CD56, EMA, SMA, desmin, p63, CD99 and Calponin have also shown variable reactivity. Treatment consists of conservative surgical excision. Limited recurrence potential is observed after complete conservative surgical excision. We report three additional cases of EMCT, which occurred on less frequent areas of the tongue and one case which occurred in an extralingual location, on the lingual aspect of left anterior mandibular gingiva. This report will hopefully increase awareness of this rare condition in the maxillofacial area.

## #30

**EFFICACY OF LIPOSOMAL C6 CEREMIDE AS A POTENTIAL THERPAUTIC TARGET FOR ORAL SQUAMOUS CELL CARCINOMA.** N Düzgüne, M Yee, B Plowman, N Said-Al-Naief, S Sutter University of the Pacific, San Francisco CA **OBJECTIVES:** to investigate the effect of C6 ceramide, a sphingolipid metabolite, on cell proliferation & levels of anti-apoptotic protein survivin on human HSC-3• OSCC (oral squamous cell carcinoma) cell lines & its potential therapeutic target for OSCC.**METHODS:** Plain & C6 liposomes were added to the HSC-3 cell cultures; in the conc. range 0.1-50  $\mu$ M of C6. After incubation for 24 h at 37°C, 5% CO<sub>2</sub>, cell survival was evaluated by Alamar Blue & Live/Dead viability assays. Survivin levels were measured by ELISA.**RESULTS:** Liposomal C6 ceramide treated cells showed decreased cell viability & Alamar Blue assay showed a linear reduction with increased concentration of C6 ceramide. The viability with plain liposomes was 93 $\pm$ 5% of the control. For 5 and 10  $\mu$ M liposomal C6 ceramide, the viability was reduced to 72 $\pm$ 3% and 44 $\pm$ 0% of untreated cells respectively. Survivin ELISA results showed a decrease of survivin levels with increasing concentrations of C6 ceramide (4462 $\pm$ 28 pg/mg protein in untreated cells; 4558 $\pm$ 577 pg/mg protein cells treated with plain liposomes, and 3099 $\pm$ 72 pg/mg protein at 5  $\mu$ M C6 ceramide and 1574 $\pm$ 279 pg/mg protein at 10 $\mu$ M C6 ceramide).**CONCLUSIONS:** Liposomal C6 ceramide exerted a desirable effect by reducing cell proliferation, probably because of a decrease in the levels of survivin. Thus, HSC-3 cells are vulnerable to liposomal C6 ceramide in a dose-dependent manner. Further future studies will focus on the relation between C6 ceramide, reduced survivin levels & potential increase in susceptibility of HSC-3 cells to various anti-cancer agents.

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## #31 Withdrawn



## #32

**GIANT CEMENTOBLASTOMA TREATED WITH RESECTION** R Assi, H Kessler, G Ghali, M Yeoh Texas A&M Health Science Center-Baylor College of Dentistry, Dallas LSU School of Medicine, Shreveport Benign cementoblastoma is a rare odontogenic tumor that often occurs in the mandibular molar area, affecting mostly young adults. Although considered benign, cementoblastoma may be a locally aggressive neoplasm in some cases, with significant bony expansion, pain and swelling. We present a case of benign cementoblastoma in a young male associated with an impacted lower left third molar that was managed with an enbloc resection. A 25 year old African American male presented with continued pain and swelling following an extraction by a general dentist. Physical examination revealed a left mandibular swelling with significant buccal and lingual bony expansion and a mobile 1 cm level I cervical lymph node. The CT showed a radiopaque lesion of about 4x4 cm in size with a lucent border, occupying the left mandibular body, angle, and ramus area and fused with the lower left third molar roots. The clinical differential diagnosis was gigantiform cementoma, osteosarcoma and CEOT. An incisional biopsy was suggestive of benign cementoblastoma. An enbloc excision of the lesion was planned. A segmental mandibulectomy from the left first molar region to the left subsigmoid area was completed for excision of the lesion. Reconstruction was performed with placement of a reconstruction plate with a crib containing bone morphogenic protein-2 in a collagen sponge. Post operatively, the patient is progressing well without complications. This case represents a rare example of a locally aggressive benign cementoblastoma in a young patient that required surgical management.

