AAOM 2017 - Poster Abstracts

= Poster Number, *Presenting author

To conserve space, we list only the institution and the country submitted as 1st organization.

#1: ORAL SQUAMOUS CELL CARCINOMA IN PATIENTS WITH METAL ALLERGY

*Jong Hyung Lee, Sonal S Shah, Alexander Ross Kerr, New York University College of Dentistry, USA

Background: There are reports suggesting that intraoral metal contact allergy may be a risk factor for squamous cell carcinoma (SCC).

Case Summary: Two female patients (>65 years old with no history of tobacco use) with a history of lichenoid lateral tongue lesions each developed a stage 1 tongue SCC in areas that were in contact with long-standing metal restorations. Both patients underwent cutaneous patch testing and they demonstrated contact hypersensitivity to palladium/nickel (case 1) and gold (case 2). They underwent cancer resection followed later by replacement of the metalwork with porcelain-only restorations. On careful surveillance (>4yr and <6mos respectively), they have no symptoms and there is no evidence of recurrence.

Conclusion: Patients with a history of lichenoid lesions (ie lichen planus or lichenoid mucositis) should be followed closely because of the risk for malignant transformation. Those with lichenoid lesions specifically associated with "kissing" metal restorations may be considered for patch testing. In such patients who develop SCC, patch testing is strongly recommended, and if positive for metal allergy, replacement of the putative metals should be considered. Carefully designed case-control studies are needed to further explore this relationship.

#2: CARDIOVASCULAR COMPLICATIONS IN LIVER TRANSPLANT RECIPIENTS

*Jaana Sisko Helenius-Hietala, Hellevi Ruokonen, Lisa Grönroos, Ella Sahlberg, Taina Tervahartiala, Timo Sorsa, Kirsti Kari, Helena Isoniemi, Fredrik Åberg, Jukka H Meurman, Sok-Ja Kim Janket, Helsinki University Hospital, Finland

Objectives: Liver transplantation (LT) is a life-saving procedure for patients with end-stage liver disease. LT recipients' life expectancy has improved and their quality of life is comparable to general population. However, permanent immunosuppression may predispose to long-term complications such as cardiovascular (CV) events. We investigates if oral health and specifically salivary biomarkers predict CV events.

Methods: 84 LT recipients (LT 2000-2006) had a clinical and radiological oral examination 2-11-years post-transplant. Stimulated whole saliva samples were taken to determine salivary biomarkers; a questionnaire was also used. The follow-up was until November 2016 and CV complications/mortality data came from National Liver Registry. The patients were divided in two groups according to their cardiac health: better (n=33) or worse (n=51) CV outcome since baseline (right before LT). Different baseline and oral health related characteristics were studied between groups. The salivary biomarkers IL-1b, TNF-a, MMP-8, TIMP-1, IgA, IgG, and IgM and relevant medical/oral health data were analyzed by multivariate logistic regression (SAS software).

Results: 16 patients had hypertension at baseline and at follow-up the incidence was 49. Other CV events at follow-up included: 1 non-fatal myocardial infarct, 4 coronary heart disease, 5 stroke and 1 brain hemorrhage. 3/10 deaths were of cardiac origin. 2/20 acute liver failure patients had better and 18/20 had worse CV outcome (6.1% vs. 35.3% within etiology categories, p=0.001). Smoking associated 3-fold with worse CV outcome (ns). Surprisingly, pre-transplant diabetes was not associated with worse outcome since all seven diabetics' cardiac health remained the same.

Of the salivary biomarkers, only IgA was significantly but inversely associated with worse cardiac outcome in multivariate logistic analysis (OR=0.3, 95%CI: 0.09-0.94, p=0.039).

Conclusions: Within different LT etiologies, acute liver failure patients had the worst CV outcome. Oral health did not add to systemic complication. Salivary IgA appeared protective in this regard.

#3: ORAL EXTRAMEDULLARY PLASMACYTOMA: A CASE-SERIES

*Tiffany Tavares, Maryam Jessri, Sook-Bin Woo, Nathaniel Treister, Alessandro Villa, Harvard School of Dental Medicine, USA

Background: Extramedullary plasmacytoma (EMP) is a localized plasma cell neoplasm arising in tissues other than bone. EMP accounts for <1% of all head and neck malignancies with the oral cavity being the rarest site affected. The objective of this case-series was to characterize oral EMP from a clinical and histopathological stand point.

Case summary: Thirteen patients (four males, nine females, median age 56) with multiple myeloma (MM) were included (10 kappa and 3 lambda light-chain MM). Patients were either recently diagnosed with MM and/or had progressive disease, with nine patients having previously undergone hematopoietic cell transplantation and ten receiving active chemotherapy. The lesions were rapidly-developing, asymptomatic or mildly symptomatic pink/purple gingival masses (range 0.5 cm – 6 cm), with variable ulceration. The posterior mandible was the most frequently affected site (n=7), followed by the posterior maxilla (n=3), concomitant maxilla and mandible (n=2), and anterior maxilla (n=1). Nine patients had lesions involving both buccal and lingual aspects of the gingiva, 3 buccal only, and one palatal only. Two lesions were associated with hypermobility of adjacent teeth, and paresthesia was present in 3 patients. Differential diagnosis of early lesions included pyogenic granuloma and peripheral ossifying fibroma. Incisional biopsies (n=9) showed atypical plasma cells with coarse “clock-face chromatin”, CD138 positivity, and monotypic reactivity for MM immunoglobulin. To date, all but two patients deceased. Lesions mirrored patients’ response to MM chemotherapy.

Conclusions: Oral EMPs may resemble other gingival nodules. Definitive diagnosis is reached through histologic confirmation, however, due to the nature of the disease and treatment, many of these patients are not amenable to biopsy. In most cases, clinical presentation and context assist in reaching a working diagnosis. Important/frequent features include rapid growth, involvement of both the buccal and the palatal/lingual gingiva, and improvement/regression of lesions in concordance with successful myeloma treatment.

#4: ORAL MANIFESTATIONS AND DIAGNOSIS OF HEREDITARY HEMORRHAGIC TELANGIECTASIA

Pallavi Parashar, Clifford S Litvak, *Reid T Friesen, University of Alberta, Canada

Background: Hereditary hemorrhagic telangiectasia (HHT) is a rare inherited disorder of fibrovascular origin that is characterized by multiple telangiectasias involving the skin and mucous membranes. HHT also affects visceral organs and Central Nervous System. A wide variety of clinical manifestations in HHT have been identified. Being aware of the common oral and clinical manifestations, and diagnostic criteria can help in screening these patients, and aid in formulating appropriate management and referrals.

Case Summary: A 55 year old female was referred to the Oral Medicine Clinic for evaluation of a hemorrhagic papule on her gingiva. Her medical history was significant for varicose veins,

raynauds phenomena, easy bruising, with occasional nosebleeds. Clinical examination revealed multiple pinpoint red blanching macules on the patients fingertips, palms and upper and lower lip. A dark red, well circumscribed, blood filled papule was identified on the buccal attached gingiva in the area of teeth #21-22, which blanched completely with pressure, with immediate refill on release of pressure. No radiographic correlation of the gingival lesion was appreciated. Based on the identification of the multiple telangiectasias on the skin and oral mucosa, a vascular malformation on the gingiva, and a history of epistaxis, a diagnosis of suspected HHT was rendered. The patient was referred to her Internist for appropriate diagnostics and management.

Conclusion: HHT is a multisystem vascular disorder, and the affected patients are at increased risk for bleeding events. The most common clinical manifestations are recurrent epistaxis and mucocutaneous telangiectasias. Our patient presented with two out of the four diagnostic criteria for HHT, suggesting a possible diagnosis of HHT. Dental health care providers need to be familiar with the clinical manifestations and diagnostic criteria for HHT, since the mucocutaneous manifestations may play a key role in diagnosis, and appropriate management.

#5: ORAL HEALTH CARE CONSIDERATIONS FOR PATIENTS WITH PYODERMA GANGRENOSUM

Wei-Chung Foong, Takako I. Tanaka, *Shin-Mey Rose Y Geist, University of Detroit Mercy School of Dentistry, USA

Background: Pyoderma gangrenosum (PG) is a neutrophil-dysregulated skin disease that manifests initially as small pustules with or without a history of trauma. The lesions rapidly expand to produce large painful and disfiguring suppurative ulcerations. Histologically the lesions exhibit intense neutrophil infiltration and necrosis without evidence of infection. PG usually develops on the legs and trunk, but orofacial involvement has been reported. The cause and pathogenesis of PG are unclear but are currently hypothesized to be an overreaction of the innate immune system with a pathergy phenomenon. Dental treatment may induce PG lesions at the site of an oral surgical procedure or other locations due to the pathergy reaction. Treatment of PG includes a combination of high doses of conventional immunosuppressants and novel immunomodulators. The side effects of these medications are also concerns for oral health care provision.

Case summary: A 60-year-old Asian man in good general health suddenly developed suppurative ulcerations on his trunk and legs. A diagnosis of classic PG was reached by exclusion. Extensive diagnostic studies included skin lesion biopsy, hematologic studies, bone marrow biopsy, and imaging studies to rule out infection, autoimmune disease, and internal malignancy. Treatment began with a high dosage of steroids and cyclosporine, followed by IVIG. The ulcerations have not healed as expected. Target therapy with IL and TNF antagonists has been planned. The patient's dental treatment plan includes extractions, periodontal therapy, and implants. However, the risk and benefit for his dental treatment must be carefully assessed to avoid pathergy and complications related to PG treatment medications.

Conclusion: This case illustrates the concerns and the assessment process for oral health care provision in patients with PG. It also serves as a model for oral health care of patients who are receiving comprehensive immunotherapy.

#6: RECURRENT APHTHOUS STOMATITIS (RAS): WHAT'S NEW IN SUDAN?

*Imad Elimairi, Amr Elimairi, Amel Sami, National Ribat University and Hospital, Sudan

Objectives: Histologically, (RAS) is an inflammatory process with abundant lymphocytes, neutrophils and histiocytes with oedematous development in the connective tissue. To identify and update (RAS) parameters amongst 124 patients at National Ribat University and Hospital (NRUH) and discuss the concept of systemic associated (RAS).

Methods: 124 patients between the ages of 15-36 years presenting with (RAS) all types (minor, major and herpetiform) were analysed retrospectively for epidemiological, aetiological, microbiological, dietary, and systemic associated (RAS) data.

Results: The majority of (RAS) were minor aphthous ulceration (74%), (22%) major and (4%) herpetiform kind. (63%) of our study group presented with a familial background where (20%) had 2 or more relatives affected and, (43%) had 1 relative effected. Aetiological factors included modifiable (environmental) and non-modifiable (genetic) factors. Vitamin B9 and B12 was found to be lower (5% reduction) amongst our (RAS) patients compared to the general patients. Studies of helicobacter pylori highlighted no association between development of (RAS) lesions and only 4% of patients had previous but no current history of the infection. Systemic associated (RAS) was consistent in 8 of our study group. Diseases associated with (RAS) and proved of positivity in investigations included Bechet's disease, Periodic fever, adenitis, pharyngitis, aphthae (PFAPA) syndrome and coeliac disease. 3 patients proved positive pathergy testing as well as uveitis and major (RAS). The features of (PFAPA) syndrome were determined in 1 patient and enamel hypoplasia and coeliac antibodies as well as (RAS) were consistent in 4 patients.

Conclusion: Further studies are required amongst Sudanese populations particularly in genetically and immunological criteria as well as insight into systemic associated (RAS) lesions and patterns amongst the population. Many studies of new therapies are advocated but only some have proven beneficial and topical corticosteroids remain the mainstay.

#7: ORAL MANIFESTATION OF A SYSTEMIC BLEEDING DIATHESIS WITH FATAL OUTCOME

Raphael Figueroa, *Mahnaz Fatahzadeh, Rutgers School of Dental Medicine, USA

Background: Many systemic conditions could manifest in the oral cavity, sometimes prior to initial diagnosis. A thorough history and clinical examination together with focused review of systems may help uncover a systemic etiology for oral findings. We report a patient in whom sudden onset of extra and intraoral purpuras raised suspicion of an underlying systemic issue and prompted medical referral. Unfortunately; however, patient did not survive.

Case Summary: A 93 year old male presented to his dentist reporting two day onset of asymptomatic oral lesions s/p traumatic biting while eating. PMH was significant for HTN, DM, RA, CAD, Thyroid disease, cardiac stent placement and distant prostate cancer successfully treated with XRT. His medications included Glipizide, Atenolol, Clopidogrel, and Aspirin. He was allergic to sulfa drugs. His last medical visit was 3 months ago and ROS revealed recent, multifocal cutaneous and conjunctival discolorations. Extraoral exam revealed scleral hemorrhage in right eye and multiple hematomas affecting his arms, legs and upper lip. Noted intraorally were multifocal ecchymosis involving FOM, tongue, labial and buccal mucosa. Focal areas of gingival oozing were also present. Radiographic exam was non-contributory. Clinical impression included an underlying coagulopathy or a hematological disorder. Patient was advised to rinse with chilled saline to reduce gingival oozing and referred to his internist for immediate evaluation and bloodwork. While awaiting result of work up, patient developed intracranial bleeding and expired

shortly after. Although definitive diagnosis remains undetermined, bloodwork revealed profound thrombocytopenia (platelet count=7000 cells/mm3)- a finding consistent with clinical presentation.

Conclusion: This case illustrates the significance of anamnesis and clinical exam in formulating a diagnostic impression. Dental providers should maintain a high index of suspicion for an occult systemic etiology and expedite medical referral when a patient presents with signs and symptoms affecting oral and extra-oral sites. Timely consideration of this possibility can be life-saving.

#8: CORRELATION OF CLINICAL VARIABLES AND TREATMENT TO PROGNOSIS IN ORAL SQUAMOUS CELL CARCINOMA

*P U Abdul Wahab, Madhulaxmi M, Anandan Balakrishnan, Sambandham Shanmugam, Vinod Narayanan, M R Muthusekhar, Saveetha Dental College, India

Objectives: To understand the important prognostic factors in oral squamous cell carcinoma.

Methods: 29 patients diagnosed and planned for surgical treatment of OSCC were included in this prospective study during the period from July 2014 to January 2016. Institutional ethical clearance was obtained for the study. The demographic and clinicopathological details of patients like age, sex, habits, duration of symptom, tumour site, nodal metastasis, TNM stage, treatment and post operative care were recorded from patients and prognosis monitored. All patients were followed for a minimum of 6 months to 24+ months. Three patients had recurrence within 6 months of surgery and three patients had recurrence within one year after surgery. All these six patients are not alive. 4 patients lost follow up after six months. A descriptive analysis was made comparing each variable to prognosis.

