

delicately and densely collagenous matrix. Scattered throughout were clustered basophilic spherical calcifications associated with condensations of spindle cells, rarely associated with odontogenic rests. A dentigerous cyst was also present. Following this, the residual lesion was curetted and revealed only an inflamed dentigerous cyst. The differential diagnoses for this condition include regional odontodysplasia or unusual hyperplastic dental follicle with dystrophic calcifications.

**Conclusion:** We review the past and current literature on dental follicular hamartoma. To the best of our knowledge, our case report represents only the 9th documented case of dental follicular hamartoma and the first not to be associated with any dental-related dysplasia and other dental abnormalities.

**A 10-YEAR RETROSPECTIVE CASE-CONTROL ANALYSIS OF MEDICATION-RELATED OSTEONECROSIS OF THE JAW AT A MAJOR TERTIARY CARE DENTAL INSTITUTION.** DR. LAUREL HENDERSON, MRS. AMNA IMRAN, MS. PARDIS BARATI MAHVAR, MR. ANDREW SANAPANYA, DR. PARISH P. SEDGHIZADEH. UNIVERSITY OF SOUTHERN CALIFORNIA

The connection between antiresorptive medications, like bisphosphonates and denosumab, and osteonecrosis of the jaw has been well studied in the literature. A 10-year retrospective case-control analysis of the patient population at the University of Southern California, Herman Ostrow School of Dentistry, found a robust population of patients of record with a history of bisphosphonate or denosumab use and a significant subset of those patients had medication-related osteonecrosis of the jaw (MRONJ). This study explores the demographic and clinical factors associated with risk for MRONJ in patients taking antiresorptive medications. Multivariate analysis indicated that patients at greatest risk were over 60 years of age, female sex, Asian race, had cancer as a comorbidity, had a history of tooth extraction, and also patients on long-term antiresorptive pharmacotherapy. The findings of this study should help guide clinicians to identify patients at high risk for MRONJ, and thus patients that would benefit from risk reduction and prevention protocols.

**DIFFERENTIAL EXPRESSION OF PD1 AND PDL1 IN ORAL POTENTIALLY MALIGNANT LESIONS AND ORAL SQUAMOUS CELL CARCINOMA: A PILOT STUDY.** DR. KANAN DAVE, MS. DENISE LOPEZ EYMAEL, DR. MARCO MAGALHAES. FACULTY OF DENTISTRY, UNIVERSITY OF TORONTO

**Background:** Programmed cell death protein 1 (PD-1, CD279) is a 50-55 kDa type I transmembrane receptor expressed by activated T and B cells, as well as subset of monocytes and dendritic cells (DCs). PD-1 and its ligands (PDL1, PDL2) are part of "checkpoint" immune recognition and peripheral tolerance system that emerged as a critical signaling pathway in cancer. PDL1 is expressed in various types of cancers and activation of PD1-PDL1 inhibits T-cell mediated cancer surveillance. Here we describe a quantitative, reproducible 2-color fluorescence-based protocol to determine the differential expression of PD1/PDL1 in oral biopsy specimens.

**Methods:** Histopathological samples with a diagnosis of hyperkeratosis (HK), OMPL (mild, moderate, severe dysplasia) and squamous cell carcinoma (OSCC) were selected from the archives of the Toronto Oral Pathology service, University of

Toronto. FFPE sections were stained with monoclonal antibodies for PD1 and PDL1 (Abcam) and Alexa Fluor-labelled secondary antibodies allowing visualization of both proteins in the same section using a spinning disk confocal microscope (Quorum). PDL1 staining was assessed in basal/spinous layers of the epithelium while PD1 staining was assessed in inflammatory cells in tumor stroma/lamina propria. The mean fluorescent intensity (MFI) was quantified and normalized against background signal.

**Results:** Our results show a significant increase in PD1 expression in inflammatory cells in dysplasia and OSCC compared to hyperkeratosis. PDL1 expression in epithelial cells was significantly increased in OSCC but not in dysplasia or HK. The results suggest that PD1 increase in inflammatory cells precedes malignant transformation while PDL1 overexpression in epithelial cells only occurs after malignant transformation.

**Conclusion:** We developed a new quantitative method to study PD1/PDL1 expression in FFPE oral biopsy samples. The expression of PD1 and PDL1 may be used as predictive markers of transformation and the data may be used to develop early intervention in OPML using PD1 inhibitors.