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## #33

**BREAST FEEDING KERATOSIS FIRST REPORT OF A FRICTIONAL KERATOSIS OF INFANCY** S. Kiat-Amnuay, J. Bouquot University Texas, Houston Background: A white plaque in the mouth of an infant shortly after birth is universally presumed to be pseudomembranous candidiasis, i.e. thrush. We report a white keratotic plaque misdiagnosed and subsequently mistreated as thrush. Objective: To present the first report of a frictional keratosis from exuberant breast feeding in infancy. Methods: The case was derived from the clinical practice of one of the authors. Case: A five week old girl was referred for evaluation of a well demarcated, nonsloughing white keratotic plaque of the lower lip mucosa, just inside the vermilion border. The plaque had a smooth but slightly fissured surface, had no surrounding erythema and was the only such plaque in the mouth. It had been present for at least three weeks and had been unsuccessfully treated by her pediatrician via topical Mycostatin (nystatin). A cytopathology smear showed abundant mature keratinocytes with no evidence of candida (PAS/PAP staining). The mother admitted that the infant “worked hard” at sucking during breast feeding and was unaware of any other habit or potential irritation of the lips. After 3 months of age the infant’s breast feeding became more “normal” and the keratosis disappeared; it did not recur during three years of followup. Conclusion: Active sucking during breast feeding can produce a transient frictional keratosis of the lip mucosa. This requires no treatment and should be differentiated from the more common white plaque of infancy, thrush. We propose the diagnostic term breast feeding keratosis for this entity.

## #34

**PAPILLARY VARIANT OF SQUAMOUS CELL CARCINOMA ARISING ON THE GINGIVA: A SERIES OF 61 CASES WITHIN A LARGE DATABASE OF GINGIVAL SQUAMOUS CELL CARCINOMA** S. Fitzpatrick, A. Neuman, I. Bhattacharyya, D. Cohen University of Florida Papillary squamous cell carcinoma (PSCCA) is a rarely occurring variant of squamous cell carcinoma (SCCA) with distinctive exophytic and papillary features and a more favorable prognosis than conventional SCCA. The larynx is the most commonly affected site in the head and neck. The oral cavity, oropharynx, sinonasal tract, and nasopharynx are also affected. Within the oral cavity cases have been reported on the alveolar ridge, oral mucosa, floor of the mouth, ventral tongue, and rarely other areas. We identified 61 cases of gingival PSCCA within the parameters of a larger study of 519 cases of gingival SCCA. We evaluated the clinical and histologic features of these lesions. The average age of the PSCCA patient was 74 years, with a very slight male predominance. The mandible was affected nearly twice as often as the maxilla, and the most common location by far was the mandibular posterior region. Most lesions of those with a timeline reported were present over 2 months in duration. The most common clinical presentation was that of an erythematous or mixed white and red exophytic mass. 62% of submitting clinicians considered a malignant or premalignant lesion in their differential diagnosis, but other clinical impressions included papillomas, reactive gingival lesions, and fungal infections. Histologically, 88% of the lesions were either well or moderately-well differentiated. In conclusion, PSCCA is a rare subtype of SCCA which has been reported infrequently involving the gingiva or alveolar ridges but should be considered by clinicians in the differential diagnosis of papillary gingival masses.

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## #35

**INCREASED MARROW ADIPOSE TISSUE ENHANCES SERUM ADIPONECTIN IN STATES OF CALORIE RESTRICTION** E Scheller, W Cawthorn, B Learman, H Mor, B Simon, A Bree, Y Yao, O MacDougald University of Michigan, Ann Arbor White adipose tissue (WAT) plays a central regulatory role in energy homeostasis, not only as a site for storage of excess energy, but also as an endocrine organ that impacts whole body metabolism. Marrow adipose tissue (MAT) can comprise up to 70% of total bone marrow in humans. Although early studies concluded that MAT does not have a function, more recent work suggests that increased MAT in response to starvation, osteoporosis, and diabetes may have important endocrine roles. Adiponectin is a 30kDa adipocytokine that was identified as a unique transcript of adipocytes. Paradoxically, despite being one of the most highly expressed transcripts in WAT, circulating adiponectin decreases with obesity and increases in states of decreased body mass such as anorexia. Unlike decreases in WAT, MAT increases during calorie restriction (CR). Thus, we hypothesize that increases in serum adiponectin with CR are driven in part by enhanced marrow adipogenesis. To increase marrow adipogenesis, female control or OCN-Wnt10b transgenic mice were placed on a diet of 30% CR from age 9 to 15 weeks. Whereas conventional markers of WAT, such as leptin and FABP4, were virtually absent in MAT, adiponectin was highly expressed. CR by 30% significantly increased marrow fat in tibias of both control and OCN-Wnt10b animals. Marrow fat accumulation in OCN-Wnt10b mice was lower than in controls. Circulating adiponectin increased in both restricted animal models, but was blunted to a similar extent as the marrow fat in OCN-Wnt10b mice. Our data suggest that MAT contributes substantially to circulating adiponectin. Furthermore, accumulation of MAT during CR may explain the paradoxical increase in adiponectin in lean individuals. Supported by R24DK092759