Results: 5 out of 6 deceased patients had few common variables and all were males less than 50 years of age, chewers, an ulcer or swelling persisting for an average of 6 months, tumour size more than 3 cm with nodal involvement, TNM Stage IVa, well differentiated SCC, had underwent primary resection with neck dissection. Most survivors presented in less than 2 months of symptom, underwent radiation therapy when indicated and demonstrated good postoperative care like quitting habits and following instructions with regular up.

Conclusions: Although prognosis of patients with OSCC depends on combination of all factors as age, gender, TNM status, histological differentiation, treatment and patient compliance. Duration of symptoms, nodal metastasis, treatment modality and personalised care of patients can be recognized as important prognostic markers for oral squamous cell carcinoma.

#9: PRIMARY FOLLICULAR NON-HODHKIN'S LYMPHOMA OF THE MANDIBLE: A RARE CASE

Suwadad Aldawodie, Hani Braidy, *Mahnaz Fatahzadeh, Rutgers School of Dental Medicine, USA

Background: Follicular lymphoma is an indolent form of non-Hodgkin’s disease with rare manifestation in mandible as a primary site. This uncommon localization and lack of pathogonomic signs pose risk of delayed diagnosis. We report a patient in whom jaw pain and swelling led to diagnosis of extranodal disease in mandible and therapeutic intervention.

Case Summary: A 35 year old male presented with 2 month history of right sided jaw pain and numbness in the mental nerve distribution. PMH was non-contributory. He was taking Percocet, clindamycin and gabapentin. He reported latex allergy. Extra-orally, there was lower right lip and

chin paresthesia. Intraoral exam was WNL except an exquisitely tender area of fullness with intense erythema on lower right buccal mandible. Panoramic and CT imaging revealed widening and poor definition of nerve canal in right mandibular body. Differential included malignancy versus osteomyelitis. Biopsy showed B-cell clonal expansion and patient referred to medical oncology. Pet-CT showed uptake in soft and hard tissues of right body & symphysis. Findings were consistent with follicular lymphoma. Localized nature and absence of systemic symptoms did not warrant chemotherapy and patient placed on close follow up. Four months later, patient presented with pain and pressure in lower anterior jaw. He reported recent RCT and crown on #25. Extra-oral exam was WNL. Intra-orally, there was fullness, erythema and tenderness of lower anterior vestibules. Teeth 24-26 were mobile. Periapical showed loss of lamina dura, widened PDL and diffuse peri-radicular rarefaction on 24-26. Vestibular aspiration yielded no purulence. Both malignancy and odontogenic cellulitis considered. Tissue biopsies revealed atypical lymphoid infiltrate. Work up confirmed primary extra-nodal follicular non-Hodgkins lymphoma and patient started on chemotherapy.

Conclusion: Despite its rarity, clinicians should consider lymphoma in differential diagnosis when patient presents with jaw pain, swelling and paresthesia. Definitive diagnosis relies on tissue sampling and imaging.

#10: INVASIVE CARCINOMA CUNICULATUM OF THE JAW. A CASE REPORT

*P U Abdul Wahab, Madhulaxmi M, P Senthil nathan, Pradeep D, Arun Murugaiyan, Prathiba Ramani, Rinku George, Saveetha Dental College, India

Background: Carcinoma Cuniculatum is a low grade squamous cell verrucous carcinoma mostly seen as a skin lesion. CC was first addressed by Arid et al in 1954 on the plantar region. Carcinoma cuniculatum in the oral cavity is a rare entity that was first described by Flieger et al in 1977 and the diagnosis is hard to establish. The possible cause of CC is infection with HPV. CC is reported to be locally invasive with less incidence of metastasis. Here, we report a case of CC with HPVnegative, no habits and presence of metastasis.

Case Summary: A 64 year old male patient reported with history of pain in the right lower jaw for a period of 5 months. Initial examination showed an inflamed partially edentulous region in relation to 46, 47 region. He had no history of smoking, alcohol and tobacco Consumption. He has had two biopsies done previously for the same complaint within that period of 5months. The biopsies then reported it as fibroepithelial polyp and chronic granulation tissue. He also had a history of extraction and curettage done in that region 4 months earlier for the same complaint. 3rd & 4th biopsy(deep) were carried out, which ended as a Carcinoma cuniculatum. The Consecutive clinical prognosis, multiple biopsy reports, HPV analysis, serial radiographs, CT & PET-CT findings lead us to a varied diagnosis and treatment plan. PET-CT showed primary tumour in right mandibular alveolar process, invading the floor of the mouth and with ipisilateral multiple cervical lymphnode spread. Segmental resection, neck dissection and reconstruction was performed.

Conclusion: We reemphasize that there is no single diagnostic aid for a treatment plan. Deep biopsy is mandatory. Patient follow up at regular intervals is the mainstay to quality treatment plan and prognosis.

#11: SUCCESSFUL CO2 LASER MANAGEMENT OF BENIGN GINGIVAL GROWTHS THAT HAD PREVIOUSLY RECURRED AFTER SCALPEL EXCISION

Nita Chainani-Wu, *Alice Thanh Du, Timothy Wu, Oral medicine Clinical Practice, USA

Background: Benign gingival growths may be reactive in nature and can include varying microscopic diagnoses such as peripheral fibroma, pyogenic granuloma, peripheral ossifying fibroma, giant cell granuloma or inflamed fibrous hyperplasia. Etiology may include presence of local irritants like calculus; and systemic factors such as hormonal changes or certain medications. It is therefore imperative that any modifiable local or systemic etiologic factors are adequately addressed prior to surgical removal. The recurrence rates for benign reactive gingival growths after surgical (scalpel) excision have been estimated to be in the range of 5 to 20%.

Case Summary: A 15 y/o female, a 27 y/o female and a 67 y/o male, each presented with a history of a benign gingival growth on the anterior gingiva that had recurred soon after scalpel removal. They each underwent a subsequent surgical removal procedure that included use of a Carbon dioxide (CO2) laser in addition to scalpel and scalers. Microscopic diagnoses were peripheral ossifying fibroma in 2 cases, and inflamed fibrous hyperplasia in the third. The patients reported only mild post-operative discomfort, no further recurrence occurred during follow-up, and gingival recession in the area of the surgery was observed to be minimal.

Conclusion: A CO2 laser (wavelength 10.6 μm) which is absorbed mainly by water is well-suited for management of oral soft tissue growths, including gingival growths. Our three cases demonstrate the advantages of a CO2 laser in management of benign, localized gingival growths. During the procedure, the advantages include precision, reduced bleeding with improved visualization, good access into hard to reach areas due to non-contact mode of use, and adjustable settings allowing safe use in areas with underlying alveolar bone. Following surgery, the patients experienced benefits of minimal post-operative discomfort, minimal post-operative gingival recession and no recurrence of the gingival growths during follow-up.

#12: FIBRODYSPLASIA OSSIFICANS PROGRESSIVA (FOP): A CASE REPORT.

*Janine Leigh Doughty, Clare Steel, Priya Thakrar, Navdeep Kumar, University College London Hospitals NHS Foundation Trust, United Kingdom

Background: Fibrodysplasia ossificans progressiva (FOP) is an extremely rare hereditary disorder characterised by progressive ossification of the tendons, ligaments, fasciae and striated muscles. FOP can have significant implications for the provision of dental treatment; the primary challenges being limited mouth opening and the risk of initiating iatrogenic endochondral ossification by extraction of teeth and / or accidental intramuscular injection. This report will discuss the general and dental manifestations of FOP and detail the dental management considerations particular to this case.

Case summary: The patient's primary oral complaint was a complete inability to separate the upper and lower jaws, which were "locked" into position. At the age of twenty he underwent extraction of the lower right third molar, which led to progressive ossification and subsequent fixation of the jaws. The patient presented with pain and dental infection over multiple appointments. Treatment planning involved a multi-professional approach including oral and maxillofacial surgery, oral surgery and special care dentistry teams. A novel approach using cone beam CT to identify the location and extent of carious lesions was used. Risk assessment was critical: dental extractions posed a risk of uncontrolled heterotrophic bone formation; the provision

of dental restorations posed the risk of inadequate visualisation / placement and trauma to the oral tissues when retracting. In contrast, a conservative pain and infection control strategy was associated with the risk of allowing carious lesions to deteriorate further, despite the implementation of caries prevention strategies.

Conclusions: This case poses both a clinical and ethical dilemma. After weighing the potential risks and benefits of dental treatment, there was no clear answer to this case – the plan is for the multi-disciplinary team to provide high quality preventative care and monitor the patient closely, with surgical intervention dictated by pain / infection frequency and any further dental deterioration.

#13: CONSERVATIVE MANAGEMENT OF CHRONIC SUPPURATIVE PAROTITIS IN A PATIENT WITH SJÖGREN'S SYNDROME

*Alaa Bukhari, Amr Bugshan, Mabi Singh, Tufts University, School of dental medicin, USA

Background: Bacterial parotitis is a rare complication, caused by the decreased salivary flow in Sjögren's syndrome and *Staphylococcus aureus* is the most common bacteria associated with 80% of cases. It presents as episodes of tenderness, swelling and purulent sialorrhea from the salivary glands. Recent studies have suggested mixed microbiota including streptococci, anaerobes, and gram-negative bacilli.

Case Summary: An 82-year, female, with Sjögren's syndrome presented to Oral Medicine with complaints of swollen cheeks and draining pus. Past medical history was significant for hypertension, asthma, peripheral edema, hypercholesterolemia, iron deficiency Anemia, GERD, gastric ulcer, depression and generalized anxiety disorder. The patients had ovarian cancer treated with surgery and chemotherapy 3 years ago. Chronic medications included enalapril, diltiazem, hydrochlorothiazide, restasis, ranitidine, sertraline, cevimeline, iron and flaxseed oil. The patient had been evaluated by oral surgery, otolaryngology and infectious diseases and was diagnosed with suppurative parotitis. Pus cultures were performed on two occasions and were shown to contain mixed bacteria including *Staphylococcus aureus , Klebsiella pneumoniae , Streptococcus viridens, Enterococcus , Pseudomonas* and *Stenotrophomonas*. Previous treatments included courses of intravenous antibiotic therapy with ceftriaxone & ertapenem and oral antibiotic therapy with clindamycin(300mg tid), doxycycline(100mg QD), Augmentin (500mg tid), Bactrim DS (BID) and Ciprofloxacin (500mg QD). No signs and symptoms of septicemia or systemic complications were ever elucidated. Currently, the patient is just being managed conservatively by periodic drainage of pus by manipulation, suction and drainage of salivary glands and sialogogues and has not exhibited signs or symptoms of systemic infection for more than three years.

Conclusions: Chronic bacterial parotitis should be recognized as a complication of Sjögren's syndrome and hyposalivation and increased microbiota. As this case suggests, chronic bacterial parotitis may not respond to systemic or oral antibiotics. It may remain locally indolent without systemic spread and may be managed by conservative methods.

#14: THE GASTRIC PACEMAKER AND ITS IMPLICATIONS FOR THE DENTAL PRACTITIONER

*Janine Leigh Doughty, Hana Cho, Navdeep Kumar, University College London Hospitals NHS Foundation Trust, United Kingdom

Background: Gastroparesis is a chronic condition characterised by a delay in gastric emptying. It can be profoundly disabling due to persitent symptoms such as nausea, vomiting and abdominal bloating. In those cases refractory to medical intervention, a high-frequency gastric electrical stimulation device (gastric pacemaker) can offer an improved quality of life. Manufacturers of the device recommend that it is deactivated during any dental treatment involving use of a dental drill, the aim being to prevent electromagnetic stimulation that may damage the neurostimulator or interfere with its operation. This case report describes the patient and practitioner journey in coordinating dental care for the patient with a gastric pacemaker.

Case Summary: This case study describes the dental management of a 51 year old female patient presenting with an Enterra gastric pacemaker in situ. Her gastric paresis was associated with a diagnosis of systemic sclerosis. The patient's presenting complaint was a fractured upper left second molar. On examination, further dental caries was noted in the upper left first molar and lower right third molar. Prior to embarking on treatment, a multidisciplinary team was consulted including the consultant in upper gastrointestinal surgery and the Medtronic manufacturing team. Despite differing views on management of the device, in accordance with the manufacturing guidance it was deactivated during dental treatment. An extraction and two restorations were performed with no notable deleterious effect to the patient. The reactivation process was uneventful and the patient was satisfied with the outcome.

Conclusions: The patient with a gastric pacemaker can be managed safely in the dental setting with input from the gastroenterology team and the manufacturing team. De- and re-activation is relatively simple and ensures that the risk to both device and patient is reduced as far as is reasonably practicable.

#15: HARD PALATE INTRAOSSEOUS KAPOSI SARCOMA

*Addyson England, Brad Potter, Kentaro Ikeda, University of Colorado Dental School, USA

Background: Intraosseous invasion of Kaposi Sarcoma(KS) is very rare. We present a case of palatal intraosseous KS in a HIV patient.

Case Summary: A 61 year old male presented for an oral diagnosis appointment at the University of Colorado with a chief complaint of "I want to make sure my mouth is healthy". His medical history included mitral-valve prolapse and HIV/AIDs with current labs indicating a CD4 count of 5, viral-load of 56,000 and absolute neutrophil count of 1,800 with a multiclass, multidrug resistance HIV strain. His medications included acyclovir, fluconazole, azithryomycin, Sulfamethoxazole/Trimethoprim, Norvir, Prezista, Truvada and Neupogen. Upon examination, extraoral findings included HPV lesions on his left thumb and fifth finger. Intraoral findings included asymptomatic HPV lesions and slight purple discoloration on the hard palate. Periapical radiographs indicated possible root resorption on tooth 8 and periapical radiolucencies associated with teeth 7 and 8. CBCT examination was completed with the findings including a hypodensity in the anterior maxilla extending posteriorly to the maxillary second molar with effacement of the palatal cortex and floor of the nasal fossa suggestive of perforation. Biopsy was performed and histologic findings included a malignant spindle cell neoplasm consistent with KS in the anterior hard palate. Presence of HHV8 was confirmed with special staining. The patient was referred to medical-oncology to discuss treatment options including radiation and chemotherapy. After the discussion, it was determined no treatment at the time would be most beneficial for this patient. Following bimonthly follow up visits, there is little change in the clinical appearance after 13

months. Another CBCT is planned for acquisition January 2017, and will be available to compare at the time of presentation at AAOM 2017 meeting.

Conclusions: KS is uncommon. Intraoral osseous lesions even more rare with only 12 documented cases of KS involving the mandible or maxilla.

#16: SUCCESS OF DENTAL IMPLANTS IN PATIENTS WITH ORAL MUCOSAL DISEASE

*Emma Hayes, Clare Steel, Tim Hodgson, Ulpee Darbar, Eastman Dental Hospital, United Kingdom

Objectives: Dental implants have had a profound effect on patient quality of life with success rates of upto 95% in patients with healthy oral tissues. Patients with oral mucosal disease, including mucus membrane pemphigoid and erosive lichen planus, often suffer tooth loss and find tooth replacement challenging. There are reported localised inflammatory processes impairing healing which can further be exacerbated by trauma caused by conventional tooth replacement. Although there are a few case reports on dental implants in these patients, there is paucity of evidence reporting success rates of dental implants in mucosal disease.