**ATAXIA-TELANGIECTASIA-MUTATED PROTEIN EXPRESSION AS A PROGNOSTIC MARKER IN ADENOID CYSTIC CARCINOMA OF SALIVARY GLANDS.** MRS. SHADAVLONJID BAZARSAD<sup>A</sup>, PROF. JIN KIM<sup>B</sup>. <sup>A</sup> DENTAL SCHOOL OF MONGOLIAN NATIONAL UNIVERSITY OF MEDICAL SCIENCE, <sup>B</sup> ORAL CANCER RESEARCH INSTITUTE, DEPARTMENT OF ORAL PATHOLOGY, YONSEI UNIVERSITY COLLEGE OF DENTISTRY, SEOUL, KOREA

Adenoid cystic carcinoma (ACC) is one of the high grade malignant tumors in salivary glands, prognostically characterized by multiple recurrences and late distant metastasis. Recently, Myb-NFIB fusion or rearrangements of Myb have been detected as a hallmark of ACC. However, no biological marker estimating the outcome of ACC has been proven yet. Purpose of this study was to investigate whether the protein expression of ATM gene is related to patients' survival in ACC.

**Experimental Design:** This study consists of 48 surgical samples for detecting expression of ATM and its downstream p53. Kaplan-Meier plots were used to evaluate the relationship between the protein expression ratios of ATM, p53 and its ATM-mediated phosphorylation and the overall survival rate of patients with ACC.

**Results:** low expression of ATM in cancer cells correlated with poor survival rate (p=0.037). However, low expression of ATM in stromal fibroblasts was not significantly associated with patient outcome. Moreover, this study evaluated ATM expression stratified by p53 and its ATM-mediated phosphorylation status. ATM loss was associated with a significantly decreased overall survival in patients simultaneously showing overexpression of p53 (p=0.01) and low expression of p53 phospho S15 (p=0.05). These data supported that loss of ATM and its functional status in p53 pathway is an important factor associated with poor outcome of patients in ACC of salivary glands.

**DESTRUCTIVE LESION OF THE ANTERIOR MANDIBLE: A UNIQUE PRESENTATION OF LEPROSY.** DR. ARIEL BLANCHARD, DR. ANDREW KANTER, DR. PAUL FREEDMAN, DR. RENEE REICH. NEW YORK-PRESBYTERIAN QUEENS

Leprosy is a chronic disease caused by infection with *Mycobacterium leprae*. The disease has an incubation period spanning 1-20 years with an average duration of 5 years. According to the CDC, 150-200 people in the US and 250,000 people worldwide become infected with leprosy yearly. From 2006-2015, Southeast Asia reported the highest number of new cases per year. Here we report an unusual case of intraosseous leprosy of the mandible from a 31-year-old Indian-American female. The woman presented to her oral surgeon with a destructive lesion of the anterior mandible and had associated loose teeth. She reported both prior and recent trips to India. Clinical impression at the time of surgery was a central giant cell granuloma or ameloblastoma. Histopathologic examination revealed granulomatous inflammation composed of histiocytes admixed with lymphocytes, plasma cells, and neutrophils. Discrete granulomas composed of epithelioid histiocytes and multinucleated giant cells were noted. Due to the histologic findings, GMS, PAS, and AFB Ziehl-Nielsen stains were ordered and all were reported as negative. AFB Fite stains demonstrated rare positivity. The case was diagnosed as chronic granulomatous inflammatory reaction with focal Fite stain positivity, suggestive of leprosy. While the histology is suggestive of tuberculoid leprosy, correlation with systemic evaluation and lepromin skin test were recommended. The utility of the lepromin test is to better classify the type of leprosy the patient has with positive results indicating either tuberculoid or borderline leprosy and a negative reaction supporting a diagnosis of lepromatous leprosy. Few extragnathic bony cases and intraoral cases have been reported in the English literature since 1965. This case report illustrates both an unusual and interesting case of gnathic leprosy, as well as the need to recognize that with the ease of travel, lesions that are historically seen in countries other than the United States, can be seen here.