## #36

**MIDKINE EXPRESSION IN AMELOBLASTOMAS** C Intapa, M Scheper, E Verissimo, M Zhang, A Batista, B Jham, University of Maryland, Baltimore, Federal U. Goias, Goiania, Midwestern University Downers Grove, Illinois Background: Ameloblastoma is a locally aggressive benign neoplasm with a tendency to invade the surrounding tissues and a relatively high recurrence frequency. It is the most common clinically significant odontogenic tumor, with studies from different regions of the world showing it accounts for 9-88% of all odontogenic neoplasms. Objective: The aim of this study was to investigate the expression of midkine, a heparin-binding growth factor, in ameloblastomas and correlate the results with clinicopathological parameters. Methods: Cases of ameloblastoma seen at the University of Maryland between 1999 and 2010 were identified. Clinical information was collected regarding age, gender, race and location. Cases were classified as solid, multicystic, unicystic and peripheral. The expression of midkine was assessed using immunohistochemistry, and reactivity was graded in a semi-quantitatively manner. A statistically significant difference was considered to be present at  $p < 0.05$ . Results: A total of 27 cases of ameloblastoma were identified. Midkine was expressed in 84% of the lesions (weak expression was seen in 29%, moderate in 18% and strong expression in 37% of the cases). No statistically significant correlation was observed between expression of midkine and clinicopathological parameters. Conclusion: Midkine is expressed in the majority of ameloblastomas, suggesting a role of the protein in the development of the tumor. Midkine may possibly serve as a molecular-based therapeutic target for the treatment of ameloblastomas.

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## #37

**A CLINICOPATHOLOGICAL STUDY OF HEAD AND NECK SARCOMAS** E Verissimo, A Gomes, L Nascimento, T Almeida, E de Paula, E Mendonça, B Jham Federal University Goiás, Goiania Araujo, Jorge Hospital, Goiania, Goiás, Midwestern University Downers Grove, Illinois  
Background: Sarcomas are malignant tumors of mesenchymal origin, which account for 1% of all cancers. Lesions of the head and neck account for 5-15% of all adult and 35% of pediatric sarcomas. The combination of rare occurrence and poor prognosis make head and neck sarcomas a challenge for health professionals and highlights the need for a thorough understanding of the clinical and pathological features of these tumors. Objective: The aim of this study was to describe the profile of head and neck sarcomas seen in a single institution. Methods: The files of 36 patients with head and neck sarcomas seen between 1987 and 2010 were retrieved from the archives of the Araujo Jorge Hospital. All lesions had a histological diagnosis of sarcoma primary to the head and neck region. Charts were analyzed and the following information was collected regarding patients and lesions: age, gender, symptoms, signs, location, size, clinical aspect, radiographic description, histological diagnosis, treatment and follow-up information. Results: Patients were 22 females and 14 males, with mean age of 32.1 years. Most lesions presented as a painful tumoral mass in the mandible. Average size at diagnosis was 6 cm. Radiographic imaging of intrabony lesions revealed the majority were osteolytic and destructive. Histologically, the most common subtype was osteosarcoma, followed by chondrosarcoma. The majority of lesions were treated with surgery and postoperative radiotherapy. The average patient follow-up time was 46 months. Of patients with follow-up information of at least six months (n=26), eight were deceased and 18 still alive. Conclusion: Although rare, sarcomas represent an important group of malignant neoplasms and should be considered in the differential diagnosis of head and neck masses.