Methods: Aim: To assess the outcome of implants for tooth replacement in a cohort of patients with active oral mucosal disease at the Eastman Dental Hospital over a fourteen year period. Subjects: All patients with oral mucosal disease who had implant treatment were examined to assess the outcome of the treatment and their satisfaction.

Results: A total of 44 implants were placed in 12 patients; 8 oral lichen planus (1 with concomitant plasma cell gingivostomatitis), 2 mucous membrane pemphigoid, 1 erythema multiforme (EM) with extensive scarring, and 1 scleroderma patient. The same implant system was used for all patients except the patient with EM where 2 different systems were used. 40 of the 44 implants were successful with no signs of complications and the implants remain integrated. In the patient with EM where a 2 piece implant system had been used 4 implants survived but with pocketing and bone loss.

Conclusions: All patients reported a positive impact on their quality of life since the implant treatment and expressed high levels of satisfaction. 50% of patient suffered a flare of their mucosal disorder; however, interestingly this was predominantly around the teeth and not the implants.

#17: ORAL MANIFESTATIONS OF ERYTHROMELALGIA

*Kentaro Ikeda, University of Colorado, USA

Background: Erythromelalgia is a rare and frequently devastating disorder that typically affects the skin of the feet or hands, or both, and causes visible redness, intense heat and burning pain. Through PubMed search, we could not identify any reported case of oral involvement of erythromelalgia. We present a case of oral manifestations associated with erythromelalgia.

Case Summary: A 16-year-old female was referred for an evaluation of oral pain. February 2016, she started to have redness and pain on hands/arms. September 2016, she started to have difficulty eating/drinking due to oral pain and was hospitalized due to dehydration. During the hospitalization, she had multiple episodes of redness and pain on hands/arms/feet and subsequently diagnosed as erythromelalgia. For each episode during the hospitalization, she had consequent oral pain with blue discoloration of the tongue. Only alleviating factor was cold water. At the time of discharge, she was prescribed pregabalin that gave her minimal relief. Other past

medical histories include Down's syndrome, Celiac disease, Dysautonomia, Autism, and Gastritis. Other medications include CoQ10, salt tablet, miralax, prenatal vitamin, Prilosec, and Zantac. October 2016, she started duloxetine 20mg TID. Soon after she started the duloxetine, her oral/peripheral pain improved for a week. However, she started to have another flare up that was difficult to control with duloxetine. She then started clonazepam 0.25mg TID that has been helping, but not suppressing the pain completely.

Conclusions: Approximately five percent of those with erythromelalgia have genetic mutation (SCN9A). Our next step is to test the mutation since those with the mutation seemingly respond better to sodium channel blockers than those without the mutation. Although erythromelalgia is very rare and oral involvement is even rarer, oral medicine clinicians should be aware of these potential oral manifestations of neurologic disorders include erythromelalgia.

#18: EPIDEMIOLOGY AND TRENDS OF OROPHARYNGEAL CANCER IN ISRAEL DURING 1970-2013

*Rakefet Czerninski, Shai Levi, Avraham Zini, Hebrew University-Hadassah School of Dental Medicine, Israel

Objectives: In recent years oropharyngeal cancer (OpC) has been mainly described for the increase in Squamous Cell Carcinoma (SCC),. Our aim was to examine the characteristics and trends of OpC in order to contribute to the current knowledge about OpC epidemiology.

Methods: Data on OpC between 1970-2013 was received from the Israel National Cancer Registry, and included patients' age, gender, tumor site and tumor type. Data analysis was performed by using IBM SPSS, Winpepi and Joinpoint Regression Program. $a<0.05$ was deemed statistically significant.

Results: In total, 1,179 cases were reported with male to female ratio of 1.8:1 and mean ages of 61.0Y±16.6 and 64.4Y±15.4 ($p=0.004$), respectively. The main tumor sites were the tonsils (57.7%), base of tongue (BOT) (27.3%) and the oropharynx (15.0%), and main types were SCC (52.2%) and Lymphoma (35.4%). Comparing total diagnosis between 1970-1996 and 1997-2013, the SCC/Lymphoma ratio increased among males from 1.1 to 3.5 ($p<0.001$), while among females it increased from 0.6 to 1.5 ($p<0.001$). Lymphoma diagnosis decreased 2.0 fold in the tonsils ($p=0.001$). SCC rates between 1970-2013 were higher in the oropharynx (Annual Percent Change (APC)=29.9, [19.3,41.5]) than the tonsils (APC=6.1, [1.8,10.4]) ($p=0.001$) and BOT ($p<0.001$), and that is particularly in 50-59Y. The total 5 year survival (5YS) rate increased during 1997-2013 (65.2%) relatively to 1970-1996 (40.9%) ($p<0.001$). During 1997-2013, the 5YS rate for SCC in the tonsils (70.2%) was higher than the oropharynx (55.4%) and BOT (48.2%) ($p<0.001$). As supporting these, the rate of at least 5 years survivors increased between 1970-2008 (APC=2.5, [1.8,3.2]).

Conclusions: Oropharyngeal SCC findings are similar with global data, although its rates in Israel are relatively lower. Oropharyngeal Lymphoma showed gender differences and decrease during the years. Health care providers should be aware of the common sites and tumor types among the genders and age groups.

#19: MULTIFOCAL PIGMENTED LESIONS OF THE GINGIVA IN A CAUCASIAN FEMALE.

*David Ojeda, Faizan Alawi, Eric Stoopler, University of Pennsylvania, USA

Background: Pigmented lesions of the oral mucosa can range from innocuous findings to life-threating conditions. It is important for oral health care providers to be familiar with the range of clinical phenomena associated with pigmented lesions.

Case Summary: A 58-year-old female presented for evaluation of pigmented lesions affecting the maxillary and mandibular gingiva. She stated the lesions had been present for 6 years and were asymptomatic. The patient reported lesions with a similar appearance on the lower lip that were biopsied previously and consistent with melanotic macules. Past medical history was significant for hypertension, hypercholesterolemia, asthma and breast cancer. Medications included levalbuterol, nadolol and cetirizine. Family history was significant for breast cancer (mother) and social history was unremarkable. Review of systems was positive for freckle development. Physical examination revealed a well-nourished, well-developed female in no apparent distress. Extraoral examination revealed multifocal pigmented lesions (brown in color) on the left lower lip. Intraoral examination demonstrated a 7mm x 6mm asymmetric pigmented lesion without indurated borders on the attached gingiva apical to #9. In addition, a 5mm x 4mm asymmetric pigmented lesion without indurated borders was observed on the attached gingiva apical to #28. Both lesions were brown-black in color and differential diagnosis included melanotic macule, nevus and malignant melanoma. Subsequently, the patient underwent incisional biopsy of both lesions and microscopic analysis of each lesion demonstrated acanthotic, spongiotic stratified squamous epithelium exhibiting numerous dendritic, pigmented melanocytes extending throughout the full thickness of the epithelium. Focal exocytosis of lymphocytes was noted in the underlying connective tissue. These findings were consistent with oral melanoacanthoma. No further treatment was recommended for the patient.

Conclusion: Oral melanoacanthoma affecting the gingival tissues is rare, especially in Caucasians. Biopsy of pigmented lesions is mandatory for definitive diagnosis and to rule out neoplastic lesions, such as malignant melanoma.

#20: PLASMABLASTIC LYMPHOMA OF THE ORAL CAVITY AND ITS DIAGNOSTIC DIFFICULTIES: A CASE REPORT.

*Savvas Titsinides, Nikolaos Nikitakis, Ioannis Papadiochos, Stavros Sarivalassis, Dimitra Rontogianni, Konstantinos Tsiklakis, Nikolaos Papadogeorgakis, Dental School, University of Athens, Greece

Background: Plasmablastic lymphoma (PBL) is a rare and aggressive B-cell lymphoma type with poor prognosis. It is associated with EBV infection, predominantly affecting immunocompromised HIV+ patients. Oral cavity, especially jaws, gingiva and palate, is commonly involved; lymph nodes and extranodal sites, such as gastrointestinal tract, liver and bone marrow, may also be affected.

Case summary: A 35-year-old male presented with a painful swelling of the right mandible of several weeks duration. His medical history was non-contributory. Clinical examination revealed extraoral swelling of the right mandible causing facial asymmetry. On intraoral examination, an ulcerated swelling of the right mandibular gingiva was observed, associated with tooth displacement and mobility. Panoramic radiograph identified an extensive radiolucent lesion with ill-defined borders in the right mandible causing a "floating in air" teeth appearance and a pathologic fracture of the inferior border of the mandible. Cone beam CT confirmed the presence of a large lytic lesion with cortical plate perforation, extending from the right ascending ramus to the midline. An intraosseous biopsy was performed and histopathologic examination revealed diffuse infiltration by large pleomorphic cells showing eosinophilic inclusions, atypical mitotic

figures and crushing artifact. Immunohistochemical analysis showed tumor cell positivity for CD138, bcl-2, bcl-6, C-myc and MUM-1/IRF4; the proliferation index Ki-67 was almost 90% and EBV positivity was demonstrated in 100% of cells. Bone marrow biopsy showed no infiltration from lymphoproliferative disorder, while further diagnostic work-up revealed HIV positivity. A final diagnosis of PBL was rendered and the patient was referred to a Hematology-Oncology Department for proper treatment.

Conclusions: Despite its rarity, PBL should be included in the differential diagnosis of intraoral masses, including destructive jaw lesions, especially in HIV positive patients. High index of suspicion and prompt clinical and radiographic evaluation of painful jaw symptoms, possibly masquerading as toothache, are necessary for early diagnosis.

#21: IATROGENIC ORAL HAIRY LEUKOPLAKIA: A CASE REPORT

*Richard James Vargo, Elizabeth Ann Bilodeau, University of Pittsburgh School of Dental Medicine, USA

Background: Oral hairy leukoplakia (OHL) is an oral mucosal lesion caused by Epstein-Barr virus (EBV). OHL is classically seen on the lateral border of the tongue bilaterally in patients with HIV/AIDS. However, cases are rarely reported in HIV-negative patients who have other forms of immunosuppression, including localized immunosuppression from topical steroid application. Lesions can resolve spontaneously after removing the localized form of immunosuppression.

Case Summary: A 67-year-old woman was referred with a chief complaint of a burning mouth that was refractory to dexamethasone elixir and irritation caused by spicy foods and minty products. After a biopsy confirmed the diagnosis of erosive lichen planus, she was prescribed clobetasol propionate (Temovate®) 0.05% mixed with equal parts of Orabase to be applied TID. Despite initial relief, she returned several times over the next six months, and her prescription was refilled because of the development of other lesions, including well-delineated, plaque-like areas of the dorsal tongue and erosive buccal mucosal lesions. A cytologic smear of the tongue lesions revealed the presence of candidiasis, and she was prescribed fluconazole. After she returned one month later following anti-fungal therapy, intraoral exam revealed multiple white, rough patches of the left and right lateral borders of the tongue. Several of these white, plaque-like areas were also seen on the dorsal tongue and appeared to coalesce. Given the clinical appearance of the lesions, a biopsy was performed. The histopathologic features in conjunction with the presence of EBV led to the final diagnosis of OHL. Subsequent HIV testing was negative, and the oral lesions resolved soon after discontinuing the topical steroid.

Conclusion: We report a rare case of OHL developing in the setting of localized immunosuppression. Ultimately, clinicians should keep this possible iatrogenic sequela of topical steroid use in mind when managing oral mucosal diseases.

#22: DEVELOPMENT OF MULTIPLE ORAL SQUAMOUS CELL CARCINOMAS IN THE CONTEXT OF MULTIFOCAL LEUKOPLAKIA. A CASE REPORT.

Maria Georgaki, *Savvas Titsinides, Argyris Daskalopoulos, Nikolaos Nikitakis, Dental School, National and Kapodistrian University of Athens, Greece

Background: Oral squamous cell carcinoma (OSCC) is often preceded by localized or multifocal potentially malignant disorders (PMD), most commonly leukoplakia. The term field cancerization refers to the presence of diffuse genetic-epigenetic alterations and explains the increased risk for developing tumor relapses and new primary cancers. The aim of this study is to present an

interesting case of multiple OSCC in the context of multifocal PMDs and to discuss their possible pathogenesis, in terms of development of second primary tumors vs. recurrences.

Case summary: A 72 years old female was initially referred for evaluation of diffuse white plaques in the maxillary alveolar mucosa and tongue; the lesions were histopathologically diagnosed as severe epithelial dysplasia and hyperkeratosis, respectively, and were removed by laser. Approximately one year before, the patient had been diagnosed with OSCC of the right mandible extending to the floor of mouth and tongue, which had been treated with surgical resection and radiation therapy without evidence of recurrence. The patient was placed in a close follow-up schedule and, in the next eight years, numerous new oral leukoplakias appeared ranging histologically from epithelial hyperplasia to severe epithelial dysplasia. Moreover, she developed three additional intraoral OSCC (in the upper labial mucosa, the right maxillary alveolar mucosa and the left maxillary gingiva, the latter of which recurred within eight months) as well as two OSCC of the vermillion border of the lower lip.

Conclusions: Patients with oral PMD and OSCC often develop new precancerous and/or cancerous lesions, despite complete surgical removal of the original tumor. Distinction between development of recurrences vs. second primary tumors is not always straightforward. A better understanding of the genetic and molecular basis of so called field cancerization may explain the predisposition of developing multiple oral lesions and contribute to their prevention, early diagnosis and more effective management.

#23: MEDICATION-RELATED OSTEONECROSIS OF THE JAW IN CANCER PATIENTS: DESCRIPTIVE ANALYSIS OF 273 PATIENTS

*Adepitan Owosho, Haley Freymiller, Adi Sax, Kant Wu, SaeHee Yom, Joseph Huryn, Cherry Estilo, Memorial Sloan Kettering Cancer Center, New York, USA

Objective: In this study, we conducted a descriptive analysis of cancer patients who developed medication-related osteonecrosis of the jaw (MRONJ).

Methods: We reviewed the medical and dental records of patients diagnosed with MRONJ in the Dental Service of Memorial Sloan Kettering Cancer Center between March 1998 and September 2016. Onset of MRONJ was analyzed between medication types and groups.