#### **ORAL ULCERATIONS AS THE FIRST INDICATION OF FOLATE DEFICIENCY SECONDARY TO METHOTREXATE THERAPY. DR. ARIEL**

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Methotrexate is a commonly used drug for the treatment of psoriasis, arthritis, and many forms of cancer. Methotrexate inhibits cancer cells from multiplying and reduces inflammation in both psoriasis and rheumatoid arthritis. In cancer, methotrexate inhibits cells access to folate causing folate deficiencies in patients taking the drug. While the mechanism of action of methotrexate in psoriasis and rheumatoid arthritis is unknown, use in these conditions can also result in folate deficiency. We report a patient who was admitted to the hospital with painful oral and esophageal ulcers which ultimately was attributed to folate deficiency in the setting of methotrexate use. The patient was a 63-year-old male with RA who presented to the ED with a 3-week history of mouth and throat pain upon swallowing. He was unable to eat and reported a 12-pound weight loss. Intraoral exam revealed areas of erythema with diffuse ulcerations on the upper and lower left labial mucosa, soft palate and anterior maxillary gingiva. A CT scan of the head, neck, and brain, and upper EGD were all within normal limits. The presentation was consistent with vesiculobullous disease and we recommended ruling out a drug induced etiology. Upon evaluation of the patient's laboratory values, we found he had megaloblastic macrocytic anemia (red cell diameter 11.5-14.5), which is consistent with folate deficiency. The patient's folate level was measured at 6ng/ml.

The normal reference range is 7.3-20 ng/ml. 6 is considered quite low. The patient was administered folic acid and methotrexate was discontinued temporarily. The patient's oral lesions resolved, and the patient was discharged. This case illustrates the importance of collaboration between the primary team and the oral healthcare professional as well as the recognition that while methotrexate can cause oral ulcers, in the setting of folate deficiency the severity of oral ulcers may be exacerbated.

#### **INTRAOSEOUS DERMOID CYST OF THE MANDIBLE: A CASE REPORT AND REVIEW OF LITERATURE. DR. ROBERT FELICIANO<sup>A</sup>,**

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Dermoid cysts are uncommon soft tissue lesions considered developmental in origin that may occur in many body sites but predominate in the ovary and scrotal regions. Their etiology is unclear; however, one theory suggests that they may be caused by entrapment of germinal epithelium with potential to differentiate along ectodermal, mesodermal and endodermal lines. Seven percent of dermoid cysts can be found in the head and neck regions. This represents less than 0.01% of all intraoral cysts. Most intraoral dermoid cysts are found as midline masses in the floor of the mouth followed by the submandibular and sublingual region. Dermoid cysts of the jawbones are exceedingly uncommon. To date, only 20 cases have been documented in the English language literature. A small number of extragnathic bony lesions have also been reported. The histologic classification of gnathic dermoid cysts in the current literature is confusing with lesions being described as orthokeratinizing cysts exhibiting sebaceous differentiation, odontogenic keratocysts with sebaceous differentiation, variants of dentigerous cysts and dermoid cysts. Here, we attempt to clarify the literature as well as report an additional case of a gnathic dermoid cyst in a 40-year-old female who presented with a well-defined radiolucency of her left mandible extending from her premolars to the molar region

#### **BENIGN FIBROUS HISTIOCYTOMA OF THE JAWBONES. REPORT OF 2 CASES WITH REVIEW OF THE HISTOLOGIC AND IMMUNOHISTOCHEMICAL FEATURES DISTINGUISHING IT FROM OTHER SPINDLE CELL TUMORS OF THE JAWBONES. DR. ROBERT FELICIANO<sup>A</sup>, DR. RENEE REICH<sup>B</sup>, DR. PAUL FREEDMAN<sup>C</sup>, DR. JASON KYLES<sup>B</sup>. <sup>A</sup> NEW YORK, <sup>B</sup> NEW YORK-PRESBYTERIAN QUEENS, <sup>C</sup> NEW**

Benign fibrous histiocytomas of soft tissue are composed of spindled fibroblasts arranged in a storiform pattern admixed with secondary elements including histiocytes, foam cells, and inflammatory cells. These tumors occur equally in males and females and most often arise in the dermis and subcutaneous tissues. Benign fibrous histiocytomas of bone comprise approximately 1% of all benign bone tumors. When they do occur in bone they most often affect the long bones with the femur and tibia being preferred sites. Other sites include the pelvic bones, particularly the ilium. Benign fibrous histiocytoma of the jawbones is an exceedingly rare tumor. As of 2016 there have been only 13 cases reported of this unusual tumor arising in the jawbones. We report two new cases of this tumor arising in the mandible, describe its histologic features and immunohistochemical characteristics, and review the literature. Both of our cases presented in