## #38

**GRANULOMATOUS FOREIGN BODY REACTION TO POLY-L-LACTIC ACID FILLER. REPORT OF SIX CASES** S S Farahani, V Noonan, S Kabani, S-B Woo Harvard School of Dental Medicine, Boston, MA, Strata Pathology Services, Lexington, MA Boston University, School of Dental Medicine, Boston, MA  
Dermal fillers are often used to smooth out wrinkles and treat facial fat atrophy. They are classified into biostimulatory, filling, and combined fillers. An example of biostimulatory fillers is poly-L-lactic acid (PLA), a synthetic peptide polymer of the  $\pm$ -hydroxy-acid family that is commonly used in absorbable sutures. PLA is a resorbable dermal stimulatory agent which stimulates fibroblasts to produce collagen. Although injectable PLA is considered a biocompatible dermal filler, nodules and foreign body granulomas have also been described and this is a report of six cases of such an adverse reaction. Patients were female aged 40 to 69 (median 55), all with a history of PLA (Sculptra, Dermik, Berwyn, PA) injection to the nasolabial fold or lip for cosmetic reasons. Except one case who presented a nasolabial nodule, all developed firm nodules intraorally (two in the mandibular vestibular mucosa and the other three in the maxillary buccal vestibule). Histopathologically, each showed a well-circumscribed, partially encapsulated nodule consisting of non-necrotizing granulomas with many foreign body-type multinucleated giant cells associated with abundant ovoid, needle-shaped and geometric, refractile foreign materials. Some of this material was identified within the giant cells. Scattered lymphocytes were noted. Conclusion: PLA fillers may migrate from the site of injection to produce intraoral nodules that are foreign body granulomas with a distinct appearance.

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## #39

**MASSIVE, AGGRESSIVE ADENOMATOID ODONTOGENIC TUMOR (AOT): REPORT OF AN UNUSUAL MANDIBULAR LESION** H.Qari, G. Blundell, N.Demian, M.Covinsky, J E. Bouquet University of Texas School of Dentistry, Houston Background: Since 1905, 700+ examples of adenomatoid odontogenic tumor (AOT) have been reported. It has a strong predilection for females (up to 2.3:1), for the maxilla (1.8:1 vs. mandible) and for young persons (less than 30 years of age). It is virtually always less than 3 cm in size and rarely resorbs roots but occasionally displaces them. Since the last major review in 1990, only 4 cases (all mandibular) have been larger than 3 cm. Objective: To present possibly the largest, most aggressive AOT reported. Case: A 37 year old male presented with a 7x6x4 cm expansile radiolucency of the mandible, extending from the right first mandibular molar to the left first molar, associated with an impacted left canine. The lucency contained scattered small grayish radiopacities, had massively expanded the chin, thinning the cortex considerably and leading to several perforations. The mental nerves were intimately associated with the tumor. Almost all overlying teeth were displaced and all overlying roots were resorbed, with some roots missing as much as half of their structure. At surgery, more than 85% of the lesion was represented by a single fluid-filled cystic space. The lesion was removed by enucleation and the defect was filled with autologous bone; there has been no recurrence to date but only 6 months of follow-up have occurred. Conclusion: This appears to be the largest, most aggressive AOT yet reported.

## #40

**AXENFELD-RIEGER SYNDROME: DIFFERENTIAL DIAGNOSIS IN CASES OF OLIGODONTIA** A Bufalino, M Andrade, A Silva, R Coletta, M Lopes University of Campinas, Piracicaba, São Paulo, Brazil Axenfeld-Rieger syndrome (ARS) is a rare autosomal dominant condition characterized by a variety of malformations in the anterior chamber of the eyes, which can lead to blindness. The clinical spectrum also includes systemic malformations and craniofacial and dental features. ARS is caused by mutations in 2 transcription factors, PITX2 and FOXC1, although the underlying genetic defect is unknown in 60% of the cases. We reported herein a 9-year-old girl with oligodontia that led to the diagnosis of a family with ARS. Her medical history showed bilateral congenital glaucoma, and physical examination revealed redundant peri-umbilical skin, corectopia in the right eye, polycoria in the left eye, slightly protruding lower jaw and oligodontia characterized by the absence of 14 teeth. The clinical examination of the family members revealed that her mother presented typical features of ARS, including loss of vision at age 10 years and absence of 14 teeth. Proband's father and older sister did not show similar alterations. Genomic DNA was extracted from oral mucosa cells and sequencing analysis of PITX2 and FOXC1 exons and their flanking splice junctions was performed. Mutations were not found in both affected members. In conclusion, ARS should be considered in the differential diagnosis of patients with oligodontia, and dentists should be able to recognize this uncommon syndrome. Early diagnosis is essential for an appropriate treatment of the affected patients and genetic counseling.