Results: A total of 273 (M=120, F=153) patients were identified. Primary cancer diagnoses were breast cancer (n=118), multiple myeloma (n=65), prostate cancer (n=48), renal and lung cancers (each, n=12). Breakdown of patients according to medication included patients on zoledronic acid (Z) alone (n=105), denosumab (D) alone (n=28), pamidronate (P) alone (n=19), bevacizumab (B) alone (n=7), Ipilimumab alone (n=1) and a combination in 113 patients. In 58% of patients MRONJ was precipitated by trauma. The MRONJ stages at diagnosis were: 0 (8%), 1 (50%), 2 (37%) and 3 (5%). There was an increase in the number of patients diagnosed with MRONJ in 2004 from an average diagnosis of 2.3 (0-6) patients before 2004 to 24 patients diagnosed in 2004. The year 2015 marked the highest number of patients (n=31) diagnosed with MRONJ. The median number of doses at onset of MRONJ was 14 (Z, 1-112), 11.5 (D, 1-46), 33.5 (P, 2-84) and 14 (B, 8-18), with a significant difference between Z, D and P (p = 0.003; Kruskal-Wallis). The median onset of MRONJ in doses for patients on a combination of Z+P, Z+D and Z+B was 36, 26 and 25 doses, respectively. As of last follow-up, resolution of the MRONJ was noted in 29% of patients, progressed in 27%, was unchanged in 23% and partially resolved in 21%.

Conclusion: Trauma remains a risk factor for MRONJ. Denosumab may be associated with an earlier occurrence of MRONJ compared to zoledronic acid and pamidronate.

#24: CLINICAL STATISTICAL REVIEW OF HUNTER GLOSSITIS

*Masahiro Morimoto, Noritaka Ohga, Takuya Asaka, Jun Sato, Chiharu Satoh, Yutaka Yamazaki, Yoshimasa Kitagawa, Hokkaido University Graduate School of Dental Medicine, Sapporo, Japan

Objectives: Hunter's glossitis is a lesion manifesting as one of the mucosal symptoms associated with pernicious anemia. This disease is caused by impairment of absorption of Vitamin B12 in the body due to deficiency of intrinsic factor. Many patients complain of taste disorder with burning tongue, pain. We reported clinical statistics of Hunter's glossitis patients who visited our department.

Methods: We treated five patients with Hunter's glossitis. They were referred to Department of Oral Diagnosis and Medicine, Hokkaido University Hospital between December 2005 and September 2012. We examined chief complaint, therapeutic experience of gasteorectomy, oral sign and symptom and candida albicans infection. Trace mineral blood test was carried out. In the oral symptom, the areas of atrophy in the tongue were recorded.

Results: The 3 men and 2 women studied were between 51 and 74 years old. All five patients have undergone gastrectomy. The patient's chief complaints were dysgeusia or tongue pain, and the initial symptoms were associated with dysgeusia in all cases. Atrophic site of the tongue papilla was varied, 3 cases confined to tongue tip, 1 case was dorsal lingual, 1 case was whole tongue. One case confirmed Candida infection. Abnormal findings included decreased serum concentration of vitamin B12 in all cases. Vitamin B12 replacement treatment was performed in all cases. Within 2 months tongue papilla regenerated, tongue pain, dysgeusia improved in all cases.

Conclusions: All five cases manifested signs of red, smooth tongue, although the changes varied in degree from patient to patient. It is difficult to judge the change of the tongue in the initial symptom. This reports findings support that it is important to measure vitamin B12 for screening iron-deficiency anemia and pernicious anemia when we encounter patients with dysgeusia or tongue pain.

#25: AN UNEXPECTED ORAL FINDING: A CASE OF GRANULOCYTIC SARCOMA

*Branden R. Brar, Sonal S. Shah, Joan A. Phelan, Alexander R. Kerr, New York University College of Dentistry, USA

Background: Acute myeloid leukemia (AML) is a myeloproliferative malignancy with 20,000 new diagnoses and 10,000 deaths in the United States annually. A rare manifestation that may accompany or precede the disease is granulocytic sarcoma (GS). Also known as myeloid sarcoma or chloroma, GS is an extramedullary tumor composed of immature myeloid cells.

Case summary: A 61-year-old female with a 1-month history of progressive fatigue, low-grade fevers and intra-oral lesions was seen by three outside dental and medical providers with no diagnosis rendered before presenting to the NYU College of Dentistry. The physical examination revealed a buccal mass and generalized gingival enlargement. Laboratory tests were ordered and demonstrated a significantly increased white blood cell count and a markedly decreased platelet count. 90% blasts were seen on peripheral smear. Magnetic resonance imaging showed a mass within the left buccal space. This was found to be granulocytic sarcoma upon histopathologic evaluation. Bone marrow biopsy subsequently confirmed the diagnosis of acute myeloid leukemia with normal cytogenetics. The patient underwent induction chemotherapy and achieved complete

remission with resolution of the mass and gingival enlargement. The patient is being evaluated for allogeneic stem-cell transplantation.

Conclusions: AML patients can present with oral manifestations, including granulocytic sarcoma. This case highlights the need for a careful history and examination followed by appropriate laboratory testing to help make the diagnosis.

#26: SEVERE CASE OF PEMPHIGUS VULGARIS: A CLINICAL PRESENTATION

*L Fuertes, R Delgado-Rodriguez, G Salazar, General Practice Residency University of Puerto Rico, Puerto Rico

Background: Pemphigus vulgaris is a rare autoimmune disease that is characterized by blisters and erosions on the skin and mucous membranes. It is mediated by circulating autoantibodies directed against keratinocyte cell surfaces. A potentially life-threatening disease, it has a mortality rate of approximately 5-15%. Pemphigus vulgaris incidence varies from 0.5-3.2 cases per 100,000 population. Prognosis is worse in patients with extensive pemphigus vulgaris and in older patients. Diagnosis is made by clinical findings, routine histopathology and direct immunofluorescence (DIF).

Case Summary: This case describes the management of a 72-year-old Puerto Rican male with medical history of hypertension, HSV II and hypercholesterolemia. Oral examination showed: generalized redness and soreness in oral mucosa, bulla at the right buccal mucosa and lateral borders of tongue. An initial biopsy performed at the clinic led to diagnosis of Pemphigus Vulgaris. Referral to dermatologist was indicated to treat several extraoral lesions. Dermatologist's biopsy and histopathology findings did not correlate with Pemphigus vulgaris diagnosis and described as a HSV II exacerbation. Three months later, a final biopsy was performed. At this time generalized skin lesions were present. The final diagnosis after DIF was consistent with Pemphigus Vulgaris. Clobetasol 0.05% gel, Dexamethasone elixir 0.5mg/5ml and Mycelex 10mg were prescribed. A month later, the patient arrived at the clinic with his whole body covered by bullae and scarring lesions characteristic of a severe episode of PV. Patient was referred to the dermatology department and admitted to the hospital and continues follow up appointments. Dermatopathology at Johns Hopkins, Md, administered Rituximab IV and significant decrease of lesions was detected.

Conclusions: The mouth is often the harbinger of widespread diseases with consequent opportunity to intervene early. The purpose of this report is to enhance the understanding of the oral presentation of PV that is easily misdiagnosed and overlooked by dentist and other health professionals.

#27: MYCOBACTERIUM AVIUM COMPLEX (MAC) OF THE MAXILLA: A CASE REPORT

*Pamela Gardner, NIH/NIDCR, USA

Background: Mycobacterium avium complex (MAC) is primarily a pulmonary pathogen that affects immune compromised individuals (eg. AIDS, hairy cell leukemia, immunosuppressive chemotherapy, genetic deficiency of IFN-gamma receptor expression or IFN-gamma production). MAC is ubiquitous in the environment and can be isolated from fresh water and salt water worldwide. Common sources of MAC include aerosolized water, piped hot water systems, bathrooms, house dust, soil, birds, and farm animals. In this clinical setting, MAC has been associated with osteomyelitis; tenosynovitis; synovitis; and disseminated disease involving the lymph nodes, the CNS, the liver, the spleen, and the bone marrow.

Case Summary: A 57 year old female with medical history of disseminated MAC (x-cluster) (M. fortuitum and avium) (Documented history of D-MAC since the 1980s) and interferon gamma receptor 1 deficiency (autosomal dominant type, diagnosed 1990) with evidence of progressive disease despite prolonged therapy with antimicrobials and IFN gamma injections and matched related hematopoetic stem cell transplant (2016). Chronic MAC involves skin, sinuses, and cervical lymph nodes. Initially developed localized alveolar recession and periapical lesion associated with Tooth #7 in 2008. Tooth treated with root canal but eventually extracted and restored with a three unit fixed partial denture. By 2015, a bone fenestra developed in the buccal bone superior to the pontic. A biopsy confirmed MAC. Twelve months later, the lesion enlarged to involve the root of the mesial abutment (Tooth #8) and the midline of the palate developed clusters of ulcerations. Twelve months later, the right maxillary defect crossed the midline to involve the root of Tooth #9. The ulcers coalesced on the palate and the bone eroded slowly over time resulting in an oroantral fistula and the need for an obturator.

Conclusion: We report a rare case of progressive disseminated MAC involving the maxilla in an adult.

#28: MENTAL NEUROPATHY IN PATIENTS WITH DRUG-INDUCED OSTEONECROSIS OF THE JAW

Tal Weissman, Towi Sorel Lazarovici, Sara Whitefield, Waseem Abboud, Ran Yahalom, Meir Gorsky, *Noam Yarom, Sheba Medical Center, Israel

Objectives: The aim of this study was to describe the clinical characteristics and the management outcome of mental neuropathy associated with drug-induced osteonecrosis of the jaw (ONJ).

Methods: The files of all patients diagnosed with drug-induced ONJ, who experienced sensory changes and/or neuropathic pain within the mental nerve distribution area, were retrieved. All patients were treated at the Oral Medicine Clinic, Sheba Medical Center, Tel-Hashomer Israel. ONJ was diagnosed according to the 2014 AAOMS diagnostic criteria. Demographics, medical background, characteristic of the sensory changes / neuropathic pain and response to treatment were reviewed.

Results: Thirty five patients, 8 males and 27 females between 40 and 91 years of age (mean 67.6), with mental neuropathy associated with ONJ were included in the study. The indication for antiresorptive treatment was breast cancer (N=13), osteoporosis (N=10), prostate cancer (N=5), multiple myeloma (N=4), lung cancer (N=2) and renal cell carcinoma (N=1). Comorbidities included hypertension (N=18) and diabetes mellitus (N=5). All patients reported some sensory changes. Eleven (31%) experienced neuropathic pain. Long-term antibiotic treatment improved sensory changes in 17 (49%) patients. Neuropathic pain was relieved in 6 (55%) patients with the use of long term antibiotics. The remaining 5 were treated with antidepressants, anticonvulsants, opioids and cannabis with satisfactory results.

Conclusions: Long-term antibiotics may be beneficial in alleviating symptoms associated with mental neuropathy in ONJ and should be considered as the first line of treatment.

#29: DIAGNOSIS OF FANCONI ANEMIA IN A PATIENT WITH ORAL LESIONS.

*Lujain A. Homeida, Eric T. Stoopler, Thomas P. Sollecito, University of Pennsylvania School of Dental Medicine, USA

Background: Fanconi anemia (FA) is a rare autosomal recessive disorder characterized by a broad spectrum of congenital abnormalities and predisposition to hematologic and solid malignancies.

Case summary: A 37-year-old Caucasian male with a family history of FA presented for evaluation of symptomatic oral lesions of two years' duration. Multiple intraoral biopsies were done previously and were consistent with mild to moderate dysplasia with the latest biopsy completed 2 years ago. Mild improvement of the lesions was reported with topical steroid use until onset of more extensive lesions 7 months prior to consultation. The remainder of the medical history was unremarkable. He was not taking medications and had no allergies. Family history revealed a brother who died of aplastic anemia at age 12. Physical examination revealed a well-nourished male with short stature. Extra-oral examination demonstrated café au lait spots on the right arm with a hypoplastic thumb. Intraoral exam showed generalized areas of erythroleukoplakia extending palatally from teeth #13 -16 to the midline and posteriorly to the soft palate. A fixed lymph node (LN) of approximately > 2 cm was palpated along the right anterior cervical area which prompted MRI of the head and neck. Imaging revealed three distinct tumors involving the right piriform sinus, the left pharyngeal wall and a metastatic right level 2A LN. The patient was referred to head and neck surgery, oncology and genetics for further evaluation. Diagnosis of FA with reversion mosaicism was confirmed by genetic testing. In addition, the patient was diagnosed with a right pyriform sinus squamous cell carcinoma (SSCa) and esophageal SCCa and subsequently underwent surgery followed by radiation and chemotherapy.

Conclusions: This case highlights the importance of obtaining a detailed medical history, including a family history, performing a through physical examination and value of multidisciplinary care for appropriate patient management

#30: DISRUPTED TOOTH FORMATION CAUSED BY CHEMOTHERAPY AND RADIOTHERAPY FOR UNDIFFERENTIATED SARCOMA IN THE RIGHT NASAL CAVITY

*Aki Yamamoto, Yoshinori Jinbu, Yasuhiro Ueno, Tadahide Noguchi, Yoshiyuki Mori, Jichi Medical University, Japan

Background: The number of long-term survivors of pediatric malignancy has recently increased due to improved medical technology and rapid advances in therapy. This report describes disrupted tooth formation caused by chemotherapy and radiotherapy for undifferentiated sarcoma in the right nasal cavity.

Case summary: The patient was a boy aged 2 years and 10 months old. He had a neoplastic lesion that extended from the right nasal cavity to the orbit was pointed out by a local doctor, and he presented at the pediatrics department of our hospital at 1 year and 11 months of age. He was diagnosed with an undifferentiated sarcoma and received chemotherapy following the CWS-91 protocol group C and radiotherapy (Σ45 Gy). Imaging showed remission of the sarcoma at 2 years and 10 months of age,and treatment was stopped. He was referred to our department for a medical examination to evaluate retarded maxillary growth.At the time of the first medical examination at our department,he was 86.5 cm tall and weighed 11.0 kg. Deciduous teeth appeared normal, and retarded growth was not evident in the upper jaw. Permanent tooth germ appeared normal on MRI images, so he was followed up once every six months. He hit his front tooth against something at

5 years and 1 month of age and visited our department again. X-ray images showed that most of his maxillary permanent teeth were hypoplastic.

Conclusions: Whereas improved treatments have led to an increase in the number of long-term survivors of pediatric malignancies, a tooth formation disorder resulted from chemotherapy and radiotherapy in the present case. We believe that long-term oral management is necessary for such survivors considering that chemotherapy and radiotherapy can result in teeth failing to grow and dysodontiasis of the jawbone.

#31: THE ROLE OF AND EARLY AND PERIODIC FOLLOW-UP IN MINIMIZING ORAL COMPLICATIONS FOLLOWING HEAD AND NECK RADIATION THERAPY

*Haley Freymiller, Cherry Estilo, Adepitan Owosho, Adi Sax, Joseph Huryn, Memorial Slon Kettering Cancer Center, USA

Objectives: Oral complications of radiation therapy (RT) resulting from injury to the salivary gland, bone, oral mucosa and soft tissue can greatly impact patient's well-being and quality of life. Therefore, ongoing and periodic surveillance following RT is essential to minimizing and preventing oral complications. The goal of this study is to compare oral complications and overall oral/dental health of patients previously treated with RT for head and neck cancer who: (1) Returned for post-RT dental/oral follow-up within the year following RT completion and at least once thereafter (Group A) ; and those who: (2) Were lost to follow-up for at least one year (Group B). We hypothesize patients in Group A are less likely to develop oral complications (eg, osteoradionecrosis) and dental disease (eg, dental caries and periodontal disease) than those in Group B.

Methods: The records of head and neck cancer patients (n=597) referred to the Dental Service of Memorial Sloan Kettering Cancer Center between 2005-2016 for pre-RT evaluation were reviewed. Patients were assigned to Groups A (n=519) or B (n=78) based on the above criteria. Data collected included pre- and post-RT oral hygiene and periodontal status, DMFT scores and development of ORN.

Results: Preliminary review was completed for 17 patients from each of the 2 groups. Of the patients in Group A, 1 patient developed ORN, 10 reported xerostomia, 7 developed post-RT caries with the average being 2/patient, and DMFT scores increased by 1.61. In Group B, 4 patients developed ORN, 6 reported xerostomia, 5 developed post-RT caries with the average being 7/patient, and DMFT scores increased by 1.82 post-RT.

Conclusions: Based on preliminary data, patients in Group B developed more ORN and developed a greater number of caries than patients in Group A. We plan to continue to collect data from the complete cohort and perform a statistical analysis.

#32: SALIVARY LEVELS OF INTERLEUKIN-8 AND GROWTH FACTORS ARE MODULATED IN PATIENTS WITH GEOGRAPHIC TONGUE

*Amal Dafar, Maria Bankvall, Vegard Garsjö, Mats Jontell, Hulya Cevick-Aras, Institute of Odontology, Sahlgrenska Academy, University of Gothenburg, Sweden

Objectives: Cytokines and growth factors may be critical for the maintenance of the tongue papillae. Therefore, it is of interest to study these biomarkers in tongue lesions such as geographic tongue (GT), which is characterized by papillary atrophy. Thus, the specific aim of this study was to investigate the association between GT and salivary biomarkers including IL-8, VEGF and EGF.

Methods: Sandwich ELISA was used to measure these biomarkers in un-stimulated whole saliva samples collected from 34 patients with GT (males: n = 20, females: n = 14; mean age, 51.1 ± 2.9 years) and 38 controls (males: n = 19, females: n = 19; mean age, 51.2 ± 2.7 years).

Results: In general, IL-8 was found to be higher in patients with GT compared to controls ($p < 0.001$). When subgroups were studied, both male and young female patients with GT showed increased IL-8 levels ($p < 0.01$ and $p < 0.05$ respectively). The former group had also significantly higher levels of EGF ($p < 0.05$), contrary to the young female patients who showed siginificantly reduced levels of EGF ($p < 0.05$) as well as VEGF ($p < 0.05$). A significant increase of IL-8 and VEGF was noticed among GT patients with hypertension. However, severity of GT lesions was positively correlated with IL-8 levels. Furthermore, presence of fissured tongue (FT) and tongue impressions (TI), a sign of para-functional habits, influenced both levels of IL-8 and VEGF.

Conclusion: We found a remarkable increase in salivary levels of IL-8 in patients with GT. A dual increase of IL-8 and VEGF in patients with GT was associated with presence of hypertension, FT and TI. *Abbreviations:* interleukin-8 (IL-8), vascular endothelial growth factor (VEGF) and epidermal growth factor (EGF).

#33: COORDINATED CARE OF A PREGNANT PATIENT WITH NASOPHARYNGEAL CARCINOMA

*Takako I. Tanaka, Rabie M. Shanti, University of Pennsylvania, USA

Background: Nasopharyngeal carcinoma (NPC) is a complex neoplasm, not only due to its obscure anatomic site of involvement that is intimately associated with critical anatomic structures, but also due to its link to Epstein-Barr virus (EBV) infection. Today, due to its radio- and chemo-sensitivity, patients with early stage NPC will receive radiotherapy (XRT) and patients with advanced NPC will receive concurrent chemoradiotherapy. However, the management of patients with NPC can be significantly complicated in patients diagnosed with NPC during pregnancy.

Case summary: A 35-year-old female was referred to the oral medicine clinic for pre-radiation therapy oral evaluation for her recently diagnosed clinically staged IVB NPC. Induction chemotherapy had been initiated one week prior to her oral medicine evaluation. Patient was 30 weeks pregnant at this time and was scheduled for labor induction 4 weeks prior to commencement of XRT. Medical history was significant for gestational diabetes. She reported mild lethargy and nasal stiffness, but otherwise felt well without any complaints from her oral cavity. Examination revealed a large neck mass which previous needle biopsy confirmed EBV-positive poorly differentiated NPC. Intraorally, patient had generalized gingivitis with heavy calculus accumulation and multiple grossly decayed teeth with questionable restorability. Mild ulcerative lesions were noted on the soft palate, anterior tonsillar pillars, and labial mucosa that were consistent with chemotherapy-induced oral mucositis. Herpes simplex virus (HSV) culture of the lower labial mucosa was positive for HSV type 1. In consultation with medical providers, we prescribed Acyclovir as well as a palliative mouth wash. Dental care was coordinated with her general dentist.

Conclusion: This case highlights the importance of coordinated care among health care providers for a pregnant patient with PNC. It is necessary for oral care professionals to keep ourselves abreast of such challenging clinical scenarios.

#34: INTRACTABLE EVEROLIMUS-ASSOCIATED STOMATITIS IN A JAPANESE HEART TRANSPLANT RECIPIENT

*Takuya Asaka, Jun Sato, Noritaka Ohga, Tetsuya Kitamura, Masanobu Shindoh, Yoshimasa Kitagawa, Graduate School of Dental Medicine, Hokkaido University, Japan

Background: Everolimus, the mammalian target of rapamaycin inhibitors is used to treat various malignant tumor as anticancer agent or immunosuppress for solid organ transplant recipients. We report a case of intractable stomatitis in a heart transplant recipient.

Case Summary: The patient was a 51-year-old male of heart transplant recipient who had been receiving everolimus at 2.5 mg/day, tacrolimus and many other drugs. One year before (post-transplant 5 months), he was diagnosed with post transplantation lymphoproliferative disorder (PTLD) and cured by chemotherapy. In August 200X, he suffered from unidentified leukopenia, and stomatitis developed at the same period. For one month, stomatitis of lips and the buccal mucosa turned worse and he was referred to our outpatient clinic by cardiologic attending physician. Based on an initial assessment and history, it was suspected that these stomatitis were related to everolimus. However, the discontinuation of everolimus was difficult because of the PTLD history. Due to worsening stomatitis, oral ingestion became difficult and the dosage of everolimus was reduced to 0.5 mg/day at 3 weeks after first visit. Oral ulcers turned worse for 5 weeks and developed to soft palate, histopathology of lower lip revealed non-specific ulcer with scarce inflammatory lymphocytic infiltrate. Everolimus blood level continued rising for 3 weeks after the dose reduction of everolimus and finally decreased to the trough concentration at 6 weeks after first visit. A tendency to healing of stomatitis was confirmed for the first time at this period. In January 200X+1, the leukopenia was not improved, but all stomatitis completely healed.

Conclusions: The immunosuppressant everolimus has been demonstrated to have various advantages in anti-malignancy effect, maintenance of renal function. However, it is necessary to pay attention to a side effect of high-frequency stomatitis and discuss the discontinuation or dose reduction with their attending physician. Furthermore, the differentiation between the severe stomatitis and PTLD is important.

#35: OROFACIAL GRANULOMATOSIS

*Amr Bugshan, Bhavik Desai, Mark Lerman, Tufts University, School of dental medicin, USA

Background: Orofacial granulomatosis (OFG) is relatively uncommon inflammatory condition that clinically manifests with oral ulcers, edematous swelling of the oral mucosa, and tender erythematous lesions. Histopathologically, OFG is characterized by clusters of noncaseating granulomatous inflammation. The differential diagnosis for granulomatous disorders includes infectious diseases such as tuberculosis and deep fungal infections. Also, systemic granulomatous conditions including Crohn disease may clinically present with similar oral lesions. Furthermore, local allergens or foreign material may elicit inflammatory responses resembling OFG. Further patient evaluation is necessary to confirm a diagnosis of OFG by exclusion of other granulomatous conditions.

Case Summary: A 15-year-old male presented with a chief concern of swelling of the gingiva, palatal mucosa, buccal mucosa, and lips. Gingival tenderness was also reported. The patient's medical history was unremarkable and he denied taking any medications. Intra-oral examination revealed bilateral fissuring and edematous swelling of the buccal mucosa and soft palate. Multiple linear ulcers were noted on the hard palatal mucosa. Marked erythema involved the facial gingiva

between the maxillary canines, with a tender linear ulcer on the facial gingiva between teeth #s 7-8. Incisional biopsies were performed on the right buccal mucosa and right alveolar mucosa. Microscopic examination revealed noncaseating granulomatous inflammation. Histochemical stains for microorganisms were negative for bacterial and fungal infections. Hematologic workup for Crohn disease was inconclusive. Although endoscopy was recommended for confirmation, the patient deferred this procedure due to the absence of gastrointestinal symptoms. Although the clinical findings are currently consistent with a diagnosis of OFG, it remains possible that gastrointestinal symptoms may subsequently develop and a diagnosis of Crohn disease may be re-considered at a later time.

Conclusions: This case illustrates the importance of considering systemic diagnoses in the differential diagnoses of oral granulomatous lesions. Careful follow-up is indicated and early disease diagnosis may improve treatment outcomes.

#36: ACADEMIC STRESS & TEMPOROMANDIBULAR DISORDER AMONG DENTAL STUDENTS

Kazi Ahsan Jamil, * Nik Mohd Mazuan Nik Mohd Rosdy, Farlyana Alia Azizan, Halimah Mohd Nasaruddin, Khairil Anuar Md. Isa, Faculty of Dentistry, Universiti Teknologi MARA, Malaysia

Objectives: The objectives of this study were to determine the prevalence of TMD in dental students in Universiti Teknologi MARA, and to identify risk factors that may contribute (social vs academic) to TMD in dental students.

Methods: In a cross-sectional study, 202 dental undergraduates students, aged 19 to 28 years from year 1 to year 5 were recruited in our study. The respondents have undergone an assessment using a Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) and Dental Environment Stress (DES) questionnaires. TMD was diagnosed by using RDC/TMD axis I and II. The DES questionnaire was based on five-point Likert scale, from a range of not pertinent to very stressful. Stress scores were measured from seven stressor domains. Statistical analysis was performed using Fisher-exact test using SPSS 20.0. Significance level was set at $P \leq 0.05$.

Results: 13.3% of the students were diagnosed with TMD, The higher prevalence of TMD was detected among female students. Muscle disorder, disc displacement, and other joint disorders were diagnosed respectively in 1.5%, 9.4%, and 4.4%. Present study demonstrated that academic stress is significantly higher than social stress among all dental students. Among the domains in the academic stress, performance pressure found to be the highest to effect the students.

Conclusions: No significant association between TMD and academic stress observed in our present study warrants further investigation to examine the underlying molecular mechanism of academic stress in TMD initiation and progression.

#37: LISINOPRIL INDUCED ORAL LICHENOID REACTION

*Amr Bugshan, Alaa Bukhari, Bhavik Desai, Tufts University School of Dental Medicine, USA

Background: Oral lichenoid reactions refer to lesions that clinically and histopathology are indistinguishable from idiopathic lichen planus. Antihypertensive drugs such as angiotensin converting enzyme (ACE) inhibitors, among other medications, are reported in the literature as being associated with oral lichenoid reactions.

Case Summary: A 77-year-old female presented to the oral medicine clinic complaining of a 6-month history of recurrent oral ulcerative lesions inside her oral cavity on her buccal mucosa,

labial mucosa and ventral tongue. Recent history of surgical implant placement for subsequent overdentures restoration aggravated her symptoms. Oral ulceration was not relieved by courses of systemic antibiotics (levofloxacin and clindamycin) and topical antifungal (nystatin) oral rinse. Medical history was significant for hypertension, atrial fibrillation, hypothyroidism, GERD, and controlled type II diabetes mellitus. Medications included lisinopril, warfarin, levothyroxine and lansoprazole. Patient reported a recent increase in dose of lisinopril around the onset of lesions. Previous biopsy performed by an otolaryngologist was consistent with non-specific ulceration and mucositis. Upon intraoral examination, oral ulcerative lesions were found on tongue and cheeks bilaterally, and floor of mouth. Two incisional biopsies were performed on the right buccal mucosa for hematoxylin and eosin (H&E) stain and direct immunofluorescence (DIF). Based on both clinical and histopathological features, the oral ulcerative lesions were consistent with oral lichenoid reactions. Patient was reluctant to start topical steroid therapy for her oral lesions. After consultation with her physician, patient discontinued lisinopril and substituted it with amlodipine, a calcium channel blocker. Complete resolution of the patient's lichenoid lesions was observed three weeks after withdrawal of lisinopril.

Conclusion: This case illustrates the importance of considering the role of medications including ACE inhibitors in the development of oral lichenoid lesions. Removing triggering agents of oral lichenoid reactions, when possible, may cause lasting symptomatic remission without medicating the patient with corticosteroid therapy.

#38: OROFACIAL PAIN AND HEADACHE ATTRIBUTED TO EXFOLIATIVE GLAUCOMA

*Noboru Noma, Kosuke Watanabe, Yoshiki Imamura, Nihon University of Dentistry, Japan

Background: Exfoliative syndrome is the most common identifiable cause of open-angle glaucoma. We present a patient who originally presented for orofacial pain, and eventually received a diagnosis of exfoliative glaucoma.

Case summary: A 77-year-old female patient presented to the Orofacial Pain Clinic for the treatment of left-sided facial pain and headache that had been present for 7 months. For approximately three years prior, she had been suffering from a cataract and open-angle glaucoma. The chief complaint of the patient was orofacial pain, redness of the eye, drooping eyelids and eyelid edema. Hemicrania continua and possible cluster headache were considered, and indomethacin was prescribed. However, indomethacin did not reduce the headache. She then was referred to an ophthalmologist to rule out a secondary headache. Intraocular pressure was measured at 13 mm Hg in the right eye and 67 mm Hg in the left eye. Exfoliative glaucoma was made by the ophthalmologist. Glaucoma and cataract surgery procedures were performed. She became completely free of symptoms with 15 mm Hg of intraocular pressure in the left eye. Orofacial pain may be caused by exfoliative glaucoma. (chief complaint, other pertinent historical and examination data, diagnostic investigations and results (laboratory, radiographic, etc.), and therapeutic or management strategies/outcomes).

Conclusions: Dentists need to consult appropriate medical specialists or refer such patients for specialized care.