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## #41 Withdrawn



## #42

**CALCIFYING EPITHELIAL ODONTOGENIC TUMOR: REPORT OF A SERIES OF TEN CASES** J Whitt, B Barker, J Roko, s C Dunlap University of Missouri Kansas City The Calcifying Epithelial Odontogenic Tumor (CEOT) is an uncommon odontogenic tumor arising from odontogenic ectoderm which usually presents in adults. It exhibits a wide variation in radiographic appearance, but most frequently presents as a mixed radiolucent-radiopaque lesion. Approximately 15% of the lesions may be expected to recur after conservative local excision. We report a series of ten cases with an age range from 12 to 77 years (mean = 43). Six of the lesions arose centrally within bone; 4 arose peripherally within the gingival soft tissue. The tumors were equally distributed between the mandible and maxilla and exhibited a slight female gender predilection. Three of the 4 peripheral lesions arose in females. All central lesions presented as well-circumscribed mixed-density lesions; one lesion was markedly radio-dense. One peripheral lesion also exhibited a crestal mixed-density radiographic appearance. All of the lesions were located anterior to the molar area. The intra-osseous lesions ranged from 3 to 5 cm. No size information was available for the peripheral lesions; the clinical diagnoses included peripheral giant cell granuloma, peripheral ossifying fibroma and localized gingival fibrous hyperplasia. The relative proportions of the tumor components varied widely from epithelium-predominant, stroma-poor to epithelium-poor, stroma-rich lesions. One intra-osseous lesion exhibited predominately clear epithelial cells. Two of the peripheral lesions exhibited mild cytologic atypia. Histologically, two of the lesions were combined odontogenic tumors, exhibiting the histomorphology of both CEOT and another odontogenic tumor (Adenomatoid Odontogenic Tumor in one central lesion and Calcifying Cystic Odontogenic Tumor in one peripheral lesion).

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## #43

**ENHANCER OF ZESTE HOMOLOG 2 AS A MARKER FOR CARCINOMATOUS CHANGES IN AMELOBLASTIC CARCINOMA.** R. Younis, L. Mao, B. Levy, M. Scheper Department of Oncology and Diagnostic Sciences, Dental School, University of Maryland Baltimore. Ameloblastic carcinoma is a rare malignant odontogenic tumor that arises de novo or from a preexisting ameloblastoma. Because of the rarity of ameloblastic carcinoma its immunohistochemical profile is still to be investigated. The diagnosis of ameloblastic carcinoma also can sometimes be a challenge to differentiate from atypical ameloblastoma. We presented before the epigenetic modulator Enhancer of Zeste Homolog 2 (EZH2), which is a methyl transferase enzyme that methylates lysine 27 of histone 3, resulting in gene silencing as a biomarker for early detection of malignancy in oral leukoplakia. In this work we introduce EZH2 as a biomarker for detection of carcinomatous changes in a case of ameloblastic carcinoma. EZH2 shows moderate nuclear staining in ameloblastic carcinoma versus negative staining in ameloblastoma and tooth follicles. The data produced from this study suggests new diagnostic criteria that can help in the diagnosis of ameloblastic carcinoma. In addition it provides better understanding of the underlying molecular profile of ameloblastic carcinoma and opens new avenues for molecular and therapeutic targets.

## #44

**C-JUN AND PC-JUN EXPRESSION IN ORAL LEUKOPLAKIAS FROM SMOKERS AND NON-SMOKERS** J Lima, G. Rabelo, L. Corrêa, S. Sousa University of São Paulo, São Paulo, Brazil OSCC is usually preceded by a premalignant stage. The study of these premalignant stages can provide a better understanding of the carcinogenesis. However, most underlying mechanisms remain obscure. Oral epithelial dysplasia is the histopathologic sign of the potential transformation to carcinoma. Tobacco is known to act as a risk factor for the development of OSCC, however, despite this negative potential, there are limited studies comparing smokers and nonsmokers lesions and its relation to the development of carcinoma. It is already known that the main component of the transcription factor AP-1, c-Jun protein and its phosphorylated form (p-c-Jun), participate in the cell cycle and that their inhibition compromises cell proliferation. The aim of this study was to access the role of the smoking habit in the expression of these proteins. For this, 40 cases clinically diagnosed as oral leukoplakias and that presented a moderate or intense degree of epithelial dysplasia and could not be diagnosed as any other diseases were selected. Twenty cases were from smokers (more than 20 cigarettes/day) and 20 from non-smokers. Histological sections of each lesion were subjected to the streptavidin biotin immunohistochemical method for detection of c-Jun and p-c-Jun. A semi quantitative analysis was performed. There was a significant difference between c-Jun and p-c-Jun in both, smokers ( $p < 0.0001$ ) and non-smokers ( $p = 0.0055$ ). However, the results showed no statistical differences between the expressions of c-jun ( $p = 0.4626$ ) and p-c-jun ( $p = 0.2905$ ) comparing smokers and non-smokers. In conclusion, despite the similarity in the groups, the expressive positivity of the proteins in many cases indicates a possible role in the process of oral carcinogenesis.

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## #45

**DETECTION OF SALIVARY HUMAN PAPILOMAVIRUS DNA IN HIV-INFECTED PATIENTS WITH ORAL LESIONS: A CLINICOPATHOLOGIC STUDY** M. Nichols, C. Flaitz, A. Zuluaga  
Bering Omega Dental Clinic, Houston, TX, University of Texas School of Dentistry, Houston Remicalm LLC, Houston, TX

Human papillomavirus (HPV) is commonly detected in the saliva of HIV-infected individuals, but the types are less well defined. The purpose of this retrospective study was to document salivary HPV DNA results with clinical and histopathologic findings in HIV-infected patients with oral lesions. Following IRB approval, all patients from Bering Omega Dental Clinic, who had a salivary HPV DNA test (OraRiskSM HPV, OralDNALabs) were included. Demographics, HIV exposure, social history, CD4 count, HIV PCR viral load, combined antiretrovirals (CARV), oral lesion diagnosis and HPV DNA results were collected. Results included 31 subjects (mean age=49; 29M/2F; 20 white, 6 black, 5 Latino). HIV exposure included 24 MSM, 7 HS with mean CD4 count=433 and 94% on CARV. History of oral sex was 90%; tobacco use was 45%. HPV results were positive in 52% with HPV 16 in 6.5% (tonsillar cancer, condyloma with dysplasia). HPV lesions were diagnosed in 17/31 (76% HPV+), squamous cell carcinoma/moderate to severe dysplasia in 6/31 (33% HPV+), hairy leukoplakia in 1/31 (100% HPV+) while other lesions in 7/31 (lichen planus, fibroma, hyperkeratosis +/- dysplasia, erythema migrans) were all HPV-negative. High-risk HPV (16, 68) was documented in 3 subjects; low risk (6, 72, 83, 84, CP6108) in 5; unknown risk (32, CP8061, unknown) in 8. MSM exposure, oral sex, and low CD4 count were correlated with the presence of any HPV types ( $p < 0.05$ ). Four patients had dual infections. HPV 72, 83, 84, CP6108, CP8061 and unknown types were primarily detected in patients with low CD4 counts ( $<200 \text{ mm}^3$ ). In conclusion, the clinical presence of oral warts was associated with the detection of HPV in saliva. Also, HPV 16 was only detected in HIV patients with oropharyngeal cancer and condyloma with dysplasia.

## #46

**PERSISTENT EXPOSED NON-VITAL BONE NOT ASSOCIATED WITH BISPHOSPHONATE USE** E Peters, A Khan, N Sifeldeen  
University of Alberta, McMaster University, Hamilton, Ontario

The incidence of bisphosphonate related osteonecrosis of the jaws (BRONJ) in patients taking oral bisphosphonates has been estimated between 0.0004% and 0.06%. Case definition in the incidence studies typically has required the presence of exposed bone for greater than 8 weeks in patients who have been treated with bisphosphonates and with no history of radiotherapy. The objective of this preliminary study was to assess the presentation profile of BRONJ type cases in the absence of bisphosphonate use. All sequestration cases, which were submitted for histopathologic exam, during a 3 year period, before bisphosphonates were approved for clinical use, were reviewed. 48 cases with histories indicating the clinical presentation and suspected cause were included in the study. 34 of these cases (71%) could be attributed to a range of etiologic factors (post-surgical complication, infection, trauma, radiation, eruption) and did not match the BRONJ type profile. A further 14 cases (29%) were characterized by idiopathic bone exposure before surgical intervention. 7 cases involved the posterior lingual mandible, 4 cases involved developmental exostoses and 3 cases involved recessed gingiva. In 7 of the 14 cases, lesion duration had been recorded and indicated a mean time of 4.6 weeks (SD= 4.0) before surgical management. In 3 of the 7 cases (2: lingual mandible; 1: recessed gingiva), the lesions had persisted for over 8 weeks. Thus, a minimal 6% of BRONJ type presentations could be identified from the total sequestration cases. These preliminary results indicate that studies attempting to assess BRONJ incidence need to account for the unknown incidence or background noise associated with BRONJ type sequestrations that occur in the absence of bisphosphonate use.