#39: EOSINOPHILIC GRANULOMA WITH VIRAL CYTOPATHIC EFFECT IN AN IMMUNOSUPPRESSED PATIENT

*Varun Iyer, Michael Groves, Rafik Abdelsayed, Katharine Ciarrocca, The Dental College of Georgia, USA

Background: Eosinophilic Granuloma (EG), also known as Eosinophilic Ulcer and Traumatic Ulcerative Granuloma with Stromal Eosinophilia, is an uncommon, chronic benign lesion of the oral mucosa which commonly presents as a solitary ulceration with indurated borders affecting any area of the oral cavity. EG may resemble traumatic ulcerations, primary syphilis, or squamous cell carcinoma. The etiology of this lesion is poorly understood and has often been linked to trauma from injury or psychological stress. In many cases, EG lesions resolve spontaneously. However, there have been cases where medical management was initiated.

Case Summary: A 59-year-old African American male presented with complaints of a "sore on tongue." He reported that the lesion began as a small area one month prior with a vague history of trauma. His medical history was significant for hypertension, COPD, HIV, and multiple myeloma. He was taking aspirin, atorvastatin, ceftriaxone, docusate, enalapril, HCTZ, vancomycin, and promethazine. His social history was significant for a 42-pack-year tobacco use and a 6 pack of beer per week. Upon examination, there was a 2.5 cm mixed white/red firm lesion with areas of ulceration which extended from the anterior dorsum of the tongue onto the ventral surface of the tongue. A 1 cm, firm, tender, moveable submental lymph node was also palpated. A punch biopsy was performed revealing an eosinophilic ulcer with viral cytopathic effect of herpes infection. When the patient returned 10 days later, the lesion had resolved.

Conclusion: Eosinophilic ulcers are an uncommon finding affecting the buccal mucosa, tongue, or lips. Due to their ambiguous appearance, they are commonly mistaken for other oral pathologies. However, eosinophilic ulcers are self-limiting in nature and often resolve spontaneously. Biopsy is indicated, especially in the immunosuppressed patient.

#40: MULTIPLE PYOGENIC GRANULOMAS OF THE TONGUE: REPORT OF 2 CASES

*Michiyo Yamakawa, Yoshinori Jinbu, Yukio Oyatsu, Tadahide Noguchi, Yoshiyuki Mori, Jichi Medical University, Japan

Background: A pyogenic granuloma is a pedunculated polyp of the skin and mucosa. Although the influence of the endocrine system, infection or trauma has been mentioned, the exact pathogenesis of this condition remains obscure. We experienced two cases of multiple pyogenic granulomas of the tongue margin caused by immunosuppressive drugs.

Case summary: [Case 1] A 74- year-old man consulted us for erosions and pain in the oral cavity . He had painful erosions on the buccal mucosa, upper and lower lips and tongue. He had been diagnosed as paraneoplastic pemphigus and had been treated with steroids. Multiple pedunculated polyps on the tongue margin were observed. One polyp was resected and histopathologically diagnosed as pyogenic granuloma. The other polyps gradually reduced after using a splint to protect the tongue from irritation by the teeth. [Case 2] The patient was a 43- year- old man with Hodgkin's lymphoma. He had developed graft-versus-host disease after hematopoietic stem cell transplantation and had been treated with immunosuppressant drugs. He complained of oral mucositis, which we treated with mouth care. Although the inflammatory symptoms on his lips and buccal mucosa healed adequately, healing of the lateral margin of the tongue was delayed. Two months after the hematopoietic stem cell transplantation, a pedunculated polyp was observed on the tongue margin, following which multiple polyps developed on both sides of the tongue in

2 weeks. One polyp was surgically removed and was histopathologically diagnosed as pyogenic granuloma.

Conclusions: We experienced multiple pyogenic granulomas in patients with systemic diseases. In these cases, steroids and immunosuppressants had been used for treatment of their primary diseases. Immunosuppression is believed to be one of the factors leading to development of pyogenic granulomas in such patients.

#41: DUAL STEROID THERAPY FOR REFRACTORY ORAL EROSIVE LICHEN PLANUS.

*Nelson Rhodus, University of Minnesota, USA

Objectives: Erosive lichen planus is a painful, autoimmune oral condition. Our group has been engaged treating erosive lichen planus for many years. Often the first-line, standard treatment is utilizing a topical steroid, however there are many cases where this treatment is ineffective. Therefore, this project involved the evaluation of utilizing a dual steroid approach to treat this annoying condition.

Methods: We evaluated 426 subjects(mean age: 66.3 yrs.; M:32 %, F:68%) with recurrent erosive lichen planus over a period of 6 years. The subjects served as their own control group. After biopsy-proven diagnosis, all patients were initiated on topical fluocinonide (Lidex®) gel, applied BID for 14 days. The subjects returned after 2 weeks for evaluation and in the refractory cases, additional therapy.

Results: When the subjects returned after 2 weeks; 205 subjects (48.1 %) continued to report significant symptoms(> 5 VAS) and presented with persistent oral lesions (>3 mucosal index). These subjects were then started on a dexamethasone oral rinse prior to placing the topical fluocinonide gel BID for 14 days. Upon follow-up, 166 (81 %) of those subjects reported significant improvement(<2 VAS) as well as demonstrated significant reduction in the clinical lesions(~ 1 mucosal index).

Conclusions: These findings indicate the clinical efficacy of utilizing dual topical steroid therapy in cases of refractory erosive oral lichen planus.

#42: UNILATERAL NASAL OBSTRUCTION IN AN ADULT. A CASE REPORT

*Madhulaxmi Marimuthu, P U Abdul Wahab, P Senthil nathan, M R Muthusekhar, Nabeel Nazar, Keerthi Asranna, Saveetha Dental College

Background: Odontogenic keratocyst in the antrum is a rare entity and can be a cause of unilateral nasal obstruction. It is a developmental odontogenic cysts and is thought to originate from the dental lamina. It is well recognized by its aggressive behavior, rapid growth and high tendency to invade the adjacent tissues including bone.

Case Summary: A 23year old female presented with a 6months history of left nose block and headache. The headache increased when she bent her head forward. Physical and oral examination were normal except for missing 28 and tenderness over her left antrum. No nasal masses or polyps were found. Nasal endoscopy specified left choanal obstruction. Absence of ventilation was noted in the left nasal airway. Orthopantamogram revealed the impacted 3rdmolar in the left antrum with an opaque mass obliterating the sinus completely. Aspiration yielded a white-coloured fluid that was consistent with the diagnosis of a cystic lesion and the histological evaluation confirmed diagnosis of odontogenic keratocyst. No signs of gorlin syndrome was evident. A CT view

disclosed an opaque lesion completely filling the left antrum extending into the ethmoidal aircells, orbital floor and reaching base of the skull. On exposing the anterior wall of the maxillary sinus, bone perforation was seen and through caldwell-luc approach the cyst was enucleated along with the tooth. The patient has been followed up for 2years and shows no recurrence.

Conclusion: OKC has diagnostic difficulties due to lack of specific clinical and radiographic characteristics. A large OKC in the antrum can cause unilateral nose block. A diagnosis of OKC in the maxillary sinus should be considered in cases of unilateral nose blockage. Clinician should be aware of its rare occurence in the maxillary sinus without any intraoral signs and symptoms.

#43: PART TIME RESTORATIVE FACULTY EMBRACE BLOOD PRESSURE/BLOOD SUGAR ASSESSMENTS AS A RESULT OF THEIR DENTAL STUDENT INTERACTIONS

*David Lewis, Michael Hatton, School of Dental Medicine at Buffalo, USA

Objectives: We hypothesize that part time dental school restorative faculty are strongly influenced by their students to incorporate our dental school's patient assessment policies into their private offices. Specifically, this study looks at whether dental students, who are mandated to assess their patient's blood pressure and blood sugar, have influenced part time restorative faculty to adopt these patient assessment policies into their private practices.

Methods: All part-time restorative faculty (n=62) who taught within the past five years at The school of Dental Medicine at Buffalo, NY (UBSDM), and have also maintained private practices, were sent an anonymous 38 data point survey via Survey Monkey™. Respondents were queried as to whether their teaching interactions have influenced them to adopt blood pressure (BP) and blood sugar (BS) assessments into their private practices. Benefits and barriers to adoption of BP/BS assessment policies were also queried. Data was evaluated using ANOVA analysis, and descriptive statistics.

Results: Response rate was 51.6%. While 67% of respondents perceived BP assessment as important, only 25% had a BP assessment device in their office. For those who did assess BP, 80% felt that it is a beneficial factor in patient risk management. Less than 10% of respondents assessed blood sugar on their diabetic patients, though 30% report having a glucometer in their practice. Perceived barriers to BP/BS assessments included "lack of time", and that these assessments are not part of traditional dental practice. Our study found that 33% of respondents have incorporated either BP or BS assessments into their private practices as a direct result of their student interactions.

Conclusions: A significant number (33%) of part time restorative dental faculty at one US dental school have incorporated systemic health assessments into their private practices because of student interactions. This represents a significant paradigm shift in traditional dental practice.

#44: TO COMPARE THE LEVEL OF TOTAL HUMAN SURVIVIN SALIVARY BIOMARKER IN TOBACCO CHEWERS WITHOUT ANY LESION, PRELEUKOPLAKIA, ORAL SUBMUCOUS FIBROSIS AND ORAL CANCER- A COMPARATIVE STUDY

*Arvind Vishwanath Shetti, Ruchika Garg
KLE VISHWANATH KATTI INSTITUTE OF DENTAL SCIENCES, kle university, India

Objectives: To assess and compare the level of Total Human Survivin in Tobacco chewers without any lesion , Preleukoplakia and Oral Submucous Fibrosis and assess the rate of malignant transformation in Preleukoplakia lesions and Oral Submucous Fibrosis.

Methods: The study will include 96 subjects divided into 4 groups with 24 patients in each group Tobacco chewers without any lesion, Preleukoplakia, Oral Submucous Fibrosis and Oral Cancer. Protocol was followed for saliva collection which was given to Basic research lab for its analysis by Human Total Survivin DuoSet IC Enzyme Assay Kit. One way annova test will be applied followed by Post hoc.

Results: The average of levels of survivin in control group was 0.199 pg/ml , in tobacco chewers without any lesion group 0.240 pg/ml, Preleukoplakia Group 0.278 pg/ml, in Oral Submucous fibrosis Group 0.418 pg/ml and in Oral Cancer Group 0.430 pg/ml. A comparison of all these groups revealed statistically significant difference among the groups.

Conclusions: Survivin may not be considered as an independent predictor of the malignant transformation for premalignant lesions but it can be an indicator for an increased risk of malignant transformation. Key words : Survivin , Tobacco chewers , Preleukoplakia , Oral submucous fibrosis, Oral cancer.

#45: SENSITIVITY AND SPECIFICITY OF IMMUNOLOGICAL TESTING FOR ORAL LICHEN PLANUS

Chalatip Chompunud Na Ayudhya, *Sahar Mirfarsi, Eric T. Stoopler, Thomas P. Sollecito, University of Pennsylvania School of Dental Medicine, USA

Background: Oral lichen planus (OLP) is an immune-mediated chronic inflammatory oral mucosal disease of unknown etiology. The clinical presentation of OLP may be similar to other chronic oral mucosal conditions, such as pemphigus vulgaris, mucous membrane pemphigoid, and oral lupus lesions. Routine histopathology and immunological studies, including direct immunofluorescence (DIF), indirect immunofluorescence (IIF) and enzyme-linked immunosorbent assay (ELISA) aid in differentiating OLP from other oral mucosal diseases.

Case Summary: A 71-year-old female presented with a 4-month history of severe painful oral mucosal ulceration. Oral examination revealed generalized areas of erosion and ulceration with white striae including the buccal mucosa, tongue, and lips. Biopsy of the right buccal mucosa was consistent with erosive OLP. The patient used dexamethasone oral rinse twice daily and clotrimazole troches three times daily with limited improvement. Immunological studies demonstrated increased IgG desmoglein 3 antibody level with a normal desmoglein 1 antibody level by ELISA, positive IgG4 basement membrane zone but undetectable cell surface staining by IIF, and DIF showed a negative result. The ELISA testing was repeated with similar results in each assay. Paraneoplastic pemphigus antibody testing was also performed to rule out paraneoplastic syndrome and reported negative.

Conclusions: Inconsistent immunological findings in erosive OLP should be carefully assessed. The paraneoplastic syndrome study should be considered in patients with refractory lesions. Among immunological studies, DIF is the most sensitive method, while ELISA has a higher sensitivity than IIF, but less specificity. Clinical correlation is necessary with monitoring profiles overtime.

#46: PALATAL HYPERPIGMENTATION ASSOCIATED WITH IMATINIB MESYLATE THERAPY: A REPORT OF TWO CASES

Adrian Shi, QiQi Lee, Juen Bin Lai, *Chelsia Sim, National Dental Center, Singapore

Background: Imatinib mesylate (Glivec®, Gleevec®, STI-571) is a tyrosine kinase inhibitor which is currently used as the first-line medication for a number of malignant and hematological conditions. One major indication of its use is for chronic myeloid leukemia to increase survival rates of these patients [1]. A number of minor side effects are commonly reported including dermatological hypopigmentation. Comparatively, reports of mucosal hyperpigmentation are rare [2].

Case Summary: Herein, we report 2 rare cases of hyperpigmentation of the palatal mucosa associated with imatinib mesylate therapy to treat chronic myeloid leukemia. A diffuse, homogenous, bluish-grey lesion, involving the entire hard palate was observed in both patients. Incisional biopsies were performed and histological features of benign hyperpigmentation were described.

Conclusions: c-Kit signaling may have a role to play in hyperpigmentation of the oral mucosa. It is important for clinicians to recognize hyperpigmentation of the palatal mucosa associated with imatinib mesylate therapy and distinct them from melanoma. They need to consider it in their differential diagnoses of oral melanosis.

Clinicians should be cognizant that hyperpigmentation of the palatal mucosa is a rare side effect of imatinib mesylate therapy.

#47: PERSISTENT AND REFRACTORY LIP SWELLING

Katherine France, *Sahar Mirfarsi, Thomas Sollecito, University of Pennsylvania, USA

Background: Cheilitis granulomatosa is a condition exhibiting persistent idiopathic lip swelling. This may be attributed to causes ranging from allergy, foreign body reaction, or sarcoidosis to Crohn's disease or other causes of non-caseating granulomatous inflammation.

Case Summary: A 39-year-old white female presented to the Penn Oral Medicine clinic for follow up of lip swelling. The patient has been managed for this complaint since 2009 based on a histopathologic diagnosis of cheilitis granulomatosa. Past medical history includes lumbago and carpel tunnel syndrome with no relevant surgical, family, or social history. She is allergic to sulfa antibiotics and is currently taking birth control medication. The patient had been managed with Plaquenil 200mg daily. A second lip biopsy in 2010 showed chronic mucositis. However, gingival lesions noted in 2014 inspired a mucosal biopsy that was consistent with acute and chronic mucositis with submucosal fibrinoid deposits consistent with fibrinogen via direct immunofluorescence. Due to this finding, the patient is undergoing evaluation for coagulation disorders, specifically, hypoplasminogenemia. More recently, the patient reported an increased upper lip swelling. She also noted throat and submandibular swelling but denied axillary or inguinal swelling. On clinical examination, she had mild edema of both lips with tender swelling on the left submandibular region. She was also found to have clear vesicles on her gingiva and an ulcer of the left lateral tongue. Based on these findings, an MRI was ordered which showed a pathologically enlarged 2cm left level 1B lymph node. At re-evaluation, a new biopsy was performed due to increase in lip swelling which showed chronic mucositis.

Conclusion: This case exemplifies the importance of frequent evaluation. Possible diagnoses including coagulopathy, cheilitis granulomatosa, or contact allergy stomatitis. A thorough work up including multiple medical and dental specialties allows for the best evaluation and management of this case.

#48: ANTIMICROBIAL PHOTODYNAMIC THERAPY ON MANAGEMENT OF MEDICATION-RELATED OSTEONECROSIS OF THE JAW IN A DUCHENNE DYSTROPHY

*Fabiana Martins, Luana Campos, Fabiana Mesquita, Marília Figueiredo, Karem Ortega, School of Dentistry, University of Santo Amaro, Brazil

Background: Patients with Duchenne muscular dystrophy (DMD), present a higher risk to develop osteopenia and osteoporosis due the prolonged use of corticosteroids, bisphosphonates (BP) are then administered since childhood. Medication-related osteonecrosis of the jaw (MRONJ) is a severe adverse event, associated with the use of BP. Currently there are no standardized therapy for MRONJ, the treatment is limited to the administration of local and/or systemic antibiotic or extensive surgical intervention. Antimicrobial photodynamic therapy (aPDT) is the association of low-level laser therapy with photosensitizers, killing bacteria.

Case Summary: A 26-year-old male patient, diagnosed with DMD was referred to our clinic reporting severe pain in the jaw, not solved with the use of analgesics. Medical records revealed the use of alendronate 70 mg (1 tablet per week) for 16 years. During intraoral examination, poor oral hygiene, with biofilm accumulation and gingivitis, mostly in inferior incisors and molars, with bone exposure located bilaterally, at the lingual aspect of the inferior molars region. A panoramic radiography showed bilateral radiolucent lesions with irregular aspect and ill-defined margins, located in the posterior portion of the jaw. The diagnostic hypothesis was alendronate associated – MRONJ. Initially, systemic antibiotics were prescribed during 30 days, but the patient presented a life-threating abscess and was hospitalized. After this period, the pain was reduced, but MRONJ lesions persisted. Cephalexin was extended additional for 30 days and aPDT sessions were performed once a week. Methylene blue solution photosensitizer was applied topically over the lesions, associated with low-level laser irradiation. Patient was also instructed to use chlorhexidine rinses at home. Antibiotics were removed, and this protocol was maintained after one year of treatment. Clinically bone exposure and pain were absent.

Conclusions: We conclude that aPDT is a good adjunt treatment for a non-invasive approach in MRONJ lesions.

#49: MYELOID SARCOMA OF THE GINGIVA AS THE FIRST EXTRAMEDULLARY MANIFESTATION OF RELAPSED ACUTE MYELOID LEUKEMIA

*Dalal Alomar, Anwar Almuzaini, Takako I. Tanaka, University of Pennsylvania, USA

Background: Myeloid sarcoma, previously known as chloroma, is a rare tumor of immature myeloid cells occurring outside of the bone marrow. It can develop de novo or concurrently with acute myeloid leukemia (AML), myeloproliferative disorder, or myelodysplastic syndrome. Diagnosis of myeloid sarcoma is particularly challenging in the absence of bone marrow involvement. Its clinical features vary and optimal treatment remains unclear.

Case summary: A 71-year-old female patient presented to the oral medicine clinic for evaluation of localized gingival swelling of 3 weeks duration, resulting in ill fitting of her night guard. Her medical history was significant for acute myeloid leukemia, for which she received an allogeneic stem cell transplant and apparently achieved complete remission. Other past medical history included extensive deep vein thrombosis and squamous cell carcinomas on her lower legs. Our clinical examination revealed a non-tender pink mass with multiple papillary surfaces on the upper left posterior region. The mass felt firm, and extended from buccal to palatal gingiva and from the

first molar to the tuberosity, almost covering up all the coronal parts of the molar teeth. The patient denied having any pain, facial numbness, fever, night sweats, or weight loss. Cone-beam computed tomography showed no bone involvement. Immunohistochemical studies revealed diffuse reactivity with CD45 and lysozyme, with occasional myeloperoxidase-positive cells, which confirmed AML. The patient was referred to oncology, andradiation to the oral lesion was immediately initiated. After 10 fractions (total 2000 cGy) of radiation therapy, the lesion completely resolved. Currently she has no evidence of AML relapse during a 6 month-follow up.

Conclusion: Diagnosis of isolated myeloid sarcoma can be difficult both clinically and histologically. Health care professionals should be aware of the oral manifestations of this condition as early detection and proper management of relapsed AML can greatly affect the prognosis.

#50: RECURRENT OSTEOCHONDROMA OF THE MANDIBULAR CONDYLE: REPORT OF A CASE

Young-Eun Kwon, Chang-Hyeon An, Karp-Shik Choi, *Jin-Seok Byun, Yun-Jeong Choi, Jong-Sik Lee, Sang-Wook Kim, Seo-Young An, School of Dentistry, Kyungpook National University, Republic of Korea

Background: Osteochondroma(OC) is defined as cartilage-capped bony exostosis on the external surface of the bone. Mandibular coronoid process and condyle are the most common sites of the craniofacial OC. OC of the mandibular condyle is often removed in association with functional and aesthetic problems and hardly recurs after treatment.

Case summary: A recurrent case of OC occurred in the right mandibular condyle in a 21-year-old female who presented facial asymmetry. Crepitus and clicking were noted on the left and the right temporomandibular joint, respectively, during function and pain was absent. Active range of motion was normal as 40 mm, however midline was deviated 5.5 mm to the left side and secondary malocclusion was observed during physical examination. A panoramic and cone-beam computed tomographic images showed an irregular and exophytic bony mass on the anterior-medial surface of the right condylar head and three phase bone scan revealed increased tracer uptake on the affected side. The mass was removed by simple surgical excision and condylar reshaping. OC recurred similar to the original pattern after three years. More radical treatment was planned for the recurrent lesion and condylectomy was done without reconstruction. Diagnosis of OC was confirmed histopathologically in both primary and relapsed cases. Only three cases of recurrent condylar OC of the mandible were reported including the present case, to the best of our knowledge. All recurred cases were related with facial asymmetry as main symptom and treated with simple resection initially.

Conclusions: The treatment of condylar OC of mandible needs to be planned in consideration of recurrence and long term observation is recommended in case of OC which underwent conservative treatment.

#51: A SURVEY OF DENTIST AND PATIENT UNDERSTANDING OF ORAL CARE IN PATIENTS WITH CANCER

Zachary Dubin, Varun Iyer, Dahlia Levine, *Diana Tran, Katharine Ciarrocca, The Dental College of Georgia, USA

Objectives: COPE with Cancer is a student-conceived, grant-funded initiative aimed at increasing patient and dentist awareness of oral care in patients with cancer. Our aim was to gauge dentists'

and patients' understanding of the oral implications of cancer treatment. We hypothesized that participating in these educational sessions would significantly impact the opinions of dentists and patients and improve clinical outcomes. An increased appreciation for the importance of oral health in comprehensive treatment planning for cancer patients was demonstrated by collecting pre- and post-surveys prior to and upon the completion of educational courses.

Methods: We administered identical pre- and post-surveys at educational sessions conducted separately for dentists and patients. The dentists attended a continuing education (CE) course titled: "Oral Care of the Cancer Patient." Clinicians were provided evidence-based resources and completed a pre-survey prior to the course and a post-survey collected after the CE course. Information sessions for patients were conducted at several cancer support groups; pre-surveys were completed prior to the session and the post-surveys after the session.

Results: Of the dentists surveyed, n=125 were included in the data analysis. To date less than 20 patient surveys have been collected; additional patient sessions are planned with an expected n=100 patients. In the dentist cohort, significant changes in the understanding of xerostomia, oral microbiome, caries, mucositis, and the role of the oral health professional in the care of the patient were evident.

Conclusion: Our findings indicate that educational sessions on the oral complications of cancer therapy influences the opinions of dentists and care of patients. Specifically, our survey data revealed that the participants prioritized oral health in comprehensive cancer therapy and desired to pursue further education on this topic, underscoring the importance of oral medicine specialists' role in educating community clinicians and serving as expert consultants.

#52: SECONDARY BURNING MOUTH SYNDROME INDUCED BY VITAMIN B12 DEFICIENCY AFTER GASTRECTOMY; A CASE REPORT

*Jin-Seok Byun, Yun-Jeong Choi, Seo-Young An, Young-Eun Kwon, Jae-Kwang Jung, Jae-Kap Choi, School of Dentistry, Kyungpook National University, Korea, Republic of (South Korea)

Background: Burning mouth syndrom (BMS) is one of the most common oral mucosal disease in elderly people. Secondary BMS could be induced by local irritation, psychological unstability, and systemic abnormalities. In the present case, we reported secondary BMS induced by systemic malabsorption after gastrectomy.

Case Summary: 70-years old female who complained about glossodynia was visited Department of Oral Medicie, Kyungpook National University Dental Hospital. She was in difficulties in intake of food 2 months ago and visula analoge scale of pain intensity was 60 (0-100 scale). She wore complete dentures in whole dentition and showed atrophy of tonge and angular cheilitis. There was no significant radiologic abnormalities in Panoramic view. She recieved gastrectomy 7 years ago due to gastric cancer and anti-cancer therapies 5 tears ago due to pulmonary cancer. She had no psychologic instability in SCL-90R. Laboratory blood test was performed. Localized antifungal agent with instruction of denture hygiene was introduced under the tentative diagnosis of oral candidiasis. Burning symptoms was improved , however, atrophic tongue was still existed. Laboratory results showed decreased RBC count, Hemoglobin, Hematocrit, Iron, Vit-B12. Under the diagnosis of secondary BMS due to systemic abnormalities, she was reffered to the department of hemato-oncology. Final diagnosis was magaloblastic anemia due to vitamin B12 deficiency. Intravenous vitamin B12 and intraoral folate supply was performed. Her discomford on tongue and lips were totally resolved after 5 months.

Conclusions: Careful medical history taking and associated laboratory blood test should be considered in patients with BMS. Simultaneous Vitamin B12 and Iron deficiency after gastrectomy could be an initiating factor in inducing BMS.

#53: RELIABILITY AND CLINICALLY IMPORTANT DIFFERENCE OF THE PENN FACIAL PAIN SCALE IN ACUTE DENTAL PAIN

*Turki Musaad Alnakhli, Andres Pinto, Samir Zahedpasha, Yuanming Xu, Bridget Patrick, Joan Farrer, Nathan Morris, Case Western Reserve University, School Of Dental Medicine, USA

Objectives: This observational study evaluated the reliability of the Penn Facial Pain Scale (PFPS) in an acute dental pain model. Study objectives included evaluation of the test - retest reliability of the PFPS, sensitivity to change, clinically important difference, and exploration of additional interference items added to the PFPS.

Methods: Subjects were recruited from the emergency clinical service at Case Western Reserve, School of Dental Medicine. Follow-up was done by telephone at 10 days and 20 days after initial appointment. A sample size of 80 subjects was estimated for an intra-class correlation coefficient of 0.6, with three measures. Data was analyzed with descriptive statistics when appropriate, ICC methods, and ROC using curve kernel smoothing for the exploratory analysis of minimal important difference (MID) and the minimal clinically important difference (MCID).

Results: Test-retest correlation across items in the PFPS was weak. The MID was a 31unit reduction (0-100-unit scale) and the MCID was a 35-unit reduction in pain. In regards to change in intensity proportion, the MID was a decrease of 58%. Items added to the PFPS for exploratory analysis had significant ICC.

Conclusion: The PFPS, developed in an acute trigeminal pain model, may not be appropriate for measurement of dental pain. Further validation will be required to refine this scale for patient-reported outcomes in dental medicine.

#54: THE TOOTHACHE CAUSED BY MIGRAINE

*Kosuke Watanabe, Noboru Noma, Yoshiki Imamura, Nihon University of Dentistry, Japan

Background: Migraine is a common disabling primary headache disorder. Migraine headache originates within intracranial structures and may be then referred to the face, jaws, and teeth. We reported the case series of four patients with migraine headache presenting as tooth pain.

Case summary: Case 1: A 60-year-old female presented with throbbing pain in the right mandibular molars. Dental pain appeared always in the right mandible just after ipsilateral throbbing headache developed. It was accompanied by photophobia, but neither phonophobia nor nausea. Case 2: A 29-year female patient presented with throbbing pain in the left maxillary molars,which radiated to the temporal region. She has felt left side headache concomitant with the left maxillary molars toothache. She had received root canal treatment several times before, but the pain did not disappear. Case 3: A 49-year female presented with sharp pain in the left maxillary molars and headache on the ipsilateral side. The toothache and the headache developed at the same time. Toothache and headache were accompanied by photophobia, phonophobia, and nausea. Case 4: A 49-year female presented with throbbing pain in the right maxillary molars, accompanied by headache. She has complained throbbing dental pain with the headache while feeling fatigue, drinking alcohol of having her menstrual period. All cases were reffered to the headache specialist, and then diagnosed with migraine, which mimicked pulpitis. In all cases, the migraine medication

reduced both toothache and migraine headache. Patients in cases 2-4 subsequently underwent root canal treatment and resulted in inappropriate and irreversible treatment.

Conclusions: It is necessary for dentists to be familiar with non-odontogenic toothaches such as neurovascular headaches.

#55: DIRECT ORAL ANTICOAGULANTS (DOACS) AND POSTOPERATIVE BLEEDING COMPLICATIONS AFTER INVASIVE DENTAL PROCEDURES

*Seena Patel, Christopher Holladay, DJ Lemieux, A.T. Still Univeristy Arizona School of Dentistry and Oral Health, USA

Objectives: The purpose of this study was to evaluate the presence of perioperative and postoperative bleeding outcomes among patients taking DOACs after invasive dental procedures. Use of DOACs poses a bleeding risk following invasive dental procedures. General guidelines, based mostly on expert opinion and studies involving the more commonly prescribed anticoagulant, warfarin, state that hemostasis can usually be achieved with local measures without discontinuation of the medication. Hence, the hypothesis of this study is that patients undergoing minor oral surgical procedures without discontinuing their prescribed DOAC will not experience adverse bleeding outcomes.

Methods: A retrospective chart review was completed to identify patients taking DOACs treated in an academic dental clinic over a 5-year period. DOACs included rivaroxaban, apixaban, edoxaban, and dabigatran. Use of DOACs was not discontinued prior to receiving invasive dental treatment, which included periodontal procedures and dental extractions. Records were reviewed for documentation of peri- and postoperative bleeding outcomes experienced the day of the procedure and 24 hours postoperatively. Adverse perioperative bleeding was defined as prolonged bleeding past 10 minutes after local hemostatic measures were applied. Adverse postoperative bleeding was defined as any bleeding episode occurring 24 hours after the procedure. Emergency room visits and patients' self-reported bleeding episodes was recorded.

Results: Among 807 records reviewed, only 13 patients (0.02%) reported taking DOACs. No significant perioperative or postoperative bleeding complications were documented for the 13 patients. Patients undergoing a periodontal procedure and/or a dental extraction experienced normal hemostasis immediately after the procedure and at 24 hours post-operatively.

Conclusions: In this population, there was no increased risk for adverse bleeding outcomes following invasive dental procedures among patients taking DOACs. Use of DOACs was limited, which may be attributed to this academic dental clinic setting.

#56: THE EFFECT OF EPINEPHRINE-CONTAINING LOCAL ANESTHESIA ON BLOOD GLUCOSE LEVELS IN DENTAL PATIENTS WITH DIABETES MELLITUS

*Denise van Diermen, Marloes Swart, Laura Kleinjan, Frederik Rozema
Academic Center for Dentistry Amsterdam (ACTA), Netherlands

Objectives: The aim of the study was to investigate the effect of epinephrine-containing local anesthesia on the levels of blood glucose in dental patients with diabetes. Our hypothesis was that the epinephrine in the local anesthetic would not increase blood glucose levels in diabetes patients.

Methods: Thirty consecutive patients with diabetes (3 with DMI and 27 with DMII), participated. The study group (n= 8) needed dental treatment with local anesthesia (articaine with 1:100000 epinephrine) and the control group (n=22) did not need local anesthesia. Blood glucose was

measured with finger prick just before, 5, 30 and 60 minutes after starting dental treatment. Mental stress was measured using a Mental Stress Test (MST).Results were evaluated by one-way ANOVA and ANOVA repeated measures test.

Results: The mean blood glucose levels (MBGL) at baseline in the study group was 9.6 mmol/L (range 7.7-11.8 mmol/L) compared with 8.5 mmol/L in the control group (range 5.2-11.8). In the study group, 5 minutes after the local anesthetic, the MBGL increased slightly to 9.8 mmol/L (range 6.8-12.7 mmol/L). After 30 minutes the MBGL decreased to 9.6 mmol/L in the study group (range 4.5-11.0 mmol/L) and 7.9 mmol/L in the control group (range 5.6-13.2 mmol/L; p=0.137). The MBGL at 60 minutes was 9.1 mmol/L (range 5.2-10.8 mmol/L) in the study group and 7.9 mmol/L (range 4.2-10.8 mmol/L; p=0.690) in the controls. MST results revealed no correlation between the rise in blood glucose and the patients' perceived stress.

Conclusions: In this small group of patients with diabetes, no difference was found between the MBGL in patients who received local anesthesia with epinephrine and those without local anesthesia during dental treatment. This study suggests that local anesthesia with epinephrine can be safely used during dental treatment in diabetes patients.

#57: A RECURRANCE OF GLANDULAR ODONTOGENIC CYST: IMPORTANCE OF CORRECT DIAGNOSIS

*Marina A Siddiqi, Junu Ojha, University of Detroit Mercy, School of Dentistry, USA

Background: The Glandular Odontogenic Cyst (GOC) is a rare (111 documented cases in English literature), developmental odontogenic cyst with a high rate of recurrence. The GOC presents predominantly in the mandible (>80%), is locally aggressive and has the highest incidence in the 5^{th} to 7^{th} decades. Radiographically it presents as a well-defined unilocular or multilocular radiolucency.

Summary: We present an unusual presentation of an initially misdiagnosed GOC, recurring in the right anterior maxilla. A 29-year-old Caucasian male presented with complaint of recurrence of a cyst in the region of his missing right maxillary canine which he believes is impacted. The patient reported a history of cyst removal 7 years ago by an oral surgeon. Biopsy provided a diagnosis consistent with dentigerous cyst associated with an impacted canine that was removed with the cyst. Clinical exam reveals a 1cm round, non-tender, elevated lesion on buccal aspect of missing canine. Periapical radiographs reveal endodontically treated right lateral incisor and enlarged pulp chambers of all maxillary anterior teeth, all of which test non-vital. On radiographs lesion appears as a well-defined 1.5 by 1.5cm corticated unilocular radiolucency centered extending from apex of right lateral incisor to second premolar. CBCT was ordered to determine extent and involvement of lesion which confirmed previous findings with antero-posterior extent of lesion from mesial of first premolar to right central incisor up to and including the nasopalatine canal, and thinning of palatal and buccal cortical plates. Biopsy was recommended and cyst excised; diagnosis of GOC with positive mucicarmine cells in the epithelial lining has been obtained with a recommendation for further surgery due to propensity of recurrence of GOC.

Conclusions: The case highlights the difficulty in diagnosing lesions that resemble other more common lesions, and the importance of correct early diagnosis to avoid extensive surgical measures in aggressive lesions.

#58: ROLE OF PERIAPICAL DISEASE IN BISPHOSPHONATES-RELATED OSTEONECROSIS OF THE JAW

Nian-jing Rao, *Li-wu Zheng, The University of Hong Kong, Hong Kong S.A.R. (China)

Objectives: To investigated the role of periapical disease in inducing BRONJ using an ovariectomized animal model.

Methods: Forty animals were subjected to bilateral ovariectomy. Vehicle (sterile saline) or zoledronic acid (ZA) was administered via intraperitoneal injections for 8 weeks. Then all animals received a pulpal exposure on the first right lower molar. After another four weeks of vehicle or ZA administration, all animals were sacrificed for micro-CT and histological assessments.

Results: Micro-CT analysis showed that bone mineral density (BMD) was significantly lower in the drilled teeth than non-drilled teeth when administered with vehicle ($P < 0.005$), but no differences between drilled and non-drilled teeth when animals received ZA ($P = 0.538$). ZA groups had a significant increased BMD compared to the control vehicle groups with or without pulpal exposure ($P < 0.005$). There was no significant interaction between the effects of ZA administration and pulpal exposure on alveolar bone microarchitecture. Pulpal exposure did not cause any significant change to the bone microstructure, while ZA treatment showed significantly increase BV/TV, Tb.Th and decrease in Tb.N. The width of periodontal ligament (PDL) space were significantly smaller in ZA groups than in vehicle groups when the teeth were drilled ($P<.0005$), but no differences between ZA and non-ZA groups without pulpal exposure ($P=.868$). Pulpal exposure significantly increased the width of PDL in both ZA and Vehicle groups ($P<.05$). Histological assessment showed combined ZA and pulpal exposure resulted in an increased number of non-viable osteocytes.

Conclusions: Peiapical disease causes remarkable increased alveolar bone resorption and reduced bone density, while ZA administration inhibits periodontal bone resorption and increase the reduced BMD caused by periapical disease. ZA administration and periapical disease exacerbate subclinical osteonecrosis.

#59: A RARE CASE OF PROLIFERATIVE VERRUCOUS LEUKOPLAKIA IN A MALE MULTIPLE MYELOMA PATIENT

*Debra Krimsky Fischoff, Sonal S Shah, Sharanya Chola, New York University College of Dentistry, USA

Background: Proliferative Verrucous Leukoplakia (PVL) is an oral condition that presents with multiple leukoplakias and has a significant malignant potential, and a high recurrence rate. Verrucous and dysplastic changes are often part of the histopathology. PVL occurs more often in women and there is no correlation with tobacco use. We present an unusual case of PVL in a male patient that may have been associated with bisphosphonate treatment for his multiple myeloma.

Case Summary: A 76-year-old African American male was referred to the oral medicine clinic at NYUCD for evaluation of multiple leukoplakias of his gingiva, buccal mucosa and tongue. His only significant medical history was stage 1 Multiple Myeloma, diagnosed in 2008. He was treated with Zometa (bisphosphonate) every week from 2009-2012. Currently, he is not taking any medications and has no history of smoking. On intra-oral examination, he had multiple (7 sites), asymptomatic, rough-surfaced, heterogeneous leukoplakias. Three biopsies of the most suspicious lesions were performed: two at the initial visit (buccal gingiva by tooth#10, left retromolar pad) and one biopsy on three-month follow-up (gingiva posterior to tooth #32). The biopsy results were all verrucous hyperplasia and hyperkeratosis with dysplasia ranging from mild to focally severe. The patient is currently on monthly follow-ups and other biopsies will be performed as needed.

Conclusion: While this patient does not fit the sex and race demographics of the typical PVL patient, he is a nonsmoker that presents with multiple corrugated oral leukoplakias with a histopathology of verrucous hyperplasia and hyperkeratosis with varying degrees of epithelial dysplasia. Treatment and management in these patients is challenging and requires regular surveillance. This case is especially significant as it brings into question if the patient's history of multiple myeloma and subsequent treatment with Zometa played a part in the etiology of the multiple dysplastic lesions.

#60: PAINFUL TONGUE ULCERATIONS AS A LATE-ONSET ADVERSE-EFFECT OF HYDROXYUREA

Nita Chainani-Wu, *Mimansa Cholera, Oral Medicine Clinic, USA

Background: Hydroxyurea is an anti-metabolite used in the treatment of myeloproliferative disorders. Oral adverse effects caused by hydroxyurea have been described, which may occur independent of dose and duration of therapy.

Case Summary: A 60 year-old female with a complaint of "mouth pain" was referred to our oral medicine clinic. Onset was 2.5 months previously and started with a "sore" on her left tongue treated with amoxicillin and topical corticosteroids, which took several weeks to heal. About 3 to 4 weeks previously, a second, excruciatingly painful ulcer developed on her right lateral tongue and had persisted since then without any improvement. Her nurse practitioner had diagnosed these as aphthous ulcers, and prescribed fluconazole, viscous xylocaine and analgesics. The patient reported a history of arthritis, glaucoma and myeloproliferative disorder (JAK2 mutation positive). Current medications were hydroxyurea 1500 mg daily (started 3 years previously), omeprazole (3 years), atorvastatin (6 months), and aspirin (3 years). Supplements included Vitamin D and fish oil.

Oral examination revealed a 1.5 cm diameter right tongue ulceration, soft and extremely tender on palpation with a slightly raised inferior margin and minimal surrounding erythema.

Differential diagnosis included hydroxyurea-induced ulceration, therefore a recommendation was made to her prescribing physician to discontinue hydroxyurea, which he agreed with. Following this, rapid reduction in pain was experienced by the patient. On examination 5 days later, she reported a 50% reduction in discomfort. The ulceration had not reduced in size and an intralesional steroid injection (1 cc of betamethasone 6 mg/ml) injection was done. Complete resolution of pain was reported at 12 day follow-up, and complete healing of the ulceration was observed on examination at 4 weeks.

Conclusions: Hydroxyurea can cause oral ulcerations, which may be disproportionately painful for their size. Rapid resolution of pain was observed in our patient after discontinuation of hydroxyurea.

#61: EFFICACY OF TOPICAL STEROID THERAPY COMBINED WITH ANTIFUNGAL ORAL RINSE AGAINST ORAL LICHEN PLANUS

Kenji Kawano, Ayaka Abe, *Rie Teshima, Oita University, Japan

Objective: Topical steroid is the mainstay of the treatment for oral lichen planus (OLP). However, long-term application of steroid to oral lesions is problematic because of occurrence of oral candidiasis. The purpose of this study was to retrospectively evaluate the efficacy of topical steroid therapy combined with antifungal oral rinse for the control of oral lesions in OLP patients.

Methods: OLP patients with marked oral symptoms underwent the combination therapy of topical steroid and antifungal oral rinse. First, secondary infection of candida was checked by direct microscopic examination. If pseudohyphae were detected, oral rinse with amphotericin B syrup suspension was performed for 2 weeks ahead to steroid therapy. If not, steroid therapy and antifungal oral rinse started simultaneously. Following antifingal oral rinse, 50 microgram of beclomethasone propionate powder (Salcoat®) was applied to oral lesions 1 or 2 times a day. This treatment was continued up to the maximum of 8 weeks. Efficacy of the treatment was assessed by reduction of erosive/erythematous lesions.

Results: All the patients had erosive/erythematous lesions in the buccal mucosa. By preliminary results of 7 patients, 7 out of 9 lesions showed complete remission by disappearance of erosive/erythematous areas, and only white areas remained with remarkable improvement of subjective symptoms of patients. Two erythematous lesions did not disappear completely. Duration of the treatment ranged from 2 to 8 weeks. Among 7 lesions of complete remission, 4 lesions showed no recurrence by the observation for at least 3 months. Systemic adverse effects were not experienced in any patients treated by this therapy. Results of further patients will be presented at the meeting.

Conclusion: The combination therapy by beclomethasone propionate powder and amphotericin B oral rinse is effective for the control of erosive/erythematous lesions in OLP patients. Limit and local side effects of the therapy will be discussed.

#62: PAINFUL TONGUE ULCERATION AS THE PRESENTING SYMPTOM OF ACUTE LEUKEMIA

Nita Chainani-Wu, *Mimansa Cholera, Oral Medicine Clinic, USA

Background: Leukemia can cause oral manifestations, recognition of which is crucial both for timely diagnosis and to ensure avoidance of invasive oral procedures which may lead to significant complications in the setting of undiagnosed blood dyscrasia.

Case summary: A 40 year-old female was referred to our oral medicine clinic with a complaint of “tongue pain”. Onset of symptoms was 10 days previously and included soreness of the right tongue and pain on swallowing, neither of which had improved after a course of acyclovir prescribed by her physician. In addition, she reported loss of taste and loss of appetite. Patient reported no known medical problems other than recent sinus infections in the last 2 months for which she had taken multiple antibiotic courses. She reported recent onset of fatigue which she attributed to a side-effect of the antibiotics. On oral examination, a 3mm x 6 mm whitish ulceration on the right lateral tongue with slightly raised margins, and minimal surrounding erythema was noted. Head and neck exam did not reveal any lymphadenopathy. Differential diagnosis included blood dyscrasia and a complete blood count with differential was ordered. She underwent a blood draw the same day and results were received the next day which revealed significant abnormalities including elevated white blood count (42.1k/uL), low red blood count (2.29 million/uL), low hemoglobin (6.6 g/dl) and an extremely low platelet count (28k/uL). An urgent referral was made to a hemato-oncologist and she was hospitalized the following day (2 days after the initial oral medicine clinic visit) with a diagnosis of acute leukemia. She underwent initial chemotherapy followed by allogenic stem cell transplant which led to a remission.

Conclusion: A high index of suspicion for blood dyscrasias should be maintained when evaluating oral abnormalities, due to the vital importance of timely diagnosis of these conditions.